CAMBRIDGE

Interactive Textbook included

Humanities & Social Sciences 7

for the Australian Curriculum

Compiling Editor
Malcolm McInerney



CAMBRIDGE FIRST

CAMBRIDGE UNIVERSITY PRESS

Humanities & Social Sciences for the Australian Curriculum 7

Compiling Editor

Malcolm McInerney

Geography

Catherine Acworth | Alan Boddy | Tamara Boyer | David Butler | Rex Cooke | Matthew Davidson
Cheryl Desha | Deirdre Dragovich | Tony Eggleton | Xiumei Guo | Karlson 'Charlie' Hargroves
Grace Larobina | David Lergessner | Dora Marinova | Simon Miller | Peter Newman | Nonja Peters
Ken Purnell | Angela Reeve | Margaret Robertson | Heather Ruckert | Jesmond Sammut
Laura Stocker | Kate Thompson | Fiona Tonizzo | Andrew Walker | Michelle Walker

History

Angela Woollacott | Michael Adcock | Margaret Allen | Helen Butler | Christopher Cunneen
Raymond Evans | Jenny Gregory | Richard Malone | Alison Mackinnon | Judy McPherson
Michael Rathborne | James St. Julian | Luis Siddall | Robert Skinner | Alan Thomas
Nicholas Vlahogiannis

Economics and Business

Julie Cain | Megan Jeffery | Gillian Somers

Civics and Citizenship

Kathleen Thomas

CAMBRIDGE FIRST

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

4843/24, 2nd Floor, Ansari Road, Daryaganj, Delhi – 110002, India

79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107435100

© Malcolm McInerney, Angela Woollacott, Julie Cain, Gillian Somers, Megan Jeffery, Michael Adcock, Alan Boddy, Tamara Boyer, Helen Butler, Rex Cooke, Matthew Davidson, Richard Malone, Simon Miller, Margaret Robertson, Robert Skinner, Kate Thompson, Nicholas Vlahogiannis and Andrew Walker 2014

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2014
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3

Cover designed by Sardine Design
Typeset by Kerry Cooke
Printed in China by C & C Offset Printing Co. Ltd.

A Cataloguing-in-Publication entry is available from the catalogue of the National Library of Australia at www.nla.gov.au

ISBN 978-1-107-43510-0 Paperback

Additional resources for this publication at www.cambridge.edu.au/GO

Reproduction and communication for educational purposes
The Australian *Copyright Act 1968* (the Act) allows a maximum of one chapter or 10% of the pages of this publication, whichever is the greater, to be reproduced and/or communicated by any educational institution for its educational purposes provided that the educational institution (or the body that administers it) has given a remuneration notice to Copyright Agency Limited (CAL) under the Act.

For details of the CAL licence for educational institutions contact:

Copyright Agency Limited
Level 15, 233 Castlereagh Street
Sydney NSW 2000
Telephone: (02) 9394 7600
Facsimile: (02) 9394 7601
Email: info@copyright.com.au

Reproduction and communication for other purposes
Except as permitted under the Act (for example a fair dealing for the purposes of study, research, criticism or review) no part of this publication may be reproduced, stored in a retrieval system, communicated or transmitted in any form or by any means without prior written permission. All inquiries should be made to the publisher at the address above.

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate. Information regarding prices, travel timetables and other factual information given in this work is correct at the time of first printing but Cambridge University Press does not guarantee the accuracy of such information thereafter.

Please be aware that this publication may contain images of Aboriginal and Torres Strait Islander peoples now deceased. Several variations of Aboriginal and Torres Strait Islander terms and spellings may also appear; no disrespect is intended. Please note that the terms 'Indigenous Australians' and 'Aboriginal and Torres Strait Islander peoples' may be used interchangeably in this publication.

ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Contents

Foreword *v*
Acknowledgements *vii*
How to use this textbook *viii*

GEOGRAPHY

UNIT 1 WATER IN THE WORLD

Chapter 1 Water: a renewable environmental resource 3
Chapter 2 Water in nature 18
Chapter 3 Value of water 33
Chapter 4 Managing water 60
Chapter 5 Water hazards 81

UNIT 2 PLACES AND LIVEABILITY

Chapter 6 Settlement 105
Chapter 7 Housing 120
Chapter 8 Demography and living choices 131
Chapter 9 Liveable places 149
Chapter 10 Enhancing liveability 166

CIVICS AND CITIZENSHIP: GOVERNMENT AND DEMOCRACY **172**

HISTORY

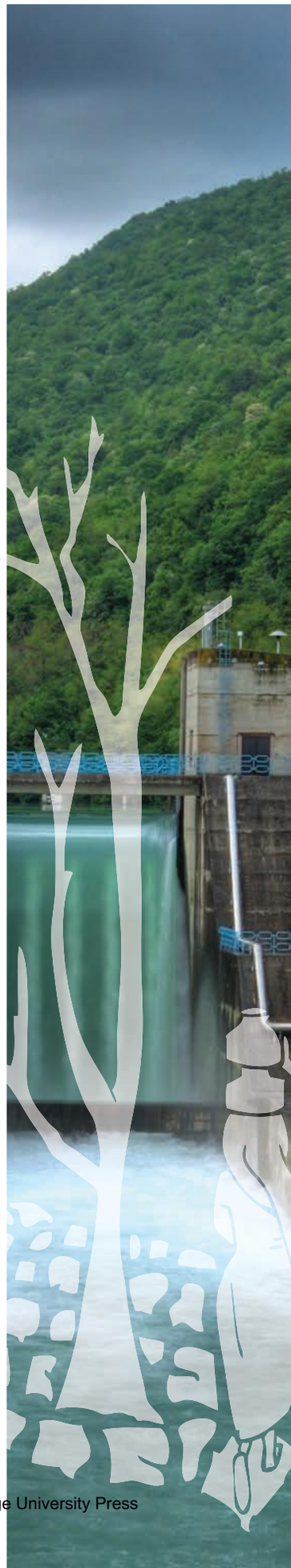
Chapter 11 Overview: the ancient world 176

DEPTH STUDY 1 INVESTIGATING THE ANCIENT PAST

Chapter 12 The ancient past 189

DEPTH STUDY 2 THE MEDITERRANEAN WORLD

Chapter 13 Ancient Egypt 221
Chapter 14 Ancient Greece 252
Chapter 15 Ancient Rome 283



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



DEPTH STUDY 3 THE ASIAN WORLD

Chapter 16 Ancient China 311

Chapter 17 Ancient India 344

CIVICS AND CITIZENSHIP: LAW AND CITIZENS **372**

ECONOMICS AND BUSINESS

Chapter 18 Consumers and producers in the market 376

Chapter 19 Personal, organisational and financial objectives 383

Chapter 20 Characteristics of entrepreneurs and successful businesses 396

Chapter 21 Working and deriving an income 404

CIVICS AND CITIZENSHIP: CITIZENSHIP, DIVERSITY AND IDENTITY **418**

Glossary *422*

Index *435*

The Economics and Business and Civics and Citizenship sections of this textbook were written to the noted curriculums. This follows a decision by the council of federal, state and territory education ministers that the curriculums should be made available to states and territories for their use.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Foreword



The writing of the Australian Curriculums for geography, history, economics and business, and civics and citizenship is an important and exciting chance for all of us to study these subjects separately. However, by having all of the subjects in this textbook, it makes us aware that there is significant correlation between them. In our world of simplistic divisions of knowledge there is always the danger that we see these subjects as quite separate and not connected. These subjects have a synergy and connection that is logical and obvious.

For example, to understand a history we need to consider the geography, and to make sense of the geography of a place or phenomenon we need to consider the concept of change over time. In 1987 the American geographer Donald Meinig said:

> geography and history are complementary and interdependent, bound together by the very nature of things. This relationship is implied by such common terms as space and time, area and era, places and events, pairs that are fundamentally inseparable. In practice the two fields are differentiated by the proportionate emphasis each gives to these terms.

As shown in this textbook, the connection and interdependency of these subjects are particularly relevant as we study them in the Australian Curriculum.

Another example of the impact of geography on history is highlighted when we look at the rise and fall of the Roman Empire. Some argue that the rise of the empire relied on a favourable location enabling good agricultural production, mountain protection, accessible travel and expansive trade, and that the fall of the empire had to do with a regional drought that decreased the fertility of the land and agricultural output. As a result, the lack of food strained the empire and damaged the political situation to the point of collapse. To further expand on the geographical and historical connection, how could we study Australian history without recognising the impact of geography on our settlement, politics, national character, military involvement and much more? As the Australian historian Geoffrey Blainey said in his 1966 book *Tyranny of distance*:

> geographical remoteness has been central to shaping our history and identity – and it will continue to form our future.

While the team of authors assembled by Cambridge University Press to write *Humanities & Social Sciences for the Australian Curriculum* have written the textbook as distinct geography, history, economics and business, and civics and citizenship chapters in accordance with the curriculum, these topics frequently entwine. Such connections are found early in the history chapters when the geography of the area of study is highlighted by the inclusion of maps, and in geography the key concept of change makes it unavoidable to view the content without considering change over time and planning for the future.

In this textbook you will learn about the connection between humans and their social and environmental surroundings and in turn the connection between all subjects. In history you will study the ancient world, including our origins as humans, the development of ancient cultures and how historians and archaeologists investigate ancient history. You will study the relationships between ancient societies and their natural environments, and a range of aspects of their daily lives, cultural practices and belief systems, around the world from ancient Egypt to Greece, Rome, China and India. In the geography chapters you will learn about the importance of water in the world and the liveability of places. These studies will enable you to see the interconnections between humans and the environment in different

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



places around the world, why people live where they do and how we can work towards a more sustainable world in terms of water resources and the places we live. The economics and business chapters will prepare you for a future of understanding and participating in the Australian economy, and the civics and citizenship sections will introduce Australia's system of government and the diverse society we live in. These studies will enable you to see the interconnections between humans and the environment in Australia and places around the world, why people live where they do and how we can work towards a more sustainable world in terms of water resources, the economy and the places we live.

This textbook is unique in including many curriculums in one textbook. By doing so you will become aware of the relationships between these subjects and you will have the opportunity to connect them in a creative and meaningful way. The chapters are presented in a concise way with plenty of online supporting materials, interesting thoughts and facts, relevant primary and secondary sources, creative activities using relevant skills, eye-catching images and illustrations, glossary definitions and many other features to make this an outstanding resource for your learning. The authors hope that you find the study of these subjects of great relevance to you and most importantly enjoyable to learn about. Remember, the subjects are entwined and to really understand one we must consider the others.

Malcolm McInerney



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Acknowledgements

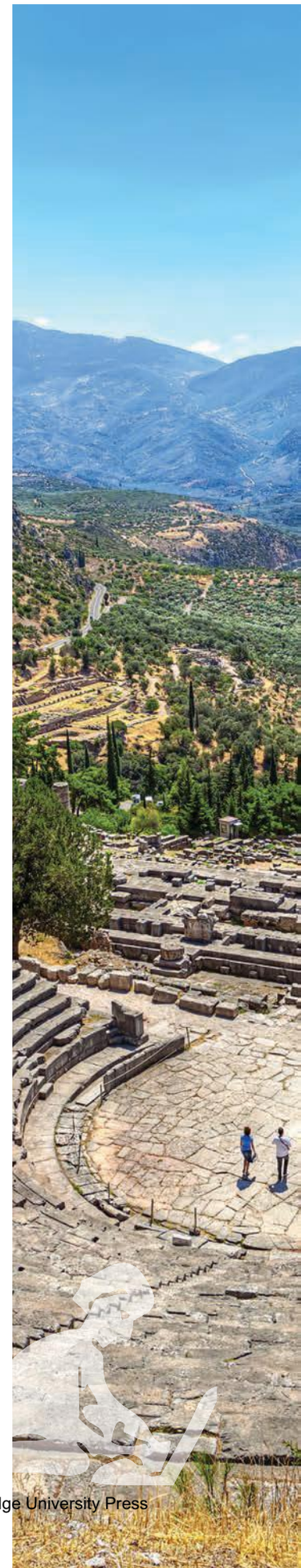
The author and publisher wish to thank the following sources for permission to reproduce material:

Chapter openers: 2013 Used under license from Shutterstock.com / Sundraw Photography, **pp.2-3** / stjepann, **p.18** / Samo Trebizan, **p.33** / arindambanerjee, **p.60** / Przemyslaw Skibinski, **p.81** / Totajla, **pp.104-5** / David Lade, **p.120** / FloridaStock, **p.131** / TK Kurikawa, **p.149** / connel, **p.166** / Patrick Poendl, **p.176** / Elena Talberg, **pp.188-9** / JENG_NIAMWHAN, **pp.220-1** / Anastasios71, **p.252** / andrea muscatello, **p.283** / Hung Chung Chih, **pp.310-11** / f9photos, **p.344** / travellight, **p.376** / bloomua, **p.383** / Ken Wolter, **p.396** / pruciatti, **p.404** / renkshot, **p.417**.

Images: © Alamy / Universal Images Group Limited, **2.6** / NASA, **4.4** / inga spence, **4.20** / stephen bond, **5.14** / Jonathan Goldberg, **10.3** / www.BibleLandPictures.com, **11.4**, **14.20** / Stock Italia, **12.9** / Peter Horree, **14.7** / Ivy Close Images, **14.8** / AF archive, **14.9**, **7.3.1** / INTERFOTO, **14.19** / The Art Archive, **14.22**, **15.6**, **16.6**, **17.5** / North Wind Picture Archives, **15.3** / Martin Shields, **15.5** / imagebroker, **15.10** / World History Archive, **16.2**, **17.25 (Brahma)** / Lou-Foto, **16.12** / Ancient Art & Architecture Collection Ltd, **16.18** / Lebrecht Music and Arts Photo Library, **16.22** / Dinodia Photos, **17.25 (Lakshmi)** / Historical Picture Archive, **17.13** / Christine Osborne Pictures, **17.24** / V&A Images, **17.25 (Saraswati)** / Rob Walls, **17.25 (Parvati)** / Art Directors & TRIP, **17.25 (Vishnu)** / Louise Batalla Duran, **17.25 (Ganesh)** / david pearson, **17.25 (Kali)** / Robert Harding Picture Library Ltd, **17.25 (Shiva)** / Russotwins, **7.2.3**; © Andrew from Cleveland, Ohio, USA. Creative Commons Attribution-Share Alike 2.0 Generic license, **11.2**; © Ariel Steiner. Creative Commons Attribution-Share Alike 2.5 Generic license, **16.16**; © Austrailan Government Bureau of Meteorology. Creative Commons Attribution 3.0 license, **4.3**; © Bidgee. Creative Commons Atttribution-Share Alike 3.0 Australia license, **7.1.2**; © Bob Reis, **16.20**; © Bradshaw Foundation – Chris O'Connell, **12.17**; The Bridgeman Art Library, **15.15**; © The Trustees of the British Museum, **13.23**, **17.14**; © Commonwealth of Australia 2011, **4.13**; © Corbis / Sam Diephius, **12.8** / Dave G. Houser, **12.13** / PoodlesRock, **14.6**; © ctbolt. This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license, **6.5**; © Dreamstime.com / Xuejingwen, **3.2** / OnAir2, **5.3** / Bbbar, **16.23(t-l)** / Wenbin Yu, **16.23(t-c)**, **16.23(b-c)** / Naifu, **16.23(t-r)** / Bjeayes, **16.23(b-l)** / Miao, **16.23(b-r)**; © Fairfax / Sydney Morning Herald picture by Ben Rushton, **19.9** / photo by Wayne Taylor, **20.2** / Age News picture by Penny Stephens, **21.10**; Reproduced by permission of Gametraders, **21.12**; © Gerbil from de.wikipedia. Creative Commons Attribution-Share Alike 3.0 Unported license, **13.19**; Getty Images / Robin Smith, **1.19** / Walter Bibikow, **9.9** / Christopher Groenhout, **7.1.3** / De Agostini, **13.7**, **13.21** / National Geographic, **13.18** / O. Louis Mazzatenta, **13.22** / Leemage, **14.12** / Photolibrary/Tom Putt, **7.3.2**; © Dr. Peter Hiscock, Australian National University, **12.14**; Reproduced by permission of Imparja, **21.6**; Inmagine / RadiusImages, **8.11(t)**; © iStockphoto / Phillip Minnis, **1.8** / Kerrie Kerr, **1.18** / Johan Larson, **5.8**; Copyright J.M. Kenoyer/Harappa.com. Courtesy Dept. of Archaeology and Museums, Govt. of Pakistan, **17.12**; © JohnsonL623. Creative Commons Attribution-Share Alike 3.0 Unported license, **7.10**; © Keith Schengili-Roberts. Creative Commons Attribution-Share Alike 3.0 Unported license, **13.16**; © Konstantinos Stampoulis. Creative Commons Attribution-Share Alike 3.0 Greece license, **12.2**; © Leo2004. Creative Commons Attribution-Share Alike 3.0 Unported license, **14.4**; © Manolis Papagrigorakis, **12.11**; Photo courtesy of Matteo Cocco, **12.5**; © Matthias Kabel. Creative Commons Attribution-Share Alike 3.0 Unported license, **14.14**; NASA / GSFC / Jacques Descloitres, MODIS Rapid Response Team, **3.3**; NASA image created by Jesse Allen, Earth Observatory, using ASTER data made available by NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan STER Science Team, **3.21**; © Mike Gunter, **16.25**; © Mountain. Creative Commons Attribution-Share Alike 3.0 Unported license, **16.5**; Reproduced by permission of Musée Calvet in Avignon, **15.16**; From the collection of the National Archives of Australia, **1.20**, **12.15**; Newspix / Bob Barker, **20.3** / Dylan Coker, **20.4**; © Official GDC. Creative Commons Attribution 2.0 Generic license, **20.6**; © Oren Rozen. Creative Commons Attribution-Share Alike 3.0 Unported license, **14.18**; © PHGCOM. Creative Commons Attribution-Share Alike 3.0 Unported license, **17.20**; © Rajeev Kumar. Creative Commons Attribution-Share Alike 2.5 Generic license, **17.21**; ReaAEllen via Flickr. Creative Commons Attribution 2.0 Generic license, **9.7**; © Robert G. Bednarik, IFRAO, **12.16**; © Sebastian Bergmann. Creative Commons Attribution-Share Alike 2.0 Generic license, **13.17**; Shutterstock.com / djgis, **1.1** / Tim_Booth, **1.2** / Luka Veselinovic, **1.3** / Merkushev Vasiliy, **1.4** / Alex Mit, **1.5** / Toa55, **1.6** / Filip Fuxa, **1.7** / Brisbane, **1.9** / ericlefrancais, **1.10** / Dusit, **1.11** / Greg Ward NZ, **1.12** / Lorelyn Medina, **1.13** / Ye Liew, **1.15** / Marina Riley, **1.16** / dedoma, **1.17** / Fotocrisis, **2.1** / Designua, **2.7** / col, **2.8** / Wunson, **2.9** / Dr. Morley Read, **2.12** / kwest, **2.13** / bart acke, **3.1** / Kennet Dedeu, **3.5** / Justin Black, **3.6** / Gary Whitton, **3.7** / eldirector77, **3.8** / r.nagy, **3.9** / Satoshi_A, **3.10** / Nickolay Vinokurov, **3.11** / vicspacewalker, **3.12** / Jonald Morales, **3.17** / Steve Heap, **3.18** / PRILL, **3.20** / Thomas Barrat, **3.22** / ecoprint, **3.25** / Michael Levy, **3.26** / Michael William, **3.27** / neelsky, **3.28** / africa924, **4.2** / Imfoto, **4.5** / Ahmed A Atwah, **4.7** / Andrea Danti, **4.17** / hinnamsaisuy, **4.18** / leungchopan, **4.19** / Ajay Bhaskar, **4.21** / Rufuos, **5.1** / Steven J Taylor, **5.6** / BMJ, **5.13** / Albert Pego, **6.1** / Jacqui Martin, **6.6** / bruno pagnanelli, **6.8** / Jenny Zhang, **6.9** / Don Fink, **6.10** / JeniFoto, **7.1** / Thorsten Rust, **7.3** / Faraways, **7.2** / del.Monaco, **7.4** / Nightman1965, **7.5** / Tupungato, **7.6**, **7.7**, **7.2.1** / jabiru, **7.8** / s_oleg, **7.9** / Goodluz, **7.13** / ranidevi, **7.14** / Lisa F. Young, **8.1** / EdBockStock, **8.2** / Tony Moran, **8.4** / ribeiroantonio, **8.6** / Taras Vyshna, **8.7**, **8.11(b)**, **9.4** / ian woolcock, **8.8** / Leo Kropotiv, **8.10** / imagehub, **8.13** / David Lade, **8.14** / 2009fotofriends, **9.1** / Pavel L Photo and Video, **9.3(l)** / Neale Cousland, **9.3(r)**, **21.7** / Jeff Metzger, **9.5** / picsfive, **9.6** / Kaspars Grinvalds, **9.8(c-l)** / Jacqui Martin, **9.8(c-r)** / Andy Lim, **9.8(b-l)** / CTR Photos, **9.10** / muzsy, **10.1** / CHEN WS, **10.2** / littlewormy, **10.4** / Phillip Minnis, **7.1.1** / kated, **11.3** / jsp, **11.5** / Patrick Poendl, **11.6** / Konstantin Yolshin, **12.3** / Paul Vinten, **12.4**, **12.19** / Valery Shanin, **12.6** / Tatiana Popova, **12.7** / Matthijs Wetterauw, **12.10** / Asier Villafranca, **12.20**, **12.21** / bumihills, **13.2**, **13.3** / Dan Breckwoldt, **13.11** / naipung, **13.15** / Tatiana Popova, **14.11** / Renata Sedmakova, **14.23** / mountainpix, **15.2** / kated, **15.8** / Mirec, **15.9** / Vladimir Sazonov, **15.11** / c., **15.13** / alessandro0770, **15.14** / Jun Mu, **16.4** / Artem Loskutnikov, **16.14** / Philip Lange, **16.15** / Mikhail Nekrasov, **16.21** / Hung Chung Chih, **16.24** / Kiev. Victor, **17.2** / Kaetana, **17.15** / Vladimir Melnik, **17.27** / paintings, **7.2.2** / Kaspars Grinvalds, **18.1** / Laura Gangi Pond, **18.2** / Musakesa, **18.3** / Twin Design, **18.5(l)** / 1000 Words, **18.5(r)** / Aaron Amat, **19.1** / Andrey_Popov, **19.2** / docstockmedia, **19.3** / My Life Graphic, **19.4** / shutterstock, **19.5** / travellight, **19.6** / racorn, **19.7** / Chris Parypa Photography, **20.1** / catwalker, **20.5** / Kzenon, **20.7** / bikeriderlondon, **20.8** / Gordon Bell, **21.1** / wavebreakmedia, **21.3** / Inc, **21.4** / Nataliya Hora, **21.5** / ZRyzner, **21.8** / axz700, **21.9** / michaeljung, **21.11** / Elena Elisseeva, **21.16** / Kristo-Gothard Hunor, **21.18**; Courtesy The Star Pty Ltd, **7.11**; City of Sydney / Paul Patterson, **7.12**; © Thutmose III. Creative Commons Attribution-Share Alike 3.0 Unported license, **13.13**; © TomGonzales. Creative Commons Attribution-Share Alike 2.0 Generic license, **3.19**; © Vmenkov. Creative Commons Attribution-Share Alike 3.0 Unported license, **4.9**; Reproduced by permission of Wendys, **21.14**; Werner Forman Archive / Egyptian Museum, Berlin / Heritage-Images, **13.8**; Wikimedia Commons. Public domain, **3.15(r)**, **3.24**, **5.9**, **12.18**, **13.4**, **13.20**, **14.5**, **17.23**, **17.26**.

Text: © Alaric Maude. Reproduced by permission, **1.14**; 'Travellers to pay Telstra up to 500% more' by Eamonn Duff & Heath Aston, *Sydney Morning Herald,* 22 February 2014, **18.4**; Reproduced by permission of Indigenous Business Australia, **20.9**; © Commonwealth of Australia. Creative Commons Attribution 3.0 Australia license, **p.419**.

Every effort has been made to trace and acknowledge copyright. The publisher apologises for any accidental infringement and welcomes information that would redress this situation.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

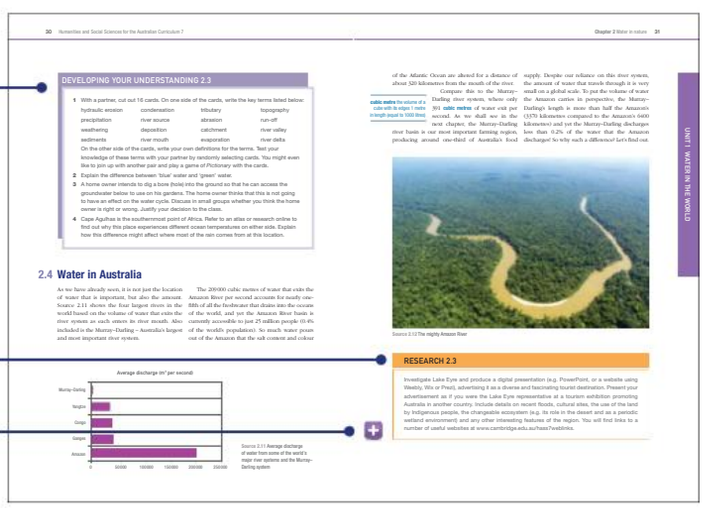
How to use this textbook

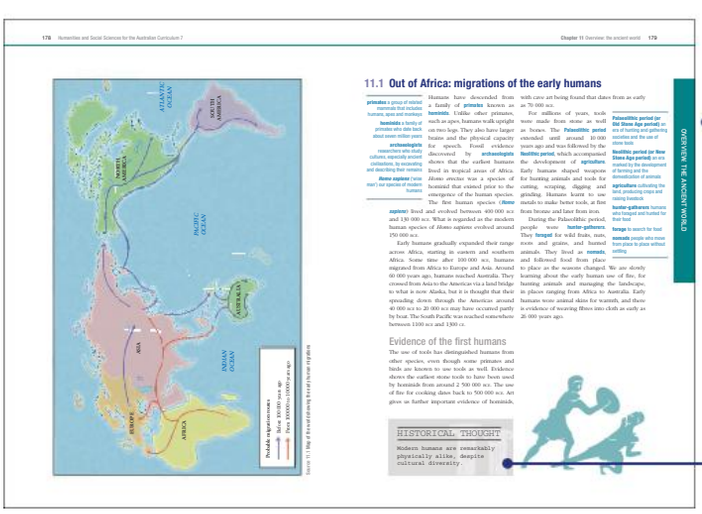
Chapter openers feature **Before you start** and **Let's begin** sections, which focus your attention on the topics being studied and prepare you for your in-depth investigations.



A variety of **Developing your understanding** activities and **Research** tasks explore key concepts, develop skills and draw back to the general learning capabilities and cross-curriculum priorities.

Icons alert you to additional activities and case studies available for download online through Cambridge GO for extra practice and further investigation.





Glossary terms are bolded in the text, defined in the margins and collated at the end of the textbook for easy reference.

Thought and fact boxes highlight interesting information to enrich your learning.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating questions at the end of the chapter include short answer and extended response to test your knowledge through the reinforcement of key concepts and application of skills.

Chapter summaries review the main ideas of the topic to reflect and consolidate on what you have learned.



250 Humanities and Social Sciences for the Australian Curriculum 7

Reflecting and consolidating

Chapter summary

- The nature of any land will affect the sort of society that develops there. In the case of Egypt, most of the land – the desert – worked against human life. The River Nile made it possible for humans to survive, and even live very well, in its rich valley.
- Settlement in Egypt started very early and grew very quickly. Once people had discovered how many resources the river gave, they learned to keep farm animals and plant crops.
- As they settled down in one place, people were able to build houses, then villages, then cities. The rich mud of the river and the burning sun gave them everything they needed to make mud bricks for thousands of buildings.
- In terms of government, the Egyptians began in smaller tribes, which then joined together until the country was ruled by a King of Upper Egypt and a King of Lower Egypt. King Narmer finally brought them together in one country in about 3100 BCE.
- The Egyptians quickly found that they only needed some people to grow enough food for everybody. This meant that others were free to take up other jobs and become expert in them. Some became priests, some architects and builders, some scribes and artists.
- Egypt was unusually big: it covered a vast area, and had a large population of five million people. One of the secrets of the Egyptians' success was a strong, centralised government in the hands of a powerful ruler, the pharaoh, who was served by a large number of officials who helped him rule (a bureaucracy).
- To rule Egypt, it was important to have a way of giving people orders, telling them of new laws and recording the taxes they paid. The Egyptians may have invented writing first, and by themselves, or they may have learned it from the nearby civilisation of Sumer.
- Egypt also had a very strictly ordered social system. People obeyed the laws and knew their place in society. Historians know a lot about groups of people who were rich and powerful, and who could pay for works of art and good tombs. Historians admit that it is more difficult to find out about people who were not powerful, such as women, peasant farmers, workers, slaves and children.
- Egypt is famous for its complicated system of religion. The Egyptians believed that it was possible to survive death and to go on to the afterlife, providing the body was preserved so that the soul could return to it. This belief inspired great buildings, such as the pyramids for the pharaohs and the many beautiful painted tombs found in the Valley of the Kings and elsewhere.

Short-answer questions

1 Explain why the Egyptians called their country 'Beloved Land'.
2 How was ancient Egypt protected from invaders by natural borders?
3 The Egyptian dynasties were divided into three periods. What were their names and why were they divided?
4 Outline how Hatshepsut become the pharaoh.
5 Analyse how contact with other cultures, in war and trade, helped to change and improve Egypt.

Source analysis

Study Source 13.23 and answer the following questions:

1 Make a list of the symbols of royal authority that you can see on this statue.
2 Why would most Egyptians easily have understood the meaning of the pharaoh's symbols of the crook and the flail?
3 How was the unification of Upper and Lower Egypt shown in the shape of the pharaoh's crown?
4 Look carefully at any statues of important people in the area where you live. What sorts of people do we build statues of today?
5 Consider who is the most powerful and important person in Australia today. How does this person show their authority?

Source 13.23 This granite statue shows the great Ramesses II sitting on his throne and holding his symbols of royal authority.

Extended-response questions

You are a leading expert on ancient Egyptian tombs, and you have just been called by the Director of Antiquities to come to Egypt. The breaking news is that an important pharaoh's tomb has just been discovered and it is in perfect condition. The doors had been well hidden, and as a result robbers had not broken in to remove objects. The wall paintings and the treasures are all still in place. This is the most significant step forward in Egyptology since the discovery of Tutankhamun's tomb in 1922. You have been called in to write a report for a major news network and for newspapers across the world. Using your own knowledge of other pharaohs' tombs, give information about the contents of this new tomb:

- Write a description of the shape of the tomb and the protection of the mummy of the pharaoh.
- Describe what sorts of precious objects are in the tomb.
- Explain why your pharaoh needed magical items such as shabtis.
- Identify and analyse what is shown in the wall paintings, such as 'The Opening of the Mouth Ceremony'.
- Present photographs, maps and diagrams to help the public understand what has been found.
- Provide interviews – for example, with the workers who first made the discovery.
- You may make up the name of your pharaoh, but you should include real historical information based on what you know about actual burials in the Valley of the Kings.



172 Humanities and Social Sciences for the Australian Curriculum 7

Civics and Citizenship: Government and democracy 173

Civics and Citizenship

Government and democracy

The Australian Constitution

constitution the law upon which a state or organisation is governed

citizen a person who has citizenship of a particular country and responsibility to obey the laws of the country and participate in the political process of the country (such as through voting)

A **constitution** is the highest law in a country. It outlines the roles and responsibilities of the government and the country's **citizens**, and the rights of people within its borders. In Australia, the constitution was adopted in 1900, when all the separate colonies (now referred to as states) joined together to form a federation. A constitution is a legal document, but it also outlines the values of the country. For example, Chapter 5 of the Australian Constitution forbids any state from enforcing the practice of a particular religion. This means that in Australia all religions are allowed to be practised, and therefore the value of acceptance and diversity is highlighted.

Key features of the Australian government

division of power the dividing of political powers between the federal, state and local governments

federal government government with central power over a country as a whole

state and territory governments governments with responsibility within individual states and territories

The Australian Constitution is divided into five chapters and is a relatively short document. However, it contains some of the most important information regarding the law and the features of government in Australia.

There are three different levels of government within Australia (federal, state and territory, and local), each with its own roles and responsibilities. This is called the **division of power**. The **federal government** is responsible for areas that affect the entire country, such as defence and immigration. The **state and territory governments** are responsible for issues that may be different within each state, such as health, road maintenance and education. Each state or territory may have requirements for these issues that are not relevant for the other states and territories. **Local governments** are responsible for the issues that directly affect the people of that particular town or area, such as garbage collection and public recreation areas (e.g. a public park or swimming pool).

local government government with responsibility within a town or area

Source 7.1.1 The Australian Coat of Arms at the entrance to Parliament

The Australian Constitution also outlines the way in which power should be shared within Australia. This is called the **separation of powers** and breaks down power to be shared between three different branches: executive, legislative and judicial. The **executive** is responsible for the daily administration of a country, such as a President or a Prime Minister. Australia is a member of the Commonwealth and our executive is the **Governor-General**. However, the Governor-General defers power to the Prime Minister unless it is necessary to overturn leadership. The **legislative** branch is the **Parliament**, where issues are discussed and laws are made. The **judiciary** is the court system, this branch of power is responsible to upholding the law and punishing those who break it.

separation of powers a model of political power in which the power of a country is divided into three separate areas (executive, legislative and the judiciary) ensures that no one aspect of government and the law becomes more powerful than another

executive the government branch responsible for enforcing decisions and laws

Governor-General the chief representative of the Crown in the Australian jurisdiction

legislative the government branch with the power to make laws

Parliament the place and structures for creating laws and forming a government

Source 7.1.2 The Governor-General of Australia, Peter Cosgrove

judiciary the government branch responsible for interpreting the law and administering justice through courts

bicameral consisting of two chambers (houses)

The role of Parliament

The term 'Parliament' refers to the place and structures of creating laws and forming a government. The Australian Parliament is **bicameral**, meaning it consists of two houses (the House of Representatives and the Senate). Each house has seats which are filled by elected representatives. The House of Representatives (or lower house) has 150 seats and the Senate (or upper house) has 76. Whichever party holds the majority of seats in the lower house controls the government. The leader of that party becomes the Prime Minister.

Changing the Australian Constitution

As the values of Australians have changed over the decades, the Constitution has changed as well. As the Constitution is the highest law in the country, it is very hard to change it. In order to change the Constitution a **referendum**, in which every citizen of Australia must votes on the proposed **amendment**, must take place. There have been 44 referendums since the adoption of the constitution, but only eight have passed. In 1967 a referendum that recognised the rights of Aboriginals and Torres Strait Islander peoples by including them in the Constitution was passed. This amendment was passed with 91% of the vote. In 1999, a referendum was held to decide if Australia would remain in the Commonwealth or become a republic. The amendment was not passed, with 55% of the vote in favour of remaining a member of the Commonwealth.

referendum a vote for any changes to the Constitution; all citizens of Australia are required to vote in a referendum, regardless of the state or territory they live in

amendment a change or addition to improve a piece of legislation

DEVELOPING YOUR UNDERSTANDING 7.1.1

1 Define the key terms 'legislative', 'executive' and 'judiciary' in your own words.
2 Outline why it is important to have a separation of powers.
3 Research each level of government (federal, state and local) and identify at least four different responsibilities each level has.
4 Create for your class a constitution which outlines the roles and responsibilities of your teacher, yourself and your classmates.

CIVICS AND CITIZENSHIP

Civics and Citizenship sections introduce the content descriptions for this subject area in a succinct manner and include **Developing your understanding** activities to ensure all four learning areas of humanities and social sciences are covered.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Geography



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Unit 1
Water in the world

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



1 Water: a renewable environmental resource

Before you start

Main focus

Water is an environmental resource, essential to all life on Earth, valued, used and managed by different people in different ways.

Why it's relevant to us

Only 1% of the world's water is freshwater available for human use. This limited resource is under threat due to increasing population, overconsumption and pollution, and must be carefully managed to ensure its availability now and into the future.

Inquiry questions

- Can water always be classified as a renewable resource?
- How does the movement of water through the environment connect places, and what are the implications of these linkages?
- How can Aboriginal and Torres Strait Islander people's knowledge about use and management of water contribute to the sustainability of water resources in Australia today?

Key terms

- Commodity
- Conservation
- Continuous resources
- Country
- Degradation
- Depletion
- Environmental resources
- Non-renewable resources
- Renewable resources
- Sustainability

Let's begin

Russian astronaut Yuri Gagarin gained his place in history in 1961, when he became the first human to leave Earth and journey into space. As he looked back at our planet and marvelled at its beauty, Gagarin exclaimed, 'The Earth is blue ... How wonderful. It is amazing!' Gagarin's observations of a 'blue planet' should come as no surprise considering approximately 70% of Earth is covered with water. The total amount of water held within our planet is referred to as the Earth's water inventory. This amount never changes, but is continuously changing state and moving from one place to another as a result of the water cycle. However, while this resource appears to be abundant on Earth, 97% of Earth's water is saline, containing significant amounts of dissolved salts, and therefore has limited uses. Salty water is not drinkable and cannot be used for agriculture or industry without damaging land or capital equipment. That leaves only 3% of Earth's water inventory as freshwater, but because 2% of this is locked up by ice caps and glaciers, only 1% is available for human use. We use this small amount of water for drinking, sanitation, transportation, heating and cooling, industry, recreation and many other purposes.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1.1 Why water is important

Water is arguably the most important substance on Earth. From the simplest to the most complex of organisms, every living thing on Earth needs water to survive. Green plants, which are the basis of all food chains and webs, rely on soil moisture, groundwater and surface water. In the process of **photosynthesis**, these plants combine carbon dioxide and water with light to produce glucose and oxygen. Glucose provides the energy plants need to produce new tissue, and the oxygen produced is used by animals in the process of **respiration**.

photosynthesis the process by which plants convert solar energy and carbon dioxide into glucose and oxygen

respiration inhalation and exhalation of air by humans and animals; breathing

Animals and humans also need water to function. In humans, water is so important to the functioning of the body that it makes up approximately 60% of our anatomy and around 83% of our blood. The human body cannot go without water for more than a few days or it will perish. Water also promotes life in a variety of other ways. Without it, we couldn't grow crops, raise livestock or wash our food. Oceans, seas and rivers also provides us with a supply of seafood. We need water for drinking, health and **sanitation**, cleaning, cultural and spiritual significance, and for just about any land use or activity we undertake.

sanitation the provision of adequate facilities such as toilets, and services such as garbage collection, to promote community health and hygiene



Source 1.1 Water is essential for all life on Earth.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



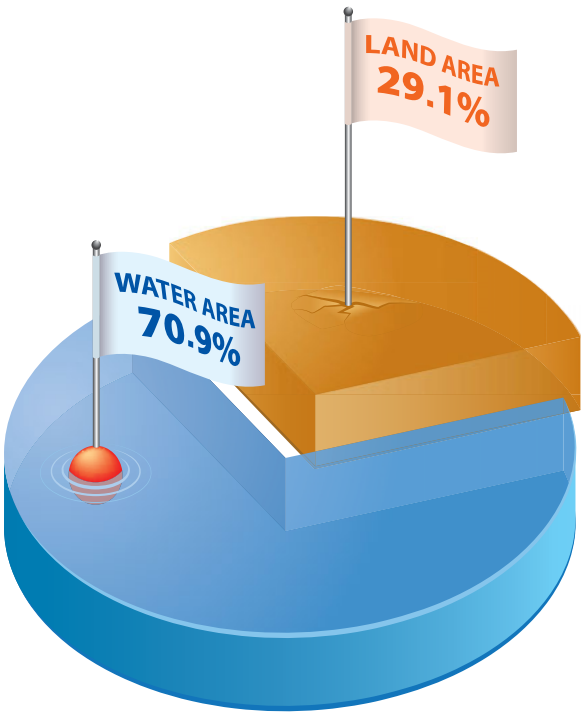
GEOGRAPHICAL THOUGHT

The average distance a woman in Africa or Asia walks to get water is 6 kilometres and the weight of water she carries on her head is approximately 20 kilograms (according to Women's Human Rights net, WHRnet).

Source 1.2 Indian woman walking home from the well

DEVELOPING YOUR UNDERSTANDING 1.1

1. Refer to Source 1.3. Compare the Earth's land and water area.
2. Explain why only a limited amount of the Earth's water is available for human use.
3. Explain the importance of water to all life on Earth.



Source 1.3 Comparison of the Earth's land and water areas

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1.2 Environmental resources

environmental resources natural resources that have originated directly from the biophysical environment

renewable resources resources that can be replenished in a relatively short amount of time through reproduction or other biophysical processes

Geographers are concerned with the sustainability, or maintenance into the future, of the Earth's environmental functions that support human life. The first of these functions is the production of **environmental resources**. These are natural resources that have originated directly from the biophysical environment. Examples include water, soil, timber, fish, minerals and fossil fuels. Earth's natural systems are responsible for their existence, as well as their uneven distribution across the planet.

Environmental resources are classified as **renewable** or non-renewable depending on the time taken for them to regenerate and the degree to which they can be sustained with continued human use.

Renewable resources

Renewable resources can be replenished in a relatively short amount of time through reproduction or other biophysical processes. For example, the life cycles of plants and animals enable the continuation of their species while the operation of the water cycle results in the continuous movement and renewal of water sources.

Non-renewable resources

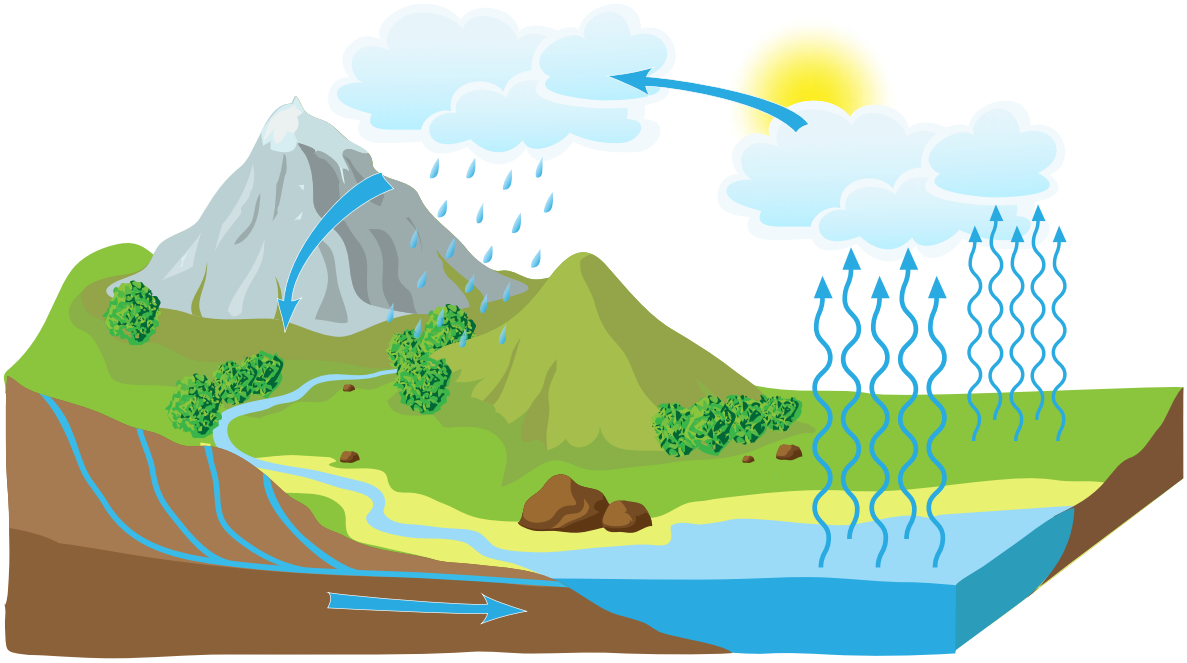
The second category of environmental **non-renewable resources** cannot be replenished in a human lifetime. They are formed over geological time scales ranging from hundreds to millions of years. Minerals, including precious stones and metals, and fossil fuels such as coal, oil and natural gas all fall under this category. Since their rate of formation is extremely slow, they cannot be readily replenished once they are depleted.

non-renewable resources resources that cannot be replenished in a human lifetime

Continuous resources

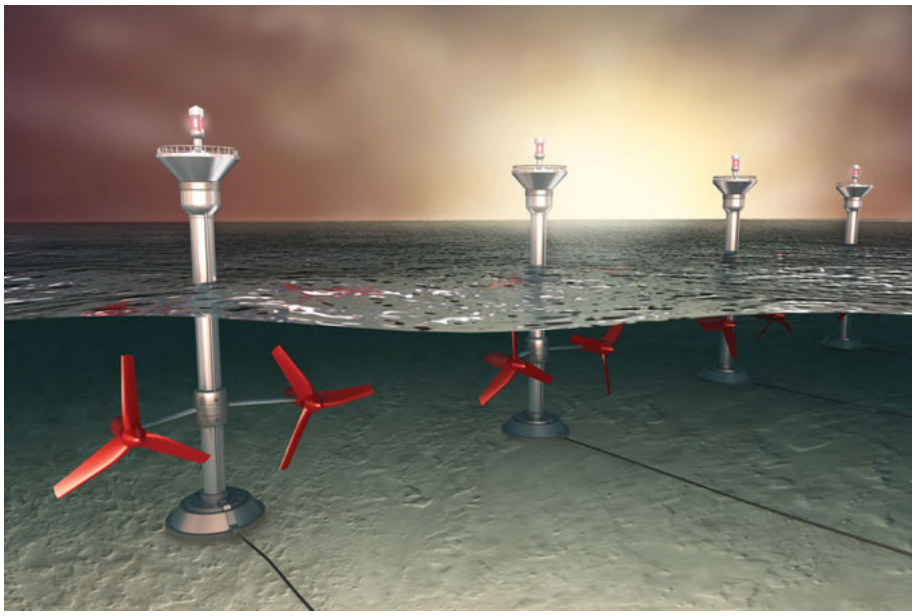
Geographers also refer to a third category of environmental resources known as **continuous resources**. These resources, such as solar radiation, tides and winds, are available continuously though at a limited rate. Their quantity is not affected by human consumption and they are in no danger of being used in excess of their long-term availability.

continuous resources resources that are in no danger of being used in excess of their long-term availability



Source 1.4 The water cycle enables renewal of Earth's ground, surface and stored water sources.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 1.5 Tides are an example of a continuous environmental resource. This illustration of a tidal turbine shows how the energy of continuous resources can be harnessed.

Is water a renewable resource?

Water is often classified as a renewable resource because the operation of the water cycle enables the replenishment of ground, surface and stored water sources. However, as the world's population expands, enormous pressure is placed on all the Earth's resources, even the renewable ones.

As more people need access to water, reserves are reduced or depleted. Rates of replenishment depend on global rainfall distribution patterns, groundwater infiltration and consumption rates. Also putting pressure on water supply are forms of environmental degradation, such as pollution.

Almost half the world's water is contaminated in some way by pollutants like raw sewage, agricultural and urban stormwater run-off, and discharge of industrial wastes. Polluted water is not only unsafe for humans, but can also have negative effects on biodiversity and comes at a significant economic cost. The status of freshwater as a renewable, unlimited resource is therefore vulnerable if the resource is not carefully managed.



Source 1.6 Untreated industrial waste is discharged into a river, causing water pollution.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1.3 Water through history

Water has played a key role in the development of societies throughout history. The settlement of the earliest civilisations along major rivers provided for the economic, social, cultural and spiritual needs of the people. For example, by 5000 BCE, ancient Egyptians were living along the River Nile. The people depended on the flooding of the Nile for rich fertile soil, which they called 'the gift of the Nile'. Their ability to harness water through development of irrigation devices, such as the ***shaduf***, enabled them to grow food and industrial crops such as flax and papyrus. Hunters pursued a great variety of wild birds, and fishermen netted their catches. It provided freshwater for drinking and bathing, and materials for building, making cloth and paper, and supported transportation and trade.

shaduf a device used in Egypt and other Eastern countries for raising water, especially for irrigation, consisting of a long suspended rod with a bucket at one end and a weight at the other

As civilisations expanded, societies came up with new technologies to access water. For example, the ancient Romans were famous for building raised canals called **aqueducts** to bring water from distant sources to their cities and towns. Water supplied public baths, toilets, fountains and households.

aqueduct a human-made channel or passage for conveying water

During medieval times, water was used as a means of defence. Deep, broad ditches called moats were filled with water and often surrounded castles or towns, acting as obstacles to enemy access. In the late eighteenth and early nineteenth centuries, water was an important resource during Britain's Industrial Revolution. Inventions such as Arkwright's water frame revolutionised the textile industry, reducing human labour and increasing production. Other inventions, including Watt's steam engine, were used to run machinery as well as for transport, and the development of canals enabled heavy produce to be transported over large distances.

Water has also expanded civilisations by providing them with a means of global travel. During colonial times, explorers including the

Source 1.7 Roman aqueducts like the Pont du Gard in France can still be seen today.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

British, Portuguese, Spanish and Dutch travelled by ship. They often exchanged goods and ideas, and conquered or colonised the places they found. Much of the modern world we know today has been influenced by the travellers who journeyed over the seas by ships centuries ago.

DEVELOPING YOUR UNDERSTANDING 1.2

1. Describe the relationship between the locations of ancient settlements and water sources.
2. Identify three water-related innovations of past civilisations, and the impacts they have had on society past and present.
3. Explain the role water has played in the global expansion of human settlements.
4. Use your atlas to discuss the relationship between the location of settlements in the world today and their proximity to water sources.

1.4 Water conflict and cooperation

aquifer a geological formation containing groundwater that can supply water to wells or springs

Water connects places as it moves through the environment. There are currently more than 250 river basins and countless **aquifers** that cross the political boundaries of two or more countries. For example, 19 countries share the Danube River, 13 countries share the Congo River and nine countries share the Amazon River. Shared water resources have been a source of cooperation and conflict throughout history and continue to unite and divide places in the world today.

RESEARCH 1.1

Use your atlas or online maps to find out which countries or Australian states share the following water bodies:

- Tigris and Euphrates rivers
- Jordan River
- Indus River
- Yangtze River
- Imjin River
- Aral Sea and source rivers Syr Darya and Amu Darya
- Limpopo River
- Murray–Darling river system.

In small groups, select one of the water bodies listed above. Research any conflict or cooperation that has resulted between the countries or states it connects. Share your findings with the class as an oral presentation.



Source 1.8 The Murray River at Swan Hill

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1.5 Water as a commodity

commodity a resource that can be bought and sold

Historically, water was extracted as a common resource by whichever local community lived around it. As societies progressively developed, access to water took on a more economic approach. Water became a **commodity** – a marketable item bought and sold to satisfy the needs and wants of people. Today, in Australia, state governments regulate water supplies from ground, surface and stored water sources, as well as from desalination plants. This water is usually treated before being piped and sold to residential as well as agricultural, commercial and industrial customers. When you turn on a tap at home, this is the water you are most likely using.



Source 1.9 The Wivenhoe Dam near Brisbane creates a primary source of stored water for consumption in south-east Queensland.

In recent years, the market for water has greatly expanded. People around the world now also demand bottled water. Bottled water is usually sourced from natural underground springs, although some brands are sourced from other supplies and then treated. Bottled water has become increasingly popular, as consumers testify in favour of its convenience, better taste compared to tap water, and benefits as a healthy alternative to other drinks. Such claims, however, have been opposed by groups including health professionals and environmentalists. Despite such debates, the popularity of bottled water and its market continues to grow.



Source 1.10 The bottled water industry is expanding.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1.6 Natural resource management

depletion a reduction in the quantity of an environmental resource

degradation a reduction in the quality of an environmental resource

conservation preserving and restoring resources from loss, damage or neglect

sustainability the wise use of resources so they are available indefinitely into the future; society, environment and economy must all be carefully considered

In order to satisfy local, regional and global demand for goods and services, land uses and activities use environmental resources, including water. As population increases, so does demand. If resources are not carefully managed, they can be subject to environmental **depletion** and **degradation**. Two areas of natural resource management are **conservation** and **sustainability**. Conservation is about preserving and restoring the natural environment from loss, damage or neglect. It involves wisely managing and protecting natural resources and the environment so they will be available on a long-term basis. Sustainability is similar to conservation; however, as well as ensuring environmental functions indefinitely into the future, sustainability also requires satisfaction of environmental, economic and social criteria. Meeting all three criteria is an extremely challenging goal in today's world.



Source 1.11 The goal of sustainability requires that environment, society and the economy are all carefully considered.

GEOGRAPHICAL THOUGHT

Eighty per cent of diseases in the developing world are caused by contaminated water (according to WATERAID).

Environmental criteria

All land uses and activities have some form of impact on the natural environment. Plans for conservation and land management should therefore always be considered, including ongoing rehabilitation to ensure the environment is suitable for future use. Conservation in one place should not be achieved at the expense of the environment in another place, and mitigation of and adaptation to climate change need consideration.

Economic criteria

The use of environmental resources to satisfy needs and wants should maintain or improve people's standard of living. Essential resources, such as water, should be affordable so that they are accessible by all. Additionally, people, organisations or governments making a profit should attempt to provide economic opportunities for local people, such as a range of employment with fair wages.

Social criteria

Any land use or activity undertaken should seek to benefit a range of people in society, and not exploit, endanger or disrespect any group. Health, safety and equity must not be compromised. Traditional landholders and their extensive knowledge of the land should be respected, and the recreational, psychological, aesthetic and spiritual value of environments should be protected.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 1.12 Consultation with traditional landowners is one aspect of social sustainability.

Water conservation and sustainability

Water conservation and sustainability affects all levels of society in regions and countries across the world. Better management of water resources requires finding a balance between what people need and what is needed by the environment. The question this raises, however, is one of responsibility: who is responsible for addressing the issue of global water scarcity?

Global action

Non-government organisations, such as the United Nations (UN), promote global awareness through initiatives like the international World Water Day. Held annually in March, the event focuses on the importance of freshwater resources and their sustainable management. Other global initiatives include the UN International Decade for Action 'Water for Life' (2005–15) and the Global Water Partnership, which focuses on action in Central America, East Africa and West Africa.



Source 1.13 World Water Day is a global water sustainability initiative.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Sustainability requires that:

1 Renewable resources should only be exploited at or below their rates of renewal.
2 Biodegradable wastes should not be added to the environment faster than they can be broken down and recycled.
3 Non-biodegradable wastes should not be added to the environment at levels that threaten ecosystems and human health.
4 Non-renewable resources should not be exploited faster than the rate at which they can be maintained through reuse and recycling, or substituted by other non-renewable or renewable resources.
5 The use of renewable resources to replace non-renewable ones must satisfy the criteria of environmental impact, economic costs and benefits, and social justice.
6 The life support and ecosystem services functions of the environment should be protected.
7 The recreational, psychological, aesthetic and spiritual value of environments for people should be protected.
8 Sustainability in one place may not be achieved at the expense of environmental conditions in another place.
9 There must be an equitable sharing of global environmental functions.

Source 1.14 Sustainability principles

GEOGRAPHICAL THOUGHT

At least one-eighth of the world's population do not have access to safe drinking water, according to the World Health Organization.

National action

At a national level, the Australian government's initiative 'Water for the future' aims to better balance the water needs of communities, industries and the environment. It caters for both urban and rural areas and is built on four key priorities:

1 using water wisely
2 securing water supplies
3 supporting healthy rivers and wetlands
4 adapting to climate change.

Local action

The most important level at which water needs to be managed is the local one. The phrase 'think global, act local' has long been used to urge people to consider the health of the entire planet and begin taking action in their own local communities. Strategies imposed by local governments include restrictions on outdoor water usage, such as lawn watering, encouraging the planting of native species, and mulching of gardens to reduce evaporation.



Source 1.15 Home water conservation concepts

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

At a personal level, people can implement their own water-saving strategies, including limiting shower times, reusing wastewater (grey water) on plants and gardens, and washing clothes and dishes only when there is a full load. New technologies available to consumers have aided the water conservation challenge. Features such as dual-flush toilets, water-saving shower heads and high-efficiency washing machines and dishwashers have helped to make a difference in household water consumption and waste.

DEVELOPING YOUR UNDERSTANDING 1.3

1. Visit your state or territory's water corporation website. Find out where your state or territory obtains its water for agricultural, industrial and domestic use.
2. In your own words, explain the difference between conservation and sustainability.
3. Investigate the price your household pays for water consumption per litre, and then compare it to the price of other liquid commodities such as soft drinks and petrol. Discuss the advantages and disadvantages of pricing water in this way.
4. Apart from pricing, suggest other incentives that could be used to encourage water conservation.

1.7 Aboriginal and Torres Strait Islander peoples' knowledge and management of water

Aboriginal and Torres Strait Islander people have lived continuously in Australia for over 50 000 years. At the time of European settlement, approximately 600 different clan groups or 'nations' lived around the continent, each with its own language, cultural traditions, spiritual beliefs and unique identity. Despite the diversity, each group shared in common a rich connection to, and relationship with, its land or place, often referred to as **country**. The strong ties that Aboriginal and Torres Strait Islander people have with the environment can still be seen today through their deep respect for the land and broad knowledge of what the land can provide if it is looked after.

country the Aboriginal and Torres Strait Islander peoples' concept of place, which includes all aspects of the environment, including life

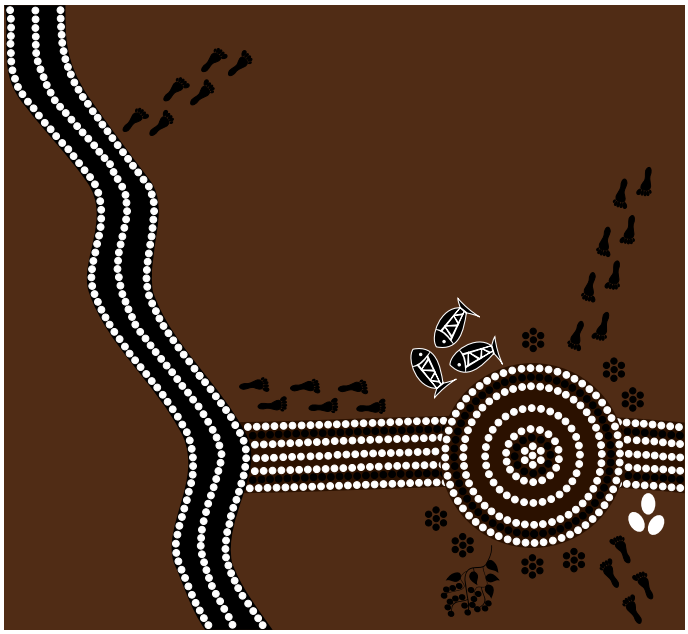
The Dreaming and water

All cultures have stories about creation. For the Aboriginal people, that time has been translated to English as 'the Dreaming'. Torres Strait Islander peoples do not use the term 'Dreaming', although they do have similar creation stories and beliefs. These stories vary depending on the regions in Australia they originated from, but many have in common the giant spirit creatures or ancestral beings that created the environment we know today, including landforms, water and living things. The spirits are always considered part of the land. Aboriginal and Torres Strait Islander peoples' understanding of their water systems can be seen in their creation stories. For example, the Rainbow Serpent is a key symbol of creation, which features in the Dreaming stories of many mainland Aboriginal nations. The Rainbow Serpent is known by different names, including the Wagyl, Wanamangura and Kajura in Western Australia; Almudj or Numereji in the Northern Territory; Kanmare, Tulloun, Andrenjinyi, Takkan and Targan in Queensland; Kurreah and Wawi in New South Wales; Neitee, Yeutta, Myndie and Bunyip in Victoria; and Arkaroo in South Australia. The serpent is almost always associated with the creation of watercourses, such as billabongs, rivers, creeks and lagoons. One version in southwestern Australian Noongar culture tells

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 1.16 Contemporary art depicting the rainbow serpent



Source 1.17 Contemporar art depicting places associated with water

about the snake-like Wagyl creating the Swan and Canning Rivers as it slithered across the land. As it travelled underground, it created wetlands such as the Spectacles, Lake Monger and Lake Joondalup wherever it raised its head above the land. Such creation stories have been passed on orally for thousands of years. They illustrate the spiritual connection between the people and their places, and the knowledge that people had long ago of local water systems, both ground and surface.

Survival on the dry continent

Approximately 70% of Australia is covered by desert or semi-arid land. Some coastal areas also experience seasonal rainfall characterised by an extended dry season. This meant that its original inhabitants needed to know how to find and manage water if they were to survive. The first Australians quickly learned to read the landscape, using terrain, animals and vegetation as markers for water. For example, they followed dingoes to rock pools and waterholes. Ants led them to underground reservoirs. If they were travelling in a dry area and came across numerous gum trees, they assumed the presence of groundwater. They accessed this groundwater through natural springs or by digging tunnels and scooping out sand or mud, often to a depth of several metres, using a



Source 1.18 Drawings of symbols for waterholes and running water in the sand.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

coolamon a basin-like dish made from wood or bark

woomera a notched stick used to propel spears or darts

coolamon or **woomera**, until clean water gathered in the base of the hole. They mapped the water sources they found mentally and sometimes also through their art, and orally passed information and skills from one generation to another. Many early European settlers owed their local knowledge of groundwater and bush tucker to these oral stories. This tradition and knowledge is still held and passed on by tribal elders today.

Water management

Water management cannot be looked at as a separate environmental concept for Aboriginal and Torres Strait Islander cultures, because for them everything is connected to the whole ecosystem. Members of each clan had specific knowledge of their geographic region and adapted to environmental changes in that area. For example, many clans developed a nomadic lifestyle, ensuring that water resources were not depleted before moving with the next season to another location. In this way, they lived with the land rather than living off it. From the perspective of land management and the relationship between humans and nature, their way of life was sustainable.



Source 1.19 Woomera (spear launcher)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Ninety-seven per cent of the Earth's water is saline and 2% is locked up in ice caps and glaciers, leaving only 1% of water as freshwater available for human use.
- Water is often classified as a renewable resource because the operation of the water cycle enables the replenishment of ground, surface and stored water sources. However, the status of freshwater as a renewable resource is vulnerable if not carefully managed.
- Water connects places as it moves through the environment. There are currently more than 250 river basins and countless aquifers that cross the political boundaries of two or more countries and these are sources of both cooperation and conflict.
- Water conservation is about preserving and restoring water resources from loss, damage or neglect. Sustainability also involves wisely managing and protecting water resources so they will be available on a long-term basis, but additionally requires satisfaction of environmental, economic and social criteria.
- Aboriginal and Torres Strait Islander peoples' holistic connection to 'country' enabled them to use water sustainably for tens of thousands of years. All Australians have much to learn about water conservation and sustainability from these traditions.

Short-answer questions

1. Discuss the status of water as a renewable environmental resource.
2. Identify the ways in which water connects places as it moves through the environment. Use examples to support your answer.
3. Explain how water depletion and degradation in one place can affect the water and environment in another place. Use examples to support your answer.
4. Suggest three ways that the first Australians read the landscape in order to find ground and surface water. Use examples to support your answer.
5. Analyse the difference between living with the land rather than living off it. What do you think all Australians can learn about water conservation from this traditional view?

Extended-response question

Research the potential environmental, social and economic impacts of the bottled water industry in Australia. With reference to Sources 1.11 and 1.14, assess the sustainability of the industry and present your findings in a short report.



Source 1.20 This dot painting shows water creatures [NAA: A1500, K5959].

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



2 Water in nature

Before you start

Main focus

Water is an abundant and important substance that shapes, sustains and connects all parts of nature as it cycles through the environment.

Why it's relevant to us

Its unique properties make water essential to all life on our planet and it sustains the natural environment that people constantly interact with.

Inquiry questions

- Where is water in the world?
- What properties make water so important in nature?
- How does water move through the environment and connect places on its journey?
- How does the use of water influence the sustainability of its supply?
- Why is the availability of water in Australia sometimes limited?

Key terms

- Blue water
- Green water
- Catchment
- Evaporation
- Groundwater
- Run-off
- Water cycle

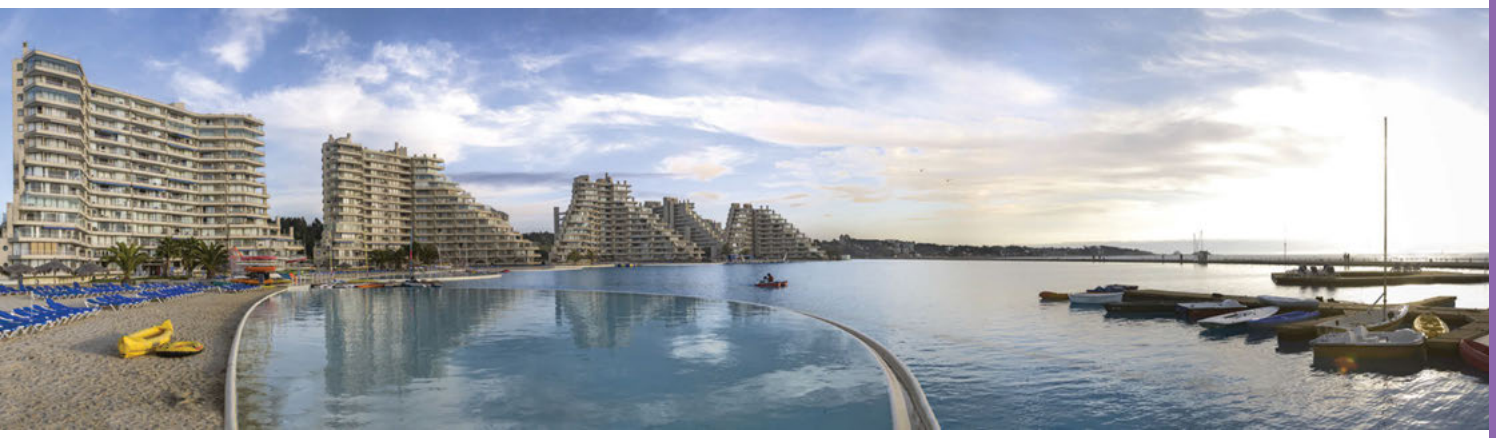
Let's begin

Water is one of the most crucial compounds in existence. However, most of us take for granted the ease of turning on a tap and enjoying a seemingly endless supply of water. Water cycles through the environment in various ways, but it is only a tiny fraction of this water that is both fresh and accessible. In Australia, where the climate is variable and water is sometimes scarce, our ability to access water is crucial.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

2.1 Water everywhere

We live on a watery planet – about 71% of the Earth's surface is covered by ocean. At an average depth of about 1 kilometre, this makes up a mind-boggling 1.26 billion trillion litres of water! That is roughly 504 000 billion Olympic sized swimming pools or 5000 billion times the size of the swimming pool in Source 2.1. As the poem suggests, we certainly do have water, water everywhere! However, only a tiny proportion of this water is fresh and in a suitable state for us to drink.



Source 2.1 A little slice of the Pacific: the world's biggest pool in Chile holds 250 million litres, is nearly 1 kilometre long and draws water from the ocean.

Movement of water

atmosphere the gaseous envelope surrounding the Earth; the air

biosphere the ecosystem comprising the Earth and all living organisms that inhabit it

hydrosphere the water on or surrounding the surface of the globe, including water in the atmosphere

lithosphere the solid portion of the Earth made up of the crust and upper mantle

Water is one component that moves through each of the Earth's four spheres: the **atmosphere**, **hydrosphere**, **biosphere** and **lithosphere**. We think of water normally within the hydrosphere. This is the water that we see in our oceans, rivers and lakes, as well as in dams (where water is diverted into the pipes that carry it to towns and cities and eventually into our houses where we access it with the simple turn of a tap). However, a significant amount of water is also found within the other spheres, sometimes in different physical states – for example, as water vapour in the atmosphere.

We have already heard about all the water held in our oceans. A whopping 97.2% of the Earth's water is in our salty oceans. It would solve a lot of world problems if we could simply drink ocean water – although if we were to try this, we would die of dehydration.

The **water cycle** is constantly transferring the world's water supply between storage reservoirs in each of the Earth's spheres and in particular between the oceans, the land and the atmosphere. At any one point in time, only a tiny fraction of the Earth's water is moving through the water cycle. Of the remaining 2.8% of water not stored in the oceans, a significant 75% is locked away in glaciers and ice sheets. Another 24% of this small fraction is in **groundwater**, which may be in underground reservoirs or in soil moisture (**green water**). Rivers and lakes, where we access most of our drinking water, contain a tiny 0.009% of all water on Earth.

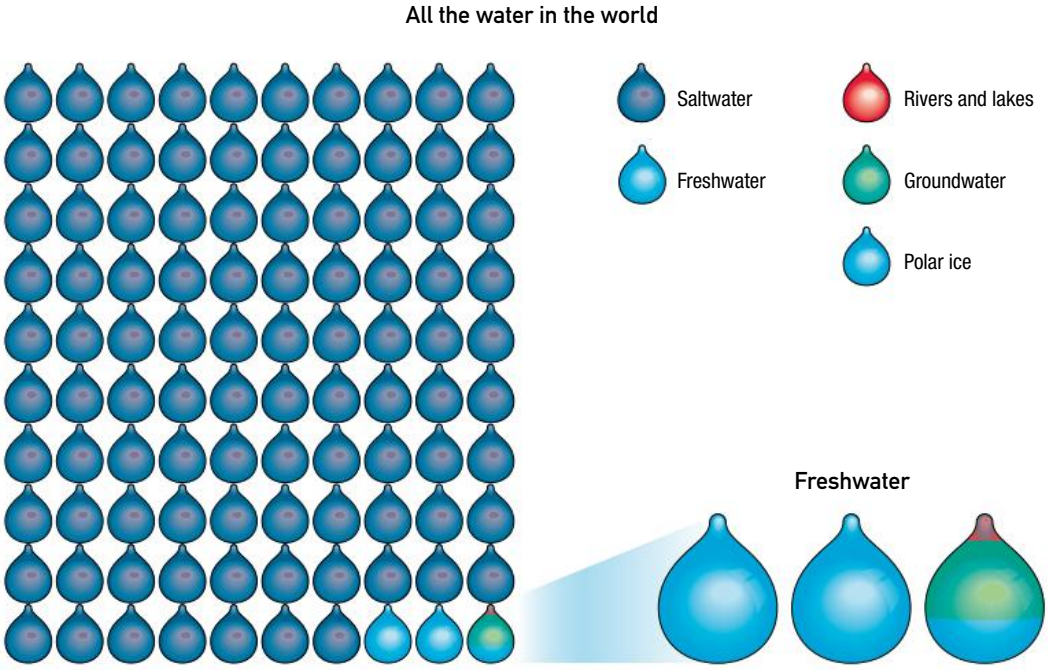
water cycle the continuous cycling of water through the Earth's spheres via processes of evaporation, condensation, precipitation, run-off and infiltration

groundwater water that is located beneath the Earth's surface

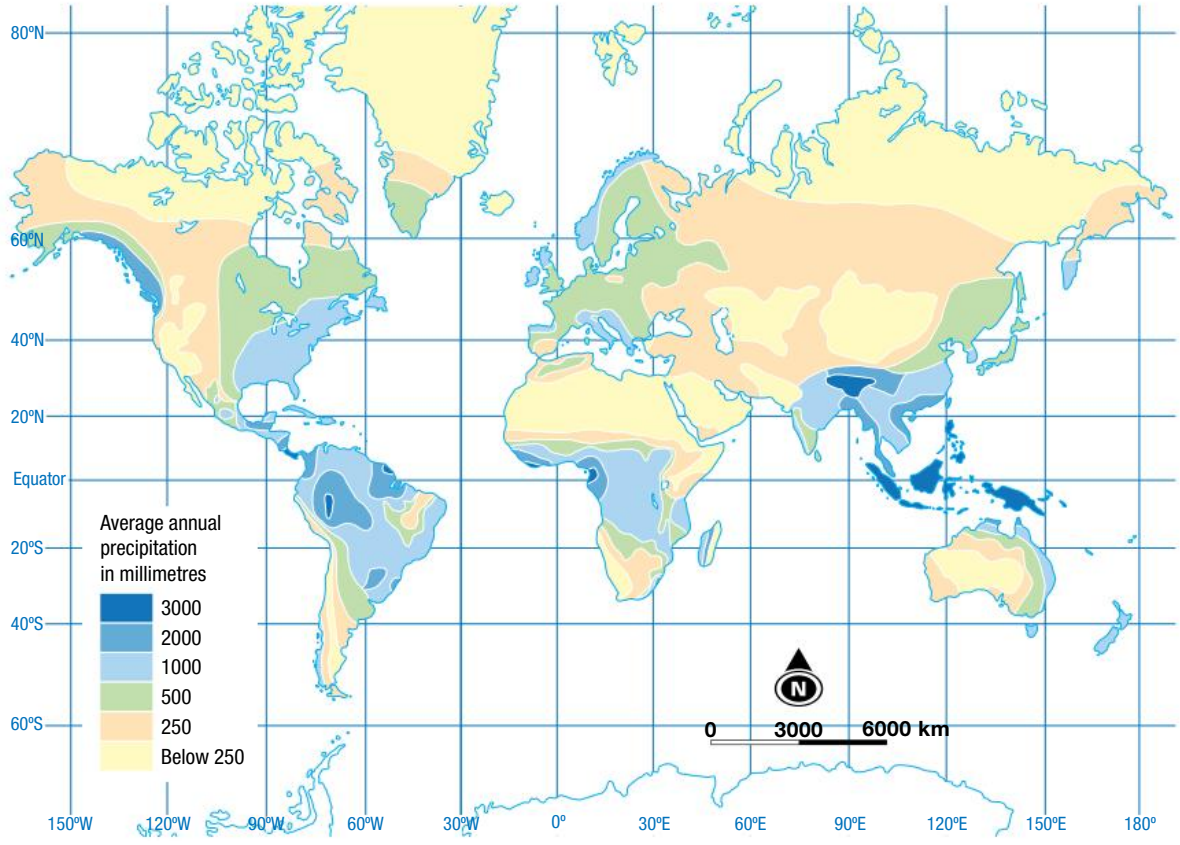
green water moisture in the soil

The rest of the water on the planet is either floating in the atmosphere or is contained in plants and animals. (Our bodies are approximately 60% water.) Also, imagine how many litres of water are sitting in our refrigerators and kitchen shelves in bottles of drink and foods that contain water. One of the biggest issues in the world is that water distribution is not equal over the Earth.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 2.2 Only a tiny fraction of the Earth's water is fresh and accessible.



Source 2.3 The average amount of rain that falls around the world each year

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

precipitation water that falls from clouds and may be in the form of rain, hail, snow or sleet

Rainfall across continents, and even across countries, is uneven and often inconsistent. Every continent (except Antarctica) has regions of high rainfall and regions of low rainfall. For example, parts of central western Africa receive over 2000 millimetres of annual **precipitation**, whereas the Sahara desert to the north receives less than 250 millimetres.

DEVELOPING YOUR UNDERSTANDING 2.1

1 List the sphere that water is located in for the following situations:
   - **a** groundwater
   - **b** water vapour evaporated into the air
   - **c** water travelling through a river
   - **d** water being taken up by a tree.
2 Construct a diagram showing the movement of water through the four spheres.
3 Explain why water is not always easily available even though it is so abundant.

RESEARCH 2.1

In small groups, research reasons why there are significant differences in rainfall between different regions of either China or the USA. For example, you could compare the south-eastern region to the north-western region of China. Consider differences in altitude (e.g. location of mountain ranges), temperature and climate events such as summer monsoons. There are links to websites that will help you with this task at www.cambridge.edu.au/hass7weblinks. Produce a report articulating these differences in the country you choose. Included in your report should be a map of rainfall in that country and descriptions of why differences in rainfall exist between the different regions.

2.2 Water for life

The water molecule is essential for life. This simple molecule, made up of two atoms of hydrogen and one atom of oxygen, has amazing properties.

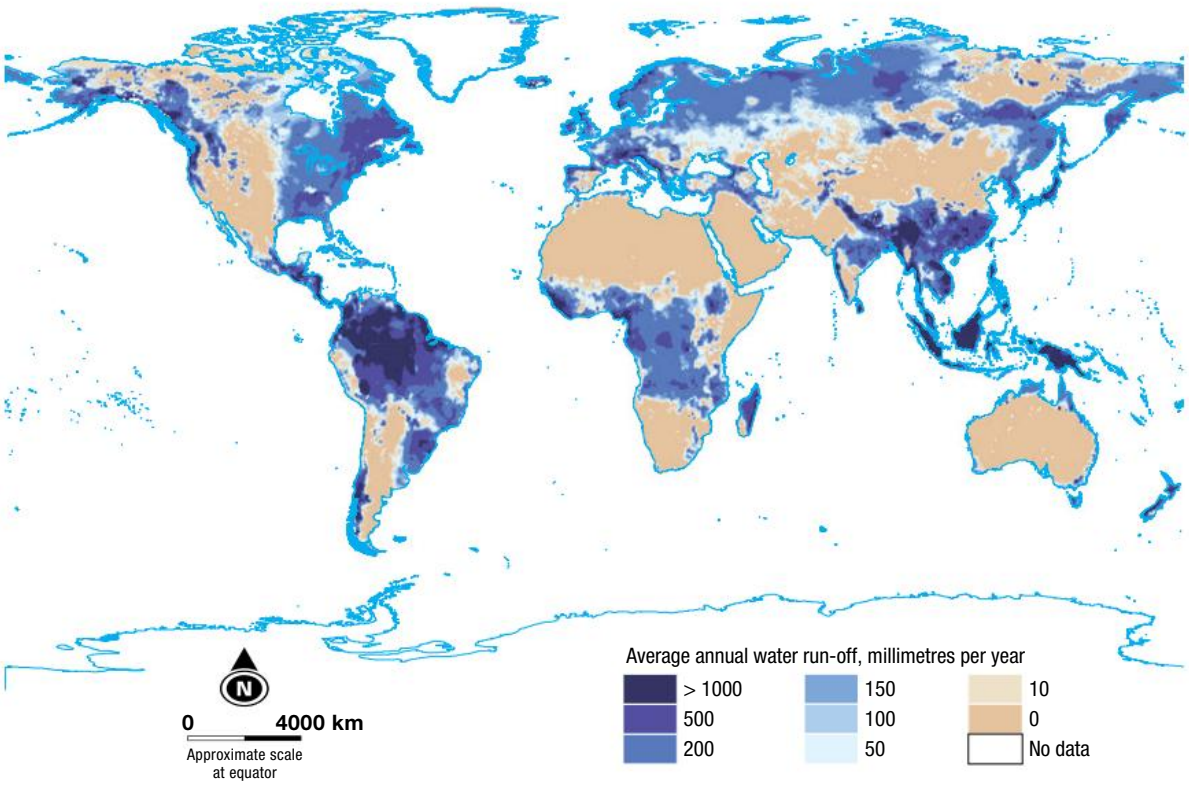
Where rain falls is crucial to the existence of life on Earth. More important than this, however, is **run-off**. Although all rain makes its way to the ground, a number of factors determine how much of this rain actually makes its way into rivers and lakes, where humans source nearly all of their water. One of these factors is **evaporation** – in Australia, for example, only a small proportion of the rain that falls actually runs off the land into our river systems, due in large part to very high evaporation rates.

run-off water (from precipitation) that flows over the land and collects in rivers, lakes, seas and oceans

evaporation the part of the water cycle where water changes from a liquid into a gas and escapes into the atmosphere

Source 2.4 shows the average volume of annual run-off by continent. It is important to note that the size of the continent will significantly affect run-off amounts, although comparing Australia and Asia, for example, will reveal significant differences in water availability.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 2.4 Average annual run-off by continent and volume

As for rainfall and run-off, the Earth's major river systems are unevenly distributed. Source 2.5 shows the location of the world's largest and most important rivers. Comparing this map with the average rainfall map (Source 2.3), you see that the locations of rivers do not always correspond with areas of high rainfall. For example, a number of significant rivers, such as the Ob River in Siberia,



Source 2.5 Major rivers of the world

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

flow through northern parts of Europe, where the annual average rainfall is very low (approximately 250 mm or below). When we consider Source 2.4, we notice that this region has a reasonable volume of annual run-off. How can this be? This is a region of substantial ice melt during warmer months, where arctic glaciers and ice caps grow and then melt on a yearly basis.

GEOGRAPHICAL THOUGHT

Did you know that Antarctica is actually a desert? It is the driest continent on Earth with virtually no rainfall. (The only precipitation falls as snow – on average 166 mm per year.)

DEVELOPING YOUR UNDERSTANDING 2.2

1 Explain in your own words what 'run-off' means.
2 Compare the map of average annual run-off (Source 2.4) to the map of rainfall (Source 2.3). How well do these two characteristics generally compare across the Earth? For example, do areas of higher rainfall normally correlate with areas of higher run-off?
3 Using the data from Source 2.4, suggest why Europe has a much lower average volume of run-off than some continents.
4 Locate the following rivers in an atlas or on an online map:
   a Amazon
   b Mekong
   c Nile
   d Rhine

RESEARCH 2.2

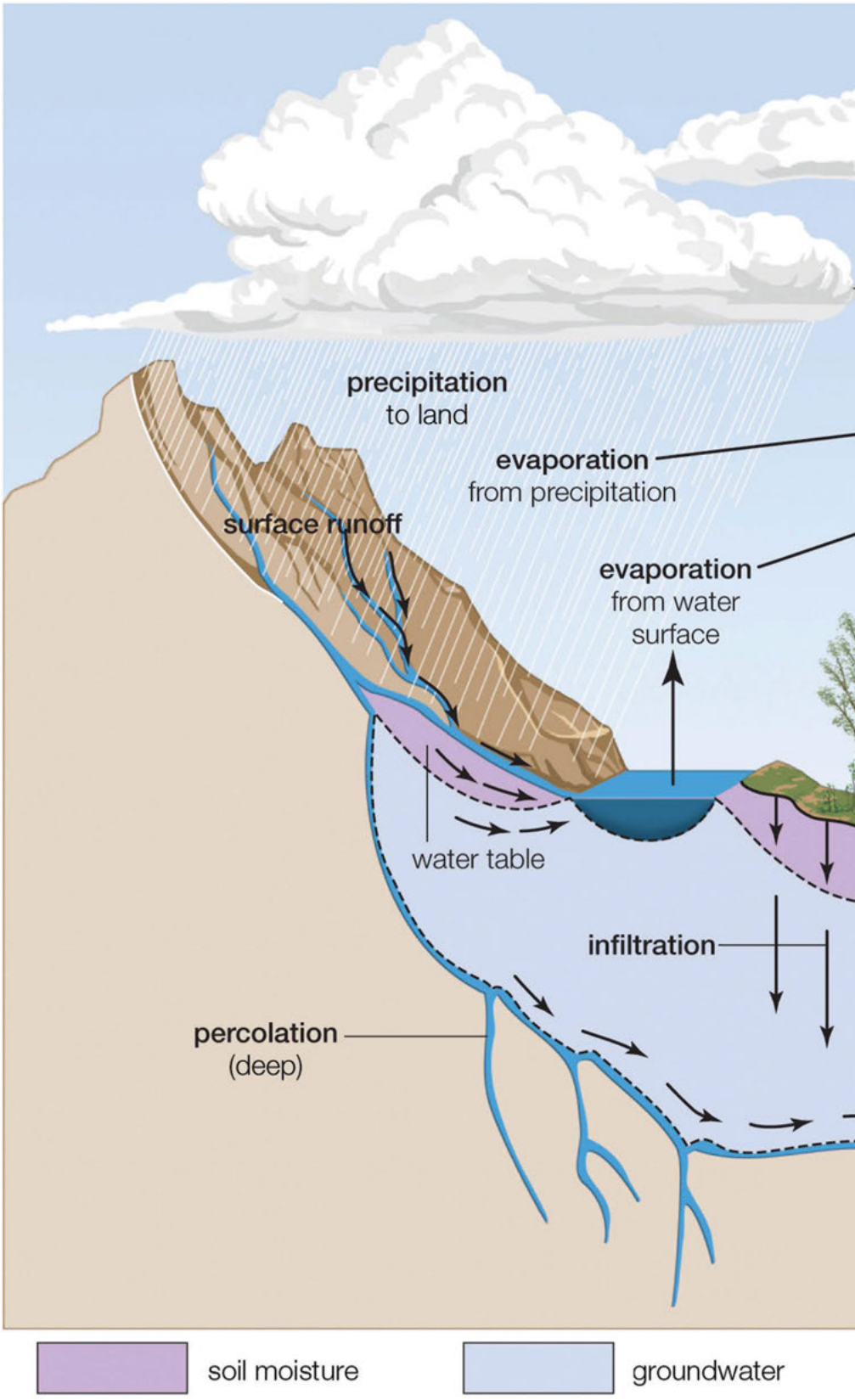
Produce a poster advertising water to aliens on another planet. Include on the poster pictures and descriptions that show how crucial water is to life on Earth. Create an advertising slogan (e.g. 'Water – life's miracle molecule'). You will find links to useful websites to help with this task at www.cambridge.edu.au/hass7weblinks.

2.3 The water cycle

Although much water on Earth is locked away for a time (for example, in ice sheets or underground) people are most interested in the water that is constantly on the move through the environment, connecting different spheres and locations as well as shaping the landscape around us. We have already learned a little about one of the water cycle's key processes – run-off. Now let's learn a bit more about the journey of water.

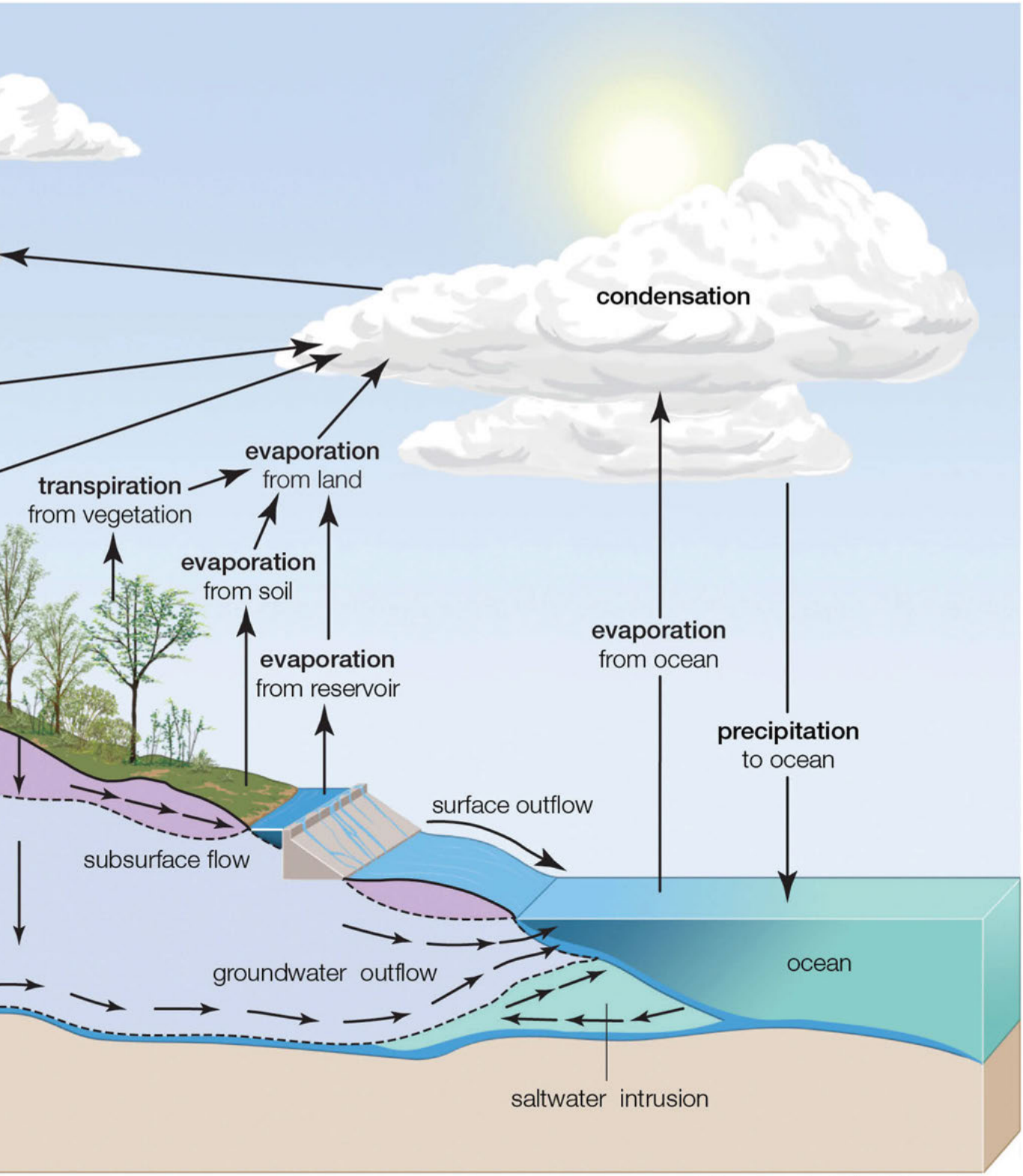
Most of the evaporation that essentially kick-starts the water cycle occurs over oceans, where water is transferred from the hydrosphere to the atmosphere. Weather and climate patterns influence evaporation rates. For example, ocean temperatures differ significantly throughout the Earth – where there are warmer ocean currents there is more evaporation, since it requires less heat from the sun to increase the water temperature

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 2.6 The water cycle

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



The ocean covers 71% of Earth's surface (510 000 000 km$^{2)}$

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

blue water freshwater in lakes or rivers

aquifer a geological formation containing groundwater that can supply water to wells or springs

evapotranspiration the process whereby water travels up through plants and is released into the atmosphere by evaporation

transpire to absorb and release heat as water evaporates from plant leaves or animal skin (thereby cooling the plant or animal)

to a point where it changes from liquid to water vapour.

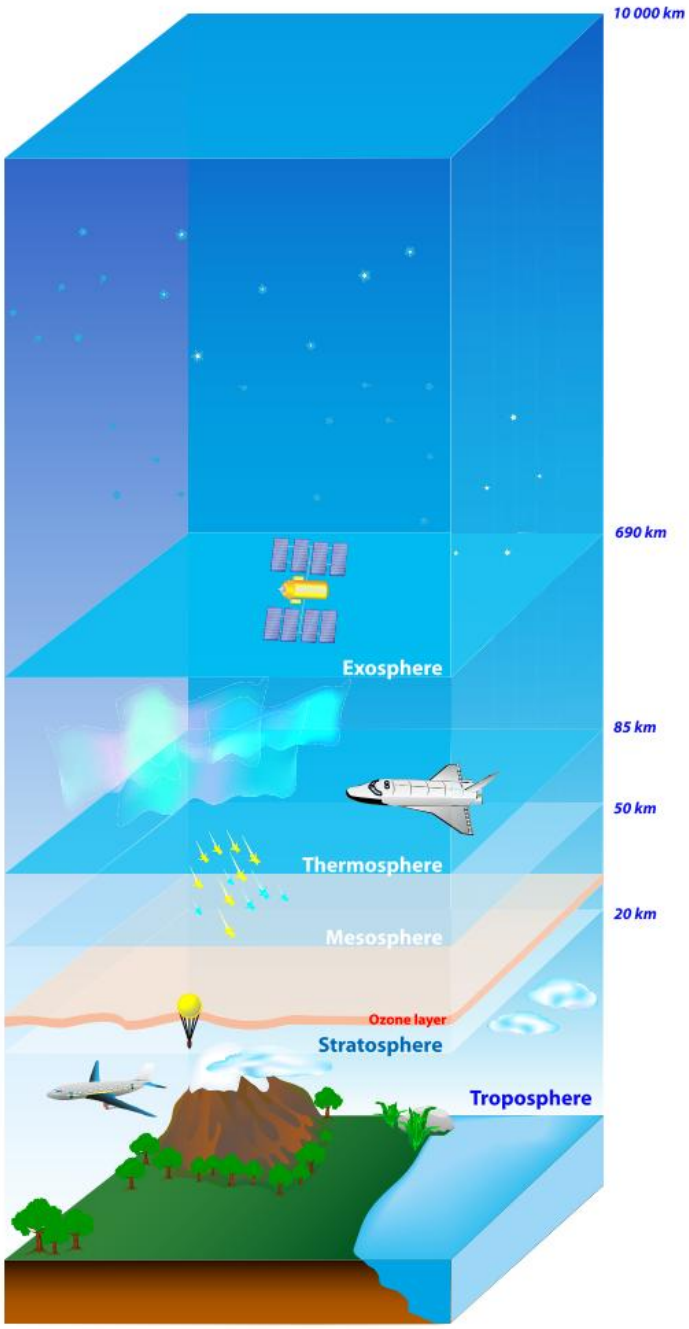
Water also moves from the lithosphere (in the soil) to the atmosphere, usually via trees and plants (i.e. the biosphere). Water moisture in the soil may be referred to as 'green' water, as opposed to freshwater (e.g. surface water or **blue water**) in lakes and rivers, or underground **aquifers**. This green water travels up through the soil via plant roots, then through the capillary action of water it moves up through the plant to the leaves, where the heat surrounding the leaves causes water to evaporate into the air – this whole process is referred to as **evapotranspiration**.

As humans, we also **transpire** as we sweat, with water being transferred from liquid to water vapour in the external environment. In this way we release heat that has been previously stored between water molecules. Essentially, 'evapotranspiration' means evaporation is driving this transpiration process.

Water turns from liquid to gas through the process of evaporation, and the opposite occurs when temperatures drop in the atmosphere. The atmosphere is made up of four main layers, all varying in their amount and composition of gases. As you go up in height, the air gets colder. The **troposphere** is where the weather occurs. In the upper parts of the troposphere, the temperature drops to a point where water molecules slow down and join together as they collide, through the process of **condensation**. As condensation occurs, clouds begin to form, carrying the water that will eventually become rain.

troposphere the atmospheric layer closest to the ground, containing 99% of the atmosphere's water vapour

condensation the process whereby water molecules join together and so change from a gaseous to a liquid state



Source 2.7 Major layers of the atmosphere

Precipitation occurs when water falls to the Earth's surface, and it may take the form of rain, hail, snow or sleet. Rainfall is the most common form of precipitation; it usually occurs when clouds or water vapour travel from warmer air to cooler air. As the air cools, water droplets become heavier and the air reaches a point where it is unable to hold the moisture, and thus the water falls as rain. Such changes in air temperature may have different causes depending on the climate and on factors such as ocean conditions and the **topography**. Later in this chapter, we will learn more about different causes of rainfall.

topography the shape of the land

Once the rain has fallen, it either runs off the land or infiltrates the soil or groundwater aquifers.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 2.8 The Noosa everglades on the Sunshine Coast, Queensland. The constant mixing of water from the Coral Sea and the Noosa River create a beautiful environment with a variety of flora and fauna including mangroves, turtles, dugongs and dolphins.

Much water that enters the groundwater system still makes its way back to the ocean through groundwater flow.

The amount of run-off or **infiltration** that occurs is influenced by the soil type; for example, loose sandy soils allow rainfall to sink through the ground easily, whereas clay soils form a barrier and more water runs off the land. Plant cover also contributes to this, since plants intercept and soak up water and may therefore reduce run-off. However, the most important factor in determining how much run-off occurs is the amount and regularity of rainfall. One large downpour of rain will not produce as much run-off as consistent rainfall. Once soil becomes soaked and is unable to soak up more water, any additional rainfall is able to run off into rivers or lakes. As we will learn later, this is why in Australia run-off is highest in northern regions, where the climate is tropical and rainfall is heavier and often more consistent.

infiltration the process by which water on the ground surface soaks into the soil

While humans and animals rely directly on freshwater, 'green' water that infiltrates the soil is crucial to plants, crops and the habitats of many creatures. Whereas we refer to water in the ocean as salty or saline, this 'green' water is often classified as brackish, meaning it is slightly salty.

Other locations where **brackish water** is common are in **intertidal zones** or **estuaries**. Estuaries are important environments where this brackish water combines with tidal changes to create unique ecosystems. To survive in these conditions, plants and animals living in estuaries must be able to respond quickly to drastic changes in **salinity**. For example, during low tides when they are exposed to low-salinity water, oysters close up their shells and stop feeding. Isolated in their shells, they switch their breathing to a method that does not require oxygen. When high tides return and the salinity and oxygen levels in the water are much higher, the oysters open their shells and return to feeding and breathing oxygen. Another

brackish water water that absorbs salts from the soil but has a lower salt content than seawater

intertidal zone the area at the edge of a body of water (e.g. the ocean) that is exposed at low tide and underwater at high tide

estuaries bodies of water formed where freshwater from rivers and streams flows into the ocean, mixing with the seawater

salinity the salt content of water

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 2.9 Mangroves on Cape Tribulation. Australia has the third largest area of mangroves in the world after Indonesia and Brazil, totalling around 11 500 square kilometres.

mangrove tree a type of tree with unique features that enable it to grow in intertidal zones or estuaries

example of impressive adaptation to this ever-changing environment is **mangrove trees**. Mangroves are fascinating trees that avoid competition with other plants by living in locations where most plants cannot survive. Some mangrove species have special salt glands that enable them to quickly pass the salt out of their systems once it has entered. Some mangrove roots contain a waxy substance that helps keep salt out. Because there is little oxygen in the estuary, many mangroves raise part of their roots above the surface. These roots are covered in special breathing cells that draw in air.

GEOGRAPHICAL THOUGHT

The troposphere contains approximately 99% of the water vapour in the atmosphere. So above the troposphere is almost completely devoid of water.

Water through a catchment

As we learned earlier, evaporation is a significant cause of low run-off rates in Australia. High evaporation rates are due mainly to the dry heat of the Australian interior, although the fact that it is also a relatively flat country does not help – this means that water flows slowly over the landscape and often evaporates before it has the chance to reach a stream or river.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

catchment (or drainage basin) the total area where water from precipitation collects and drains downhill into a body of water such as a river, lake or ocean

tributaries smaller rivers that flow into larger rivers

river mouth the end of the river system where water exits into a sea or lake

Rivers are a part of a larger system of **catchments** (or drainage basins). Changes in topography mean that water enters different catchments depending on where it falls. Catchments are often separated from each other by a physical barrier, such as a ridge or mountain. The total catchment area of a major river like the Amazon includes all the **tributaries** that flow into it. Following rainfall, a significant amount of water can be collected and drained through a river system. Points at which rivers and tributaries begin – their sources – are commonly higher up in the landscape. From there, water travels downhill by the power of gravity until it reaches the **river mouth**.

As water journeys along a river, it carves out the landscape through different processes. Everywhere we look today in nature, the landscape has been shaped by wind and more significantly by water. Rocks along the surface of river beds are broken down and carried away by the processes of **weathering**, **erosion** and **transportation**. Weathering is essentially the loosening of rocks by atmospheric conditions (e.g. by heat or water) or by chemicals (such as the chemicals produced by biological organisms like fungi, or those found in the atmosphere). This loosened rock material may then be broken down further by erosion. Unlike weathering, erosion involves the movement of material. The force of water as it travels with gravity downhill is enough to remove some rock material from its location (**hydraulic erosion**), while rocks and sediments carried by the river also wear away and erode the river bed (**abrasion**).

weathering the loosening of rocks by chemical or physical processes

erosion the wearing away of the surface of the Earth by the action of wind and water

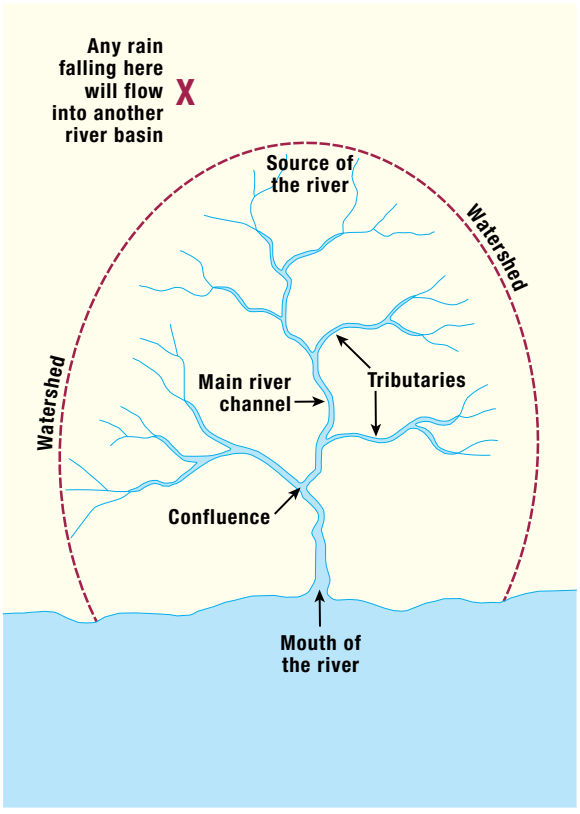
transportation the process of moving along sediments (rock materials and soil) by water or wind

hydraulic erosion erosion caused by the power of water and gravity

abrasion erosion caused by rocks that are carried along by water

deposition the laying down of sediments that have been transported by water or wind

Finally, material that has been weathered and eroded can be transported along the river until there is not enough energy left to carry it any longer and **deposition** occurs. At this point, the sediments drop to the bottom and are deposited on the river bed. The distance sediments travel depends on both the speed of the river and the size of the sediments, although most of the transported material is deposited near the river mouth where the slope is very gradual. One key point here is that the sediments created by broken-down rock material are combined with organic (biological) material to create soil. Next year, we will be learning a lot more about soils, landscapes and the processes that shape them. Soils are not only crucial for the environment but also for farming, an important human activity upon which civilisation depends. While 'blue' surface water is where we access our drinking water, it is the 'green' water held in soils that supports most of the world's food production.



Source 2.10 An individual catchment



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 2.3

1 With a partner, cut out 16 cards. On one side of the cards, write the key terms listed below:

hydraulic erosion	condensation	tributary	topography
precipitation	river source	abrasion	run-off
weathering	deposition	catchment	river valley
sediments	river mouth	evaporation	river delta

On the other side of the cards, write your own definitions for the terms. Test your knowledge of these terms with your partner by randomly selecting cards. You might even like to join up with another pair and play a game of *Pictionary* with the cards.

2 Explain the difference between 'blue' water and 'green' water.

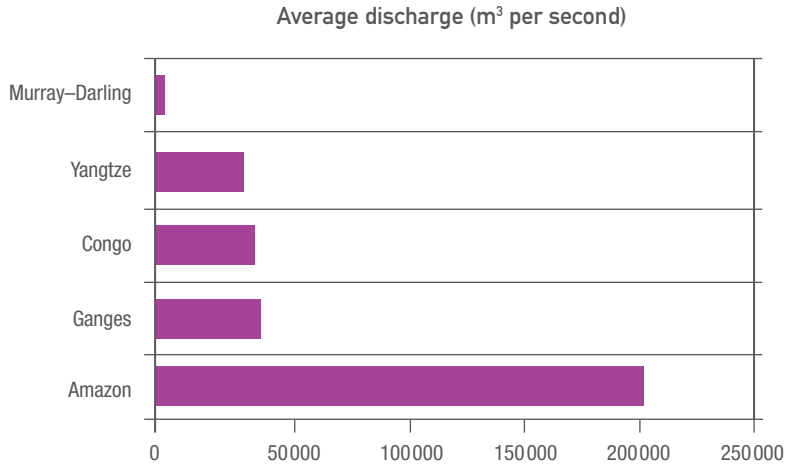
3 A home owner intends to dig a bore (hole) into the ground so that he can access the groundwater below to use on his gardens. The home owner thinks that this is not going to have an effect on the water cycle. Discuss in small groups whether you think the home owner is right or wrong. Justify your decision to the class.

4 Cape Agulhas is the southernmost point of Africa. Refer to an atlas or research online to find out why this place experiences different ocean temperatures on either side. Explain how this difference might affect where most of the rain comes from at this location.

2.4 Water in Australia

As we have already seen, it is not just the location of water that is important, but also the amount. Source 2.11 shows the four largest rivers in the world based on the volume of water that exits the river system as each enters its river mouth. Also included is the Murray–Darling – Australia's largest and most important river system.

The 209 000 cubic metres of water that exits the Amazon River per second accounts for nearly one-fifth of all the freshwater that drains into the oceans of the world, and yet the Amazon River basin is currently accessible to just 25 million people (0.4% of the world's population). So much water pours out of the Amazon that the salt content and colour



Source 2.11 Average discharge of water from some of the world's major river systems and the Murray–Darling system

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

of the Atlantic Ocean are altered for a distance of about 320 kilometres from the mouth of the river.

Compare this to the Murray–Darling river system, where only 391 **cubic metres** of water exit per second. As we shall see in the next chapter, the Murray–Darling river basin is our most important farming region, producing around one-third of Australia's food supply. Despite our reliance on this river system, the amount of water that travels through it is very small on a global scale. To put the volume of water the Amazon carries in perspective, the Murray–Darling's length is more than half the Amazon's (3370 kilometres compared to the Amazon's 6400 kilometres) and yet the Murray–Darling discharges less than 0.2% of the water that the Amazon discharges! So why such a difference? Let's find out.

cubic metre the volume of a cube with its edges 1 metre in length (equal to 1000 litres)



Source 2.12 The mighty Amazon River

RESEARCH 2.3

Investigate Lake Eyre and produce a digital presentation (e.g. PowerPoint, or a website using Weebly, Wix or Prezi), advertising it as a diverse and fascinating tourist destination. Present your advertisement as if you were the Lake Eyre representative at a tourism exhibition promoting Australia in another country. Include details on recent floods, cultural sites, the use of the land by Indigenous people, the changeable ecosystem (e.g. its role in the desert and as a periodic wetland environment) and any other interesting features of the region. You will find links to a number of useful websites at www.cambridge.edu.au/hass7weblinks.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Water cycles through Earth's four spheres (atmosphere, hydrosphere, lithosphere and biosphere) via processes such as evaporation, condensation, precipitation and run-off.
- Even though 71% of the Earth's surface is covered by ocean, only a fraction of the water is fresh and most of this is inaccessible to humans.
- Water is distributed unevenly across the Earth.
- Rainfall rates are variable and inconsistent, particularly in Australia.
- Run-off rates are crucial to the people and the environment, and are influenced by rainfall, evaporation rates and the shape of the land. Run-off rates are particularly low in Australia.
- Water is found in all three physical states on Earth, each of which provides water with unique properties that make it such an essential resource for life on Earth.
- Water carves out the landscape through processes such as erosion, transportation and deposition.

Short-answer questions

1 Identify two reasons why the Murray–Darling river system has less than 0.2% of the flow of the Amazon River.

2 Deduce which process is associated with water movement from the hydrosphere to the atmosphere.

3 Describe where mangrove trees grow and what adaptations enable them to thrive in that particular environment.

4 List all the places the world's water is stored.

5 Describe how the soil type influences the amount of run-off that enters a river system.

Extended-response question

Describe in detail the journey of water in a large river system as it travels from the river source (high up in the hills) to the river mouth (where it exits to the sea). You may need to research types of land forms associated with river systems and where they occur. For assistance, navigate through the website links at www.cambridge.edu.au/hass7weblinks.

You may choose to either draw a diagram of the river system (annotated with descriptions) or write your description as a story (with a water molecule as the main character). Include the following details in your description:

- how water enters the river system – via the water cycle
- processes of weathering, erosion, transportation and deposition
- land forms such as waterfalls, floodplains and estuaries or deltas.



Source 2.13 Cliffs along the Murray River in South Australia

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



3 Value of water

Before you start

Main focus

Water is valued in different ways by individuals, groups and organisations in society because they all use water differently.

Why it's relevant to us

Water is all around us. It is a valued natural resource that plays a part in every culture on Earth.

Inquiry questions

- What are the different ways in which water is used?
- What values do people place on water?
- How does water contribute to identity?
- Why do people live near water?

Key terms

- Aesthetic value
- Agriculture
- Cultural value
- Diversion
- Economic value
- Globalisation
- Hydroelectric
- Hydropower
- Industrialisation
- Irrigate
- Recreational value
- River regulation

Let's begin

People see and value water in different ways. Some use it for profit, some use it for sport and some link it to health. Others interact with it because water is a part of their culture and they appreciate it for what it is. Some people travel to see spectacular land forms shaped by water and amazing geographical features such as the Niagara Falls in Canada and the Victoria Falls on the Zambia–Zimbabwe border. From the largest ocean to the smallest drop of rain, water affects people's daily lives; it is a precious resource that needs to be looked after now and for future generations.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

3.1 Uses of water

Transport

One of the earliest recorded uses of water was in ancient Egypt. When it was discovered that the River Nile was the fastest transport route through ancient Egypt, boats began to be built for various purposes. One of the more famous purposes was to carry massive stones hundreds of kilometres in order to construct the colossal pyramids. Travelling on the River Nile was an easy task when travelling northward, as the currents did most of the work.

When travelling against the current, cargo boats were rowed by teams of men with many sets of oars, although at times of low wind the men had to tow the boats along the river with long ropes from the banks. The Egyptian empire spread along the Nile, and transportation and trade allowed by the Nile were key factors in the formation of Egyptian society.

The 1400s through to the 1600s CE was a period known as the 'Age of Exploration', in which the discovery of new lands by ship led to important trade routes; for example, between Asia and Europe. Many important sea ports were established, often in association with new settlements. One of the oldest ports in the world, dating back to 1900 BCE, is that of Alexandria, located on the western edge of the Nile delta. It still handles over three-quarters of Egypt's foreign trade. Settlements have been established throughout the world along coastlines and harbours, such as in Port Phillip Bay in Melbourne, which has been crucial to Melbourne's growth and development and is now Australia's busiest commercial port. The spectacular harbour of Rio de Janeiro is considered one of the natural wonders of the world, with the famous city of Rio squeezed in between the harbour and the beautiful granite mountains that surround it.

Several of the largest ports in the world today are located in China. Illustrating the rapid and immense scale of China's **industrialisation**, these ports connect the country with hundreds of other countries and ports around the world, and handle millions of cargo containers every year. They represent the enormous importance of water transport to the world economies and to **globalisation**.

industrialisation the modernisation of a country, involving large-scale infrastructure development, economic growth and a movement towards more efficient, mechanised methods of production

globalisation the process by which the world is becoming more interconnected, with an increase in social and economic integration between countries (e.g. an increase in international trade and communication)

Source 3.1 Today, the River Nile is still used extensively for transport, although some of the boats are bigger, more sophisticated and used for tourism (look at the number of cruise ships) and recreation, among other purposes.



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.2 Qingdao port in China, located on the Yellow Sea, has connections with 450 ports in 130 countries and has strengthened significant trade relations with other nearby huge ports in Korea.

GEOGRAPHICAL THOUGHT

Port Phillip Bay in Victoria handles over $75 billion in trade every year.

GEOGRAPHICAL THOUGHT

Mesopotamia was part of the 'fertile crescent' along the Tigris and Euphrates rivers, a region that became known as the 'cradle of civilisation'. It was there that the earliest human civilisations developed, as the inhabitants were able to use the fertile soils and groundwater for agriculture.

Agriculture

agriculture the farming of animals and plants (crops)

Mesopotamia the region around the Tigris and Euphrates rivers – modern-day Iraq

One of the most important uses of water throughout history has been in **agriculture**. Since the beginning of human settlements, water has been required to grow crops and food. The first successful efforts to control the flow of water were made in **Mesopotamia**, as well as in ancient Egypt, where a lack of rainfall caused the pharaohs to order the construction of underground canals to tap into groundwater aquifers.



Source 3.3 Satellite image of the Nile delta, where the silt carried by the Nile spreads out and extends into the Mediterranean Sea. Notice the stark comparison of the River Nile with the Sahara Desert through which it flows.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Rivers and groundwater sources are not the only places that have been farmed. Commercial fishing is one of the oldest and most important industries in the world. Today, more than 90 million tonnes of fish are captured each year through commercial fishing, but at a cost, with hundreds of species extinct already and global fish stocks at critical lows.

Today, ocean agriculture also uses food and water resources on a significant scale. For example, seaweed farms have been established and are growing in places like China and Indonesia (Source 3.5). The harvested seaweed is used for food, medicine, fertilisers and industrial purposes.

Recreation

Water has always had properties that make it ideal for various recreational purposes. During the Roman occupation of Britain, hot springs (in which water is heated to between 64°C and 96°C by geothermal energy) were discovered, and the now famous bathing complex at Bath was constructed (see Source 3.6).



Source 3.4 The population density in Egypt clearly demonstrates people's continued dependency on the water

Source 3.5 Sustainable seaweed farming in Bali, Indonesia. The seaweed grows on lines (resembling clothes lines or swimming ropes) and the local people trawl down the lanes on canoes.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.6 The Roman Baths, in the appropriately named city of Bath in England, are now a major tourist attraction.

Today, swimming pools have been built just about everywhere possible, and they are a favourite pastime for much of the population. Water has also been used to keep sporting fields, as well as golf courses, green.

Today, several golf courses have been grown in desert regions like Arizona and Dubai. These courses now hold significant international tournaments, and present striking examples of human utilisation of water and the contention involved in using water as a resource (Source 3.7).

Spiritual wellbeing

Another value of water for people has been in its use for spiritual purposes. For example, the Ganges in India has been considered by many Indian people to possess supernatural powers, and it has thus played a dramatic role in their spiritual lives. Ever since John the Baptist anointed people in the Jordan River at the time of Jesus, water has been a symbol of cleansing and redemption for Christians.



Source 3.7 Golf courses in the desert use as much as a staggering 3.8 million litres of water a day. This can cause considerable conflict over water resources, although some courses are starting to use recycled water and more drought-tolerant grasses in efforts to reduce some of their water demand.



Source 3.8 Theme parks, such as Wet'n'Wild on the Gold Coast, have a very obvious reliance on water for recreation.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Aesthetics

You only need to look at the beauty of rivers and waterfalls to recognise the **aesthetic** role of water in the landscape. Humans, likewise, have used water for aesthetic purposes, from elaborate fountains in Renaissance Europe to water features in domestic gardens throughout the world. Some of these features have also been used to demonstrate power and wealth.

aesthetic relating to the nature and appreciation of beauty

Water also has an important place in the history of military conflict. Civil defences have been built along coastlines and around harbours, and societies from ancient to modern times have fought important battles on the seas. Water features prominently in art, and has also been important in the industry of mining and in harnessing the power of water for hydroelectricity, which will be explored more thoroughly later in this chapter.



Source 3.9 The Trevi Fountain, constructed in seventeenth-century Rome, is still one of the most beautiful and historic cultural landmarks in the region.

Health

Another notable use of water has been in health care and medicine. Hydrotherapy, the use of water for pain relief and treatment, is believed to have been used in ancient civilisations, such as that of the Greeks. Thermal springs have also been used for health and relaxation purposes by many cultures and peoples around the world, and even by monkeys in the mountainous Nagano region of central Japan (see Source 3.10).



Source 3.10 Monkeys head to Japan's volcanic thermal springs to bathe, particularly when snow from Siberia sweeps over the Japanese mountains and temperatures plummet to below freezing.

RESEARCH 3.1

Choose one of the following locations and investigate its use of water; for example, if it is used for amusement, for transport, for aesthetic beauty or for other purposes:

- Suez Canal
- Tivoli Gardens
- Venice canals.

Write a report about the purpose this use has played in human history, including in the present day. Include photos in your report.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 3.1

1 Identify as many different uses of water as you can find in this chapter. Suggest some that are not mentioned.

2 In 331 BCE, Alexander the Great cleared sand and silt deposits out of Alexandria's port to enable it to operate as the military base for his boat fleet. What was the likely cause of this sediment build-up?

3 Name a major water resource other than Port Phillip Bay that influenced the choice of Melbourne as the location for a new settlement. How do you think this resource was used?

4 Seven of the world's 11 largest cargo ports are located in China. With a partner, account for why this might be the case.

Economies and communities based on irrigation

Throughout history, people have been growing plants for food, materials, aesthetics and health remedies, among other purposes. Civilisations and societies have been built around agriculture and the trade it stimulates. In many countries of the world, including China, people still rely on farming to feed their own families; this is known as subsistence farming. All farms need water, and farms have always been either rain-fed – relying only on rainfall – or **irrigated**. Even in desert regions, people have tapped into water sources in order to irrigate farmland, as we shall investigate.

irrigate to water farmland using water that has been diverted (e.g. by human-made channels) from the river system



Source 3.11 Spectacular salt deposits on the edge of the Dead Sea



Source 3.12 Floating on the Dead Sea – a popular tourist activity

GEOGRAPHICAL THOUGHT

The Dead Sea, located in both Jordan and Israel in the Middle East, is one of the saltiest locations on Earth.

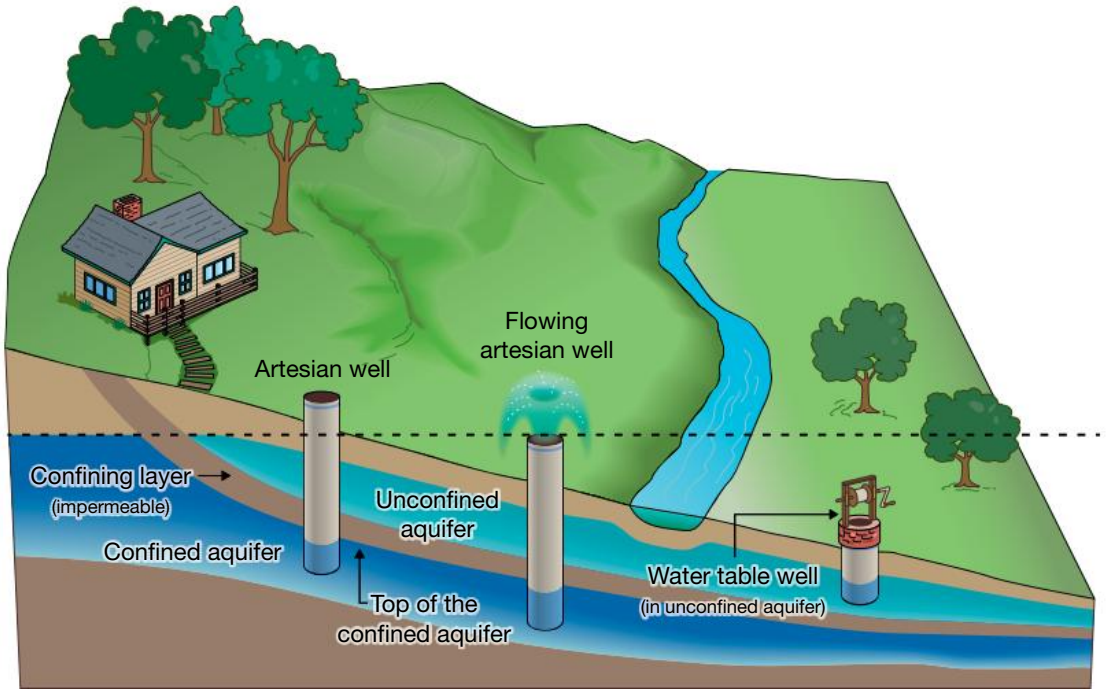
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.13 Large hydroponics tents near the Dead Sea use collected rainwater to grow plants, including vegetables and flowers.

Agricultural regions in different countries of the Middle East and northern Africa include some of the most amazing examples of technological advancements and human exploitation of the environment anywhere in the world. The Sahara Desert and the Arabian Peninsula are extremely **arid** regions where the little rain that falls either seeps into the desert sands or quickly evaporates. In such regions, where surface water is scarce, you can find some of the largest underground water systems on Earth.

arid having a severe lack of rainfall – below 250 millimetres per year



Source 3.14 An aquifer. Tapping into underground water systems, where water is confined between rock layers, is important in many regions worldwide.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Libya

Libya, in northern Africa, is one of the driest countries on the planet, receiving less than 100 mm average annual rainfall. While the desert in Libya was being searched for oil reserves in the mid-twentieth century, the Nubian Sandstone Aquifer System was discovered. This is the largest known fossil water aquifer in the world, located in four countries in the eastern end of the Sahara Desert. Fossil water is groundwater that has become trapped and sealed between rock layers for thousands or even millions of years. It is a **non-renewable** water resource, as it is not being replenished by rainfall.

non-renewable unable to be naturally replenished and sure to be used up at the human rate of use

The Nubian Aquifer spans an area of over 2 million square kilometres, and contains an estimated 150 000 cubic kilometres of groundwater. Only in recent years has the potential of this water resource begun to be realised. In 1983, one of the largest engineering projects ever undertaken began in Libya. Appropriately named the 'Great Man-Made River Project', it will result in water being pumped through an incredible 4000 kilometres of pipelines from 1100 wells and five major reservoirs. This water will supply most of the domestic needs for Libya's 6.3 million people and, more significantly, will expand the nation's agriculture through irrigation.

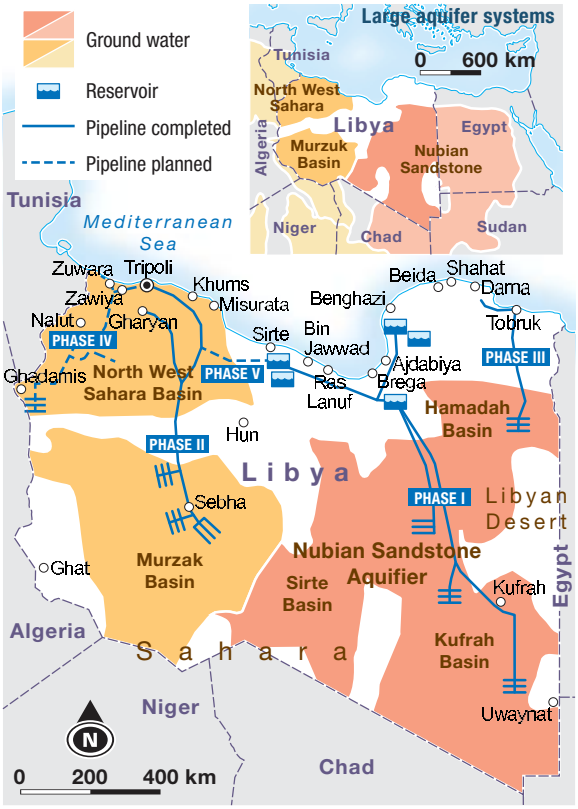
Until Libya's pipeline project is completed, much of the population will continue to rely on **desalination plants** for their water needs. One of the problems with desalination plants is that they are very expensive, even compared with the Great Man-Made River Project. They also require a significant amount of energy to run, although at least the water being used is **renewable**.

desalination plants factories that convert seawater, through a complex scientific process, into fresh drinking water

renewable able to be naturally replenished and not be completely used up at the human rate of use

Saudi Arabia

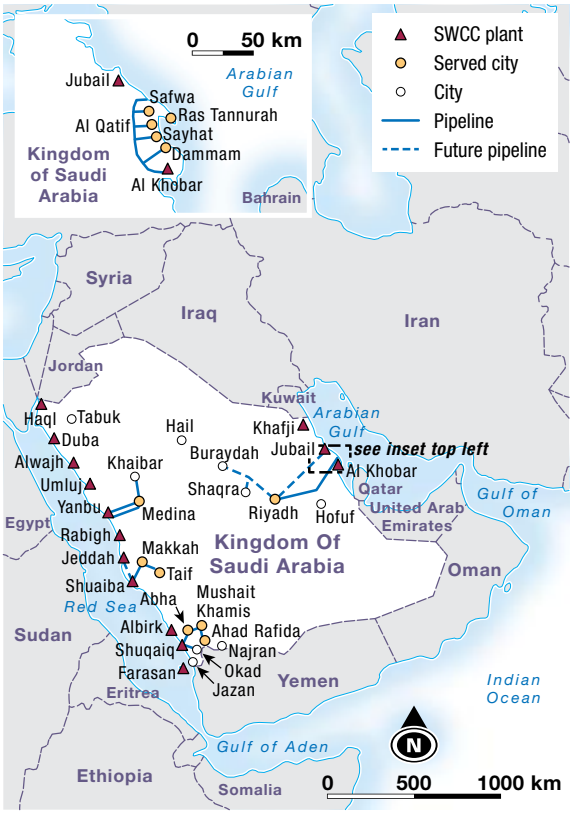
Saudi Arabia has been dependent in recent times on water from desalination plants. However, its major non-renewable groundwater reserves have also been tapped into and, amazingly, have been used to grow large quantities of various types of food. Around 95% of the farming area in this arid country is irrigated by groundwater at a rate that has become unsustainable. Although Saudi Arabia's





Source 3.15 Libya has been working since 1985 to irrigate 387 000 acres of arid land and provide several major cities with water.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.16 Desalination plants are dotted along the Saudi Arabian coastlines, utilising seawater as a resource.

groundwater reserves are being replenished by rainwater, the rate at which water is being taken for farming far outstrips this. Ironically, if Saudi Arabia is to continue its irrigated farming, it will need to do the opposite to what Libya has done, and increase its reliance on desalination plants. The cost to Saudi Arabia, already the largest producer of desalinated water in the world, of building new plants could reach a staggering $200 billion. This is a stark example of why water is such an incredibly valuable economic commodity and, unfortunately, why we so often overuse water in locations where there is a limited supply.

Terrace farming

We have transformed some deserts into agricultural oases, but many regions throughout the Earth receive enough rainfall to be intensively farmed without the need for irrigation. For centuries, civilisations have relied on rainfall to grow enough food to be self-sufficient. **Terrace farming** shows some of the most visually striking

terrace farming a farming method in which a series of steps (terraces) are levelled on the side of a hill or mountain for agricultural production

Source 3.17 Some of the most spectacular examples of rain-fed rice terraces are in the Philippines. Terraces in the Ifugao region, within the Philippine Cordilleras (mountain ranges), are classified by UNESCO as a World Heritage Site as they represent a long history of sustainable farming practices in a location of dramatic beauty.



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

examples of agriculture in the world. The most common crop type grown on terraces is rice, which thrives on the high rainfall rates in regions with high elevation and tropical climates. Rainfall runs off each terrace and on to the next, like a giant water feature, slowing the otherwise rapid surface run-off – a system that improves soil and water conservation.

Rice terraces are also common in regions of South-East Asia. For example, breathtaking terraces are found in mountainous regions near the Red River, which flows through southern China and Vietnam. In Sa Pa in northern Vietnam, rice terraces have been created by ethnic tribes, while in Yuangyang County in southern China, terraces drop from summits some 2500 metres high in the Ailao mountain range.

One of the problems of terrace farming in some regions is that maintaining the terraces can be costly and difficult. This is highlighted in the Ifugao region in the Philippines, where the terraces are beginning to collapse due to forest destruction and exploitation and damage by earthworms, since the nearby forests are located in the watershed area where water is collected. This is a reminder that environments are interconnected: when we affect one location, we are likely to affect another nearby.

The importance of irrigation

We have seen just a few examples of agriculture on a planet where farming has sustained life for thousands of years. We have heard about the importance of irrigation from fresh surface water and groundwater sources, in particular in regions where rainfall is low and/or variable. However, green water – rainfall that infiltrates and remains in the soil – has, throughout history, been every bit as important. Rain-fed agriculture produces around 60% of the world's staple food supplies. In some regions, such as sub-Saharan Africa, almost all food production depends on green water. With intensifying future challenges to agriculture, such as population growth, climate change and extended droughts, water (whether it be freshwater or green water) is critical to any vision of sustainability.

Source 3.18 In South America, rice terraces were developed in the fifteenth century by the Inca people of Peru. They created the terraces on extremely steep slopes by building dry stone walls. The most famous of these are at the elevated ancient town of Machu Picchu. An icon of the famous Inca Empire, Machu Picchu was voted in 2007 as one of the 'New 7 Wonders of the World'.



ISBN 978-1-107-43510-0 © Malcolm Mc[illegible] et al. 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 3.2

Examine a groundwater system (natural or human-made) that is not discussed in this chapter (e.g. the ancient step wells of India, the underwater caves in Florida or an above-ground ancient aqueduct such as the Pont du Gard in the south of France). Produce a poster advertising your chosen system as a tourism destination. Include on your poster a location map, descriptions of the history and formation of the groundwater system, and photos.

DEVELOPING YOUR UNDERSTANDING 3.2

1 Suggest why plants find it difficult to grow naturally near the Dead Sea. Discuss one way in which this difficulty has been overcome in order to grow food in this region.

2 We have learned about the extraction of groundwater resources. An aquifer is the natural underground reservoir of water, whereas an aqueduct is a human-made channel for transporting and extracting (via wells) the groundwater. The earliest underground tunnel systems for extracting and transporting groundwater were in the dry mountain basins of Persia (now Iran). Twenty-two thousand *qanats* (types of underground aqueducts), spanning over 270 000 kilometres in total length, were built by manual labour.

   a Describe how these *qanats* influenced population movement away from major rivers and their impact on the expansion of towns and civilisation into desert regions.

   b Identify the name of Libya's groundwater project.

   c What is fossil water, and why does extracting this water create issues of water sustainability?

3 Investigate a desalination plant in Australia. Explain how desalination plants are examples of both renewable and non-renewable resource use.

Water as an energy source

As we turn on taps in our homes, we often think of water as a gentle, refreshing liquid. However, water can carry an enormous amount of energy, especially in the ocean or in the upper reaches of rivers, where gravity causes water to carve out spectacular landscapes. In an age where non-renewable energy sources such as oil are being overused and will eventually run out, one of the challenges to the human race is to harness the enormous potential energy of renewable resources like water.

Dams have been built in many countries and along hundreds of rivers in order to control the flow of these rivers. **River regulation** has allowed us to harvest river water for irrigation, flood prevention and the production of **hydropower**.

river regulation the building of dams and other structures so that people can regulate (control) the flow of water through the river system

hydropower the generation of energy by harnessing the power of water

The Snowy Mountains Scheme

The most important and controversial example of hydropower in Australia is the Snowy Mountains Scheme. The scheme took 25 years to complete and was finished in 1974.

Consisting of 16 major dams, seven power stations and 225 kilometres of tunnels, pipelines and aqueducts, it is one of the largest and most complex **hydroelectric** schemes in the world.

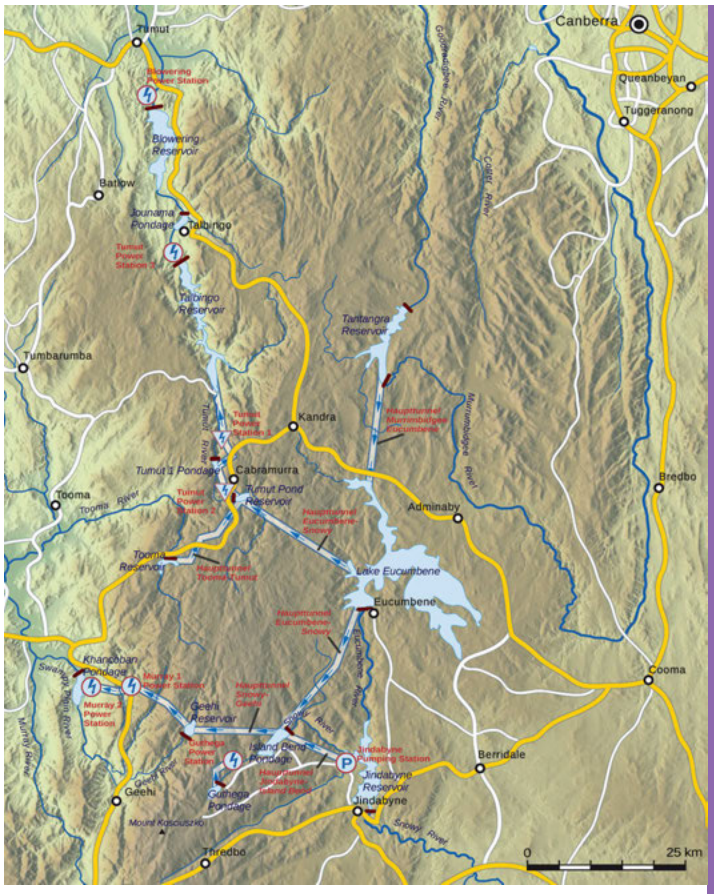
The Snowy River begins in the Snowy Mountains and flows south towards the sea. The scheme

hydroelectric the use of flowing water to generate electricity

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

More than 100 000 people from over 30 countries came to work on the Snowy Mountains Scheme, which ran from 1949 to 1974. The scheme was part of a vision to not only generate electricity for homes and industries, but to also feed a growing nation.



Source 3.19 The Snowy Mountains Scheme

collects run-off that would normally flow into the Snowy River and creates a **diversion** via tunnels cut through the mountains, into dams and then inland into the Murray–Darling Basin. The dams – including one of the largest dams on mainland Australia, the human-made Lake Eucumbene, with a capacity nine times the volume of Sydney Harbour – enable water to be converted by power generators into electricity. The power stations produce up to 10% of all electricity needs for New South Wales, although this figure varies depending on the volume of water flow from rainfall and snowmelt run-off. Water that is released from the dams is diverted into the Murrumbidgee and Murray rivers, contributing to the water supply of vital irrigated farming industries along these rivers, as well as sometimes bringing a little drought relief to inland Australia.

diversion the transporting of water away from a river, normally for the purpose of irrigating farmland

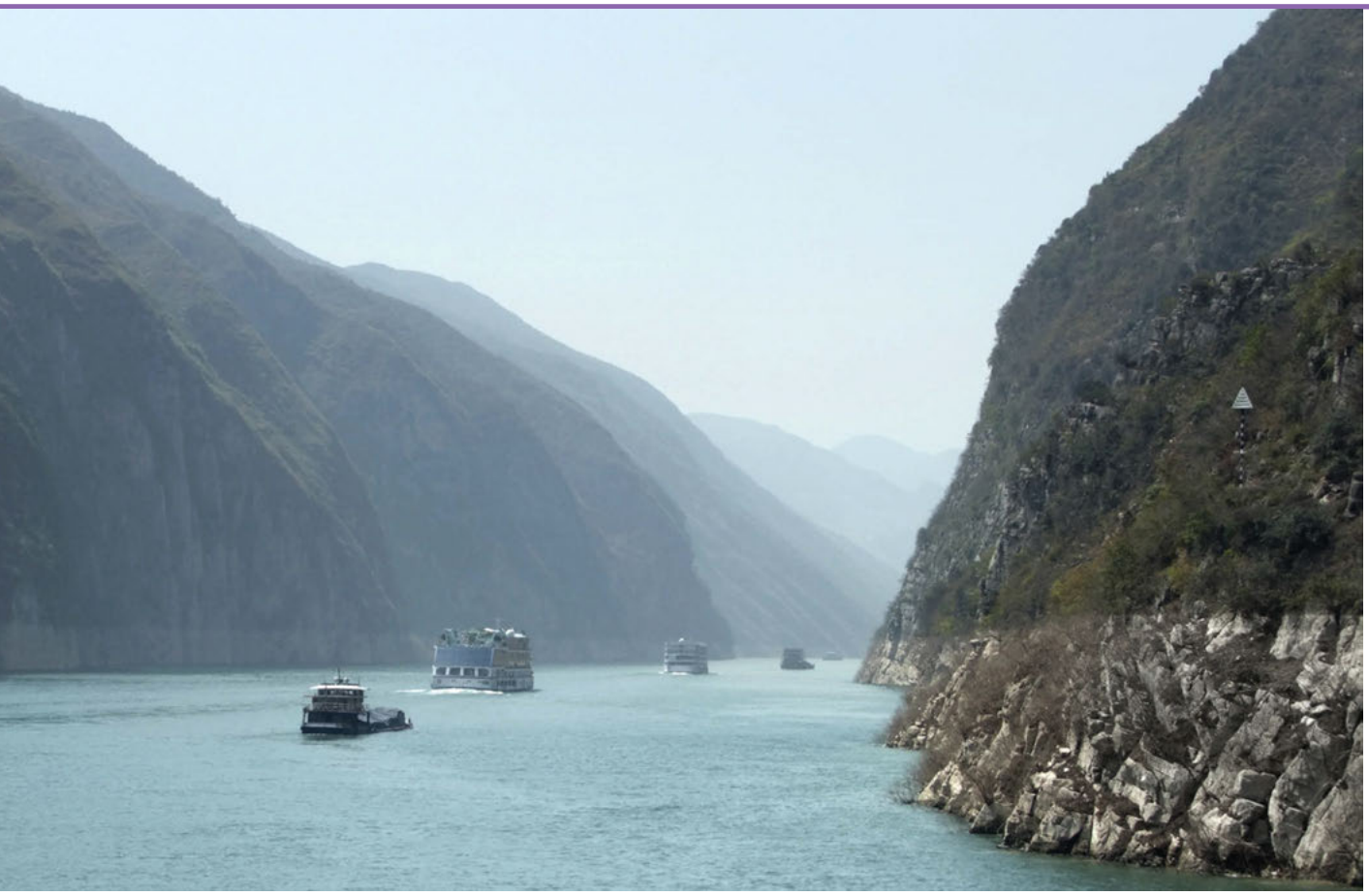
While the Snowy Mountains Scheme is a demonstration of our ability to harness natural resources, it unfortunately also highlights the potential environmental cost of using too much of these precious resources. Diverting water for the scheme has significantly changed the nature and flow rates of the Snowy River and others in the region. In some places, the Snowy River was reduced to a trickle – a mere 1% of the natural flow rate that had existed before the scheme began. When the dams were built, some **ecosystems** were also degraded. Action is finally being taken by the Victorian and New South Wales governments to restore river flows to the minimum level considered healthy (28%), while also investing in water saving projects to ensure irrigation farmers still receive adequate water supplies.

ecosystem a community of living things, including animals, plants and microorganisms

The Three Gorges Dam

Another controversial and also enormous hydro-power scheme is the Three Gorges Dam on the Yangtze River in Hubei Province, China. The Three Gorges region, where spectacular steep cliffs tower over the landscape, has been given the highest rating (AAAAA) for a scenic area by the China National Tourism Administration. Besides its natural beauty, historical settlements and archaeological sites make the gorges a culturally important region in China. The dam, spanning the mighty Yangtze River on the Xiling Gorge, is the world's largest capacity power station. The project is part of China's plan for 15% of its total energy production to come from renewable sources. It generates 22 500 megawatts of power – around the same energy produced by 18 coal power plants,

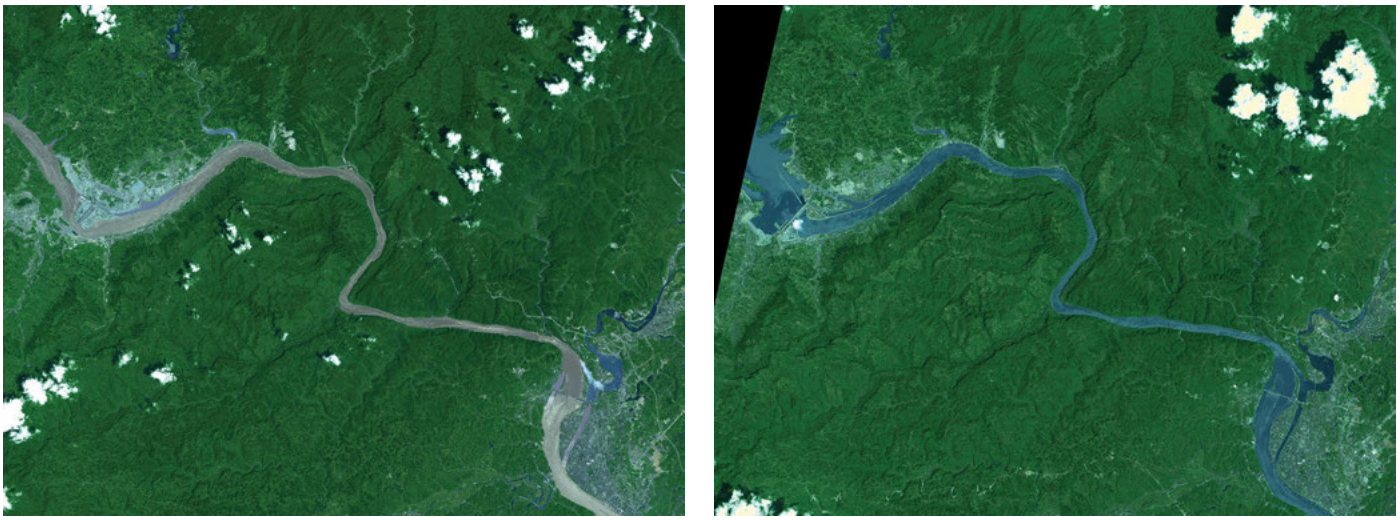
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.20 Steep gorges give the Yangtze River both its aesthetic beauty and its potential power.

and enough to supply Beijing with power for a whole year.

An added benefit of the dam is the improved navigation of boats along the course of the Yangtze. Due to the steep walls of the gorges, travel along the river was often treacherous. The Yangtze River accounts for 80% of China's inland shipping, and is crucial to China's expanding industrialisation. Behind the dam, water levels in the Yangtze are elevated as much as 110 metres above the downstream river, widening the river channel and accommodating larger cargo ships and even tourism cruise ships. Some evidence indicates that this shift in water volume will actually slow the rotation of



Source 3.21 Satellite images of the Three Gorges Dam construction. (The image on the left is from 2000, and the image on the right from 2006.) Notice the difference in water volume behind the dam wall after near completion in 2006, and notice near the top of the narrower waterway, which is the five-tier lock.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the planet! The installation of a five-tier ship lock and elevator, which literally raises the ship to the upstream river level, enabled a massive increase in cargo load transported from Shanghai to the emerging megacity Chongqing, a city undergoing dramatically rapid development and urbanisation.

Along with the enormous benefits of the Three Gorges Dam come significant costs. The most publicised issue created by the dam was the relocation of people from upstream riverbanks. While flooding of the dam downstream, where millions of people reside, was being controlled, the reservoir itself flooded and about 630 square kilometres of land containing villages, farms and important historic sites were inundated. As of June 2008, China had relocated 1.24 million residents, with some claims of no compensation. Other impacts include degradation of ecosystems such as forests, a reduction of silt and nutrient levels downstream and an increased risk of landslides. The Three Gorges Dam demonstrates that human regulation of river systems will always come with both benefits and costs.

GEOGRAPHICAL THOUGHT

Several organisations run interesting programs on the theme of water use. For example, the Centre for Education and Research in Environmental Strategies (CERES) Environment Park in East Brunswick, Melbourne, focuses on environmental issues affecting urban areas, such as water use. Its programs give you an awareness of how your water use at home can affect the sustainability of urban water supplies, as well as systems and new technologies that are enabling water use at various scales to become more efficient. Located along the Merri Creek, the site also offers a study in river health and how human use can influence a river system. Other organisations include water providers such as Central Highlands Water, which runs tours to rivers, pipelines and storage reservoirs in regional Victoria, focusing on the human use and impact of river systems.



Source 3.22 The power of water (harnessed by huge generators) as it is released through the wall of the Three Gorges Dam. This photograph was taken at a time of massive flooding in 2010, where the dam was nearly full and was unable to prevent hundreds of deaths and the displacement of millions of people from their homes.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 3.3

1 Explain, in your own words, what hydropower is.
2 What were the two main purposes of the Snowy Mountains Scheme? Why does the amount of energy produced by this scheme vary?
3 Describe one environmental issue created by the Snowy Mountains Scheme.
4 What is the name of the major hydropower dam on the Yangtze River? How does this dam contribute to China's aim of increasing its renewable energy production?
5 In pairs, discuss why China's renewables aim is particularly important in China today.

3.2 Water as a marker of identity

'Identity' refers to the way you see yourself and the way others perceive you. A few communities such as river people, surfers and islanders have unique identities as a result of their interactions with water. Some communities are created around water and identities are created around different interactions with water, leading to the development and maintenance of customs, traditions or a particular way of life. In the same way, a lack of water also provides an identity for people no matter how remote they are or how dry the land is.

River people

Millions of people around the world live alongside rivers for a number of reasons, such as freshwater availability, transport, **aquatic** resources and aquatic activities. Along the Murray River, which divides New South Wales and Victoria, the largest group of Indigenous people was the Bangerang who lived in the area now known as Echuca. Living near the water created a different sense of identity for the Bangerang when compared to other Indigenous groups, such as those of the desert or **saltwater** country, because different resources were available to them. They used nets made out of rushes growing beside creeks to catch birds, fish and other animals. Their diet was different from that of other people too, because of the differences in flora and fauna in the region. Flooding of the river played a significant role in the seasonal movement of the Bangerang, who responded to the seasonal variations in river flow. So water, in this example, has **cultural value** and is a marker of lifestyle, identity and activity.

aquatic relating to water; for example, in reference to plants, animals or activities

saltwater describing a group of Indigenous people from the north of Australia in an area marked by coastal and marine environments, including mangroves and coral reefs

cultural value the emphasis placed on something for its importance and place in society, such as the inclusion of water in rituals, heritage and the Dreaming



Source 3.23 Country of the Bangerang people in the Murray River region

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Surfers

Surfers have a unique identity due to the nature of their sport. Reliant upon water conditions and large swells, they have a certain 'look' and way of life. The surf is a marker of their identity. With wetsuits, fibreglass boards, tanned skin, zinc sunblock and specific use of language, surf culture is present all around the coastlines of Australia. Sydney's northern beaches from Manly to Palm Beach offer over 20 kilometres of sand and surf to its visitors. Famous breaks such as Bells Beach in Victoria and Margaret River in Western Australia attract tourists from all over the world.

Islanders

Water is a marker of identity for some island nations in the Pacific Ocean, such as Palau, Fiji and Samoa. The iconic bungalows over crystal-clear water, coral reefs and unique cultures have resulted in a booming tourist industry. Aquatic activities such as fishing, snorkelling and scuba diving are common. The different cultures of islanders and their different ways of life have largely been dependent on water. Ceremonies, foods and traditions stem from water resources and their cultural significance. For example, community fishing is controlled by a fishing chief who is bound by strict traditional rules and the whole community is involved in catching schools of fish such as mullet.

Boaties

'Boaties' is a colloquial term for anyone involved in activities associated with watercraft such as yachts or motor boats. Those who sail yachts are sometimes known as 'yachties'. Boaties have formed a **subculture** in society, as they have certain common interests. Water forms a significant part of their identity, since much of their time is spent in and around marinas maintaining yachts, participating in races and enjoying leisure time on the water. Identity markers of boaties' may include broad-brimmed hats, zinc sunblock, boat shoes, collared T-shirts and waterproof, wind-resistant clothing. Some boaties belong to organisations that host fundraising nights, family barbecues and other social events. Sandringham Yacht Club in Melbourne and the Cruising Yacht Club of Australia in Sydney are just two examples.

subculture a group of people who share characteristics that are different from those of the rest of society

DEVELOPING YOUR UNDERSTANDING 3.4

1. Define the term 'identity'.
2. Explain why people live on and near rivers.
3. Analyse how the Murray River affected the Bangerang people's way of life.
4. Reflect on how a lack of water may affect the identity and way of life of some people. Discuss your ideas with a partner.
5. Conduct an internet image search for 'surfers'. From your results, describe the typical identity of a surfer.
6. Compare and contrast the identities of islanders and boaties.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 3.3

Investigate one of the following communities and create an interactive poster showing how water is a marker of their identity. Choose from:

- kite surfers
- fishermen on the Mekong delta
- abalone divers in Western Australia
- another community to be negotiated with your teacher.

Use the Glogster link at www.cambridge.edu.au/hass7weblinks to create your poster. Explore some examples first to familiarise yourself with the features available. Make sure you include the following elements in your poster:

- a heading
- clear graphics with captions
- key terms
- at least one video embedded.

When you have finished, copy the URL generated and email it to your teacher for checking. If you are doing this, do not forget to make your poster 'public'.

3.3 Living near water

Everybody needs freshwater to live, so whether they live in mountainous areas, arid regions or on the coast, there must be some sort of freshwater supply such as from a river, lake or groundwater. People like the lifestyle, views, homes and activities on offer near the coast.

GEOGRAPHICAL THOUGHT

Many people do not live near water. The World Health Organization estimated in 2010 that 200 million hours are spent each day globally collecting water.

DEVELOPING YOUR UNDERSTANDING 3.5

1. List reasons why people might live near water.
2. Sort the reasons into the following categories: cultural, economic, aesthetic, spiritual and recreational.

3.4 Water in …

Art

Water can be beautiful to look at. Most people appreciate water views or **riparian** scenes. Some people appreciate the sound of rolling waves or bubbling streams, and find them relaxing.

Such **aesthetic values** placed on water often make people want to capture the nature and character of water and subsequently depict

riparian relating to the banks of or near a river

aesthetic values the values or appreciation placed on something due to its beauty

these by creative means. Water is often represented in dance and drama by fluid movement or by blue and green hues in oil paintings. 'Sculpture by the Sea' is an annual outdoor exhibition in Sydney between Bondi and Bronte beaches along the coastal walk. It features works of sculpture that draw inspiration from the beautiful **seascapes** that line the coast, and attracts thousands of visitors each year. There is a similar exhibition at Cottesloe Beach in Perth.

seascape a view of the sea

Landscape

Representations of water in landscape art or photography are quite common; for example, in coastal scenes. Ken Duncan and Steve Parish are well-known Australian photographers who have incorporated water into their pictures of Australian landscapes.

Impressionism

Impressionism was an art movement that began in the 1860s, and remains popular with the general public to this day. Impressionist artists such as Monet, Pissarro and Renoir took inspiration from the world of nature, in particular the rivers and fields of the French countryside.

They focused on challenging traditional concepts of colour and light. One of the most famous works of **impressionist art** depicting water is Monet's series, *Water Lilies*. Other impressionist artworks such as Monet's *Bathers at La Grenouillere* show scenes of people interacting with water.

impressionist art art characterised by short brush strokes of bright colours that tend to blend together smoothly when the finished piece is viewed from a distance

Expressionism

Expressionist art was developed around the time of World War I and aimed to represent heightened personal feelings and ideas. Water was incorporated into a range of expressionist artworks, but as a rebellion against the tranquil settings often depicted in impressionist artworks. One of the most famous paintings is *The Scream* by Edvard Munch, painted in 1893 with part of the inspiration being water – a **fjord** in Norway.

expressionist art an art movement that uses distorted forms to create intensity and express heightened emotions

fjord a long narrow inlet with steep sides or cliffs created by glacial activity



Source 3.24 Water in impressionism – Monet's *The Grand Canal, Venice*

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Water in Aboriginal and Torres Strait Islander art

Water is an important feature in the art of Aboriginal and Torres Strait Islander peoples, both historically and in contemporary art. Aboriginal and Torres Strait Islander peoples' art has varied uses – it can tell stories (for example, of the Dreaming, moral tales or for entertainment), and it can function as a language through its use of symbols. Some of the most important symbols of the Dreaming are associated with water, such as the Rainbow Serpent (often shown connected to billabongs, rivers, creeks and other waterways), fish, turtles, dolphins and crocodiles. All these symbols appear regularly in rock art, some of which dates back 40 000 years. Rock art shows us what was important, culturally, mythically or environmentally, to the first inhabitants of Australia, and therefore the constant presence of water or creatures associated with water demonstrates its importance in Aboriginal and Torres Strait Islander peoples' cultures.

Bark paintings and dot paintings also often depict waterways and water creatures. Indigenous art uses many symbols to show water because waterholes are imperative for survival in the desert, and so will traditionally appear in art both as places on a sort of map, and to indicate where important or sacred things have occurred.



Source 3.25 Rock art depicting fish, Kakadu National Park

DEVELOPING YOUR UNDERSTANDING 3.6

1. Define impressionist art.
2. Explain how water is depicted in impressionist art.
3. Compare the differences between impressionist and expressionist art.
4. Describe three different styles of Aboriginal and Torres Strait Islander peoples' art.
5. Using the internet, name two Indigenous Australian artists working today who have had exhibitions recently.
6. Discuss the artistic depictions of water you have studied in this chapter as a class. What kinds of qualities in water are the artists trying to convey?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Literature

Water is such an integral part of life that some people have chosen to write about it or set the scene for plays and novels around it.

Mark Twain

Mark Twain was an American novelist who grew up in a port town called Hannibal on the Mississippi River in Missouri, USA. He wrote the well-known fictional books *The Adventures of Tom Sawyer* and *The Adventures of Huckleberry Finn*, for which he drew inspiration from his childhood home. The river was a significant part of his identity and writing, as he was also a steamboat captain who studied thousands of kilometres of river.

Tim Winton

Tim Winton is from Perth, Western Australia where he often surfs for a few hours a day. Water plays a significant role in his life and writing. He nearly drowned a number of times, but loves the ocean. He wrote novels such as *Breath*, *An Open Swimmer* and *Lockie Lenonard: Human Torpedo*, and a play entitled *Rising Water*, all of which incorporate water themes into the storylines. He campaigns for marine conservation – protecting the ocean from overfishing and pollution – and is passionate about the preservation of the Ningaloo Reef off the coast of Western Australia.

Judith Wright

Judith Wright was a poet from New South Wales who was well known for her campaigns to support the conservation of the Great Barrier Reef and Fraser Island. In addition to being an **environmentalist**, she was a **social activist**, campaigning for Indigenous land rights. Water featured in many of her poems such as 'Northern River', 'Drought Year' and 'The Surfer'.

environmentalist a person who acts to preserve the quality of the natural environment

social activist a person involved in a campaign to promote change, stop change or direct change associated with social issues and policy

DEVELOPING YOUR UNDERSTANDING 3.7

1. Identify three authors who have written about or interacted with water.
2. Explain the significance of water to Tim Winton.
3. Compose your own poem about interactions with water. This might be from another person's perspective – a fisherman, a tourist operator, a scuba diver or a lifeguard.

Religion

Water plays an important role in most religions. It is usually used for ritual washing to purify the body or wash away wrongdoings before presenting oneself to a holy being.

Buddhism

In Vajrayana Buddhist tradition it is customary to offer seven bowls in front of the altar. Among bowls offering fruit and flowers, water for drinking and water for washing are offered in separate bowls. This practice is common in Tibet and Bhutan, where you can also see spinning prayer wheels and coloured prayer flags.



Source 3.26 Buddhist water bowls

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Christianity

In the Christian religion, a **baptism** with holy water indicates a person's commitment to the faith. It is also used to christen infants and dedicate them to Jesus Christ. Depending on the church, some people will be fully or partially immersed in water to signify new beginnings and purification.

baptism a ceremony purifying the spirit through contact with holy water

Healing

Water has been used in conjunction with modern medicine to heal people. **Hydrotherapy** is a form of physiotherapy to help rehabilitation and recovery from injury. Sometimes the water is heated to stimulate blood flow and muscle activity. Exercising in water provides supported resistance to work against and build strength.

hydrotherapy treatment to manage pain and increase movement of the body via the use of water and gentle exercises while immersed

RESEARCH 3.4

Investigate the use of water in two religions and cultures not discussed in this chapter. Identify common themes and uses for water. Compare how water contributes to identity in the different situations you have researched. Present your findings in a PowerPoint presentation.

DEVELOPING YOUR UNDERSTANDING 3.8

1. Outline the significance of water in religion.
2. Describe how water is used in Buddhism and Christianity.
3. Explain how water is used to help people recover from injury. Can you think of any other ways water is used to heal people?

Sport

recreational value the emphasis people place on something in terms of its leisure purposes and enjoyment

Numerous sports revolve around water. Some are simply for **recreational value**, but at elite levels each has specific requirements for optimal conditions.

Swimming is a popular sport in Australia – both recreational swimming at the beach and competition swimming in a 50-metre pool. For Olympians, water quality is important for peak performance. Specific requirements about temperature, chlorination, eliminating bacteria and monitoring water quality were in place at the Olympic Games in London in 2012.

Rowers usually rise early in the morning to capitalise on the smooth, calm water that develops overnight. Scullers, oarsmen and oarswomen need these conditions – their vessels are lightweight and sit low in the water, and shouldn't catch the blades on peaks in the water, as this will unbalance the boat. At an elite level, special rowing courses, such as the Nepean rowing course in Penrith, Sydney, have been constructed to minimise wind and disturbance to the water surface.

On the other hand, windsurfers like the choppier conditions where wind has whipped up waves. They use the waves as a jump-off point, as well as to perform tricks or gather speed. A popular spot to windsurf is Inverloch, Victoria.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 3.27 Rowers on the still waters of the Yarra River in the early morning, Melbourne

GEOGRAPHICAL THOUGHT

The Australian Bureau of Statistics in 2007 found that the Northern Territory has the highest proportion of households with swimming pools in Australia (29%) compared to other states and territories.

Music

Water has provided inspiration for some musicians and recording artists. For example, in 1717 Handel composed a range of orchestral pieces entitled *Water Music* for King George I. In addition, some people buy and listen to music tracks that play the soothing sounds of streams or waves accompanied by flutes for relaxation.

Music often uses water as a poetic idea as well. A famous example is *Die Moldau* (or *The Moldau*) by the Czech composer Bedrich Smetana, which evokes the sounds of a Bohemian river. Composers in the twentieth century have also written music that depicts water in ways similar to those of the impressionist painters, such as the piano piece *Jeux d'eau* (*Water Games*) by Maurice Ravel, and *Four Sea Interludes* by Benjamin Britten.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 3.9

Listen to one of the musical works referred to in the section above, such as the first of Britten's *Four Sea Interludes*, and answer the following questions:

1 What sorts of images does the music conjure up?

2 Describe what kinds of natural water sounds the instruments evoke.

RESEARCH 3.5

Investigate how water is represented in music and use the information you find to help you compose your own soundtrack. You can use GarageBand, Audacity or online facilities like SoundCloud for recording different sounds associated with water, and then add other musical layers, such as a background beat or other sounds you like. Ideas for what you might record include:

- a tap dripping
- noise at a swimming pool
- a stream or creek
- waves crashing against rock
- ripples lapping at the shores of a lake.

3.5 Water as an investment

People often want to live close to water for a variety of reasons, including access to work via ferry, lifestyle on the weekends, the picturesque views and prestige. Living or operating businesses near freshwater rivers and saltwater oceans is popular because people get a financial return for their water-related activity, although at times this has been at the cost of environmental deterioration.

Even though water may have no **economic value**, it is crucial to acknowledge the exploitation of water by societies as they seek to gain greater profits for various activities.

economic value a dollar amount placed on an asset to show how much it is worth

GEOGRAPHICAL THOUGHT

Nearly half the world's population lives within 100 kilometres of the coast.

Oceans

Coastal dwellings are very much in demand and often fetch higher house prices compared to similar homes inland. To purchase a house with ocean views therefore requires significant amounts of money. Often people will purchase dwellings in beachside suburbs such as Avoca and Terrigal in New South Wales as an **investment**, and then lease them to other families for their beach holidays.

investment spending money on something for a financial reward or return

Rivers

Some businesses need to be established near rivers because they use them to transport goods. For example, the Huangpu River in China has a constant flow of barges transporting materials to and from the world's busiest container port, Shanghai.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The Snowy Mountains Scheme in New South Wales is a dual-purpose operation whose success is entirely dependent on close proximity to the Snowy River. It was a major engineering feat that took 25 years to build and was completed in 1974. The scheme generates electricity for the Australian Capital Territory, New South Wales and Victoria and also helps irrigate farmland in western New South Wales. Investment in this project by the government of the day required the 16 dams, seven power stations and many kilometres of aqueducts to be built in close proximity to the water supply. Currently, Snowy Hydro is a company owned by three states that manage the energy resources generated, but there is significant pressure for New South Wales to sell its share so that the money can be invested elsewhere.

3.6 Conservation of water

environmental conservation preserving and restoring the environment to ensure no further degradation

The water cycle is a closed system. This means that the world neither gains nor loses water – it just changes form and location. Every life is dependent on water, so **environmental conservation** of water is vital to ensuring human survival. In order to provide an ample supply of freshwater, societies construct dams along surrounding river systems. This causes significant disruption to natural environments but also provides great advantages to society. Managing this water supply is critical in times of drought.

GEOGRAPHICAL THOUGHT

Using the dishwasher is more water-efficient than washing up in the sink, especially if the dishwasher is full!

DEVELOPING YOUR UNDERSTANDING 3.10

1. Define the term 'investment'.
2. Why do people want to live near oceans?
3. Analyse the use of rivers for economic purposes.
4. Demonstrate the need to conserve water through a role-play.
5. Creative writing task: imagine you are a drop of water. Where do you go? What do you do? What do you see? How do you interact with people, plants and animals?

RESEARCH 3.6

Investigate the use and cultural significance of a major river such as the Nile, the Rhine, the Yangtze or the Mekong. Critically analyse the significance of the river for local people. Present your findings to the class in the form of a visual display or electronic presentation. You must include the following:

- cultural value of the river
- economic value of the river
- aesthetic value of the river
- recreational value of the river
- how the river contributes to the identity of local people
- spiritual significance of the river (if applicable).

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The importance of water to a place

The Ganges – a holy river

Access to freshwater is fundamental to life. We drink it, bathe in it and use it to irrigate our fields and water our animals. The importance of a body of water to the people living near it can often be seen in their religious and social customs.

The Ganges in India is considered by the Hindus to be the most holy river. Bathing in its holy water is a key part of their religion. Millions of Hindus travel long distances on pilgrimages to towns along the river to bathe using ***ghats***, particularly in Varanasi. Here the elderly and the sick also spend their last days praying and being spiritually cleansed. The Ganges is significant for other Indian festivals, too. Petals and candles are sent downstream during the 5-day Ganga Mahotsav festival that celebrates Varanasi as the cultural capital of India. Ganges means 'river', from the Hindu *ganga*.

ghats steps leading down to the banks of a river

People drink the holy water and take containers of it with them to nearby temples and ***ashrams***. Water plays a significant part in Hindu life and also in death. The body of a recently deceased Hindu will be laid on sandalwood logs and set alight before being sent down the river. The burning funeral pyre and scattering of ashes in the Ganges fulfils part of the *samskara* (cycle of successive lives). The clean, milky-coloured river runs fast near the source and through mountains above Rishikesh, but closer to the mouth the currents are slower as the water reaches flatter ground. Approximately 400 million people rely directly on the Ganges, and live close to it.

ashram a community where people (mainly Hindus) practise yoga, meditation and other spiritual activities

It provides water to about 40% of India's population, but the water quality is extremely poor due to the large amounts of rubbish, industrial waste, faeces and silt collected and transported downstream. It is also used for cooking and washing clothes, causing severe health problems including dysentery, cholera and diarrhoea. Numerous attempts have been made to clean up the Ganges, but it remains among the top five most polluted rivers in the world.

Source 3.28 Varanasi *ghats*, on the west bank of the Ganges, Uttar Pradesh state, north India



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Water is used for various purposes, such as farming, transport, fishing, recreation, tourism and health.
- Waterways, such as seas, bays and rivers, have enabled the exploration of new lands, the establishment of human civilisations and the continued globalisation of trade.
- People have for thousands of years found ways of accessing and using water resources (surface water and groundwater) to farm the land.
- Water is harnessed for energy production in various locations throughout the world.
- The use of water – for example, from largely non-renewable groundwater sources (fossil aquifers) – often has both positive and negative impacts on people and the environment, as well as influencing the sustainability of its supply.
- Water is a marker of identity. Different people use and interact with water in different ways, such as river people, surfers, islanders and boaties.
- Water is often used as a subject in the visual and performing arts, such as in impressionist painting or Indigenous art.
- Water has been represented in literature by many writers. Author Tim Winton lives in Fremantle, Western Australia, is a keen surfer and often includes water or coastal themes in his writing.
- Water plays a role in most religions, usually representing cleansing or purity. For example, baptisms in Christianity signify a new beginning for people.
- Water sports can be recreational or competitive. At elite levels in the Olympics, certain standards are required for water conditions and quality for sports such as rowing and swimming.
- Many people live and conduct activities on properties near water because it is an investment from which they can expect a financial return – for example, a house on the coast, shipping lanes in major rivers and hydroelectricity generators.

Short-answer questions

1. Which civilisations were the first to control water flow? Describe how they achieved this and the impact it had on the region.
2. Identify some of the requirements that different sports have for water.
3. Which of the following uses a more renewable source of water – desalination plants in Saudi Arabia or the Great Man-Made River Project in Libya? Substantiate your choice.
4. Analyse how water is represented in art and literature.
5. List reasons why proximity to water is seen as desirable.

Extended-response question

Evaluate the value of water for people. In your response, you must:

- refer to a range of subcultures or communities
- include quotes, facts and statistics where appropriate
- use geographical terms and concepts.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



4 Managing water

Before you start

Main focus

Water is a vital resource for all living things, but its limited supply means it can be difficult to manage, leading to issues with its supply and demand all over the world.

Why it's relevant to us

Water scarcity affects people's lives in different ways and it is important to look at how our actions now can ensure water security into the future.

Inquiry questions

- Why are water resources so difficult to manage?
- What issues affect the management of water resources in Australia and other parts of the world?
- How can we reduce our water use and find other sources of water?

Key terms

- Algal bloom
- Economic water scarcity
- Physical water scarcity
- Sediment
- Urbanised
- Water scarcity

Let's begin

Water is a vital resource for all living things, but it is in limited supply. Water resources are difficult to manage and this issue is particularly important in Australia as well as in other parts of the world. As the world's population continues to grow at a rapid rate, the demand for water, and the way we manage it, are becoming increasingly important issues. A safe, sustainable water supply allows populations to stay healthy and develop economically, while ensuring that enough water is left in rivers and lakes to support animals and plants.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

4.1 The difficulty of managing water

In Australia, many of us do not spend time worrying about where we get our water from. We turn on the tap to get water to drink, jump into the shower to wash ourselves, and use water from a hosepipe to wash our car or water our garden. But in other countries people are not so lucky. In developing nations, water is in short supply and must be collected daily. Even in Australia, managing water is a difficult balancing act. How do we ensure there is enough water for us to drink, for farmers to grow crops and for industry to make products, while ensuring there is enough to keep our rivers and lakes healthy?

As countries become increasingly **urbanised**, the management of water becomes even more difficult. Issues such as pollution of water supplies and flooding also need to be considered when managing water, as well as how to secure future supplies as urban areas expand.

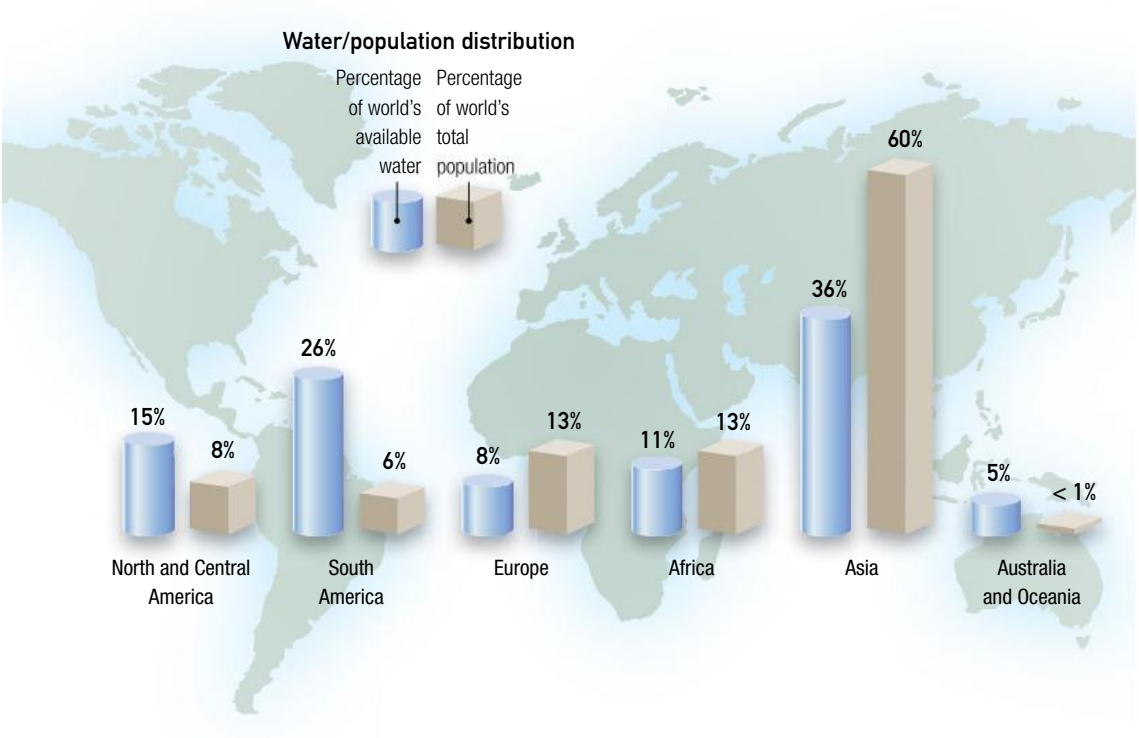
urbanised having a higher proportion of people living in towns and cities than in rural areas

Water supply

It is estimated that a human needs around 1000 cubic metres of water a year to drink, grow food and meet basic hygiene needs. On this basis we have easily enough water to go round from our accessible freshwater supplies. The problem lies in the following factors:

- This water is not always available all year round.
- The water is often located far away from where the population lives.
- Many people mismanage, pollute or overuse their water supply.

Source 4.1 shows how many regions of the world have more people living in them compared to their proportion of the world's available water. As regions such as Africa and Asia continue to experience population growth, this gap may continue to widen in the future. Other regions such as South America have far more water than they need. Some of these countries are now looking to export their water to regions that need to increase their supply.

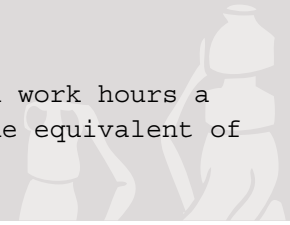


Source 4.1 Comparing the percentage of water availability with the percentage of world population

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

Did you know that women worldwide spend 200 million work hours a day collecting water for their families? This is the equivalent of building 28 Empire State Buildings every day.



water scarcity a situation in which there is insufficient water to maintain current standards of living

economic water scarcity a situation in which a place has adequate local supplies to meet its water needs, but lacks money to create the infrastructure for the population to access safe drinking water

physical water scarcity a situation in which a place lacks local supplies of water to sustain current standards of living

Water scarcity

Water scarcity currently affects around 1.2 billion people worldwide, in every continent. There are two types of water scarcity: **economic water scarcity** and **physical water scarcity**.

Causes of water scarcity

Water scarcity is caused by a wide range of human and natural factors. Increased populations, inefficient farming techniques, droughts, climate change, overuse of water for industrial and domestic use, poverty and a lack of infrastructure can all lead to water scarcity occurring.

Dry areas suffer from water scarcity only if there are people living there requiring water. The point at which water scarcity occurs differs between places as the amount of water required to maintain standards of living also varies. So an irrigated farming region in Australia may use a lot of water and suffer from water scarcity, even though it may have much more water available than a North African farming village.

DEVELOPING YOUR UNDERSTANDING 4.1

1 Describe three uses of water that need to be balanced when thinking about the management of water as a resource.

2 Imagine you live in an area without piped water. Write two paragraphs describing how this lack of ready access to water would affect your life.

4.2 The effects of water scarcity

Water scarcity can have severe effects on the quality of life for people, in both more developed and developing parts of the world.

Health

A lack of water can have severe impacts on the health of a population. While extreme cases of water shortage may lead to dehydration and even death, prolonged periods of drought can lead to a lack of food and result in malnutrition. This is particularly likely to happen in developing countries where people are reliant on growing their own food supply.

Employment

Rural populations experiencing water scarcity are particularly vulnerable to losing their jobs as a lack of water may reduce the level of agriculture in a

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 4.2 Children in Zambia collect water from a communal tap.

GEOGRAPHICAL THOUGHT

Water scarcity increases the chance of people catching waterborne diseases such as cholera because unsafe water supplies may be accessed through desperation. Cholera kills around 150 000 people every year.

region. Many other industries such as mining and manufacturing are also reliant on water, and may be forced to close down if water supplies dry up.

Lifestyle

Water scarcity may mean that certain aspects of everyday life have to be sacrificed. Showers may be restricted, gardens may die as a result of water restrictions, and activities based on rivers and lakes or at swimming pools may not be possible. Water bills may go up, putting financial pressure on families.

In less-developed countries people may be forced to walk for many kilometres to collect water. Money that could be spent on other things may have to be spent on buying bottled water to ensure a safe water supply.

Water scarcity in Australia

Australia is the driest inhabited continent on Earth. As Source 4.3 shows, around 70% of the country receives less than 500 millimetres of rain each year. This has resulted in most of the nation's population being located in the wetter regions to the south and west of Australia. However, even some of these areas are under threat from water scarcity, particularly in times of drought. Central Australia has a low population so, although rainfall levels are low, there is almost no need for water, and water scarcity is not occurring.

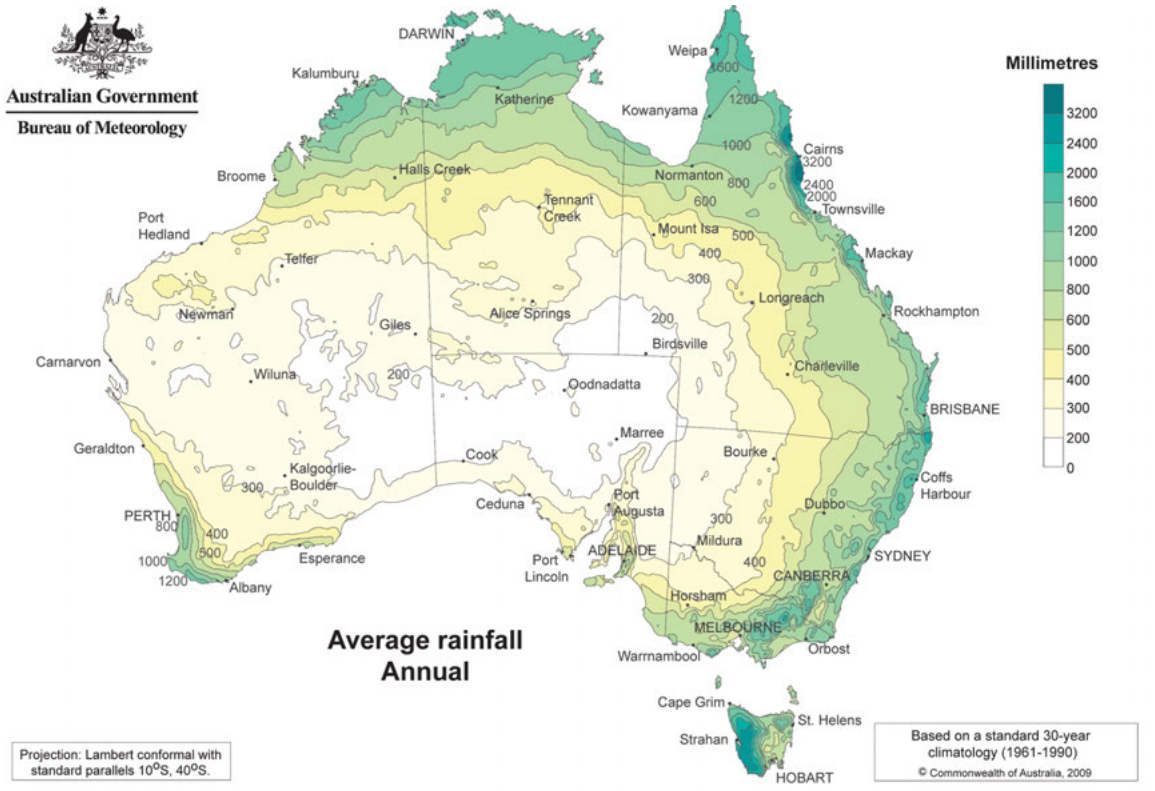
RESEARCH 4.1

Use the internet to research the Murray–Darling Basin.

Create an A3 poster on the issues the Murray–Darling Basin is facing. Your poster should include the following:

- the location of the Murray–Darling Basin
- an explanation as to why the area is facing water scarcity
- the social, economic and environmental effects of water scarcity in the region
- a description of one response to the problems of water scarcity in the region.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 4.3 Annual rainfall distribution in Australia (millimetres)

Conflict over water

Conflict over water occurs for the following reasons:

Increased demand for water + Water supplies running out + Unequal or differing uses for water = Conflict over water

Conflicts over water are particularly common where rivers flow over state or national borders, and in regions where water scarcity occurs. Water conflict may also occur when supplies of water are threatened, or when the price of water may increase.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

The Nile River Basin is spread through 10 countries in Africa, the three most populated being Egypt, Ethiopia and Sudan. Egypt's reliance on the River Nile means it is currently allocated 75% of all water from the river. Sudan receives the other 25%. Ethiopia, which is the source for much of the water that flows into the Nile, receives no water from the river.



Source 4.4 An aerial photo of the Nile River Basin

4.3 Water management strategies

Traditional solutions to water scarcity

Dams

Since European settlement, dams have been one of the main sources of water for Australia's rural and urban areas.

A dam works by blocking off a river valley with a large concrete wall. The area behind the wall is then flooded, creating a lake and storage site for large quantities of water. Smaller dams are often constructed on farms to catch and store rainfall as it runs off the land.

As well as providing water for drinking and irrigation, dams can be used to prevent flooding and generate electricity. Dam projects often employ lots of people in local areas during their construction.

Dams can, however, create a wide range of problems for both the natural and human environments. When a large area behind a dam is filled with water, any habitats, farmlands or even human settlements are likely to be flooded. People may be required to relocate from their homes. With little natural flow, such lakes may suffer from **algal blooms**.

algal bloom the build-up of algae that can destroy ecosystems

GEOGRAPHICAL THOUGHT

It has been estimated that the construction of the Three Gorges Dam in China will employ 26 000 people.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Downstream, dammed rivers can be affected by a lack of environmental flow and fish may struggle to migrate past the dam to feeding grounds where they reproduce.

sediment material eroded from the land and river banks by water and deposited elsewhere

Sediment that would usually travel to the coast to form beaches is trapped, increasing the risk of coastal erosion and flooding.

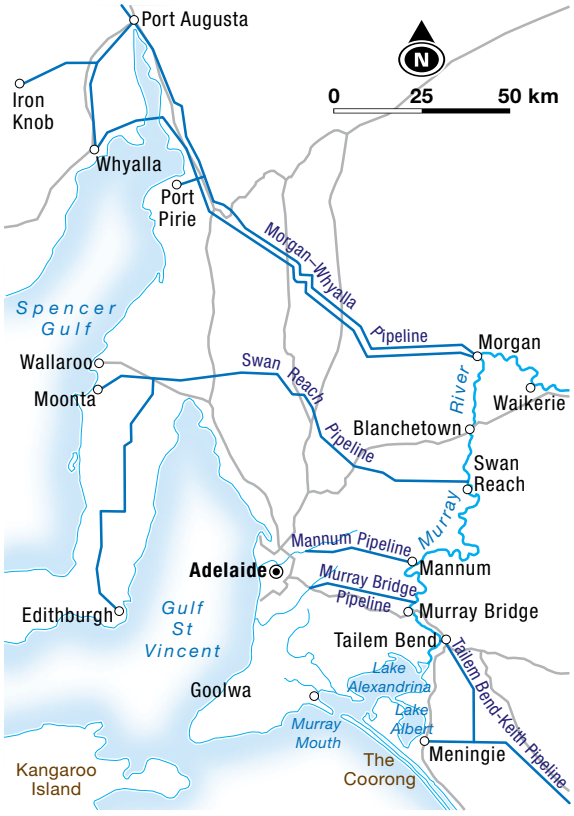
Diverting water

Transporting water from locations with high levels of rainfall to areas suffering from water scarcity is another way of providing freshwater to those in need. This occurs through the construction of pipelines and canals, and by diverting rivers. South Australia, as the driest state in Australia, has large areas that suffer from water scarcity. In dry years, up to 90% of the state's water is transported from the River Murray through a series of pipes. The longest of these pipelines is 325 kilometres, stretching from Morgan on the River Murray to Whyalla in the west of the state. While these pipelines have successfully provided water for over 50 years, and have allowed for the development of areas of South Australia that would not have been possible without this supply of water, they are expensive to maintain and have been at risk of failing when the river level has been low.

In Israel, another extremely dry area, a national scheme was set up to transport water from the



Source 4.5 Algal blooms in the Baltic sea



Source 4.6 Water pipelines in South Australia



Source 4.7 The River Jordan in drought as a result of water diversion

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Sea of Galilee in the north to irrigate and supply drinking water to the arid regions to the south. Up to 1.7 million cubic metres a day flow through the system, allowing farmers to grow a range of crops in heavily irrigated fields.

Unfortunately, however, the diversion of water from the sea, along with other diversions in Syria and Jordan, has caused the River Jordan, which feeds into the Sea of Galilee, to experience severe environmental damage.

Environmental flows are at 2% of what they were prior to the construction of the scheme, and large areas of the river have lost rare species of fish and birds that previously lived there. Continued conflict between Israel, Palestine and Jordan has made management of this problem even more difficult.

Alternative approaches to water scarcity

Desalination

As water supplies continue to be depleted around the world, many are looking for alternative ways to create freshwater. An increasingly popular method is by turning seawater into freshwater, through a process called desalination. This has been widely used across the world, particularly in dry regions such as the Middle East. Other heavily populated regions in countries such as Japan use desalination plants to cater for large numbers of people.

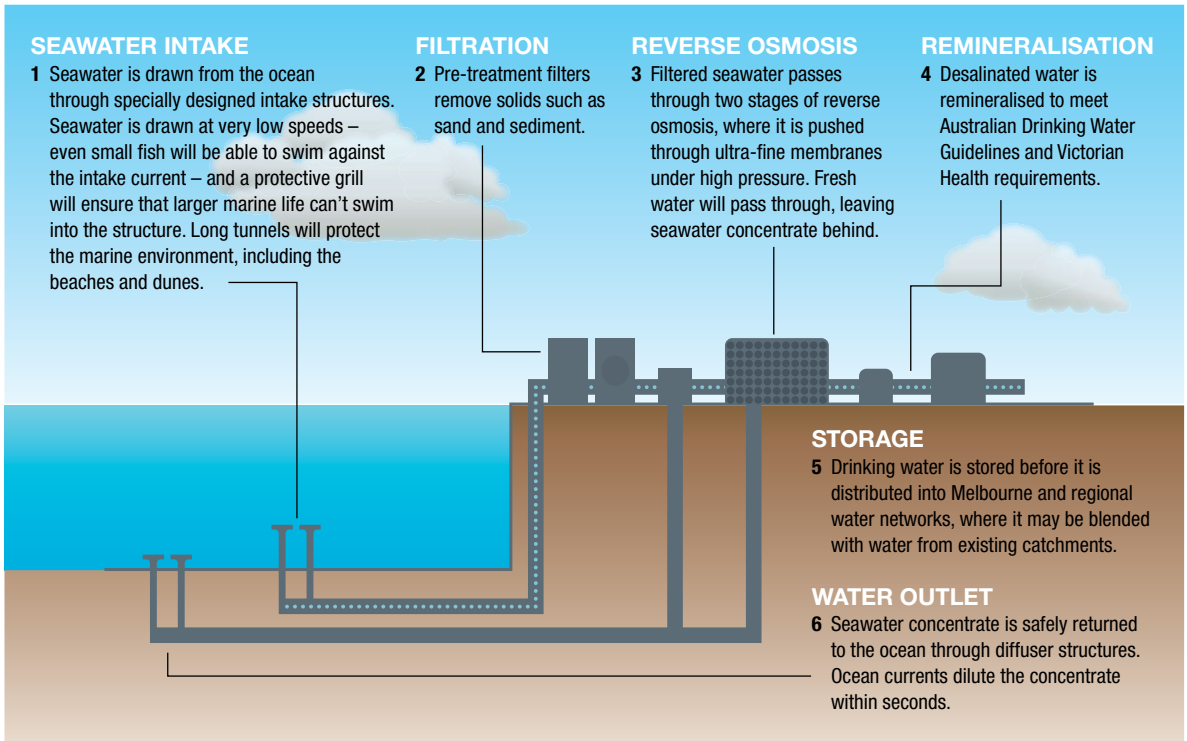
GEOGRAPHICAL THOUGHT

Australia's desalination plants can produce enough water to fill over 500 Olympic-sized swimming pools every day.

Desalination plants

Desalination plants are a particularly popular option with governments because they:

- provide a reliable source of drinking water
- are not reliant on rainfall
- are located in coastal locations, which are usually where the population is concentrated



Source 4.8 How a desalination plant works

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 4.9 The Port Stanvac Desalination Plant, also known as the Adelaide Desalination Plant, in South Australia

- have produced water with a taste that the public has found acceptable
- provide employment in the construction and maintenance of desalination plants.

Australia now has seven desalination plants in use, in progress or planned, providing water for urban centres in all the mainland states.

While major desalination plants are securing water for the major urban centres, the same technology is also being used in remote communities across Australia to provide clean and reliable drinking water. These systems are used when bore water is too salty to drink. Similar systems are also used on remote resort islands, cruise ships and submarines.

Despite the importance of desalination as a source of drinking water, it is still a somewhat controversial choice. It is extremely expensive, and Australia's major plants cost between $1 billion and $3.5 billion to build. These costs are then passed on to the public through increased water bills. Many plants have been built at huge expense, only to be 'mothballed' – turned off until they are required.

The plants also use huge amounts of energy, creating greenhouse gases when powered by fossil fuels. Perth's desalination plant has its own wind farm, located to the north of the city, but it and other cities are also reliant on coal- and gas-fired power stations. One of the biggest concerns involves the pumping of concentrated salt back into the oceans. Without careful monitoring and planning, the high levels of salt found near desalination pipes can damage marine ecosystems. To avoid this problem, plants are constructed in areas of deeper water with strong tides to disperse the water that is high in salt.

Also, because desalination plants are often needed only in times of drought, the desalination plant in the Gold Coast has been put on stand-by until it is needed sometime in the future.

DEVELOPING YOUR UNDERSTANDING 4.2

1. Provide two reasons why desalination plants are being built. Why may they be a more reliable method of supplying water than dams or diverting water?
2. Explain two different ways desalination plants can have negative environmental impacts and two ways these impacts can be minimised.
3. Research a desalination plant in Australia and answer the following:
   - **a** Where is it located?
   - **b** Why was it constructed?
   - **c** How much water does it produce?
   - **d** Have there been any concerns or negative impacts?
   - **e** Was the construction of this desalination plant a good decision or not?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

It is estimated that a glass of drinking water in London has been through seven other people before you drink it!

Recycling water

Another option when addressing shortages of clean water involves the recycling of water that has already been used for another purpose. Examples of previously used water may include water used in our houses or industry, treated sewage, or water that has washed down our streets or through our drains. There are several different ways in which this water can be treated.

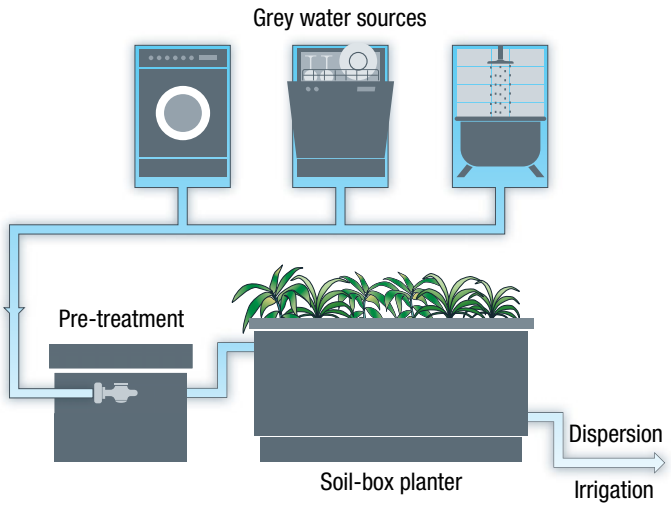
Drinking recycled water

All water can, essentially, be cleaned and treated to make it safe for drinking. In many European and Asian countries a considerable amount of drinking water comes from sources partly composed of treated sewage. In Australia this is far less common, although recycled water is used for a range of other purposes, depending on the method of treatment.

Using grey water

Grey water is produced by every household. It is the water from showers, washing machines and sinks (but not toilets!) that would otherwise go down the drains. Grey water use may be as simple as having a bucket in the shower to collect excess water and then using that water on your garden. More sophisticated systems can pipe all this water directly into your garden to irrigate lawns and pipes. You can also buy advanced systems that will treat the grey water, making it suitable to flush toilets with, or to use in washing machines or dishwashers.

Grey water cannot be drunk, and certain soaps and detergents may not be suitable for use in it, but extensive use of grey water can save a household up to 50 000 litres of water per year.



Source 4.10 Grey water system for home use

Treated effluent and sewage

Wastewater treatment plants across the world use a range of steps to clean human waste. In many cases this treated water is pumped out to sea, but increasingly it is being used for irrigation, industry and other non-drinking applications. This reduces pressure on sources of water that are safe to drink. It also provides a regular supply of water that is not reliant on the rain. In Singapore, 30% of drinking water comes directly from raw sewage; technology similar to that in desalination plants is used to make it safe.

Many people, however, are uncomfortable with the idea of drinking raw sewage. In Toowoomba, in Queensland, a scheme to introduce drinkable recycled water from waste was rejected by 62% of residents.

Recycled stormwater

Recycled water involves the catching and cleaning of water that would otherwise run down our streets during times of heavy rain and into rivers before heading out to sea. This water can then be used for non-drinking supplies.

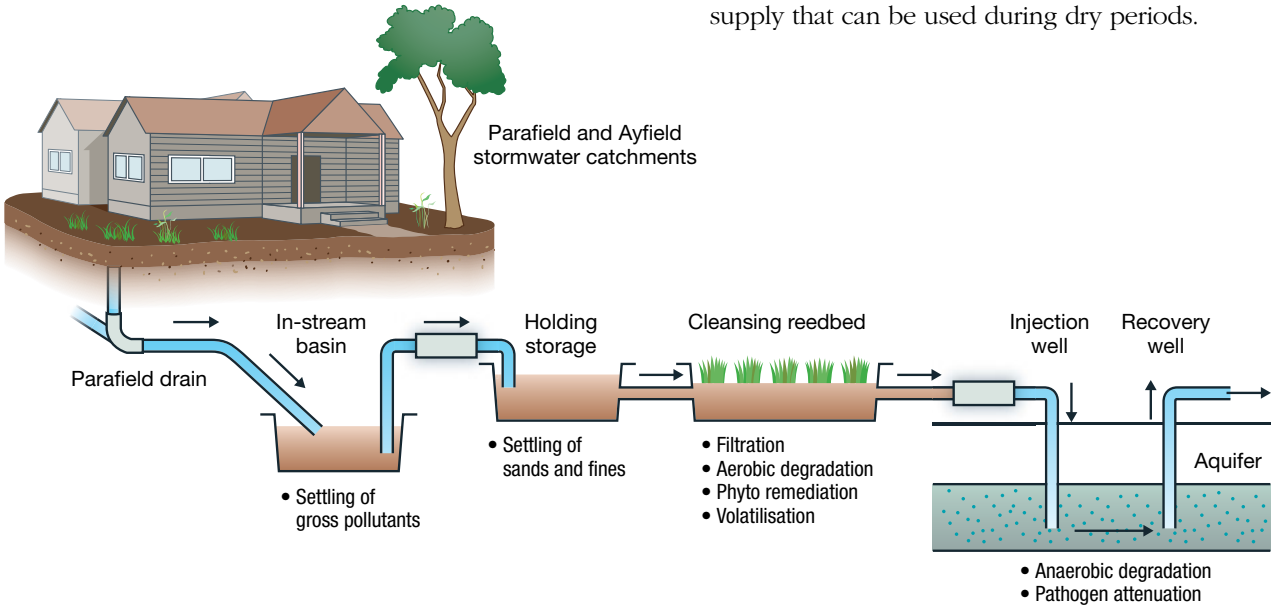
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

aquifer a geological formation containing groundwater that can supply water to wells or springs

In Salisbury, South Australia, stormwater is captured, settled through a series of ponds to clean the water and pumped underground into an **aquifer**.

The water is stored there for drier periods, when it is then pumped up to the surface and is used for watering parks and ovals.

This type of recycling does require large areas for the settling ponds, and not all aquifers are suitable for storage. It does, however, provide a cheap water supply that can be used during dry periods.



Source 4.11 A system in Salisbury, South Australia, for collecting and storing stormwater

RESEARCH 4.2

Split the class into groups representing the varying techniques for water recycling, as well as desalination. You are to present at a conference, selling your particular method of water supply to the public. You must explain:

- how your method works
- why it is suitable for your location
- what the advantages are
- any possible problems.

The class will then vote on the best solution at the end of the presentations.

The virtual water trade

One vital aspect of the movement of water from plentiful areas to those suffering scarcity is very difficult to measure, as it occurs within the goods that are exported between places; for example:

1 kg of rice	requires	4000 litres of water

If this rice is exported from India to Egypt, Egypt is effectively gaining 4000 litres worth of produce that Egyptians don't need to find from their water supplies. This is called the virtual water trade.

As Source 4.12 illustrates, much of the virtual water trade involves produce being sent from North and South America, North Africa, South-East Asia and Oceania to Europe, the Middle East and Asia. Many argue that the virtual food trade is a positive way to 'transfer the water wealth' between those with large amounts of water and those with none, benefitting the source country

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

economically. It has also been said that the virtual water trade has reduced tensions in many areas that are potentially facing conflict over water, while also preventing famines from droughts.

Others suggest that this exportation of water can actually lead to increased water pressure in exporting countries, and that tensions between nations may increase as water supplies in both exporting and importing countries dry up. When droughts occur, food prices can soar, putting economic pressure on those reliant on importing water.



Source 4.12 Net importers and exporters of water

Virtual water and Australia

Australia, despite being the driest continent on Earth, is also the world's largest net virtual exporter of water. Grain, cotton, sugar and beef exports are the major exports that contribute to this. While these exports may benefit the country economically, they are, in part, responsible for the status of water scarcity in the Murray–Darling Basin, where most of the produce is grown.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Restricting the use of water

One of the most effective ways of reducing situations of water scarcity is to restrict the ways in which it can be used. This can be done in a number of ways.

Water licences

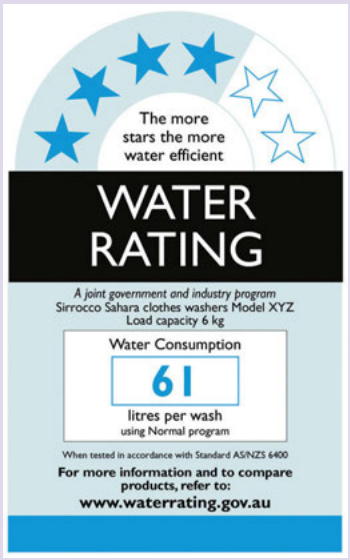
Water licences are most commonly used to allow farmers to take a certain amount of water from rivers to irrigate. These are decided by factors such as previous use or farm size. They are meant to ensure water is shared equally. They don't, however, encourage people to save water.

Taxes

In many nations taxes are being introduced to make those who use large amounts of water pay higher prices. In Israel, households that use over the average amount will be taxed on the excess water use. Other regions are offering tax rebates for those with water-efficient appliances. Some argue that these taxes will affect poorer residents who can't afford the additional costs.

Regulated appliances

Many countries, including Australia, have strict building regulations that insist on certain appliances being fitted to new buildings. These may include water-efficient showerheads, installation of rainwater tanks and dual-flush toilets. This is highly effective, but can add to the cost of new houses and is more difficult to apply to older homes.



Source 4.13 Water Efficiency Labelling and Standards (WELS) rating on appliances

Regulated times of use

In efforts to reduce use, some areas have introduced a system that permits people with odd house numbers to water outside on one day and those with even numbers on the next. Other areas have banned watering in the hottest hours of the day to reduce loss by evaporation. These practices can reduce domestic use, but are difficult to enforce.

Regulated practices

In times of drought, councils or governments may ban the filling of swimming pools, the use of hosepipes and sprinklers or the washing of cars. Those not following the rules may be fined or have their water supply taken away. These measures are a short-term fix, but do affect the quality of life of residents.

High-value to low-value uses of water

As our water supply in agricultural Australia continues to come under pressure, one suggestion is to focus on growing crops that use less water and provide higher levels of income. These are known as high-value uses of water. Lower-value uses of water consume more water and provide less income.

High-value	Low-value
Vegetables	Pasture
Fruit	Rice
Grapes	Sugar
	Cotton

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

While this may seem a simple solution, there are some potential problems with it. As a meat-eating nation, we need pasture to provide livestock for slaughter, as well as for dairy products. Australia already has an oversupply of certain high-value crops such as grapes, so planting more of these crops will actually reduce their value.

Many argue that crops such as cotton and rice are not suitable to be grown in Australia and that there should be an emphasis on growing crops that are better suited to the conditions and require less irrigation. This type of shift will, however, threaten the economies of many rural areas and force farmers off the land. It may also require us to be reliant on crops from other countries.

DEVELOPING YOUR UNDERSTANDING 4.3

1. Explain 'virtual water trade'.
2. Suggest what is surprising about Australia's status as a virtual water trader.
3. Identify two positive impacts and two negative impacts of farmers changing from high-value to low-value crops.

Being water-wise

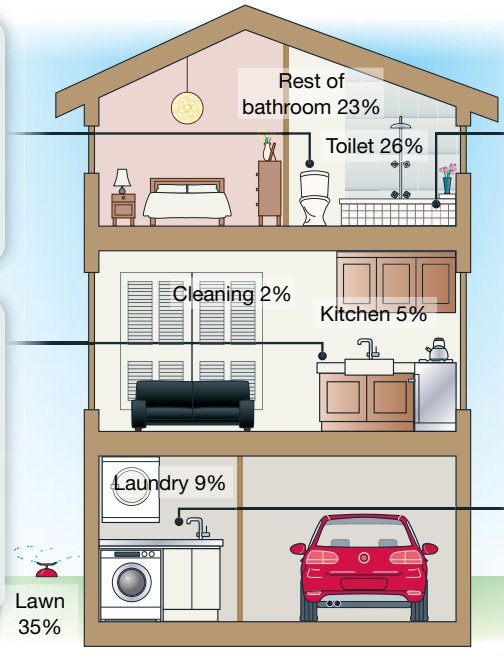
Australia is among the world's highest users of water in the home. This is partly due to our climate; the average Australian uses about 450 litres of freshwater a day, second only to the USA. Ugandans use about a tenth of that amount. There are lots of steps we can take to improve the efficiency of our use of water.

Water-wise in the home

Small changes in behaviour or technological improvements can lead to significant improvements in water efficiency in your house. Encourage your family to adopt some of the practices highlighted in Source 4.14.

TOILET
Installing a dual flush toilet (with a shorter flush for liquid waste) can reduce total water use in the home by 67%. If your toilet is old, put a brick in the cistern to reduce the amount of water used with each flush.

KITCHEN
Ensure the dishwasher is fully loaded. Dishwashers are actually far more efficient than doing the dishes by hand in terms of water use. Avoid running the tap when cleaning vegetables or cooking. Instant gas or solar hot water heaters also reduce the time spent running taps, waiting for water to warm up.



REST OF THE BATHROOM
Use a shower timer and water-efficient showerhead. A four-minute shower will use half the water of a bath. Avoid running your tap for the duration of the time it takes you to brush your teeth. This can save up to eight litres of water.

LAUNDRY
Make sure you always fill up your washing machine. More efficient, front-loading washing machines can save up to 135 litres every time you wash. Many washing machines can now be adjusted to reduce the amount of water required. Always look at the WELS rating.

Source 4.14 Where we use most of our water in the home and ways we can reduce our water use

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Water-wise in the garden

Around 35% of all water use occurs in the garden, making it an easy area to make savings in our water consumption.

Watering

Ensure dripper systems or microjets are installed to water all plants and vegetables requiring additional water. These reduce the amount of water required and minimise evaporation. A thick layer of mulch can stop up to 75% of evaporation from the soil.

Native plants

Native plants can also reduce the amount of water required in a garden, as they have evolved to cope with the conditions in their natural environments. Also, talk to your garden shop about other drought-resistant species of plants.

Lawns

Certain species of lawn, such as couch and kikuyu, require far less water than other water-hungry varieties. Make sure you do not overwater your lawn or mow it too often, as this also increases the amount of water required.

Swimming pools

Swimming pools can lose up to 10 000 litres of water per month through evaporation. A well-fitting pool cover can almost completely eliminate this loss, while also warming the water in the pool.

Rainwater tanks

Household rainwater tanks can save up to 40 000 litres of water a year. Hooking up these tanks to drip irrigation systems is an extremely efficient way to save water in the garden.

As well as these methods, using grey water as described earlier in the chapter can also save both money and water. If you don't have a system fitted, just take a bucket with you into the shower, collect the excess water and use this to water plants.

Water-wise at school

As students there are a number of possible ways in which you can improve water efficiency at school. The following activities could lead to some big water savings at your school.

Reducing water use at school

Publicity

Make posters to encourage students to turn off taps and to promote responsible water use.

Avoid leaving water running.

Audits

Are there leaking taps or fountains?

Are dual-flush toilets and water-saving showerheads installed?

Gardens

Are the species of plants around the school grounds appropriate for the climate?

Has the school installed water-efficient measures such as rainwater tanks and drippers?

Being proactive

Form a water-saving club to regularly check for and report leaks.

Ask teachers if there are any grants available to install water tanks or other devices.

Inform other students at assemblies about the need to save water.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 4.3

Conduct an inquiry examining the following question: 'Are we doing enough to save water?'

Complete a water audit of your home and school, finding out about water use and the extent to which water-saving devices such as water-efficient appliances, dual-flush toilets, water-efficient showerheads, rainwater tanks and drip irrigation systems are being used. You will find a useful link at www.cambridge.edu.au/hass7weblinks.

Create a survey asking parents, siblings, students and teachers about their water use and awareness of water-saving measures. These data could then be graphed and analysed. Present your findings to the class as an oral report and make sure you discuss some steps to improve water efficiency.

Sensitive urban design

While all the approaches outlined in this chapter can go a long way towards saving water, urban planners and architects are now examining different ways to ensure that new urban developments use less water. With careful planning, community and council involvement, and increased education and awareness, millions of litres can be saved.

Modern housing regulations

In many countries, including Australia, governments have put in place strict laws to ensure that water-saving measures are included in the construction of new buildings. All new homes in Australia must have a 2000-litre water tank, for example. A range of other initiatives, including dual-flush toilets, lower water pressure, low-flow showerheads and efficient appliances are also in place in other states and countries. While these approaches do result in water savings, many argue that they raise the cost of new houses.

Integrated catchment management

When rivers are managed by people, problems often occur through short-term benefits or local gains being given priority over the overall sustainability of the river system. Examples of poor river management include:

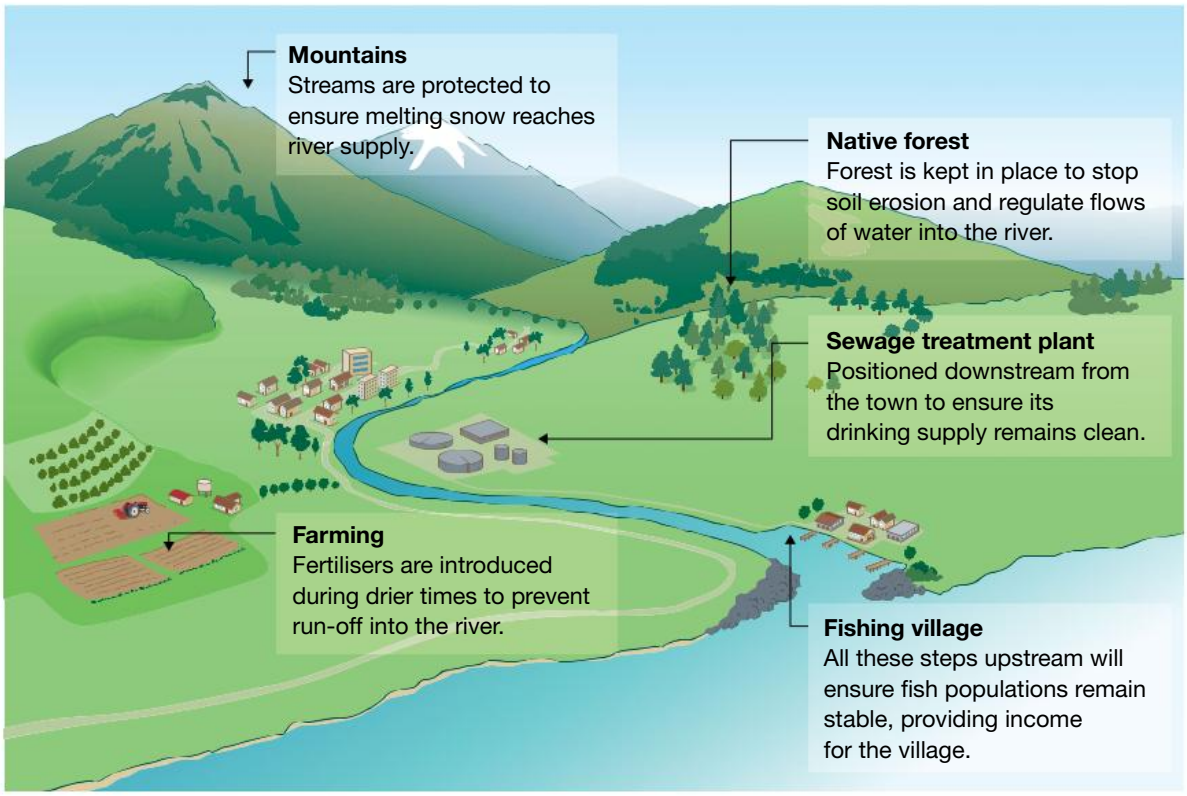
- withdrawal of excess water upstream
- release of contaminants or pollution into the river
- removal of native vegetation.

An integrated approach to managing a catchment means that the river catchment is looked at as a whole when making decisions about the way the land is used. This ensures that the river maintains its health while also allowing for economic development.

Integrated catchment management can be hard to achieve, as many rivers flow through different council, state or national boundaries. Increased awareness and education can assist people in understanding how their actions may put at risk the health of the entire catchment area.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 4.15 Integrated catchment management

Healthy river catchments

Rivers are a vital source of water for human consumption, agriculture and the natural environment. Integrated catchment management advocates that a healthy and balanced river system can support all of these groups. Unfortunately, river systems are under threat. Key threats to systems include the following.

Overuse of water for agriculture

If too much water is taken out of rivers, they suffer from a lack of environmental flow. This means there is not enough water running to the mouth of the river to keep the system healthy. Ecosytems will die and salinity and algae levels may rise.

diversion the transporting of water away from a river, normally for the purpose of irrigating farmland

Water diversion

Rivers have often been diverted to supply water or reduce flooding in urban areas, and dams have been built to secure water supplies. Both these activities can affect flows of sediment, slow the movement of water and prevent the migration of species, lowering water quality.

Pest species

Pest or introduced species, such as willow trees or carp in the Murray River, can destroy the balance of ecosystems. This can result in the death of certain species, and water quality can diminish.

Pollution from agriculture

Soil erosion from river banks compacted by overgrazing can increase sediment entering the river, decreasing the water quality. Excess fertiliser entering river systems is a major cause of algal blooms. Pesticides can also be washed into river systems and enter the food chain.

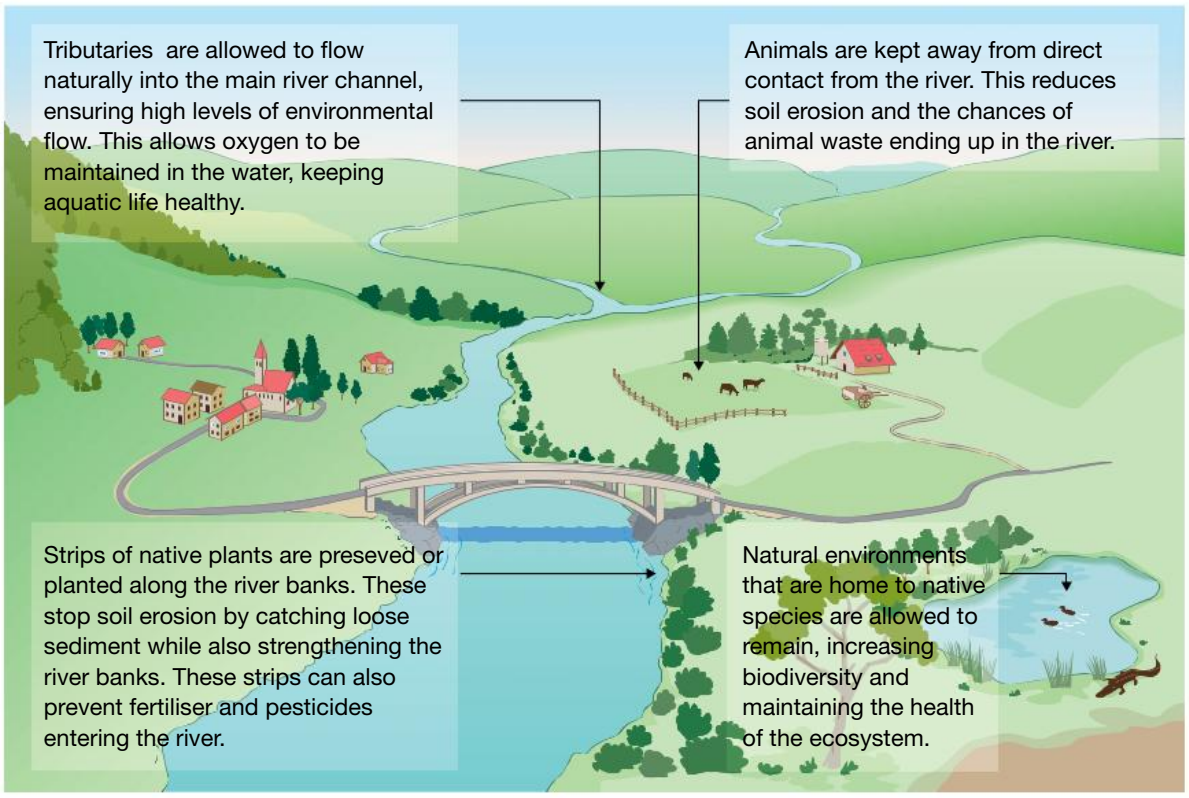
Pollution from urban areas and industry

Urban areas can create high levels of pollution if industrial waste or chemicals are dumped in the river. Polluted stormwater from roads and drains also enters rivers, killing aquatic life. Warm water – for example from power station cooling towers – can also damage fragile ecosystems.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Protecting our rivers: agricultural areas

With so many agricultural regions in Australia reliant on river systems, a variety of strategies can be put in place to maintain healthy water quality (see Source 4.16).



Source 4.16 Maintaining healthy water quality

Populated areas

Densely populated urban areas can cause severe damage to river systems, but there is a wide range of strategies that can reduce the effects of people on the river system.

Wastewater treatment

In many populated areas, sewage and other wastewater can end up in the waterways, increasing the risk of water pollution. Effective treatment and management of that water ensure that these waste products are safe to enter the river.

Litter traps

Litter traps catch litter and other large debris before they enter the river system, reducing contaminants and pollution that may harm wildlife in the river.

Planting of native vegetation in urban areas

Areas of native vegetation such as wetlands can improve the quality of water by filtering it as it flows through the river. These wetlands also bring native species into the area, maintaining biodiversity, which keeps the river system in balance.

GEOGRAPHICAL THOUGHT

Did you know that water quality in the Thames River in London has improved so dramatically that dolphins have been spotted recently in the middle of London?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 4.4

1 Articulate what is meant by 'integrated catchment management'.

2 Examine Source 4.15 and refer to key threats to river systems. What would happen to the water if:

   a forests were ripped up near the mountains?

   b intensive farming took place upstream from the residential areas?

3 Copy the columns down below and link the causes to the appropriate effects.

Cause	Effect
Introduction of pesticides	Algal blooms
Release of fertilisers into the water	Fragile ecosystems destroyed
Release of hot water from power stations	Poisons entering the food chain

4 Evaluate two benefits of planting native vegetation.

4.4 Challenges for the twenty-first century

Our relationship with water, the amounts we use and the ways in which we use it, vary considerably from place to place. Water scarcity is going to increase this century in many different regions due to a range of factors.



With the population of the world estimated to reach 10 billion by the year 2050, water, both for domestic use and for the production of food, is going to be in extremely short supply. Much of this growth is predicted to occur in Africa, where many regions are already suffering from an acute lack of water.

Source 4.17 Population growth will increase the use of water.

As average temperatures rise, rivers will experience higher rates of evaporation and more water will be required to irrigate crops. Extreme events such as droughts and floods will increase, leading to uneven distribution of water and periods of greater water scarcity.

Source 4.18 One result of climate change



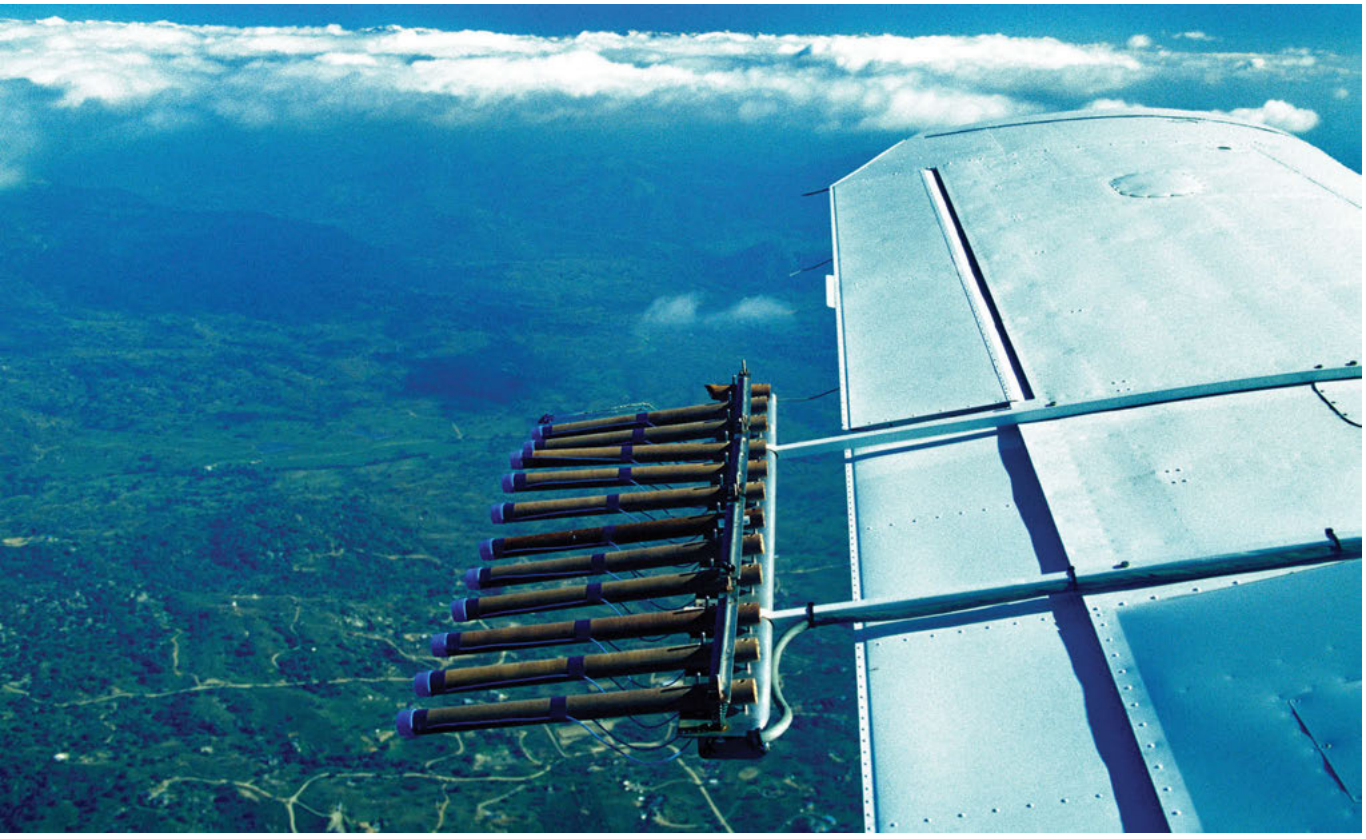
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



As countries with large populations, such as China and India, develop, they are likely to require more water as meat consumption rises and more houses receive running water. While parts of these countries have large supplies of rainfall, water scarcity is likely to be an issue in drier regions.

Source 4.19 Improved living standards require more water.

Many strategies, such as water recycling or desalination, may provide some of the solutions, but it is clear that current practices will have to be improved if there is going to be enough water for all of the world's population.



Source 4.20 Silver iodide flares attached to the wing of a cloudseeding plane. Cloudseeding is a form of intentional weather modification in which certain compounds, typically silver iodide, are dispersed into the air, most often with the intention of increasing the level of rainfall from targeted clouds.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- While there is plenty of water available in the world, it is not always in the places where it is needed at the right time for human use.
- Physical and economic water scarcities are pressing and important issues in both developed and developing nations.
- Water is a source of conflict between and within many nations. As populations increase this is likely to be an even more significant issue.
- There is a range of approaches to tackling water scarcity. All of these approaches have advantages and disadvantages, and different approaches will be required in different locations.
- Water can be saved at home, at school or at work. Individuals can make a big difference by making small changes to their water-use habits.
- Integrated catchment management and careful protection of rural and urban river catchments can significantly improve the quality of water in a region.

Short-answer questions

1 Explain the difference between physical and economic water scarcity.

2 Describe three factors that make conflicts over water more likely to occur.

3 List three situations in which desalination is a preferred alternative water supply.

4 Record a paragraph describing what strategies your family could use to save water. Come up with two further ways in which more savings could be achieved.

5 Investigate in detail one of the challenges for the twenty-first century regarding water. Provide statistics and images to explain why this could be a problem.

Extended-response question

Write a report on water scarcity in a country or region other than the examples provided. Your report must include the following:

- a locational map of the area
- information on the population, industry and environmental geography
- an analysis of the main causes of water scarcity in the region with graphs, maps and images explaining these causes
- an outline of the effects on the human population and physical environment
- an evaluation of strategies put in place to reduce water scarcity.



Source 4.21 A water tanker supplies water to homes in Bangalore, India, after acute water shortages in the region.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



5 Water hazards

Before you start

Main focus

Water is not only one of the basic ingredients for all life on Earth and an important part of environmental systems that keep the planet healthy; it is also a central element in some of Earth's greatest hazards, such as floods and drought.

Why it's relevant to us

Unlike with other natural hazards such as earthquakes or bushfires, there are few places on Earth that are not susceptible to hazards associated with too much or too little water. In a world where the climate is changing and more and more people are settling in areas that are subject to water hazards, understanding how these hazards arise and how to effectively manage them is essential.

Inquiry questions

- What are water-associated hazards and how do they occur?
- How do water-associated hazards affect both human communities and the environment?
- How are water-associated hazards managed?
- Are water-associated hazards going to be much worse in the future?

Key terms

- Climate change
- Drought
- Flood
- Hydrological hazard
- Meteorologists
- Severe storms
- Tropical cyclones
- Tsunami

Let's begin

Australia is the flattest and driest continent on Earth: a land of 'drought and flooding rain' as the words of Dorothea Mackellar's famous poem, 'My Country', describe it. Australians, like many other communities around the world, have learned to live with water-associated hazards. Australians are fortunate, however, in that the relative number of lives lost to these types of hazards is low and the ability to recover economically after disaster strikes is far greater compared to poorer communities around the world, where hazards associated with too much and too little water bring devastation, death and disease on a huge scale.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

5.1 Floods

hazard a situation that poses a threat to life, health, property or the environment

hydrological hazard a hazard associated with water that has the potential to cause death, loss of possessions and loss of crops, leading to famine

developing countries poorer countries of the world that are seeking to become more advanced economically and socially

flood plain low-lying land along river valleys, lakes and coastlines that is subject to flooding

tropical cyclones storms that form over the ocean as a result of warm waves, clouds and low air pressure

flood a large overflow of water that drowns areas of land, usually causing extensive damage to those areas

Unlike other natural **hazards**, such as earthquakes, which are a significant threat only in certain regions, flooding is one of the major **hydrological hazards** that disrupt the safety, health and prosperity of human settlements all around the world. Flooding is becoming an increasingly pressing problem as the population of cities, towns and villages swell, particularly in **developing countries**. It is a problem made worse by the fact that many of the world's human settlements are built on **flood plains** or are in low-lying coastal areas that are susceptible either to rising sea levels as a result of a changing climate, or to increased severity of events such as **tropical cyclones**, which push seawater onto the shore. Globally, **floods** are the most frequently occurring destructive natural events, affecting both rural and urban settlements, and are extremely costly in social, economic and environmental terms. In Australia, since the first recorded death as the result of a flood in 1790, there have been over 2300 flood-related deaths. In the period between 1967 and 1999, the cost of floods in Australia, through the destruction of economic assets such as homes and businesses and the washing away of roads and railway lines, has been estimated at $10.4 billion – the equivalent of $314 million annually. The environmental costs of floods are also rising because agriculture and greater **urbanisation** are contributing to problems like increased soil **erosion**; and during periods of flood the by-products of agricultural processes such as fertilisers and pesticides, as well as industrial pollutants from urban areas, are being washed into our oceans, causing long-term environmental damage to marine **ecosystems**. It is the combination of these factors that make floods the most costly of natural hazards in Australia.

urbanisation the process whereby more and more people are coming to live in towns and cities

erosion the wearing away of the surface of the Earth by the action of wind and water

ecosystem a community of living things, including animals, plants and microorganisms

The term 'flood' in its most basic sense refers to a flow of water over areas that are habitually dry. Floods include a range of events, many of which can include other sources of damage, such as wind damage associated with **severe storms**, or landslides when waterlogged soil becomes unstable. Sources of floodwater can come from the sea (in the form of a **storm surge** or **tsunami**), from the melting of glaciers or winter snow, or from rainfall if the volume of water exceeds the capacity of rivers and creeks or

severe storms storms, including thunderstorms and cyclones, that cause serious damage to the country

storm surge ocean water that is pushed onto land by the effects of a severe storm or cyclone

tsunami an ocean wave, sometimes large, caused by an undersea earthquake, volcano, landslide or other disturbance



Source 5.1 People being evacuated from floodwaters in Nonthaburi, Thailand, during widespread floods in October 2011

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

other drainage systems to deal with it. Flooding can also occur through the failure of human-made water containment systems, such as dams, or through other types of human interference with the natural flows of rivers, such as building bridges over rivers. However, while flooding can become a cause for serious concern when it exceeds the coping capacities of affected communities, it must be remembered that it is a natural process that can also bring great benefits to both human and natural environments. Natural systems have evolved to deal with excess water and floods can have significant benefits, particularly in areas that have suffered a long **drought**.

drought a shortage of rainfall over an extended period of time

It is when excess water interacts with natural and human-made environments in a negative sense, causing disruption, damage and death, that flooding becomes a hazard. The experience of flooding for a farmer in Australia's Murray–Darling Basin and that of an urban slum dweller in the Philippines will be very different: to the farmer, the flood is a natural force that brings long-term benefits such as increasing the fertility of the soil, but for the person living in a slum in the city, flooding has the potential to be disastrous, destroying lives and livelihoods.

DEVELOPING YOUR UNDERSTANDING 5.1

1. Explain why floods are the most widespread of natural hazards.
2. Investigate why China's Yellow River has been given the name 'River of Sorrow'.
3. In Australia, most local governments have flood maps that show the potential for flooding along creeks and rivers. Analyse how flood maps may help when planning development in these areas.
4. Recall if there has been a flood in the area or state in which you live. Describe the ways in which this event was destructive to both the human and natural environments.
5. Critically evaluate if it is only humans that are affected by flooding. Discuss how floods can affect animals, particularly farm animals.

DEVELOPING YOUR UNDERSTANDING 5.2

1. Construct a time line documenting the history of flooding for a river in your state.
2. Most of the major river systems of the world have deltas at their mouths. The Nile delta is an example of a delta. Identify one of the major river systems in the world, such as the Mississippi River in the USA or the Yangtze River in China, and use Google Earth to follow it to its mouth.
   - **a** Describe what happens to the river the closer that it gets to the sea.
   - **b** Investigate whether there is human development in the area surrounding the delta. If so, identify the risk from flooding that these communities face.
   - **c** Consider whether the landscape of the delta you are exploring might change over time. If so, why?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

How are floods caused?

The most common cause of flooding is from heavy rainfall. It occurs when natural watercourses such as rivers and creeks, or urban watercourses such as drains and culverts, cannot contain excess water within their banks, and the water overflows into the surrounding areas. Floods do not always occur from heavy rainfall, however. In coastal areas, flooding can also occur when seawater inundates low-lying coastal land, because of tropical storms or cyclones, or as a result of higher than normal tides. Coastal flooding can also occur as the result of a tsunami swamping the coast. Flooding can also occur as the result of earthquakes or landslides. A dam failure triggered by an earthquake will result in flooding downstream, even in dry weather, and a landslide that blocks a river's flow can result in flooding upstream as water is backed up, because the river's natural flow has been restricted.

Classification of floods

Floods can be generally classified into five types:

1 *Cloudbursts*. When sudden and large amounts of rain fall in a geographically small area and the watercourses cannot contain the increased water flow, flooding occurs in low-lying areas. These are what are termed rapid onset floods, and they can pose a significant risk to life and property. This is because they generate a fast and dangerous flow of water, and there is generally much less time for people to take preventative action.

2 *Natural river floods*. Flooding of the low-lying areas along river margins is a natural event, such as the flooding of the Barmah Forest on the Murray River or the historical flooding of the River Nile. River flooding is generally a seasonal event, either when winter snows melt and combine with spring rains (in temperate regions) or because of the heavy rains of the wet season or monsoon season in tropical and sub-tropical regions. These types of floods are called slow-onset floods. The wet season in the Northern Territory, between December and March, causes widespread flooding that makes many roads impassable. The slow-onset floods may take days to build up and can last for weeks or even months on some occasions. The periodic floods that inundate vast flat areas of arid inland Australia often take weeks to reach places hundreds of kilometres downstream, and can last for prolonged periods. The damage caused by floods in these areas can lead to great losses of livestock, cut off rural towns and spoil crops, as well as damage main roads and railways.

3 *Coastal floods*. Fierce winds from tropical storms and cyclones can drive seawater onto low-lying coastal land in storm surges. This can be made worse during higher than normal tides or when higher river flows are coming into **estuaries**. Coastal flooding can also be produced by tsunamis.

estuaries bodies of water formed where freshwater from rivers and streams flows into the ocean, mixing with the seawater

4 *Flash floods*. Gullies, canyons or normally dry creek beds that are found in semi-arid areas can quickly become powerful fast-flowing torrents during storms.

5 *Urban floods*. As urban land in cities and towns is developed and paved with bitumen and concrete, it loses its ability to absorb rainfall. In intense rainstorms, rainwater quickly becomes run-off, flooding drains and culverts and overflowing into low-lying urban settlements.

The water cycle and flooding

As we have read, the most common form of flooding is water overflowing the banks of rivers and streams, and this occurs when an excessive amount of rain falls in the area that supplies the water to a stream or river. This area is called the catchment or drainage basin. In nature, a drainage basin is an area that is surrounded by higher land such as hills or mountains. To illustrate a drainage basin, cup your hands together under a shower of water, with your hands pointing slightly upwards. The water from the shower is like rain. The water that falls in your cupped hands is falling into a drainage basin, gets channelled down the valleys between your fingers, runs into the valley between your palms and eventually drains out between your wrists. The valleys between your

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

The definition of a flood does not have to include water. In January 1919 in Boston in the USA, a large molasses storage tank at an alcohol distilling company burst, sending a wave of molasses through the streets at an estimated 56 kilometres per hour. This most unusual of urban floods killed 21 people and injured 150 more.

fingers and palms are like the creeks and rivers. Try experimenting with this model. What happens when you increase the flow of water? What happens when you decrease the flow of water?

In order to better understand how floods occur in rivers and streams, we need to consider the area through which they flow as part of a system called the water cycle – an endless, naturally balanced cycle, in which water passes from the oceans into the atmosphere, onto the land, through and under the earth, and then back to the oceans. This water balance and its cycle are achieved by the combination of the sun's heat and the pull of gravity, both of which constantly recycle moisture, which **evaporates** and enters the air as vapour, then **condenses** and falls back to earth as rain, snow, hail or sleet. This falling back to earth is called precipitation and forms the input into the system. When it falls onto the land in the catchment area of a river, a number of things may happen. It may return to the atmosphere through evaporation from the ground surface and through **transpiration** from plants, which together form an output from the system called **evapotranspiration**. When water gathers on the ground, when the soil soaks it up. This is called **infiltration**.

evaporates changes from liquid to vapour

condenses changes from vapour to liquid

transpiration the process by which plants lose water to the atmosphere

evapotranspiration the process whereby water travels up through plants and is released into the atmosphere through evaporation

infiltration the process in which water on the ground surface soaks into the soil

The speed of infiltration is called the infiltration rate. Once in the soil, the water moves quite slowly, either near the surface in what is called throughflow or much deeper as groundwater flow. Any water that does not infiltrate moves rapidly downhill on the ground surface and is called run-off. Too much run-off is the most common cause of rivers and streams overflowing their banks and causing floods.

GEOGRAPHICAL THOUGHT

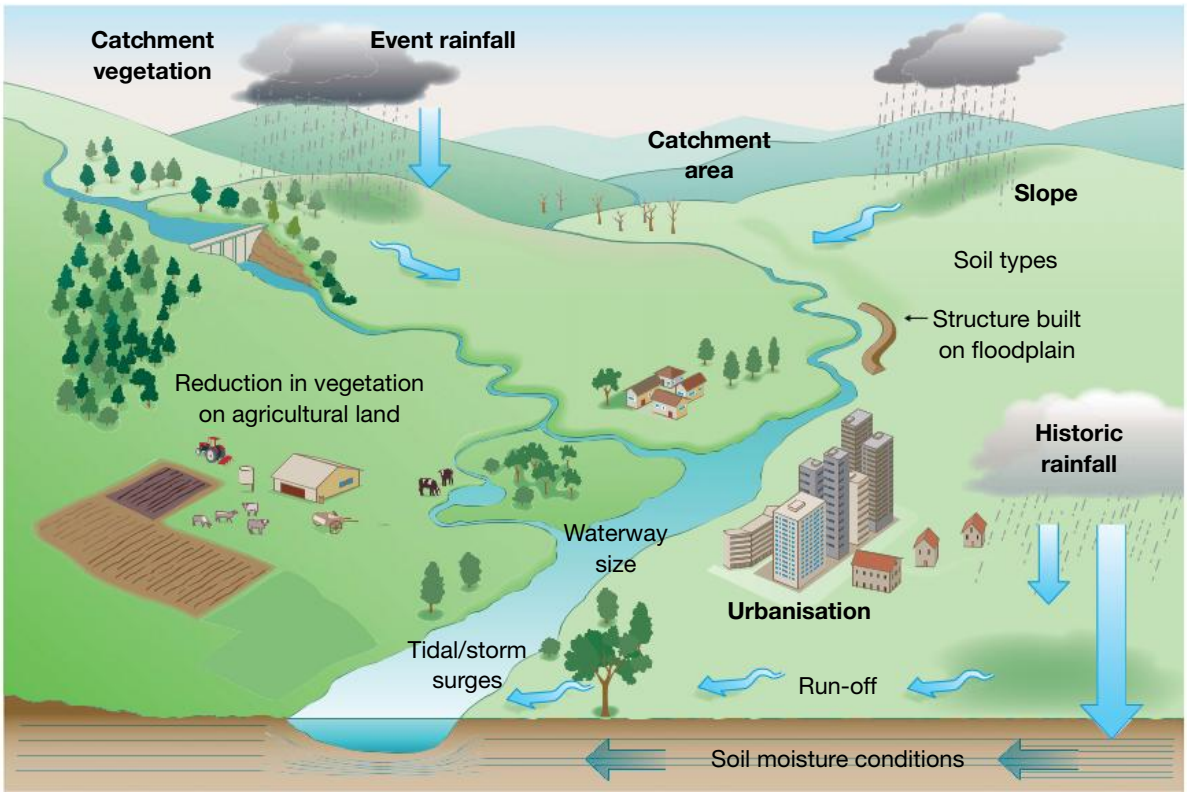
Scientists have calculated that if all of the water in the atmosphere at any given time were suddenly to fall upon the earth, it would cover the planet to a depth of only a few millimetres.

Conditions that lead to flooding

Heavy rain on its own will not necessarily cause destructive flooding. The conditions that lead to flooding are also subject to enormous variability. We have all experienced rain that has gently pitter-pattered away over a couple of days. This has generally not caused a problem. However, the same amount of rainfall falling over an hour or two could devastate a town. This is what happened to Toowoomba in Queensland in January 2011, when flash flooding swept away everything in its path. The key to understanding the potential for flooding lies in understanding how land behaves, and this depends on a number of factors:

- *Urbanisation and human modifications to the landscape.* Water flows more quickly and efficiently across paved areas than across areas of vegetation, which slow the speed of floodwater and distribute its energy more evenly. So an area with a lot of concrete and

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 5.2 A typical catchment illustrating some of the factors that influence flooding potential

bitumen, such as in urban areas, creates run-off very quickly. Modifications to the landscape such as the building of levee banks on flood plains also influence the way that water behaves.

- *Soil type*. Soil type influences the infiltration rate. If the ground is coarse and composed of sand or gravel, rain water is absorbed quickly. But if the ground is fine – composed of clay, for instance – less water gets through, and run-off is inevitable. To understand these differences, note that clay has smaller granules than sandy soil, and when it gets wet it becomes very sticky and doesn't allow any more water to be added. That is why clay is very good for making bricks, which are hard and dense and resist water penetrating them. The larger granules of sandy soil easily allow water to pass through.
- *Amount and type of vegetation*. Heavily vegetated areas, particularly those with trees and shrubs, allow for greater water penetration of the soil. The foliage of trees and shrubs also reduces the energy of the falling rain. One of the contributing factors to heavy flooding in Pakistan in the disastrous floods in 2010 was the degree of tree removal by logging in the upper catchment of the Indus River.
- *Recent weather*. Ground that is already saturated from earlier rain events is more likely to create run-off into creeks and rivers because the ground cannot absorb any more water. Rain that puts an end to drought can even cause flooding; it may be falling onto soil that's so sun-baked and hard that it can't absorb much water at first. Soil that is frozen creates conditions for greater run-off because liquid water cannot penetrate the hard soil.
- *Topography*. The shape and the elevation of the land are a strong determinant of floods. Mountains, for instance, are great flood makers. First, they assist in the creation of rain when they cool down warm, moist air blowing into them, and then they channel rainfall into steep channels in virtually no time at all. Flat land such as the flood plains alongside rivers, on the other hand, assists the widespread pooling of floodwater.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 5.3

1 Interpret what it means to say that 'the velocity of a river is largely determined by gravity'.

2 Identify the benefits for communities building settlements on flood plains.

3 Complete the table below showing the infiltration rates of different soil types and characteristics that influence water run-off:

Condition	Rapid (R)/ slow (S)	Reason for your answer
Frozen soil	R	Frozen soil doesn't allow the water to infiltrate the ground. Therefore run-off will be greatly increased.
Clay soil		
Dry, sandy soil		
Saturated soil		
Bitumen or concrete-covered surfaces		
Densely vegetated area		

People's experience of floods

The experience for people caught in a flood may vary according to a number of factors:

- *The time of year the flood comes*. People regularly experience floods that are linked to the seasons, such as rain in spring or during the wet season in the tropics. Heavy rainfall that is experienced outside these regular patterns can catch people unexpectedly.
- *The time of day when the worst flooding occurs, how quickly the flood arrives, and how quickly the water rises*. For instance, flooding that occurs at night poses a greater potential threat because people are more disoriented than they would be during the daytime.
- *How long the flood lasts*. In some parts of northern Victoria, floodwater still covered farmland almost 2 years after the January 2011 floods.
- *The depth of the water and the speed at which it flows*. There is little defence from great volumes of rushing water. Many deaths from flooding in places like Australia are the result of people underestimating the depth and speed of water and attempting to drive their cars through a flooded roadway, or walking or swimming across flooded watercourses and being washed away.
- *How well prepared people are for a flood*. People in developing countries such as Pakistan are affected far more severely by the devastation caused by floods than people in Australia. Australia has comprehensive communication systems to warn people of flooding and Australian authorities have stringent planning guidelines for where people can build and what types of houses they can build. In poorer countries, building regulations are less stringent and people, many of them poor, often build in areas that are vulnerable to flooding because of the cheapness of the land. Many people in poorer countries also don't have easy access to telephones, television and the internet, so information that they get about potential floods is often limited.
- *The amount of outside help that is available for rescue and relief operations*. Many countries in the developing world do not have adequate money or resources to deal with flood disasters, and it is because of this difference that people in Bangladesh, for instance, have a far more devastating experience than people in developed countries like Australia.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 5.1

Bangladesh is one of the most fertile areas on Earth, yet it suffers natural disasters on a scale unimaginable to people in Australia. Write a report with an accompanying letter to the Prime Minister of Australia detailing your argument as to why Australia's foreign aid budget for Bangladesh should be increased. Be sure to address the following:

- an investigation of the physical and human geography of Bangladesh
- why Bangladesh is subject to such significant natural disasters and what makes the people of Bangladesh so vulnerable to these disasters
- some suggestions about how these disasters could be better managed
- how increased foreign aid could improve the lives of the people of Bangladesh.

Queensland floods

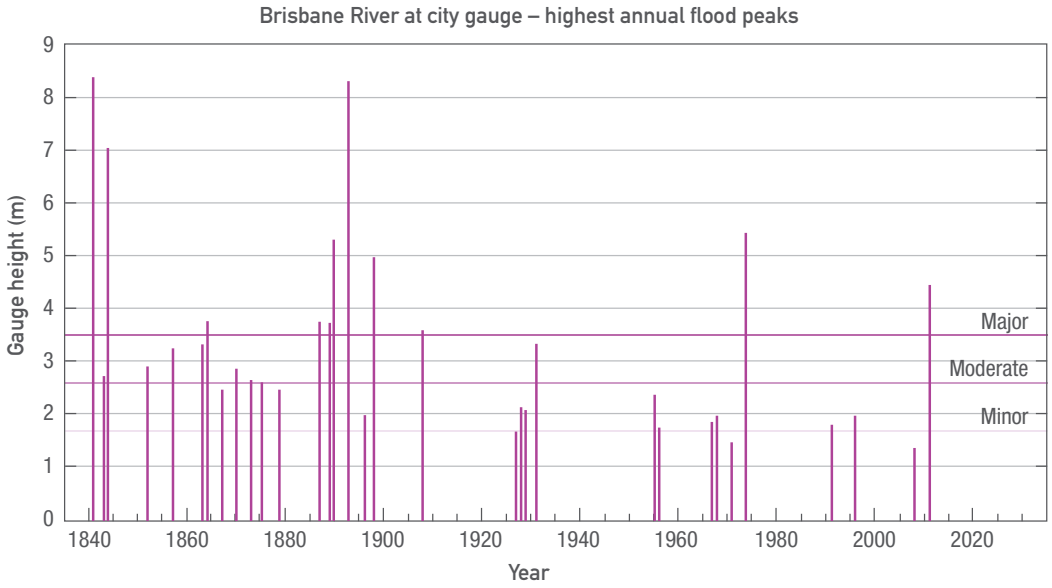
Coastal Queensland has a warm tropical and sub-tropical climate, and during the summer months from December to February, Queensland experiences its wet season – a time when its creeks and rivers are at their highest levels. It is also the period when Queensland endures its cyclone season. Coping with the wet season is a normal part of life for the people of Queensland, where most of the major cities and towns are located on flood plains within 100 kilometres of the coast and some form of flooding is likely to occur. Queensland's capital city, Brisbane, is deemed highly flood-prone because of its location in a very low-lying part of the Brisbane River Basin, one of the largest coastal river catchments in eastern Australia. Before 2011, Brisbane had already experienced two major floods in its history – one in 1893 and another in 1974 – and numerous small to moderate floods.

The summer of 2010–11, however, turned out to be quite different for the people of Queensland.



Source 5.3 The suburb of Fairfield in Brisbane, inundated with water from the swollen Brisbane River in the 2011 floods

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 5.4 Flood peaks on the Brisbane River

These were some of the wettest months in the state's history, and the result was widespread flooding that affected more than 78% of the state – an area larger than France and Germany combined. Thirty-three people were confirmed dead from drowning in floodwater, and the bodies of three people were never found. Most of the state was declared a disaster zone by the government: 2.5 million people were affected in some way by flooding; 29 000 homes and businesses received some degree of flood damage; agricultural and mining production was severely disrupted; and crops of wheat, cotton, sugar cane, citrus, fruit, vegetables and grains were destroyed. The flood also damaged infrastructure, such as rail and road networks, as well as vehicles and machinery. The cost of the floods was estimated to be in excess of $2.37 billion dollars.

While flood-related fatalities occurred throughout the state, with most of them in rural Queensland, the highest concentration of deaths occurred in the Lockyer Valley area, west of Brisbane, where 16 people died and the three people who remain missing were lost. Many of these deaths were a result of flash flooding, which caught people by surprise. Other deaths that occurred during the flooding could have been avoided, had people exercised better judgement. Some people died while kayaking in, diving into or walking through flooded watercourses. Almost a quarter of the deaths occurred while people were trying to drive across flooded waterways.

A number of weather patterns leading up to December and January across Queensland increased the likelihood of flooding. Unusually heavy rains occurred in northern Australia during the cooler months of 2010 – normally the dry season in the tropics. This assisted in saturating the soil in the catchments. These catchments were further saturated in September with widespread heavy rain. September 2010 was Australia's wettest September on record. When significantly above-average rains fell in December 2010 and January 2011, the catchments were already saturated, causing increased run-off that led to severe flooding. The most severely affected catchments were the Fitzroy River catchment in central Queensland, which included the towns of Theodore and Emerald and the city of Rockhampton; the Burnett River catchment in the upper south-east of Queensland, which flooded the city of Bundaberg; and the Brisbane River catchment in the south-east, which included the city of Toowoomba and Queensland's capital city, Brisbane.

The separate experiences of Rockhampton and Toowoomba give two good examples of the different ways in which floods develop and how people experience them. The flooding in Toowoomba was the result of a 36-hour period of very heavy rain, which fell onto an already saturated catchment. Flash flooding occurred when a surge of water, described by the Queensland Premier Anna Bligh as an 'inland tsunami', rushed

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

through the city centre and continued down into the Lockyer Valley, wiping out everything in its path. By contrast, the city of Rockhampton, which lies at the end of the Fitzroy River catchment, had a week to wait before the floodwaters reached their peak as the water made its way down the rivers and creeks.

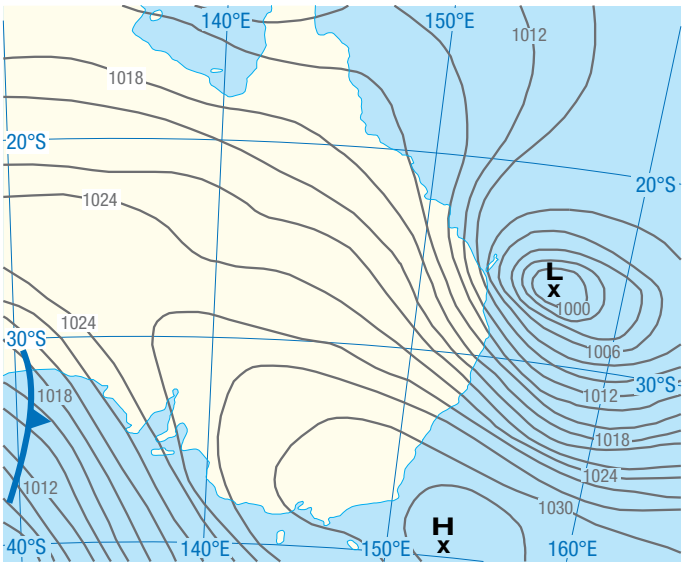
While both Australia and Pakistan regularly experience floods, both countries were influenced by a La Niña weather pattern in 2010, and warmer than average water temperatures in the Indian Ocean, which created the conditions for the record floods that occurred in both countries.

5.2 Storms

Severe storms occur more frequently than any other natural hazard, and even though they are formed by the same forces that drive the formation of other types of cloud and precipitation, they have the potential to be deadly. Severe storms produce lightning, hail, tornadoes, waterspouts, storm surges, damaging winds and intense rainfall, all of which can be very destructive.

What are categorised as severe storms can range from isolated thunderstorms that affect only a few square kilometres to intense **low pressure systems** that affect thousands of square kilometres. A low pressure system can also be associated with a tropical cyclone, which is a type of low pressure system originating over the tropical oceans.

low pressure system
a weather pattern in which atmospheric pressure at sea level is below that of surrounding locations



Source 5.5 An east coast low (L) on a weather map

DEVELOPING YOUR UNDERSTANDING 5.4

1 On weather maps, areas of equal pressure are indicated by circular lines called isobars. In Source 5.5 an intense low pressure system is indicated by a series of closely spaced isobars that surround the centre of the system. These types of maps are also useful for determining the relative strength of winds across a region. When the isobars are closer together, it indicates stronger winds. When they are further apart, it indicates milder winds. Referring to the weather map in Source 5.5, note the closeness of the lines surrounding the low pressure system off Australia's east coast. The regions experiencing strong winds can be determined by noting where the lines touch or cross the coast. Using an atlas, identify some of the major towns and cities along Australia's east coast that would have experienced strong winds and possibly heavy rainfall.

2 Strong winds in low pressure systems like the east coast lows create heavy waves and ocean swells that pummel beaches and other coastal land formations, causing erosion and flooding of low-lying areas. What are some of the hazards that these types of weather systems pose to life and property in coastal areas?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 5.6 The effects of coastal erosion undermining a road

In Australia, a typical example of a widespread intense low pressure system is that which generally forms during autumn and winter along Australia's east coast, and is known as an 'east coast low'.

Thunderstorms are another type of potentially severe storm. At any given moment, over 1800 thunderstorms are in progress over the Earth's surface, and about 18 million occur around the world annually. Not all thunderstorms are classified as severe – usually only 10–20% of them are. What makes a thunderstorm severe is if it has one or more of the following characteristics:

- rainfall heavy enough to cause flash flooding
- hail at least 20 millimetres in diameter
- winds over 90 kilometres per hour.

In Australia, thunderstorms have not only contributed significantly to the drowning of 2300 people by flooding since European settlement in 1788, but have also killed over 770 people since 1824, through occurences such as falling trees and lightning strikes. Severe storms are estimated to cost on average about $284 million every year in Australia. This represents just over a quarter of the average annual cost of all natural disasters in the country. One of Australia's more costly natural disasters, in dollar terms, was a hailstorm that hit Sydney on 14 April 1999; over 20 000 properties and 40 000 vehicles were damaged by hail the size of cricket balls, which also damaged aircraft at Sydney airport. In just over an hour, this storm created over $1.5 billion in damage. The estimated total weight of the hail that fell over the city was around 500 000 tonnes.

Thunderclouds are easily recognised, and are a sure sign that caution is needed. Looking like gigantic castles of marshmallow, thunderclouds (more technically known as cumulonimbus clouds) are towering, dark and menacing masses of circulating air that can extend 15 kilometres from the base of the cloud to the tropopause, the part of the upper atmosphere between the troposphere and the stratosphere. The best place to be in a thunderstorm is inside, away from windows and doors. Lightning is the worst killer in a thunderstorm. If you are inside, stay away from electrical appliances; if you are outside, it is worth remembering that lightning seeks the easiest path to earth. What this means is that you need to keep yourself shorter than the nearest object that will

RESEARCH 5.2

Thunderstorms are the most frequent of all Australian weather hazards, yet people are unfamiliar with ways of protecting themselves during thunderstorms. Research how to survive a thunderstorm. There are numerous websites that offer advice on what to do during a thunderstorm – both when people are outside and when they are inside. Construct a simple pamphlet titled 'How to survive a thunderstorm', designed to educate primary school children. Where possible, use symbols, graphics and photographs to get your message across.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

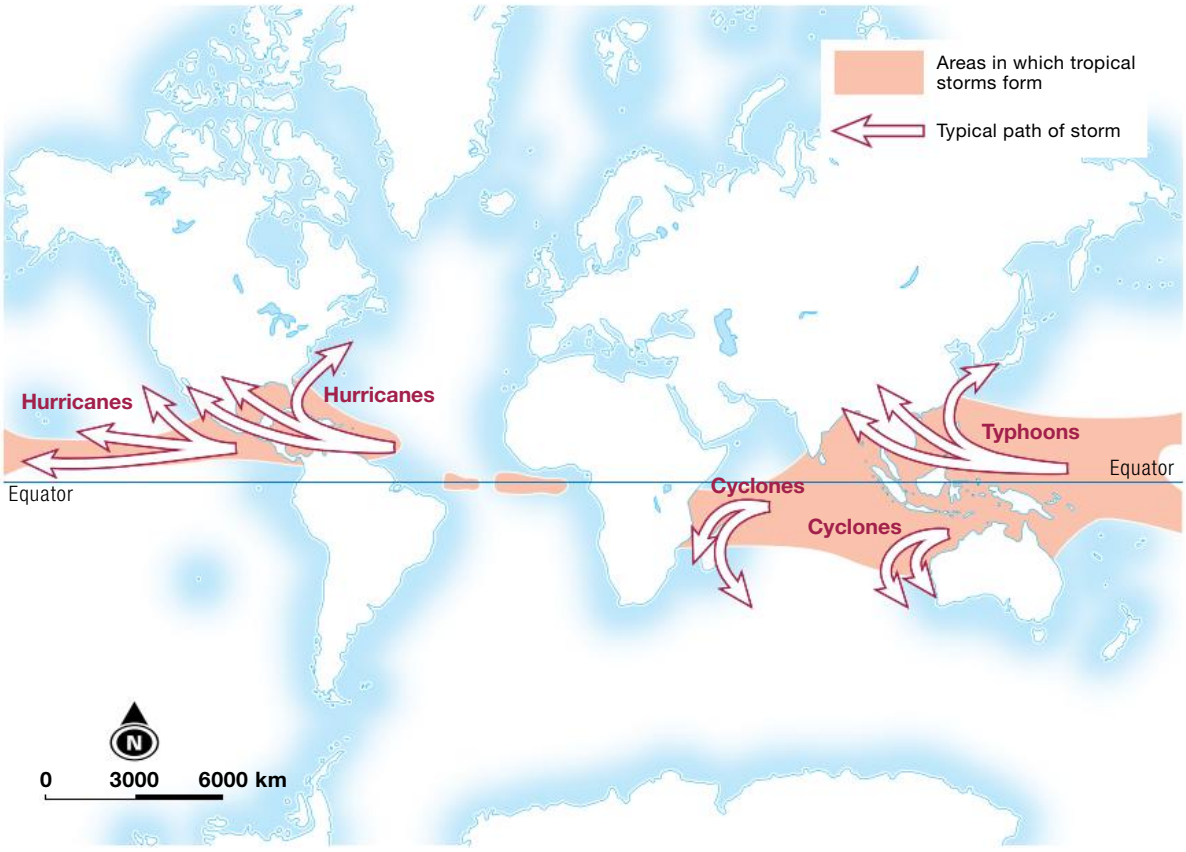
conduct electricity. Trees are excellent conductors of electricity, so it is best to keep clear of them in a thunderstorm, even if you think they will offer shelter from the rain. Another point worth remembering is the danger from flash flooding. Avoid areas where water can quickly accumulate, such as stormwater drains in urban areas or dry watercourses in rural or remote areas.

DEVELOPING YOUR UNDERSTANDING 5.5

1. Search for a picture showing the levels of the atmosphere and draw a rough sketch. In this sketch, include a diagram showing the extent of a thundercloud within the atmosphere.
2. Explain some of the other risks associated with thunderstorms, other than drowning in floodwaters, that may cause serious injury or death.
3. Investigate why electrical appliances in your house may need to be disconnected from the electricity mains during a thunderstorm.

5.3 Tropical cyclones

Around the world, about 80 tropical cyclones form every year. Some of these tropical cyclones pose enormous threats to life and property in tropical areas, such as the northern coasts of Australia to the Bay of Bengal in south Asia. You may have heard of them by their other names, which depend on where they form:



Source 5.7 Tropical cyclones as they are known in different parts of the world

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

- typhoons in the western North Pacific Ocean and the South China Sea
- hurricanes in the Atlantic, the Caribbean and the Gulf of Mexico, and in the eastern North and Central Pacific oceans
- tropical cyclones in the Indian Ocean and South Pacific regions.

Much the same as a thunderstorm, a tropical cyclone needs moisture, instability and the energy of the sun to form. Tropical cyclones are areas of air that rise rapidly and rotate around a central core (known as the 'eye'). They are generally accompanied by strong winds and torrential rain.

To be officially called a tropical cyclone, they must have wind speeds in excess of 119 kilometres per hour. While the strongest winds are near the centre, damaging winds can extend several hundred kilometres from the centre. In some tropical cyclones, wind gusts of over 360 kilometres per hour and rainfall of 1800 millimetres in 24 hours have been recorded. Clearly identifiable on satellite images as large swirling masses of cloud, tropical cyclones can cover large areas between 80 kilometres to over 1000 kilometres in diameter. In the Southern Hemisphere these winds rotate in a clockwise direction, and those in the Northern Hemisphere rotate anticlockwise. In the centre of a tropical cyclone is an almost calm and clear area called the 'eye'. As a tropical cyclone passes, the calmness in the eye often catches people unprepared. The calm conditions often tempt people to venture out to assess the damage and make repairs to their properties. However, the other side of the cyclone soon hits and because it continues to spin, the winds now come from the opposite direction. Structures that survived the initial impact of the cyclone are often dislodged or damaged when the other side of the cyclone approaches. A cyclone lasts about 9 days, but some have been known to last for 20 days or more. Some take days to mature; others intensify within 48 hours. Cyclones are eventually downgraded to rain depressions, which result in heavy rainfall and flooding when they move over land.

Tropical cyclones need the energy provided by warm water (at least 26°C) to create the conditions for their formation, which means they generally form only in tropical waters in the summer months when the sun's energy is at its greatest. Above the warm ocean, water evaporates, rising into the atmosphere in its gaseous state to form clouds,



Source 5.8 Banana plantation destroyed by Cyclone Yasi, which struck the Queensland coast in February 2011

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

which are bodies of condensed water. Clouds form because of the cooling of the water vapour that takes place as the moist air rises higher into the atmosphere. As the water vapour condenses, it releases the heat contained in it that made it a gas in the first place. This released heat further warms the surrounding atmosphere, making it lighter and causing it to rise higher still. This light air creates an area of low pressure, which in turn draws more moist air from the ocean, creating an ongoing cycle that increases in intensity. It is this drawing in of more moist air that creates the winds in a tropical cyclone. What makes a tropical cyclone rotate is the Earth's rotation. This rotational force is called the Coriolis effect. Once a tropical cyclone moves over land or into the cooler waters away from the tropics, it will usually disintegrate as it loses the moisture and heat needed to fuel it.

The warm water needed for the formation of a tropical cyclone is found in the tropics, the zone between the Equator and the Tropic of Capricorn in the Southern Hemisphere and between the Equator and the Tropic of Cancer in the Northern Hemisphere. It is rare, however, to have a tropical cyclone form within 5 degrees of the Equator, because the Earth's rotational pull along this line isn't strong enough to cause the spinning force required. Therefore, there are only seven regions in the world where tropical cyclones form. In Australia, two of these are off the northern Queensland and northern Western Australian coasts.

DEVELOPING YOUR UNDERSTANDING 5.6

1. State the main difference between a tropical cyclone and an east coast low.
2. Find a diagram on the internet that shows how tropical cyclones form. Construct your own annotated sketch of how tropical cyclones form.
3. In which direction do tropical cyclones travel in the Northern Hemisphere – clockwise or anticlockwise? In which direction do they travel in the Southern Hemisphere?
4. Identify the name of the rotational force that causes tropical cyclones to rotate.
5. Referring to both Source 5.7 and an atlas, write the name used in the countries below to describe tropical storms. The first one has been done for you.

Country	Name
Fiji	Cyclone
USA	
Philippines	
Japan	
Bangladesh	
Madagascar	
Mexico	

6. Explain why tropical cyclones don't form in Australia's southern waters, such as off the coast of Victoria.
7. Cyclone Larry struck the Queensland coast in 2006 and destroyed 80–90% of Australia's banana crop. Reflect on what you think happened to the price of bananas following this event.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Tropical cyclone season in Australia

The tropical cyclone season in northern Australia is between November and April, with the greatest activity usually in January, February and March. Australia experiences an average of 10 cyclones per year, six normally crossing the coast, where they can cause significant damage. These occur mostly over north-western Western Australia between Exmouth and Broome, and over north-eastern Queensland.

DEVELOPING YOUR UNDERSTANDING 5.7

1 Australian communities on the north-eastern and north-western coasts all have a history of past cyclone activity. On an outline map of Australia, indicate the following towns listed in the table on Australia's north-western coast and label them. In your legend, make note of the years that these towns have been hit by significant cyclones. Remember to give your map a heading.

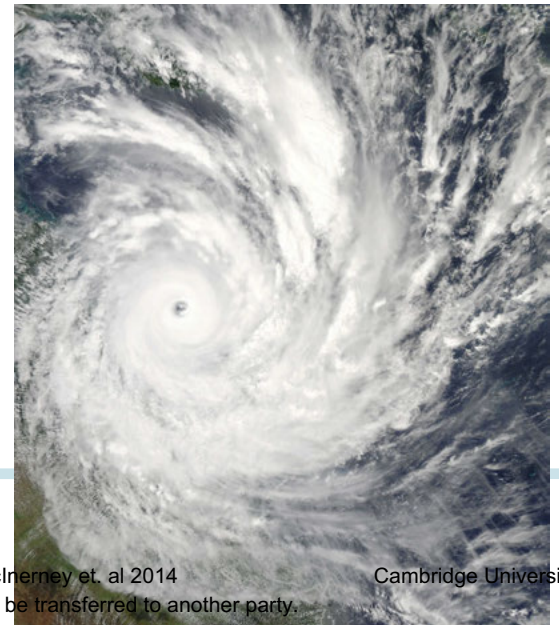
2 Using the information in the table below, calculate the average number of years between significant cyclones striking each town. The first has been done for you. To calculate the averages, determine the number of years between the first and last record and divide it by the number of cyclones that have occurred. For instance, for Broome there was a period of 90 years between the first recorded cyclone and the last. Divide 90 by the number of cyclone events, in this case, five. This gives you a figure of 18 years. Which town is more likely to be hit by a cyclone in the next 10 years?

Town or city	Years of notable cyclones	Average time between cyclones
Broome	1910, 1926, 1935, 1957, 2000	18 years
Onslow	1880, 1897, 1909, 1918, 1934, 1953, 1956, 1958, 1961 (three times), 1963, 1965, 1975, 1995, 1996, 1999, 2006	
Carnarvon	1839, 1893, 1916, 1921, 1934, 1937, 1943, 1953, 1960, 1970, 1975, 1979, 1988	

3 On the same outline map, locate the following towns and cities on the Queensland and Northern Territory coast: Darwin, Cooktown, Cairns, Townsville, Mackay and Rockhampton.

4 Go to the Australian Bureau of Meteorology website (you'll find a link at www.cambridge.edu.au/hass7weblinks) and open the page for tropical cyclones. On this page you will find a section on previous cyclones. Find the record for the following cyclones and map their paths on your outline map:

- **a** Cyclone Yasi – 2006
- **b** Cyclone Monica – 2006
- **c** Cyclone Larry – 2006
- **d** Cyclone Ingrid – 2005



Source 5.9 Satellite image of Cyclone Yasi crossing the Queensland coast in February 2011. Note the 'eye' of the cyclone.

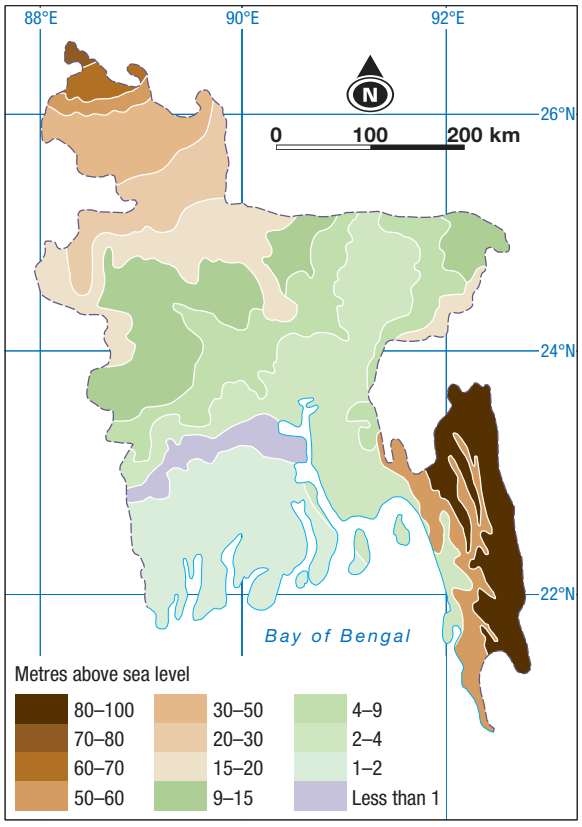
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Dangers from a tropical cyclone

Notwithstanding the damage caused by the strong winds, much of the destruction wreaked by a tropical cyclone is a result of flooding from storm surges and torrential rain. A storm surge is simply water that is pushed towards the shore by the force of the winds swirling around the cyclone. A storm surge doesn't behave like a normal wave hitting the shore like those you see at a beach like Bondi Beach. The strong winds and the area of low pressure in the eye of the cyclone create a raised dome of water, which can be 50 kilometres or more across and several metres high. When it hits the shore it can last for several hours. The storm surge moves with the forward speed of the cyclone – typically 15–25 kilometres per hour – and has tremendous power. A 30-centimetre deep storm surge can sweep a car off the road, and even in a 15-centimetre surge it is difficult for a person to remain standing. The destructive power of the rushing water is compounded by the large amount of floating **debris** that typically accompanies the surge. Trees, pieces of building material and other debris float on top of the storm surge and act as battering rams that can destroy anything in their way. When this advancing surge combines with the normal tides it creates a storm tide, which can increase the average water level by 10 metres or more. An even greater danger occurs when a storm surge coincides with a higher than average tide. Areas of low-lying coastal land are at risk from extensive flooding in a storm surge, which can push inland for tens of kilometres. Much of the devastation caused to New Orleans in the USA by Hurricane Katrina in 2005 was due to the inundation that occurred when an 8-metre high storm surge broke through the protective levees surrounding the city. Over 1800 people died in this disaster. The vulnerability of the city to tropical cyclones was heightened because many areas of the city are between half a metre and 2 metres below sea level. It is this same vulnerability that makes a country like Bangladesh so exposed to the threat of tropical cyclones. Much of the Bangladesh landmass is less than 3 metres above sea level.

debris the remains of something that has been destroyed or broken up

Situated in a region of high cyclone activity, Bangladesh regularly experiences devastating



Source 5.10 Relief map of Bangladesh. Note the low elevation of most of the country. This makes Bangladesh extremely susceptible to river flooding, storm surges and sea level rises.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

alluvial made up of material from the water of rivers and/or floods

storm surges that push far inland, threatening the densely populated communities that rely on the waters of the major rivers and the rich **alluvial** soils of the flood plains for farming.

The other feature that makes tropical cyclones so destructive is that they can produce heavy rainfall over extensive areas. Along the coast where the cyclone has struck, the heavy rainfall combines with and accentuates the saltwater inundation from storm surges, creating greater damage. The rainfall from tropical cyclones doesn't just affect coastal areas where the cyclone has struck, but is often even more intense further inland. When a cyclone moves over land it loses its source of power – heat and moisture – and becomes a wide belt of low pressure. When this happens, it begins to lose its capacity to retain the moisture locked up in its system, and releases it. Often this happens far from where the cyclone struck land. Some of the biggest flooding events in Australia have been caused by decaying tropical cyclones. The Brisbane floods in 1974 were caused by the decaying Cyclone Wanda.

DEVELOPING YOUR UNDERSTANDING 5.8

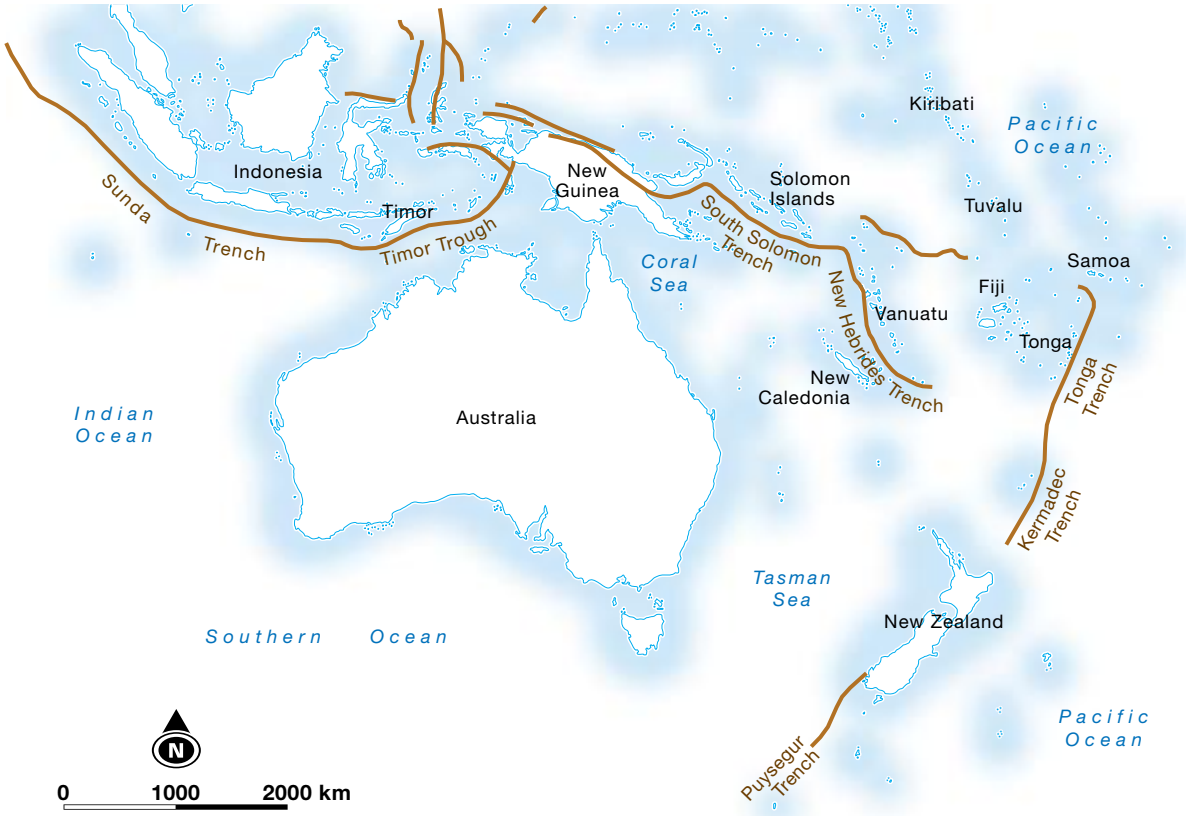
1. Discuss why people should not venture out of shelter when the winds immediately subside during the passage of a cyclone.
2. In the Northern Hemisphere, hurricanes are rated by the Saffir–Simpson Scale. Describe, using the library or the internet, how this scale categorises hurricanes. What scale is used in Australia to categorise tropical cyclones?
3. In 1974, Cyclone Tracy devastated Darwin, the capital of Australia's Northern Territory. A famous song written about the event is called 'Santa never made it into Darwin'. What is the title of the song specifically referring to?
4. One of the important roles of meteorologists is to track the paths of tropical cyclones so that advance warning can be given to communities to prepare for them. The Australian Bureau of Meteorology website provides an interactive example of how cyclones are tracked, and a link to this is provided at www.cambridge.edu.au/hass7weblinks.
5. Imagine that you live in a town like Broome or Townsville and have received advanced warning of a tropical cyclone forming. What preparations might you take to get ready for the possibility that the cyclone might hit your region?
6. Evaluate why tropical cyclones are still a hazard once they pass over land and lose the energy they need to fuel them.

Tsunamis

Storm surges associated with tropical cyclones are one cause of saltwater flooding of coastal communities. The other major threat for coastal communities is that posed by tsunamis. Although a much rarer occurrence than storm surges, tsunamis have the potential to cause massive destruction and loss of life, as was the case in the Indian Ocean tsunami in 2004, which killed an estimated 230 000 people in 14 countries bordering the Indian Ocean, and the Japanese tsunami of 2011, which killed approximately 20 000 people and destroyed several nuclear power reactors, almost triggering a nuclear disaster.

Tsunami is a Japanese word based on two elements: *tsu* meaning 'harbour' and *nami* meaning 'wave'. The term was first used several centuries ago by Japanese fishermen who came back from sea to discover that the harbour they had set out from had been devastated by waves, even though they hadn't experienced a cyclone or noticed any unusual wave activity while out at sea. Tsunamis are generated by sudden changes in the sea floor through undersea earthquakes, landslides

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 5.11 The solid lines indicate locations of earthquake fault lines in Australia's region that pose a tsunami threat to Australia.

or volcanoes or, rarely, through a wave generated when a meteorite hits the ocean. They begin as broad, low ripples in the open sea, often passing unnoticed beneath ships, which feel only a gentle swell. They are different from wind-generated waves, which cause movement of water only near the sea surface. By contrast, tsunamis create water movement right down to the sea floor.

They are incredibly fast, travelling across deep water at more than 900 kilometres per hour – the speed of a jet aircraft. When they reach shallow water along the coast, they slow down and begin rising to a terrifying size – sometimes up to 60 metres high. Waves during the Indian Ocean tsunami in 2004 had heights of less than 2 metres in the open ocean but ran up to heights of 10 metres above sea level along many coasts, even though they were thousands of kilometres from the location of the earthquake. One of the signs of an impending tsunami hitting the coast is that water is usually drawn hundreds of metres away from the shore before the tsunami arrives. Unaware of what they are observing, people who come to look at these strange sights are often swept away when the wave suddenly rears up out of the sea.

The Australian coastline has experienced tsunamis throughout its recorded history, but most have not been of significant magnitude to create a serious issue for coastal communities. While the overall risk from tsunamis to the Australian population is lower than it is for many other parts of the world, the threat to coastal communities in Australia still exists; while the Australian landmass itself isn't sitting on active tectonic plate boundaries where earthquakes occur, it is surrounded to the north and east by about 8000 kilometres of these boundaries. Any tsunamis that were generated would reach Australia within 2–4 hours. The Western Australian coast is particularly exposed to earthquake activity in the Indian Ocean, for instance. In July 2006, isolated sections of the northern Western Australian coast were hit with a significant tsunami surge resulting from an earthquake off the coast of Java in Indonesia. The tsunami caused widespread erosion of roads and sand dunes and extensive vegetation damage, and destroyed several campsites up to 200 metres inland.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 5.3

Australia has a tsunami warning system in place to warn of the impending danger to the Australian coastline. Go to the Australian Bureau of Meteorology website (see the link at www.cambridge.edu.au/hass7weblinks) and investigate how the tsunami warning system works. Create an annotated poster showing how the tsunami warning system works.

5.4 Drought

The duration of most weather hazards is relatively brief. Cyclones will last a couple of hours before moving on, and the duration of floods can usually be measured in days – but not so with drought. Drought is one weather extreme that's defined not by what happens, but rather by what doesn't happen – namely, rain. At its most deadly, drought presents the most serious physical hazard to crops and pastures in nearly all regions of the world. This is a hazard that can go on for decades and its effects can last for generations, so that soils become so depleted of their fertility that crops are less likely to grow even after the drought has ceased.

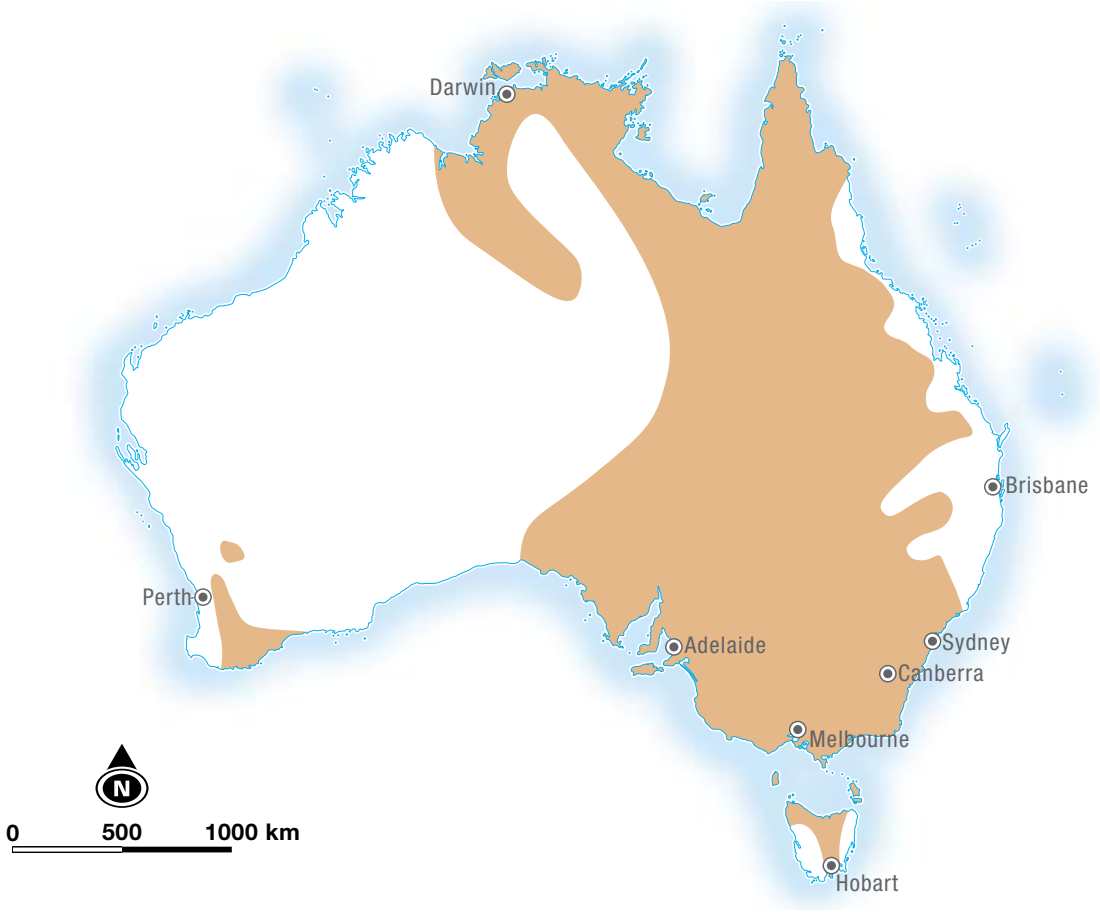
The simple definition of drought is a lack of normal rainfall over an extended period of time, although the causes of drought can be much more complex, such as higher than average temperatures causing abnormal evaporation and transpiration. Drought differs from aridity, which is a permanent feature of climate in regions with low rainfall. Many of the dry inland areas of central Australia would be classified as arid because of normally low average rainfall. **Meteorologists** typically determine when a region is suffering drought by comparing the current patterns of rainfall to an average based on a 30-year period of records. Even areas that get regular rainfall can experience drought. Drought, for instance, may occur in the headwaters of a major river catchment that is used for irrigation, thus causing crop failure in an irrigated region hundreds of kilometres downstream (possibly even in another country) that relies on the water flowing down the river. Such was the case of drought experienced in the Nile delta in Egypt when rains failed to fall in the Ethiopian highlands, even though the delta itself received regular rainfall.

meteorologists people who study weather and climate

Unlike other weather hazards that people can see happening before their eyes, such as heavy rainfall or surging water, drought is a slowly evolving menace that is usually only clearly perceived through its effects: water supplies dry up, crops fail to grow, animals die, dust storms blow away the precious top soil, and in poorer countries of the world malnutrition and ill health become widespread when people's normal sources of food no longer exist. Some of the most evocative pictures of drought are illustrated in communities in East Africa such as Sudan and Somalia, where drought and famine have etched misery into the faces of people over generations.

Drought is more than a physical phenomenon; it has significant impacts on communities on national, regional and local scales. The agricultural sector is usually the first to be affected by drought. On a national scale, in developed countries like Australia this becomes reflected in higher food prices because of diminishing supplies of basic foods such as grains, fruit and meat. On a local scale the impact on rural communities in drought-stricken areas is also significant, with the lack of economic activity causing businesses to close and people to leave the district. Drought also has other economic impacts on human communities. A shortfall in the water supply, for instance, can disrupt the production of hydroelectric power, thus affecting businesses and industries reliant on electricity. A drought in Uruguay in 1988–89 resulted in a significant decline of hydroelectric power because the lack of rainfall disrupted the stream flows that were needed for electricity production. Drought also has an impact on people's sense of wellbeing, changing the landscape of towns and cities when parks and gardens suffer

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 5.12 Areas suffering El Niño-related drought across eastern Australia in the 11 months preceding the Ash Wednesday bushfires in February 1983

from lack of water, and trees and plants die, such as happened across cities and towns in Australia during the prolonged droughts in the first decade of the twenty-first century. One of the other side-effects of drought that is particularly hazardous in Australia is an increased risk of bushfires.

It is in the poorer regions of the world, such as East Africa, where drought can be at its most devastating. Over the last 20 years, ongoing drought in East Africa has killed millions of people through hunger and disease, and dust storms that have blown away the precious topsoil have reduced the fertility of the soil to such an extent that even in periods of regular rainfall the soil has lost its capacity to grow sufficient food for its populations.

DEVELOPING YOUR UNDERSTANDING 5.9

1. Identify the links between drought and the increased incidence of major bushfires in Australia.
2. Discuss whether arid regions can experience drought.
3. Major droughts in East Africa are called humanitarian disasters because of the widespread nature of the problem and the high numbers of people affected. During these major catastrophes, aid agencies like Oxfam and Médecins Sans Frontières do vital work in providing basic services such as food, shelter and medicine to the affected people. Evaluate the work of aid agencies during natural disasters.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

5.5 The effects of a changing climate

Climate scientists still don't know for certain how the future effects of a changing climate are going to directly influence extreme hydrological events such as floods and droughts, but there is increasing evidence that a warming climate causes greater evaporation and surface drying in various regions around the world like Australia and East Africa, and that this will lead to the increasing intensity and duration of drought. This increased evaporation will also put greater moisture into the atmosphere, influencing both the incidence and the severity of storms and tropical cyclones.

Recognising these changes as a global pattern will mean that areas that are already dry, such as many farming areas in Australia, will get drier on average, and areas that are already wet, such as the tropics, will get wetter. Climate scientists using powerful computers to model extremely complex weather and climate information have also suggested that the severity of rainfall and drought events will increase. This means that droughts in areas such as Australia will last longer than they have done on average and will occur more frequently, and that rainfall events such as the one that affected Queensland and many other parts of Australia in 2010–11 will be much more severe, creating greater flood risk.

The other way in which **climate change** will influence water-associated hazards is in the threat of inundation from rising sea levels. Global warming is melting ice that has been locked away for hundreds of thousands of years in the polar regions and in mountain glaciers. These melting bodies of ice, which are increasing the volume of the world's oceans, are predicted to raise sea levels by 0.5–1 metres over the next century. Humans are therefore vulnerable to increased hazards in the coastal zones. Many of the world's largest cities and industrial facilities are located on the coast, and one-quarter of the world's population lives within 100 kilometres distance and 100 metres **elevation** of the coastline, with significant increases in the number of people living in coastal regions expected over the next 50 years. Impacts include sea-level rises, a higher risk of exposure to extreme water-associated events such as intense storms, storm surges and flooding, and the threat of saltwater contamination of freshwater resources and farmland.

climate change a gradual change to the world's current climate state that may affect the future of the planet

elevation height above sea level

Source 5.13 A polar bear leaps between melting ice floes.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 5.10

1. Earlier in the chapter you were asked a question about how flood maps can help local governments plan development in their areas. Explain how climate change might affect the accuracy of these maps.
2. Discuss how increased frequency and severity of drought might influence food prices in Australia.
3. Analyse why saltwater contamination of farmland might be an issue for farmers.
4. The tiny island nation of Kiribati in the central Pacific Ocean is expected to be the first country where all land territory disappears because of sea-level rises linked to climate change. List some other island nations where sea-level rises will have a critical impact in the next 50 years, and show these on an outline map of the world.

RESEARCH 5.4

Imagine that you are a resident of one of the island nations that are threatened with inundation from sea-level rises linked to climate change. Write a letter to the General Secretary of the United Nations justifying why the world community needs to reduce carbon emissions. In your letter you need to explain what is happening to your country, what impact this threat is having on your life and how it makes you feel about the future.



Source 5.14 Islet on Tarawa atoll, Kiribati, central Pacific

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Hazards associated with water include a wide range of phenomena, from floods and drought to severe storms, tropical cyclones and tsunamis. Unlike other hazards such as earthquakes that are regionally specific, water-associated hazards affect communities all over the world.
- Globally, floods are the most destructive frequently occurring natural event, but they are also a part of natural environmental cycles, which are needed to ensure the health of ecosystems.
- Communities around the world have learned to live with water-associated hazards, but as populations are increasing around the world in areas such as flood plains and in coastal areas, the risk that these hazards pose to communities is increasing.
- Climate change is predicted to increase the frequency and magnitude of water-associated hazards such as floods, droughts, severe storms and tropical cyclones.

Short-answer questions

1 Examine the main differences between tropical cyclones and tsunamis.

2 Describe how the shape of the land affects the behaviour of floodwater.

3 Examine why floods are an essential part of ecosystems.

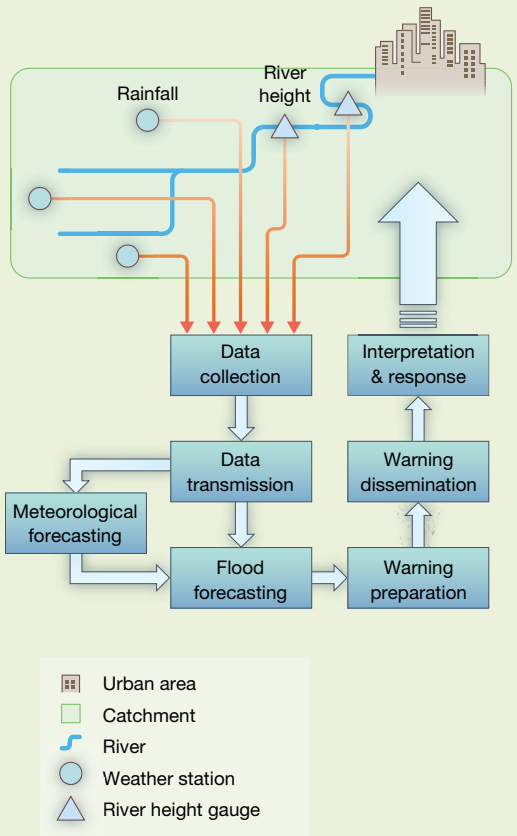
4 Explain why expected population increases in coastal areas over the next 50–100 years are going to make the management of water-associated disasters more difficult.

Extended-response question

When an emergency such as a flood threatens a region, a coordinated response needs to take place so that the safety of people and the protection of property can be maximised. Source 5.15 shows how an emergency management system works during a potential flood crisis. Who do you think might be involved at each step and what sort of actions might take place?

Meteorological organisations such as the Commonwealth Bureau of Meteorology in Australia monitor weather conditions like rainfall and river height. This information is collected and forecasts are made, such as the chance of further rainfall and the behaviour of the floodwater in the catchment. The information is then passed on to emergency and government organisations such as the police and government emergency management coordinators. This information is then collected and emergency management plans are set in place. Warnings are sent out to communities and preparations are made to deal with the crisis.

Create a disaster emergency plan for the town or city that you are located in and present it as a brochure. If you live in a community that does not suffer the threat of flooding, describe another threat such as a bushfire or tropical cyclone.



Source 5.15 An emergency management system during a potential flood crisis

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Unit 2
Places and liveability

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



6 Settlement

Before you start

Main focus

Liveability can be assessed by the function, size and location of different settlements.

Why it's relevant to us

All human settlements need to be liveable and governments need to plan for the needs of their community.

Inquiry questions

- What factors influence where people live?
- How remote is too remote?
- What resources, services and facilities do cities need?
- Which cities have dominant functions and why?
- What is liveability?

Key terms

- Centrality
- Community
- Functions
- Infrastructure
- Liveability
- Remoteness
- Settlement
- Specialisation of labour

Let's begin

Settlements vary in size, but all have a few things in common. They all comprise different communities (or may be one small community in themselves); they need services, resources and facilities to function effectively; they all have challenges in meeting the needs of the population; and they all rely on another settlement to some extent. In the future, you will need to think about where you will choose to live and why you would live there. A range of factors will influence your decision.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

6.1 People's place of settlement

A settlement is a place where people have established a community and live together over time. Settlements vary in size from the very small, such as a village made up of several family groupings, to the very large, such as cities made up of people from many different places and cultures. The people who make up a particular settlement may well have several reasons for settling.

Communities

A human **community** is a group of people that share the same interests, place and space. Communities can be very small, like a tiny village of 100 people, or very large, like the international community. Each community has a goal of achieving what is best for that group in that setting. There are many different communities in and around Australia for example:

community a group of people sharing the same locality or similar interest

- sporting groups, such as soccer clubs and netball clubs
- skill-based communities, such as music groups and art and craft centres
- mothers' groups and play groups, such as the Crows Nest Community Centre, Sydney
- your school community
- ethnic groups, such as the Vietnamese community
- religious groups, such as the Muslim community.

Environmental and socio-cultural factors

Many factors influence where people live:

- *Environmental constraints*. Steep hills, saturated and unstable land or dry regions tend to restrict the numbers of people living in those areas due to potential hazards and hardship. Inland Australia is one of the most sparsely populated areas in the world (with a density of fewer than two people per square kilometre) especially when compared to a country like Hong Kong, which has 500 people per square kilometre.
- *Land availability*. In densely populated countries, some people construct makeshift homes wherever they can find a space. In Halong Bay,

Source 6.1 Prime real estate on the Sydney waterfront



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Vietnam, people have built houses that float on water (not quite like a houseboat).

affordability the extent to which people are able to pay for something, such as housing

settlement a settled community

- **Affordability**. This is a big factor in determining where people can live. The most expensive postcode in Australia is Point Piper near Double Bay in Sydney. Very few people can afford to live there because the median house price is $8.5 million. A mix of housing types, such as units, semidetached houses and small dwellings, is required to be built in most **settlements** to create affordable homes for people to live.

kin people closest to you related by blood; kinship usually refers to family

- *Proximity to relatives (nearness to* **kin***)*. Many people choose to live either with their families or close to relatives. By doing this, they gain a sense of security, familiarity and support.
- *Job location*. Depending on where people are employed, they may choose to live close to work because it means they don't have to spend hours commuting each day. However, some mining companies have solved this problem by providing flights in and out of the mining areas in Western Australia for their workers.
- *Environmental quality*. Pristine environments are sought after. People like to live in nice, non-polluted areas where soil is fertile and they can enjoy the scenery or the outdoors as they wish.
- *Connection to a place*. Some people feel a special connection to the place where they grew up or enjoyed spending time, and choose to go back and live there. For instance, Indigenous Australians have cultural connections to their land, and so may choose to live in certain areas.

GEOGRAPHICAL THOUGHT

Antarctica is the only continent without an indigenous community.

DEVELOPING YOUR UNDERSTANDING 6.1

1 Explain three reasons why you live where you do.
2 Examine, with examples, how connection to place influences where people live.
3 Identify several case studies that show how affordability influences where people live.

RESEARCH 6.1

Conduct an internet search for images of the Earth at night by NASA. Use the images to zoom in for a more detailed view to help you answer the following questions. You may also need to look at other maps and atlases that show natural and human features.

1 Which areas or countries of the world are clearly defined?
   a Are these developed or less-developed countries?
   b Identify three islands you can see.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

2 Where do cities tend to be located?
   a Are most of the cities on the coast or inland? Provide reasons for their location.
   b Identify three significant cities in the Northern Hemisphere and outline similarities between them, such as their function and features.
3 Examine the darker areas of the continents. Why are these so dark? Use examples of countries and the following ecosystems in your answer.
   a Rainforests
   b Hot deserts
   c Cold deserts
   d Alpine regions
   e Polar regions
4 Examine the patterns and lines created by lights. Name the location and explain how the following features have influenced human settlement:
   a a famous river (hint: zoom in on Africa)
   b a famous railway line running through the continent (hint: zoom in on Asia)
   c a major mountain range
   d coastlines.

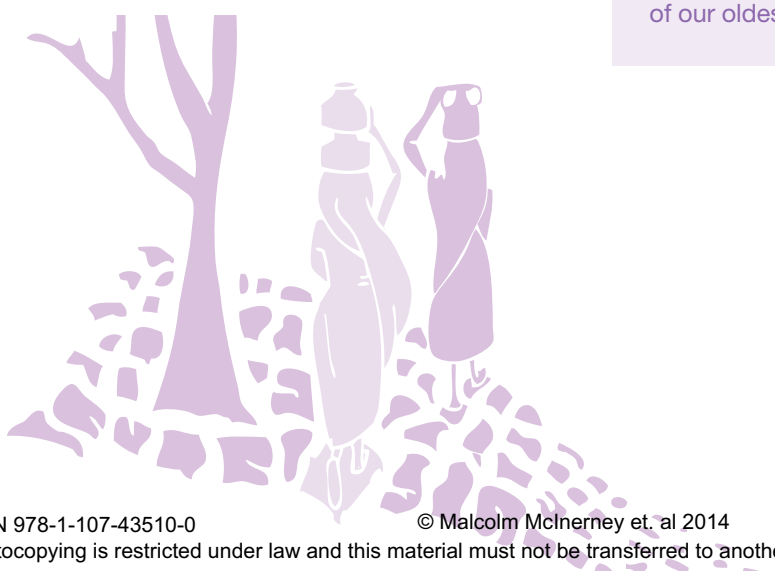
6.2 Environments conducive to settlement

Some environments are considered easier to live in than others. Environments with extreme conditions, such as high or low average temperatures, require special clothing, housing, technology and infrastructure for people to survive. Generally, the more extreme the environment, the less likely it is people will live there. However, communities in extreme environments, such as deserts or polar regions, have interesting and unique social and cultural practices, and it is good to learn and know about them. Environmental factors that influence where people live can include climate (temperature, wind and rainfall) and topography (geology and gradient).

The International Union for Conservation of Nature (IUCN) makes the following statement:

Many of the natural environments most **conducive** to human settlement are linked inextricably to natural hazard exposure. A map of human population distribution across the globe shows that we are concentrated in the tropics and mid-latitudes, but not evenly so. Human settlements clump along continental coastlines, generally leaving the centres of large continents less populated. Human settlements are sparse and small in the most mountainous regions, but are prevalent along the foothills of these ranges. The banks of major river systems are crowded with some of our oldest permanent human settlements.

conducive favourable, helpful



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Source 6.2 Factors affecting settlement patterns

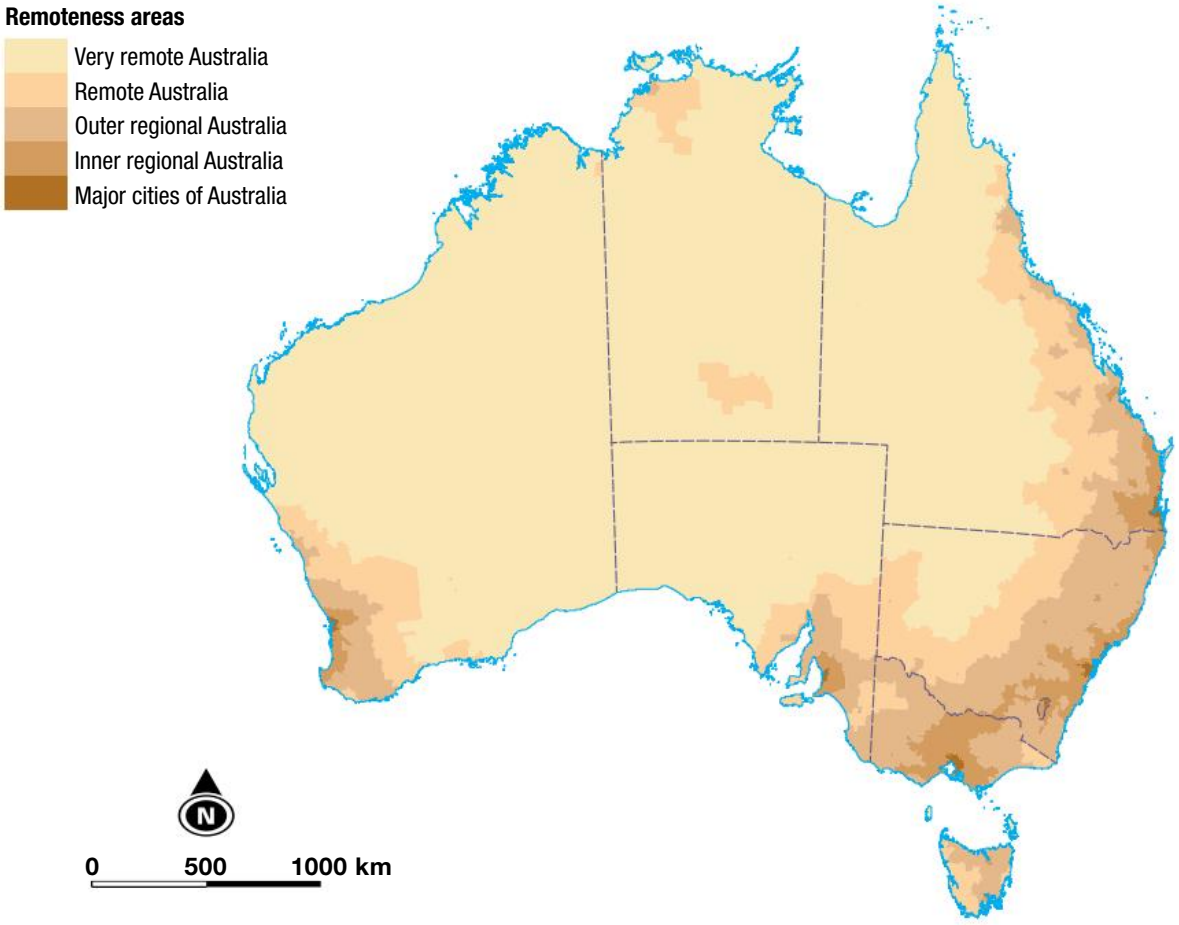
Factors affecting settlement patterns	Environments conducive to settlement	Environments not conducive to settlement
Temperature	Mild temperatures found in the mid-latitude countries. Summers are warm and winters are cool, providing a nice seasonal variation that is not too uncomfortable.	Extreme heat around the tropics, but particularly in arid areas, restricts human activity so settlements tend to be more active at night when temperatures fall. Arid areas have an interesting array of wildlife, but it is rarely enough to sustain permanent human populations; this is why desert communities are often nomadic. Extremely cold environments at the poles or at high elevations have the opposite problems and people need to adapt in other ways.
Wind	Gentle breezes and sea breezes are sought after in settlements, as they can cool things down on a hot day and provide relief to people.	Strong winds all year round are not good because of the wear and tear and potential hazards they cause around facilities and infrastructure. Antarctica is generally considered the windiest place on Earth, so with wind combined with extremely low temperatures, it is not ideal.
Rainfall	Moderate rainfall is preferable for settlements, such as in mid-latitude countries from about 23° to 66° north and south of the Equator. An ample supply of freshwater is required for settlements.	Extremely low rainfall in arid areas, usually on the western side of continents or inland, often deters people from settling there, because so much water is used in agriculture and industry and for domestic purposes each day. However, Phoenix, Arizona is one exception: this large city was built in the desert and uses more water than is naturally supplied because water is piped in from the Colorado River, and the city uses groundwater and recycled water. Too much rainfall can limit human activity and cause flooding.
Geology	Areas of fertile land are preferable to settle in because farming and cultivation can take place near housing. This was a primary concern in many cases when communities were established.	Extremely sandy soils are an indicator of a lack of freshwater, and there are limited numbers of plants and animals there to sustain a settlement. Similarly, extremely rocky areas, particularly those with granite, are difficult to settle because of problems in constructing housing.
Gradient	A low gradient, or flat ground and gentle slopes, are preferable to build houses, roads and other facilities on because they keep the cost down, and water can still be drained away. However, some people want to construct houses on steep slopes because they get better views.	Steep slopes make the cost of building higher because cutting into a hill may have to take place, or pylons may need to be constructed to hold up houses. However, some communities settle on very steep slopes because they have no other options. Usually, these are slum dwellers living a precarious existence; for example, the inhabitants of Mount Elgon in Uganda.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Remoteness

remoteness distance

The concept of **remoteness** in Australia refers to how far away something is. There is a difference between how far people have to travel by road in a city for access to goods and services as compared to distance that people have to travel in the country. However, the distinction between city and country areas is often unclear. The Australian Bureau of Statistics (ABS) has developed an Accessibility/Remoteness Index in order to make data collection and classification of areas in Australia easier. Different groups of people have different perceptions about remoteness and this affects where they are prepared to live.



Source 6.3 The ABS 2006 remoteness structure

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 6.2

1 List some factors that make it easier for settlements to be established.
2 Describe the global trends in settlement patterns.
3 Account for state capitals being located where they are.
4 Explain how remoteness is defined by the Australian Bureau of Statistics.
5 Use the map showing remoteness (Source 6.3) and an atlas to classify the following settlements using the table below.

- Broome
- Cobar
- Rockhampton
- Bairnsdale
- Tennant Creek
- Yulara
- Freemantle
- Katherine
- Dubbo
- Brisbane
- Coober Pedy
- Wagga Wagga
- Charleville
- Geelong
- Cairns
- Mt Isa
- Launceston
- Mildura
- Albury
- Canberra

Highly remote	Remote	Outer regional	Inner regional	Major cities

6.3 Classifying settlements

The settlement hierarchy

settlement hierarchy an ordering of settlements by their size and population. Settlements at the top of the hierarchy, such as large cities, are few in number but hold more status, power and influence. Settlements further down the hierarchy are smaller in size and influence, but greater in number.

One way to classify settlements is by their size. A large population means that a larger area is settled, and more services are both required and provided. There is usually also a large distance between major urban settlements whereas, as we travel down the **settlement hierarchy**, the number of different types of settlements increases but the population and services available decrease. Each settlement varies greatly in nature and character.

Source 6.4 shows how settlements in Australia can be classified according to population.

GEOGRAPHICAL THOUGHT

Over 75% of Australians live in just 17 major cities, according to the 2006 Census.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Source 6.4 Population of Australia according to the size of settlement, 2001–11

Settlement	Total population 2001[A]	Share of population (%)	Total population 2011	Share of population (%)	Annual average growth 1991–2001 (%)	Projected average annual growth 2001–11 (%)
Big cities (above 1 million)[B]	11 517 061	60.5	13 001 535	61.6	1.2	1.220
Other cities (80 000 to 1 million)	2 600 720	13.7	2 914 838	13.8	1.5	1.147
Large regional/ rural[C] (25 000 to 80 000)	1 281 895	6.7	1 348 681	6.4	1.5	0.509
Small regional/ rural[C] (10 000 to 25 000)	1 271 603	6.7	1 337 903	6.3	0.6	0.510
Other regional/ rural[C] (less than 10 000)	1 825 789	9.6	1 936 494	9.2	0.6	0.590
Remote centres[C] (above 5000)	225 004	1.2	251 048	1.2	0.6	1.101
Other remote[C]	328 779	1.7	328 745	1.6	–0.1	–0.001
Australia[D]	19 297 100	100.00	21 017 300	100.00	1.14	0.858

A Data for 2001 and 2011 are based on ABS projections.

B Includes Sydney, Melbourne, Brisbane, Perth and Adelaide.

C Classification follows Department of Primary Industry and Energy.

D Totals for Australia are based on a different methodology and reference so are not the sum of the above figures. Data for 2001 and 2011 are based on ABS projections.

Centrality and specialisation of settlements

A capital city has a greater **sphere of influence** over all smaller settlements because it usually has more political, economic and cultural power than, for example, surrounding towns. People tend to want to be centrally located. This can be seen in the population distribution in Australia, where approximately 60% of Australians live in state capitals.

sphere of influence an area over which a place has influence; how far people are willing to travel for a particular service

centrality the attractiveness of an urban location in terms of accessibility, functions, facilities and activities

megalopolis a long continuous urban area

The notion of **centrality** has led to the evolution of megalopolises. A **megalopolis** is formed when cities have grown so large that they merge together into one massive urban area. This occurs because of the desire for centrality and the importance people place on cities compared to their surrounding regions. The megalopolis in Japan known as the Tokaido Corridor stretches approximately 1200 kilometres and consists of about 80 million people. There are over 10 cities included in this area, which are also linked by the shinkansen (bullet train).

From the smallest of isolated dwellings to megacities with over 10 million people, each settlement usually relies on others for various things. Some settlements are established as a result of natural resources, manufacturing or agriculture.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

By 2050, the global distribution of where people live will be more concentrated. Seven out of 10 people will be living in megacities with a population of over 10 million people.

Settlements by function

functions certain purposes or activities

liveability conditions in a place that make it easy or difficult to live there

Another way to classify settlements is by their dominant function or main activity. Some cities have evolved over time to specialise in these **functions**. Generally, a mix of all these features is desirable for **liveability**.

Mining

Mining towns have evolved as specialist centres due the location of natural mineral resources. Karratha, Western Australia has developed since the 1960s following the discovery of iron ore and natural gas. It is adjacent to the port of Dampier, so exporting the materials is made easier than it would be if materials were processed and transported elsewhere. It is one of Australia's wealthiest mining towns, and continues to grow.

Other towns known for mining are:

- Mount Isa, Queensland
- Broken Hill, New South Wales
- Port Hedland, Western Australia.

Tourism

Some towns are tourist hot spots, specialising in leisure activities for people wanting to go on a holiday. A tourist town may have fun activities on offer, beautiful views, unique wildlife, amazing culture, interesting architecture or significant history. Queenstown, New Zealand is a town primarily based upon tourism, due to the remarkable scenery and adventure activities available there. The population is just over 16 000, yet the town receives 1.9 million visitors every year and much of its facilities, employment, infrastructure and buildings cater for the tourism industry.

Source 6.5 An aerial view of Karratha, Western Australia, which is one of Australia's wealthiest mining towns



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 6.6 Lake Daylesford, located in Victoria's 'Spa Country'. Natural mineral springs, acclaimed cuisine, an historic town centre and country resorts make it a popular spot.

Other towns known for tourism include:

- Noosa, Queenland
- Daylesford, Victoria
- Margaret River, Western Australia
- Katherine, Northern Territory.

Manufacturing

Some towns have evolved in response to investment in manufacturing. Factories are often built near a good supply of labour but also continue to attract labour, and so the town grows. China is the world's largest producer of cotton textiles (clothes and fabric). Just a few hours' drive north-east of Shanghai is a 'textile-city' so large that 19000 companies operate there. The site was established 20 years ago specifically for manufacturing. One hundred thousand or so customers pass through the city daily, buying goods for distributing to the rest of China and exporting to the rest of the world.

Agriculture

Some towns can be classified as agricultural towns because most of their income and employment is related to farming activities – cropping, livestock, horticulture or viticulture. Bega, located on the far south coast of New South Wales, is well known for its dairy farming industry and producing Bega cheese, which is enjoyed around Australia and exported overseas.

Other towns known for agriculture include:

- Tamworth, New South Wales
- Wubin, Western Australia
- Roma, Queenland.

University towns

A university town has a significant student population, and usually includes other organisations such as research institutions and libraries, and businesses targeting university students, such as printing services and bookshops. University life pervades all social and economic activities in the town, so during semester breaks, the town is often quiet and businesses close temporarily due to the lack of **patronage**.

patronage customers paying for goods or services

Examples are:

- Armidale, New South Wales
- Dunedin, New Zealand.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Administration and government

Canberra, Australia's capital city, was established in 1913 as a specialised settlement for administrative and government purposes in between the two major cities at the time, Sydney and Melbourne. In some instances, towns have evolved into administrative centres such as this due to the **specialisation of labour** (e.g. highly skilled professionals live and work in major cities where there is access to employment in international companies) and economic factors. Other examples of cities specialising in administration and governance include:

specialisation of labour labour where the workers spend time in only one area of work

- Brasilia, Brazil
- Beijing, China.

GEOGRAPHICAL THOUGHT

Many towns in Australia grew due to employment opportunities from manufacturing plants located there. But higher costs and greater efficiency elsewhere has meant manufacturing centres are moving overseas, causing a decline in job availability and ultimately the populations of some towns. Melbourne, Geelong and Adelaide have car-manufacturing plants. Most of the 50 000 people employed in the industry also live in these three cities.

RESEARCH 6.2

Select a town in Australia or Asia to research and report on its function. Present your findings to the class. Your presentation should be no longer than 5 minutes and it must include:

- visual aids such as PowerPoint, Prezi or Keynote
- the location of the town
- reasons why you chose it
- its population
- the features conducive to settlement
- the specialist function of the town.

6.4 What settlements need

infrastructure structures and services needed for society to operate properly, such as transport, water supply, health services and education systems

Every settlement requires adequate infrastructure for efficient functioning and to meet the basic needs of the population. If **infrastructure** is not of an acceptable standard, then issues with the physical, social and emotional health of inhabitants arise.

The prevalence of illness is likely to increase if water is contaminated, food is not readily available or of poor quality, housing is unsatisfactory and overcrowded, or there are not enough doctors or adequately equipped hospitals. Towns and cities need all these things for the wellbeing of their people. Healthy populations have a longer life expectancy and tend to be more productive in their activities.

When settlements struggle to provide adequate infrastructure, the level of liveability or quality of life declines. But when settlements are able to provide all these things, they become quite desirable places to live.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Source 6.7 What settlements need

What do towns and cities need?	Why do they need it?	What's an example of a city struggling with this?
Clean freshwater	Humans need water for drinking, cooking, cleaning and looking after plants and animals.	In Mumbai, India many pipes are cracked and broken.
Sanitation	Garbage needs to be collected and sewage needs to be **reticulated** and processed.	Some towns in India have open sewers. Rubbish collectors went on strike in Naples, Italy in 2008 and 2010, leaving mounds of rubbish on the streets.
Health	Good doctors' services and vaccinations are needed to eradicate **communicable diseases**.	In Jakarta, Indonesia, 80% of groundwater is polluted and carries harmful bacteria such as *Escherichia coli*.
Housing	Humans need some sort of shelter that is stable and large enough to accommodate people comfortably. The types of housing and the number of people living in them vary greatly between cultures.	There is a housing crisis in Tondo, the Philippines, where people cannot afford proper houses and so construct illegal, makeshift dwellings. These slums are home to over 180 000 people, but with assistance from the World Bank and local government, residents were given money and slowly transformed the area, upgrading the slums into a nicer neighbourhood. This took place in the 1970s and was known as the Tondo Foreshore Program.
Food	People need food for sustenance and energy to carry out their daily activities. A range of good quality fresh grains, meat, dairy products, fruit and vegetables is essential for towns and cities.	Food shortages can be caused by natural disasters such as droughts and floods; for example, famine in the horn of Africa and in Mogadishu, Somalia.

reticulated sewerage the system of pipes and drains that takes raw sewage from a dwelling to a sewage treatment plant, removing the need for open channels that smell and are unhygienic

communicable diseases infections and diseases that can be transmitted from one person to another

DEVELOPING YOUR UNDERSTANDING 6.3

1. Define the term 'infrastructure'.
2. Examine why settlements need sanitation services.
3. Summarise what the Philippines did to address deficiencies in housing.
4. Justify the following statement: 'Cities need all services and infrastructure to function effectively, not just some.'

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 6.8 Kabul, Afghanistan, has limited access to clean water. This is one of the reasons people in that city have low life expectancies.

RESEARCH 6.3

Some cities experience many challenges in making sure their population has adequate access to infrastructure. Imagine you are a person living in one of the cities below and write a diary entry about both the challenges and solutions faced:

- Manila, the Philippines
- Mumbai, India
- Mexico City, Mexico
- Lagos, Nigeria
- Jakarta, Indonesia
- Bangkok, Thailand.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- A community is a group of people that share a similar interest.
- Factors that influence people's choice of settlement include environmental constraints, land availability, affordability, proximity to relatives, job location and connection to a place.
- Environmental factors that influence where people live can include climate (temperature, wind and rainfall) and topography (geology and gradient).
- Perceptions of remoteness vary between communities; this influences where people are prepared to live and travel.
- Settlements can be classified according to their size; this creates what is known as the settlement hierarchy.
- Settlements can also be classified according to their main function. Often, they have evolved to specialise in functions such as mining, tourism, agriculture, manufacturing, administration or education, due to the resources available there.
- Cities require adequate infrastructure to function effectively, such as clean freshwater, sanitation, health services, housing and food. Some cities really struggle to provide these.

Short-answer questions

1 Analyse the environmental factors that influence where people choose to live.

2 Articulate 'centrality' and explain how it affects where people live.

3 Summarise the settlement hierarchy.

4 Critically analyse whether a mix of functions in a settlement is crucial for liveability. In your response you must refer to functions such as mining, tourism, manufacturing, agriculture, administration, government and education.

5 Investigate how and why some cities struggle to provide basic services. Use examples in your answer.

Extended-response

Discuss to what extent mining towns and tourist towns are the only settlements that can be created specifically for those purposes. In your response you must:

- refer to specialist towns and their main functions
- find out if the towns evolved into those functions or were created specifically for that purpose
- use a range of examples
- make a judgement; have an opinion in reference to the question.

Source 6.9 Singapore is the most densely populated country in the world, with roughly 7300 people per square kilometre.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 6.10 Queenstown in New Zealand has tourism as its primary industry. Adventure tourism has been developed out of the tourism generated by the natural beauty of the area.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



7 Housing

Before you start

Main focus

Housing density influences the liveability of cities in Australia and Europe.

Why it's relevant to us

The built environment, particularly housing, has a huge influence on people and the way that they interact with their community.

Inquiry questions

- What are the different types of housing?
- What are the three main types of housing density?
- What are the advantages and disadvantages of different types of housing density?

Key terms

- Biodiversity
- Decentralisation
- Green space
- Public transport
- Urban consolidation
- Urban sprawl

Let's begin

Housing is a basic necessity for life – we all need somewhere to live. But there are many different styles of housing, each with its own advantages and disadvantages, and every style was created to meet the needs of the local environment. In turn, housing styles also influence the environment, such as affecting roads, water supply systems and transportation. There are particular styles that are popular in Australia and Europe, and the kinds of houses you find in the bush are very different from those you find in cities like Sydney.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

7.1 Types of housing

Housing in Australia

Australia has a number of different types of housing; that is, different sorts of dwellings. These dwellings come in a number of different forms, but the most common in Australia are houses; flats, units or apartments; terraces; and townhouses. Each housing type is a reflection of the history and location of the dwelling, and provides a real sense of place for people living there. According to the Australian Bureau of Statistics (ABS), the most common housing type in Australia in 2009–10 was separate housing (79% of the population), with 11% living in flats, units or apartments, and 10% living in **semi-detached houses**, **terraces** or townhouses.

semi-detached houses two houses that are joined by a shared wall

terraces rows of houses that share their sidewalls with the adjacent houses

Housing in Europe

Compared to Australia, Europe has a very different composition of housing. According to the European Commission, 42% of the European population live in flats or apartments, with 34% living in separate housing and 23% in semi-detached housing.

Comparing Australia and Europe

There are a number of factors that account for the difference between housing in Australia and housing in Europe:

- *Availability of land*. Australia has larger areas of available land, which facilitates the building of separate houses. Europe has less land area, so cities maximise their land use by having more flats or apartments.
- *Climate*. Australia has a much warmer climate than Europe, and primarily separate housing allows for better cooling throughout the hot weather conditions.
- *Population density*. Europe has a greater population than Australia and a smaller land area, and so Europe has a higher population density. This has led to greater use of housing designed to cater for higher densities, such as flats or apartments.
- *Historical and cultural aspects*. Large sections of housing in Europe, especially in the cities, were designed a long time ago – hundreds or even thousands of years ago. This has greatly influenced the types of housing that have developed.

Source 7.1 Town square in the Alsatian city of Colmar, France



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

Europe's population was estimated to be 739 million in 2011. Australia's population was 22.6 million in 2011.

Residential areas

Residential areas have shaped and transformed global cities throughout time. Residential areas have dictated the growth of a number of cities around the world. To identify how residential areas have influenced the development of cities, we need to understand the three key residential areas that exist within cities:

1 *Low density*: single or double level housing, usually situated on one site. The residence usually has some green space associated with it.



Source 7.3 Low-density housing in Sydney

2 *Medium density*: housing that has a density of around three to 10 storeys in elevation.



Source 7.2 Medium-density housing in Istanbul, Turkey

3 *High density*: housing that has a density of 11 or more storeys within buildings. This is primarily associated with inner-city areas.



Source 7.4 High-density housing in Brisbane

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

7.2 Urban sprawl

urban sprawl growth of housing on the edge of a city

Urban sprawl is the spreading of the urban area of a city into the surrounding rural or semirural areas. It has been the main philosophy that urban planners have used to develop cities, especially in Australia and the USA. It involves the spreading of low-density housing away from the central areas of a city. As a result, the city's urban area slowly moves out into the surrounding rural areas, taking up huge areas of land. A number of concerns are raised about the use of urban sprawl as a method of providing housing:

- *The destruction of natural habitat and loss of biodiversity*. Spreading out the urban development consumes vast areas of land, which then results in the destruction of the natural environment. Additionally, as cities consume more and more land, they affect the natural function of the environment, which in turn affects the **biodiversity** in the area – for example, destroying animal and plant species.
- *New infrastructure*. With the arrival of new housing developments on the urban periphery comes a constant need for infrastructure to be developed. This infrastructure includes roads, sewerage, rail and bus links, hospitals, schools and educational facilities.
- *Low population density*. Allowing urban sprawl to occur creates a lower population density. This is a waste of very valuable resources, which could be better used by building higher-density housing over the same land area.
- *Provision of public transport*. With urban sprawl constantly pushing the edge of cities outwards, it becomes very hard for governments to keep up with the ever-increasing demand for public transportation.

biodiversity the number and variety of species of living things within a region

DEVELOPING YOUR UNDERSTANDING 7.1

Imagine that a new low-density housing development is going to be built on the edge of your city or town.

1. Propose any possible environmental effects or loss of biodiversity the development could cause in the area.
2. Recommend any infrastructure needs the new development would have. Could these be met by the town or city's existing infrastructure, or would new facilities need to be built?
3. Identify the development's public transport needs and suggest a new form of public transport that could be effective for the inhabitants.

In contrast to this, the use of medium- and high-density housing has become an increasingly effective way to reduce the problems that are created by urban sprawl. This is sometimes called **urban consolidation**. Medium and high-density housing is a more efficient way of using the land. It allows for more people to be housed in an area, which allows for a greater population density. It also makes better use of the current infrastructure (roads, railways, sewerage, etc.), therefore saving the government money by not having to create new infrastructure on the edges of the city.

urban consolidation building up existing urban areas rather than moving people to the edges of the city

One of the best examples of medium-density housing is seen in the city of Paris. In the mid-1800s, Napoleon III decided that he wanted to revitalise Paris. He employed **civic planner** Georges Haussmann to redesign the housing, streets and streetscape in

civic planner someone who plans the layout, development and growth of cities and urban areas

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the centre of the city to improve the flow of traffic and quality of housing provided. Haussmann achieved this by creating a uniform height for the residential buildings in central Paris. The buildings were designed to allow for both commercial and residential use, with the bottom floor designated as the retail area (e.g. shops and cafés). The floors above were then used as residential areas.

Despite the obvious benefits, there are some arguments against a medium- or high-density approach:

- An increase in population density also increases the amount of waste products produced (e.g. rubbish).
- It increases the amount of noise and congestion in established suburbs (e.g. increased traffic).
- It creates a greater demand for services to cater for the increased populations (e.g. shops and doctors).



Source 7.5 Medium-density housing in Paris

DEVELOPING YOUR UNDERSTANDING 7.2

Imagine that a new, 15-storey block of high-density apartments is going to be built in the centre of your city or town.

1. Calculate how many people would live in the block if every apartment was occupied.
2. Suggest three positive effects that the new block might have on the inner-city area and community.
3. Suggest three negative effects that the new block might have on the inner-city area and community.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

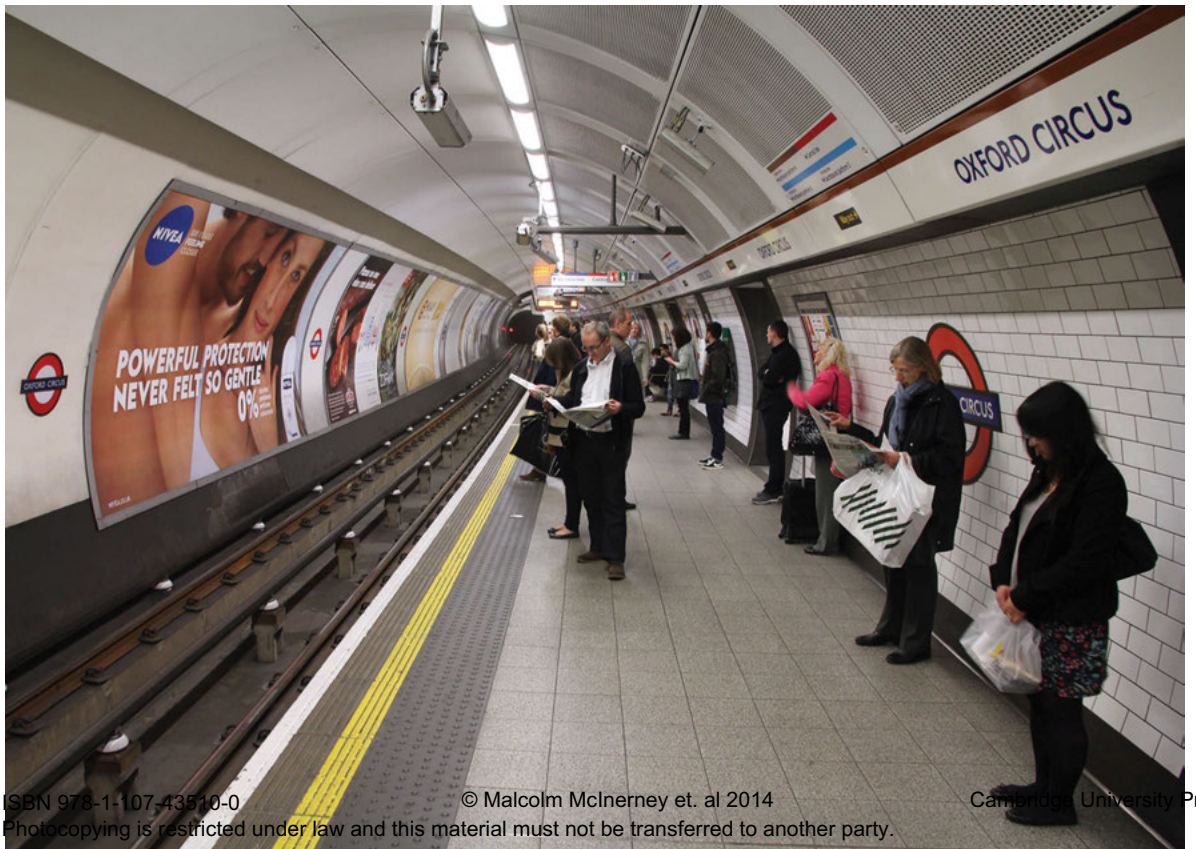
7.3 Transportation modes

The types of housing densities that exist within cities influence the type of transportation that is available in those areas. Each housing density (low, medium and high) has its own specific needs and requirements. As the housing density increases, so does the population density; this creates a number of issues with regard to transportation. The greater the population in an area, the better the transportation system needs to be to move larger volumes of people.

A good example of this is London, the capital city of England. London has a population of 8.1 million people who live primarily in medium-density housing. A number of transport modes are available to the people of London – the main types are trains, buses and cars. The most used of these is the above-ground and underground rail system called 'the Tube'. The underground railway was first run in 1863, and has been known as the Tube since 1890. There is now an extensive network of railway lines that stretches for 402 kilometres around London. This railway system carried 1.171 billion passengers in 2011–12, 64 million passengers more than in the previous year. During the 3-hour morning peak period, Waterloo (London's busiest station) has 57 000 passengers enter the station. This shows how a city that is dominated by medium-density housing has to have a transport mode that is able to cope with large volumes of people.

By contrast, a city with a low density of housing has very different modes of transport. Dubbo is a city of around 41 000 in the central west of New South Wales. Dubbo's housing is dominated by separate, detached houses; these account for 83% of all housing in the city. This clearly puts Dubbo into the low-density housing category. Due to the dominance of low-density housing, Dubbo's urban area has sprawled out over a larger area, requiring people to travel increased distances to get around the city. This in turn has led to a heavy reliance on motor vehicles as the main form of transport. According to the 2011 Census data, 38% of people in Dubbo owned one car and 49% owned two or three cars. This means that 87% of people in Dubbo own at least one car, making it the most common mode of transport. There are some other factors that contribute to this, such as the lack of other forms of public transport. There are buses that operate in Dubbo, but they are not as frequent as they would be in larger cities. This causes people to look for a more frequent and reliable mode of transport, such as cars.

Source 7.6 The Oxford Circus Tube station, London



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 7.1

Use the Australian Bureau of Statistics website to conduct research into your local area. Select your local suburb or the town that you live in. Locate the following data:

- dwelling types
- car ownership
- public transport facilities.

Compare the data you obtain with those of Dubbo, and explain the reasons for the differences or similarities. Present your findings in a PowerPoint presentation.

Public transport

public transport a form of transport that can be used by any member of the public, whether free of charge or for a fee

An advantage of medium- to high-density housing is that it provides greater opportunity to use **public transport**. Because this type of housing has a higher population density, there is more opportunity for people to avail themselves of public transport.



Source 7.7 Trams in Melbourne

Public transport in cities primarily consists of buses, trains, light rail and ferries. For example, Source 7.7 shows a Melbourne tram; it provides a transportation link into the city's Central Business District. In Brisbane, the City Cat ferry service (Source 7.8) provides an important transport link between suburbs to the city. London has the most well-known buses in the world. The red double-decker buses are an iconic part of London, but they also play an integral role in the city's public transport system, with thousands of people transported daily around the city.



Source 7.8 City Cat ferry in Brisbane

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

7.4 Different styles of housing

Another advantage of medium- to high-density housing is the increased development of services to cater for the needs of the population. Higher populations make a range of various services – such as restaurants, cafés, bars, theatres, cinemas and supermarkets – more important and more likely to be financially successful.

To gain an understanding of the advantage and disadvantages of this style of housing, let's look at a case study of the suburb of Pyrmont in Sydney.

Pyrmont, Sydney, New South Wales

peninsula a piece of land going out into water from a larger land mass

Pyrmont is a 1.6 square kilometres **peninsula** next to the Sydney CBD. It has gone through a dramatic transformation in the last 30 years, from a major industrial area and port facility to a high-density residential, commercial and recreational area. The redevelopment of the Pyrmont area is one of the most significant urban renewal programs undertaken in Australia. Pyrmont–Ultimo is one of the fastest growing areas of Sydney, with its population expected to rise to over 20 000 by 2012. In 1994, fewer than 5000 people lived in the area, but Pyrmont–Ultimo's population has increased as more facilties and services have been provided.

History

Pyrmont's history has seen many and varied uses for the small peninsula. During the time of Indigenous Australians, Pyrmont was used as a location for hunting fish and gathering food, such as cockles. After 1788 and European occupation, the site of Pyrmont was owned by a number of individuals, who built sandstone quarries and port facilities. The rapid development of Pyrmont really began in 1902 when a bridge was built between Pyrmont and the Sydney CBD.

During the early 1900s, Pyrmont saw a rapid growth of industrial activity. The suburb became the major port for Sydney, and a large number of other services sprang up around it, such as railway goods yards, wool stores and large **wharfs** to accommodate the ships. There were also two major industrial businesses located in Pyrmont – a power station and a CSR sugar refinery. The sugar refinery was the largest factory in Pyrmont and covered the whole north-west section of the peninsula.

wharf a human-made landing place for ships on a shore

During the 1970s and 1980s, Pyrmont started to fall into urban decay. One reason for this was the relocation of the port facilities to a modern site at Port Botany. Other reasons included the **decentralisation** of industry, the closure of the power station and the relocation of the sugar refinery to Queensland. As a result of this, the population fell dramatically; in the late 1980s it was only about 900 people. The built environment fell into disrepair, with houses and factories left to decay.

decentralisation the process by which population and industry move from an urban centre to outlying districts

In 1992, the New South Wales government initiated a major urban renewal program for Pyrmont, funded in part by a $241 million grant from the federal government's 'Building Better Cities' program. The aim of this program was to revitalise the suburb into a modern mix of residential, commerical, retail and recreational areas.

Socio-cultural and environmental advantages

As part of the urban renewal process, a number of significant changes were made to the housing in Pyrmont. During the suburb's industrial period, the houses primarily consisted of small stone workers' cottages. During the renewal process, the new housing was instead designed as high-density housing. There are a number of **socio-cultural** and **environmental** advantages to this:

- Providing a range of high-density housing is a good way to maximise the use of the restricted land available.
- Utilising high-density housing freed up large areas of land that have been designated as **green space**, such as Pirrama Park.

socio-cultural relating to both society and culture

environmental relating to the physical environment

green space an area of grass, trees or other vegetation set apart for recreational purposes in an urban environment

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.9 Modern port facilities at Port Botany in Sydney



Source 7.10 Jackson's Landing site in Pyrmont today; it was once the CSR sugar refinery.

This provides valuable recreational areas for residents and vistors, as well as improving the appearance of the suburb.

- A range of services to cater for the residents (e.g. cafés, resturants, bars and supermarkets) has been developed; these are more commercially viable.
- Transport infrastructure has been developed to cater for the increased population (light rail, cycleways and walkways).
- The high-density housing, combined with the proximity to the Sydney CBD and the development of services, has catered for the young professional demographic, who are the dominant age group that now live in Pyrmont (36% of the population is aged 25–34 years).
- The development of medium-sized businesses in the area (particularly technology and entertainment businesses) allows people to be employed and live close to where they work. These businesses include Channel Seven, Channel Ten, Fox Sports, Google, Nokia, the Star Entertainment Complex and Nova radio station.



Source 7.11 The Star Entertainment Complex in Pyrmont

Socio-cultural and environmental disadvantages

As well as all the advantages, there are some negative aspects to the development of Pyrmont:

- The area is increasingly dominated by one **demographic** (young professional people) and is therefore not a real reflection of society as whole. People living in Pyrmont may not have easy access to their extended families, and the community lacks variety and richness.
- The domination of high-density housing creates environmental issues because it increases the production of waste products in a small area.
- Rents and housing costs in Pyrmont are higher than in other regions, making it difficult for many people to consider living there.

demographic a group of people with a particular shared characteristic

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.12 Pyrmont's Pirrama Park provides valuable green space to a high-density suburb.



Source 7.13 Young professionals dominate housing and employment in Pyrmont.

DEVELOPING YOUR UNDERSTANDING 7.3

Using Google Earth and Google Maps, conduct a virtual field trip around the suburb of Pyrmont.

1 Open Google Earth.

2 Search for the following locations:

   a 29 Pyrmont St

   b 115 Harris St

   c the corner of Jones St and John St (looking north-west).

   Type the address into the search box. Remember to use the Street View mode (drag the yellow person onto the location).

3 Describe what types of built features are located in each of the locations. Is it mostly commercial/residential or a mix of the two? Are the buildings high, low or medium density? What infrastructure and services are in place around the locations?

GEOGRAPHICAL THOUGHT

The Census of Population and Housing is conducted every 5 years and is the largest statistical collection undertaken by the Australian Bureau of Statistics (ABS). The aim is to measure the number of people and dwellings in Australia on Census night. The next Census is scheduled for August 2016. Such data collection is very important for urban planning.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- The most common housing type in Australia is separate housing (79% of the population), followed by flats, units or apartments (11%) and semi-detached houses, terraces or townhouses (10%).
- In Europe, 42% of the population live in flats or apartments, with 34% living in separate housing and 23% in semi-detached housing.
- There are three main types of housing densities in cities: low, medium and high.
- The type and size of a city dictates the main transportation modes that are used in that city.
- There is a range of unique transportation modes that exist in a range of cities around the world.
- There are several advantages and disadvantages to all housing types.

Short-answer questions

1 Explain the difference between the three types of housing. Identify one advantage and one disadvantage for each type.

2 Compare and contrast the housing in Australia and Europe.

3 Critically analyse this statement: 'High-density housing is better overall than urban sprawl.'

4 How does the transportation change as a result of the type of housing in a city?

5 Has the redevelopment of Pyrmont been successful? Explain why or why not.

Extended-response question

Write a report assessing the types of housing located in your local town, suburb or area. In your report, identify the types of houses as:

- low density
- medium density
- high density.

Conclude your report by explaining some of the effects the different kinds of housing have on your local area and on your community.



Source 7.14 Houses in Amsterdam, The Netherlands

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



8 Demography and living choices

Before you start

Main focus

Demographic characteristics and trends have many influences on the character of a place and there are a number of factors which influence the choices we make about where we would like to live.

Why it's relevant to us

Studying these characteristics and choices will allow you to gain a deeper knowledge of places.

Inquiry questions

- What is the demography of places?
- How does demography influence the character of a place?
- Why do people live where they do?

Key terms

- Affinity
- Demographic profile
- Disparity
- Enclave
- Ethnicity
- Multicultural
- Newstart
- Noise pollution
- Periphery
- Sea changers
- *Terra nullius*
- Tree changers

Let's begin

Demographic characteristics and the choices we make about where to live shape and transform places. Demographic characteristics are factors like income, gender, age and level of education. We can gather these statistics with tools like the Census. Analysing demographics lets us interpret key trends that occur and their influence on the nature of places. The choice of settlement is very personal and there are factors that influence this decision within our control, but there may be other factors over which we have very little control at all. For example, we may like the idea of living near a surf beach, but our work may be in a major city, well away from the coast.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

8.1 Demographic characteristics

Demographic characteristics (or just 'demographics') are features common to the people that make up a population. These include:

- age
- gender
- **ethnicity**
- religious affiliation
- income level
- employment
- level of education
- dwelling structure (types of dwelling).

ethnicity a person's racial or cultural background

The Census

Demographics are generally things that can be counted and collated through some kind of statistical process, like a survey. The Australian government conducts a census every 5 years to gather demographic information; the last one was in 2011. Most demographics are put into groups or bands, rather than counting every possible answer. For instance, instead of listing every possible income people might make, we group answers into ranges like $40 000–$50 000.



Source 8.1 Age and gender are two key demographic characteristics.

GEOGRAPHICAL THOUGHT

In the 2006 Census over 55 000 Australians declared themselves as members of the Jedi order. This was viewed as a joke and labelling oneself as Jedi in the 2011 census meant your religion was not acknowledged. 'Pastafarianism' is also not acknowledged as a religion by the Census!

RESEARCH 8.1

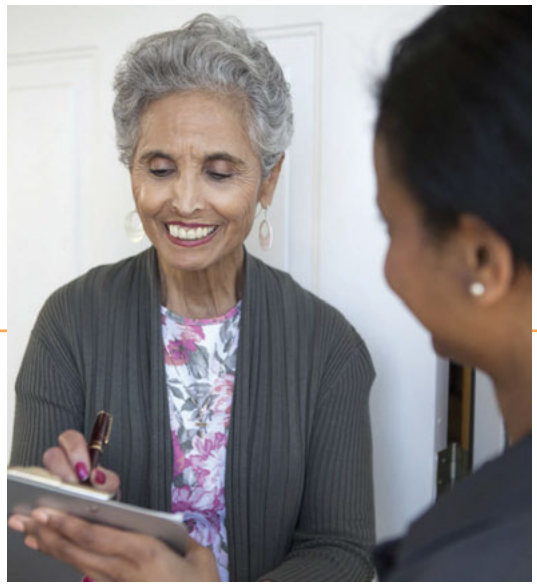
Use the Australian Bureau of Statistics (ABS) website to create a demographic profile of your local area. Go to the following link for guidance on finding the data on the Australian Bureau of Statistics site, and follow the instructions to create your demographic profile: www.cambridge.edu.au/hass7weblinks.

Use the following headings to collect information on your local area:

- average age
- gender
- ancestry
- religious affiliation
- occupation
- average weekly income
- family composition
- dwelling structure
- number of motor vehicles.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Collate all your information in a table. Then write a summary of all the statistics into a community profile of your local suburb or town. Are there any noticeable trends that stick out, such as a high proportion of people of a particular religious persuasion? Are more people on high weekly incomes than on low ones? Use the data to characterise your area.



Source 8.2 The Australian Bureau of Statistics Census finds out a lot of information about people all over Australia.

DEVELOPING YOUR UNDERSTANDING 8.1

Conduct a survey to gather data on the demographics of your class. As a group, design a survey for the class. It should survey three demographics that relate to students, not just their families or parents. Here are some possibilities:

- height (broken into bands)
- how you get to school
- favourite subject
- kind of house you live in
- favourite sport.

Every student should answer a survey. As a class, collect all the surveys and then collate all the answers.

If possible, compare the results to those of another class at your school. Are they different or similar? Why do you think that is?

8.2 Demographic profiles

demographic profile a collection of demographic information used to create a description of an average member of the population

The **demographic profile** of a suburb, town or city can have a dramatic influence on the nature of a place. There are a number of characteristics that have an influence on the nature of places within Australia.

Income

The most influential of these is income; a higher average income in a location generally indicates that the area is wealthier. A higher average income indicates that house prices are high and that predominantly wealthy people and families can afford to live there.

Source 8.3 shows the two wealthiest locations in each state and territory of Australia – the towns or suburbs where the average income is the highest. This information is collected and analysed by the Australian Taxation Office.

These figures illustrate the division that exists between income levels and the state that people

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

live in. This in turn influences the nature of the place and who lives there. For example, people seeking higher incomes are more likely to move to a wealthy city like Sydney or Melbourne, where the potential for a bigger salary is greater. They may also look at the wealthier regional areas in Queensland and Western Australia, where the mining and resources boom has resulted in increased salaries – and increased costs of living.

People's demographic income status also dictates the locations in which they can choose to live. The higher your income, the more choice you will have in selecting where you live. This shows how the demographic of income influences the nature of place in regard to housing.

Source 8.3 Wealthiest locations in Australia

State	Locations	Average income
Victoria	Toorak	$132 252
	Brighton	$101 776
New South Wales	Double Bay	$129 116
	Mosman	$126 956
Western Australia	Cottesloe	$113 892
	Nedlands	$106 981
Queensland	Ascot	$90 945
	Hamilton	$90 900
Australian Capital Territory	Red Hill	$87 496
	Forrest	$87 488
South Australia	North Adelaide	$75 574
	Walkerville	$74 296
Northern Territory	Anindilyakwa	$73 480
	Nhulunbuy	$63 985
Tasmania	Taroona	$50 977
	Mount Nelson	$50 941



Source 8.4 Mosman has one of the highest annual incomes in Australia. It is attractive to the wealthy due to its location on Sydney Harbour and its proximity to Sydney's CBD.

ISBN 978-1-107-43510-0 © Malcolm Mclnerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Age

Age is another demographic that influences the nature of places in Australia. You will most likely live in different places at different stages of life. Your age, and whether you are employed, retired or gaining your education, will influence where you live, which in turn influences the development and structures of towns and cities.

According to the Australian Bureau of Statistics Census 2011 data, the locations in each state that have the highest average age are mainly centred on the coast.

Source 8.5 Locations with the highest average age

State	Locations	Average age (years)
Victoria	Paynesville	56
New South Wales	Tuncurry	59
Western Australia	Mandurah	49
Queensland	Bribie Island	57
South Australia	Victor Harbor	56
Tasmania	Triabunna	53
Northern Territory	Ross	42
Australian Capital Territory	Isaacs	47

These data show that once people reach retirement age, they tend to move or relocate to coastal towns. They do this because they want to enjoy their retirement and make the most of the coastal lifestyle (with its strong sense of community and recreation activities). As a result of the movement of aged people towards the coast, state governments have to make sure that there are adequate services for these areas, such as health services, hospitals and aged care facilities.

As well as the elderly, the number of people aged under 15 years will affect a location's nature. Most people in this age bracket are at educational institutions such as schools, preschools or early childhood centres. As such, they have unique needs and demands for services within their areas.

For example, in New South Wales – especially in Sydney, where two-thirds of the state's under-15 population live – most young people live in the outer suburban growth areas of Rouse Hill,



Source 8.6 Bribie Island has the highest average age in Queensland. It is suited to people who are looking towards retirement or are already retired.

ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Kellyville, Bidwell and Lethbridge Park. Twenty-seven per cent of the population of these areas is under 15 years old.

It's a similar story in Victoria, where the growth fringe suburbs of Melbourne have the greatest proportion of people aged under 15. The areas of Taylors Hill, Roxburgh Park and Berwick had the highest proportion of children – 28% for all three suburbs.

The reason why these areas or suburbs have higher proportions of children is because land and houses are cheaper out on the urban **periphery**. This makes them an attractive prospect for young couples with children, because they can more easily afford the housing in this area. Often this housing is brand new and low density as well, which is an added incentive for these families. The demand for this kind of housing has a dramatic impact on the nature of cities because it encourages urban sprawl, which alters the size and shape of towns and cities.

periphery the edge or outskirts

DEVELOPING YOUR UNDERSTANDING 8.2

1. Go back to the ABS website and look up the Census page for the area where you live. Click on the 'People' bar and go down to the section on age.
2. Find the percentage figures for the population of people aged 10–14 years in your area. Compare it to the percentage for people aged 10–14 in your state and in all of Australia.
3. Suggest a reason why the local percentage differs (if it does) from the state and national percentages.
4. Suggest two ways in which the local area attempts to cater to the needs of people aged 10–14. Also suggest one new way in which the local community could cater to those people.

8.3 Debating demographics

Demographics allow us to measure and analyse specific human elements that influence a community or a place. But it's not always clear whether that influence is a good or a bad thing. As demographics change, so do societies, and there are many debates over whether changes are positive or negative – or both at the same time.

For example, if the level of car ownership increases in an area, it can be a positive thing – it means that people have more mobility, that there is more access to services and more money is being earned by local businesses. It can also be a negative thing – it can mean increased air and **noise pollution**, reduced funding for public transport and a greater demand for limited road and parking space.

noise pollution annoying and unpleasant levels of sounds, such as from aircraft or traffic

There are many different demographic topics and changes that can be debated; in this chapter we will look at three of them.

Population growth

The world's population is increasing over time, and has been doing so continuously for centuries. In 1800 it was around one billion people; now, a little over 200 years later, it's more than seven billion people. Currently the rate of population growth is about 1.1% per year, which is lower than it was in the middle of the twentieth century. As the global population increases, so do pressures on the environment, food supplies and energy resources.

According to the Census, Australia's population growth is around 1.6% per year, which is higher than the global rate. Forty-two per cent of that growth is from natural increase (births), while 58% comes from migration and people moving here from overseas. Our population reached 23 million people in early 2013, and is expected to reach 24 million in 2016 (if the growth rate remains 1.6%). Just as with the rest of the world, this growth puts a

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

strain on our natural environment and resources, as well as our social infrastructure – it means there are more people using services and looking for jobs.

However, that doesn't mean that population growth is entirely a bad thing. Australia has a very low population density – an average of 2.6 people per square kilometre, one of the lowest in the world – and in some regions this makes it very difficult for people to form communities, run businesses or gain access to services and resources. Most of Australia's population lives in the eastern states (Queensland, New South Wales and Victoria) and usually within a few hours' drive of the coast. As our population increases, cities and towns in those states become more crowded and expensive. This makes living in low-density rural areas more attractive, particularly for adult migrants who have just moved to Australia. An increase in population in these areas can help improve their economies and access to resources, leading to improved quality of life for these towns and communities.



Source 8.7 Heavy traffic in Sydney. Increases in Sydney's population would put further strain on its roads and transport infrastructure.

GEOGRAPHICAL THOUGHT

The small country of Monaco has the world's highest population density. The latest record of the population density of Monaco was 17703.50 people per square kilometre. If you laid out the Melbourne Cricket Ground 10 times, it would be roughly the same size as the entire country of Monaco. This is compared to Australia's population density of two people per square kilometre.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 8.3

Copy the table below and create an issues map about the effects of population growth. Write down at least two positive and two negative aspects of population growth and how it has affected Australia as a country. Once you have finished, compare your issues map to another student's and discuss your responses.

Has population growth been good for Australia?	
Positive aspects	Negative aspects

Income disparity

One thing that the 2011 Census showed was that average wages and incomes are rising in Australia. Our economy has been very strong for several years, especially when compared to the rest of the world, and most Australians enjoy a high standard of living.

But not all Australians are so fortunate, or so wealthy. According to the Australian Bureau of Statistics, the average adult income in 2012 was $1081.30 a week. Some people make more than that, and other people make less. In Australia, the top 10% of households (in terms of wealth) have a disposable income that is about 4.2 times as much as that of the bottom 10% of households. The gap between a society's wealthiest members and its poorest members is called income **disparity**, and it shows where there is a lack of equality in the society.

disparity the state of being unequal

Costs in an area tend to rise to meet higher incomes, rather than drop to meet lower incomes. If an area has many people with high incomes, prices and rents will usually increase because the owners of properties can demand more for their houses. Someone making less than the median income for an area may have difficulty meeting the costs of groceries, transport or house payments. They may decide to live in a cheaper area, but because those areas have less money in their economy, they often have fewer services like schools and shops and force a lower standard of living on residents.

Income disparity is a big problem for people on government allowances such as **Newstart** or the age pension. A person on Newstart collects a maximum of $248.50 per week, plus up to $61.50 in rent assistance, and many people collect much less than this. In many areas this is not enough to cover the rent of a house or apartment, so people must move to cheaper areas, often with fewer jobs, and share accommodation with other people. Life on Newstart and other allowances can be very difficult and leave people with no money, especially if they also have to support a family.

Newstart part of the system of social welfare payments for financial help provided by the Australian government

Increasing Newstart, the age pension and other allowances would make life much easier for these disadvantaged people and families. On the other hand, these increases would need to be funded by the government, which means taxes might have to be increased to pay for them.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 8.8 The town of Stanley in Tasmania. Towns can be cheaper to live in than cities, but may have fewer jobs and lower incomes.

DEVELOPING YOUR UNDERSTANDING 8.4

1. Go back to the ABS website and look up the Census page for the area where you live.
2. Look at the median weekly household income for the area and compare it to the median monthly mortgage repayments. Calculate how much income the average household would have left each month after paying its mortgage costs.
3. Compare the median weekly household income to the median weekly rent. Calculate how much income the average household would have left each week after paying the rent.
4. A young person on Newstart would receive a maximum of $310 a week. Calculate how much money that person would have left each week if he or she had to pay the median weekly rent in your area. Would he or she be able to pay the rent at all?

Multiculturalism

One of the most controversial aspects of demographics is the topic of ethnicity and the location of ethnic people within towns or cities around Australia. The Australian population is one of the most **multicultural** in the world; throughout our history, Australia has been subject to immigration from all corners of the world. From the invasion of Europeans that first established towns and cities, to the arrival of Chinese workers attracted by the gold rushes of the 1800s, to the mass migration of eastern Europeans after World War II, to an influx of South-East Asian people during and after the Vietnam War, modern Australia has been built on the back of immigration.

multicultural describing a society that reflects and is open to many different cultures

While this migration of people into Australia has forged our multicultural society, it has also created tensions and controversy about how migrants have settled into the towns and cities of Australia. Many new immigrants have moved to areas where they can get services that they recognise and associate with people that speak their own language. This is understandable, as it helps them feel comfortable in their transition to a new country. This concentration of an ethnic group into a localised area is known as an **enclave**. There are many different views on the development of these enclaves, illustrated in Source 8.9.

enclave a small, distinct area or group that is enclosed or isolated within a larger one

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

New York City has a long history of international immigration. Approximately 800 different languages are spoken across New York, making it the most linguistically diverse city in the world.

Source 8.9 Views on ethnic enclaves

Views in favour of ethnic enclaves	Views against ethnic enclaves
• Provides support for new migrants • Provides familiarity of culture and language to migrants • Gives migrants access to services, products and resources that they are accustomed to • Provides opportunities to access other food and cultures, promoting multiculturalism • Provides opportunities to develop economic interests and businesses to cater for the ethnic group	• Creates a dependence on one area for services • Creates issues with the provision of services such as education; being able to provide services to large numbers of students could be difficult • Creates lack of the need to engage with the wider society



Source 8.10 The Australia Day parade in Adelaide celebrates our society and its multicultural nature.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

8.4 Factors influencing settlement choices

Generally we can place the factors that can affect settlement choices into the following categories: social, historical, economic, environmental, political and technological. Of course, not all choices are limited to just one category. In reality, many of these factors combine to determine an individual's settlement choice.

Social

To what extent do societal factors influence an individual or family/group decision in a choice of settlement? An individual or family may have a strong **affinity** with a place. This may be a generational phenomenon, such as when a farm will be handed down through a single family, with each generation working the land in turn. An Aboriginal or Torres Strait Islander family may also have strong affinity with and a sense of belonging to a place that their ancestors have inhabited for thousands of years. An immigrant family may move to an area shared by people with the same cultural experiences and roots.

affinity a natural liking for or attraction to a particular person, place or idea

Historical

Similarly, historical factors may also come into play. If a settlement has historical roots in, say, mining or tourism, this factor can be very strong. Settlements such as Broken Hill (New South Wales) and Bendigo (Victoria) developed due to the wealth of minerals below the surface. This may result in generational choice while the minerals are accessed as a resource. Even chance may come into play: in 1788, Captain Arthur Phillip and the First Fleet happened upon Port Jackson (Sydney) as the site of a new convict settlement ahead of nearby Botany Bay. Ready access to freshwater was the main driver behind that decision.

Economic

Clearly, economic factors will influence settlement choices. The mining activity in Western Australia and Queensland is driving an economic situation there, boosted by a high international demand for resources. The need for skilled workers in certain remote locations is encouraging some people to move to these areas with an expectation of attractive wages and reasonably secure employment.

GEOGRAPHICAL THOUGHT

Australia is the only nation to occupy an entire continent. Its land mass is nearly 7.7 million square kilometres and it has a coastline of 36 735 kilometres.

Environmental

This factor is interesting, because it influences many levels in society. Some individuals or families may choose to live in an area for its attractive environmental qualities and amenities. Of course, an attractive environment is in the eye of the beholder. An individual may be attracted to the coastline: the so-called **sea changer**. Alternatively, an individual may move into the countryside away from the city; these people have been dubbed **tree changers**.

sea changers colloquial term for people who opt for a perceived improved quality of life by moving to the coast

tree changers colloquial term for people who opt for a perceived improved quality of life by moving to the countryside

Political

Individuals or families in Australia probably like to think that their settlement choice is beyond politics, but for some the policies of state or federal governments may significantly influence their choice of settlement. In Australia, the capital city of Canberra was founded in 1913.

A settlement was begun from scratch, primarily to deliver a capital for the nation. The site of this capital was the result of searching for a place that would satisfy the stakeholders in the

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

public servant a person who holds a government position by election or appointment

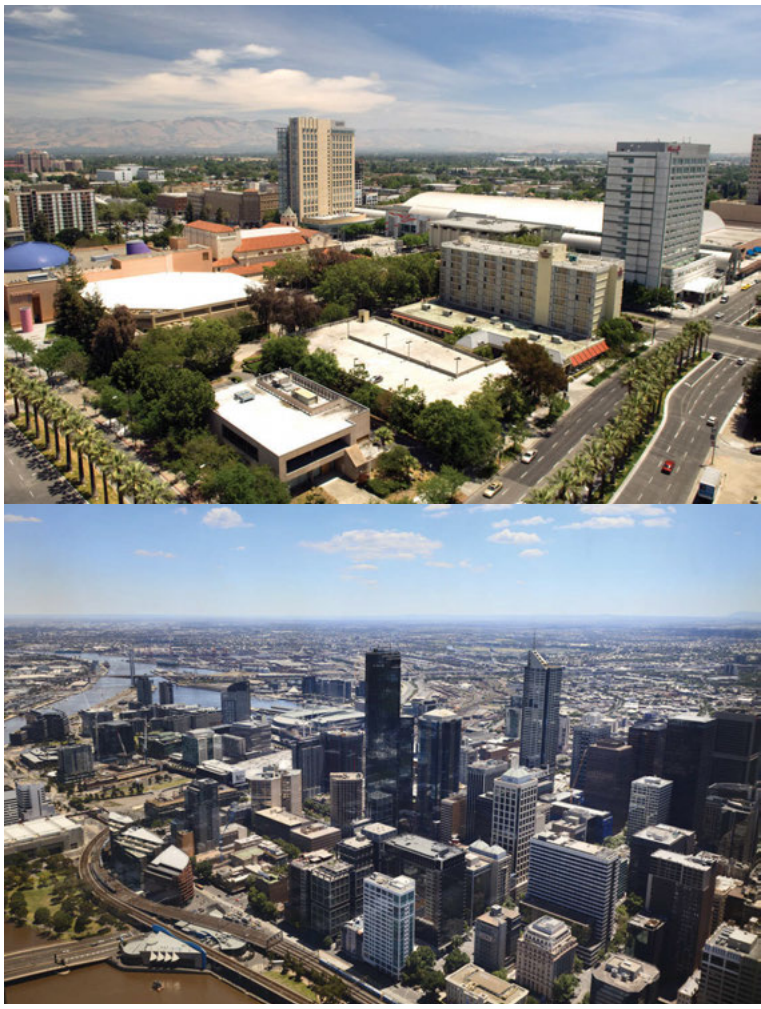
new states of Australia and also sidestep the rivalry between Melbourne and Sydney. Many a **public servant** has been sent to 'the bush' due to government policies like decentralisation.

Technological

Some settlements are the result of the rise of new technologies in society. Internationally, the famous Silicon Valley in the USA is a case in point. This area specialises in advanced technologies, particularly computer hardware and software.

economies of scale a fall in average costs resulting from an increase in the scale of production

These industries tend to attract each other to the same location through **economies of scale**, where an increased level of production will lower the average costs to run the business. A less dramatic example in Australia is the Docklands development in Melbourne, Digital Harbour, which aims to attract investment in the technological field and become a major hub for IT in the Southern Hemisphere.



Source 8.11 Office buildings in (top) Silicon Valley, USA and (bottom) Melbourne, Australia

8.5 Where Aboriginal and Torres Strait Islander peoples live

Britain's First Fleet arrived in January 1788, and took ownership of Australia. In European international law the principle for the takeover of a continent was the notion of ***terra nullius***. This meant that according to British law the Aboriginal lands belonged to the Crown. This idea that Australia belonged to no one was not because the British did not see Aboriginal people, but because Aboriginal and Torres Strait Islander peoples did not farm land or build permanent dwellings as Europeans did. *Terra nullius* means that the land has no owner, and so Britain believed they had the right to take possession of Australia without a treaty.

terra nullius land belonging to no one

In 1992, the High Court of Australia recognised for the first time that Australia was not *terra nullius* at the time of European colonisation. This decision, known as the Mabo decision, recognised that Indigenous Australians had continuing rights and interests in their land and waters in accordance with their traditional law and custom.

There are many reasons why Aboriginal and Torres Strait Islander peoples chose to live in their country or place, or would prefer to if they had the choice. An important element of Indigenous Australian society is that land is central to its economic, spiritual and cultural basis.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Recent Indigenous population statistics indicate that people aged 5–19 years were among the most likely to leave remote and very remote areas. One of the contributing factors for younger people moving away from remote and very remote areas is to attend school.

Aboriginal and Torres Strait Islander peoples aged 20–39 years were most likely to move to major cities to find work.

The Census of Population and Housing is a descriptive count of everyone who is in Australia on one night, and of his or her accommodation. In 2011, there were 548 370 people identified as being of Aboriginal and/or Torres Strait Islander origin and counted in the Census.

This represents 2.5% of the population as recorded in the 2011 Census. Source 8.12 is a breakdown per state.

Source 8.12 Population breakdown of Aboriginal and Torres Strait Islander people per state

State or territory	Number of Aboriginal and Torres Strait Islander people	Proportion of entire state population who are of Aboriginal and Torres Strait Islander origin (%)	Proportion of the Australian total Aboriginal and Torres Strait Islander population who live in the state (%)
Northern Territory	56 779	26.8	10.4
Western Australia	69 665	3.1	12.7
New South Wales	172 624	2.5	31.5
Victoria	37 991	0.7	6.9
South Australia	30 431	1.9	5.5
Tasmania	19 625	4.0	3.6
Queensland	155 825	3.6	28.4
Australian Capital Territory	5184	1.5	0.9

RESEARCH 8.2

Use the internet to research the Mabo decision. Using the information you have gathered, produce a time line of events that led to the decision. Include all significant events that occurred from 1974 to 1998. Suggest how this decision changed the shape of Australian society in a short paragraph.

8.6 Different scales and stages of life

In this section we will examine how the stages of life's journey can affect settlement choices.

Young people, singles, couples and beginning families

The increasing cost of home ownership is becoming a concern in Australian society. The so-called 'Great Australian Dream' of home ownership is becoming increasingly difficult to achieve for a variety of reasons. The cost of the initial deposit for a home, the price of homes in large cities and the link between real income and mortgage repayments have caused a shift in attitudes to home ownership among the young. Some younger people are

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

choosing to live with their parents until they can afford to move. The so-called 'empty nest syndrome' when offspring leave the family home is becoming less of a certainty as young adults postpone leaving home. Young people may also opt for shared accommodation in rental properties. This puts strains on older couples that may have expected their children to have left home, particularly as they approach retirement. Beginning families need to juggle home and work commitments to cover mortgage or rental costs. Decisions need to be made about costs of living, commuting distance and life–work balance. Some people (young or mature) choose to live on their own in a dwelling. This may be the result of partnership breakdown or a lifestyle choice. ABS data are showing that more people are choosing a solitary lifestyle.

Middle-aged couples and teenage children

Middle-aged couples with or without children may opt for the suburbs of major cities. The cost of properties will rise considerably closer to the city centre, so some couples choose to live in cheaper suburban and outer suburban homes. A significant issue is whether they are close to their employment, or what the likely commuting distance is. If the couple have children, another consideration is the choice of school. Some people will even buy into a neighbourhood because it is near a school with a good reputation. Property values actually rise or fall if the reputation of a school becomes general knowledge. Property prices also rise or fall depending on the perceived prestige or otherwise of a particular location. As demand outstrips supply, property prices increase for sought-after neighbourhoods. Data from the Australian Bureau of Statistics and published housing prices bear this out. So choice in this circumstance is limited by personal income or the capacity to repay a mortgage.

GEOGRAPHICAL THOUGHT

One in four Australians aged between 24 and 35 now live with their parents. This number has been growing over the past 20 years.

Source 8.13 A view towards Sydney's western suburbs



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Older age

As people age and their offspring move out into their own homes, they may look to downsize from a larger house to a smaller dwelling in keeping with their new needs. An individual or couple may move into a smaller dwelling in an area they are familiar with, or move to a new location entirely. Some couples or individuals may downsize to an apartment, a small townhouse or a unit. If medical concerns are an issue, a couple may move into independent living sites, but with medical facilities on call.

Very old age

When couples or individuals near the end of their lives, they may choose to move into a nursing home facility or a retirement village with medical support. Some may be supported by adult offspring or still choose to live independently. This period of life requires the same level of clear decision-making as when choosing a first home. Personal health issues may take choice right out of the equation.

Lifestyle choices

At any stage of the life cycle an individual or couple may make a lifestyle choice. This choice may be limited by personal health issues or personal wealth. People who have had enough of the 'rat race' may choose to move out of a city to a more idyllic rural or seaside setting. These have colloquially become known as 'tree changers' or 'sea changers'. This recent phenomenon has the potential to create real problems for local councils and governments as they try to predict future growth trends in our society. Not only is this challenging from a planning viewpoint, but it also poses environmental challenges. People chasing the dream of a picturesque coastal town or unspoilt village may find themselves unwittingly causing its deterioration. Coastal councils in Australia are struggling to zone areas from rural to urban development, and an attempt to keep the aesthetic qualities of coastal and rural resorts is being seriously undermined. Areas in Australia under pressure of overdevelopment include the Surf Coast (south-east of Geelong), the Gold Coast and its hinterland in south-east Queensland, and most villages along the New South Wales coastline.

8.7 Limited choices

As we discuss choice in this chapter, we must continually revisit the real prospects of personal choice.

self-determination the essential right of all people to freely decide their own political status and to freely pursue their own cultural, economic and social development

For some people, particularly in poorer parts of the world, the idea of choice is but a dream. The cycle of poverty that many people in the world experience is a harsh reality that severely limits their right to **self-determination**. Alternatively, people's choice may be limited due to cultural expectations in different parts of the world. The lack of education available to women in some poorer nations is one that is partly cultural. Combating the limited opportunities for women in these nations is part of the challenge of reducing poverty and improving living standards and consequential real choice.

8.8 Where people will live in the future

Predicting the future is a tricky business and fraught with potential error. Planning authorities in state and federal governments rely on the Australian Bureau of Statistics (ABS) to try to predict potential growth trends. In a country like Australia, the government is somewhat limited in its ability to control or manage growth trends. It does, however, have some tools at its disposal to encourage growth in a certain direction. These include:

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

- the release of government land to private development
- planning controls to limit growth in environmentally sensitive areas
- zoning laws restricting land use
- government jobs being available in rural or regional areas
- cash incentives for relocation of jobs.

As you can see, this is not really an impressive list of controls, but more a way of encouraging individuals to settle in certain places.

At present we know that the population trends in Melbourne, Sydney and the Gold Coast will probably continue in the short to medium term. The shift towards coastal living appears to be still strong, with growth in rural areas also likely to continue in places that are still within a 2-hour driving distance of major metropolitan centres.

GEOGRAPHICAL THOUGHT

In 2007, for the first time in human history more people are living in cities than in rural areas.

DEVELOPING YOUR UNDERSTANDING 8.5

Look at the following list of so-called 'family friendly' cities.

1 Launceston (Tasmania)	7 Hobart (Tasmania)
2 Canberra (Australian Capital Territory)	8 Darwin (Northern Territory) (equal 8th)
3 Toowoomba (Queensland)	8 Bunbury (Western Australia) (equal 8th)
4 Albury/Wodonga (New South Wales/ Victoria)	10 Bundaberg (Queensland)
5 Adelaide (South Australia) (equal 5th)	14 Melbourne (Victoria)
5 Perth (Western Australia) (equal 5th)	23 Sydney (New South Wales)

Source 8.14 Family friendly cities in order of 'friendliness'

1. Suggest reasons why smaller cities may be regarded as more 'family friendly'.
2. Identify four or five factors that might limit an individual's personal choice of settlement.
3. List two potential reasons why governments in Australia are so limited in their ability to control and manage population growth.

RESEARCH 8.3

Use the internet to gather information about settlement choices. You will find a number of useful links at www.cambridge.edu.au/hass7weblinks.

In groups, select one of the sites and investigate the information available. Then select a settlement and research its climate, public transport and any other statistics. Share your findings with the rest of the class in an oral presentation.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 8.6

1. Identify where you would like to live in the future.
2. Explain why you chose this location by outlining the influencing factors.
3. Compare the results with a friend and consider why there are similarities and/or differences.

RESEARCH 8.4

Construct a pamphlet that advertises the place where you would like to live in the future. Include photos and a catchy slogan, and list factors as to why your chosen place is the best.



Source 8.14 Launceston, Tasmania, is considered to be a 'family-friendly' city.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Demographic characteristics are the features that make up a population. They include age, gender, ethnicity, income, religious affiliation, educational level, employment and dwelling structure.
- Demographics are useful in gaining a more detailed understanding of the population of your local suburb, town or city. They also provide governments with information on how they need to cater for that population in the future, such as infrastructure development (schools, hospitals and aged care facilities).
- Settlement choices may be influenced by social, historical, economic, environmental, political and technological factors.
- The land is the economic, spiritual and cultural basis of Aboriginal and Torres Strait Islander society.
- Some individual or family choices may be limited by personal circumstance, cultural factors, wealth and attitudes to perceived quality of life.
- Settlement choices can change over the course of an individual's life cycle.

Short-answer questions

1. Suggest why most aged people want to live on the coast.
2. List the key reasons why young families move to the outer suburbs of towns and cities.
3. Suggest what individuals could do to empower themselves to take control of their settlement choices.
4. Identify the role of government in improving an individual's settlement choices.
5. Account for some reasons why the increasing cost of home ownership is becoming a concern in Australian society.

Extended-response question

In a short essay, explain how multiculturalism has transformed the demographic characteristics of Australian society.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



9 Liveable places

Before you start

Main focus

What makes a place liveable varies according to history, climate, location, services and personal choice.

Why it's relevant to us

The spread of people across the landscape is very uneven and this places pressure on governments to provide access to basic services such as schools, hospitals and roads.

Inquiry questions

- What makes a place liveable?
- Can you observe these characteristics? If so, what are they?
- How can you measure those aspects that are not visible or observable?
- What do all places have in common?

Key terms

- Biosecurity
- Distribution
- Geopolitical power
- Streetscapes

Let's begin

For most of us, the place where we live will be determined by our parents and their decisions. Often they have links with country and place that go back for centuries. However, for many contemporary Australian families the choice of a place to live is a more recent decision and likely to be linked with employment, personal mobility and lifestyle choices. What is important to understand is that the final choices about where people actually live are not always made by individuals, but are more likely to be the outcome of complex decision making involving these factors. While for some people the choice of where to live is predetermined by personal histories and local culture, for other people the concept of a highly liveable place may be connected with access to amenities that could be found in places spread across the country or indeed anywhere in the world. Wherever we live there is always an element of 'what is, what could be and what if'. Everyday living includes meeting our basic needs as well as planning for a future over which we have some control or that gives us a sense of purpose or wellbeing. A liveable place is a personal construct of our lived experience and imagination as well as a product of urban planners, government legislation and entrepreneurs with access to wealth-creating resources.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

9.1 What makes a place liveable

Depending on where you live, the answer to the question 'What makes a place liveable?' could vary considerably. Consider the following quotations from 12-year-old students located in rural Queensland, metropolitan Melbourne (outer suburbs) and coastal Tasmania:

> Sometimes the whole sky seems to light up with stars and shapes and maybe other places.
>
> I like the quiet, the space … the birds. Not the flies or drought.
>
> My family came to Australia from Sri Lanka when me and my brother were little. We like it here. There's lots to do and I can get a good education.
>
> I like going to the city in the weekends. Sometimes we go to the football or a film.
>
> I really like going to the beach. The fishing is really good – we fish on the beach, then barbecue them fresh.
>
> Our footy team is winning this year – we may go to town for the finals.

Embedded in the quotations are references to family, education, nature, sport, climate, space, location and access to entertainment and city life. If these students were to ask their parents and older community members the same question – 'What makes a liveable place?' – the responses might include many other aspects, such as aesthetics. A useful exercise to test this idea is to ask the same question of several people of different ages, genders and, if possible, ethnicities.

Liveability myths

Assuming you have had conversations about the meaning of liveable lifestyles with several people with different experiences, then you probably have access to a range of opinions. Take some time now to reflect on the answers you obtained. Was there anything that changed what you thought you knew about liveability? What kinds of alternative perspectives emerged from this research? Did distance and location come up? Opposing views are a likely outcome, and these can lead to useful discussion and debate. One of the important things that should come out of an activity like this is the realisation that some long-held beliefs about places are in fact myths. That is, these 'beliefs' do not always hold true.

There are many assumptions and myths made when discussing the liveability of a place. For example:

- High income guarantees happiness and success in life.
- Rural lifestyles are less attractive than urban lifestyles.
- Living on the edge of a large city is better than living in the country.
- Nature and urban landscapes are incompatible.
- Access to education and services requires face-to-face contact.
- Living sustainably is not possible in big cities.
- Living on the coast is best.
- Big houses provide the best lifestyle.
- Living in high-density housing removes privacy.
- Caring for the environment is the responsibility of local government.

In Chris Albani's book, *Graceland*, he says:

> He let his mind drift as he stared at the city, half slum, half paradise. How could a place be so ugly and violent, yet beautiful at the same time?
>
> (p. 7, *Graceland*, published by Noble and Farrar, Straus and Giroux, 2004)

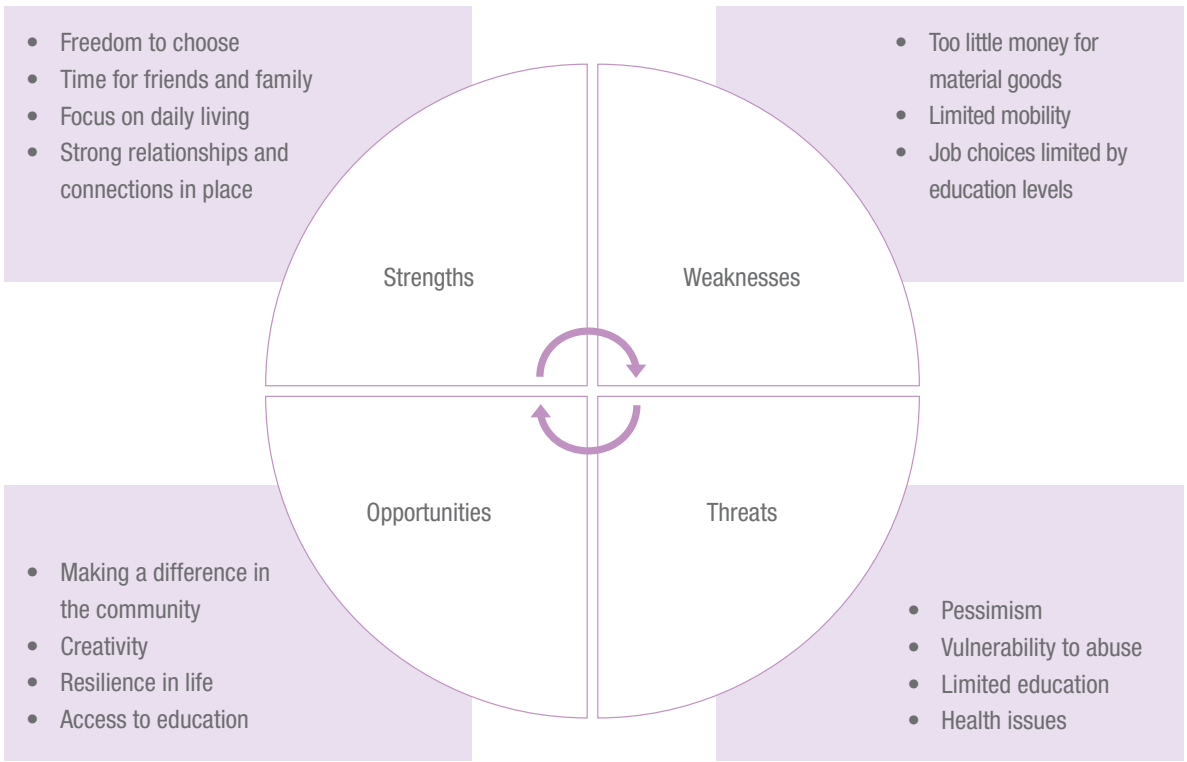
If we reflect on Abani's observation, we find several contradictions that show the merits of thinking critically about myths. He casts his gaze on what we must assume are slums built alongside expensive luxury houses, and seems to acknowledge the simultaneous ugliness and beauty of them. How can this be so?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The first myth noted is that 'high income guarantees happiness and success in life'. The SWOT analysis below aims to show how this can be regarded as a myth:



The opposite of this myth, that 'low income guarantees happiness and success in life', is equally questionable. The SWOT analysis for this myth might look like the following:



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.1

Copy the table below to list the characteristics of 'liveable places'. Place a tick in the appropriate box and then list in order of importance. Discuss the reasons for each person's preferences.

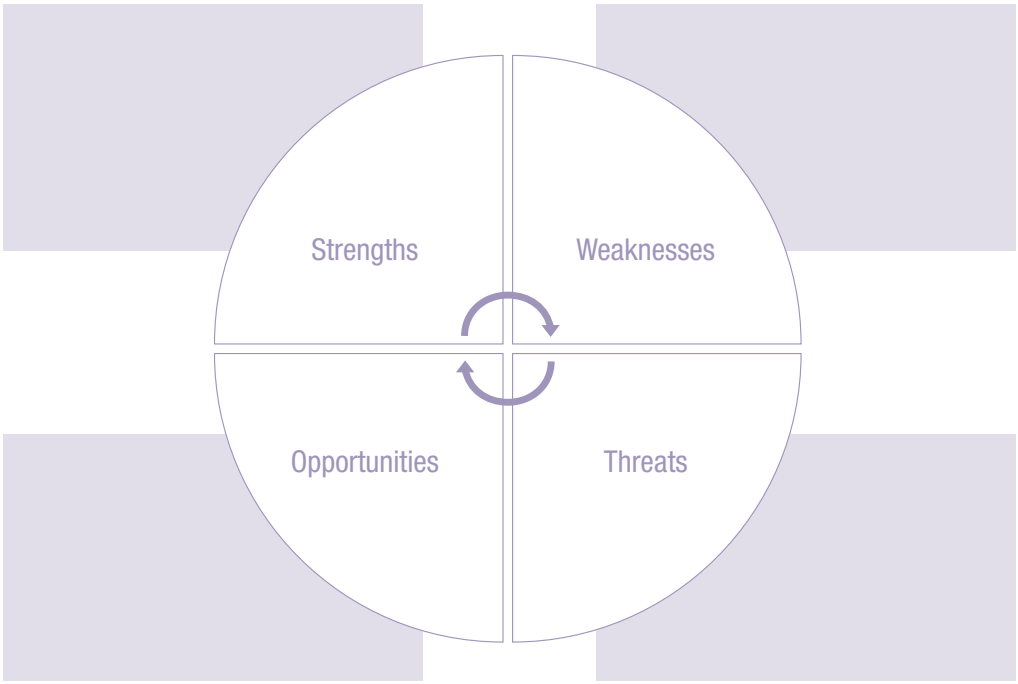
Characteristic	Me	Parent/ grandparent	Other person 1	Other person 2
Clean air and water				
Nearby hospitals and schools				
Access to good living wage and low poverty levels				
Affordable housing				
Efficient public transport				
Car friendly				
Safe neighbourhood				
Emergency services				
Recycling and waste management				
Sports fields				
Income support including pensions				
Social justice				
Large shopping centre				
Voting rights				
Cinema and entertainment centre				
Museum and art gallery				
Low crime rates				
Family and friends nearby				
Nature reserves and parks				
Inclusive communities				
Medical centre				
High-speed internet				
Disability access				
Birds and wildlife				
Retirement housing				
Cultural festivals				
Banks				
Other – add to this list from all responses				

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.2

1 What are the similarities and differences between the two SWOT maps on page 151?
A discussion of the differences might bring in topics like health and wellbeing and a sense of purpose and optimism about the future, as well as pessimism about issues that cause concern and worry about personal futures. You may also consider how these income differences may affect lifestyles and opportunities in rural, regional and urban locations. After all, what may appear to be examples of living in poverty or affluence can really mean something quite different to the residents.

2 Copy the graphic organiser below; select one of the 'myths' about the liveability of a place that has not already been used as an example and complete the SWOT analysis.



9.2 Observable characteristics

Observable characteristics of highly liveable places can generally be measured. The most obvious indicator is population. More than half of the world's people live in cities. Because this is such an important characteristic of population **distribution**, we need to look closely at the characteristics of cities and consider why people seek them out as their place of choice to live. However, this does not mean that rural and regional places do not have their advantages.

distribution how something is shared out among a group or spread over an area

Megacities and influence

Megaglobal cities are a twenty-first-century phenomenon, with many of the newer members of this club located in Asian and developing countries. Source 9.2 includes cities around the world ranked first by population, next by measures of global influence, third and fourth by liveability and in the fifth column by infrastructure. Notice that there are two rankings provided for liveability and they differ. The reasons can be complex and will have much to do with the ways in which the surveys

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

were conducted, including the variables that may or may not have been included in the decision-making process. You may like to speculate on the reasons for the differences in the scales. The last scale rankings based on infrastructure may provide some clues. Whatever the reasons, the important message from these scales is that they are not fixed. Like the liveability myths, much depends on the views and biases held by the data collection agencies.



Source 9.1 Vancouver, Canada, is one of the world's most liveable cities.

Source 9.2 The top 10 cities globally in terms of population, services, liveability and influence

Population[a]	Global influence[b]	Liveability[c]	Liveability[d]	Infrastructure[e]
1 Tokyo	New York	Vienna	Melbourne	Singapore
2 Jakarta	London	Zurich	Vienna	Frankfurt
3 Seoul	Paris	Auckland	Vancouver	Munich
4 Delhi	Tokyo	Munich	Toronto	Copenhagen
5 Shanghai	Hong Kong	Vancouver	Adelaide	Düsseldorf
6 Manila	Los Angeles	Düsseldorf	Calgary	Hong Kong
7 Karachi	Chicago	Frankfurt	Sydney	London
8 New York City	Seoul	Geneva	Helsinki	Sydney
9 São Paulo	Brussels	Copenhagen	Perth	Hamburg
10 Mexico City	Washington DC	Bern	Auckland	Vancouver

a World Atlas; see www.cambridge.edu.au/hass7weblinks

b A T Kearney; see www.cambridge.edu.au/hass7weblinks

c Mercer Rankings 2012

d Economist Intelligence Unit's 2011 and 2012 Global Liveability Surveys

e Mercer's City Infrastructure Ranking 2012 is based on measures of the following: electricity, water availability, telephone, mail, public transportation, traffic congestion and airport effectiveness. See www.cambridge.edu.au/hass7weblinks.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

GEOGRAPHICAL THOUGHT

The World Bank considers one of the major challenges for all big cities is waste management, including sewerage. Its research indicates that there are around '3 billion residents generating 1.2 kg per person [of waste] per day' (1.3 billion tonnes per year)!

Australia has four cities included in these rankings, with Melbourne taking the liveability jackpot for three consecutive years. The Economist Intelligence Unit's 2011, 2012 and 2013 Global Liveability Surveys place Melbourne at the top of their lists. One of the reasons given was that:

> It is impossible to get lost in Melbourne. Streets are arranged in a grid, with very clearly written signs and pedestrian signals are located at every intersection. (See column 4 in Source 9.2.)





Source 9.3 Top of class: Vienna, Austria (left) and Melbourne, Australia (right) are considered by some to be the most liveable cities in the world.

On the environment, observations included:

> We did not see any traffic cops in Melbourne.
>
> Though not as spick-and-span as Singapore, Melbourne is green, with numerous parks and gardens … Pollution is non-existent.

On the low crime rate:

> The murder rate in the city is only 2.7 per 100 000 people (compared to 4.8 in the United States). When we walked home from the theatre at 11 p.m., we did not worry. Streetlights were on and, though we were the only people on narrow lanes, we felt totally safe.
>
> Hotels or malls had no guards and nobody searched bags or packages for bombs.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

On culture:

Melbourne abounds in culture, from graffiti art on city walls to museums of all sorts.

The food is fantastic: Italian, Chinese, Thai, Japanese, French, American (steaks), English (pies), Australian (fish and chips). Even McDonald's is lighter and tastier – fresh salads and chicken without hormones make all the difference.

On the people:

What impressed us most were the friendly people.

The only negatives were the high prices and the short store hours. But we certainly agree with the Global Liveability Surveys. Melbourne, take a bow!

GEOGRAPHICAL THOUGHT

The city of Vancouver in Canada lost its title of most liveable city because of traffic jams on Vancouver Island, and it may fall further down the list because of the Stanley Cup riot of June 2011.

The trend towards urbanisation – the gradual relocation of people into big towns and cities – is occurring in countries all over the world, and has taken on new momentum with the rapid growth of economies in Asia. New patterns of urbanisation that are emerging tell us much about the future course of economic activity in the world, including the shifts in the global distribution of power and wealth. The Global Cities Index (GCI) released in 2008, 2010 and 2012 assessed these urbanisation trends against five key indicators: business activity, human capital, information exchange, cultural experience and political engagement (according to the 2013 report of A T Kearney, a global management consulting firm). The report also evaluated each city's future **geopolitical power** – its political importance and influence in the surrounding region, based on urban connections or close alliances between cities.

geopolitical power the political influence exerted by a place on the surrounding region

This means that a city's geographical location, combined with its historical connections, sources of wealth, cultural beliefs and political leadership, produces influences over large areas or nations that are not always local. These regions are worth considering for improving our understanding of this urban growth phenomenon. The following case study illustrates A T Kearney's analysis.

Australia's cities

Australia's population is highly concentrated into large cities. The populations of Sydney, Melbourne, Brisbane, Perth and Adelaide account for almost 60% of the country's total residents. A further 20% of the population live in cities and nearby towns of close to or more than 100 000 residents. Through accessing data from the Australian Bureau of Statistics, you can monitor these figures and note the daily changes in Australia's total population.

Why is city or urban life so attractive to Australian families? Consider the following as characteristics of cities or large towns you know. Each of these characteristics expands at a local level the elements included in the Global Cities Index. We take each indicator and try to understand its meaning for Australian residents. Of course, for people who have experiences of other places, the meanings are open to wider interpretation.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 9.4 An iconic view of Sydney Harbour. Sydney is Australia's most populated city, with over 4.5 million residents.

Landscape and liveability

Shelter is fundamental for our survival. Exactly where we choose to live in cities or other places will sometimes be decided for us by the available housing or shelter. However, where choice does exist, there are elements that can make a place more or less liveable, such as landscape. Landscape usually refers to the natural features of our surroundings. Consider the following and judge for yourself which of them are more important:

- gradient – how steep or flat the surface is
- aspect – relationship to the sun; either southerly, easterly, northerly or westerly
- exposure to the major winds – wind and rain
- soil quality – well drained, deep or shallow topsoil; floods easily
- proximity to water frontage – sea or river
- plants and animals – trees, birds, insect and animal life.

A house or apartment view may be a deciding factor in choosing where to live. Other characteristics of landscape include built and cultural elements, which we will look at next.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.3

1. Where is the most expensive housing in your local area?
2. How many of the characteristics listed can be associated with these locations?
3. In what ways is the streetscape attractive?
4. Identity the potential threats to this streetscape.
5. Evaluate your own home according to the above criteria. Identify some of the positives and negatives and compare them with other members of the class.

Social connections and liveability

Humans are social beings. Their basic needs include more than shelter to survive well; community is also important for health and wellbeing. Many local government councils in Australia have community and wellbeing plans. These plans are a good starting point for understanding the meaning of social connections locally. For instance, many of these plans refer to the 'pillars' of community and healthy societies. They include factors like healthy living, family life, work and education availability, transport access, housing and safety. Connecting to others in the community and sharing experiences is now made easier through digital communications. Social networks help build community and enable us to live more sustainable lives. Networks sustain our personal wellbeing, but also help us to share information quickly in times of threat, such as from natural disasters. Engaging with your local council on projects can be a great way to build social connections within your community and better understand the issues that people regard as important for their lifestyles.



Source 9.5 Social interactions through digital communications technologies are allowing people in communities to stay connected with each other.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.4

1. List some of the social connections you have in your local community. For example, do you engage in any volunteer activities or sports? How are these activities organised and how do they involve members of the community?
2. Identify your local community spaces, including sports grounds, parks and buildings. Extension: plan a local community 'event' and create invitations for residents to attend.
3. Use the internet to locate an example of an online community group in your area. What sorts of activities or events does this group participate in? What kinds of people does it attract?

Health and safety

Part of the social landscape is making our places safe. To live well, we all need access to basic services that ensure our survival. Next to shelter, our principal needs are food and water. Ensuring their safe delivery to our neighbourhoods is a major management task for the survival of large communities. Big city concentrations rely on delivery of clean water to our homes and quality food to nearby supermarkets and shops. Achieving these basic needs for our healthy lifestyles requires careful monitoring and the highest standards of scrutiny at every stage in the delivery process.

biosecurity the protection of humans, other animals and plants against diseases or other harmful biological agents

Monitoring our food sources, or **biosecurity**, is a major issue for our city lifestyle. Biosecurity includes all the tests related to hygiene, screening of process factories, packaging and handling of goods between points of origin or production and sale. Local government has a major role to play in maintaining our healthy neighbourhood environments. A visit to the local or shire council website in your area will provide a rich resource for class activities associated with healthy living and safety. Strict regulations related to land and waste management (including household waste and sewerage), as well as sources of pollution and irritation from noise, air and traffic, are all monitored for our collective safe living. Building environmentally friendly neighbourhoods is a standard for Australian communities.



Source 9.6 Proper hygiene procedures in food processing are vital to community wellbeing.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.5

1 Identify qualities that would contribute to a neighbourhood being 'environmentally friendly'.
2 How well does your neighbourhood meet these standards? Suggest some potential improvements that could be made.
3 Check the source of your local water supply and find out where your entire daily food intake comes from. Mapping these food and water chains should demonstrate how complicated city life has become and how much the liveability of urban areas is dependent on the vigilance of governments, community authorities and the integrity of workers supplying our basic needs.

Infrastructure

Alongside local government efforts to ensure a healthy water and food supply, state and federal governments are responsible for the major elements of our infrastructure needs. These include roads, rail, air and sea connections; schools and hospitals; utilities like electricity, gas and water; and communications services such as Australia Post. Depending on where you live there may be few options available for access to local services. These will become critical considerations related to liveability if, say, the place is located in or near a wooded area where fire is a danger or where there is reliance on outside food deliveries for survival.

DEVELOPING YOUR UNDERSTANDING 9.6

1 What transport networks pass through where you live? How could these be improved?
2 How is household waste managed in your community? Is there recycling?
3 Identify some of the other examples of major infrastructure in your area. Examples could include health facilities, such as hospitals, doctors' clinics and ambulance services.

RESEARCH 9.1

Using the internet or a newspaper, analyse the local advertisements for houses and businesses for sale. Take note of the details mentioned in the advertisements. For example, proximity to schools, services and good roads as well as passing traffic for commercial sites are often listed. This should provide you with a collection of terms that are used to describe highly liveable places. Present your findings in the form of a poster. Alternatively, write your own advertisement for a fictitious house or commercial property. Be sure to mention some of the liveability concepts covered in this chapter.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Recreation and leisure activities

Once our shelter, food and basic needs for survival are met – for most of us this will be from the financial rewards of paid work – our social needs are likely to motivate us to seek out relaxation time. Recreation and leisure activities are likely to be motivated by personal choice and the availability of services. This is another interesting question to ask of grandparents or older residents in your area: what did they do for leisure that is different from what you and your friends like to do in your spare time? Playing and attending sporting events are an important pastime for many Australian residents, as is playing computer or video games at home with friends. Other activities include going to cinemas and entertainment centres, or the zoo and botanical gardens, as well as cafés, restaurants, theatres and museums.

Arts and cultural landscape

Depending on where you live, arts and culture may contribute to the appeal of a place. For example, is your town or city famous for any annual event? Perhaps the following are part of the annual calendar of arts and cultural activities:

- rock, jazz and country music festivals (for example, Tamworth Country Music Festival, Parkes Elvis Festival and Port Fairy Folk Festival)
- agricultural show
- horse racing (e.g. the Melbourne Cup)
- food tasting festivals and farmers' markets
- busking and street performers
- museums and art galleries
- street markets (e.g. Southbank in Brisbane, Fremantle Market in Fremantle, Salamanca Market in Hobart and St Kilda and Southbank markets in Melbourne)
- annual parades (e.g. Anzac Parade, Australia Day, tulip festivals and other flower or botanical exhibits and street parades for sporting events).



Source 9.7 The Gabba, a major venue for sporting events in Brisbane

DEVELOPING YOUR UNDERSTANDING 9.7

1. List all the leisure and recreation facilities available within your local area.
2. Identify the facilities you and your family use and the frequency of their use.
3. Where are these located relative to your home? Which are furthest from home? Why are they getting harder to find?
4. Locate the answers you gave to Question 2 on a map. What do you observe in the distribution?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Streetscape and liveability

streetscapes views of streets, including the road, connecting buildings, trees and open spaces

Cities are instantly recognisable by their unique buildings and **streetscapes**. To illustrate this point, link each of the following to its city of origin:

- Opera House
- Luna Park
- Fremantle Gaol
- Queen Victoria Market
- Pitt Street Mall
- Anzac Parade
- Salamanca Market
- Bondi Beach
- Glenelg.



Source 9.8 Streetscapes of Melbourne

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Many of these iconic features of our big cities are associated with our heritage and connections to earlier times. For instance, during the early European settlement of Australia, the streetscapes were largely shaped to look like the more familiar scenes to be found in Britain. The early settlers cleared large areas of the native trees and planted the more familiar trees of their native landscapes and European cities. These introduced species of trees included oaks, elms, plane, pines and linden trees. Unlike most native Australian trees, which maintain their leaves all year round, these introduced species are deciduous: they lose their leaves in the winter to avoid damage from the cold chills and snow.

Many streetscapes of the inner suburbs of the bigger cities impart a Parisian and or Mediterranean quality to the lifestyle of residents and visitors that dates back to the nineteenth century. However, the period following World War II brought new immigrants, and a growing awareness of the need to conserve the landscape and, its natural habitats. Newer suburbs, located progressively further away from the central business districts of the major cities, have strict controls for the preservation of the trees and management of their environments. Source 9.8 provides a series of photographs of famous streetscapes dotted throughout Melbourne. They are arranged so as their to show distance from the city centre. Notice the changing landscape of the trees as well as the transport forms, buildings and architectural styles.

RESEARCH 9.2

In your local area, collect images of streetscapes that appeal to you. Identify the aspects of the streets that you like as well as the features that are least appealing. Present these to the rest of your class in an online presentation using PowerPoint, Prezi or a short video. Here are some things to consider for your research: how do you explain the attractive elements in these streetscapes? Why are you attracted to some features and not others? Do the attractive features have links with your family history or birthplace?

9.3 Measuring liveable aspects that are not visible

One of the more difficult elements in measuring liveability is the connections history and geography have with our sense of belonging. For example, Aboriginal and/or Torres Strait Islander peoples in your local area will have a very specific connection to their land. A sense of belonging is not always easy to define but may have elements best described by the people who call a place 'home'. Sometimes a sense of belonging can be so powerful that it is not easy to describe in words. It just 'is'! This is a subjective feeling that sometimes creates strong emotions within us. If the memories associated with the place are good, then these are likely to be feelings of contentment and happiness. Nowhere is this feeling more acute than when we come back to a place after a long time away; the sense of having 'arrived home' can be part of this. It can be very powerful and a significant source of motivation when people decide where to live and the kind of place they seek to create for their home. For Aboriginal and Torres Strait Islander peoples this will usually be the place of ancestors and relatives who have passed away, but who live on through the land and its life forces. For families and residents who move into a location or suburb within a larger city or town, a sense of belonging may build up over time. Going to the same school and playing on the same sports team as well as shopping at the same place, holidaying at the same beach and the many rituals of returning to the same places can all add to that sense of a liveable place, and a place we like to call home.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 9.8

1 Think of the places where you feel happiest. List as many words as you can think of that you associate with these places.

2 Next, try to prioritise these into a list. How does your list compare with those of the other members of the class?

3 Express your feelings for your favourite places through a drawing, poem, photograph or piece of music.

9.4 What all places have in common

Having viewed the many ways we can think about the liveability of a place, you should now have a sense of what it is that gives people their sense of wellbeing and contentment with everyday life. More than a building or street or particular location, there is likely to be a complex mixture of elements that make a place liveable. While the actual physical location may differ, there are features of a liveable place that most people would agree are important. Getting a sense of the liveable features of a place can be easier once you build up your knowledge and awareness of the criteria. In the sections you have worked through in this chapter there are lists of characteristics and themes explored, all of which help to build a profile of highly liveable places. The final part of this process is to test your knowledge and application of the ideas through fieldwork in your local area. Two suggested approaches follow; one relates to living in a large city suburb and the other to life in a small town.



Source 9.9 Trams crossing the Danube river in Vienna, Austria. An efficient, reliable public transport system, cleanliness, quality architecture, and access to parks and waterways are some factors that contribute to a city's 'liveability'.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- What makes a place highly liveable depends on characteristics that can be defined as physical, historical, economic, cultural and social.
- 'Liveability' relates to the quality of everyday living as well as sentiments people build up about a place over long periods of time.
- Attachment to a particular place can be due to its geographical location close to work, schools, shops, sports and recreation grounds as well as proximity to public transport and good roads. More likely, though, it will be due to a combination of factors that are personal as well as practical.
- Our sense of place or what makes a place highly liveable is complex and needs an open mind for study and understanding.

Short-answer questions

1. Identify which aspects of places are most likely to maintain happiness and wellbeing.
2. Describe the aspects of places that are likely to be the least important for most people.
3. List the most important characteristics of highly liveable places.
4. Suggest five ways of making a place more liveable.
5. Deduce the biggest problems faced by all megacities.

Extended-response questions

Looking to the future and the prospect of more and more people living in very large cities, what do you see as the major issues for decision makers to consider? What recommendations would you make for meeting these challenges in your local community?



Source 9.10 Adelaide is in the top five of the world's most liveable cities.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



10 Enhancing liveability

Before you start

Main focus

Many strategies are used to enhance the liveability of places for different groups of people.

Why it's relevant to us

Individuals and governments need a coordinated vision to develop strategies that ensure communities become more liveable for people.

Inquiry questions

- What strategies can be used to enhance liveability?
- What are the needs of different groups in a community?
- How do we balance different views of liveability?

Key terms

- Community needs

Let's begin

People have different needs depending on where they live and who they are. Some places in the world will be starting from a low base. A city that has major pollution or crime problems, for example, will face steep challenges to enhance its standing on the liveability scale. Some places already have plans in place to address their liveability issues. Enhancing liveability is a task that requires a coordinated effort by governments and communities.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

10.1 Strategies to enhance liveability

The United Nations Environmental Programme (UNEP) has been at the forefront of action to enhance the liveability of the planet. The UNEP, in conjunction with the Cities Alliance and Local Governments for Sustainability, has developed a template for enhancing cites and a report of cities developing successful outcomes. Today, over 50% of the world's population live in urban areas. Cities can be places of excellence, education, employment and hope. Conversely, cities can also descend into poverty, crime and despair. The UNEP report states:

> A successful city must balance social, economic and environmental needs …
>
> A successful city should offer investors security, infrastructure (including water and energy) and efficiency.
>
> It should also put the **community needs** of its citizens at the forefront of all its planning activities.
>
> A successful city recognises its natural assets, its citizens and its environment, and builds on these to ensure the best possible returns.

community needs necessary conditions for the best role, development or wellbeing of the community

In Melbourne, Australia in 2002, the UNEP issued the 'Melbourne Principles' – a road map to achieving sustainability in cities. This comprised the following 10 principles:

1. Provide a long-term vision for cities based on: sustainability; intergenerational, social, economic and political equity; and their individuality.
2. Achieve long-term economic and social security.
3. Recognise the intrinsic value of biodiversity and natural ecosystems, and protect and restore them.
4. Enable communities to minimise their ecological footprint.
5. Build on the characteristics of eco-systems in the development and nurturing of healthy and sustainable cities.
6. Recognise and build on the distinctive characteristics of cities, including their human and cultural values, history and natural systems.
7. Empower people and foster participation.
8. Expand and enable cooperative networks to work towards a common, sustainable future.
9. Promote sustainable production and consumption, through appropriate use of environmentally sound technologies and effective demand management.
10. Enable continual improvement, based on accountability, transparency and good governance.

DEVELOPING YOUR UNDERSTANDING 10.1

1. Identify the positive and negative aspects of living in cities.
2. What makes for a successful city according to the Melbourne Principles? Explain in your own words.
3. Select a city and give examples of what makes it a successful city.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

10.2 Liveability of places for young people

Communities vary enormously in support services available to families to help care for their youth. This variation from community to community is not by chance. Studies have shown that families who have the fewest individual resources live in communities with the fewest shared resources. Low-income young people and youth from a non-English-speaking background are the most affected. Communities with poorly resourced schools often have weak civic and social organisations. As a result, young people often lack adequate opportunities and support where they live, learn, work, socialise and grow. Programs in these areas seem to have minimal impact, but more can be done to help this important group in our community. Young people are involved in and are affected by some of the problems that have a negative impact on communities – drugs, violence, lack of education and unemployment – and they must be part of the solution. Change happens fastest when community programs are able to involve their target audience (young people) and they begin to work together. In order to create opportunities for change, adult change-makers need to focus on shaping policy, improving services and building demand, but more needs to be done. They need to find ways to involve large numbers of youth in their core work. They should make sure that young people are involved not just for the experience but also for the results they are striving to achieve. They should also develop strategies for involving as many young people as they can.



Source 10.1 Playing sports enhances the liveability of places for young people.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 10.2

1 Investigate current youth programs in your area and determine how successful they are.
2 Explain why young people growing up in poorer demographic areas are at a disadvantage.
3 Design a youth program that could help reduce one of these problems in society: drugs, road accidents, unemployment or poor attendance rates at school.

RESEARCH 10.1

Select a place in Australia or Europe and research the successful solutions and strategies implemented in order to enhance liveability. Create a poster that compares and applies these strategies to your own local community.

10.3 Diverse needs of groups

Approximately 73% of Australia's population were born in Australia. Between the dates of the 2006 and 2011 Censuses, a total of just under 850 000 permanent migrants settled in Australia.

Cultural diversity is one of Australia's greatest assets. There are people here from more than 200 different countries; they speak as many as 270 languages and identify with more than 100 religions. Our cultural diversity and expanding population bring many economic, social and cultural benefits, while also creating challenges to the public sector in providing policies, programs and services that successfully meet the needs of all Australians. In order to build communities that are successful at improving conditions and resolving problems for all, we need to understand many different cultures and develop strong relationships with each other.

Diverse groups of people and communities have different needs depending on where they live and who they are. It is vital to develop policies and understandings that can be applied to society as a whole.

Public consultation is an important part of developing socially and culturally appropriate policies. A farming community – for example, in times of drought – may want to discuss the possibility of a dam being built in its area. A community that has a high percentage of elderly citizens may want better access to health care.



Source 10.2 Cultural diversity is one of Australia's greatest assets.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 10.3

1 Recall how many migrants settled in Australia between 2006 and 2011.
2 Discuss why it is important that Australia recognises migrants as an integral part of our nation.
3 Predict what may happen if a sincere effort is not put forward to bring different cultural groups together.

RESEARCH 10.2

Select a country, other than Australia, and research its population breakdown. Create a PowerPoint presentation that includes the percentages of indigenous and migrant peoples and an analysis of whether the country's multiculturalism has a positive or a negative effect.



Source 10.3 Ealing Road, Wembley, London. London has a large Indian and Pakastani population.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Enhancing liveability is a task that requires a coordinated effort by governments and communities.
- The UNEP is encouraging cities to develop a strategic plan to enhance liveability.
- The Melbourne Principles were instituted by the UNEP in Melbourne, 2002. These principles demanded vision, social security, biodiversity, ecological awareness, sustainability, cultural values, empowerment, cooperation, management and improvement. Some cities are clearly doing better than others in meeting these objectives.
- Adult change-makers need to find active ways to involve large numbers of youth in their core work.
- People have different needs depending on where they live and who they are.

Short-answer questions

1 Describe what support can be given to cities that may be struggling to enhance their liveability.

2 Discuss whether a city can meet all its liveability targets at the same time or whether it should focus on a few key improvements.

3 Evaluate this statement: 'Case studies of cities enhancing their liveability are not necessarily transferable to another city.'

4 Do poorer cities in the world have any hope of enhancing their liveability?

5 Identify the main social problems faced by youth and then address these issues by exploring a solution.

Extended-response question

In an essay, debate the following statement, with reference to each of the case studies featured in this chapter: 'Enhancing the liveability of a city is only possible thorough a clear and concerted plan of action. It will not happen just on its own.'

In August 2012, Melbourne was announced as the world's most liveable city, with Vienna, Austria and Vancouver, Canada coming second and third. Research why these cities were selected and prepare a report comparing and contrasting these three cities. In your report, consider crime rates, health care, culture, environment, education and infrastructure.



Source 10.4 Cape Town is typically considered the most liveable city in Africa.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Civics and citizenship

Government and democracy

The Australian Constitution

constitution the law upon which a state or organisation is governed

citizen a person who has citizenship of a particular country, and who has the responsibility to obey the laws of the country and participate in the political process of the country (such as through voting)

A **constitution** is the highest law in a country. It outlines the roles and responsibilities of the government and the country's **citizens**, and the rights of people within its borders. In Australia, the constitution was adopted in 1900, when all the separate colonies (now referred to as states) joined together to form a federation. A constitution is a legal document, but it also outlines the values of the country. For example, Chapter 5 of the Australian Constitution forbids any state from enforcing the practice of a particular religion. This means that in Australia all religions are allowed to be practised, and therefore the value of acceptance and diversity is highlighted.

Key features of the Australian government

The Australian Constitution is divided into five chapters and is a relatively short document. However, it contains some of the most important information regarding the law and the features of government in Australia.

There are three different levels of government within Australia (federal, state and territory, and local), each with its own roles and responsibilities. This is called the **division of power**. The **federal government** is responsible for areas that affect the entire country, such as defence and immigration. The **state and territory governments** are responsible for issues that may be different within each state, such as health, road maintenance and education. Each state or territory may have requirements for these issues that are not relevant for the other states and territories. **Local governments** are responsible for the issues that directly affect the people of that particular town or area, such as garbage collection and public recreation areas (e.g. a public park or swimming pool).

division of power the dividing of political powers between the federal, state and local governments

federal government government with central power over a country as a whole

state and territory governments governments with responsibility within individual states and territories

local government government with responsibility within a town or area



Source 7.1.1 The Australian Coat of Arms at the entrance to Parliament House

The Australian Constitution also outlines the way in which power should be shared within Australia. This is called the **separation of powers** and breaks down power to be shared between three different branches: executive, legislative and judicial. The **executive** is responsible for the daily administration of a country, such as a president or a prime minister. Australia is a member of the Commonwealth and our executive is the **Governor-General**. However, the Governor-General defers power to the Prime Minister unless it is necessary to overturn leadership. The **legislative** branch is the **Parliament**, where issues are

separation of powers a model of political power in which the power of a country is divided into three separate areas (executive, legislative and the judiciary); it ensures that no one aspect of government and law can become more powerful than another

executive the government branch responsible for enforcing decisions and laws

Governor-General the chief representative of the Crown in the Australian jurisdiction

legislative the government branch with the power to make laws

Parliament the place and structures for creating laws and forming a government

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.1.2 The Governor-General of Australia, Peter Cosgrove

judiciary the government branch responsible for interpreting laws and administering justice through courts

discussed and laws are made. The **judiciary** is the court system; this branch of power is responsible for upholding the law and punishing those who break it.

The role of Parliament

bicameral consisting of two chambers (houses)

The term 'Parliament' refers to the place and structures of creating laws and forming a government. The Australian Parliament is **bicameral**, meaning it consists of two houses (the House of Representatives and the Senate). Each house has seats that are filled by elected representatives. The House of Representatives (or lower house) has 150 seats and the Senate (or upper house) has 76. Whichever party holds the majority of seats in the lower house controls the government. The leader of that party becomes the Prime Minister.

Changing the Australian Constitution

referendum a vote for any changes to the Constitution; all Australian citizens are required to vote in a referendum, regardless of the state or territory they live in

amendment a change or addition to improve a piece of legislation

As the values of Australians have changed over the decades, the Constitution has changed as well. As the Constitution is the highest law in the country, it is very hard to change it. In order to change the Constitution a **referendum**, in which every citizen of Australia must vote on the proposed **amendment**, must take place. There have been 44 referendums since the adoption of the constitution, but only eight have passed. In 1967 a referendum that recognised the rights of Aboriginal and Torres Strait Islander peoples by including them in the Constitution was passed. This amendment was passed with 91% of the vote. In 1999, a referendum was held to decide if Australia would remain in the Commonwealth or become a republic. The amendment was not passed, with 55% of the vote in favour of remaining a member of the Commonwealth.

DEVELOPING YOUR UNDERSTANDING 7.1.1

1. Define the key terms 'legislative', 'executive' and 'judiciary' in your own words.
2. Outline why it is important to have a separation of powers.
3. Research each level of government (federal, state and territory, and local) and identify at least four different responsibilities each level has.
4. Create for your class a constitution that outlines the roles and responsibilities of your teacher, yourself and your classmates.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.1.3 An aerial view of Parliament House, Canberra

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

History



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



11

Overview: the ancient world

Before you start

Main focus

Originating in Africa hundreds of thousands of years ago, the first humans eventually spread into other parts of the world and established the first civilisations.

Why it's relevant today

The evolution of our shared ancestors in Africa, and how and where early civilisations developed, are key parts of a long and fascinating history from which we can learn about managing our environment.

Inquiry questions

- Where did *Homo sapiens* originate and in which directions did the species migrate around the Earth?
- Why did the first civilisations develop in the places they did?
- Why was the development of agriculture important?
- How were the first civilisations in widely scattered places similar or different?
- How do we know about the ancient past?

Key terms

- Bronze Age
- Cuneiform
- Hominids
- *Homo sapiens*
- Hunter-gatherers
- Neolithic period
- Palaeolithic period

Significant individuals

- Charles Darwin

Let's begin

Around 100 000 BCE, our ancestors, *Homo sapiens*, began to migrate from Africa to Europe and Asia. Gradually, humans spread around the world, arriving in Australia by at least 60 000 BCE. Hominids – from whom *Homo sapiens* evolved – used tools and fire, and early humans were hunter-gatherers. The development of agriculture began around 10 000 BCE. We know about early human cultures from art such as rock carvings, sculpture and pottery, as well as buildings like the pyramids of ancient Egypt.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline

CHAPTER EVENTS

c. 2 000 000 BCE Palaeolithic period (Old Stone Age) begins

c. 100 000 BCE *Homo sapiens* begin to migrate from Africa

c. 60 000 BCE Human settlement of Australia begins

20 000 BCE

c. 20 000 BCE First spear-throwers

10 000 BCE

c. 10 000–3500 BCE Neolithic period (New Stone Age): development of farming and the domestication of animals

5000 BCE

c. 8000–4000 BCE Development of agriculture and silk weaving in China

c. 6500–4000 BCE Beginning of agriculture in Europe

c. 4000–2500 BCE Farming and villages in western India

c. 2700–2200 BCE Pyramids built in Egypt

c. 3000–1500 BCE Stonehenge in Britain and other megaliths in Europe

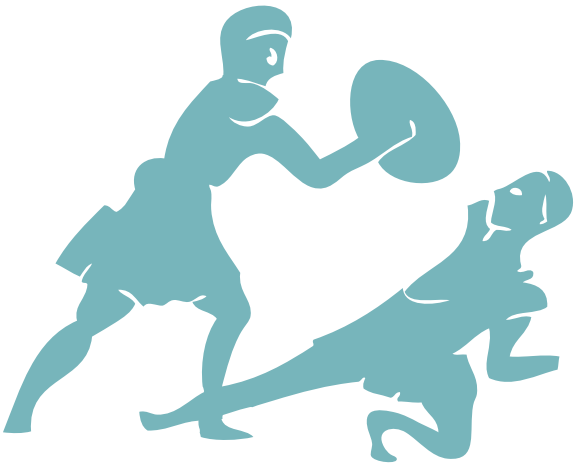
c. 2500–1500 BCE Indus civilisation in South Asia

2000 BCE

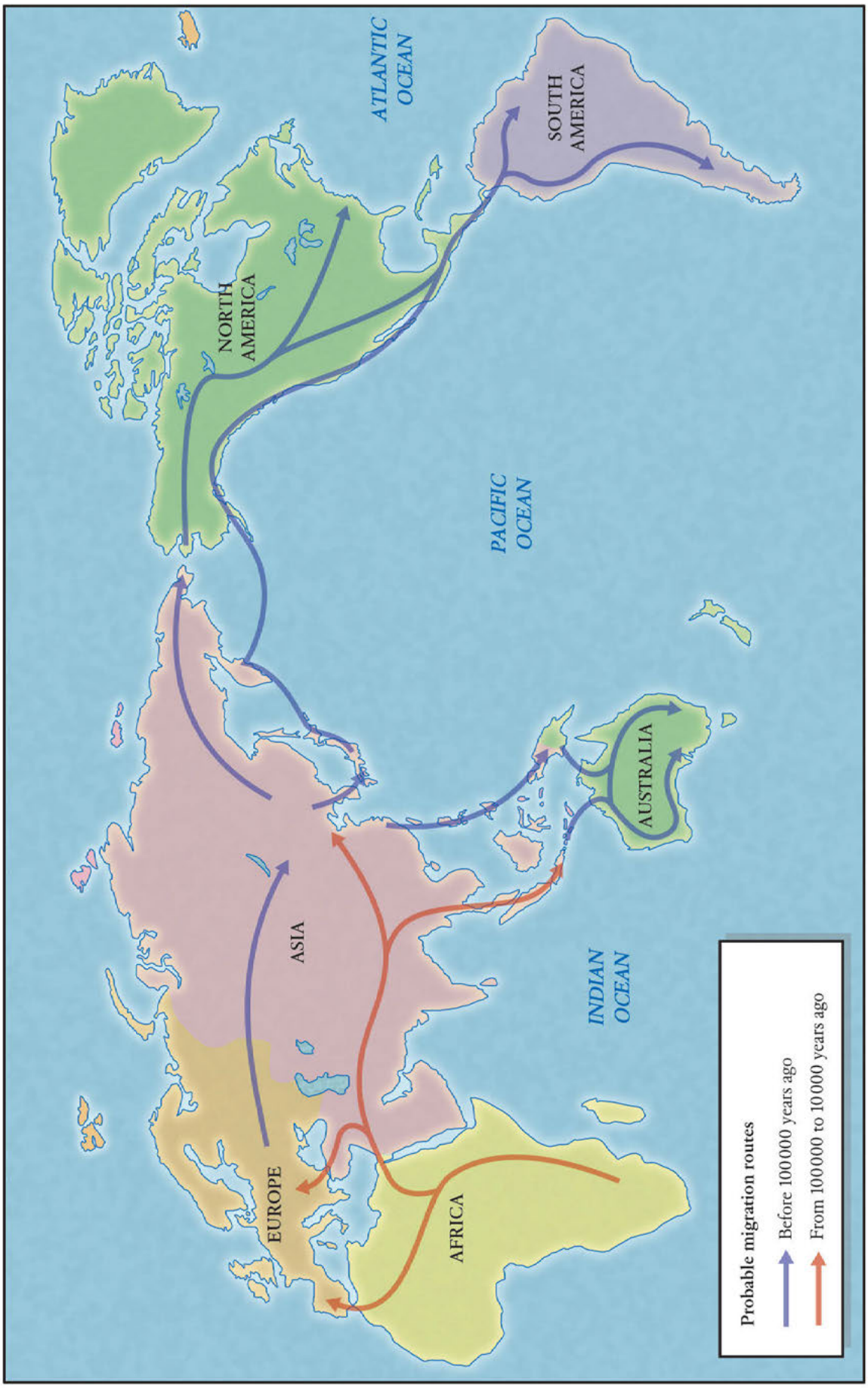
c. 2000 BCE Bronze Age in China

c. 800–700 BCE Rise of Greek city-states

c. 166 CE Roman merchants reach China by sea



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 11.1 Map of the world showing the early human migrations

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

11.1 Out of Africa: migrations of the early humans

primates a group of related mammals that includes humans, apes and monkeys

hominids a family of primates who date back about seven million years

archaeologists researchers who study cultures, especially ancient civilisations, by excavating and describing their remains

Homo sapiens ('wise man') our species of modern humans

Humans have descended from a family of **primates** known as **hominids**. Unlike other primates, such as apes, humans walk upright on two legs. They also have larger brains and the physical capacity for speech. Fossil evidence discovered by **archaeologists** shows that the earliest humans lived in tropical areas of Africa. *Homo erectus* was a species of hominid that existed prior to the emergence of the human species. The first human species (***Homo sapiens***) lived and evolved between 400 000 BCE and 130 000 BCE. What is regarded as the modern human species of *Homo sapiens* evolved around 150 000 BCE.

Early humans gradually expanded their range across Africa, starting in eastern and southern Africa. Some time after 100 000 BCE, humans migrated from Africa to Europe and Asia. Around 60 000 years ago, humans reached Australia. They crossed from Asia to the Americas via a land bridge to what is now Alaska, but it is thought that their spreading down through the Americas around 40 000 BCE to 20 000 BCE may have occurred partly by boat. The South Pacific was reached somewhere between 1100 BCE and 1300 CE.

Evidence of the first humans

The use of tools has distinguished humans from other species, even though some primates and birds are known to use tools as well. Evidence shows the earliest stone tools to have been used by hominids from around 2 500 000 BCE. The use of fire for cooking dates back to 500 000 BCE. Art gives us further important evidence of hominids, with cave art being found that dates from as early as 70 000 BCE.

Palaeolithic period (or Old Stone Age period) an era of hunting and gathering societies and the use of stone tools

Neolithic period (or New Stone Age period) an era marked by the development of farming and the domestication of animals

agriculture cultivating the land, producing crops and raising livestock

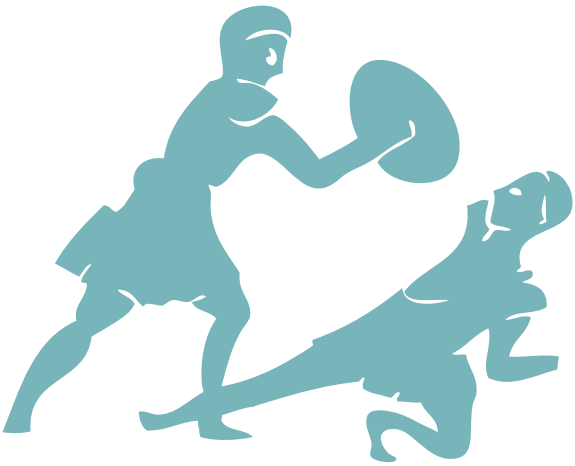
hunter-gatherers humans who foraged and hunted for their food

forage to search for food

nomads people who move from place to place without settling

For millions of years, tools were made from stone as well as bones. The **Palaeolithic period** extended until around 10 000 years ago and was followed by the **Neolithic period**, which accompanied the development of **agriculture**. Early humans shaped weapons for hunting animals and tools for cutting, scraping, digging and grinding. Humans learnt to use metals to make better tools, at first from bronze and later from iron.

During the Palaeolithic period, people were **hunter-gatherers**. They **foraged** for wild fruits, nuts, roots and grains, and hunted animals. They lived as **nomads**, and followed food from place to place as the seasons changed. We are slowly learning about the early human use of fire, for hunting animals and managing the landscape, in places ranging from Africa to Australia. Early humans wore animal skins for warmth, and there is evidence of weaving fibres into cloth as early as 26 000 years ago.



HISTORICAL THOUGHT

Modern humans are remarkably physically alike, despite cultural diversity.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 11.2 A replica of the skeleton 'Lucy', the *Australopithecus* hominid discovered in the Afar Depression in Ethiopia in 1974 and dated to 3.2 million years ago

HISTORICAL THOUGHT

The female skeleton was nicknamed 'Lucy' because the team members played a tape of The Beatles' song 'Lucy in the Sky with Diamonds' repeatedly at their camp.

DEVELOPING YOUR UNDERSTANDING 11.1

1. Using the information here and online resources, identify the four main types of hominid.
2. What advantages did later groups of hominids have over earlier groups in relation to physical and anatomical developments?

Theories and questions of early human life

What defines our humanity? How do we express it? Scholars have identified language and tool-making as key attributes of humanity, but which came first or might be more important is a matter for debate. Other attributes such as larger brain size and erect posture pose similar questions: which came first, and did one lead to the other?

One important question has been settled, though. When Darwin suggested that early human life was the result of an evolutionary process, the main competing theory was that each 'race' of people had been created separately, and in the very places on the globe where they are found today. Scientists have well and truly decided in Darwin's favour.

Scientists have used archaeological evidence to draw the line between animals such as primates

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

and humans based on brain size, ways of moving around, methods of communication and tool-making capacity, but these distinctions continue to be subject to debate. Animals, too, are capable of intelligence and emotional complexity. We share much more than just DNA.

Debate continues on the timing and patterns of the migration of early humans around the world, such as when humans crossed from Asia to the Americas (now generally thought to be about 25 000 years ago) and how they moved from North to South America. Researchers continue to find evidence that raises questions about the social patterns of early human life. For example, recent research used lasers to measure **strontium** in the teeth of human ancestors who lived in South Africa between 2.7 and 1.7 million years ago. The strontium that forms in human molars around the age of 8 years gives clues to geological location. The results suggest that males of the species stayed at home while females travelled further afield. While the spreading out of females may have prevented inbreeding, we do not know whether the males participated in caring for the children.

strontium a metallic element that can resemble calcium

11.2 Establishment of ancient societies



Source 11.3 An ancient Assyrian wall carving of a hand with cuneiform writing

Art and iconography

iconography images and symbols used to represent ideas

Art and **iconography** provide us with invaluable evidence of early human cultures. From around 4000 BCE, farming communities in the valleys of the Tigris and Euphrates rivers in Mesopotamia (now Iraq) invented the wheel for transportation, made pottery and developed art forms. From around 3500 BCE, the Sumerians who invaded this region developed an early form of writing, called **cuneiform**, which was based on pictures.

Sumerian art included **frescoes** and statues in the temples of the Sumerians' gods, and Sumerian architecture included towers. As you will read in Chapter 13, ancient Egypt was rich in forms of art that showed Egyptians' life

cuneiform Sumerian writing that used sharp tools to create wedge-shaped symbols on clay tablets

fresco interior type of pictorial wall painting where the pigment or paint used to create the picture is applied to the wet plaster surface of the wall and then allowed to dry

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

and the natural environment, including paintings in tombs, on papyrus, statues – especially of pharaohs and gods – and amazingly large stone pyramids and statues such as the sphinxes. Ancient China also developed forms of art, such as the remarkable terracotta warriors of Xian, which date from the third century BCE, elaborate pottery and carved jade. In Central America, Mayan civilisation developed and, from before 150 BCE, began to build remarkable pyramids, temples and palaces with much sculpture and many decorations. From such art forms we can learn about the dress, religion, gender practices, food habits, warfare, hunting, pets, sport, and even cosmetics and jewellery of ancient cultures.

Technology and daily life

We have some knowledge of technological developments, such as that metal tools were used from around 4000 BCE. The first tools were made of copper, but soon a stronger alloy of copper and tin came to be used from around 3000 BCE, thus beginning the **Bronze Age**. Iron was first used from around 1500 BCE. It should be remembered that stone and metal have lasted through the **millennia** better than wood or fibre, so that when tools were first made from these materials, and what they might have looked like, are largely unknown. It is also worth remembering that we still use tools made of wood and fibre as well as of metal, and find them just as useful as did our ancient ancestors.

Bronze Age the period when humans began to make items out of bronze

millennium (plural millennia) a period of a thousand years

The word 'technology' has evolved in meaning, and was not much used before the twentieth century. Contemporary usage has limited it to little more than electronics, while most of the modern era has applied it to machines. For ancient times, before electronics and machines, we should think of technology in a different way: as a broad category of things including clothing, shelter, tools, weapons, ornaments, containers and so forth. From this standpoint, it is clear that ancient lives were filled with technology, as are ours today.

Today, archaeologists are using sophisticated new tools to investigate subjects we thought we knew about, showing how much we still do not know. For example, satellites with infrared cameras that can highlight different materials underground recently have identified many pyramids and unexcavated tombs lying buried in parts of Egypt, covered with silt from the Nile. This research shows that we are still learning about the extent and nature of ancient settlements and their buildings.

Just who built the massive pyramids in Egypt is still a matter of debate among researchers, with recent discoveries of workers' tombs suggesting that at least some were free workers and not slaves, as had long been thought.

HISTORICAL THOUGHT

Stonehenge, the prehistoric **megalith** just north of Salisbury in England, was constructed around 2500 BCE. It is a series of concentric circles of massive bluestones that were transported and assembled very carefully. Its design marks the movement of the sun.

megalith a monument made of stone

11.3 Key features of ancient societies

Farming

In the Neolithic age, from around 7000 BCE, some people developed more settled societies, **domesticated** animals for food and **cultivated** crops.

domesticate to tame or to make part of home life

cultivate to raise crops by working the land

Once agriculture developed and reliable food supplies increased, communities expanded in population quite dramatically. Some communities combined hunting and gathering with crop cultivation. In Chapter 13, you will learn about the first farmers in ancient Egypt along the valley of

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

silt rich, fine soil carried in the waters of a river

millet a grain crop with small seeds used for food

yam starchy root plant widely cultivated for food in warm climates

taro the root of a herb cultivated for food in tropical areas

the River Nile, who domesticated animals from around 7000 years ago. The land along the Nile was especially fertile because of the **silt** from the river. Ancient China had several Neolithic cultures from around 6000 BCE, with the cultivation of **millet** in the north and rice in the lower Yangtze valley, and the cultivation of **yams**, **taro** and fruit in southern areas.

The first farming communities developed in north-western India between 4000 and 2500 BCE, followed by the civilisation in the Indus Valley. Various forms of farming developed in different places. In Central America by the early Common Era, Mayan farmers were draining swamps, using irrigation and learning to manage the forests around their villages to produce their own food.

A common feature of agricultural societies was a gendered division of labour and a **patriarchal** system in which men held more power and authority. Hunter-gatherer societies valued the contributions of both women and men to the collection of food relatively equally, even where there were divisions of labour.

patriarchy a social system in which fathers are heads of households, descent is through the male line and men hold more power and authority than women

With the growth of settled farming communities, men became more associated with the production of crops and the ownership of land, and women were seen as less important. While there was considerable variation in women's rights, legal, religious and cultural systems developed in which men and boys were valued more than women and girls.

Trade

maritime trade trade conducted across the sea

Phoenicians seafaring and trading civilisation from the eastern Mediterranean that was active between 1500 and 300 BCE

A common feature of the earliest civilisations was the development of trade with other groups. The location of ancient Greece on the Mediterranean coast, for example, and its island geography, led to the use of boats and the development of **maritime trade**. As you will see in Chapter 14, **Phoenician** society, which developed from around 1500 BCE, traded across distances as far as the British Isles (for tin). By around 600 BCE, the ancient Greeks were importing **commodities** including grain and timber from around the Mediterranean. The **Harappan** culture of the Indus Valley in ancient India engaged in trade from around 2600 BCE, including commodities such as cotton, precious stones and metals. Early trade was facilitated by proximity to rivers and seas. The oldest written records, found on cuneiform tablets, often dealt with trade, as well as the taxation that often followed as rulers sought to make money from it. Trade was also helped by roads and communication systems. The ancient Persian empire, under the rule of Darius I from 522–486 BCE, built a highly developed communications system, including a postal service and a large network of roads that enabled the movement of armies and emissaries as well as traders and their caravans.

commodity an item that is bought and sold, especially a raw material or something that is manufactured, for which there is a commercial demand

Harappan name given by archaeologists to the civilisation that occupied the Indus Valley of ancient India

HISTORICAL THOUGHT

The Hittite people in Anatolia (Turkey) first made iron tools around 1500 BCE. Iron was better than bronze because it is harder and sharper. Bronze is made from both copper and tin.

Social classes

Another aspect of early civilisations was the division of society by rank, occupation, wealth and power. The wealth produced by agriculture and trade enabled societies to support members specialising in jobs such as priests, artists and **scribes**, unlike hunter-gatherer societies where every able-bodied member was required to find food. Leaders emerged, such as the pharaohs of ancient Egypt who enjoyed great wealth and power. In ancient Rome, as you will learn in Chapter 15, patricians were the wealthy ruling elite; plebeians were a broadly ranged rank of free citizens beneath the patricians –

scribe an official who copied documents or did clerical duties

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

including some rich merchants as well as humbler tradespeople – and at the bottom of the heap were slaves, a large, oppressed class of servants who inherited their status or were prisoners of war or convicted criminals. The specific forms of social hierarchy or rankings varied between civilisations. In ancient India, social differences became a caste system, in which people inherit their status and different social ranks have particular occupations, rights and duties.



Source 11.4 This scene from the Tomb of Menna in Egypt shows officials counting wheat while scribes record the quantities, probably for tax purposes.

Religion

fertile able to produce a large number of quality crops; the ability to produce offspring or reproduce

pantheon all the deities of a religion considered collectively

Ancient human cultures developed rituals, often associated with burying the dead and with **fertility** and crop production.

Early civilisations also developed detailed systems of beliefs. The ancient Greeks worshipped many gods, each responsible for a particular aspect of life. Zeus ruled over the **pantheon** of gods who were believed to live on Mount Olympus, about whom many stories were told. They included Aphrodite, the goddess of love and beauty; Athena, the goddess of wisdom and the arts; Hermes, the god of trade; and Poseidon, the god of the seas. Religion in ancient Rome was based partly on the worship of the Greek gods.

In India from about 1500 BCE, the invading Aryan people developed systems of knowledge called the 'Vedas', which became the basis of the religion of Hinduism and spread across the subcontinent.

Much later, around 500 BCE, the Buddhist religion emerged, based on a belief in **reincarnation** and the possibility of attaining **enlightenment**. Buddhism would spread from India to China and elsewhere. Judaism is based on scriptures called the Tanakh, codified between about 400 and 150 BCE, as a **monotheistic** religion of the Hebrew people in ancient Israel. Christianity emerged, initially as a reform movement within Judaism, in the Roman Empire in the first centuries of the Common Era, particularly taking off in the fourth century. Islam, based on

reincarnation living again in a new body or form after death

enlightenment a spiritually enlightened state of being

monotheism a religion that holds there is only one god

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the teachings of the Prophet Muhammad, began in the Arabian peninsula in the seventh century and spread quickly across western Asia and northern Africa.

Rule of law

Early civilisations were marked by the development of language and writing. Some of the first written records relate to codes of social practice and the emergence of laws. The code of **Hammurabi**, c. 1700 BCE, contains 282 laws covering such topics as work, commerce, marriage, family and sexual relations. Pertaining to the Babylonian rule of Mesopotamia, it is the oldest surviving comprehensive legal code.

Hammurabi a Babylonian king who introduced his famous early code of law for the welfare of his people

The success of the vast Roman Empire lay partly in the uniformity of the legal system across its length and breadth. Rome's first legal code, introduced around 450 BCE, helped to establish the privileges and rights of all Roman citizens but also set out some privileges of the patrician class over the plebeians. In ancient China, the Qin dynasty, established in the third century BCE, asserted its rule not only by military means but also through a common system of laws, written script, taxation, administration, weights, measures and currency.

The ancient early civilisations that developed in fertile areas – often river valleys – shared some common features. Settled villages emerged, and farming and the domestication of animals began around 10 000 BCE. People gradually learnt to make better tools from metals. Civilisations traded with other groups and developed gendered divisions of labour and authority, as well as social classes, religious rituals, legal systems, art and technology, language and writing.

Source 11.5 Detail from the code of Hammurabi



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Our species *Homo sapiens* descended from hominids in eastern Africa around 150 000 BCE.
- Some time after 100 000 BCE, *Homo sapiens* spread slowly from Africa to Europe and Asia, and from there down to Australia, across to North America, down through the Americas and to the South Pacific.
- The Palaeolithic period began around 2 500 000 BCE and was a long era of hunting and gathering societies and the use of stone tools.
- The Neolithic period from around 10 000 BCE marks the development of farming and the domestication of animals, though stone tools were still used, with bronze not being used until around 2500 BCE.

Short-answer questions

1 Explain how researchers study prehistory without the aid of written records from that time.

2 Outline three ways in which early humans fed themselves during the Paleolithic period.

3 How was the Neolithic period different from the Paleolithic period?

4 List the common characteristics of agricultural societies.

5 What are significant shared features of early civilisations?

Source analysis

Study Source 11.6 and answer the following questions:

1 Why did early humans make rock carvings such as these?

2 Reflect on what we can learn today from studying such carvings.

Extended-response question

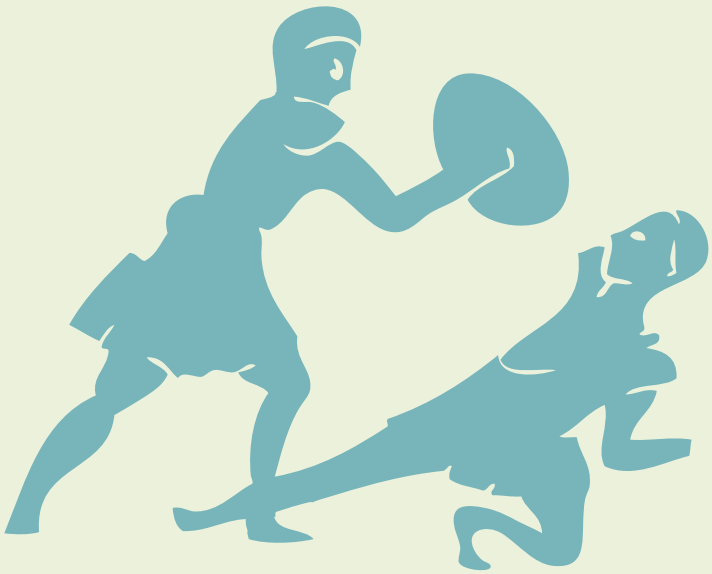
Imagine that you are an archaeologist about to set out on a research expedition. Choose a particular site where archaeologists have made discoveries and conduct some online research. In a short essay, do the following:

- Identify two or three artefacts you might uncover at this site.
- Explain the work that it would take to find them.
- Describe daily life on the site.
- Evaluate what these artefacts can tell us about the civilisation.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 11.6 Prehistoric rock engraving of giraffes, Wadi Mathendous archaeological site, Sahara Desert, Libya, UNESCO World Heritage Site



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Depth Study 1
Investigating the ancient past



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



12 The ancient past

Before you start

Main focus

History is a window into our past: it helps us understand who we are and how we came to be that way.

Why it's relevant today

Knowing about and understanding the ancient past is fundamental to understanding the present. History provides an essential context for evaluating the institutions, politics and cultures of today, and it also provides an insight into human nature and human civilisation.

Inquiry questions

- How do historians and archaeologists investigate the ancient past?
- What sorts of sources do they use?
- What are the defining characteristics of ancient Australia?
- Why should we conserve the remains of the ancient past?

Key terms

- Archaeology
- Artefact
- Historian
- Indigenous people
- Oral tradition
- Petroglyth
- Stratigraphy

Significant individuals

- Arthur Evans
- Augustus
- Galen
- Heinrich Schliemann
- Herodotus
- Jim Bowler
- Livy
- Marcus Aurelius
- Thucydides

Let's begin

History consists of stories about people and what they did in the past so that people in the present can understand why they acted and thought as they did. Historians study the past in order to understand it. They also study how events affected societies and people. To understand the past, historians look for evidence and investigate past events.

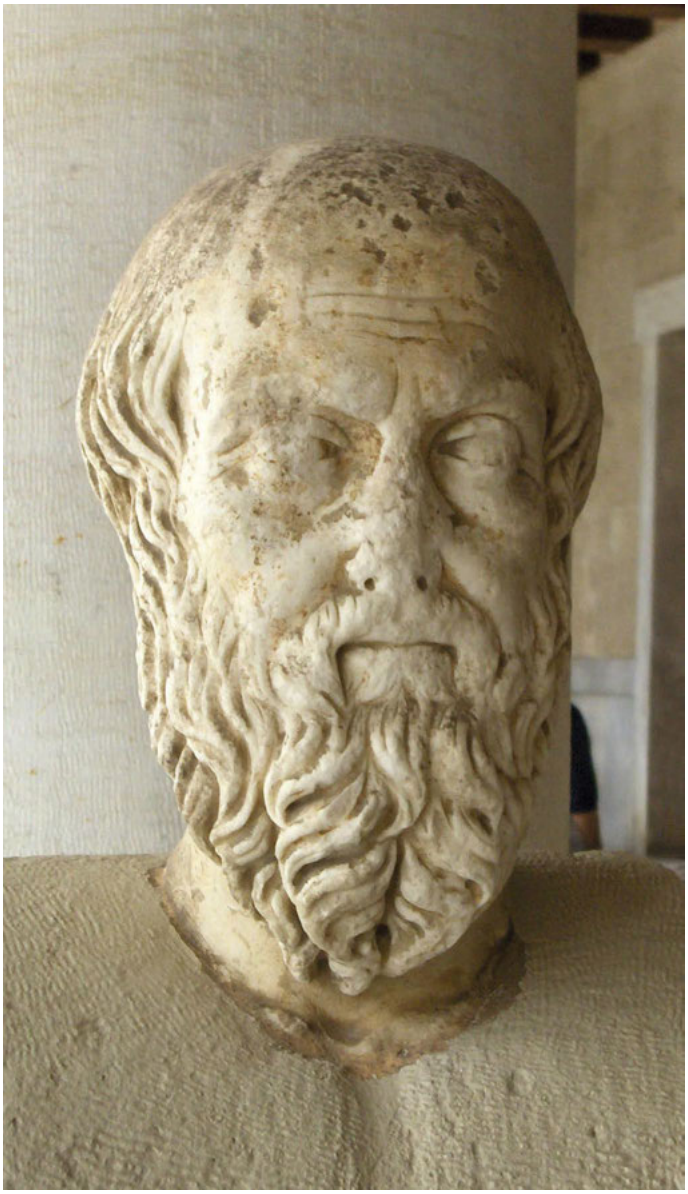
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

12.1 How historians and archaeologists investigate history

What is history and what is an historian?

> Herodotus of Halicarnassus here displays his inquiry, so that human achievements may not become forgotten in time, and great and marvellous deeds may not be without glory; and especially to show why two peoples fought with each other.

Source 12.1 *The Histories* (Penguin, 1996, p. 3)



Source 12.2 Herodotus (c. 484–420 BCE) wrote *The Persian Wars*. He is known as the 'Father of History'.

The word '**history**' was first used by the ancient Greek writer Herodotus. He used it to describe what he was hoping to achieve in his account of the Persian Wars – that is, the Persian invasion of ancient Greece in 490 and 480–479 BCE. His aim was to ask what had happened and why. In doing this, Herodotus made significant changes to the way people wrote about the past. Instead of simply recording names of kings, or events that had happened, Herodotus sought to explain why Persia had invaded Greece. This is called causation, and with it a new intellectual discipline – the writing of history – was invented. To commemorate this contribution, Herodotus has been dubbed the 'Father of History'.

history the study of the past through examining the written evidence of a society

Writing history is an important responsibility. When we are writing history, we are trying to recreate as accurately as possible the stories of peoples of the past and their actions, so that we in the present can understand why they thought and acted the way they did.

It is also important to remember that history is never static: it is constantly changing as every generation of **historians** re-examines the past. Historians ask new questions, add new information that might have been found, and revise existing explanations for historical questions about the past.

historian someone who studies and writes about history

HISTORICAL THOUGHT

The word 'history' comes from the ancient Greek word *historia*, which means inquiry.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Writing history

Writing about past peoples and their societies requires knowing about those times and places. All historians go through a series of steps when they write about the past: collecting information, analysing it and writing their account.

Choosing a topic of research

The first step is to define the topic the historian will be researching and writing about. It might be something broad and vague, such as ancient China; or something a little more defined, such as the evolution of democracy in ancient Athens; or even more specific, such as a cultural phenomenon like Roman triumphs; or an individual such as Cleopatra of Egypt.

Having selected a topic, the historian needs to shape or set the boundaries of their research by asking more questions, otherwise the project could become a nightmare. In other words, an historian will start asking questions and setting boundaries for their research, and this process will continue as the research and writing evolve.

As well as setting the scope of the project, these questions will also shape the uniqueness of the project, because every question historians ask in the process of writing history reflects who they are as individuals.

If we take Cleopatra, a pharaoh of Egypt, as an example, we might refine our interest by asking the following questions:

- Who was she?
- When did she live?
- What kind of upbringing did she have?
- Why is she famous?
- How did she become the ruler of Egypt?
- Was she a good ruler?
- Was she liked by her people?
- Was it acceptable to Egyptian society that a woman was their ruler?
- Being of Greek descent and a woman, did she have to have Egyptian advisers?
- If she did have advisers, who were they and what influence did they have?
- What happened to Cleopatra?

Another example might be Roman triumphs, which were a particularly important feature of



Source 12.3 Cleopatra (69–30 BCE) was of Macedonian Greek descent and was one of only a handful of women who ruled as pharaoh of ancient Egypt.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Roman society. As well as the basic questions of how a general qualified for a triumph, and what happened during a triumph, historians with different interests will ask quite different questions about what a Roman triumph signified.

- An historian interested in military history might investigate the battles that brought about the triumph.
- Another historian interested in religion might examine the religious connotations: why was it necessary to appease Jupiter, the king of the Roman gods?
- An historian interested in logistics might ask how an army that has to parade all day is organised and fed. And what did soldiers do when they needed to answer the call of nature?

DEVELOPING YOUR UNDERSTANDING 12.1

In groups, consider what kind of questions you might want to ask before you start a project on the evolution of Athenian democracy. Compare your questions with the rest of the class and justify them.

Collecting information

Defining a topic is important: it stops us from writing an encyclopaedia about every subject of interest, and it directs how we collect our information. Instead of finding everything there is about Cleopatra or China in the library or on the internet, we look for information relevant to the questions we have set ourselves. We gather that information from both primary and secondary sources. The range of sources available to an ancient historian will be discussed later in this chapter.

Secondary sources

A first and important step in preparing to research a project is to seek out and read appropriate accounts of your area of interest. Without doing this, you are neither appreciating nor taking advantage of what past historians have achieved and written. This process will allow you to understand the different selection of evidence, the varied use of evidence and the different interpretations historians bring to the use of evidence. Without this information, historians would continuously be 'reinventing the



Source 12.4 Rameses II, pharaoh of Egypt (1279–1213 BCE). His armies fought against the Hittites at the battle of Kadesh in 1274 BCE.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

wheel'. However, nor should you adopt the simple way of writing history by collecting one, two or more secondary sources, reading what they say about your topic, synthesising or merging the information, and presenting it as your own work. If your account of the past is to be authentic, you must also seek out primary sources.

Written or literary sources

For an historian, the most important source of information that has survived from the ancient past is literary or written sources. Unlike any other source of information from the ancient past, written sources allow us to see a little more clearly into the mentality of a particular society. But to appreciate a piece of evidence fully, and to extract the best information from it, each piece of evidence needs to be examined or exposed to a range of questions.

- Who wrote it and when, and how close or distant in time was it to the event it describes?
- Is the source authentic?
- Why was the written text produced?
- What information does it provide?
- Is the information credible?
- Does the source tell us where the information it provides came from?
- Can the information the source provides be substantiated?
- What value judgements are apparent in the text?
- What are its overt and implicit messages?

Other difficulties facing historians

Lost texts

Unfortunately, the majority of works written in the ancient past have not survived to the present. Those lost texts can leave an historian with enormous gaps in the material that is available, and can influence our understanding of what happened, shaping how a history is written.



Source 12.5 The *Res Gestae Divi Augusti* (*Achievements of the Divine Augustus*) was published at different places in the empire after Augustus's death in 14 CE.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 12.1

Three of the greatest playwrights of ancient Greece were Aeschylus, Sophocles and Euripides. Go online and do some research on these playwrights, then answer the following questions:

1 Identify when these playwrights lived.
2 How many plays did each of them write? What is the total for all three?
3 Investigate how many of their plays can be read today.

HISTORICAL THOUGHT

The famous ancient Library of Alexandria, which is believed to have been destroyed by fire in 48 BCE, is said to have contained many tens of thousands of manuscripts of writings from ancient Greece and Rome.

Another kind of gap in our knowledge can occur because a society has not produced any written sources about an event, and this can also distort our understanding of an event or period. For example, as we have already discovered, Herodotus has left us a detailed Greek account of the Persian Wars. The Persian kings, in contrast, have not left us their own version of the wars.

As well as these problems, there are texts that have sections missing. For example, treaties between cities were carved in stone so that they could be displayed in public places. Over time, these have often been damaged and parts of the text with crucial information can be lost.

The Roman historian Livy (69 BCE–12 CE) wrote a monumental history of Rome from the 'Foundation of the City' – that is, from the origins of Rome until 9 BCE – in 142 books. Of these, only Books 1–10 and 21–45 survive today.

RESEARCH 12.2

Finds of ancient literary texts can still happen. In 2005, Antoine Pietrobelli was working on old manuscripts from the Vlatadon monastery in Turkey when he found a letter written by the Roman physician Galen (129–217 CE). The letter, known as 'On the avoidance of grief', was thought to have been lost during the Middle Ages. The letter describes the emotional effects Galen felt after a little-known fire devastated central Rome in 192 CE, during the reign of the emperor Commodus (180–192 CE). Galen's letter recounts that the fire burnt for many days, destroying large parts of the city including the Horrea Piperataria, a giant warehouse where Galen had stored his library, his collection of unique medical instruments and his research notes. Also burnt were all the libraries on the Palatine Hill, a great disaster to befall the city.

Another 'Great Fire' that destroyed Rome happened in 64 CE, when the Emperor Nero was in power. Complete some online research and answer the following questions:

1 What caused this fire?
2 How much of Rome was damaged by the fire?
3 Explain why Nero blamed the fire on 'Christians'.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Historians at work

As we have already mentioned, an historian works by asking questions. However, as we are all products of our respective generations, it is inevitable that some of the questions we ask will be 'modern' questions; that is, questions or ideas that have been influenced by modern perceptions and issues, such as political ideologies like feminism and Marxism, and the movement for gay and lesbian rights. This cannot be avoided, and indeed it is one of the ways fresh interpretations are brought to our understanding of the ancient past.

However, investigating ancient societies through modern questions is different from making value judgements about ancient societies using modern values. Examining, analysing and understanding the role of slavery or the position of women is different from labelling those societies 'sexist' or exploitative. That is, we can understand and empathise with the different values and problems faced by ancient societies even while recognising the differences between their values and ours. And we can be conscious of our subjectivity and not let it colour our interpretation of the past based on personal or modern values. Therefore, it is an historian's responsibility to write as accurately as possible with as little bias or prejudice as they can manage.

The first step in writing history involves research: collecting evidence, evaluating that evidence, identifying the strengths and limitations of the evidence, and recognising the limitations of the information that is available.

Next comes the most difficult process of all: writing history. Writing history involves telling a true story of something that has happened in the past. Like all good stories, you need to know:

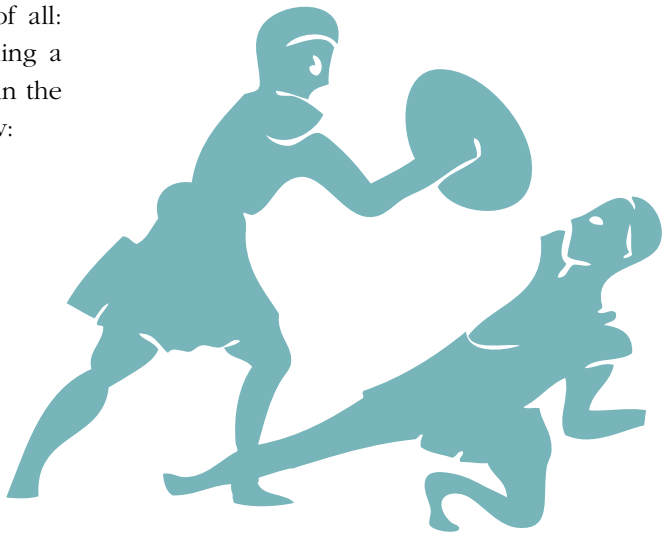
- when and where an event took place
- who was involved
- how or what happened
- why it happened.

The most important step in the process is the last: explaining why something occurred. This is called causation, and will very likely be the basis of your contention or argument.

However, writing about the ancient past also means understanding that no account or version of what happened can be complete. This is because we seldom have a whole picture of what happened, since no event that has occurred can be recorded fully. As we have discovered, sources from the past are themselves inevitably incomplete; the persons recording events in the past chose what to record and in doing so left something else out. What that historian recorded will be considered as fact, and what was ignored may never be thought of or talked about again.

A famous example used by historians to illustrate the instance of fact is the Roman Senate's instructions to Julius Caesar in 49 BCE that he must not enter Italy with an army. That he chose to do so by crossing the River Rubicon in northern Italy meant he was declaring civil war on Rome. The historian who chose to record that incident as significant because it illustrated Caesar's declaration of war marked the incident as a fact.

Writing history therefore involves interpreting, moulding and linking; writing the different but relevant pieces of information into a coherent narrative that explains what happened.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 12.2

Imagine yourself at lunchtime, sitting in the school playground with your friends. Now think about how you would go about describing all the activities happening at the same time. What they are doing? Who they are with? What they are wearing? Where are the teachers on yard duty? How would you go about organising your material? How would you decide what is important to record and what can be left out of your account? Now shift your imagination from the playground to a battlefield that may extend over kilometres, in a battle involving many thousands of men. Keeping in mind your attempt to describe a moment in a game, consider what problems an historian would face in writing an account of a battle they weren't even there to see. Write a short report on what you think these problems could be.

Archaeology and archaeologists

epigraphers researchers who study ancient inscriptions

numismatists researchers who study coinage

archaeologists researchers who study cultures, especially ancient civilisations, by excavating and describing their remains

archaeology the study of the past through excavating and interpreting the remains found

While historians of the past largely work with written sources, they can rely on other sources of information, such as the work of **epigraphers**, **numismatists** and **archaeologists**.

What is archaeology?

Archaeology is the study of ancient things. Archaeology allows us to study human societies through the material culture or things they produced.

Prehistory and history

The discoveries of archaeologists can come from any period of human history, from the first signs of human life on Earth to the present. However, archaeology's most important contribution and value to human knowledge are in studying prehistoric societies, because those societies did not leave any written records for historians to study. Without archaeology, we would know next to nothing about cultures that existed before the advent of writing, apart from what might have been saved by **oral traditions** and religious beliefs, legends and rituals.

oral tradition historical information that is passed on through speech or song

Relationship between archaeology and history

Historians need archaeologists and archaeologists need historians. Although they work in different fields of endeavour, both complement and inform each other's work and both inform us about the past. The information archaeology provides often supplements the knowledge we have from the historical period. Human and material remains can enlighten us about a society's lifestyle, art and architecture, clothing, utensils and tools, medical conditions, and even the food people ate. Sometimes the physical remains have been described in literary texts; more often, they were not written about by ancient authors.

The most famous case of archaeology contributing to our knowledge of ancient society is undoubtedly Pompeii, the city in ancient Italy that was buried and obliterated when the volcano Mt Vesuvius erupted on 20 August 79 CE. Written sources tell us much about ancient Pompeii, its origins, the individuals who lived there, their relations with the ancient Greek cities of southern Italy and later ancient Rome, and even graphic descriptions of the volcano's eruption.

The excavations of Pompeii that began in 1754 added a lot of information that the written accounts did not record. For example, the excavations allowed us to understand the layout of the city and how its political and commercial centre was located in relation to the port and the gates into the countryside. The excavation of

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the houses informed us about their size, shape, distribution of rooms, wall decorations and how they were located in relation to other houses in the street. More dramatically, archaeologists noticed hollow spaces within the volcanic deposits. They quickly realised that this was the result of organic material that had been buried by the ash and had decomposed over time. Archaeologists filled these hollows with liquid plaster, which – once dried – replicated perfect models of furniture, as well as models of the bodies of animals and humans who had died on that day.

How an archaeologist works

An archaeological dig takes a lot of planning and organising. Today, archaeology has become increasingly specialised to include marine, industrial, urban, rescue and environmental archaeology. Each has specific requirements, but there are common features that need to be considered when proposing a dig.

Choosing the site and research

Any number of factors might influence an archaeologist to select a site for investigation. Research is the most obvious way archaeologists decide on what site to investigate. Clues from ancient texts or the work of other archaeologists might indicate the possibility that a site has something valuable to offer. Such was the case in 1874, when Heinrich Schliemann went to the ancient fortress of Mycenae, Greece where he found the famous 'Mask of Agamemnon'. The fortress of the ancient rulers was clearly visible – and, indeed, other archaeologists had searched the site. He was successful because he followed the descriptions of an ancient geographer, Pausanias, and dug within the existing walls.

Physical layout of the land

Schliemann was also famous for finding ancient Troy. When Schliemann started his search for Troy, no one knew where the legendary city of Priam and Hector might be, other than that it was somewhere in the north-west corner of Turkey. Using clues from Homer's poem, 'The Iliad', Schliemann decided the most likely place was a hill called Hissarlik – a hillside in an otherwise flat coastal plain – and between 1871 and 1873 his work there revealed nine major levels of occupation.



Source 12.6 The Temple of Jupiter at Pompeii

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Surface remains

Sir Arthur Evans's excavations at Knossos, Crete were inspired by surface finds of seals, pottery and remains of walls. What he found when excavations began in 1900 was the palace of the Minoan civilisation, dating to the second millennium BCE. The labyrinth-like underground corridors fuelled the myth of the existence of the legendary Minotaur that was killed by the Athenian hero, Theseus.

HISTORICAL THOUGHT

The word 'archaeology' comes from the ancient Greek *archaio*, which means 'ancient' and *logia*, which means 'the study of'.



Source 12.7 Shaft Grave cemetery at Mycenae

Good fortune

Some of the most spectacular archaeological finds have been the result of luck. This was the case in 1974, when farmers digging for a well found the spectacular Chinese 'terracotta warriors', which date to 210 BCE. Some 8800 life-size statues of soldiers, horses and chariots had been buried with Qin Shi Huang, China's first emperor, to accompany him to the afterlife.

Good fortune has also often been the case with findings of Australian remains and **artefacts**. In the 1950s and 1960s, John Mulvaney found the oldest dingo remains in Australia while excavating a limestone rockshelter at Fromm's Landing on the Murray River, South Australia. Then in 1969 and in 1973, he accompanied Jim Bowler to Lake Mungo where '**Mungo Lady**' and '**Mungo Man**' had been found. There he uncovered a fire hearth that was dated to 30 000 years ago.

artefact object made by humans

Mungo Lady/Mungo Man the remains of an Aboriginal woman and man found at Lake Mungo in New South Wales

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Researching the site

Having decided on a site, archaeologists must consider the scope of the project. Issues they would consider include:

- the aim of the dig
- the size of the project
- the size and composition of the team.

Assembling a team and equipment

The team typically includes:

- the director, who is responsible for the project
- an assistant director and/or site director
- diggers who do the work of careful digging and sifting through rubble
- recorders and measurers who record every object found and what it is; they measure it, and note exactly where it was found and what other items it was found with
- photographers and illustrators
- washers, documenters and restorers, who clean the items, then document each find in the project records and give it a reference number
- local workers, who generally undertake the initial digging and shifting of earth and rubble.

Processing the finds

Each step of an archaeological dig is taken in tiny precise steps, so every bit of evidence is recovered. Of course, the process of archaeology means a site is being destroyed or damaged. Consequently, it is critically important that every 'step' is precisely noted. Each level is clearly distinguished; every



Source 12.8 The 'terracotta warriors' buried with the Chinese Emperor Qin Shi Huang in 210 BCE

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 12.9 Students at an excavation project at Pompeii

item is fully documented, by itself and in relation to what is around it. It is then cleaned, photographed, drawn to scale and labelled with a reference number. The daily work is recorded in notebooks that later will be synthesised into a full publication.

By this stage, all the various experts who have been invited to join the project begin their work. Depending on what is found, they could be pottery experts, geologists to examine the layers of soil, architects to record buildings, **anthropologists** to suggest models of social behaviour, epigraphers and **philologists** to record and translate any inscriptions, botanists to analyse plants, numismatists to assess coins, **zoologists** to examine animal remains and **pathologists** to study the remains of humans.

anthropologists researchers who study humans and their societies by concentrating on culture

philologists researchers who study the language of literary and written texts

zoologists researchers who study animals and animal life

pathologists researchers who study human diseases

Who owns the finds?

One condition for gaining a permit to dig in a foreign country is that all artefacts that are found will remain the property of that country. The artefacts then can be stored for future study or display in museums. On occasion, you might visit a museum where you are forbidden to photograph a specific exhibit. Often this is because that item might have been found recently and information about it has not yet been published in a scholarly paper.

RESEARCH 12.3

Look up the Virtual Museum website at www.cambridge.edu.au/hass7weblinks and complete the tasks under the menu heading Interactive Archaeological Dig. Follow the three steps.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Chronology

If we wish to understand historical developments properly, we need to put historical events into a chronological order. This is not a problem in our contemporary era because we have one calendar that is used throughout the world. But that was not the case in the distant past where there were enormous variations between societies, whether they were the same people or peoples of different countries. Not only did they use different methods of counting time but they even differed in the degree of precision or accuracy. For example, in ancient Greece every city-state had a calendar, with its own names for the months that were fixed according to the moon, and even the date of the New Year.

King lists left by ancient societies can provide a chronological framework, but they require accurate counting of the length of reign for each king, the accurate order of the kings' reigns, and then ideally a link to another society to synchronise that society with others. King lists have been left by many ancient societies. The Sumerian King List was written down in the late third millennium BCE. It records the dynasties of 21 city-states of Sumer or ancient Mesopotamia (modern Iraq) over the third millennium. Although the dynasties reigned roughly simultaneously, the creators of the King List recorded one continuous line of kings with the kingship, which was seen as a gift of the gods, passing from dynasty to dynasty.

DEVELOPING YOUR UNDERSTANDING 12.3

Research the Athenian calendar online.

1. How many months did the Athenian calendar have?
2. When did each month begin?
3. List some of the names of the months. What were they named after?
4. How many days were in a month?
5. Did the Greeks have days of the week?
6. Compare the Athenian calendar with an ancient Roman calendar.

Archaeology and chronology

Archaeological finds also can help scholars establish chronological order. Over the past century, a number of scientific methods have been discovered that are now crucial to archaeological dating.

Relative dating

stratigraphy a means of establishing a relative chronology through the levels or strata

strata the individual layers of human occupation revealed by archaeological excavations

Relative dating involves placing finds into a chronological sequence from oldest to youngest and looking for connections. In an archaeological excavation, **stratigraphy** is used to determine the different periods of time. The different **strata** help place artefacts found in a relative order. Strata are counted from the top down – that is, the top layer will be the latest or youngest level of occupation and the lowest layer the earliest. This layering of different levels is called **stratification**.

stratification the classification of different layers of human habitation revealed by archaeological excavations

Usually there are no precise dates unless some clues are found that can fit the objects into a chronological period. This involves organising a particular type of object into items that can be grouped together under different categories.

Absolute dating

Sometimes archaeologists are lucky and find an artefact that has chronological information on it – for example, a coin or a seal with the name of a

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

ruler and even the year of his or her reign. That then helps to fit other objects found in the same context to a fixed date.

Sometimes ancient historians recount important chronological data, such as that provided by the Greek historian Thucydides, who recounted the ancient Greek colonisation of southern Italy and Sicily. In turn, this chronological framework was used by historians to date and coordinate other events happening in the Greek world, and by archaeologists to date the sequence of Greek pottery produced and traded in the Greek world during this time by the different city-states.

dendrochronology (tree-ring dating) a method of dating using the pattern of rings inside a tree trunk

Dendrochronology (tree-ring dating) **Dendrochronology**, or 'tree ring dating', is a method of dating the ancient past using the rings of growth in the trunk of a tree. As trees grow, their trunks expand every year because of a layer of growth known as tree rings.

By counting and measuring the width of rings of live trees and then comparing the data with data collected from older pieces of similar timber – for example, from building sites and then archaeological sites – scientists can plot out dating systems or sequences that can go back thousands of years. For example, the University of Sheffield in Great Britain has established a sequence of dating that goes back to 5000 BCE. If an old piece of timber is found, the rings can be compared with an established sequence of similar timber to establish its date. The more complete the piece of timber is, the more accurate the dating will be.

Radiocarbon dating (carbon dating)

Radiocarbon dating can be used anywhere in the world, and is calculated up to 50 000 years. The larger the sample, the more accurate the dating will be. Carbon-14 is the radiation from the sun that exists in all living organisms on Earth.

radiocarbon dating (carbon dating) measures the amount of radiation, or carbon-14, in an organic or living object

Thermoluminescence dating (TL dating) and optically stimulated luminescence dating (OSL dating)

Thermoluminescence dating is used on materials that have no organic matter, such as silt, quartz, flint, pottery and bricks that have been buried for a long time. This method is used to date materials up to 300 000 years old. The **optically stimulated luminescence dating** process determines the time that has passed since the sediment was exposed to sunlight, thus providing the approximate date when the object was buried.

thermoluminescence dating (TL dating) a method of dating used for inorganic matter

optically stimulated luminescence dating (OSL dating) a method of dating the layer of sediment in which the artefact was found



Source 12.10 A view of the tree rings that help date the age of a tree

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

12.2 Sources that can be used in an historical investigation

Primary sources

A primary source is a document created at the time of the event or subject you have chosen to study. It can be a seal recording someone's name, graffiti or the legend on a coin. Or it can be a letter, an inscription recording a law or a treaty, an historical account of an event, or perhaps drawings – such as in an Egyptian tomb. Any information we can glean from a primary source that is used in the interpretation and writing of history is known as evidence.

Primary sources can be divided into literary and non-literary documents. As we have already discussed, both literary and non-literary sources of evidence are limited in that they are incomplete – and in fact can never be complete – because of the enormous gaps in the information that has survived to the present.

Literary texts

The documents that have survived from the ancient past range from a single word or phrase scratched on to a piece of pottery or seal to extensive religious and literary texts. Written documents are critical because they can tell us many things about a society and its different aspects, and more importantly reveal how a society thought and what it valued – intellectually, religiously and emotionally.

Public or official documents

Public or official documents are those published by the government, which refer to or record the official business of government. They could be treaties, such as the Treaty of Kadesh between Egypt and the Hittites, or inscriptions recording official decrees, such as those issued by the people of Athens or the Roman Senate.

Private documents

This category can incorporate any written document that has been produced by non-government sources. They could be letters or private meditations, such as the philosophical deliberations of the Emperor Marcus Aurelius, *Meditations*, written while he was on campaign against the Germanic tribes in the latter half of the second century CE.

Non-official documents

Non-official documents can involve a broad range of texts, and can inform us about many aspects of ancient societies and their ways of thinking. They can cover a range of fields of writing: religious, scientific, philosophical, medical, instructional and creative, such as plays, poems or even novels; for example, *The story of Sinuhe*, composed in the early twentieth century BCE. Set against a political backdrop – the assassination of the Pharaoh Amenemhet – it narrates the adventures of Sinuhe as he escapes Egypt to seek safety elsewhere. Among the themes of the story is that of longing to return home.

Historical texts

A particular type of ancient text that is considered a primary source is the historical accounts of historians like Herodotus, Thucydides, Livy, Tacitus and others. As we have already seen, most of these writers were recording their history long after the events they were discussing – and indeed they could be considered secondary sources. However, because they were written in the ancient past, they are considered primary sources too.

HISTORICAL THOUGHT

Writing developed independently between 3500 and 3100 BCE in Egypt, Mesopotamia and the Indus civilisations of Harappa and Mahenjo-Daro.

Non-literary texts

As we have seen, historians also rely heavily on the work of archaeologists for information to supplement our knowledge of past peoples and societies. Archaeological evidence can range from human remains to artefacts such as tools, utensils, weapons, pottery, art and remains of buildings.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Human remains

Human remains have always attracted the primary attention of archaeologists because they can tell us so much about past societies and the people who constituted them. Skeletal remains can provide all sorts of information about an individual, and even more broadly about their society, including:

- the physical size or statue of a person
- age and sex
- eating habits
- medical conditions
- burial customs
- reason for death.

On a wider scale, they can help us to trace changes from the earliest nomadic tribes to the period of settlement into communities.

Bodies that have survived for thousands of years, because the physical conditions in which they were found preserved them and prevented them from decaying, have been of much benefit to scholars. These conditions have been bogs, ice and dry deserts.

Egypt, for example, has been a wonderful treasure trove for archaeologists. The hot, dry desert sands have preserved many bodies – often of ordinary people – by allowing the body to dry out naturally, as well as preserving material remains like wood, papyrus and cloth. As well as the desert heat, the Egyptians developed the technique of **mummification**.

mummification a method of preserving a dead body by removing the internal organs and drying out the body

The opportunity to study these bodies has helped scientists to understand the prevalence of different diseases such as spina bifida, arthritis, tuberculosis and different cancers.

Artefacts

The broad category of 'artefact' incorporates an enormous range of material remains that can be associated with every walk of life. Utensils such as combs and mirrors tell us about grooming; seals mark out ownership of sacks of grain and can help plot commercial interests; tools and weapons help us understand the levels of technology and the materials that were available; jewellery such as brooches and pins, precious gems and diadems illustrates concerns with adorning; and votive offerings such as models of eyes and limbs donated to healing temples of gods such as the Greek god Asclepius point to the universal need for good health.

Pottery

Nothing in archaeological remains is more ubiquitous – that is, found everywhere – than pottery. Pottery can come in all shapes, sizes and decorations. It can be shaped by hand or turned on the wheel. It was used for utilitarian purposes such as carrying water and cooking, and storing grain, wine and oil. It was offered as prizes in athletic competitions. It can be plain clay or covered with beautiful, delicate and moving scenes of love, war and death. Decorations – whether incised, shaped or painted – can inform us about everyday life, mythology, religious beliefs and social practices. Pottery sequences have helped archaeologists establish chronological frameworks and track the trading relations between societies.

Art and architecture

Art can come as paintings, sculpture and architecture. After written sources, art is a primary means of understanding the cultures of past societies, their thoughts, emotions and beliefs. The geometric patterns on pottery can be decorative; a statue of Buddha is religious; and the sculptural reliefs on the Parthenon are political propaganda. Scenes of dancing or lamenting point to daily life and religious rituals.

Architectural remains can range from important monumental buildings such as temples to whole towns, including houses of ordinary people. Buildings can be places of worship (such as temples), of recreation (such as theatres and amphitheatres), of living (such as ordinary houses, palaces or even Roman baths) and of work and government (such as the Roman Senate house).

Oral traditions

As well as their material remains, some societies are able to inform us about their cultures through their oral traditions. Oral traditions are relied on by societies without writing systems to pass down information verbally from one generation to the next.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Oral traditions – usually in the form of songs, ballads or stories – can record a society's history, literature, law and social knowledge. In ancient times, famous oral traditions that subsequently were recorded for posterity as poems were the Epic of Gilgamesh from ancient Mesopotamia and the tales of the Trojan War and the travels of the hero Odysseus, retold in Homer's *The Iliad* and *The Odyssey*.

Methods and sources used to investigate an historical mystery: Myrtis

Myrtis: face to face with the past

Modern scientific techniques have helped to solve many mysteries of the ancient past. One such technique is known as the 'Manchester method' of facial reconstruction.

Scientists reconstructing the face of a skull use the bone structure and traces of muscles in the face to work out how deep facial tissue might have been. From that, they create the form and features of the face. This technique has been used in particular to help police investigations identify corpses that have been badly damaged, making them otherwise unidentifiable.

Facial reconstruction has been adapted to ancient peoples, especially the remains of ancient Egyptian mummies. Most famously, it was applied to a skull believed to be that of Philip II, the king of Macedon and father of Alexander the Great.

More recently, a similar reconstruction has been carried out on an intact skull found in Athens in 1994. The skull was buried, together with the skeletal remains of another 150 bodies of men, women and children, in the **Kerameikos** or cemetery region of ancient Athens. According to the archaeologists, the mass grave was poorly prepared, with bodies thrown in together as if the proper rules of religious burial or respect for the dead had not been observed. The pottery finds in the grave dated the burial to 430–426 BCE.

Kerameikos the cemetery of ancient Athens

An X-ray analysis of the skull's remaining teeth indicated an 11-year-old girl. Archaeologists working on the site named the person to whom the skull belonged 'Myrtis'.

Cause of death

The years 430 and 429 BCE were turbulent in Athenian history. Just a year earlier, war had broken out between Athens and Sparta, the two most powerful city-states in ancient Greece. The war ended 26 years later when Athens surrendered to Sparta in 404 BCE.

One possible reason for the eventual defeat was a major epidemic or plague that broke out in Athens in 430/429, claiming the lives of some 50 000 Athenians, including young men of military age, and Pericles, the Athenian leader of the time, who died in 429 BCE.

The nature of this epidemic has puzzled medical scholars for many years, and a number of suggestions have been proposed. Among these have been bubonic plague, influenza and even measles.

Medical scholars now believe the skull has provided the clue to the epidemic. Studies of samples of **deoxyribonucleic acid (DNA)** taken from Myrtis and some of the skeletal remains found in the pit suggest that these people died from an early form of typhoid fever, the symptoms of which match those described by Thucydides.

deoxyribonucleic acid (DNA) found in living things and unique to each person through their genetic makeup

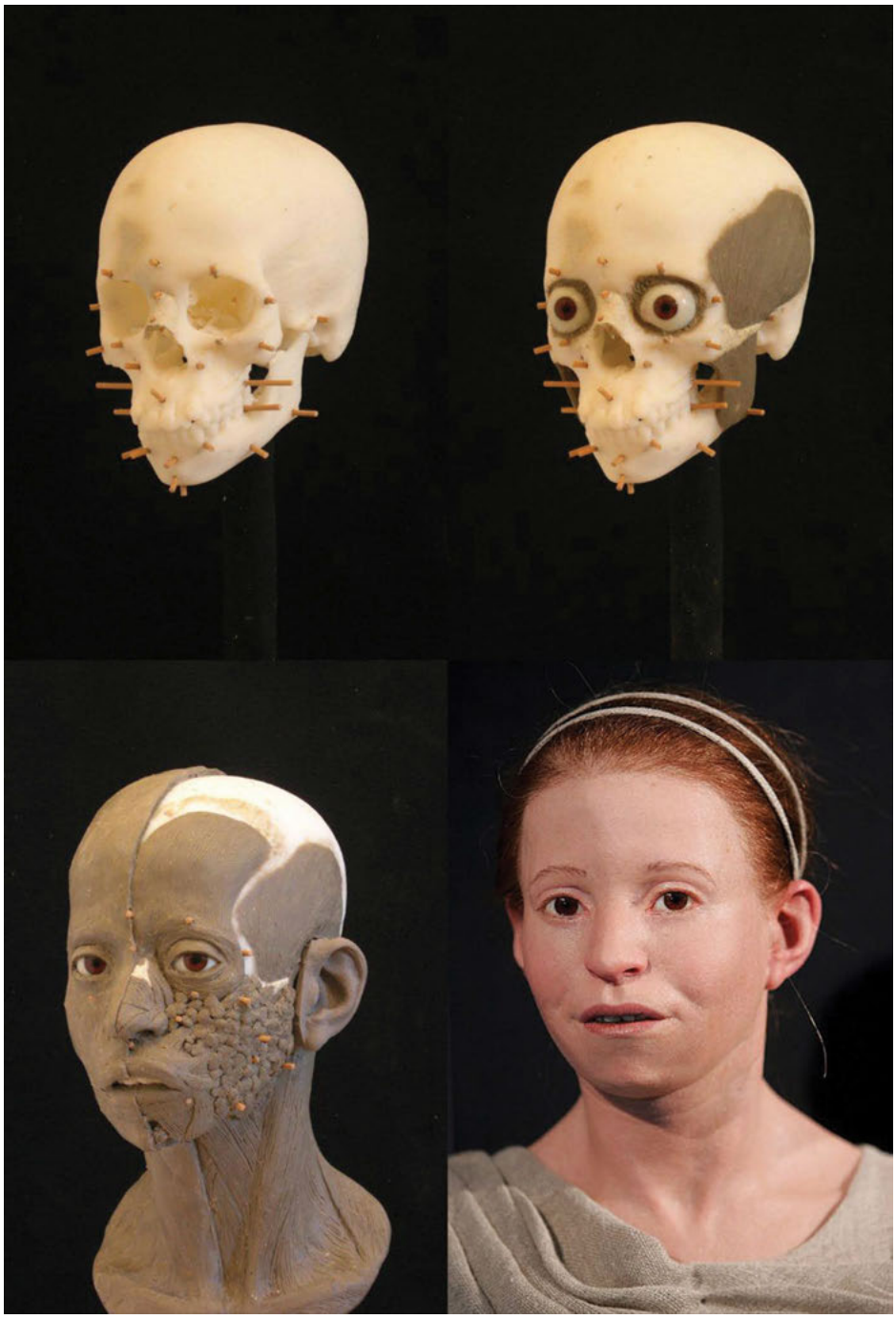
Who was Myrtis?

Apart from her age and sex, we know nothing about Myrtis – not her given name, who her parents were, or whether she was the child of Athenian citizens or slaves. Her body seems to have been thrown into a mass grave, probably by the city authorities trying to bury the many people who had died this horrible and painful death.

Reconstructing Myrtis

Myrtis is the first 'ordinary' person to be studied using the 'Manchester method'. A team of 20 scientists worked with the orthodontist Professor Manolis Papagrigorakis to reconstruct Myrtis's face. Watch a video clip that shows the scientific procedure of the reconstruction of Myrtis at www.cambridge.edu.au/hass7weblinks.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 12.11 Models showing the stages in the reconstruction of Myrtis's facial features

RESEARCH 12.4

Look up Kerameikos cemetery, Athens on the internet and answer the following questions:

1. Plot its location in relation to the centre of ancient Athens, especially the Agora.
2. Where does the name Kerameikos come from?
3. What did the cemetery look like physically?
4. Describe some of the larger tombstones.
5. Identify some of the Athenians buried there.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

12.3 The nature of the sources for ancient Australia and what they reveal

Nevertheless, as with all archaeological study that relies on material remains, there are enormous gaps in our knowledge of the ancient history of Australia. These gaps can never be complete, and that means any interpretations we make are subject to uncertainty, challenge by other interpretations and controversy. This is particularly relevant to Australian prehistory, which has been and remains subject to ideological and political debate related to land rights and identity.

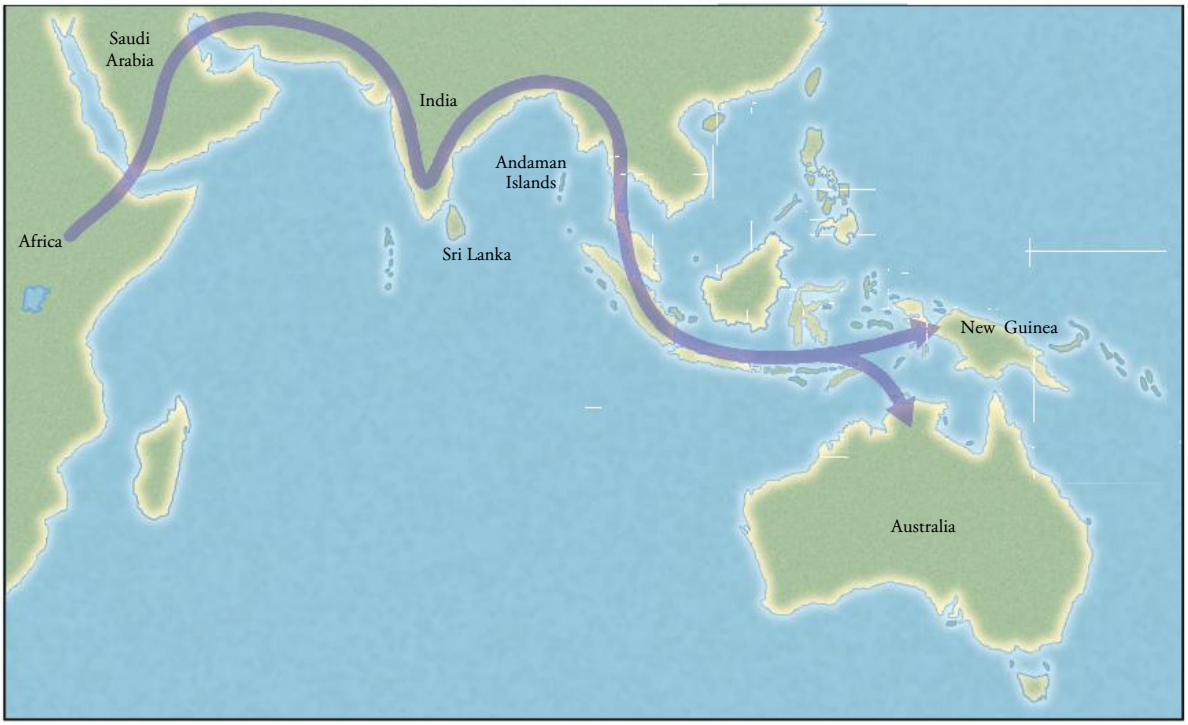
It is estimated that at the time of European settlement, the population of Australia was at least 315 000 people, living in 600 different clans or 'nations' across the continent. The first Europeans' impression of Aboriginal and Torres Strait Islander peoples was of a primitive, nomadic people who still used **Stone Age** tools and lived by hunting and gathering food. Of course, these impressions were totally different from the reality that has since become apparent, especially during the twentieth and twenty-first centuries. Our understanding of ancient Australia and its people has changed dramatically, largely due to the work of archaeologists and other scholars.

Stone Age a term used to describe the period of the human past when stone was the primary material used to make tools

Where from and when?

Our understanding of when Australia was first settled by humans and the origin of these settlers has changed dramatically in recent years. Only a century ago, people believed the Aboriginal presence in Australia was only 400 years old. Today, scholars increasingly are coming to the conclusion that the evidence of human habitation and human remains suggests that people arrived in Australia between 45 000 and 60 000 years ago. However, the discussion is hampered by incomplete information and conflicting evidence, and theories that constantly are being challenged.

One key theory is that the first settlers to Australia migrated south from Asia, particularly Indonesia. More recently, studies around the world using DNA in particular have supported the 'Out of Africa' theory that suggests all peoples throughout the world originated in Africa about 150 000 years ago and slowly spread across the



Source 12.12 The route settlers may have travelled from Africa to Australia

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

globe. Around 60 000 years ago, another wave of travellers left Africa, following the southern coastline of Asia through Timor, eventually arriving in Australia between 60 000 and 45 000 years ago. It is unclear whether there was only one single migration or many smaller migratory groups over many thousands of years.

RESEARCH 12.5

The following websites examine evidence for the 'Out of Africa' theory. Find the links at www.cambridge.edu.au/hass7weblinks:

- the Australian Museum
- National Geographic
- the BBC
- the Bradshaw Foundation.

Investigate the different theories suggested about the origins of human, and the migration to Australia. Why is there so much uncertainty and controversy about this theory? Create a PowerPoint presentation for your class.

Early settlement in Australia

A number of archaeological discoveries in different parts of Australia have been very important in plotting the human history of ancient Australia.

Keilor

In 1940, Edward Gill – who worked for the Museum of Victoria – used carbon-14 to date a skull that his team had found at Keilor on the outskirts of Melbourne, Victoria. The date of approximately 12 000 years old was one of the first accurate datings of Indigenous Australian remains.

Lake Mungo

In 1968, Professor Jim Bowler – who was then a geologist working for the Australian National University – made extraordinary discoveries in the sand dunes of Lake Mungo in south-west New South Wales.

Lake Mungo was a 20-kilometre long and 10-kilometre wide lake that dried up approximately 15 000 years ago. Excavations now show that it was the centre of human occupation for some 50 000 years.

The evidence of human occupation and Activity that archaeologists have found includes:

- ancient fireplaces and hearths
- calcified plant matter
- stone tools
- animal bones
- mussel shells
- a shell **midden** or dunghill
- tracks made by human footprints dated to 20 000 years ago
- the skeletal remains of two people, one of whom had been cremated.

midden deposits of rubbish made up of food, shells, etc.

Lake Mungo 1

Discovered in 1969, 'Mungo Lady' – or more properly, 'Lake Mungo 1' – was an 18-year-old woman who had been cremated before receiving a ceremonial burial, shown by the **ochre** used to decorate her body. Initially, carbon-14 dating placed her cremation to 24 000 years ago.

ochre an oxide found in rocks that is used to make colour pigments, such as yellow and red

More recently, the sophisticated dating technique optically stimulated luminescence indicates a date of 40 000 years ago. Lake Mungo 1 is now one of the world's oldest known cremations.

Lake Mungo 3

In 1974, Jim Bowler found the skeletal remains of another person ('Mungo Man') not too far from the burial place of Lake Mungo 1. While initial DNA testing in the late 1990s had suggested a date of

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 12.13 Lake Mungo, New South Wales, where Lake Mungo 3 ('Mungo Man') was found in 1974

more than 60 000 years for this body, more recent studies now suggest that Lake Mungo 3 also dates to approximately 40 000 years ago.

Devil's Lair

A limestone cave in southern Western Australia has evidence of human occupation that includes fire hearths, bone remains and stone artefacts, all dated to over 40 000 years ago.

Murray River Basin

Deposits of mussel shells around the River Murray Basin in South Australia suggest human occupation to around 40 000 years ago.

Lake Gregory

In 2008, a piece of stone that had had flakes broken off it to make a tool was found in a distinctive layer of sediment at Lake Gregory on the edge of the Great Sandy Desert in north-western Australia. Optical stimulated luminescence analysis dated the sediment to between 45 000 and 50 000 years ago.



Source 12.14 A piece of stone from which flakes have been broken off to make a stone tool, found at Lake Gregory

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

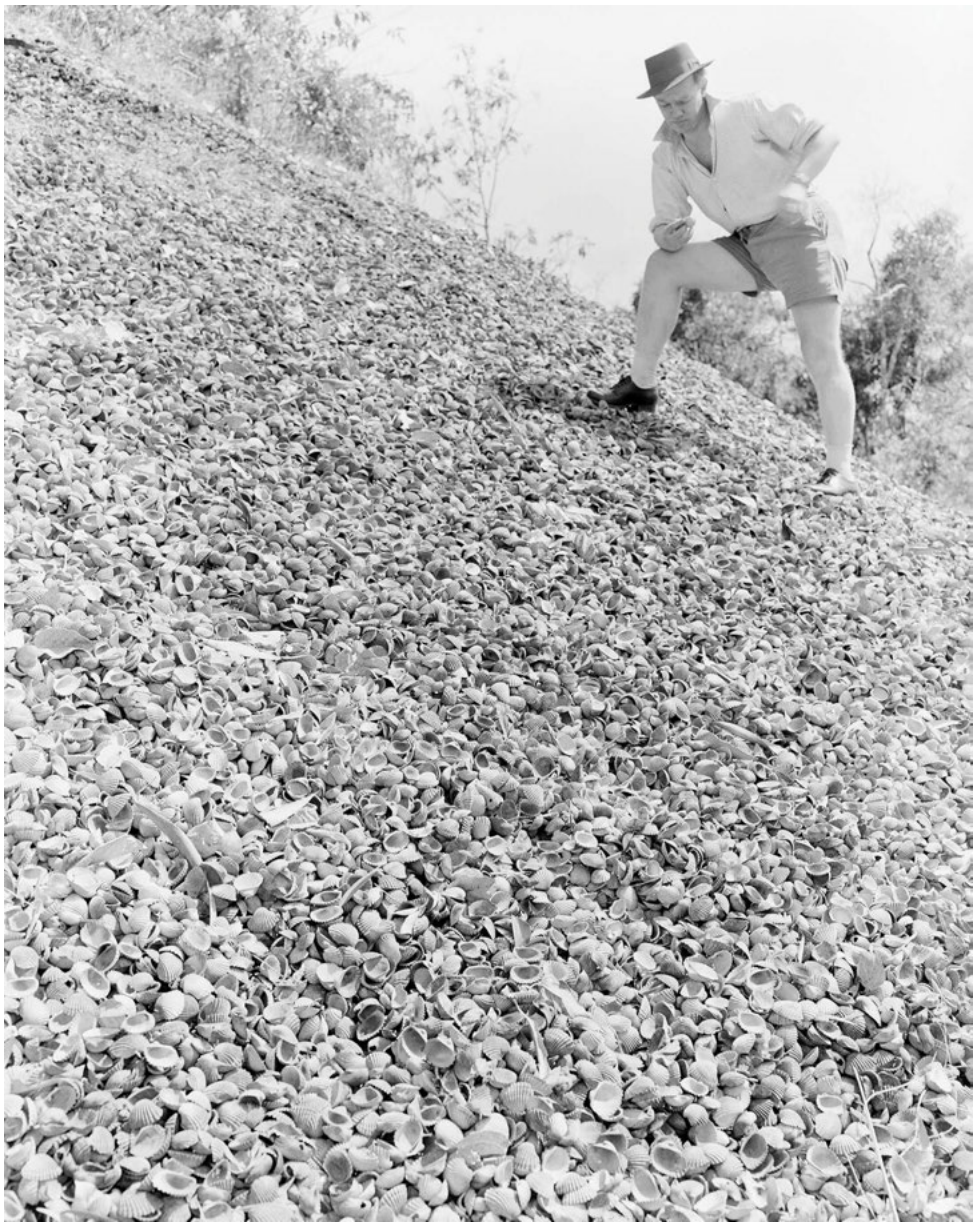
12.4 Archaeological remains as sources

Remains left by ancient communities have helped us understand the long presence of Australian **indigenous people**, and how they adapted to the Australian environment. For example, the wealth of human, animal, marine and floral remains around Lake Mungo points to a life of abundance between the last **ice age** that affected Australia (approximately 50000 to 60000 years ago) and the onset of droughts that turned the lake into sand dunes around 20000 years ago.

indigenous people those who are native to a region or country; a capital letter (Indigenous) is used to refer to Australian Aboriginal or Torres Strait Islander peoples

ice age a period of time when large parts of the planet were covered by ice

Furthermore, the ritual burial – especially of Lake Mungo 1 – suggests that ideas and values had been established about the significance of death. In 2010, archaeologists from Monash University in Melbourne made an amazing discovery in the rock-shelter Nawala Gabammang in south-western Arnhem Land, in the Northern Territory. There they unearthed a rock axe that had been sharpened by grinding the cutting edge; it was dated to 35000 years ago. While stone implements had been used for millions of years by our ancestors, this was the earliest instance of a piece of stone being sharpened on purpose to create a sharp tool.



Source 12.15 Shell midden at Weipa, Queensland, 1958

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Trade routes

Trading between communities and across the length and width of the continent was a very important part of life in ancient Australia. Trade provided communities with highly prized items that were not easily found in their own area. Trade also assisted the development of respect for the rights and sharing of the cultural values of other communities. The goods were carried over Dreaming trails or trade routes that criss-crossed Australia.

Among the special trading items was the rare melo shell. Found on the east coast of Cape York Peninsula in Queensland, the melo shell was moved over established trade routes to South Australia. In return, valuable red ochre that was mined in the Flinders Ranges in South Australia was carried through Central Australia to Queensland. The same happened with *pituri*, a form of tobacco drug that was used in ritual ceremonies.

Resources

To Aboriginal and Torres Strait Islander peoples, the land represents a spiritual connection with their ancestors, as well as providing resources such as food, clothing and materials needed for technology and building. As inhabitants of the land for 40 000 to 60 000 years, Aboriginal and Torres Strait Islander peoples had learnt how to manage the land effectively so that resources were renewed rather than exhausted. This involved knowing the plants their area supported and the animals that grazed and lived in the area, such as kangaroos, wombats, goannas and lizards. The different foods that were available altered with the seasons and the area to include nuts, wild berries, fruits, edible leaves and plant roots.

Aboriginal and Torres Strait Islander peoples' understanding of the ecology was obvious through the use of 'firestick farming' for many thousands of years. They used fire to clear thick vegetation and promote fresh growth. Over time, the use of burning changed the landscape, as large areas of forest were replaced with open grasslands that were more convenient for hunting, and with the spread of plants that were more resistant to fire, such as grass trees, eucalypts and acacias.

Fishing was also very popular, as seen from the extensive archaeological evidence of fish traps made of stone found in riverbeds; trees bearing signs of scarring caused by the removal of the bark for building canoes, making shields and building huts; and shell middens discovered along rivers, beside lakes and on the coastline.

Archaeologists have studied the deposits of shell middens for all kinds of reasons. Middens can provide information about the kinds of food that were available to the people; clues about the technology they were using; and a guide to the general use of the area – such as the length of time the area was being visited and occupied by people.

'Dreaming'

Aboriginal and Torres Strait Islander peoples' history has been passed down from generation to generation through oral tradition. Aboriginal oral tradition commonly falls under the name of 'Dreaming'. A similar concept with other names stands at the heart of Torres Strait Islander spirituality.

Dreaming is integral to the history and way of life of Australian Aboriginal people. The stories of the Dreaming encompass faith, knowledge and ritual, and are reflected in oral traditions, song, dance and art. The Dreaming links the Aboriginal people to the land, as it is believed the land was created by ancestral Creator Beings that made both the land and the people, and gave them language, law and the proper way of behaviour. It is used to educate the young generations, explain the history of the land and its people, and give practical knowledge of the culture. The stories are both common, public stories, and men-only and women-only secret stories – usually concerning religious ceremonies and initiation.

One such story concerns the Djanggawul Sisters, who are considered the ancestors of the peoples of north-eastern Arnhem Land in the Northern Territory. The two sisters came to Arnhem Land from the Land of the Dead. In Arnhem Land, they created birds and trees, gave shape to the landscape and names to places. They also gave birth to the first people.

Indigenous rock art

Rock art – both paintings and engravings – has been found all over Australia. Some examples, such as

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

those at Kakadu National Park, are accessible to tourists. Most, however, are located in very remote areas of Australia and are spread across hundreds of thousands of square kilometres. The rock art fulfilled religious and secular roles. It displayed Dreaming stories, marked territorial boundaries, served as a rite of passage, and contained information about tribal secrets and laws.

HISTORICAL THOUGHT

Aboriginal and Torres Strait Islander peoples' art is regarded as the world's longest, continuous art tradition, lasting over 40 000 years.

RESEARCH 12.6

Find a Dreaming story that you find interesting.

1. Read and summarise it.
2. Investigate the part of Australia and the people to which it refers.
3. Explain its significance to your class in a brief oral presentation.

Burrup Peninsula

petroglyph rock art that is made by carving or engraving (pecking) the image into a rock face

A remarkable art form found in West Australia is the rock carvings or engravings known as **petroglyphs** on the Burrup Peninsula in the Pilbara region. The images were created on the rock faces by incising or carving – or pecking – into the rock face.

This area is extremely rich in images, with many hundreds of thousands of art pieces engraved on an estimated 10 000 to 18 000 sites, showing an extraordinary range and diversity of images. Many of the sites have yet to be documented.

Made by the ancestors of the Ngarluma people, this is an area of very great significance to these people, as the Ngarluma people believe the rock



Source 12.16 Rock carving from Burrup Peninsula showing a thylacine (Tasmanian tiger); this species was made extinct in Tasmania in the 1880s.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 12.17 Gwion Gwion rock art showing human figures

carvings are the work of the ancestral Creator Beings of the Dreaming, and that they relate mythology and law. There is a wide range of subject matter, including geometric patterns, animals and birds, and humans, as well as mythological beings. A particularly interesting image is of the thylacine or Tasmanian tiger, which became extinct on the Australian mainland about 3000 years ago.

Archaeological estimates place this body of art from 10 000 years ago. It complements the rich archaeological evidence already found in the Pilbara regions – campsites, quarries, shell middens and stone tools – that attests to human occupation of the region dating back 30 000 years.

Gwion Gwion

Another spectacular example of rock art is the Gwion Gwion rock paintings that were first documented by Joseph Bradshaw in 1891 and are also known as the Bradshaw Paintings. Covering an enormous area of land in the North Kimberley of Western Australia, this very distinctive art form is also largely undocumented.

The images – often found in caves and under rock shelters – are painted predominantly with red ochre, black, brown, yellow, white and pale blue. They depict day-to-day life and images of boat travel, groups hunting and deer. Most striking are the unique depictions of human figures that are drawn with slim bodies and long limbs. They wear distinctive head-dresses and other tassel-shaped bodily decorations attached to their hair, neck, waist, arms and legs.

Who painted this remarkable art is a matter of great debate. According to the tradition of the Ngarinyin people, the art is part of their heritage and identity, and goes back to the very beginning of time. They believe that Gwion Gwion was a 'spirit man' connected to their initiation ceremonies.

Attempts to date this art have fuelled the debate because of the contradictory conclusions reached. Carbon-14 dating suggests the art belongs to between 1500 and 4500 years ago. In contrast, luminescence dating techniques suggest no less than 17 000 years. More recently, Graeme Walsh – who has studied these works extensively – suggested a dating of at least 60 000 to 75 000 years ago, which would make the Gwion Gwion art the oldest figurative painting in the world. In his opinion, this unique art style was the work of an earlier non-Aboriginal people who had settled in the Kimberley region, and who eventually were displaced by the arrival of later peoples.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

12.5 Conserving the remains of the past

All of us are interested in our history and our past. As we have seen, the past represents our heritage and who we are as a people. It is not enough to read about the past in history books; it is also important to see the physical remains of the ancient past, to imagine ancient societies, to be amazed by what the peoples of the past have achieved. It is the responsibility of every individual and every government to preserve our heritage for the future.

Museums

The main repositories of a national heritage of a society are museums, whether they are run by the state, by interested organisations or by individuals with a passion for collecting artefacts of the past.

The rise of great national museums largely happened in the eighteenth and nineteenth centuries, as European powers such as Britain, France, Germany and Spain acquired territories overseas. As controlling powers, many extraordinary artefacts were removed – some with permission, others illegally – and donated or sold to these great museums, to form the bases of their fabulous collections.

In recent decades, considerable debate and controversy have arisen as countries from which these archaeological treasures were removed have requested their return. Greece has mounted a concerted campaign for the return of the Parthenon Marbles by the British Museum, and Australian Indigenous communities have gone to court to have the human remains of ancestors that somehow have ended up in museums overseas repatriated or returned for burial in Australia.

HISTORICAL THOUGHT

The word 'museum' comes from the Greek word *museion*, the temple dedicated to the Nine Muses, where the ancient Greeks deposited statues and treasures.

Australian collections and sites

Two centuries of research and collecting by archaeologists, anthropologists and others have resulted in important collections of Aboriginal and Torres Strait Islander peoples' artefacts in Australian museums in all the capital cities. Important repositories include the Australian Museum in Sydney, which holds many millions of specimens of natural science and cultural artefacts, and the South Australian Museum. Both hold significant ethnographic and archaeological materials representing Aboriginal and Torres

RESEARCH 12.7

Use the internet to look at the collections of two or three national museums. Look at what each museum boasts is its prize collection. Investigate where they came from and, where possible, how each collection was acquired. Compare your notes with your class.

Questions for class discussion

1 Why would countries like Greece think it important to regain ownership of artefacts that are in contention?
2 Do museums like the British Museum have any right to keep these collections in their possession?
3 What agreements could nations such as Britain and Greece reach that would be satisfactory to both parties?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Strait Islander cultures. In Canberra, the National Museum of Australia's exhibitions cover the 50 000 years of indigenous heritage and are thematically arranged. They trace spirituality and identity, and indigenous use of the environment.

Monuments and archaeological sites

Once archaeologists have completed their work on a site, a number of steps need to be taken to preserve it. On many occasions, because the site is not considered to be of 'tourist' significance, the dig is refilled to be available for possible re-examination by future archaeologists.

On other occasions, the site or monument is of great cultural significance and is opened for public viewing. Monuments and sites are important because they are reminders of past events, persons or actions. They are places where moments of history might be revealed or understood. However, monuments and archaeological sites face mounting difficulties.

Tourism

Many sites are accessible to visitors interested in the ancient past. This is particularly the case where major architectural buildings or town layouts have been excavated, such as Stonehenge in Britain or Ephesus in Turkey.

While modern governments have realised the commercial advantages brought by tourism, the advantages come with a number of threats to the preservation of a site. Over the centuries, tourists have caused – and in many places continue to cause – the greatest damage to archaeological sites, particularly as tourist numbers continue to rise. This damage comes from general wear and tear, vandalism and souvenir collectors. Many sites are supervised, but many more are not, and these are the most vulnerable. One such Australian site that is vulnerable to tourism is Uluru, which continues to be a magnet for tourists who wish to climb it, despite the expressed (and signposted) wishes of the Anan gu traditional owners.

Environmental damage

Equally damaging is the effect of climate and pollution. At Pompeii, the effects of an earthquake in the 1980s, which damaged many of the buildings, have not been repaired, and as a consequence structures continue to deteriorate. Furthermore, over the years acid rain has caused the discolouration or fading of 80% of Pompeii's exposed wall paintings. In Pakistan, salt corrosion and a rising water table are damaging the mud-brick walls of the third millennium BCE city of Mohenjo-Daro.

Lack of money

The damage caused by visitors and the environment is compounded by the high cost of maintaining and protecting an archaeological site. Insufficient funding by governments means adequate numbers of personnel cannot be employed to maintain and guard the monuments and sites. In some cases, the total disinterest of, and neglect by, governments results in the slow obliteration of sites. This is the fate of parts of the temple complex of Angkor Wat in Cambodia, which is being reclaimed by the surrounding jungle.

The question of restoration

When Sir Arthur Evans excavated Knossos at the beginning of the twentieth century, he also undertook the restoration of sections of the palace complex and some of the famous frescoes, such as the 'Prince of the Lilies'. While early visitors were probably enthralled by what they saw, modern commentators have criticised Evans's efforts, especially the reconstruction of the frescoes, as being an eyesore and inaccurate.

The question of how far or how much restoration should be undertaken on a monument or archaeological site is one that incites much debate. On one side are those who argue that monuments should be left as they have been found, and on the other are those who think some restoration is acceptable, especially if it helps the viewer reconstruct in his or her imagination some idea of what a monument might have looked like.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 12.18 The reconstruction of the 'Prince of the Lilies' fresco from the Minoan palace at Knossos, Crete

UNESCO World Heritage Sites

UNESCO Heritage Sites cultural and natural sites around the world that are listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being of outstanding value

One organisation that has recognised the importance of preserving ancient sites is the UNESCO World Heritage program. The program had its beginning in 1972 with the signing of the Convention Concerning the Protection of World Cultural and Natural Heritage.

By 2011, UNESCO had over 900 sites on its protected list, from countries all around the world. In Australia, these include sites such as Kakadu and Lake Mungo.

To warrant registration on the UNESCO World Heritage List, an ancient site or monument must be considered to be of 'outstanding universal value'. This is determined by satisfying two out of 10 criteria that since 2011 have been applied equally to cultural and natural heritage. In order to meet the criteria that apply to ancient sites and monuments, a nominated site must:

- be a masterpiece of human creative genius
- reflect important human values through developments in architecture or monumental arts or town-planning – as can be seen in a site such as Agrigento in Sicily, Italy, which shows town planning being applied to an early Greek colony

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

- demonstrate a unique cultural tradition of an ancient civilisation – such as Petra in Syria
- be an outstanding example of a type of building that illustrates a significant stage or stages in human history – such as the Parthenon in Athens, Greece
- show traditional human settlement, or land use or sea use, that is representative of a culture (or cultures), or human interaction with the environment – such as the Willandra Lakes region in Australia
- be associated with ideas and beliefs reflected through artistic and literary works – such as rock painting at Kakadu National Park, Australia.

One of UNESCO's most famous rescue operations was the open-air Museum of Nubia and Aswan, more commonly known as the Temple of Rameses II at Abu-Simbel. The temple was built into the rock face on the banks of the River Nile in the thirteenth century BCE by the Pharaoh Rameses II of the Nineteenth Dynasty as a statement of Egyptian power. It, as well as many other monuments in the area, was placed under threat of submersion and obliteration when the Egyptian government began the Aswan High Dam Project in the late 1950s. Between 1960 and 1980, UNESCO, supported by 50 countries, undertook the project of relocating these monuments to higher ground. The success of this project led to the adoption of the World Heritage Convention in 1972. Footage of the project is provided by UNESCO which you can see at www.cambridge.edu.au/hass7weblinks.



Source 12.19 The World Heritage listed Temple of Ramses II at Abu Simbel, Egypt, with Lake Nasser in the background

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

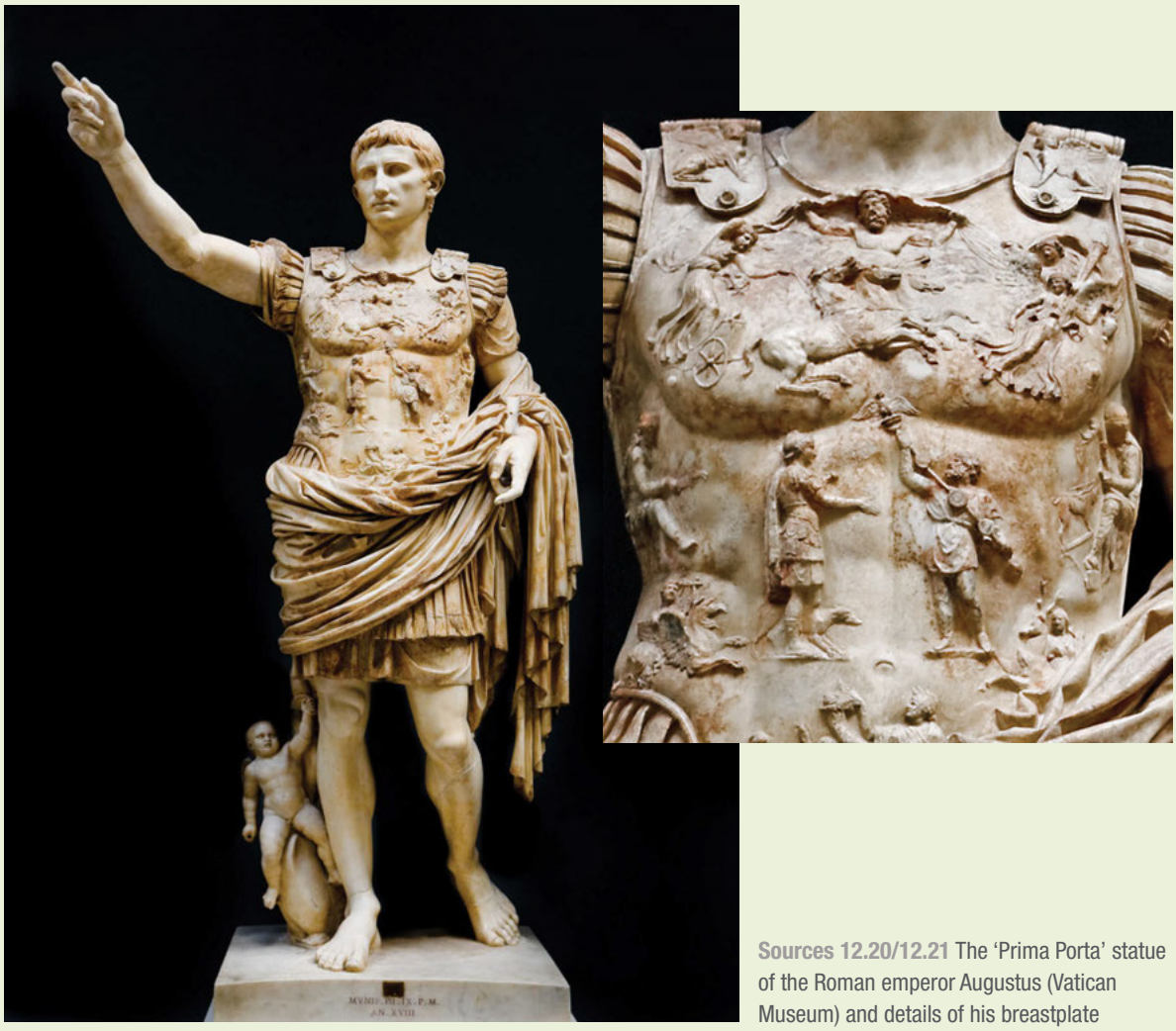
- Historians work primarily with written sources to understand the past. However, to gain full value from their sources, they need to test those sources with a range of questions.
- The contributions of archaeology to our understanding of the ancient past cannot be underestimated, as they often fill out parts of the picture left blank by written sources.
- Accurate chronology is a key factor in writing history. It provides the framework for understanding the past as a continuing stream into the present.
- The presence of Aboriginal and Torres Strait Islander peoples in Australia going back more than 40 000 to 60 000 years makes it the longest continuing society in the world.
- The past is our heritage, and it needs to be preserved for the future.

Short-answer questions

1 Explain why it is important for historians to evaluate their sources.

2 What is the difference between 'prehistory' and 'history'?

3 List three ways archaeologists select sites for excavation.



Sources 12.20/12.21 The 'Prima Porta' statue of the Roman emperor Augustus (Vatican Museum) and details of his breastplate

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

4 What is the difference between absolute and relative dating?

5 Name two different forms of rock art that can be found in Australia.

Source analysis

Study Sources 12.20 and 12.21, and answer the following questions:

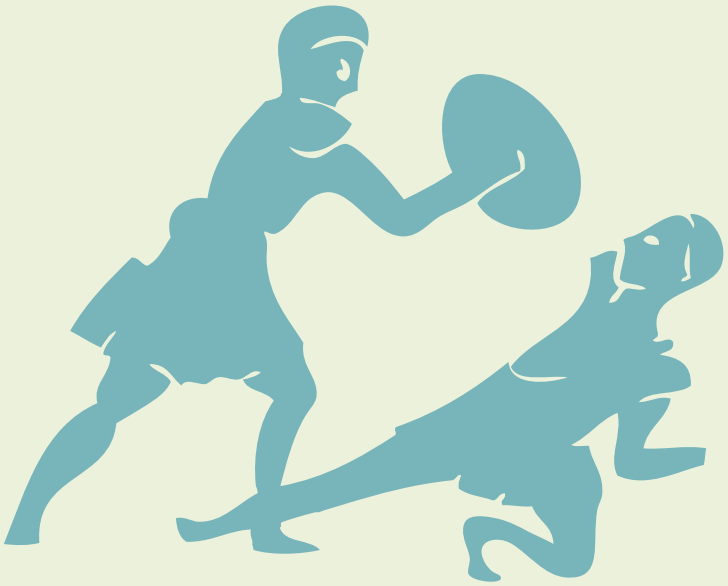
1 The statue of the Emperor Augustus was carved after his death when he was a very old man. What do you notice about his appearance that is at odds with this information?

2 Look at the scene depicted on the armour Augustus is wearing. What kind of information would we need to know to understand its meaning?

3 What kind of message is Augustus trying to send through this statue?

Extended-response question

Describe how historians and archaeologists contribute to the writing of history.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Depth Study 2
The Mediterranean World



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



13 Ancient Egypt

Before you start

Main focus

A peaceful and productive society, ancient Egypt developed many of the main skills of civilisation.

Why it's relevant today

The ancient Egyptians demonstrated that people can develop a strong and wealthy society if they learn how to adapt to their environment, and if they creatively use the resources available to them.

Inquiry questions

- Why was such an advanced civilisation able to develop in the hot, dry desert land of Egypt?
- How did the Egyptians organise their government and society?
- How did the ancient Egyptians' beliefs affect the way their civilisation developed?
- How do historians know about the lives of people in ancient Egypt?
- How have the achievements of the ancient Egyptians contributed to the development of later civilisations?

Key terms

- Afterlife
- Civilisation
- Dynasty
- Inundation
- Mummification
- Pharaoh
- Pyramid
- Regent
- Sarcophagus

Significant individuals

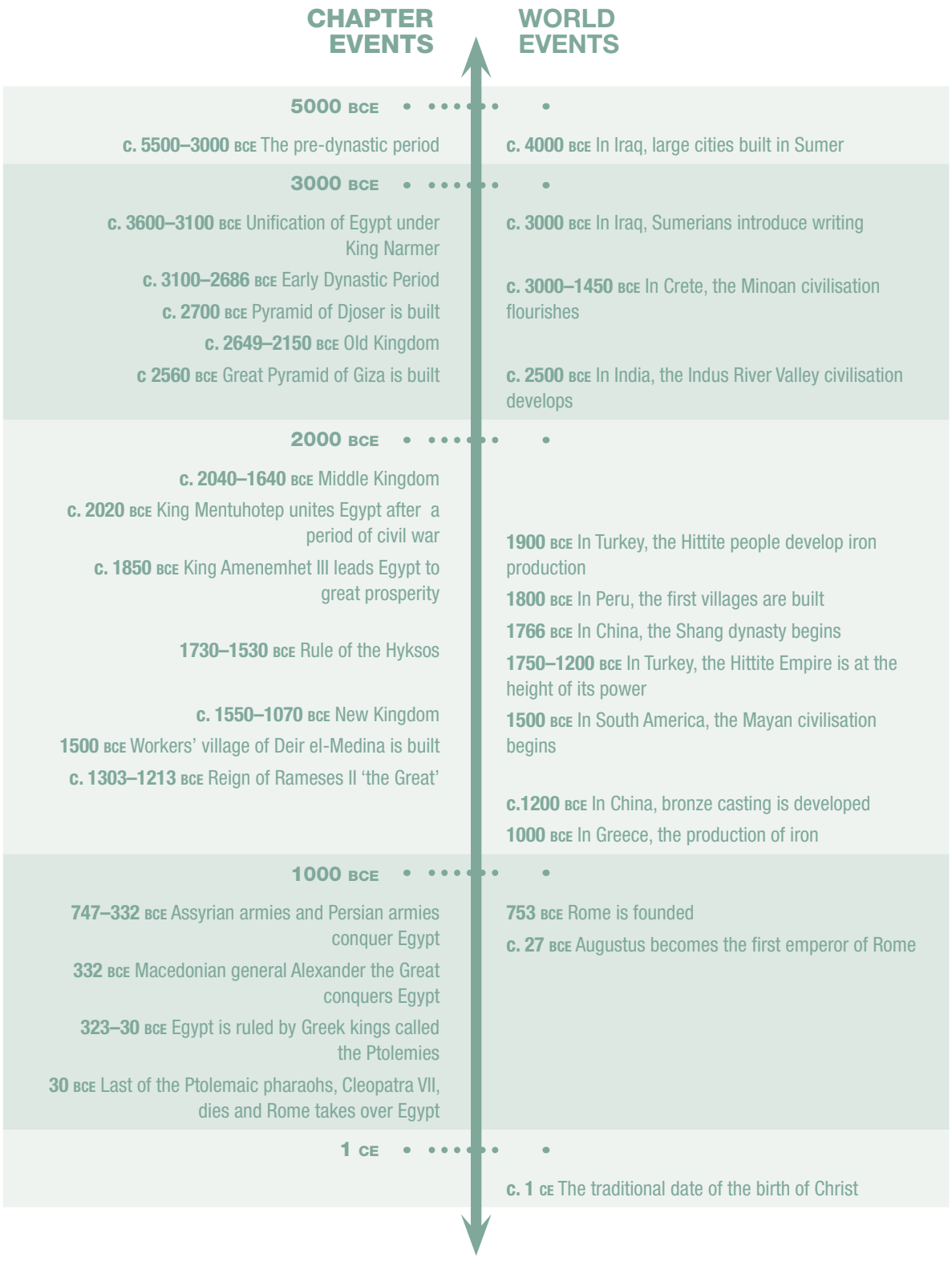
- Imhotep
- King Akhenaten
- 'King' Hatshepsut
- King Narmer (King Menes)
- King Tutankhamun
- Queen Cleopatra
- Queen Nefertiti

Let's begin

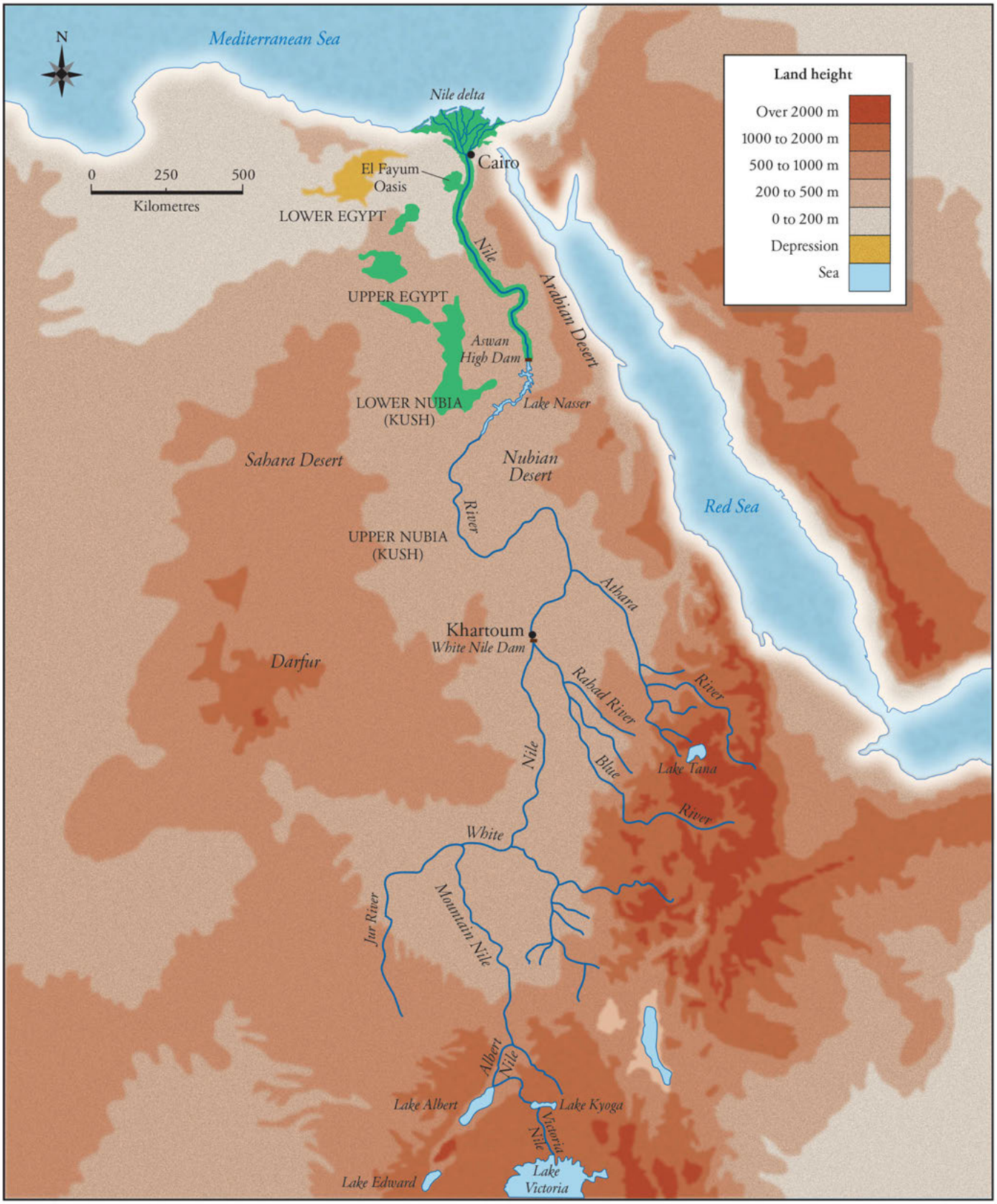
Ancient Egypt was one of the world's great early civilisations. It developed along the banks of the River Nile in North Africa and lasted for some 3000 years. The Egyptians made good use of their rich land, and developed a strong system of government and an orderly society. They also created religious beliefs and temples, where they worshipped their gods. Finally, they developed advanced skills in architecture, painting, sculpture, writing, mathematics and medicine.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 13.1 A map of Egypt c. 3100 BCE showing Lower and Upper Egypt, Nubia and Kush, the Red Sea and the Nile delta

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

13.1 Physical features and their influence

The River Nile

When we first study a photograph of the desert in Egypt, we see few resources to support human life. Yet nature provided everything that the Egyptian people needed to live a good life. The main feature of this land was a large river, the Nile, flowing from the mountains in the south to the Mediterranean Sea in the north. It created a long, narrow corridor of life in the heart of the dry desert. The historian Jon Manchip White wrote: 'Egypt is [like] a thread of wet green silk stretched loosely on endless yellow desert. Egypt was made by the River Nile. It was a narrow carpet of soil enclosed within a rocky slot in the sands. The people of the valley huddled together on their magic carpet, which had been spread out for them by the kindly gods at the beginning of the world, and they took good care not to wander away from it.'

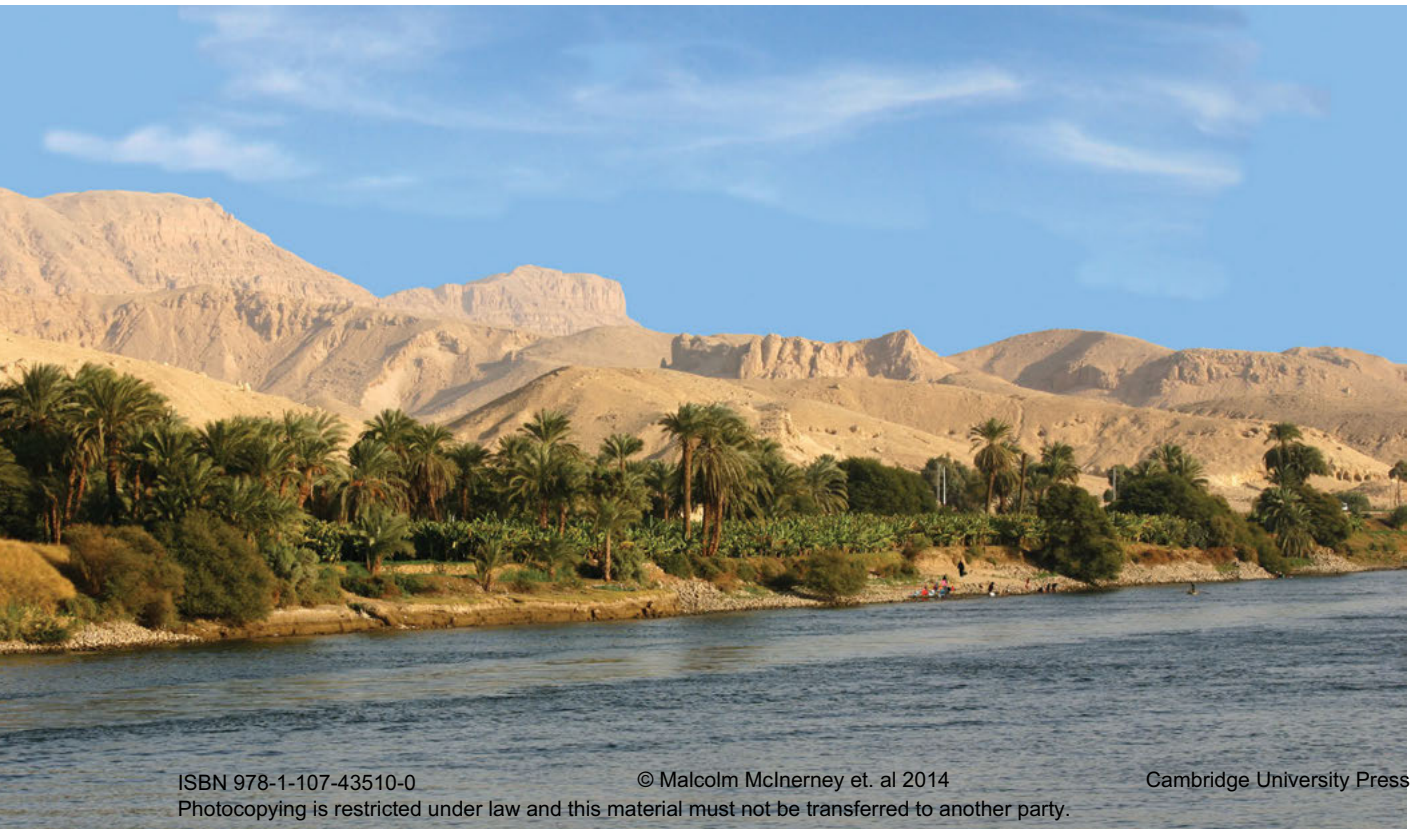
The Egyptians loved their country, and were grateful to live in it. They called it *Ta-Mery*, meaning 'Beloved Land'. They also called Egypt *kemet*, meaning 'Black Land', with dark, rich soil that was good for farming. Beyond lay *deshret*, the Red Land, and the baking sands of the deserts. Even these hot deserts and dry mountains were useful as a barrier to the outside world, and usually as a protection from attack. The Egyptians understood that they owed everything to the River Nile. They would have agreed with the Greek historian Herodotus, who said that 'Egypt is the gift of the Nile'. They even worshipped the Nile as a god called Hapi.

The Nile is 6670 kilometres long, making it the longest river in the world. Several distant rivers feed water into it, generated by melting snow and heavy rain in the mountains of central Africa. The Nile flows through a narrow valley. As it approaches sea level, it slows down and divides into smaller channels, creating a fan-shaped delta 250 kilometres wide. It then flows into the Mediterranean Sea.

About 8000 years ago, groups of ancient people entered the valley. They discovered a rich, green land where they could live by hunting and farming. Although only about 10% of the land was **fertile**, this small area grew more food than the Egyptians needed just to survive and this changed the way people

fertile able to produce a large number of quality crops

Source 13.2 The three zones that make up Egypt: the broad River Nile, the narrow strip of rich farming land and the desert mountains beyond



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

lived. Hunters have to move around all the time to follow herds of wild animals, but farmers have to stay where they are to look after crops. Seven thousand years ago, people tamed wild goats, sheep and cattle to become farm animals. Five and a half thousand years ago, they built the first mud-brick villages, then towns and cities.

Neolithic revolution the early period of human history when people made the important change from hunting to farming

This process is known as the **Neolithic revolution**, and it created the conditions in which civilised life developed.

Flooding of the Nile

inundation flooding

silt rich, fine soil carried in the waters of a river

When a powerful river such as the Nile rushes down steep mountain slopes, it digs out soil and carries it along. When the river flows down into a valley, it slows down, spreads out and floods over the land near the river banks. This is called an **inundation**. Because the water slows down, it drops a layer of rich soil known as **silt**. Because this happened once every year, the land surrounding the Nile was topped up regularly with fresh soil.

The inundation varied each year. The Egyptians carefully measured the rising water on a **nilometer**, which showed the water level in **cubits**. Thirteen cubits meant little water, poor crops and starvation. Fifteen cubits still meant that the people starved. Seventeen cubits just guaranteed a living. The usual height of the water was about 8 metres (around 15.3 cubits). Too much water was disastrous because it flooded whole villages.

nilometer a device used to measure the water level of the Nile during the annual inundation

cubit the length from your elbow to your fingertips

Gifts of the Nile

The Nile provided more than just the water and silt of the inundation. It was rich in fish such as perch – an important food for the poor – and in bird life such as ducks and geese. The land provided almost all of the building materials the Egyptians would need to construct houses, villages and finally towns. The marshes provided **papyrus** plants, used to make an early form of paper, baskets and even light fishing boats such as the one used

papyrus a tall reed with a triangular stalk that grew in wet, marshy conditions by the banks of rivers; the inside of the stalk could be cut into fine strips, which were woven together to make a smooth papery surface suitable for writing and painting



Source 13.3 A thick layer of brown silt was dropped on the flat land beside the Nile every time the river flooded.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 13.4 A painting from the tomb of a man named Nebamun. It shows him and his wife riding on a boat made of papyrus and hunting birds in the marshes by the banks of the River Nile.

by Nebamun (see Source 13.4). The silt brought down by the river was simply mixed with straw and baked in the sun to create strong mud bricks. The mountains provided stone for buildings. The only major resource missing was forests, so Egyptians bought wood from other countries.

In a land where there were few roads, the river was the main form of transport. It was a watery highway traversing Egypt from top to bottom. It was always crowded with boats. Merchants had large ships to trade goods. Builders had enormous barges to move blocks of stone from quarries to building sites such as pyramids or temples. Rich people had pleasure craft for boating and hunting trips.

The land provided many other natural resources. The flax plant was ideal for making the linen cloth needed for clothing. There were large amounts of copper, which could be used to make tools such as saws and chisels. Flint, a sharp stone, was used for making knives, sickles and weapons.

In the desert mountains, there was gold that was used for making jewellery and for trading. The inundation only reached the lower land near the river. However, the Egyptians realised that they could arrange their own flooding of higher land to make it fertile. They dug canals across the land, and raised water from the Nile. At first, farmers lifted the water by hand. Then, during the Old Kingdom, they invented a ***shaduf***.

Effect of geography

Why did the greatest **civilisations** – including the Indus Valley civilisation in India and the Sumerian civilisation in Mesopotamia – grow

shaduf a wooden arm with a counter-weight on one end and a bucket on the other

civilisation a society that has developed an organised system of government, social customs and religious beliefs, and a number of forms of technology including writing and the arts

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

up along great rivers? The land and the river did more than just provide a living. They actually helped some forms of civilisation to appear. Egypt was a large land, which may be why the Egyptians developed one single, powerful government. The king needed to send orders and messages to his people, and this led to the invention of writing by about 3100 BCE. Historians originally believed that the Egyptians learned this from the nearby Sumerians, but some now believe they invented writing first.

The richness of the land had another important effect. In countries where the land is poor, most people have to spend their whole lives growing enough food to eat. In a country where the land is rich, some people can grow enough food for the whole country. This leaves other people free to become officials, architects, artists, scribes and craftsmen. They become specialists, and the main skills of civilisation – such as government, building and writing – become highly developed.

The Nile gave Egypt another sort of gift: wealth. When a society produces more food than it needs, it trades that food for other goods. Egypt also had supplies of gold in its desert mountains. This valuable metal was used to make luxury objects for kings and nobles. Egypt soon became one of the richest lands in the ancient world.

13.2 Role of key groups

Making sense of a long history

In about 300 BCE, the Egyptian priest Manetho wrote a detailed history of Egypt, using historical documents that are no longer available to us. He made this long history clearer by dividing it into 30 **dynasties**, or families of kings. For him, the First Dynasty started with King Narmer. Manetho's historical outline shows that ancient Egypt lasted for an unusually long time, while other empires rose and fell. This is because the Egyptians had a well-organised society, with a clear system of government, strong leadership and good administration and officials, as well as laws and courts, religion and temples. All of these made Egyptian society stable, so it survived largely unchanged for 3000 years.

dynasty a succession of rulers from the same family. In Egypt, however, some of the dynasties included pharaohs that were not related to the main ruling family

We can imagine Egyptian society in the shape of a pyramid (see Source 13.6 on page 229), with the most powerful people at the top. On the first level were the pharaoh, his or her consort and the royal children. On the second level were the nobles and important officials, such as the vizier, high priests, army commanders and skilled experts such as the scribes. On the third level were wealthy people such as merchants, skilled craftsmen such as potters, and ordinary priests and priestesses. On the fourth level were working people with special skills, such as soldiers and farmers. At the base of the pyramid were ordinary working people, such as peasant workers and servants. There were also slaves, but these were not common in Egyptian society. Historian Jon White believes that the nature of Egypt – a huge land with a large population of five million – created a need for a **bureaucracy**. White argues: 'The Egyptians were devoted bureaucrats, and Egypt was one of the most efficiently ordered states that was ever seen.' Egyptian civilisation was stable partly because one powerful ruler learned to use officials to make all the people obey him and his laws.

bureaucracy a system of government where state officials make the important decisions

The pharaoh: a god on earth

Every society has a way of showing respect to the person who rules it. From the beginning of their society in about 3100 BCE, the Egyptians believed that their **pharaoh** was a god descended from the great god Amun-Re. He (and somtimes she) was also the human form of the god Hathor. He had magical powers, such as keeping the gods pleased with the people of Egypt.

Historians know this because they have found **inscriptions** calling him *netjer* ('god') and *nefer netjer*

pharaoh divine ruler of ancient Egypt

inscription writing that has been carved into a hard surface such as solid stone, to help people remember a certain person or event

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Source 13.5 Manetho's dynasties

The Old Kingdom (Third to Sixth Dynasties)	Egypt was rich and powerful. It traded with neighbouring countries such as Punt and Nubia. This was also the age of the building of the great pyramids at Saqqara and Giza.
The First Intermediate Period (2180–2130 BCE)	This kingdom fell into confusion because of weak rulers, a divided house and possibly famine caused by multiple poor inundations. After some conflict, the ruler of Upper Egypt, Mentuhotep, reunited the country.
The Middle Kingdom (Eleventh to Thirteenth Dynasties)	The government was strengthened and Egypt became wealthy again. The capital was moved to a new site near the Fayum oasis, where it was possible to control Egypt more effectively. Trade began again, and the Egyptians even took over Nubia. This prosperous time ended when the foreign Hyksos people invaded Egypt.
The Second Intermediate Period (1630–1560 BCE)	The foreign Hyksos people ruled from the north and made the south obey their orders. The Egyptians united to drive out the foreigners by 1567 BCE.
The New Kingdom (Eighteenth to Twentieth Dynasties)	The Egyptians regained confidence and played a greater role in trade and warfare in their region. Armed with a new weapon they had taken from the Hyksos – the horse-drawn chariot – they conquered a large area including Nubia in the south and Syria and Sumer in the north. Victorious armies brought back precious goods; conquered states paid tributes of precious materials such as gold. Money flowed into Egypt. This helped to finance the building of the many splendid temples at this time.
The Third Intermediate Period (1085–716 BCE)	Egypt again suffered division and disorder. A number of different kings, all competing with each other, tried to rule. Law and order broke down. Egypt lost its large empire, and was neither feared nor respected by the other countries in the region.

('good god'), meaning that he must protect his people. Another title, *aa netjer* ('great god') meant that he had to be a great warrior and lead his army against enemies.

The Egyptians 'trained' all princes in the royal family to be king because many children died early. Princes were instructed in the skills of hunting and chariot-driving as preparation for being a leader.

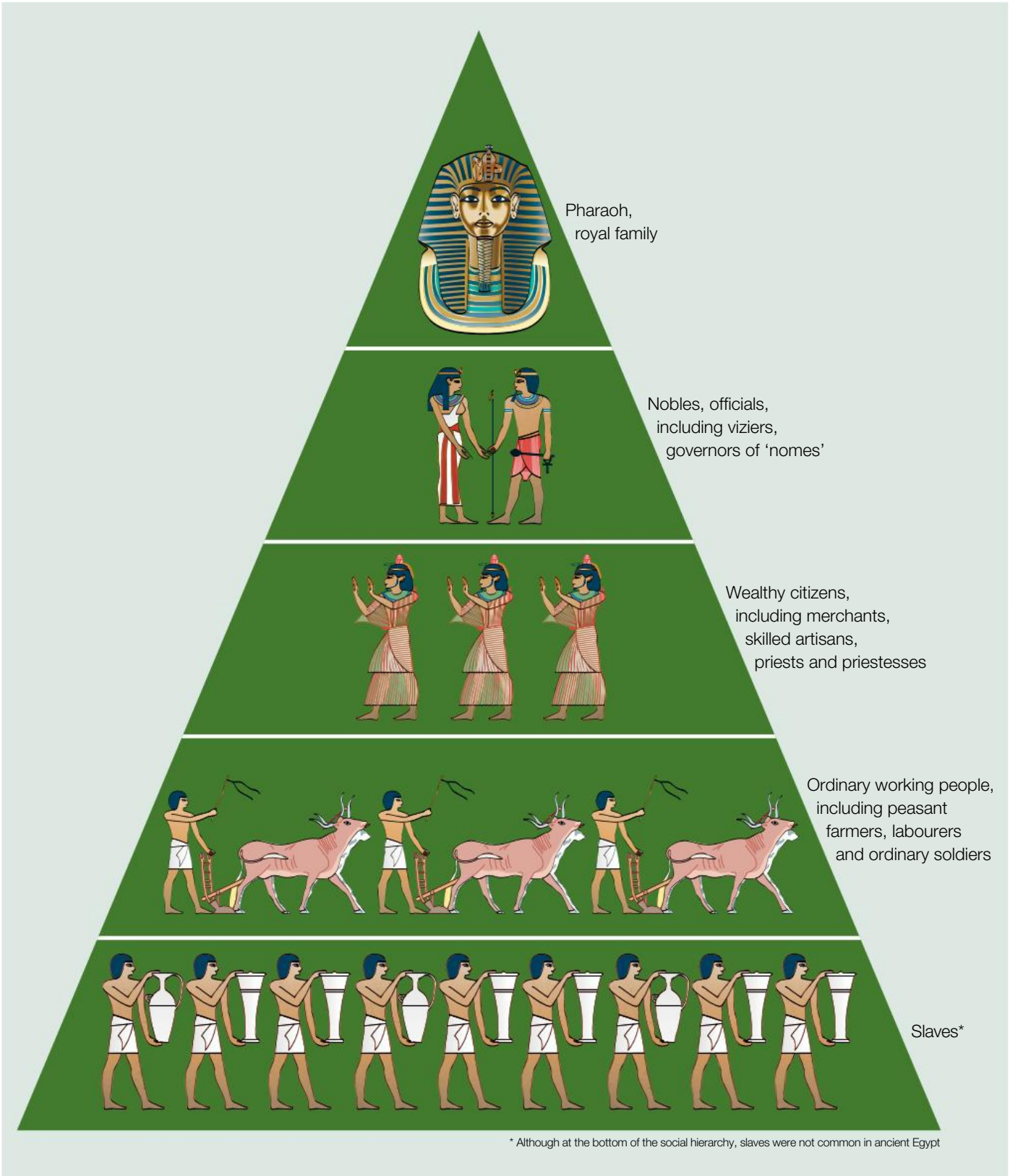
The pharaoh was believed to own the whole land of Egypt and everything in it – including the people. He was protected by the hawk-headed god Horus. When alive, he was a part of the Horus god-king. When he died, he became a part of the Osiris god-king. When he sat on his throne, he became a god himself. By the time of the New Kingdom, he was so respected that people did not dare to say his name. People would kiss the ground as he walked by. Anybody who accidentally touched him was executed.

The Egyptians created many signs that the pharaoh was all-important – even a god. The most important sign of royal power was the crown. This was made up of two earlier crowns: the tall, conical, white crown of Upper Egypt and the shorter, red crown of Lower Egypt. Together, they symbolised the union of Egypt under one ruler. On the front was the uraeus cobra, which would spit fire or poison into the eyes of an enemy.

HISTORICAL THOUGHT

The Egyptian pharaoh Pepi II came to the throne aged only six, and ruled for 94 years!

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 13.6 Social hierarchy in ancient Egypt

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

It was a sign of the king's magical power. In times of war, the pharaoh commanded the armies and wore a special blue war crown. The pharaoh also wore a false beard, woven from goat's hair, strapped on to the chin with a cord. This showed that the pharaoh was a god. Another title was 'The Strong Bull', so he wore a bull's tail to show his physical strength and ability to father many children. Most pharaohs were male, though there were exceptions.

DEVELOPING YOUR UNDERSTANDING 13.1

One of the best ways of gaining a better understanding of Egyptian culture is to see examples of ancient objects now held in museum collections. A number of museums have rich collections of Egyptian art. It might be possible to visit a museum close to your school. Otherwise, most of these museums have useful websites that you can explore on the internet. Choose three works of Egyptian art, including one building, one statue and one other item, as your focus for research.

Using both book resources and the internet, research your three works of art and investigate what they tell us about the lives, values and experiences of ancient Egyptians. For example, you might examine a statue to discover what it reveals about the political and religious beliefs concerning the pharaoh. You might use a tomb painting of a country work scene to explain what sort of life a farmer had in Egypt. Present your findings as a PowerPoint presentation or blog. The following websites may assist you with your research; find all the links at www.cambridge.edu.au/hass7weblinks:

- National Gallery of Victoria, Melbourne
- Museum of Victoria, Melbourne
- Australian Museum, Sydney
- University of Sydney, Nicholson Museum, Sydney
- Australian National University, Classics Museum, Canberra
- Egyptian Museum, Cairo, Egypt
- British Museum, London
- Fitzwilliam Museum, Cambridge, United Kingdom
- Metropolitan Museum of Art, New York
- Global Egyptian Museum.

HISTORICAL THOUGHT

The Egyptians were badly bothered by flies. One of the most important pieces of equipment was a fly whisk. One pharaoh was even driven to the point of having slaves smear themselves with honey and stand around him, so the flies were attracted to them and not him!

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The pharaoh was usually shown with two other important symbols of power. One was the flail, copied from a farmer's whip, representing the pharaoh's authority to make his people obey him. The second was the rounded crook, used by shepherds to pull sheep back to the herd, representing the pharaoh's role in guiding his people. The pharaohs wore large, jewelled collars and beautiful head-dresses as a sign of wealth: gold was a precious item, and so were stones such as the brilliant blue lapis lazuli.

The queen consort

The pharaoh's queen consort was called 'The Great Royal Wife'. She was often the pharaoh's sister. He had several less important wives who lived away from the royal palace. The son of his main queen came to power when the pharaoh died. Sometimes a living pharaoh made his son co-ruler to ensure that the right person came to the throne. The son usually married his own sister because she was his only possible equal.

We can see these powerful women in works of art. In 1360 BCE an artist made a statue of Queen Tiyi (1410–1340 BCE), wife of Amenhotep III and mother of the notable pharaoh Akhenaten. She wielded power and influence during the reign of both her husband and her son, and received letters from rulers of other lands asking for her advice. The statue shows the face and character of a woman of great authority.

The highest official: the vizier

The most important official in Egypt was the vizier, or 'Superintendent of All the Works of the King', the chief minister or prime minister. There was one for Upper Egypt and one for Lower Egypt. A vizier named Rekhmire said: 'The pharaoh told me, "Be my vizier. You must look after everything." Being a vizier is not easy.' The vizier had to report to the pharaoh about almost everything: the royal accounts, taxes (in goods, not money) coming in, spending going out, the state of the fortresses on the borders, even who was entering or leaving the palace. He ensured that the royal governors understood the pharaoh's orders and sent in their reports on time. He was responsible for law and order across the land.

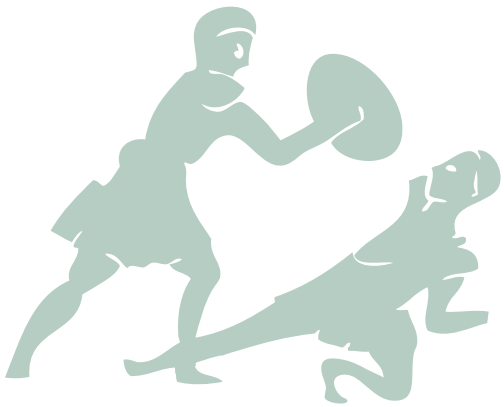
The great officials of the land

Below the vizier were thousands of other officials. The next most important were the royal governors, who were in charge of Egypt's 42 'nomes', or provinces. They had to report on the condition of their province, and to collect taxes for the central government. Some were tax inspectors who visited farms to calculate how much each farmer earned, and how much tax he owed. Many were officials in charge of building sites. The thousands of officials who ran Egypt's affairs needed one important skill to communicate their orders and keep records: writing.

Scribes

In ancient Egypt, writing was a special skill practised by experts. Only 1% of the population could write. Scribes were all male and from rich families. The scribe Kheti wrote: 'This is the best of all jobs. There is no other position like it in the land. Every other worker has a boss, but the scribe is his own boss. If you can learn how to write, this will be very good for you.'

Scribes rose to be some of the most important officials in Egypt. In one case, a scribe named Horemheb became pharaoh. Training began at age 9 and took 5 years. Scribes did not invent desks until 2000 BCE; they sat on the floor cross-legged, with their kilt pulled tight to make a writing platform. They often worked in large rooms where a chief scribe read out the text aloud and the scribes made copies. Scribes kept their hieroglyphic writing complicated so that others could not learn it. A text in hieroglyphs could be read from top to bottom, or from left to right or right to left. There was no punctuation.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 13.2

Using your school library and the internet, prepare a press release for the British newspaper the *Times*, announcing the achievement of the French scholar Jean-François Champollion in learning how to read ancient Egyptian hieroglyphs. In your report, be sure to explain how he cracked the code, and also why his achievement was so important in improving our understanding of the ancient Egyptians. You will find a useful link about decipherment at www.cambridge.edu.au/hass7weblinks.

In your response, investigate and report on the following issues:

1. Why had the language of the hieroglyphs been forgotten in Egypt by 400 CE?
2. How and where was the Rosetta Stone discovered?
3. Which three languages were engraved on the Rosetta Stone? Why did this provide a valuable clue to the meaning of the hieroglyphs?
4. How did the French scholar Jean-François Champollion crack the code of the hieroglyphs?
5. Why was this discovery so important to our understanding of the Egyptians?

Ordinary working people

Historians struggle to find information about the lives of ordinary working people. The problem was partly solved when the archaeologist Bernard Bruyère discovered the workers' village at Deir-el Medina in 1920. This was a town of 70 mud-brick houses built by the government of the New Kingdom to house the artisans who were working on the tombs in the nearby Valley of the Kings and the Valley of the Queens. The houses had several rooms, and were built to be cool; the flat roofs could be used as a place of relaxation in the cool of the evening.

These workers also had time to build beautiful tombs for themselves just near the village. In the tomb of Kha, for example, archaeologists found a complete set of carpentry tools that was used by the foreman when he was employed here. The historian John Romer has also explored Deir el-Medina, and discovered more about the workers' lives. He found stories about the leader of the village choir, the scribes who made extra money by painting coffins in their spare time and a scribe who used his skills to write love poetry to his girlfriend. There was an angry shopkeeper who kept up a court case for 17 years over some jars of fat. There was a young man who was so excited to be given the job of royal scribe that he carved graffiti into the cliffs to celebrate his success. This was also the location of the first workers' strike known to history: in 1153 BCE, the workers stopped work because they had not received their 'wages' of food and clothing. Romer even found the artists' 'sketchbooks': because papyrus was expensive, they practised by drawing on pieces of rock or pottery known as *ostraca*. One of the most beautiful drawings is of a girl acrobat practising her handstands.

Influence of skilled artisans

We can see how important skilled artisans were by looking at the gravestone of the sculptor Bak, chief artist to the pharaoh Akhenaten. He helped to introduce the new Amarna style, in which paintings and sculptures tried to show people more realistically than before. When Bak made this stone for his own grave in about 1345 BCE, he realistically showed his large belly and heavy chest. He also is able to show his importance, as he wears an expensive pleated robe, as well as a long wig. His wife Tehery wears an expensive dress of fine white linen that clings to her body. She places her arm on Bak's shoulders, perhaps as a sign of affection.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 13.7 This is the workers' town of Deir el-Medina. We can clearly see the ground plan of the 70 houses, which were all enclosed by one large external wall to keep strangers out.

Women

Historians always try to study the lives of all the people who live in a society. Women have been referred to as 'the other half of history'. It is especially important to discover how women lived, and whether they had equal rights to men. If all people have equal rights, they have an equal chance of living the best possible lives. If not, they may find it difficult to make the most of their skills.

To discover how people lived, the historian needs evidence. Historians think that very few women in ancient Egypt learned to write. This is because there are very few surviving texts written by women. We only have texts written about women by men.

Ancient Egyptian women's lives are not well known. They appear very early in Egyptian art, as we can see in the sculpture of a figure of a woman holding a baby (Source 13.8). When this was

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

carved about 3000 BCE, Egypt had recently been unified by Narmer, writing had been invented and the explosive development of Egyptian civilisation was about to occur. What place would people like this woman have in such a society? Women did enjoy some important rights, but were not completely equal to men. Women in ancient Egypt could buy property, sign contracts and go to court if necessary. They could also control their own wealth, which was not the case in some other great civilisations.

Historian Ruth Manning found a document by a woman named Naunakhte. Naunakhte wrote angrily: 'I am a free woman of this land. I have raised eight children, and made sure they had everything necessary in life. Now that I am old, they do not look after me as they should. I am going to give my goods to the children who do look after me.' This proves that this woman had the legal right to control her belongings. Egyptian women were important in their own homes. Historian Gay Robins points out that the tombs of wealthy women often have the proud name of *nebet per* ('mistress of the house') carved on them. She also found that men were advised to respect the skills of their wives. In a text called *The instruction of Ani* (New Kingdom period), Ani is advised: 'Do not control your wife in her house, when you know she is efficient. Don't say to her: "Where is it? Get it!" when she has put it in the right place. Let your eye observe in silence, then you recognise her skill.'

Egyptian women were not forced to stay at home. They were allowed by law to work, but there were limits. One important industry was the weaving of fine linen, the fabric that was so important to the Egyptians. Women in towns could also set up stalls in marketplaces and sell food. Women who lived in the country took an equal part in the heavy work of farming. In the Papyrus of Ta-Rudj, for example, we see a painting of a young woman hard at work ploughing the fields and using a whip to move the oxen along.



Source 13.8 This sculpture is one of the earliest known representations of women in ancient Egypt. It shows the woman naked, holding a baby who clutches at her breast.

13.3 Significant beliefs, values and practices

What were the beliefs and values of the ancient Egyptians?

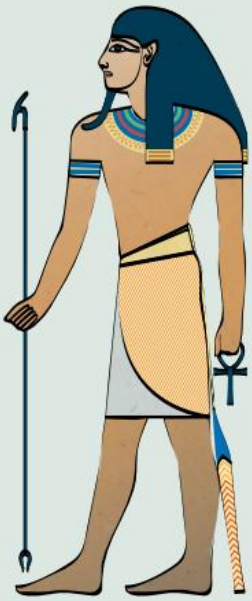
Religion was the guiding belief that shaped every aspect of Egyptian life. The Egyptians believed in 2000 different gods, each responsible for one aspect of life. The great god Osiris, for example, looked after both the dead and the forces of life, such as crops and all fertility. These were known as the 'state' gods, or gods officially worshipped by the pharaoh and by the priests in the temples. Ordinary Egyptian people could not take part in this official worship, but prayed to their local gods in their own homes.

Worship of gods

Ordinary Egyptians did not worship their gods the way we do when we go to a church or mosque. The temples were special places where a number of priests took responsibility for praying to the

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Atum was the god who emerged from the sea at the very first creation of the world.



Re was the Sun God, and was the main god during the Old Kingdom. Amun-Re became even more important during the New Kingdom, when he was seen to back the military pharaohs in their conquests.



Osiris was both a god and the king of the underworld that lay below the living world of Egypt. It was a dangerous zone through which the soul had to pass.



Isis was the wife of Osiris, but also represented a woman's magical power to heal and to save people.

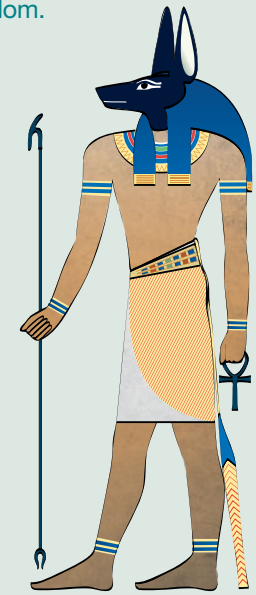


(continued)

Source 13.9 Egyptian gods

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

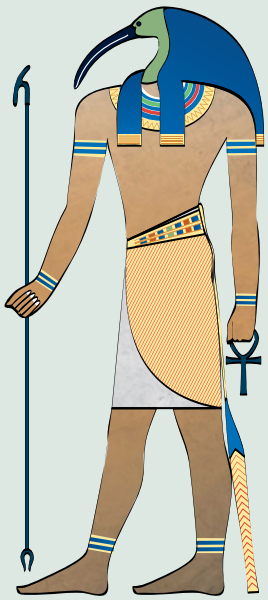
Anubis was the jackal-headed god in charge of cemeteries and the important process of mummification. The jackal was chosen because in real life jackals used to roam through cemeteries in search of food. Curiously, they came to be seen as protectors of the dead. He was the main state god during the New Kingdom.



Horus was the child of Osiris and Isis, and was the god who protected Egypt's current pharaoh.

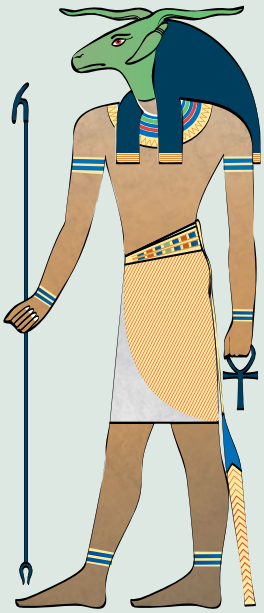


Thoth was the god of the moon. He could appear as an ibis or a baboon, and served as scribe to the gods. He represented the sacred intelligence of the universe. He gave human beings the knowledge of music, writing, mathematics and art, and was protector of all scribes.



The ram-headed god **Khnum** was in charge of the River Nile, controlling its dangerous **cataracts** and deciding when the river should rise for the inundation. A destructive and mischievous god, he represented disorder.

cataract a large and sudden wave of water



Source 13.9 Egyptian gods (continued)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

gods and leaving them offerings. The temple was believed to be the house where the god actually lived. The pharaoh was responsible for ensuring that temples were built, repaired and well run. Because he was also the highest priest in the land, he could enter the temples to talk to the god. Apart from him, only priests and priestesses could enter these sacred places.

Priests and priestesses

Every temple had a large number of priests and priestesses who conducted special ceremonies. Priests looked after temples for male gods and priestesses looked after temples for goddesses. Later, in the New Kingdom, priests took over all temples. These priests had to ensure they were completely pure: they had to bathe in a sacred pool, shave off all hair – even their eyelashes – and avoid certain foods. They served the statue of the god, which they believed was the actual god. First, as the sun rose, the priests had to 'wake up' the god: they washed it, placed fresh clothing on it, left fresh offerings of food and then respectfully left the room. They even wiped away their footprints, and carefully locked the doors with a clay seal. They washed and dressed the statue three times a day. On special holy days, they took the statue out of its special room in the temple and carried it through the streets or on a boat down the river, so that people could see it. These priests and priestesses had no time to do other work. The pharaoh gave the temples gifts of land and gold so that the priests would have plenty of food.

Burial arrangements

During the Old Kingdom and Middle Kingdom, the pharaohs built pyramids at a site near modern-day Giza. These were designed as personal burial sites for the pharaohs, their wives and children. They were called 'houses of eternity'. The first true

Source 13.10 The pyramids at Giza. The pyramid of pharaoh Mekaura (or Mycerinus) is on the left, the pyramid of Khafra (Chephren) in the centre and the Great Pyramid of Khufu (or Cheops) on the right.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

pyramid was built by pharaoh Sneferu in 2600 BCE, and set the model for a structure with smooth sides. For the Egyptians, the mountain of stone represented the original mass of land that emerged out of the waters at the beginning of creation.

The most impressive of these structures is the Great Pyramid of Khufu, built over more than 20 years between about 2551 and 2528 BCE. It is massive: it stands 138 metres tall, on a nearly perfect square measuring 230 metres on each side. It was originally covered in white limestone, which would have gleamed brilliantly in the sun. This was later removed, leaving the large blocks of which the body of the pyramid is built.

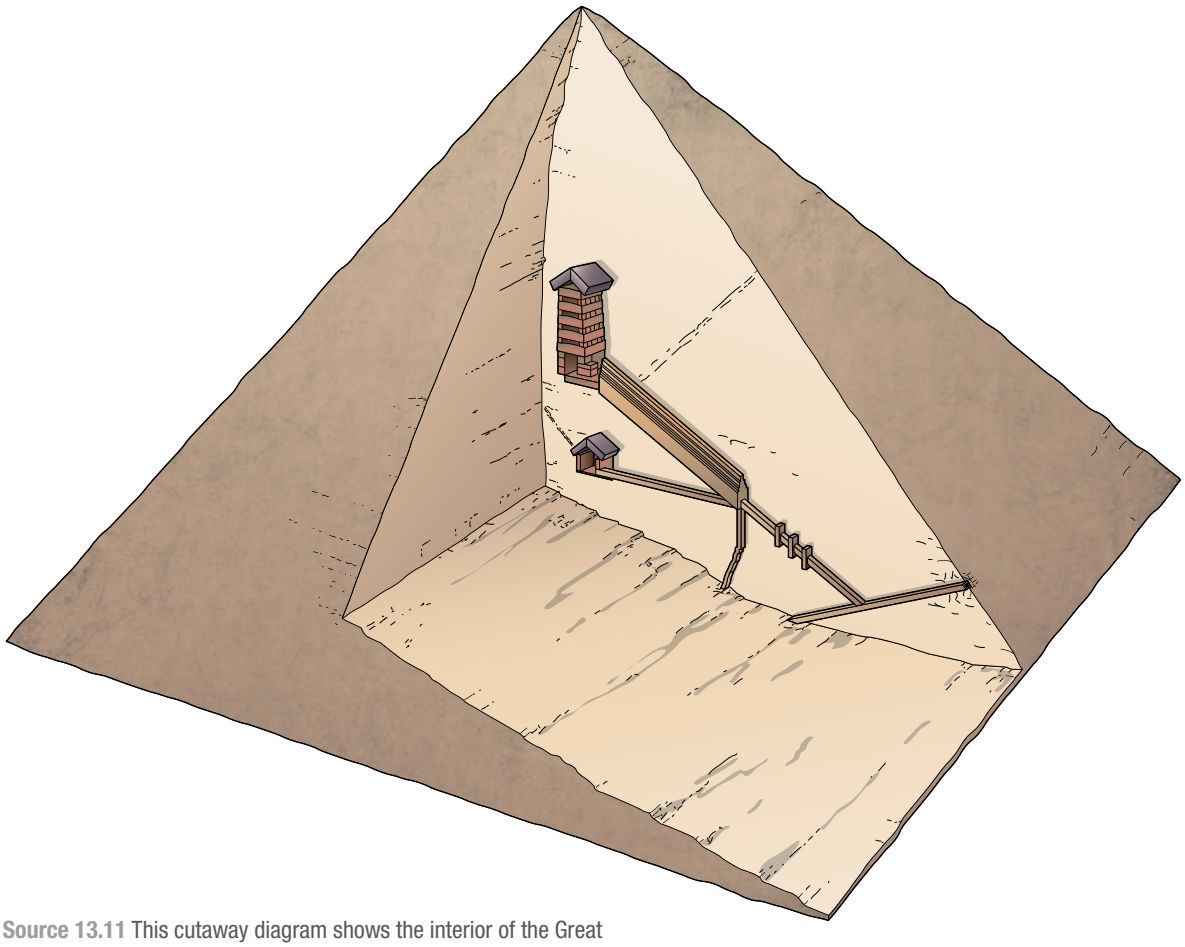
You can still visit the inside of the pyramid, and walk along the massive Grand Gallery, about 8.5 metres high, that leads to the king's burial chamber. His **sarcophagus** is still there – it must have been placed there before the narrower entrance passage was built – but the mummy is long gone.

sarcophagus an ornate coffin adorned with lavish carvings and inscriptions

There are two other small, secret rooms – one in the pyramid and one underneath it – but their purpose remains a mystery. The pyramids did not serve to protect the bodies of the pharaohs: by about 1000 BCE, all of them had been looted, the treasures taken and the bodies destroyed.

The Great Pyramid was accompanied by three smaller pyramids for the pharaoh's three main wives. There were also boat pits containing wooden boats – laid in pieces – so that the king's body could be carried along the Nile.

Nearby is the Great Sphinx, which the Egyptians thought was a form of the Sun God. It was made by order of pharaoh Khafra (Chephren) in about 2600 BCE. This is a lion's body with a pharaoh's head, possibly Khafra's. The head has a royal head-dress and once wore a royal beard.



Source 13.11 This cutaway diagram shows the interior of the Great Pyramid. Notice the clever use of five relieving stones to take the pressure off the roof of the burial chamber.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The Valley of the Kings and the Valley of the Queens

During the New Kingdom, the pharaohs realised that the pyramids were targets for robbers. They ordered tombs to be cut into the cliff faces near Western Thebes, in an area now known as the Valley of Kings and the Valley of the Queens. These cliffs were only a few kilometres from the Nile, so it was easy for the priests and mourners to walk from the temples to the burial places. The tomb of Tutankhamun is located in this area.

Even so, robbers often broke into the tombs and stole the gold and jewels. Some were the workers who had built the tomb, so they knew exactly where to go. If they were caught, they were drowned, burned alive or impaled on a sharpened stake.

How were the pyramids at Giza built?

From the moment they were built, the pyramids were buildings of amazing size and beauty. For centuries they have caused historians, archaeologists and other writers to wonder why they were built, and how. It is agreed now that the pyramids were an early form of royal burial, and historians and archaeologists have hypothesised how humans could have created these ancient wonders.

First, stone could have been cut using copper saws with semi-precious jewel stones fixed to the teeth; large stones could be cut by inserting wooden wedges into cracks, and wetting the wedges to make the wood expand. Second, the stones could have been moved using rollers and ramps of mud-brick and rubble. It does seem that this would have been hard work, but not impossible: vast ramps had to be made as the pyramid grew higher. Each stone weighed about as much as a modern car, and it had to be dragged on a sled, since there were no wheels strong enough to carry the weight.

The Egyptians simply used thousands of strong workers: just one barracks discovered near the pyramids was big enough to house 4000 workers. The popular belief that the stones were pulled along by thousands of groaning slaves is unlikely to be true: the workers were in fact local farmers who could not work their land due to the inundation, and who were very happy to have paid work during this off-season. Far from being whipped and mistreated, they were well housed in special villages near the pyramids, and were paid with food and other goods.

What did the ancient Egyptians believe happened after death?

In all civilisations, one of the most important beliefs is the way people make sense of the experience

HISTORICAL THOUGHT

The 'mystery of the pyramids' has become an obsession with some people to the point where they have started to speculate on wacky and wonderful theories. One amateur historian calculated that the height of the great pyramid at Giza was exactly the measure, many times over, of the distance from the Earth to the moon. Later, he realised that he had miscalculated the actual height of the pyramid, and was discovered on top of the pyramid with a hammer and chisel, feverishly trying to chip off some stone to make the height of the pyramid fit his calculations! Others suggested, with no evidence, that the pyramids might have been built by the people of the lost civilisation of Atlantis. Still more have argued that the pyramids could only have been built by some highly advanced civilisation from another planet, which might have used the pyramids like landing beacons for its spacecraft!

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

afterlife the second stage of life, when the souls of the dead go to another world

of death. All people wonder what becomes of a person once they have died, and they wonder whether there is an '**afterlife**'. The Egyptians believed the story of Osiris. He had been killed by his jealous brother Set, but his faithful wife Isis had repaired his body and brought him back to life. This made the Egyptians think that it was possible to have a life after death.

The ancient Egyptians thought of the afterlife as a paradise. This idea only developed slowly over time. During the early period, they believed that only their mighty pharaohs could achieve the god-like journey from the tomb to go and live with the gods. By the Middle Kingdom, however, nobles, high officials, then craftsmen and even ordinary working people wanted to make sure that they could also make the journey to paradise. Long before the end of their lives, they would start to plan a tomb and to buy all the things they would need to complete the journey successfully.

Mummification: a one-way ticket to eternity

In some societies, people have the tradition of simply burying their dead in coffins, or of cremating the body in a fire. The ancient Egyptians did far more to look after the bodies of the dead. The process of **mummifying**, or preserving, a body began accidentally. People may have noticed that when they buried a body in the hot, dry sand, it dried out and did not decay.

mummification a method of preserving a dead body by removing the internal organs and drying out the body

When a person died, the body was taken to the embalmer's workshop, which was called 'The House of Strength'. The process of embalming a body was considered to be magical, and the embalmers may have worn masks in the shape of the jackal-headed god Anubis. They prepared the body so it would not decay. The brain was taken out through the nose, and apparently thrown away. A small slit was then made in the side of the body. The embalmer removed the liver, stomach, intestines and lungs, and carefully put each one in a special storage jar known as a canopic jar. Each jar was protected by a special god: Hapi protected the lungs, Duamutef protected the stomach, Imsety looked after the liver and Qebhsenuef guarded the intestines. The space left in the body was packed with natron, a natural salt. The body was then placed on a slanted table and completely covered with natron. Any fluids draining out of the body ran down a special groove in the stone tabletop. The body was left drying in the salt for about 40 days. Then the natron packs were removed. The body was washed down with oils, ointments, spices and resin. The eyes were filled with linen and the nostrils were plugged with beeswax. The fingers and the toes were covered



Source 13.12 The mummified body of Rameses II, buried about 1340 BCE

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

HISTORICAL THOUGHT

During mummification, the Egyptians pulled the brain out of the skull through the nostrils, using a long, curved hook, and threw it away. They thought that all memories of good and bad actions were kept in the heart. This was carefully stored in a jar near the mummified body. By now, the body was ready for a very long journey. It was wrapped with long strips of linen. Every few layers, glue was pasted on to hold the linen together.

with gold caps. Then the cut in the stomach was carefully sewn up again.

The Egyptians believed that the dead person needed everyday items for use in the afterlife. The most important was the *shabti*, or small figure representing a servant. This small clay figure was magically changed into a real worker once the dead person reached the afterlife.

HISTORICAL THOUGHT

The embalmers used nearly 5 kilometres of cloth strips to wrap up a body.

DEVELOPING YOUR UNDERSTANDING 13.3

Imagine you are the head of an embalming workshop in Thebes. You must train new workers in the ancient secrets of embalming. You know that every detail must be perfect if the body is going to make its way successfully through time. You decide to hire a scribe and a painter to make a papyrus explaining every step of the process. Your 'manual' must be clear on what embalmers have to do and why. It should include the following:

- the actual process of mummification
- a list of objects that may need to be put in the grave
- pictures drawn in the flat Egyptian style.

Alternatively, you may like to do a role-play and conduct a training session using your classmates as trainee mummifiers. You may also need a volunteer to lie on the table and be your corpse so you can demonstrate your techniques.

HISTORICAL THOUGHT

Historians still do not know where the word 'mummy' comes from. It is possible that it comes from an Arabic word, *mumiyah*, meaning 'tar'. A cheap form of mummification for poorer people was to dip the body in tar. In later centuries, travellers in the desert found tarred bodies that had been uncovered, and they snapped off pieces to make campfires.

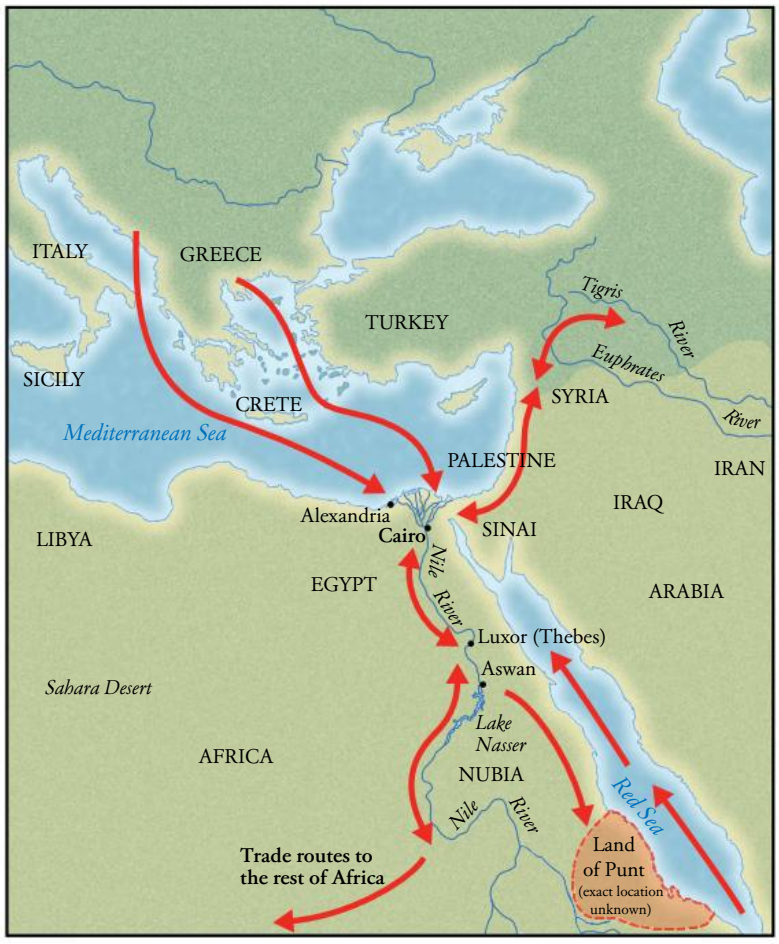
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Contacts and conflicts

Civilisations make contact with each other through warfare and trade. They can be changed by contacts with other people who have different beliefs and technologies. If the Egyptians had a fault, it was that they were happily unaware of other great civilisations. They thought of the world as being made up of two types of people: Egyptians and outsiders. They found it difficult to admit that other people could create civilisations too. They even refused to use the word 'king' for other societies: only Egypt was civilised enough to have a pharaoh. It was therefore quite difficult to have to admit that other civilisations were more powerful, especially when they defeated Egypt in battle or even invaded the country! Egypt suffered the invasion of an Asian people whom they described as **Hyksos** in about 1670 BCE. While this invasion was seen as a bad experience, even this contact brought important changes. In about 1640 BCE, the Egyptians adopted the horse-drawn war chariot. They learned about new weapons, such as plated armour, the composite bow and the curved sword. The Egyptians also learned from the Hyksos how to make bronze, which is stronger than copper, and to make greater use of silver.

Hyksos people of Asian and Semitic descent who settled in Egypt

Civilisations also contact each other by trade. The Egyptians traded with other countries from the earliest days. During the Middle Kingdom (2050–1786 BCE), Egypt traded widely with countries such as Syria, Palestine, Crete and Nubia. Nubia was an important source of gold, and a gateway to trade with the rest of Africa. By the time of the New Kingdom (1567–1085 BCE), Egypt was a powerful country, stretching all the way from Sudan in the south to Syria in the north. It traded with all the other important countries in its region, including what today are Greece, Turkey, Iran and Iraq.



Source 13.13 Map of Egyptian trade routes

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Trade made Egypt even wealthier. It was conducted by exchange: before money was invented, traders simply gave one good in return for another. Egyptians had plenty of food to trade, including wheat, barley and dried fish. They also had resources such as copper, gold and precious stones. They sold their special products such as papyrus to make paper and fine linen. In return, trade brought them some new luxury goods. From lands such as Nubia and Punt, in the area we now know as Africa, they were able to gain rare materials such as ivory from the tusks of elephants, colourful feathers from ostriches, brilliantly coloured gems and ebony. They particularly valued myrrh, and bought whole trees to plant in Egypt. From the Middle East, they gained silver to make jewels and other precious objects, cedar wood to make furniture and statues, incense to burn in their temple ceremonies and a rare blue stone, lapis lazuli, for special decorations. The Egyptians also imported animals. Some, such as leopards and monkeys, were simply unusual and interesting. Others, such as camels and horses, completely changed the way the Egyptians travelled. Others, such as chickens, gave them new types of food they had not enjoyed before. Finally, they traded slaves. Egyptian traders were willing to travel a long way. They even designed boats that could be pulled to pieces, carried across the desert, then put back together on the Red Sea ready for a trading journey.

myrrh a gum resin used in perfume, medicines and incense

13.4 Role of significant individuals

Pharaoh Djoser (Old Kingdom)

During the reign of King Djoser (Third Dynasty, 2667–2648 BCE), the Egyptians made an important advance in building. Until the Third Dynasty, the Egyptians built with mud brick, reeds and wood. Djoser's architect Imhotep translated the shapes of the early brick tombs into limestone. The result was the step pyramid, the world's first monument built entirely of stone. It included a *serdab*, or statue room, from which the king viewed his kingdom.

Source 13.14 Djoser's step pyramid: the world's first great monument, built entirely of stone



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Hatshepsut

Although Egyptian women enjoyed some equal rights with men in everyday life, it was not the same in the world of government. The pharaoh was expected to be male. In the fifteenth century BCE, Queen Hatshepsut proved that a woman could rule well and solve Egypt's problems. Hatshepsut became queen when her brother, Thutmose II, came to the throne in 1482 BCE. When he died in 1472 BCE, his son, Thutmose III, was only 6 years old and too young to rule. Hatshepsut stepped in to become **regent**. She then took on a pharaoh's duties, such as making offerings to the gods.

regent a ruler who steps in temporarily to rule because the person who is to be pharaoh is not yet old enough to take up his or her position of authority

Later, she took the title of pharaoh herself and put Thutmose in second place. She reigned for 21 years. Hatshepsut even decided to dress like a male, wearing the pharaoh's full crown and beard. Few people saw the pharaoh in real life, so she could use artworks to give the impression that she was actually male. The earliest statues showed her as a woman, but later statues showed her as a male. Because she was all-powerful and paid for the statues, she could tell the sculptor that she wanted to be shown wearing the pharaoh's robes and even a false, strap-on beard. Hatshepsut showed that a capable person could improve Egypt's position, even though she was not the male ruler people expected. She helped Egypt to recover its economic wealth by bringing the country's finances back into order. She also launched a program of building, repairing temples damaged by the Hyksos invaders.



Source 13.15 This head of Hatshepsut was made in about 1460 BCE. It was originally a part of a statue of a sphinx. She wears a strap-on beard, but her face is clearly female.



Source 13.16 This stone block was ordered by Hatshepsut to remind people that she had done good work restoring the Temple of Karnak. In this scene, she is making an offering to the god Amon (left).

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Hatshepsut disappears from history

Hatshepsut's capable rule ended when she died in 1458 BCE. It is not known how she died. Her stepson, Thutmose III, became pharaoh. He destroyed all signs of her rule, even chipping her name off the front of her great buildings. Historians thought he was angry, but in fact he did not order this until 20 years after her death. He probably wanted to destroy any memory that a woman had ruled Egypt, to prevent it happening again. When records are destroyed, historians have no evidence to go by, and they are left wondering what really drove her to seize power. Historians feel that they still do not know enough about Hatshepsut.

A modern detective story: Hatshepsut reappears

For many years, archaeologists thought that they would never find Hatshepsut's mummy. Howard Carter discovered her stone coffin in the Valley of the Kings in 1903, but there was no body inside. He thought Thutmose had destroyed her mummy as well her statues. The story of her rediscovery is like a detective story in archaeology. Recently, archaeologist Zahi Hawass, leader of the Egyptian Mummy Project, looked more carefully at all the unnamed female mummies of the Eighteenth Dynasty. He focused on two, found in tomb 60 in the Valley of the Kings. Hawass spent 4 months passing the two bodies through modern CT scanners, but remained unsure. The case seemed hopeless. Then he remembered that a box had been found with Hatshepsut's name on it, containing her liver. When he checked the box, he also found a broken tooth. With the help of a dental expert, he discovered that the tooth exactly fitted the jaw of the larger of the two mummies. If the naming of the box was correct, and if the tooth came from Hatshepsut, then the body he had found must be that of the missing queen-pharaoh. You can follow this story at www.cambridge.edu.au/hass7weblinks.



Source 13.17 Dr Zahi Hawass inspects the mummy that is later proved to be Hatshepsut.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Pharaoh Akhenaten (New Kingdom)

In a society where the ruler was all-powerful, the pharaoh could decide to introduce important changes to his people's lives and beliefs. In Egypt, the most serious change to religion and to art was made by pharaoh Amenhotep IV (Eighteenth Dynasty, 1352–1336 BCE). He ordered that the whole range of gods and goddesses be replaced by one god, Aten, the Sun God. He even changed his name to Akhenaten, meaning 'The Goodness of Aten'. To help make this important change, he founded a new city named Akhetaten ('Horizon of the Aten'). He did not even allow a statue of Aten: the god was shown simply by the circle of the sun itself. He sent officials out across Egypt to smash statues of the other gods. The Egyptian people were deeply unhappy. They had worshipped the sun before, but they had never been ordered to worship the Sun God alone. They were also angry that paintings showed Aten giving his attention only to Akhenaten and the royal family. Engravings of the pharaoh worshipping showed the rays of the sun coming down to his family, and giving them little *ankh* ('sign of life') symbols. Ordinary people were used to praying to the gods to protect them; now they could only look at scenes of the pharaoh praying to the Sun God. They probably disobeyed the pharaoh's orders and secretly worshipped their traditional gods at home.

Akhenaten made another important change by creating a completely new style in Egyptian art. Artists now did many scenes of the pharaoh and the royal family. In every scene, the royal figures seem to have strange shapes: fat bellies, buttocks and thighs, and spindly legs. Their heads are unusual: the skull is long and slanting, and the face has thick lips. Historians still cannot decide whether the members of his family actually looked like this, or whether Akhenaten told his artists to show them this way to make them seem strange and godlike. The archaeologist Cyril Aldred believes that Akhenaten may have suffered from an illness



Source 13.18 Akhenaten is shown sitting with his family, below the disc of the sun, while Aten sends down beams of light that give the life symbol directly to the pharaoh and his family.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

called Fröhlich's syndrome, which causes the body to develop very fatty areas around the upper part, but to have thin lower arms and legs.

heresy a belief that is against what is generally accepted

Akhenaten paid a heavy price for his actions. After his death, his religion was called a **heresy**. His city was completely destroyed.

Nefertiti

Queen Nefertiti (1380–1340 BCE) was Akhenaten's wife. Her name means 'a beautiful person has come'. Many artworks show her and her family of six daughters as being close to the pharaoh. Some paintings or engravings show her to be equal to her husband. For example, she is shown making offerings to the god Aten. A famous statue shows her wearing a special blue crown never seen before. One engraving even shows her driving a war chariot against foreign enemies. The end of her life remains a mystery. She may have been replaced by another ruler called Smenkhara, or she may have been renamed Smenkhara. The date of her death is not known. Her tomb was probably at Amarna, but few objects have been found.



Source 13.19 This sculpture shows Nefertiti to have been one of the most beautiful women of the ancient world.

Tutankhamun (New Kingdom)

Tutankhamun is one of the most famous pharaohs. His name means 'The living image of Amun'. He is known as the boy-king because he came to the throne at the age of 9. He reigned for 10 years (1333–1323 BCE). He restored order to Egypt by reversing his father Akhenaten's worship of the Sun God. He led his people to return to the old religion, with Amun again the main god. He changed his name from Tutankhaten to Tutankhamun to show his loyalty to the god. He moved the capital of Egypt away from his father's city of Akhetaten back to Thebes, and restored temples and statues of the other gods of Egypt. Tutankhamun died quite suddenly in 1327 BCE. For some time, historians wondered whether he had been murdered by enemies. Recently, they have used modern medical machines, such as CT scanners, to look more carefully at his mummified



Source 13.20 This double statue shows King Tutankhamun (right) with the great god Amun-Re (left). Both wear false beards, showing that they are gods. The pharaoh was believed to be descended from Ra, the Sun God.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

body. In 2010, they found that his left thigh bone had been smashed, perhaps in a hunting accident. This had created a deep wound, which may have become infected. His leg certainly still had a large open wound when it was mummified.

Tutankhamun is also famous because of a stroke of luck. All pharaohs were buried with many treasures for use in the afterlife, but most tombs were later robbed. The entrance to Tutankhamun's tomb was accidentally covered over by the building of a worker's hut. This kept the entrance hidden until the British archaeologist Howard Carter discovered it in 1922. For the first time, historians could see a nearly complete royal burial. You can see Tutankhamun's treasure in the Egyptian Museum in Cairo. It is really a time capsule that has brought these beautiful objects through 3000 years of time.

RESEARCH 13.1

Go online and research one of the following people in more detail:

- King Narmer (King Menes)
- King Cheops
- Imhotep
- King Rameses II
- 'King' Hatshepsut
- King Akhenaten
- King Tutankhamun
- Queen Nefertiti
- Queen Cleopatra VII.

Be sure to research the major achievements of the pharaoh you choose, and evaluate the role of the person selected. Present your findings on a poster.

DEVELOPING YOUR UNDERSTANDING 13.4

Choose a partner and write a short role-play between the two people whose names are printed in bold:

- **King Narmer** (Pre-Dynastic Period) describes to his **vizier** how he won the battle that united Upper and Lower Egypt, and the vizier praises him for the results.
- **Pharaoh Djoser** (Old Kingdom) summons his vizier **Imhotep** and explains that he has a vision for a vast building made entirely of stone. The two men discuss the difficulties of such a large project, and plan ways of overcoming them.
- **Pharaoh Hatshepsut** (New Kingdom) debates or argues with **Thutmose III** why Egypt has benefited from her taking control of government.
- **Pharaoh Akhenaten** (New Kingdom), the maker of the single Sun God religion, has to face up to the **god Amen** in the afterlife and explain his actions.
- **Pharaoh Tutankhamun** receives a deputation from the **high priests of Egypt**, who argue that they must bring back the traditional gods. How would Tutankhamun reply to them?
- **Pharaoh Rameses II** explains how he organised his great military campaign at Kadesh, while the **Hittite general** argues that there was no victory.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 13.2

One of the best ways of gaining a deeper knowledge of Egyptian culture is to investigate excavations that are happening at the present time. Each discovery brings new and interesting information to light. Many of the most important excavations are being conducted by teams of Australian archaeologists, working at sites such as Helwan, Saqqara, Meir, Tehra and Thebes. Write a report about the work of Australian archaeologists at three excavation sites in Egypt. In your report, identify what sort of site they are excavating, what they have found and what this tells us about life in ancient Egypt. The Australian Centre for Egyptology at Macquarie University has a website which may assist you with your report. Find the link at www.cambridge.edu.au/hass7weblinks.



Source 13.21 Excavation site at Saqqara, Egypt, with the Djoser pyramid (or step pyramid) in the background

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- The nature of any land will affect the sort of society that develops there. In the case of Egypt, most of the land – the desert – worked against human life. The River Nile made it possible for humans to survive, and even live very well, in its rich valley.
- Settlement in Egypt started very early and grew very quickly. Once people had discovered how many resources the river gave, they learned to keep farm animals and plant crops.
- As they settled down in one place, people were able to build houses, then villages, then cities. The rich mud of the river and the burning sun gave them everything they needed to make mud bricks for thousands of buildings.
- In terms of government, the Egyptians began in smaller tribes, which then joined together until the country was ruled by a King of Upper Egypt and a King of Lower Egypt. King Narmer finally brought them together in one country in about 3100 BCE.
- The Egyptians quickly found that they only needed some people to grow enough food for everybody. This meant that others were free to take up other jobs and become expert in them. Some became priests, some architects and builders, some scribes and artists.
- Egypt was unusually big: it covered a vast area, and had a large population of five million people. One of the secrets of the Egyptians' success was a strong, centralised government in the hands of a powerful ruler, the pharaoh, who was served by a large number of officials who helped him rule (a bureaucracy).
- To rule Egypt, it was important to have a way of giving people orders, telling them of new laws and recording the taxes they paid. The Egyptians may have invented writing or they may have learned it from the nearby civilisation of Sumer.
- Egypt also had a very strictly ordered social system. People obeyed the laws and knew their place in society. Historians know a lot about groups of people who were rich and powerful, and who could pay for works of art and good tombs. Historians admit that it is more difficult to find out about people who were not powerful, such as women, peasant farmers, workers, slaves and children.
- Egypt is famous for its complicated system of religion. The Egyptians believed that it was possible to survive death and to go on to the afterlife, providing the body was preserved so that the soul could return to it. This belief inspired great buildings, such as the pyramids for the pharaohs and the many beautiful painted tombs found in the Valley of the Kings and elsewhere.

Short-answer questions

1 Explain why the Egyptians called their country 'Beloved Land'.

2 How was ancient Egypt protected from invaders by natural borders?

3 The Egyptian dynasties were divided into three periods. What were their names and why were they divided?

4 Outline how Hatshepsut become the pharaoh.

5 Analyse how contact with other cultures, in war and trade, helped to change and improve Egypt.

Source analysis

Study Source 13.22 and answer the following questions:

1 Make a list of the symbols of royal authority that you can see on this statue.

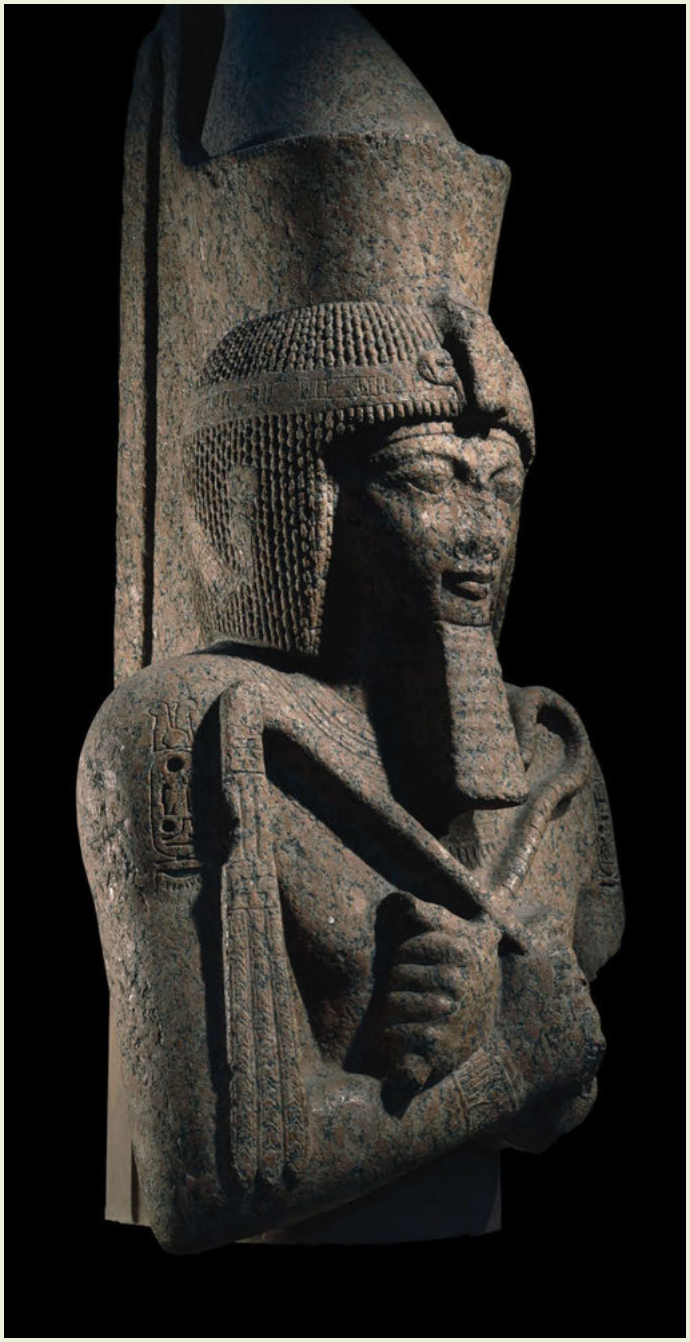
2 Why would most Egyptians easily have understood the meaning of the pharaoh's symbols of the crook and the flail?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

3 How was the unification of Upper and Lower Egypt shown in the shape of the pharaoh's crown?

4 Look carefully at any statues of important people in the area where you live. What sorts of people do we build statues of today?

5 Consider who is the most powerful and important person in Australia today. How does this person show their authority?



Source 13.22 This granite statue shows the great Rameses II sitting on his throne and holding his symbols of royal authority.

Extended-response questions

You are a leading expert on ancient Egyptian tombs, and you have just been called by the Director of Antiquities to come to Egypt. The breaking news is that an important pharaoh's tomb has just been discovered and it is in perfect condition. The doors had been well hidden, and as a result robbers had not broken in to remove objects. The wall paintings and the treasures are all still in place. This is the most significant step forward in Egyptology since the discovery of Tutankhamun's tomb in 1922. You have been called in to write a report for a major news network and for newspapers across the world. Using your own knowledge of other pharaohs' tombs, give information about the contents of this new tomb:

- Write a description of the shape of the tomb and the protection of the mummy of the pharaoh.
- Describe what sorts of precious objects are in the tomb.
- Explain why your pharaoh needed magical items such as *shabtis*.
- Identify and analyse what is shown in the wall paintings, such as 'The Opening of the Mouth Ceremony'.
- Present photographs, maps and diagrams to help the public understand what has been found.
- Provide interviews – for example, with the workers who first made the discovery.
- You may make up the name of your pharaoh, but you should include real historical information based on what you know about actual burials in the Valley of the Kings.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



14

Ancient Greece

Before you start

Main focus

The political and social systems of ancient Greece form the foundation for Western society, and are seen by many historians as a point of origin for Western culture.

Why it's relevant today

Ancient Greek society has had a major influence on Western society for the last two millennia. Studying this civilisation enables a deeper understanding of important elements of modern society, including democracy, philosophy and the arts.

Inquiry questions

- What do we know about ancient Greece and how do we know it?
- Why and where did ancient Greek societies develop?
- What were the defining characteristics of ancient Greece?
- What is the legacy of ancient Greece?

Key terms

- Attica
- Democracy
- *Hoplites*
- Mycenaeans
- Oligarchy
- Oracle
- Peloponnese
- *Polis*
- Serf
- Tyranny

Significant individuals

- Aristotle
- Darius I ('the Great')
- Homer
- Kleisthenes
- Leonidas
- Miltiades
- Plato
- Pericles
- Socrates
- Sophocles
- Themistocles
- Xerxes

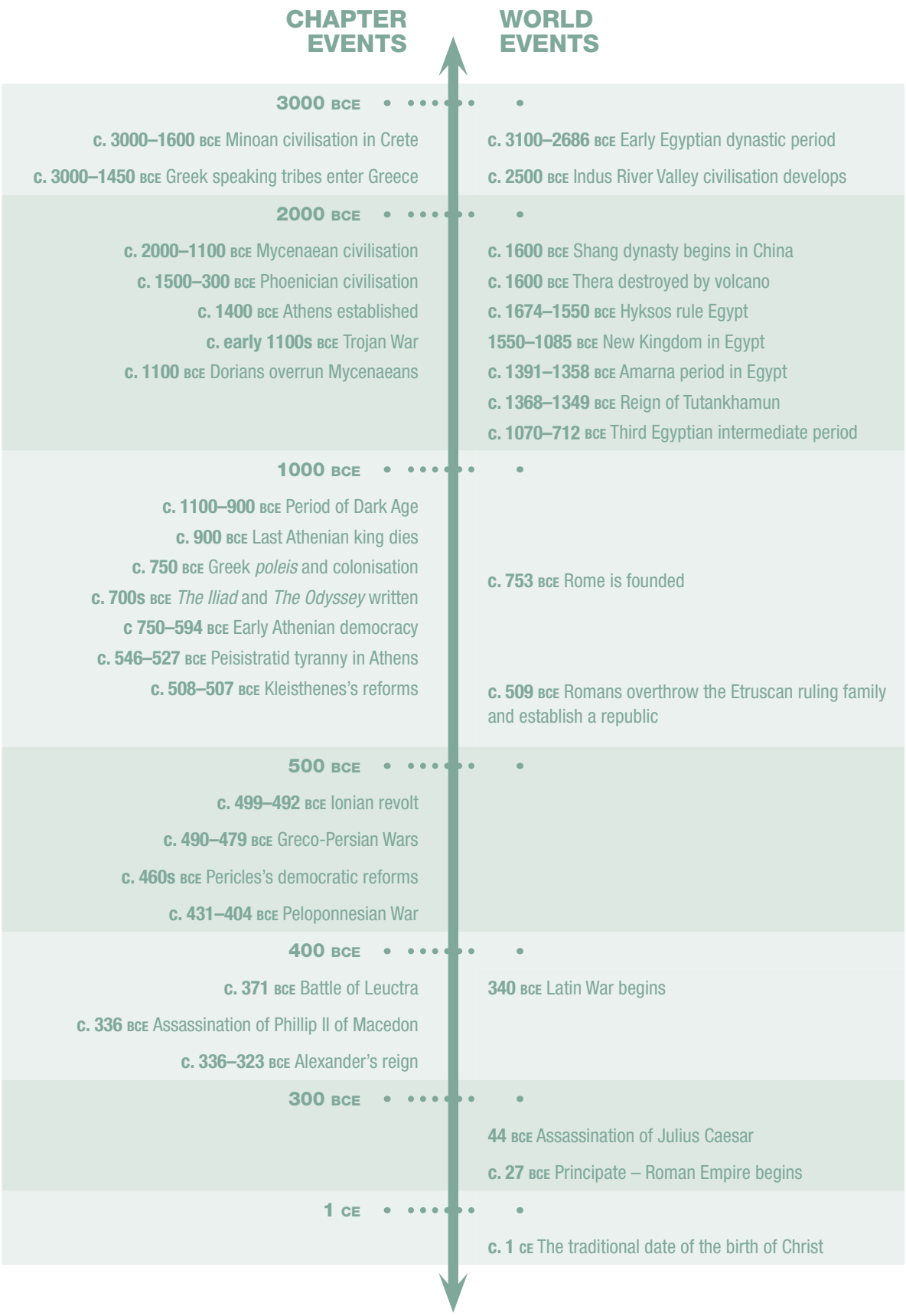
Let's begin

Ancient Greek civilisation had a profound influence on the region around the Mediterranean Sea for over 500 years. It reached its peak in the fifth and fourth centuries BCE, but its effects go beyond this and are still apparent. Many of the institutions of ancient Greece survive in our society and provide a connection between antiquity and the present. The Olympic Games, for example, is a direct link with the past and a reminder of the impact that civilisation can have through non-violent means.

The Greeks made new discoveries in science and mathematics. They developed new forms of government, such as democracy, in which people governed themselves rather than submitting to the rule of a king. They also invented drama, writing stories and plays that continue to be performed today. As well as this, it was an age of great thinkers, and many of the ancient Greek philosophers have influenced how we see the world today. Accordingly, ancient Greece is often called the 'Cradle of Western civilisation'.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 14.1 A map of ancient Greece

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

14.1 Physical features and their influence

Phoenicians the seafaring and trading civilisation from the eastern Mediterranean that was active between 1500 and 300 BCE

Minoans the name given by Sir Arthur Evans to the civilisation that existed on the island of Crete until about 1450 BCE

Mycenaeans Greeks who conquered the Minoans and flourished as a civilisation in southern Greece between 1600 and 1100 BCE

When historians talk about the civilisation of the ancient Greeks, they generally refer to the time period between 1200 BCE and 323 BCE, the year Alexander the Great died. The geographical area to which they refer stretches from the European mainland to the islands in the Aegean Sea to cities in Anatolia (modern-day Turkey). Therefore, when we think about ancient Greece, we must consider the societies in that area that influenced ancient Greek culture. The most notable of these Mediterranean cultures were the **Phoenicians**, **Minoans** and **Mycenaeans**.

Phoenicians, Minoans and Mycenaeans

Canaan a region that in ancient times was on the eastern Mediterranean, covering parts of modern-day Israel, Jordan and Lebanon

The Phoenician civilisation flourished from 1500 BCE in **Canaan** and port cities such as Tyre and Sidon (today in Israel and Lebanon). The Phoenicians were **maritime** traders, and their trade spread across the sea as far as Britain, in order to obtain tin (the other ingredient, with copper, of bronze). They also controlled trade in Tyrian purple, a rare purple dye extracted from sea snails that was very expensive.

maritime associated with seafaring

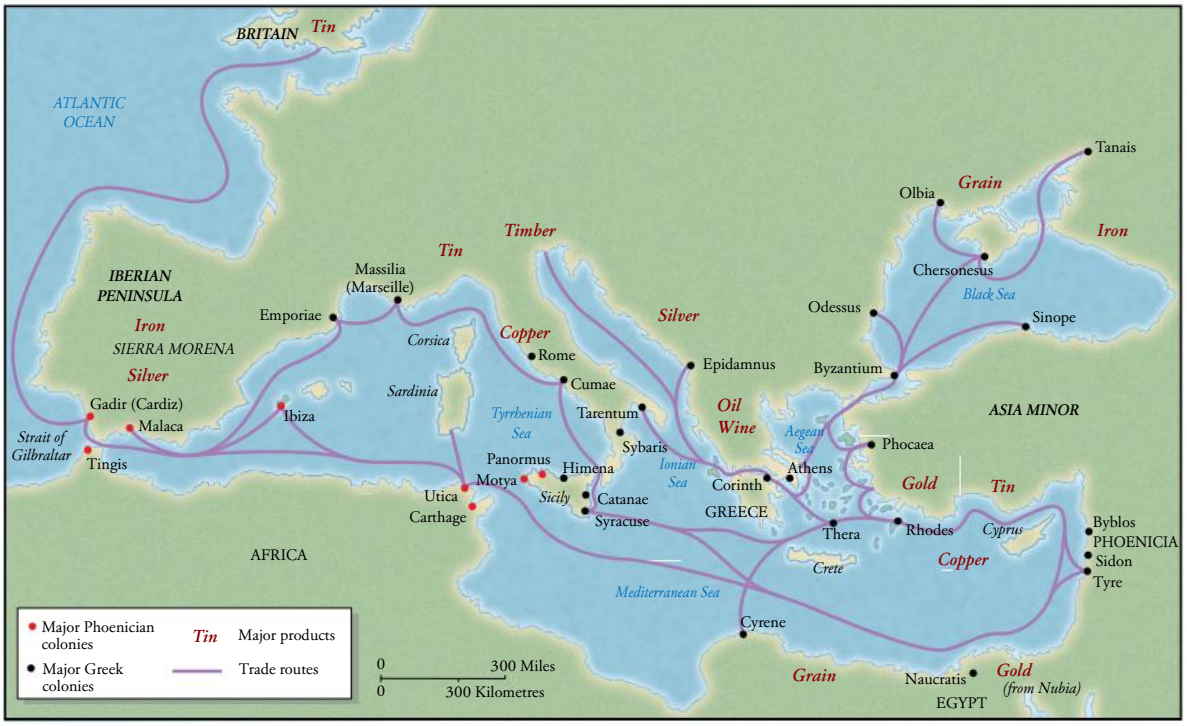
phonetic alphabet an alphabet where the signs or letters have a one-to-one correspondence with the sounds of the language

Many elements of Phoenician culture had an influence on the Greeks, including the development of trading colonies, seafaring and shipbuilding, and perhaps most significantly, the development and widespread use of a **phonetic alphabet**.

The Minoan civilisation flourished on the island of Crete, possibly as early as 3000 BCE. Little was known about the Minoans until excavation of the major site of Knossos by British archaeologist Sir Arthur Evans at the beginning of the twentieth century.

Evans attempted to partially restore the main building at Knossos, which he deemed to be a palace. The ruined site contained **frescoes**, pottery, jewellery and clay tablets. All these finds demonstrated a sophisticated culture. Minoan art

fresco an interior type of pictorial wall painting where the pigment or paint to create the picture is applied to the wet plaster surface of the wall and then allowed to dry



Source 14.2 Map showing Greek and Phoenician trade routes, principal commodities and colonies

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

							
aleph	beth	gimel	daleth	he	waw	zayin	heth
’	b	g	d	h	w	z	h
							
teth	yod	kaph	lamed	mem	nun	samekh	ayin
t	y	k	l	m	n	s	‘
							
pe	sade	qoph	resh	shin	taw		
p	s	q	r	sh/s	t		

Source 14.3 The Phoenician alphabet, including the sound and corresponding modern letter. Note that aleph and ayin were sounds made at the back of the throat, similar to modern Middle Eastern languages.

was highly developed and portrayed aspects of ordinary life, including a fresco that depicts young men and a woman leaping over a bull.

The clay tablets found at Knossos contained examples of two distinct types of writing, labelled Linear A – which appears to be written in the unknown Minoan language – and Linear B. Linear B was discovered to have been written in the Mycenaean language (a relative of ancient Greek), but Linear A – and therefore many details of the Minoan civilisation – remains undeciphered. Prior to the ancient Greek civilisation, from around 2000 BCE, the Mycenaean civilisation was dominant in the area. The Mycenaeans moved into Greece from the north and were at first dominated by the Minoans. They appear to have been influenced by Minoan culture but they worshipped a different set of gods. They seem to have been more warlike than the Minoans and flourished not through trading, but through conquest. They were skilled in the use of bronze, especially for making weapons. The Mycenaeans conquered the Minoans and adapted their Linear A script for their own language (resulting in Linear B). The Mycenaean civilisation was at its height in the early twelfth century BCE at a time that coincided with the legendary **Trojan War**. However, the peak of Mycenae didn't last long – it is thought that Mycenae was overrun and destroyed by the **Dorians** around 1150 BCE.



Source 14.4 Gold funeral mask, also known as the ‘Agamemnon Mask’, found in Tomb V, Mycenae by Heinrich Schliemann

Trojan War a legendary 10-year war between the Mycenaean Greeks and the city of Troy, caused by the abduction of Helen, the wife of King Menelaus of Sparta, the brother of King Agamemnon of Mycenae, by the Trojan prince Paris

Dorians Greek-speaking people from the north who conquered the Mycenaeans around 1150 BCE

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 14.1

1 Identify two influences of the Phoenicians on Greek culture.
2 Identify two types of writing that have been found on Crete.
3 What problems with these currently limit our knowledge of the Minoan culture?
4 Examine the map in Source 14.2, and answer the following questions:
   a Which island provided the most likelihood of the Greeks and Phoenicians coming into contact? Why?
   b List four commodities that were traded.
5 Study the information in Source 14.3 and answer the following questions:
   a How many letters were in the Phoenician alphabet?
   b What letters in our alphabet do not appear in this ancient one?
6 What were two differences between Mycenaean culture and Minoan culture?
7 Why might Heinrich Schliemann have decided to call Source 14.4 the 'Agamemnon Mask'?

RESEARCH 14.1

Research the excavations at Knossos by Sir Arthur Evans and at Mycenae by Heinrich Schliemann, using your school library or the internet. Write a report of your findings covering the following points:

- What did they uncover at each site?
- How did their discoveries lead them to certain conclusions about the nature of each site in antiquity?
- Are their findings still accepted? Explain why.

Impact of geography and climate

The mainland of Greece is made up of two distinct regions (north and south) joined by a narrow strip of land called the Isthmus of Corinth. The southern region is known as the **Peloponnese**.

The mainland is predominantly mountainous, with small valleys and plains with a few rivers running to the coast. The climate in ancient times was hot and dry in summer, with mild winters – similar to southern Australia today. Towns and cities reflected an outdoor lifestyle with open-air meeting places and markets, as well as building designs that were relatively exposed to the elements. A common feature was a civic and market centre (agora) and stoas (verandas lined with columns running the length of public buildings) surrounding the agora, providing protected spaces for shops and for walking. However, urban growth was usually haphazardly planned, with additions made as required.

The combination of climate and geography made sufficient food production a problem. Some communities moved off the mainland on to the many islands in the Ionian and Aegean seas because of this. Limestone soils were ideal for olives and grapes, but **cereal crops**, such as wheat, oats and corn, needed space and flat fertile land, both of which were in short supply on the mainland.

Peloponnese the southern part of Greece

cereal crops grains grown for eating, such as corn, wheat and barley

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Goats became the main livestock as they were more suited to the conditions and sparse vegetation. Travelling by boat was an efficient way to reach various places on land from the island communities and provided an opportunity to trade.

By 600 BCE, significant amounts of food and raw materials were being imported from places such as Egypt, **Lydia** and southern Italy.

Lydia a kingdom of western Asia Minor located generally east of ancient Ionia in what is today part of Turkey

These materials included grain, timber (used for shipbuilding) and wool. Slaves, a human commodity, were also imported and were an important element in the development of the Greek societies.

Hellas

The isolation of developing communities on the mainland meant that in ancient times there was no such country as 'Greece'. Rather, the Greek language and culture – particularly religion – provided a common bond for them as Hellenes, or 'Greeks'. Hellas, which is what Hellenes called where they lived, could be anywhere there was a significant concentration of Greeks (not only where Greece is today, but also on the coast of what is modern-day Turkey, and southern Italy and Sicily). However, while they were united culturally, the Greeks were divided and competitive as states, often to the point of making war against each other. There were only two brief periods when the Hellenes chose to unite for a single cause. These were both in the early fifth century BCE when the Persian Empire, first under **Darius I** and later under his son, **Xerxes**, attempted to invade the Greek mainland.

Darius I ('the Great') king and emperor of the Persian Empire, who launched the First Persian War against the Greeks in 490 BCE

Xerxes the son of Darius I, and then king and emperor of the Persian Empire, who launched the Second Persian War against the Greeks in 480 BCE

DEVELOPING YOUR UNDERSTANDING 14.2

1. Identify the most common feature of urban development in Greece prior to the seventh century BCE.
2. Why was it difficult to produce sufficient food in Greece? Give two reasons.
3. Explain how this problem was solved.
4. Who were the Hellenes?

The *polis*

polis (plural *poleis*) Greek city-state

monarchy rule by one man or woman, who often takes the title of king, queen, emporer or empress

tyranny form of government found in other Greek *poleis* and at one time in Athens, where power was taken by one man unlawfully

After the fall of the Mycenaeans, little is known about Greece until the eighth century BCE. This period is known as the Dark Ages. The geography of Greece, a mountainous mainland along with widely spread islands, meant that the Dorian communities were quite isolated. This isolation led to each community developing a distinct way of organising its society. The people of different geographical areas grew into separate states with their own local identities, but still within a shared Greek culture. By the seventh century BCE, each had evolved into a city-state called a ***polis***. The modern term 'politics' is derived from the practices that were developed to organise and run these *poleis*. Various types of political organisation emerged, including **monarchy, tyranny, oligarchy** and **democracy**.

oligarchy the form of government adopted by the Spartans in which power lies with only a few people

democracy the form of government eventually adopted and popularised by the Athenians, where male citizens took part in decision-making through voting

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Colonisation

Over 30 *poleis* established multiple colonies around the Mediterranean from 800 BCE. There were several reasons for colonisation:

- Overpopulation of the original *polis* led to scarcity of land to sustain food productivity.
- Setting up new ports could increase income from trade.
- Political tensions in some *poleis* led to the **exile** of some groups and voluntary departure of others.

exile banishment from a *polis*, usually after a vote of the citizens

There were two types of colony: those that were politically independent city-states, and those that were communities of traders with no independent political existence. The *polis* that sent out the colonisation expedition was called the 'mother-city', or metropolis. Any differences that arose between mother and daughter colony were settled, if possible, by peaceful means, with war justifiable only in extreme cases. The constitution of the mother-city was usually adopted by the colony, but the new city remained politically independent. If the colony sent out a fresh colony on its own account, the mother-city generally was consulted, or at least requested to provide a leader.

Like the Phoenicians, who were also active in colonising, the Greeks benefited from having safe places in foreign lands from which to trade (see Source 14.2). Trade increased wealth and generated technological developments like ship design.

DEVELOPING YOUR UNDERSTANDING 14.3

1 Describe how geography influenced the development of the Greek *polis*.
2 List the two types of Greek colony.
3 What was the other major trading culture in the Aegean at the time?

RESEARCH 14.2

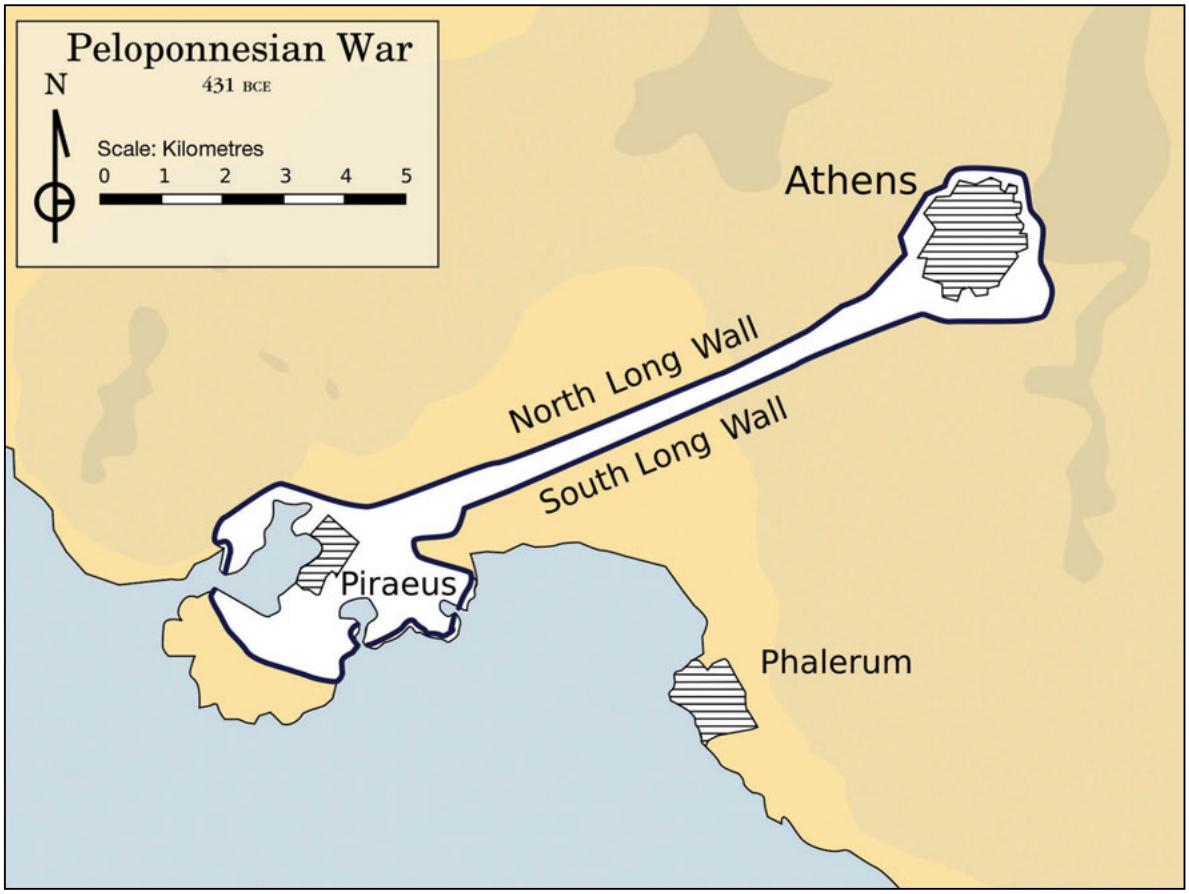
Research the process of Greek colonisation using the internet. Then make bullet-point notes on this, under headings that could include:

- causes
- establishment of colonies
- impact of colonisation on the spread of Greek culture.

Attica region in east-central Greece that had Athens as its *polis*

Athens, established around 1400 BCE, was the chief city in the region of **Attica** in east-central Greece. Bordered by the sea on the south and east, Attica attracted maritime trade. Athens developed into a *polis*, driven by the wealth it generated through trade of olive oil and pottery, and silver mining. By the seventh century BCE, it controlled Attica and was one of the leading centres of trade in the region. Three stone walls, each about 6 kilometres in length, joined Athens to the coastal harbours of Piraeus and Phaleron, and gave the Athenians protected access to the sea in times of war.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 14.5 A plan showing the defensive wall in Athens. The original wall was destroyed by the Persians in 480 BCE, but it was rebuilt after the Second Persian War.

DEVELOPING YOUR UNDERSTANDING 14.4

1. Identify where and when Athens was established.
2. How did Athens's location help it to develop successfully?
3. Describe the city's walls and determine their purpose.

14.2 Role of key groups

Democracy

From the sixth century BCE, Athens developed towards democracy (the modern word comes from the Greek *demokratia*, in which *demos* means 'people' and *kratein* means 'to rule'). The Athenian government was a direct democracy. Any adult male citizen could take part, and it was his duty to do so. If not enough citizens showed up for the Assembly (*ekklesia*), for example, 300 specially trained slaves would go through the town with a rope dipped in red paint. Anyone hit by the paint had to pay a fine for not doing his civic duty. The officials of the democracy were chosen by lot, but the generals – the *strategoi* in charge of the army and foreign policy – were elected by the assembly of citizens. The assembly also voted on legislation and policy matters.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

A unique feature of Athenian democracy was the use of a lottery system to appoint nearly all public officials. Appointment by lot and for short terms of office allowed most Athenian male citizens to participate in their government at some time in their lives. It also limited the ability of one man or group to gain too much power. Apart from voting, a citizen's duty included fighting in the Athenian army in times of war. This system meant that no *polis* had a standing army except for Sparta.

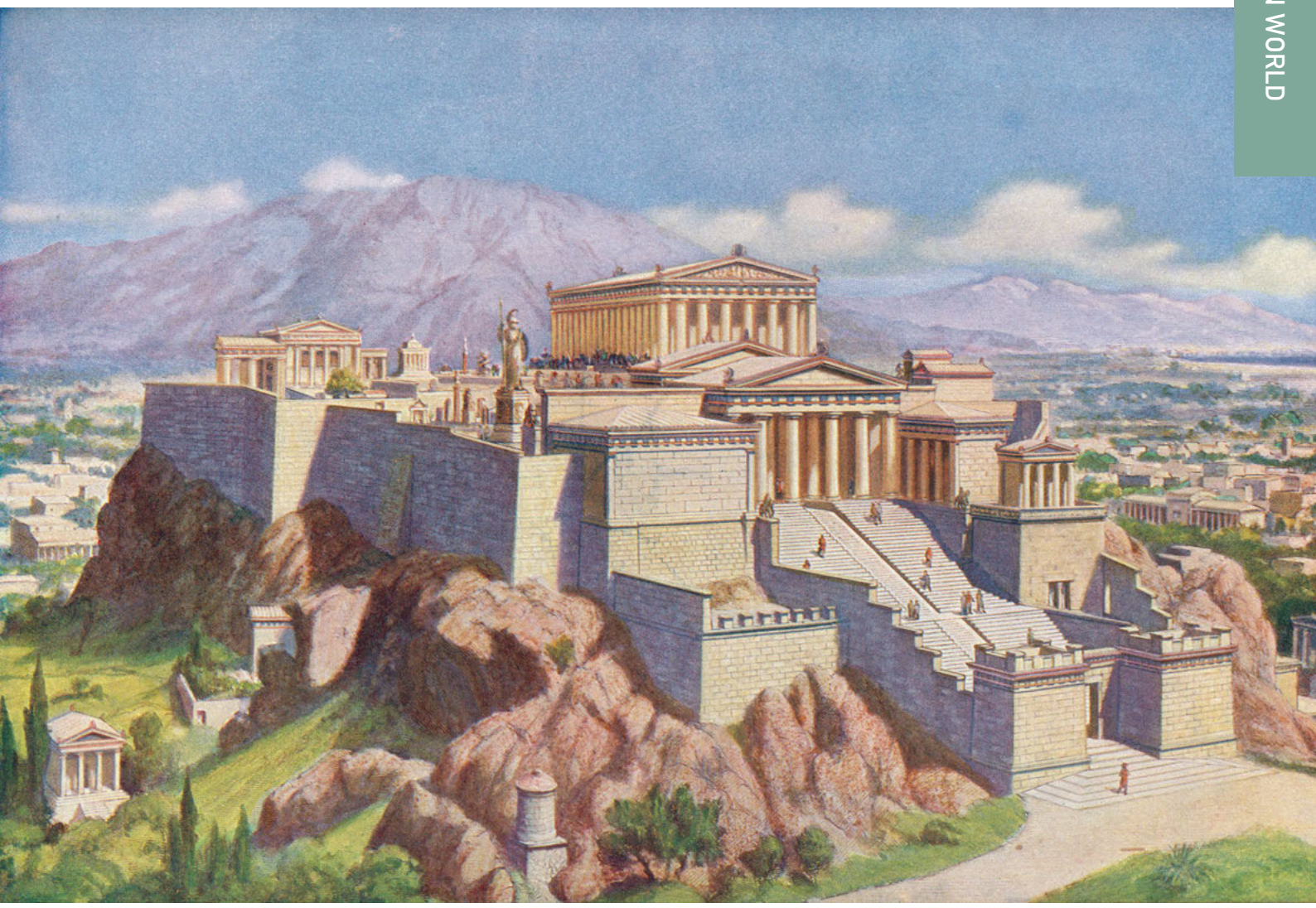
The Acropolis

The Athenian Acropolis is a flat-topped rock that rises 150 metres above sea level with a surface area of about 3 hectares. It was the highest point in Athens, and originally had been the **citadel** of the city. By the fifth century BCE, it had developed into the religious centre of Athens, dominated by the Parthenon, a temple devoted to the city's patron, the goddess Athena.

citadel a fortress built to defend a city

Citizens

Athenian citizenship was hereditary – a citizen had to be descended from a citizen. In 450 BCE, as a result of reforms by Pericles and Cimon, a citizen had to be descended from an Athenian citizen on both sides of the family, which excluded the children of Athenian men and foreign women. Only adult male Athenian citizens who had



Source 14.6 Artist's impression of the Acropolis c. 430 BCE. The former Temple to Athena (burned by the Persians in 480 BCE) was replaced by the Parthenon (Temple to Athena), which is the largest building on the site. The Temple of Athena Nike (lower right) was erected in honour of the Athenian victory over the Persians at the Battle of Marathon.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

completed their military training (2 years after the age of 18) had the right to vote in the Assembly in Athens. This excluded a majority of the Athenian population, namely women, slaves, freed slaves, children and *metics* (foreigners). Also disallowed were citizens whose rights were under suspension (often for failure to pay a debt to the city). Citizenship could be granted by the *ekklesia* and was sometimes given to large groups, especially in time of war (for example, the Plateans in 427 BCE and the Samians in 405 BCE). By the fourth century BCE, it could only be granted to individuals and then by a special vote of the Assembly with a minimum attendance of 6000.

DEVELOPING YOUR UNDERSTANDING 14.5

1 What qualified a person to vote in Athens?
2 How did the function of the Acropolis change over time?
3 Draw up a table with two columns. In the left column, list groups of people who could not vote in Athens. Next to each, in the right column, give reasons why they could not.

SOCIAL GROUP	WHY THEY COULD NOT VOTE

4 What was the *ekklesia*?
5 Explain how Athens practised 'direct democracy'.

Social structure

The male citizenry of Athens was divided into four tiers, as suggested by reforms of Solon in the early sixth century BCE, when political rights were allocated in proportion to the income of each man. The four ranks were:

- *pentiocosiomedimnoi* – those who produced approximately 8000 kilograms of grain per year, and could serve as *strategoi* or generals in the army (about 5% of the citizenry)
- *hippis* – those who could equip themselves and one cavalry horse for war, valued at 5000 kilograms per year (about 10%)
- *zeugitae* – tillers, owners of at least one pair of beasts of burden, valued at 3000 kilograms per year, who could serve as ***hoplites*** (about 25%)
- *thetes* – manual labourers and poor farmers (about 60%).

hoplites heavily armed Greek citizen foot-soldiers

Population estimates for Athens in the mid-fifth century BCE range between 120 000 and 150 000 people, of whom up to 40 000 were citizens.

Clothing

The clothing worn by men and women was universal, with slaves and citizens in similar dress. Clothes were fastened with brooches or pins (*fibulae*), and a belt or girdle (*zone*) might secure the waist. The fundamental clothing for Greek men was a tunic, called a *chiton*. These came in two versions:

- *exomis* – a short *chiton* with the right arm left free for activity. This was often used by workers or slaves.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 14.7 Bronze statue of a charioteer from Delphi shown wearing a *xystis* (long *chiton*)

- *xystis* – a longer *chiton*-like garment covering the whole body all the way to the ankles. Men also wore a long cloak called a *himation*, which could be draped around the body, or a *chlamys*, a shorter version that was used for travel or riding. It was fastened in front or on one shoulder.

Women mainly wore a *peplos*, made from two rectangles of cloth or one large rectangular piece of cloth (equivalent to the two) with the top edge folded down and the folded edges pinned together at the shoulders. The woman's arms went through the opening on either side. The overhanging fabric could end above the waist to show the material that was bloused over a *zone*. The *peplos* was usually a heavier woollen garment, while the *chiton* was a lighter linen one and might be worn underneath. For warmth or modesty, women could also wear a *stola*, a mantle draped around the shoulders or placed over the head. Children wore the *chiton*. Men and women wore sandals, slippers, soft shoes or boots, depending on the circumstance. At home they usually went barefoot.

Family

Married men were seen as the head of the family; however, they took very little part in the direct running of the household on a daily basis. Farmers and craftsmen spent most of the time working. Wealthier men employed managers to run their properties or businesses so they could be involved with the political institutions of the *polis* or socialise. Families usually shared meals. Dinner parties were a social expectation of those holding public office, but such gatherings were for men only. Women and girls were confined to homemaking and child-rearing. However, women in less wealthy families often had to go out of the house to help with the work of the family.

Education

Schooling was not a legal requirement in ancient Athens; however, scenes on painted vases from as early as 500 BCE show that schooling of boys was quite widespread. Girls were not commonly educated in a formal way. Boys began their education aged 7. The wealthy employed private teachers or tutors, and teachers could sometimes be slaves.

Pupils studied under three types of teachers:

- *grammatistes*, who taught reading, writing, arithmetic and literature
- *paidotribes*, who coached wrestling, boxing and gymnastics
- *kitharistes*, who taught music – especially singing and playing the lyre.

Boys had to undergo 2 years of military training at the age of 18 years, after which those from wealthier families often returned to higher education to prepare themselves for public life. One of the first of these places of higher learning was the Academy, a school of philosophy founded by Plato around 385 BCE. Aristotle ran a similar establishment, called the Lyceum, where the curriculum was broader.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 14.8 A boy stands before his seated tutor, who is reading a scroll, possibly reciting something or checking as it is recited to him. Depiction on fifth-century BCE *krater*.

Women

Women in Athens had limited freedom and power. A woman could own personal property, including slaves; however, she was not permitted to buy anything, to own land or to enter into contracts. A male guardian controlled all aspects of her life until she married. Athenian citizenship enabled her to marry another citizen or to participate in religious ceremonies. Girls in Athens got married soon after puberty, usually to much older men. Marriages were often arranged between families, either for the consolidation and management of property or for the production of future heirs. Women lived at home with their mothers until marriage, and unmarried women were the property of their father or guardian. Property protection was such a concern that if a married woman became an heiress of her father (because she had no living brothers), she was required to divorce and then remarry her closest paternal relative to ensure that her inheritance remained in the family.

Lower class women had to go out and help with shopping and so on. A wife's duty was to bear legitimate children and to manage work in the household in an economical way. A respectable woman was expected to remain inside her home; women seen in the street were prostitutes, slaves or poor, and had to work to contribute to their family's well-being. The most important activities of a good wife were childcare, spinning and weaving.

DEVELOPING YOUR UNDERSTANDING 14.6

1. Outline the four social levels Athenian citizens could occupy.
2. Approximately what percentage of the Athenian population were citizens in the mid-fifth century BCE?
3. Give two reasons why men were not involved in the daily running of their households.
4. Ordinarily, when were all members of an Athenian family most likely to be together?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Metics and slaves

Metics were resident aliens with no political rights. They were not allowed to own land, and could not obtain citizenship. However, many were involved in trade and industry, and became very wealthy. Although not possessing political rights, *metics* enjoyed similar privileges to citizens in some areas. Estimates of the *metic* population in Athens by the mid-fifth century BCE are between 30 000 and 50 000.

Slaves constituted the lowest level of Athenian society, but made up at least half of the population of 70 000 to 100 000. Slaves could be owned either privately or by the state. State-owned slaves worked on the roads, in the dockyards and on public buildings. The lowest class of slaves worked in the silver mines at Laurium. Privately owned slaves were treated better. They worked in wealthy houses where many held positions of trust. In Athens, slaves worked in every capacity imaginable, and were as familiar a sight as free members of the society.

Slaves came from a variety of origins: some were prisoners of war, others were unwanted children, some had been sold into slavery alongside their fathers for the payment of their fathers' debts, and still others had been born into slavery.

Privately owned slaves could be freed by their masters' oral pronouncement, in the sight of witnesses at the theatre or before a public tribunal. However, between the sixth and fourth centuries BCE this practice was outlawed in Athens to protect public order. Slave were often required to pay an amount at least equivalent to their market value to free themselves. To do this, they could use their savings or take a loan (*eranos*) from their master, a friend or a client. Freedom could be either total or partial, at the master's whim. A totally emancipated slave was legally protected against all attempts at re-enslavement, particularly by the former master's inheritors. Freed slaves acquired a status similar to *metics*, but did not have the rights of a citizen.

Sparta: a unique society

Lakonia a region in southern Greece that had Sparta as its *polis*

Sparta was a *polis* in the region called **Lakonia** in the south-eastern Peloponnese, about 250 kilometres from Athens.

It was unique in all Hellas because its social system was completely focused on military training and excellence in the art of warfare. The descendants of the Dorians who had settled Lakonia at the end of the Mycenaean period, the Spartans had invaded and conquered neighbouring Messene in the eighth century BCE and the Messenian population had become *helots*, a **serf** class distributed to Spartan masters.

serf a man who was bound to work the land of his master in return for a small amount of land to feed his family

Spartan society was divided into the following ranks:

- *spartiates* – with the exception of the royal families, they were native-born male citizens over the age of 30, who had passed all stages of the *agoge* (the Spartan education system). They belonged to a *syssition* (a military group that supported its members, who were full-time soldiers – *hoplites* – and shared meals together). Each *spartiate* owned a plot of farming land. They saw themselves as equals who shared in a communal society. Even so, there were unfair advantages based on wealth. They never numbered more than 10 000.
- *perioikoi* – literally 'surrounding' (*peri-*) householders' (*oikoi*). They were not citizens but members of different communities spread around the Peloponnese that were allied to Sparta. The *perioikoi* made up half of the Spartan army, and had a monopoly on trade and manufacturing.
- *inferiors* – known by a number of different terms, *inferiors* were those who failed the *agoge* or could not maintain their contributions to the *syssitia*; those who had lost their citizenship through cowardice in war; children of unwed *helot* mothers and *spartiate* fathers; or *helots* who had become freed men through service in war.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

- *helots* – state-owned serfs (rural workers) bound to the land who could not be bought and sold. *Helots* worked the land and did most of the **menial** labour – thus freeing *spartiates* from such work to concentrate on military training. They were entitled to a portion of what they produced. Some historians estimate that they outnumbered the *spartiates* by seven to one.

menial relating to work normally performed by a servant or to unskilled work

Spartiate boys joined the ***agoge*** from the age of 7, living in army barracks. Aside from athletics, fitness and weapons training, the program included dance and music. Food was deliberately rationed to encourage resourcefulness in stealing it – but if caught stealing, boys were severely beaten. At the age of 20, they became fully part of a *syssition* and the Spartan army, and continued to live in barracks.

agoge Spartan education system



Source 14.9 Recreation of Spartan phalanx at Thermopylae in the film *300* (2007), showing the characteristic Greek letter *lambda* for Lakonia on the Spartans' shields

The aim of the system was to ensure that every *spartiate* would be able to:

- have self-discipline
- endure physical and mental hardship
- show unquestioning obedience to superiors
- be loyal to the state
- possess superior fighting skills.

Spartan girls were educated separately, with physical training including running and athletics – sometimes with boys in the *agoge*.

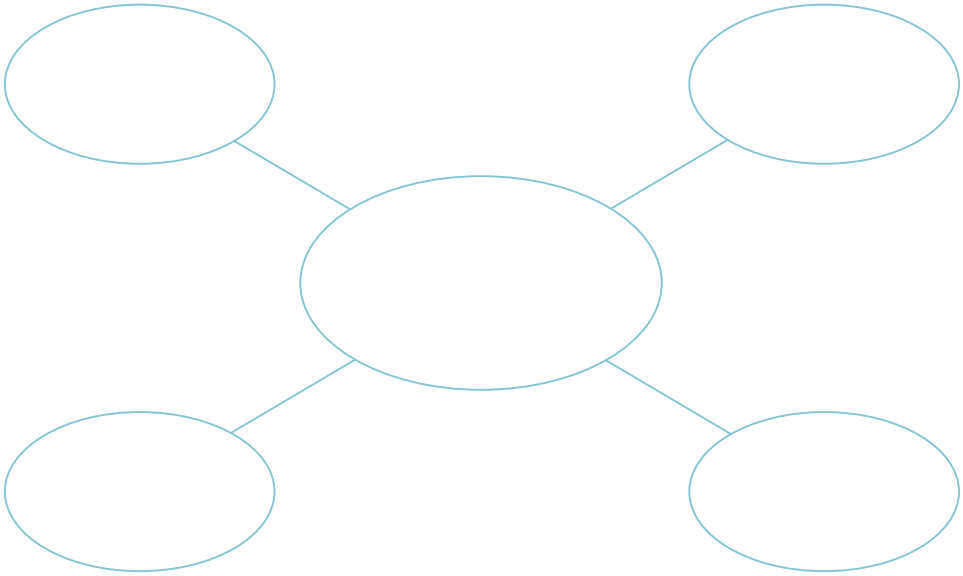
> They run in the following way: their hair hangs down, a tunic reaches to a little above the knee, and they bare the right shoulder as far as the breast.

Source 14.10 A description of Spartan female runners at Olympia given by Pausanias (Book V, 16.2–3)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 14.7

1 List three types of teachers found in ancient Athens.
2 What were considered suitable activities for a 'good wife'?
3 Who or what was a *metic*?
4 How many slaves are there estimated to have been in Athens during the mid-fifth century BCE?
5 Discuss what was unique about Spartan women.
6 Create a mind map of the factors that contributed to Sparta's reputation as a military society. You may find more than four factors.



Ruled by the minority of *spartiates*, Sparta was an oligarchy, headed by two hereditary kings, who had some powers, balanced by a council of elders known as the *gerousia* who were consulted during meetings of the public assembly, attended by all male *spartiates*. The assembly elected five overseers, known as *ephors*, who helped to expedite decision-making in times of duress. The assembly was ultimately in control of the policies and legislation of the *polis*.

The Spartans were pious, and religious festivals were taken very seriously – even taking precedence over war. There were nine major festivals in the Spartan calendar. This was the reason they were delayed in going to assist the Athenians at Marathon in 490 BCE and why Leonidas could only bring 300 *hoplites* (his bodyguard) to Thermopylae in 480 BCE.

HISTORICAL THOUGHT

Unlike their depiction in films like *300*, the Spartans generally grew their hair long. They kept it well groomed and often wore it braided. Also, while they did have beards, *spartiates* did not wear moustaches.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 14.8

1 Name the four levels of Spartan society.
2 Who were the *perioikoi*?
3 What was the *agoge*?
4 How were Spartan girls educated?

14.3 Significant beliefs, values and practices

Many gods

The ancient Greeks believed in many gods, and they were part of everyday life. For example, workers would seek the favour of gods associated with their work: farmers would pray to Demeter, the goddess of agriculture; while **smiths** looked to Hephaestus, god of metalworking. In their homes, they prayed for the protection of **deities** such as Hestia, the goddess of the hearth. Despite the many differences between *poleis*, the Greeks shared beliefs in the same gods and this distinguished them as Hellenes.

smiths craftsmen who worked with metal, making tools, weapons and armour

deity a god

The gods were believed to have human temperaments: they could love, get angry, be jealous or quarrel. The gods who demonstrated these qualities and became most prominent were the 12 Olympians, who it was believed lived on Mount Olympus in Macedon, north of Greece. These deities were worshipped by all Greeks, and were personified in art and stories. Ruled by their king, Zeus, all the gods on Mount Olympus were either his brothers or sisters, or his children. Athena, who was goddess of wisdom, was often depicted with an owl. Because owls can see in the dark, this idea was associated with her power to see things more clearly than others. This connection between owls and wisdom has become part of our folklore.

Heroes and myths

The Greeks also told tales about heroes, who were often descended from the gods or had their protection. They were the subject of stories or poems, which usually involved the performance of dangerous or superhuman tasks. These stories, or **myths**, served the purpose of explaining the origins of the world and detailed the lives and adventures of a wide variety of gods and goddesses and their interaction with heroic men and women, often involving fantastical creatures. Prior to the introduction of the Phoenician alphabet in the ninth century BCE, these stories were part of an oral tradition that recorded events important to the Greeks. They then increasingly became the basis of evolving Greek literature and art.

myth a sacred narrative, either as a story or poem, explaining how the world and humankind came to be in their present form

Oracles

The Greeks often tried to learn the will of the gods to help them manage their daily lives. One popular way in which they tried to do this was through consulting oracles. The most revered of these was the **oracle** of Apollo at Delphi. It was known as 'the navel of the world' because the Greeks believed that Zeus had once, long ago, released two eagles; one flew east and the other flew west, and where they met was the centre of the Earth. The eagles met at Delphi.

oracle a message from the gods in answer to a person's question, most notably via the sibyl, or priestess of the oracle at Delphi

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 14.11 Temple of Apollo at Delphi

The god Apollo allegedly spoke through the sibyl, or priestess of the oracle at Delphi. She had to be an older woman of blameless reputation chosen from among the peasants of the area. The temple at Delphi was built over a volcanic fissure, and the priestess would sit in a trance, giving her responses as gaseous vapours came through a crack in the floor. Many of the expeditions to set up colonies went to Delphi to receive sanction from the oracle. Famously, according to Homer in *The Iliad*, the Greeks went there to consult the god before setting off on the Trojan War.

Anyone could ask the oracle for a prophecy as long as they could pay the priestess for the right to do so and to make sacrifices. There were three types of prophecy:

- giving approval to treaties or constitution of a new *polis*
- making religious pronouncements, such as announcing a feast day
- making predictions about the future – although these were usually ambiguous.

UNDERSTANDING 14.9

1. Athena, who was goddess of wisdom, was often depicted with what animal?
2. What was Zeus's relationship to the other gods on Mt Olympus?
3. Through whom did the god Apollo allegedly speak?
4. Of what was Demeter the goddess?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 14.3

In your school or local library, or using the internet research the story of Odysseus battling the sirens. Write an imaginary interview with Odysseus about his adventures. This can then be acted as a role-play interview with the rest of the class as an audience.

Sources and evidence

How do we know about the ancient Greeks? Some sources written by historians have survived that give details of events and customs, but such sources are not abundant. Writers like Herodotus, Thucydides and Xenophon give contemporary accounts from the fifth century BCE. Others, such as Aristotle (fourth century BCE), Plutarch (first and early second century CE) and Pausanias (second century CE) wrote later and often refer to other, now lost, sources. Because of the relatively small amount of historical writing, we also rely on ancient Greek art to tell us about ancient Greek society. The eighth-century poetry of Homer and the philosophical and dramatic works of writers such as Aeschylus, Aristophanes, Euripides, Plato and Sophocles fill in our understanding of ancient Greek life.

As well as these written art forms, we have learnt a lot about ancient Greece from many types of archaeological evidence, including buildings, sculpture and, significantly, pottery. Examples of pottery have been found from every era of ancient Greek civilisation, depicting a wide range of ancient Greek life including mythology, warfare, religious practices, leisure and education.

Theatre

The Greeks formalised the telling of stories by using actors to recite the words spoken by the characters in them, often accompanied by music provided by musicians, who sat in a particular place at the side of the acting space, which was called the orchestra. The Greeks also invented the theatre, a special structure where these plays could be staged, and which enabled people to see and hear them. The remains of some of these theatres survive today, revealing terraced seating for thousands of spectators.

Taking place from the fifth century BCE, the Athenian annual festival, the Dionysia, included



Source 14.12 Fifth-century BCE red figure vase, depicting a scene from *The Odyssey*. Odysseus is shown battling the sirens, who were women with the bodies of birds.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

a drama festival that produced two traditions of performance: comedy and tragedy. The first three days of the festival were devoted to tragedy. Following this, *satyrs* – plays that relied on sexual humour, slapstick, pranks and sight gags – were staged. Many important ancient Greek playwrights, including Sophocles, Aeschylus, Euripides and Aristophanes, won the drama competition at the festival. The genres and styles from the plays of the Dionysia festival are all well represented in contemporary culture today, whether on stage, in film or on television.

Art

The Greeks perfected free-standing sculpture in stone (usually marble) or bronze, as a life-like image of the human form. The sculpture they developed was the first in antiquity to use realistic proportions and anatomical accuracy. Drapery of clothing and positioning of the figure suggested movement and facial features were individualistic and expressive. Greek sculpture had a strong impact on Renaissance artists like Michelangelo and has a continuing influence on sculptural art up to the present day.

Architecture

The Greeks developed three architectural systems: Doric, Ionic and Corinthian. Called an 'order', each had its own distinctive proportions and detailing. Initially these orders influenced the Romans, who overtook the Greeks as the dominant European culture in the second century BCE. More recently, in the late-nineteenth and early-twentieth centuries CE, the architectural style called 'Neo-classicism', which incorporated many Greek architectural elements, was very popular for public buildings in many Western countries, including Australia.

Philosophy

Greek philosophy has influenced Western thought since it began in the sixth century BCE. The most influential philosophers were Socrates, Plato and Aristotle. These thinkers' ideas are the foundation of the discipline of philosophy as we know it, and are still the subject of study and debate today. Subsequent philosophic thinkers were so influenced by the ideas of Socrates (which were written down by Plato) that ancient Greek philosophy before Socrates is known as 'pre-Socratic philosophy'.

Socrates was Athenian, and he believed that the philosopher's function was to provoke people into thinking for themselves, rather than to teach them anything they did not already know. Plato was also an Athenian, and when he was young he studied under Socrates. Plato expressed his ideas in dialogues, often with Socrates, so that we can be part of the philosophical discussion. The third great Athenian philosopher, Aristotle, was a pupil of Plato; his ideas cover many subjects, including physics, metaphysics, poetry, theatre, music, logic, rhetoric, linguistics, politics, government, ethics, biology and zoology.



Source 14.13 Socrates, Plato and Aristotle. Their ideas not only laid the foundation for the development of the discipline of philosophy, but are still central to the study of the discipline today.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 14.10

1 In Athenian drama, what was a *satyr*?
2 Of whom was Aristotle a pupil?
3 Explain how we know about Socrates and his ideas.

The Olympic Games

Festivals were very important in the ancient Greek world. Especially significant were athletic festivals that brought together Greeks from various parts of Hellas to participate. There were many of these festivals, including the Nemean, the Pythian and the Isthmian Games. However, the most significant, and by far the most well known in the modern world, was the Olympic Games. Held at Olympia near the mountains of Elis every 4 years, the Olympic festival attracted competitors from all over the Greek world, and was possibly the most important celebration between the eighth and fourth centuries. The accepted date for the origin of the games is 776 BCE, based on inscriptions found at Olympia of the winners of a foot race held every 4 years starting in that year.

The origins of the Olympic Games were the subject of myths. In one legend, the hero Heracles called the first games 'Olympic' to honour his father, Zeus, and established the custom of holding them every 4 years. He similarly built the Olympic stadium in honour of Zeus.

The ancient games were held in summer, and only Greek-speaking free males could compete. When the games first started, there was only a single event: the *stadion* race, a short race around the stadium (usually between 180 and 240 metres), but others were added over time. When the Spartans joined, competitions like the pentathlon (consisting of a jumping event, discus and javelin throws, a foot race and wrestling) were introduced. Boxing, wrestling and equestrian events were added later. Events were often accompanied by music. Eventually the games grew to 5 days. Contestants were often injured or killed. Chariot races were a highlight, with races having up to 40 participants. The venue for these was the hippodrome, an immense oval structure with a track 1200 metres in length. Depending on the event, the track would be lapped three to 12 times in the course of a race. These were very dangerous competitions, with frequent accidents. During the Olympic Games, all political differences between participating *poleis* were supposed to be suspended. However, this did not always happen. In 420 BCE, for example, the Spartans were fined for attacking Elean territory during the festival.

Most evidence suggests that men competed naked, with the exception of charioteers and entrants in the *hoplitodromos* ('race of soldiers'), who were required to run wearing the helmet and **greaves** of the *hoplite*, from whom the race took its name. Runners also carried the *hoplite*'s shield, bringing the total weight to be carried to at least 25 kilograms.

greaves leather or bronze shin guards worn by *hoplites* to protect their legs in battle

Married women were prohibited from attending the men's games on penalty of death, although young girls (virgins) and the priestesses of Demeter were welcome. There is some speculation that holding athletic events in the nude was a way to find out whether any athletes were actually women disguised as men. Other interpretations of athletic nudity argue that it may have symbolised purity. Trainers were also required to enter the stadium naked after a woman, Kallipateira, defied the rule by disguising herself as a trainer so she could watch her son compete. Because her father, three brothers, nephew and son were Olympic victors, the officials pardoned her in honour of her family.

Contrary to the popular belief that the games were an amateur contest, it is now thought that the athletes were most likely professionals. The fact that the Greeks had no concept or word for amateur athletics is some evidence for this idea. By

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the sixth century BCE, athletes were specialising in events and hiring expert coaches. Even though no medals or monetary prizes were given at Olympia, there is evidence that some *poleis*, such as Athens, Macedon and Syracuse, provided financial rewards or erected monuments to their respective Olympic champions. These cities probably realised that it was good publicity and good for business.



Source 14.14 Contestants in the *hoplitodromos* shown on a Greek black-figure vase

HISTORICAL THOUGHT

The 'Olympiad', the 4-year period between Olympic Games, was used by the Greeks as one of their units of time measurement.

> … not having disturbed the existing magistrates nor changed the ancient laws … [Peisistratus] administered the State under that constitution of things which was already established, ordering it fairly and well.

Source 14.15 Herodotus, *The Histories*, Book I

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

14.4 Contacts and conflicts

Hoplites

Every *polis* had an army made up of citizens (often farmers) who fought as *hoplites*. This word comes from the Greek word *hoplon*, which refers to the shield, helmet, spear and armour used by this type of soldier. The army was not like a modern professional army. Usually, each citizen was individually responsible for supplying his armour and weapons. Equipment was not standardised, but *hoplite* armour shared some features, even though it was purpose-made for individuals.

A bronze helmet was essential; it had a reinforced ridge along the top that might have a plume made of horse hair. A body vest or **cuirass**, laced at the front, was crucial. Early versions were made of bronze, but these were heavy, expensive and restrictive in battle. More commonly, they were made of leather with metal scales or glued layers of linen. Bronze or leather greaves protected the lower legs. The other mandatory item was a large bronze-covered wooden concave shield to protect the *hoplite* from chin to knees. This was heavy, weighing up to 15 kilograms. *Hoplites* would use a spear about 2.5 metres long, as well as either a short or curved hacking sword. *Hoplites* were heavily armed by ancient standards. In comparison, the Persians, the great enemy of ancient Greece, were clad in light fabric clothing and carried only wicker shields. *Hoplites* fought in a formation called the **phalanx**, which was perfected in Sparta. *Hoplites* would line up in rows behind each other, tightly pressing together to make a rectangle. Each *hoplite* carried his shield on his left arm, protecting himself and the soldier to the left, and his spear in his right hand. This caused the soldiers at the far right of the phalanx to be only partly protected, so only the most experienced *hoplites* were placed there.

cuirass armour made from a breastplate and a back-plate fastened together

phalanx the main military formation used by the Greek *hoplites*

The phalanx was a formation in which teamwork, cooperation and cohesion were vital. Its effectiveness relied upon the whole formation using its combined weight to push through enemy ranks and then to fight from the outside. The Spartans' reputation as the greatest fighters in Hellas was based on the exceptional discipline of their phalanx.



Source 14.16 A modern artist's impression of a Spartan *hoplite* (left) and his Athenian counterpart, fifth century BCE

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Triremes

Because Hellas was surrounded by water, it was inevitable that ships would be part of any defence of Greek territory. Early warships were based on Phoenician designs such as the bireme, with two banks of oars. Triremes were prominent from the seventh to the fourth centuries BCE. They were fast and agile, and helped to win the Persian Wars and create the Athenian maritime empire. Most triremes were about 35 metres long and 5 metres wide, and were equipped with two sails. During battle, up to 170 oarsmen arranged in three rows on either side could power a trireme to reach a speed of 8 knots (about 15 kilometres per hour).

This was the ideal speed at which to use the bronze ram, which formed part of the bow of the ship, to ram enemy ships in order to make them sink. The trireme's chief advantages over other ship designs were its manoeuvrability and speed.

The Persian threat

In 499 BCE, Greek settlements in Ionia – today the west coast of Turkey – rebelled against the authority of Persia under Emperor Darius I. Two Greek *poleis*, Athens and Eretria, sent military support to aid the Ionians, resulting in the destruction of Sardis, a Persian regional capital, in 498 BCE. Although the revolt eventually collapsed four years later, Darius was determined to take his revenge on the Athenians and Eretrians, and in 492 BCE he sent an expedition to invade Hellas, but this was wrecked by storms. Two years later, Darius mounted another, bigger force, which captured Eretria in 490 BCE and then landed at Marathon, near Athens.

The First Greco-Persian War

Darius's invasion placed Athens in considerable danger. The Persians destroyed the *polis* of Eretria off the east coast of the Greek mainland and enslaved its inhabitants. Darius's fleet then sailed south, to land at the Bay of Marathon, about 40 kilometres from Athens. The Persian army at Marathon consisted of about 25 000 **infantry** and 1000 **cavalry**. Athens sent a messenger to Sparta seeking the Spartans' assistance in facing the Persians. The Spartans were thought to have the best *hoplites* in all Hellas, and as the threat of Persian invasion had grown, it was assumed the Spartans would lead the fight to repel the invaders. However, the Spartans were celebrating a religious festival and would not be available for about 10 days.

infantry soldiers marching or fighting on foot; foot soldiers collectively

cavalry soldiers who fought on horseback

The Athenians, led by the ***strategos*** Miltiades, decided not to wait for the Spartans. Herodotus does not give a figure for the Athenian army, but historians agree that there were probably about 9000 Athenian *hoplites* aided by 1000 men from the small *polis* of Plataea. They attacked the numerically superior Persian force on the open plain before its archers and cavalry were in position. In the fierce hand-to-hand combat of the battle, the lightly equipped Persian troops were no match for the heavily armed *hoplites*. After losing the battle, the remaining Persians sailed further around the coast to threaten Athens, but Miltiades marched the Greek forces quickly back to the city and the Persians sailed home defeated.

strategos one of 10 generals elected to command the Athenian army

HISTORICAL THOUGHT

Despite the numerical inferiority of the Greeks at the Battle of Marathon, the Athenians only lost 192 men and the Plataeans just 11, compared with the Persian death toll of over 6400.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Hereupon all those generals who had been desirous of hazarding a battle, when their turn came to command the army, gave up their right to Miltiades. He however, though he accepted their offers, nevertheless waited, and would not fight until his own day of command arrived in due course. Then at length, when his own turn was come, the Athenian battle was set in array, and this was the order of it … The Athenians … charged the barbarians at a run. Now the distance between the two armies was little short of eight furlongs [approximately 2 kilometres]. The Persians, therefore, when they saw the Greeks coming on at speed, made ready to receive them, although it seemed to them that the Athenians were bereft of their senses, and bent upon their own destruction; for they saw a mere handful of men coming on at a run without either horsemen or archers … Such was the opinion of the barbarians; but the Athenians in close array fell upon them, and fought in a manner worthy of being recorded … There fell in this battle of Marathon, on the side of the barbarians, about six thousand and four hundred men; on that of the Athenians, one hundred and ninety-two. Such was the number of the slain on the one side and the other.

Source 14.17 Herodotus, *The Histories*, Book 6.110–17



Source 14.18 Bronze Greek helmet, fifth century BCE, inscribed 'Miltiades dedicates this to Zeus'. Found on site at the Temple of Zeus at Olympia.

DEVELOPING YOUR UNDERSTANDING 14.11

1. Greek citizen soldiers were referred to by what term?
2. Explain why they were called this.
3. What was a trireme?
4. Discuss why Darius I invaded Greece in 490 BCE.
5. Why did the Athenians expect the Spartans to help them to attack the Persians?
6. How were the Spartans delayed in arriving for the battle at Marathon?
7. Read Source 14.17. It is an Athenian description of the Greeks at Marathon. Is it entirely credible? Do you think it demonstrates any bias?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The Second Greco-Persian War

Xerxes, who was Darius's son and heir, mounted a second invasion in 480 BCE with a bigger army to complete his father's unfinished plans to punish the Greeks. Two significant things occurred before this, which dramatically improved the Greeks' chances. In 483 BCE, a massive new seam of silver was found in the Athenian mines at Laurium, and the Athenian politician Themistocles persuaded the Assembly to use the silver to build a new fleet of triremes. Then, in 481 BCE, several of the Greek *poleis* formed themselves into a league at Corinth. Established to deal with the anticipated Persian invasion, this alliance, which called itself the Allies, included the dominant states of Athens and Sparta, although leadership was nominally given to Sparta.

Xerxes landed on the Greek mainland in August 480 BCE with about 250 000 fighting men and 1200 ships. A combined force of 7000 Greeks, including 300 Spartans, under the command of one of the Spartan kings, Leonidas, famously held the invaders off for 3 days at the Battle of Thermopylae, which took place at a narrow mountain pass in Thessaly, north of Athens. Most of the defenders died but at a cost of up to 20 000 Persian lives. This delayed the Persian advance on Athens – Xerxes had waited nearly five days before engaging with the Greeks – and allowed the evacuation of its population. At the same time, 60 kilometres away, the Greek and Persian fleets fought a naval battle off the coast of Artemisium, where 271 Allied triremes engaged an estimated 600 Persian vessels. Prior to arriving at Artemisium, the Persians had lost a third of their fleet in storms off the coast. While there was no clear winner in the three-day battle, it weakened Persian naval strength further and gave the Allied commanders, especially Athenian strategos Themistocles, a clearer understanding of the enemy's tactics.

When the Persians reached Athens, they **looted** and set fire to the city. A month later, near the island of Salamis (off the Attic coast), the next naval battle took place. The fleet of Athenian triremes and the tactics of Themistocles turned the tide of the war. At this battle, the Allies comprehensively defeated

looting widespread stealing from public and private buildings, often with vandalism and violence



Source 14.19 Greek *hoplite* painted on a ceramic dish

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

the Persian fleet. Xerxes had been so confident of victory that he had a silver throne placed ashore on high ground to watch the battle. After the loss at Salamis, Xerxes returned to Persia, leaving his son-in-law, Mardonius, in command of a land army in Greece. He led the Persian forces at the last major battle of the war on the Greek mainland at Plataea in 479 BCE. Here an Allied army of 100 000 (including 38 000 *hoplites*) under the command of Spartan general, Pausanias, routed a much larger Persian army. The Spartans played a decisive role in the victory, and Mardonius was killed during the battle. The remnants of the Persian forces fled. This effectively ended the war.

Peloponnesian War

After Salamis, the Athenians gave chase to the Persian fleet as it retreated across the Aegean Sea. The experience of the Second Persian War gave Athens confidence in its own military prowess and called into question its former submissiveness to Sparta. In 477 BCE, Athens formed the Delian League, a confederation of *poleis* that paid money or ships to Athens for its protection. Athens used this arrangement over the next 40 years to grow rich and powerful. This put Athens into conflict with Sparta and its allies, the Peloponnesian League, and intermittent hostilities between the two *poleis* grew until full-scale war erupted between Athens and Sparta, first in 460 BCE and then most seriously in 431 BCE.

In 430 BCE, a plague broke out in Athens and spread rapidly. Estimates of the death toll are as high as a third of the Athenian population. Pericles, the Athenian statesman and champion of democracy, was one of its victims. The plague drastically reduced the numbers of men who could fight against Sparta.

The second war was conducted in roughly four phases, with short-lived periods of peace in between. In the final period (413–404 BCE), Athens' once-unrivalled navy was defeated by a Persian-backed Spartan fleet. At the Battle of Aegospotami in 405 BCE, Sparta finally captured the Athenian fleet. The Spartans then laid siege to Athens, which surrendered in 404 BCE. Spartan supremacy was short-lived, however. Its population of full *spartiates* went into steep decline, and Sparta was defeated by the army of Thebes at the Battle of Leuctra in 371 BCE.

DEVELOPING YOUR UNDERSTANDING 14.12

1. Who was Xerxes?
2. Identify when the second Greco-Persian War was fought and why the Persians invaded.
3. Who were the 'Allies'?
4. Which battle was fought simultaneously with the Battle of Thermopylae?
5. Explain what the Delian League was and how it contributed to the Peloponnesian War.

RESEARCH 14.4

1. Divide the class into groups and research the battles of the Second Greco-Persian War:
   - Thermopylae
   - Artemisium
   - Salamis
   - Plataea.
2. Use the information to make a PowerPoint presentation. Be sure to include the following:
   - details of the battle
   - role of the Greeks
   - role of the Persians
   - outcome
   - significance of the battle to the eventual Greek victory in 479 BCE.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

14.5 Role of significant individuals

Kleisthenes

The aristocratic statesman Kleisthenes is often considered the founder of Athenian democracy. In 508–507 BCE, he divided the population of Athens into 10 tribal groups. Each group would elect by lot 50 representatives to the Council of 500 (called the *boule*). This extended participation in government to all male citizens in Athens. All male citizens were also permitted to vote in the Assembly (the *ekklesia*). These two institutions laid the foundation for Athenian democracy.

Pericles

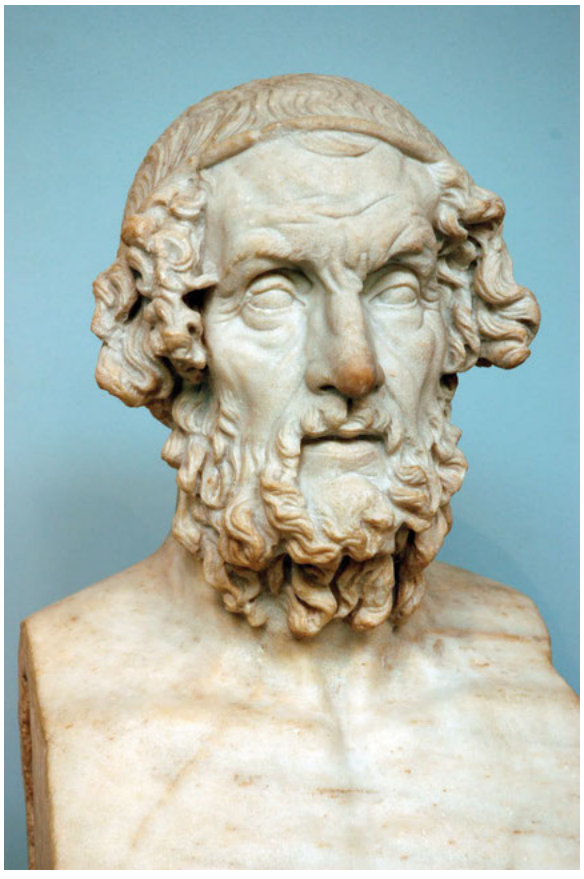
Later, in the 460s BCE, another Athenian, Pericles, expanded the democracy when he was able to get compensation paid to citizens for service in public office and jury duty. This allowed many who could not financially afford to take office in government to participate, and extended the opportunity to participate in the governance of Athens to all its citizens. Pericles was called 'the first citizen of Athens' because of his dedication to democracy. He was also a military general and led Athens through the Peloponnesian War. His rule was referred to as the Golden Age of Athens, and as well as his contribution to how the world now views democracy, his legend also lives on in the Parthenon, the enduring symbol of Ancient Greece, which he commissioned in 447 BCE.

Much of what we know about Pericles is due to the admiration of him expressed by Thucydides. Thucydides participated in the Peloponnesian War as both a general and a recorder of its history, and he later wrote a comprehensive account of the 27-year war between Athens and Sparta. Thucydides held Pericles in awe, and describes him as great politician, great war strategist and as being immeasurably important to the advancement of democracy.

Homer

Homer eighth-century BCE Greek poet who wrote *The Iliad* (an account of the Trojan War) and *The Odyssey* (detailing Odysseus's epic journey home after that war)

Homer's two epic poems, *The Iliad* and *The Odyssey*, were written in the eighth century BCE, though the stories they tell are set 400 years before Homer's time, in the twelfth century BCE. *The Iliad* tells the story of the Greeks' pursuit of Helen, the wife of the Spartan king, Menelaus, and the resulting war with Troy. *The Odyssey* details the saga of the 10-year return journey from the Trojan War undertaken by the hero Odysseus, the king of Ithaca, and the gods who hindered and helped him getting home. *The Iliad* and *The Odyssey* are the oldest surviving works of Western literature, and are also remarkable because of the influence they have had on other works of literature throughout the ages.



Source 14.20 Marble bust of Homer, the revered epic poet of ancient Greece

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The **heifer** arrived from the meadow, and … the smith brought bronze tools in his hands, anvil, hammer and well-wrought tongs, the instruments of his gold-working craft: and Athene [Athena] too arrived to witness the sacrifice. Then old Nestor the charioteer gave the smith gold to gild the heifer's horns, so the goddess would delight in the offering … Thrasymedes, stalwart in fighting, stood there, gripping a sharp axe to strike the heifer, and Perseus held the dish for the blood … Thrasymedes… approached and struck the blow … and the women raised the ritual cry … When the black blood had flowed, and life had left its body, they dismembered the carcass, cut out the thigh pieces accordingly … Then the old king burned them on the fire … while the young men waited beside him, five-pronged forks in hand.

heifer a young cow before she has had her first calf

Source 14.21 Description of a sacrifice to Athena from *The Odyssey* by Homer. Homer, *The Odyssey*, Book III: 404–63.

Alexander

The Peloponnesian War effectively destroyed both Athens and Sparta as centres of power and influence in Hellas. Nearly 20 years after the defeat of Athens, Phillip II, the King of Macedon in northern Greece, emerged as a new political leader. Phillip subdued most of Hellas, becoming wealthy and powerful. The key to Macedonian success was a professional army and the use of a modified version of the phalanx, incorporating a 6-metre long pike (sarissa). Phillip was assassinated in 336 BCE and succeeded by his son, Alexander, then aged 20.

Over the next 12 years, Alexander established through conquest an empire that included most of Persia, parts of Egypt and northern India. Alexander was seen as a god and called 'the Great'. Even so, he died from a fever (possibly malaria) in Babylon in 323 BCE. There are no known likenesses of Alexander made in his lifetime.

DEVELOPING YOUR UNDERSTANDING 14.13

1. Who was Solon and what were his reforms?
2. Who was Peisistratos?
3. Explain Kleisthenes' contribution to democracy in Athens.

Legacy

There are many aspects of our culture that are derived from that of the ancient Greeks. Every year, millions of people travel to Greece and nearby parts of the Mediterranean to see the sites, museums and remains of the Greek civilisation. The contribution of the ancient Greeks to the development of political ideas, and especially to democracy, is crucial to the way many countries govern today. Every 4 years, the Olympic Games brings together athletes from all over our world to compete – in some instances in the same events as those in antiquity. The Greek language forms a significant part of the English language. We still read and refer to Greek mythology. The intellectual discipline of mathematics began with Greeks like Pythagoras. Similarly, the early Greek scientists like Archimedes or Anaxagoras were crucial to the development of our knowledge. Other areas where the Greek legacy is evident include theatre, art, architecture and philosophy. It is almost impossible to imagine how the world would work without the influence of many of the important ideas of ancient Greece.

Reflecting and consolidating

Chapter summary

- Ancient Greece dates back to 1200 BCE, covering a time period of over 800 years, and was influenced by earlier cultures, including the Phoenicians, Minoans and Mycenaeans.
- The Greeks called their land Hellas and referred to themselves collectively as Hellenes.
- The Greeks worshipped many gods and held festivals in their honour. Some of these festivals also involved athletic or artistic competitions. The festival at Olympia, held every four years and devoted to Zeus, included the Olympic Games.
- The geography of Greece meant that separate city-states developed. The two most powerful of these were Athens and Sparta.
- Athens was famous as a centre of culture and had great influence on the ancient world. It developed a new form of government, called democracy.
- Sparta was a military state famous for its citizen-soldiers.
- Although the Greek city-states were often in conflict with each other, they rallied together twice to oppose invasion by the Persian empire.
- There are many things today that have been passed down to us by the Greeks; for example, theatre, architecture and philosophy.

Short-answer questions

1 Explain why ancient Greece is often called the 'Cradle of Western civilisation'. Give at least two specific examples in your answer.

2 How was ancient Athens protected from invaders?

3 What was a *polis*?

4 Outline the nature and role of being a citizen in ancient Athens.

5 Compare how the position of women in Sparta was different from that of women in Athens.

Source analysis

Study Source 14.22 and answer the following questions:

1 What does this source show about *hoplites*?

2 How did the Greeks defend themselves against the Persian invasion?

3 With the exception of Sparta, the ancient Greeks defended themselves against the threat of the Persian invasions with temporary, voluntary armies of male citizens raised by individual *poleis*. How do countries in today's world deal with possible threats from other nations? In your answer you might consider the nature and constitution of modern armies, international agencies like the United Nations or the threat posed by contemporary weapons technology.



Source 14.22 Black figure pottery depiction of *hoplites* fighting, fifth century BCE

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Extended-response question

A unique feature of Athenian democracy was the use of a lottery system to appoint nearly all public officials. Discuss the positive and negative aspects of using such a lottery system in Australia today.



Source 14.23 Statue of Pericles (495–429 BCE), Athens' longest lasting democratic leader

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



15 Ancient Rome

Before you start

Main focus

From the mythical beginning of twin boys raised by a mother wolf grew the world's first superpower – the city of ancient Rome that controlled the Mediterranean region for 1000 years.

Why it's relevant today

Ancient Rome's legacy lives on politically, practically and philosophically: the republican concept and much of the Roman's Latin language is used in English today; arches, aqueducts, roads and buildings still exist today; and Roman concepts of power, wealth, beauty and love are still important themes today.

Inquiry questions

- Why was the founding of Rome so significant?
- How was the Roman Republic governed?
- What were Romans' daily values and practices?
- Why was there such peace during the early Empire period?
- Why did the powerful Roman Empire collapse?

Key terms

- Aqueduct
- Civilisation
- Etruscans
- Legion
- *Paterfamilias*
- Patrician
- *Pax Romana*
- Plebeian
- Republic
- Senate
- Slave

Significant individuals

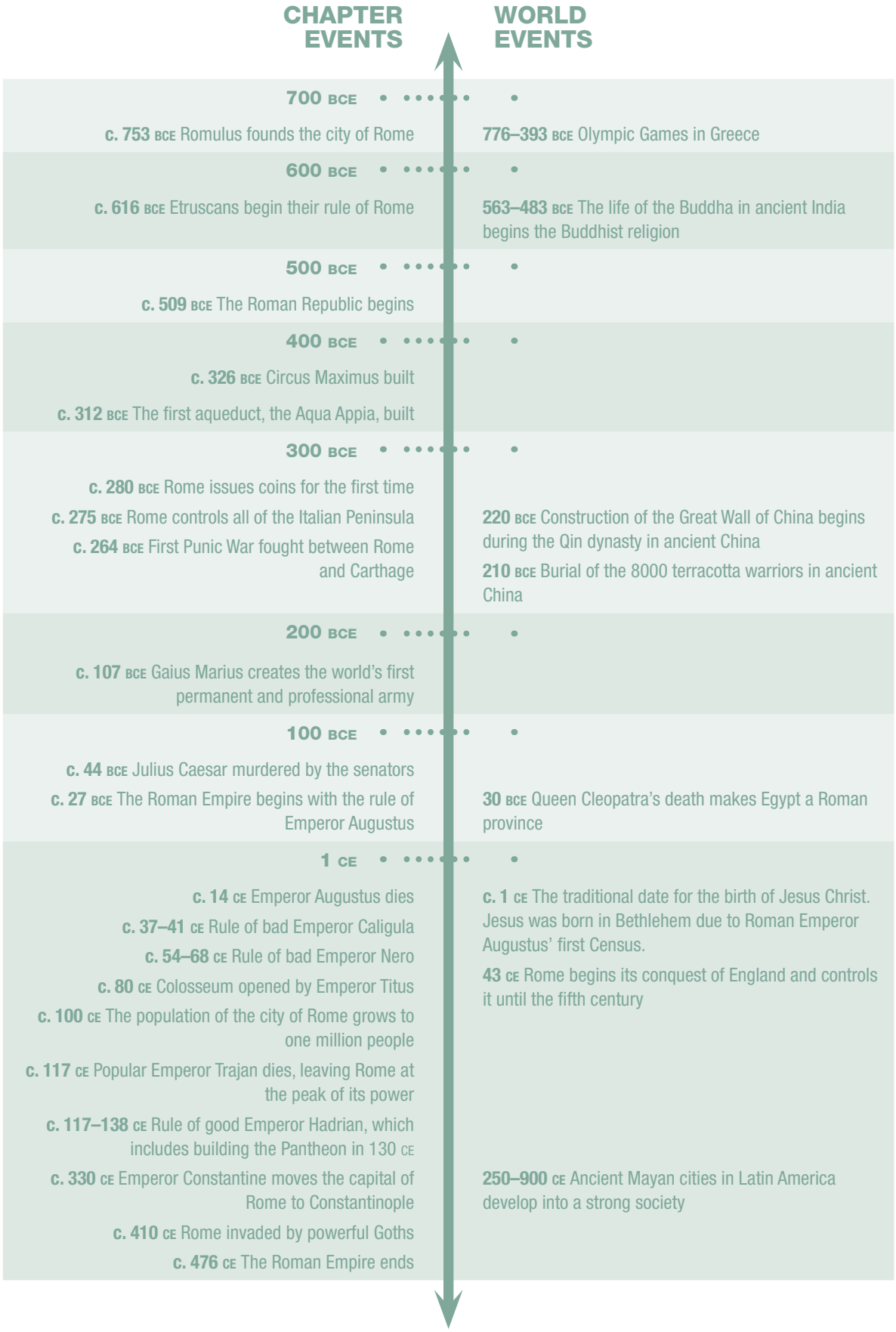
- Emperor Augustus
- Julius Caesar
- Queen Cleopatra of Egypt
- Romulus and Remus

Let's begin

Ancient Rome united the whole of the Mediterranean coastline under a single ruler. Powerful leaders like Julius Caesar, blood sports like the gladiator games in the Colosseum and inspiring engineering feats like the aqueducts and roads still capture our imagination. Rome was a civilisation with complex political, economic and social systems, many of which continue to influence our modern life today.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.1 When Emperor Trajan died in 117 CE, the massive Roman Empire was at its greatest. It covered five million square kilometres with over 100 million people as its subjects. Yet it grew out of a single Italian city with a population, at its largest, of only one million.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

15.1 Physical features and their influence

Geography has always played a crucial role in history. Cities have been built based on geographical factors such as rivers. Battles have been won or lost because of geographical factors such as hills. Civilisations have grown or died due to their use of the land.

Italy has a perfect location. It lies almost directly in the centre of the Mediterranean Sea from east to west. It is famously shaped like a high-heeled boot, which means that it has easy access to sea transport and trade on three sides due to its long, narrow shape. The north of the country has direct access to Europe but was also protected from invaders due to the high Alps.

Even more significant was the rich and fertile land, in combination with a mild climate, which meant that it was able to support a large population with jobs and food.

How did the city of Rome begin?

legend a popular story that is believed by many people

Legend says that Rome was founded by twin brothers, Romulus and Remus, who were born to Mars, the god of war. They were thrown from the heavens to earth after a fight between their parents and their great-uncle. Their evil great-uncle abandoned them in a basket on the Tiber River, but they were washed to the shore and were rescued by a mother wolf. The wolf fed and raised the boys until a shepherd discovered them and adopted them as his own sons.

When the boys were older, they decided to build a city in the seven hills surrounding the Tiber River where they had been saved. The brothers fought about the exact location of the city and about the city's design. In a heated argument, Romulus murdered his brother. Romulus then built the city as he had planned and named it Rome after himself (Rome-ulus). After populating the city, Romulus returned to heaven in a thunderstorm.

There are some interesting interpretations of the significance of the legend of Romulus and Remus and the future city of Rome:

1 Rome was founded by the sons of gods – meaning that the city always had a strong connection with the gods. This was shown through religion being a crucial part of everyday life.



Source 15.2 Romulus and Remus are rescued by a mother wolf.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

2 The legend of Romulus and Remus symbolises the political tension that community living involves – and foreshadows the Roman civil wars. Like most ancient civilisations, though, Rome had an interest in warfare. This was shown through the Romans' admiration of gladiators and architecture like the Colosseum.
3 Rome was founded on the power struggle between Mars and the evil great-uncle Amulius. This depicts the desire for power that most ancient **civilisations** share in common. The value placed on the struggle for power in ancient Rome was shown through assassinations of powerful leaders.
4 Rome was founded on the care of the mother wolf and shepherd – meaning that the city always had a strong rural connection. It also symbolises the rugged toughness of the Romans (the wolf), their fierce determination to protect their citizens against all enemies and attackers (the mother wolf) and the agricultural/pastoral nature of Rome's founders and economy.

civilisation a society that has developed an organised system of government, social customs and religious beliefs, and a number of forms of technology including writing and the arts

How did Rome develop into a major city?

Whether Rome was really founded by Romulus and Remus is unclear, but what is known is that it developed into a major city. The region where the city was founded was called Latium, which meant that the people who lived there were called the Latins; they originally arrived in Italy in the 1000s BCE. The city of Rome was ruled by native Latin kings (beginning with Romulus) who made the city bigger, busier and more successful. Around 616 BCE, the city was taken over by people from the north of Italy called the **Etruscans**, a sophisticated group of people who were very influenced by Greek culture. For example, the Etruscans wrote using the Greek letters, used Greek engineering techniques and architecture, and were excellent metalworkers and jewellers. Powerful Etruscan kings – Tarquinius Priscus, Servius Tullius and Tarquinius Superbus – drained the marshes in the centre of Rome and built the first temples, shops and public buildings there. The Etruscans then ruled the city for over 100 years and were directly responsible for creating the foundations on which Rome's greatness was built.

Etruscans the name of the northern Italian people who greatly influenced early Roman society

How was Rome designed and built?

Engineering and architecture have left us remarkable legacies. Even 2000 years later, many original examples of Roman engineering feats survive. Unlike the Greeks, who were interested in knowledge for its own sake, the Romans sought to use their knowledge for practical purposes. Science was used to design Roman cities, sewerage systems, underfloor heating, amphitheatres, temples and domes.

Aqueducts

Aqueducts were cleverly designed structures used to transport fresh water from mountain springs to the cities. The word 'aqueduct' actually means 'bringing water'. They could be built above ground due to the Romans' invention of concrete and round arches. Limestone blocks were lifted into place using human-powered cranes. **Siphons**, filter tanks and tunnels were also part of the innovative engineering techniques. Water moved with gravity through channels or pipes, so every aqueduct needed to point slightly downhill. Eleven large aqueducts brought 1000 million litres of water over a distance of 50 kilometres to the city of Rome in the first century CE.

aqueduct structure designed to transport freshwater to cities

siphon a pipe used to transport water upwards from a container

Roads

Roman roads held the republic and the empire together. The roads totalled 80 450 kilometres and were built as networks for communication, trade and the army. Roads were built perfectly straight over or through hills, and cost so much that they had to be paid for by the Roman state. They were constructed by the army using a strong base of large stones on sand, and were built up with smaller stones and mud to create a strong road with excellent drainage. The roads

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

quickly attracted frequent use by a great variety of travellers, from mail couriers to government officials, tax collectors, Christian missionaries, athletes traveling to competitions and tourists going to see the famous city of Rome.

How the Etruscans influenced the city of Rome

- They built the first city walls and sewerage system.
- They introduced building techniques such as the arch.
- They introduced the alphabet and number system.
- They helped develop the system of government.
- They introduced gladiator games and chariot racing.
- They influenced styles of art such as sculpture and painting.

Massive monument: the Forum

At the centre of the busy city of Rome was the Forum. It was the main public square and where the most important government buildings – such as the Senate house and major religious temples – were located. It was also the main shopping centre, with shops along the edges where people came to buy, sell and gossip. Major festivals were held in the Forum and Roman leaders spent time there most afternoons mingling with the citizens. The Forum was simply the busiest place in the busiest city in the world.

HISTORICAL THOUGHT

There were markers on every Roman road that recorded the distance to the Forum in the centre of Rome. All roads did lead to Rome!

Role of key groups

In 509 BCE, the Romans overthrew the Etruscans and in a direct move against the political rule of kings created a **republic** that was to last for another 500 years. The phrase *res publica* means 'public things'. Interestingly, as Italy increasingly fell under Roman control, Rome itself became more Italian.

republic a political system where the government is chosen by the people and there is no monarch



Source 15.3 An illustration of what the Forum may have looked like in ancient Roman times

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

How was the Roman republic structured?

Rome was based on a rigid system of classes divided into three main social groups of people: the wealthy patricians, the ordinary plebeians and the slaves who did most of the work.

Patricians

patrician a member of the wealthy ruling class

Senate the powerful parliament made up of wealthy men who advised the consuls and people

Patrician was the name given to the ruling class in Rome. Patrician families owned large amounts of land and lived in luxurious houses. At first, patrician families controlled every aspect of Roman society – politics, religion, the economy and the military. The jobs that patricians filled were the best in the city, such as being a member of the **Senate**, holding the top jobs in the government, heading up the army or holding a priesthood. Patrician men and women lived lives of luxury, comfort and influence.

Plebeians

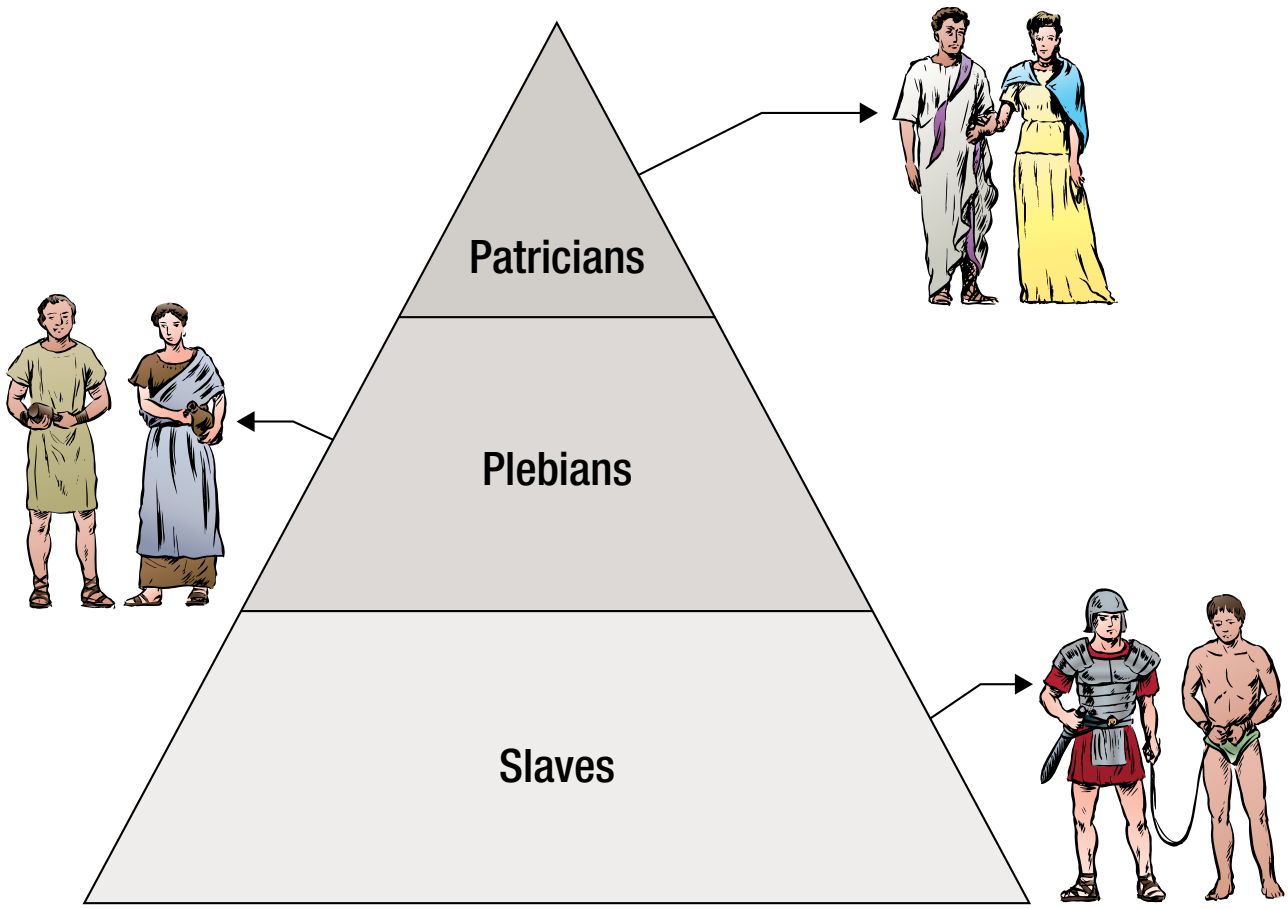
plebeian a member of the ordinary working class

Plebeians were all those free citizens who were not patricians. This was therefore a more diverse class than the patricians. Plebeians who were bankers and merchants were quite rich, whereas plebeian farmers, shopkeepers, labourers, fortune tellers, goldsmiths and cobblers were of lower class. But as free citizens, plebeians were able to vote in elections and thus choose which patrician families to put into power.

Slaves

slave a person who served a master or mistress and had no rights

Slaves played a crucial role in allowing Roman society to function effectively and expand quickly by undertaking the hardest jobs.



Source 15.4 The social hierarchy of ancient Rome

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Out of the one million people who lived in Rome in the first century CE, one-third were slaves. Slavery was accepted as normal and even vital to the Roman economy.

People were enslaved for a variety of reasons – including being born to slave parents, being abandoned at birth by free parents, being a convicted criminal or being captured during war. Wealthy Romans often considered slaves to be a measure of their status – the more slaves you owned, the more important you were.

HISTORICAL THOUGHT

Some children were freed from slavery before their parents. There were even some cases where the children then bought their own parents as their slaves!

DEVELOPING YOUR UNDERSTANDING 15.1

The saying 'as many enemies as slaves' was one of the common ideas in ancient Rome.

1. Explain what you think this proverb means.
2. Why do you think social status played an important part in the ownership of slaves?
3. See ancient Rome and the Forum in 3D at www.cambridge.edu.au/hass7weblinks, and take a whole tour of the city of ancient Rome.

DEVELOPING YOUR UNDERSTANDING 15.2

Complete this table by marking the statements TRUE or FALSE.

1	Plebeians were wealthier than patricians.	TRUE / FALSE
2	Patricians could be members of the Senate.	TRUE / FALSE
3	A person could be born into slavery.	TRUE / FALSE
4	Some plebeians had a lot of money but others could be quite poor.	TRUE / FALSE
5	All slaves were treated cruelly.	TRUE / FALSE
6	Patrician families controlled every aspect of Roman society.	TRUE / FALSE

What was law and order like in Rome?

Law and discipline were crucial aspects of life in Rome. The republican system of passing laws through the assemblies meant that careful decisions were made, laws remained stable and these laws could be enforced. Roman law applied only to Roman citizens, not the 'growing empire'. Laws were formulated by the Senate, but only the people could enact legislation by voting on what the senators presented to them. Until 287 BCE, *plebescites* (laws passed in the *Concilium Plebis*, the Plebeian Assembly) applied only to plebeians. To help develop the relationship between the patrician and plebeian classes, Rome's first law

code was written in 451 and 450 BCE. This code became known as the 'Laws of the 12 Tables' because the laws were displayed on 12 large bronze tablets in the central Roman Forum. These laws meant that patrician judges had to make decisions based on these published laws. Some of these laws included that the two classes were not allowed to intermarry and that a plebeian only had 30 days to pay back a debt to a patrician.

How did the Roman republic work?

The new republican system worked well because it was made up of four main parts: consuls, the Senate, assemblies and magistrates. Having lots of different branches of government meant that there was strong accountability, or checks and balances, to make sure that good decisions were made and power was distributed equitably.

Consuls

The highest role in the government was a ***consul***. Two *consuls* were elected every year to run the city of Rome and head up the army in times of war.

consul the highest role in the government of Rome

Senate

The *consuls* were advised by a body called the Senate. Senators were not elected – or at least not directly. They entered the Senate after being elected to high office. The Senate was made up of 300 men from the wealthy patrician class. Once a member of the Senate, the senator held the position for life. The Senate worked as the unchallenged government of Rome. It became a mixed patrician–plebeian aristocratic body after 367 BCE.

Assemblies

There were several different **assemblies**, each made up of adult male citizens, who voted on the decisions made by the Senate and on who should be officials. The most important votes concerned whether to declare war or peace.

assembly a group of people with the power to vote on the decisions of the Senate

Magistrates

Magistrates were officials who put the laws into practice on behalf of the people. Magistrates could be members of either the patrician or plebeian class.

magistrates elected officials who had the power to put laws into practice

What did men, women and children do each day?

Despite vast differences between poor and wealthy families in Roman society, everyone fulfilled their roles in a network of cooperation.

Role of men and boys

Instead of everyone being equal and able to share their opinions and make decisions together, as in many families today, Roman families had a ***paterfamilias***.

paterfamilias the name given to the male head of the household; the family's father

This meant that the father (the *pater* – usually the oldest living male in a nuclear family unit) was the dominant and most powerful member of the family, who controlled everyone else from his wife and his sons' wives down to each of his slaves. When a daughter married, she passed out of the control of her father and into her husband's control. By the first century CE, however, a more flexible type of Roman marriage, called *sine manu*, was adopted; it meant that the husband and wife were more equal. There were very clear values that each man needed to foster within this strong family structure: simplicity, religious devotion and obedience.

Wealthy men did not do much practical work or manual labour. They enjoyed their luxurious estates while working in the government or high up in the army. Wealthy men often spent their time discussing political issues among public officials or political groups. In comparison, men in the lower plebeian class had manual jobs, such as butchers, fishmongers, bath attendants, fruit sellers, porters, leatherworkers, bakers, traders or blacksmiths. Their sons were involved in learning their father's job.

Great value was placed on education, especially for boys. Boys in wealthy families were educated in mathematics, Latin, reading, writing and poetry until they were 16 years old.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

HISTORICAL THOUGHT

Boys and girls could not wear underwear until they were considered an adult. A boy was regarded as a man when his beard first began to grow. A girl was regarded as a woman when she got married. To symbolise that they had become an adult, all their childhood toys and clothes were burnt!

Role of women and girls

Women had two crucial roles: managing the household and being a mother. There was a complex series of roles in maintaining a household. The amount of work that a woman did around the house was dependent on how many slaves, if any, she had to help her. Richer women managed many slaves, which gave them more independence to enjoy leisure activities. Girls usually stayed at home with their mother until they were old enough to marry. Some girls had some primary schooling and were educated before they got married. Only 50% of children ever reached puberty, due to the high occurrence of deadly diseases such as smallpox, dysentery and measles. This meant that many Roman women needed to have four or five children in order for at least two of them to grow to an age when they could marry. Roman women had citizenship but they were not permitted to vote.

Ordinary women (and a large proportion of the poorer Roman population) with smaller houses or overcrowded apartments did not spend so much time on maintaining the household, as they were often required to earn money as well. Hence they often held jobs outside the home, such as shopkeepers, midwives, dressmakers or stallholders in the market.

HISTORICAL THOUGHT

More women died in childbirth than the number of men who died in battle.

RESEARCH 15.1

Women in Rome were not allowed to hold public office or vote, even though they were allowed to own property. Yet women exercised some power. They joined the men at dinner parties and were actively involved in political discussions and decisions. There were some very powerful women who exerted considerable influence.

Use the internet and your library's resources to research one of the following influential female Roman leaders in more detail:

- Lucretia
- Cornelia Africana – mother of the Gracchi brothers
- Livia Drusilla
- Clodia – sister of Clodius
- Julia Agrippina – Caligula's sister
- Claudia Quinta.

Be sure to research the major achievements of the woman you choose. Gather information about her birth, life, death and, importantly, her political influence. Present your findings to the class as a PowerPoint presentation, Prezi presentation or poster.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

What did Romans wear?

What did ordinary Romans wear?

tunic the basic piece of clothing worn by both men and women

stola a shorter tunic worn as the outer garment for fashion

toga a long garment worn on special occasions

Both men and women wore a simple **tunic**, which was a long piece of clothing with holes for the head and arms.

A man's tunic was knee-length, so that his legs were free, and was tied with a belt around the waist. Women's tunics were ankle-length and made more fashionable by adding a shorter tunic, called a **stola**, over the top.

On special occasions people wore the traditional **toga**, a long piece of material that wound around the person's body, over the left shoulder and under the right arm. Both men and women wore sandals on their feet that laced up their ankles and calves.

What did wealthy Romans wear?

Wealthy Romans were able to afford more decorative clothing and paid a lot of attention to their appearance. For example, many wealthy families wore clothes made from linen that had come from Egypt or silk from China. Wealthy families also had slaves who spent hours styling the women's hair, with complicated hairstyles that included braids, curls and buns. Women wore beautiful jewellery and makeup. Having a pale face was a sign of status to show that they were different from poor women who had tanned faces from working outside, so wealthy women used creams made from chalk and flour to whiten their skin. Wealthy men were also concerned with their looks. Men's hair fashions were taken from the way the emperor wore his hair.

HISTORICAL THOUGHT

Only emperors and senators were allowed to wear purple. This was because purple dye was expensive and time-consuming to produce. Snails from the Mediterranean Sea were used to make the dye. They had a gland near their gills where they produced a colour that turned purple when it came into contact with oxygen. Several thousand snails were needed to produce 1 gram of purple dye.

15.2 Significant beliefs, values and practices

What was the role of religion?

Religion was a crucial part of life in Rome. There were hundreds of gods, both male (a god) and female (a goddess). Some of the Roman gods were the same as the Greek gods, but had been given different names. Each had a specific aspect of life for which he or she was responsible. Given that every part of life had a god, Romans had to make sure that they honoured the gods in order to ensure a good life and good fortune. Many Romans also worshipped the emperor as a god. Temples were built for each god. The temple was considered to be the home of that god and a statue of them was placed inside. The god was honoured through regular sacrifices on the altar outside the temple by a priest. The sacrifice could be birds, goats, pigs or cows, and indicated respect for the god. Romans believed that the gods sent messages through natural events, such as the actions of sacred chickens, the flight of birds and even the arrangement of entrails. It was also common for a priest to examine a dead animal and interpret messages sent by the god. For example, a clean

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.5 The original Pantheon in Rome was built by Marcus Agrippa as temple to all the gods.

liver meant good luck whereas diseased organs meant that a bad event was coming. Festivals and feast days were held for each god.

As the Roman Empire expanded, it absorbed religious beliefs from the societies it conquered. For example, many Romans began to worship Mithras, a Persian deity, while many worshipped Isis, an important goddess in Egyptian mythology. In most cases, the Roman authorities allowed worship of non-Roman gods in the territories it conquered, while also setting up temples for the traditional Roman gods. They did this to help include new cultures in the growing Roman society.

Vestal Virgins

Vesta was the goddess of the hearth, which meant that she was responsible for maintaining the fire that warmed each house. The temple built for Vesta was called the House of the Vestals and contained a flame to honour Vesta that was never allowed to go out. If the flame went out, it was believed that Rome would immediately be destroyed. Girls aged between 6 and 10 years old were chosen from wealthy families to make sure that the flame stayed alight. These honoured priestesses were called Vestal Virgins and lived in the temple for the 30 years of their life. The Vestal Virgins enjoyed privileges denied to other Roman women, and were able to manage their own affairs. They were given unlimited spending money and allowed special treatment at the theatre and gladiatorial games.

HISTORICAL THOUGHT

During their 30 years of service, Vestal Virgins were not allowed to have sex or get married. If they did, they faced terrible consequences such as being buried alive.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 15.3

Learning about other societies can help you to better understand your world today. Answer the following questions about Roman housing compared with houses today:

1. Wealthy Romans' houses were decorated with pools, mosaics and statues. What is similar to and different from wealthy people's houses today?
2. Fire was a major problem in Roman apartments. Outline some common problems in today's houses.
3. Romans threw their garbage and sewage out of the window into the street. Explain how we dispose of our garbage and sewage today.
4. Romans spent much of their time in the streets rather than inside their apartments. What is similar and different about how you spend your time today?

HISTORICAL THOUGHT

Often the apartments of the lower classes smelled so stale and horrible from rubbish and sewage that they deliberately burned bread to hide the smell.

What was the role of food?

What did wealthy Romans eat?

Famous modern-day English chef Heston Blumenthal describes Roman eating as 'food drama'. He argues that the Romans invented the concept of 'dinner theatre', where eating was an experience that was far more than just the taste and flavours of the food. Instead, feasts for wealthy Romans were also about what the guests were seeing, hearing and smelling. Extravagant banquets would have involved several courses with elaborate entertainment such as clowns, dancers, singers, storytellers or poets. The guests dined lying down on large couches and ate with their fingers, enjoying the food, wine and entertainment, and discussing politics and philosophy. The guests were served by slaves, who refilled glasses, brought new dishes and regularly cleaned the fingers of the guests. Roman cooking was about creating pleasure for the guests. Roman historian Petronius described the famous example of Trimalchio's banquet where a notorious dish called 'The Trojan Hog' was served. The drama occurred when a huge whole pig was

HISTORICAL THOUGHT

While it is well known that ancient Romans liked to feast to excess, it is a common misconception that they visited a 'vomitorium' to purge themselves of food in order to make room for the next course. In fact, a 'vomitorium' was a passage in an amphitheatre, through which large crowds could pass. The word comes from a verb meaning 'to spew forth', which is perhaps how the misuse of the word started!

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.6 A fresco recovered from Pompeii shows that it was common to buy bread, rather than baking it at home.

carved up at the table and, to the horror of the guests, its intestines all splattered on to the table as if the chef had forgotten to gut the pig. The entertainment was the transformation of disgust into surprised joy when the guests realised that the 'intestines' were actually different coloured gourmet sausages that had been carefully inserted into the belly of the pig.

What did ordinary Romans eat?

In comparison, poorer Roman families only ate one meal per day. Ingredients were more limited than the types of foods that the wealthy could afford. All Romans enjoyed red and white wine. The wine was mixed with water because drinking straight wine was considered bad manners.

HISTORICAL THOUGHT

Romans used lots of spices, herbs and sauces to disguise the rotting taste of old meat or fish. The most common sauce was called *liquamen*, which was a liquid made from salted fish guts that had been left out in the sun.

What were Roman marriage customs?

Marriage was the cornerstone of Roman society. Men and women often married for practical (and, in the upper classes, political) reasons, and not just for love as some cultures do in today's society. One of the best-known writers on women and childbirth in the ancient world, Soranus, wrote that 'women are married for the sake of bearing children and heirs, and not for pleasure and enjoyment'. In fact, there was no word in Latin for a woman who was not married; one was either married or widowed. One could not choose to be single or unmarried as women can in today's society. There is also no Latin word for homosexuality, as same-sex couples were not accepted or even recognised.

HISTORICAL THOUGHT

Romans were one of the first civilisations to use wedding rings. A ring was worn on the third finger of the left hand because it was believed that a delicate nerve led from this finger to the heart.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Source 15.7 What made an ideal Roman husband and wife?

Characteristics of an ideal Roman husband	Characteristics of an ideal Roman wife
Strong	Kind
Hard working	Obedient
Powerful	Religious
Educated	Chaste
Religious	Faithful
	Fertile

HISTORICAL THOUGHT

The words on gravestones today often list basic facts about the person and are called an 'epitaph'. In comparison, cemeteries in Roman times were located along main roads so gravestones were meant to be read by people passing by.

What were Roman funeral customs?

Funeral customs were very much based on the wealth of the family. For reasons of health and hygiene, cemeteries were all located outside the city gates. No burials were allowed inside the city. Poor Romans were often buried just in a simple sack in a mass grave, whereas wealthy Romans had a wooden coffin or even an impressive marble **sarcophagus** in which they were buried individually.

sarcophagus an ornate coffin adorned with lavish carvings and inscriptions

All Romans shared the belief that the soul of the dead person was carried on a ferry across the River Styx to the afterlife. The dead body, therefore, was laid with its feet facing towards the door so that the soul could find its way out, and a coin was placed on each eye to pay the boatman to get across the river.



Source 15.8 Ancient Roman gravestones found in the buried city of Pompeii

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

What were the Romans' favourite types of entertainment?

Theatre

Visiting the theatre was one of the Romans' favourite pastimes. We know this because of the number and size of the theatres. The largest was the stone Theatre of Pompey, which held 27 000 people. Each show lasted several hours. Romans invented a type of comedy called mime, which is still presented today. Mime is a play without words. Plautus (254–184 BCE) was one of Rome's most famous playwrights. He is believed to have written over a hundred plays, 21 of which still survive today.

Amphitheatres were used for concerts. Music was played with instruments such as pipes, cymbals and tambourines because the sound carried well in the open air. If the crowd was enjoying the play, then they clapped and clicked their fingers or waved their togas. If they were disappointed, then they would hiss or whistle with disapproval.

Actors showed what character they were by wearing obvious masks and wigs. Special effects were even used, such as ghosts appearing through holes in the stage floor or gods being lowered down on ropes. Real wild animals or horses and chariots, or even the live execution of criminals, were also sometimes used to amaze the crowd.

HISTORICAL THOUGHT

Romans were given a day off for every day that they worked, which meant that they had 159 public holidays every year! Of these days, 93 were dedicated to gladiator games.

Chariot racing

The Circus Maximus was the massive chariot-racing circuit. It is still the biggest stadium in the world because it can hold 250 000 spectators. Twenty-four races were held each race day, and entry was free. There were four chariots in each race but they changed the number of horses: races with two horses pulling the chariot were called *bigae*, three-horse chariots were known as *trigae* and four-horse chariots as *quadrigae*. The aim was to finish seven laps first; each lap was 1.5 kilometres long. Chariots were able to race at surprisingly high speeds because the straight parts of the track were 600 metres long and 100 metres wide. At the end of each straight was the turning point, called the *meta*, which was marked by three tall cones. These corners were the most dangerous points because it was difficult to turn the horses at high speeds.

HISTORICAL THOUGHT

Each of the seven laps was measured by golden dolphins at the finish line. Each time a lap was completed, one dolphin was removed, showing how many laps were left.

Baths

Public baths were a popular and necessary part of life in Rome. Hygiene was important to the Romans, so they created public baths because ordinary people did not have baths in their own houses. By 300 CE, there were 856 bath-houses in Rome. Bath-houses were often beautifully decorated with mosaic floors, marble pillars and high, painted ceilings. Baths were like small swimming pools where everyone bathed naked together. There were separate baths for men and women. People rubbed olive oil on their skin, but instead of washing it off like soap, they used a blunt metal tool called a **strigil** to scrape it off.

The baths were warmed with a clever system called a **hypocaust**. This was under-floor central heating. Baths were built on brick pillars and slaves maintained fires

strigil a blunt metal tool used to scrape olive oil and dirt off the skin to keep clean

hypocaust underfloor central heating system utilising a fire looked after by slaves

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.9 The Circus Maximus, still one of the biggest stadiums in the world, holding up to 250 000 spectators

underneath the baths that heated both the floor and the water.

Baths, however, were a place of business and politics, not just hygiene. Many people visited a bath-house every day to spend time relaxing, swimming, playing games or chatting about sport and politics.

HISTORICAL THOUGHT

The most popular game for women at the baths was rolling hoops along with a stick. But for men it was a catching game with three people called *trigon*, and nude wrestling where competitors were coated in oil to make them too slippery for their opponent to grip.

Gladiator games

While music, theatre, chariot racing and the baths were all very popular forms of entertainment, the most exciting were the gladiator fights. There was such a high risk of death as a gladiator that most did not choose to participate but instead were forced into it – unwilling slaves, criminals or prisoners. Some people, however, chose to be gladiators because they were desperate for money, loved the thrill of danger or wanted to become famous. There were also women gladiators who often fought before the men. While gladiator fights were to the death, those who survived or won in a courageous or theatrical way became popular heroes and were widely idolised like movie, television, music and sporting stars are today.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.10 Mosaic of gladiator games

The Colosseum

Special arenas were built throughout the Roman Empire to hold gladiator fights. The most famous of these, and the building that best symbolises Rome, was the Colosseum. Why? First, the engineering and architecture of the Colosseum were simply brilliant. The idea of building a massive amphitheatre came from Emperor Vespasian. The Colosseum is the largest amphitheatre in the world and held 55 000 spectators with 80 entrances and exits for easy access. There were even enormous canvas awnings or sails over the heads of the spectators that were moved backwards and forwards by slaves pulling on hundreds of ropes. Underneath the sand floor was a complex series of passages, cells and cages for both the gladiators and animals used in the shows.

Second, the Colosseum was an excellent symbol of Rome's people. Everyone in Rome was able to attend the games, from poorer Romans to the wealthy senators. Even the seating system showed the different classes – the more important you were, the closer you got to sit to the emperor's official box. Senators sat closest to the emperor, and the poor people and slaves sat in the highest levels of seating. The emperor often judged the wishes of the crowds before deciding whether a defeated gladiator should be killed or allowed to live.

Third, the Colosseum was a good example of Rome's love of lavish entertainment and blood sports. It was opened by Emperor Titus in 80 CE, in a ceremony that lasted for 100 days. It even involved the deaths of 9000 wild animals such as lions, rhinos, panthers, elephants and wild boars, which were starved for days before being released into the Colosseum to fight other animals or even specially trained gladiators.

HISTORICAL THOUGHT

So many wild animals were used by the Romans in gladiator games that the lion became extinct in the Middle East and the elephant in North Africa.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.11 Opened by Emperor Titus in 80 CE, the Colosseum still stands today as a symbol of Rome's ancient past.

15.3 Contacts and conflicts

The rise of the Roman Empire

The Roman military machine was simply the best armed force in the ancient world. Its attitude towards enemies was uncompromising – either unconditional surrender or total destruction – and armies were known for their lack of mercy once battle had begun. The military allowed for the defence of Rome, but more importantly it enabled the expansion of the empire and its values throughout the Mediterranean region. Part of the secret of the army's success was its efficient organisation. It was divided into large units called **legions**, which included about 6000 soldiers who were called legionnaires, and 1000 cavalry on horseback. During the Republic, the legions were led by *consuls* and *praetors*, but during the imperial period, the emperors or their subordinates led the legions. The legions were divided into much smaller groups of 80 men, each of which was called a century and was commanded by a centurion.

legion a fighting group of 6000 soldiers, called legionnaires, and 1000 men on horses, called cavalry

Initially, the army was temporary and recruited each year from land-owning male citizens between the ages of 17 and 46, who were required to fight in specific campaigns. In 107 BCE, the consul Gaius Marius made a radical move and created the world's first permanent and professional army by recruiting men who did not own land and who now became career soldiers. The army peaked at around 450 000 men. They were full-time soldiers who signed up voluntarily for 16 to 20 years. Soldiers were either fighting or building roads, bridges and aqueducts. Legionnaires were highly respected. When their service was over, legionnaires were rewarded with money and land, often in newly conquered territories. Victorious generals were given huge parades through Rome, called 'triumphs', while wearing a special painted toga and holding a golden sceptre.

Fighting: Strength through discipline

The Roman army was almost invincible because of two main qualities: flexibility and determination.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

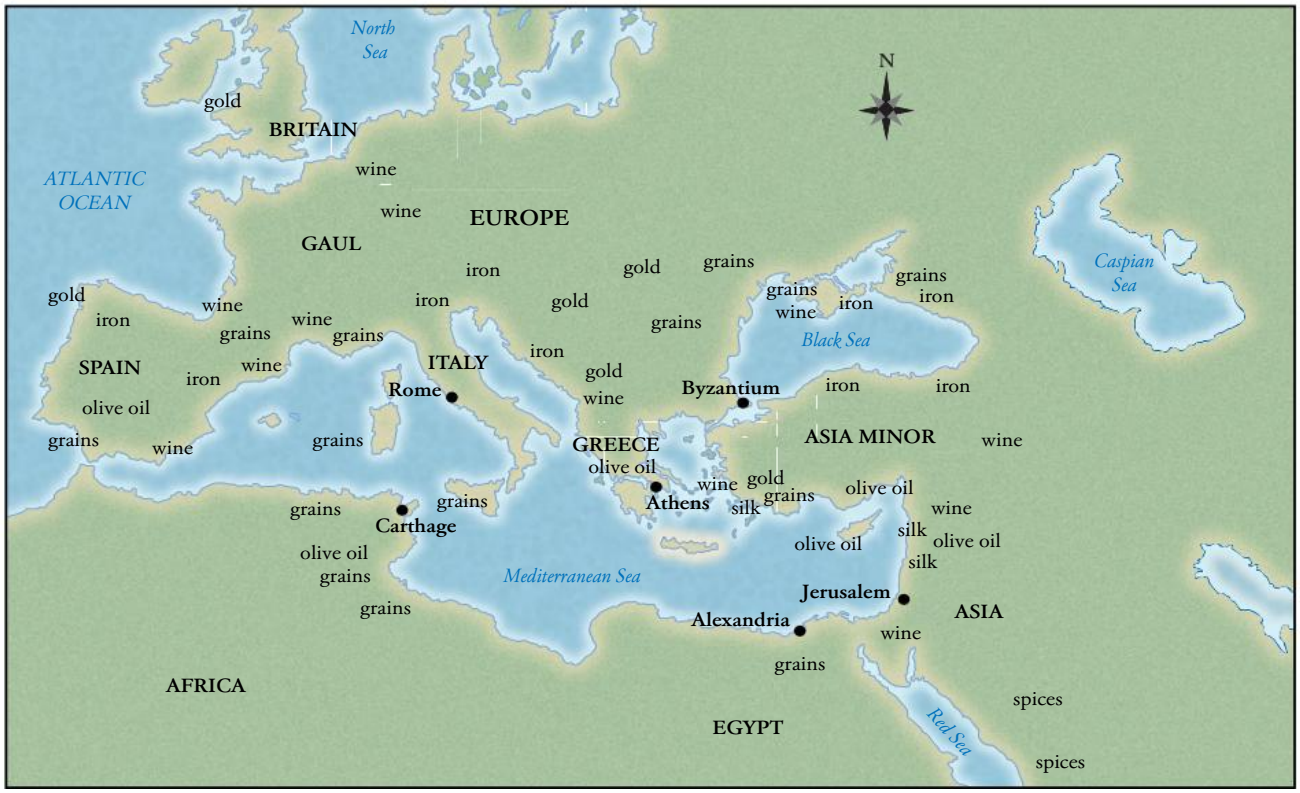
One major reason for the success of the army was the intense training, which was as fierce as real war. In war, the soldiers fought side by side, about 1.2 metres apart. The first strategy was to throw javelins with small enough heads to pierce enemy shields. The second was for the soldiers to attack with their swords, used for stabbing rather than slicing, while protecting themselves with their large, curved shields. The soldiers were trained never to panic. If under arrow attack, the soldiers in the century would create a protective barrier with their shields on all sides and above their heads, called a *testudo* or 'turtle' because the formation resembled the shell of a turtle. Roman soldiers were fiercely loyal to their officers, which made them incredibly disciplined, refusing to surrender even when outnumbered or fighting in difficult conditions. Interestingly, the Romans were willing to accept losing many men in wars instead of retreating. Battering rams and catapults were also used in sieges, either to attack or defend forts and cities.

How did the Roman Empire's expansion influence trade?

The might of the Roman army was the main reason that the empire was able to expand so quickly. The powerful Roman army was able to conquer Italy, Greece, north Africa and Gaul. Colonised territories were crucial in creating safe trade routes and partners. Once the army had conquered a territory, Roman laws and culture were imposed. For example, every new colony or province had to use Roman coins, the Latin language for official purposes and Roman laws, which made trade very easy. The extensive network of roads also helped trade. Trade involved a great variety of workers, such as merchants, tradesmen and women, ship owners, sailors, accountants, grain merchants, wine dealers, warehousemen, barge drivers, ship builders, **caulkers** (a person who waterproofs ships) and **ballast men** (who balanced the load in the ships). Roman ships had the geographical advantage of being able to sail through the

caulker a person who waterproofed ships

ballast man a person who organised the load in the bottom of a ship so that it was balanced



Source 15.12 Ancient Rome's trade expansion reached from Great Britain all the way down to Africa, covering the entire Mediterranean region.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Mediterranean Sea to Africa, Asia and Europe, and then sail back up the Tiber River to the city of Rome. Under the emperor Augustus, Rome grew so large and powerful that trade envoys from as far away as China and India came to deliver gifts and open up trade routes. The Roman writer Florus described the visits of envoys from Asia who brought with them elephants and precious pearls, and claimed their journey took 4 years.

HISTORICAL THOUGHT

Romans were very superstitious people. Ships would not sail on 24 August, 5 October or 8 November. These were the traditional days when the dead were transported from their graves into the underworld.

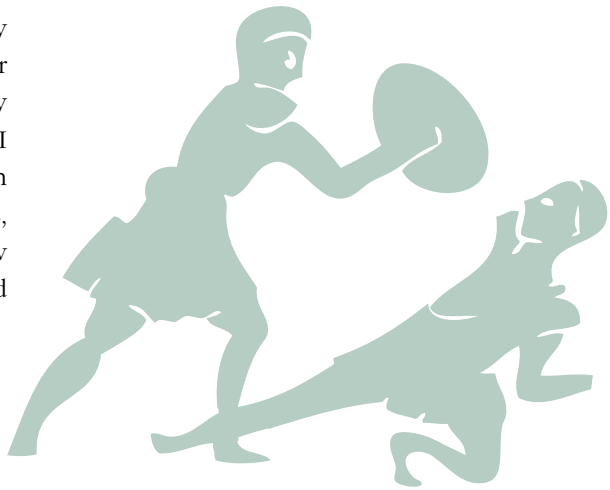
DEVELOPING YOUR UNDERSTANDING 15.4

Look at the map in Source 15.12 closely. Use the details to answer the following questions:

1. List all the items traded with Rome.
2. Which item was traded most?
3. Why do you think this item was so important?
4. Identify the benefits of trading within such a large area.
5. Identify the problems of trading within such a large area.

What made Rome change to a system of emperors?

The system of a republic had been challenged by Lucius Cornelius Sulla (consul in 88 BCE and 80 BCE, and dictator in 81 BCE) and Julius Caesar (consul in 59 BCE, and consul and dictator 49–44 BCE). The senators murdered Caesar in 44 BCE in a desperate attempt to save the Republic. Caesar's position was fought over by his great-nephew and adopted son Octavian and his closest associate and friend Mark Antony. At first Octavian and Antony agreed to rule half of the empire each, but war broke out between the two. Octavian eventually defeated Antony and his ally, Queen Cleopatra VII of Egypt, who both committed suicide rather than risk capture by Octavian. From this point onwards, the Republic was also dead. Rome needed a new political system. Rather than being based around the involvement of the people of Rome and the Senate, the Roman Empire system gave political power to an influential leader to make decisions himself. Octavian therefore became the first Roman emperor in the new system. He symbolically resigned from his official roles and was then given his position and powers back again, along with the new name of Augustus, which meant 'holy one'.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

15.4 Role of significant individuals

Julius Caesar

Born: 100 BCE

Died: 44 BCE (aged 56)

Class: patrician

Looks: tall, muscular, dark eyes, balding

Interest: writing history, public speaking

Skills: military genius; excellent planning and strategies; loved and respected by his soldiers

Most famous campaign: defeating all tribes in Gaul (now called France), 58 BCE–49 BCE

Most famous battle: Battle of Alesia against fierce enemy leader Vercingetorix

Quotes: '*Veni. Vidi. Vici.*' (Meaning: 'I came. I saw. I conquered.')

Political career: elected *consul* in 59 BCE; seized power as dictator in 49 BCE

Honours: made a 'Dictator for Life' by the Senate in 44 BCE

Interesting info: he had an affair with Queen Cleopatra VII of Egypt in 48 BCE and they had a son together. After Julius died, Cleopatra was with his best friend Mark Antony and had three children with him.

Historian's view: 'In all respects he is one of the most striking figures of the ancient world.'
– Betty Radice



Source 15.13 Julius Caesar is known to have been one of the most influential leaders in ancient Rome.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 15.5

Julius Caesar's murder is incredible news. You must tell the Roman people about this scandal as quickly as possible. Use all of the information that you've collected above.

Individual activity

You are a journalist. Write a front-page newspaper report. You must include a catchy headline of five words or less. Make sure that you've described the events of the murder well.

Group activity

You are a television news presenter. Write a script about Julius Caesar's murder. Use catchy music to begin your breaking news report. Do a live cross to a reporter on the scene who can describe what happened, or maybe interview a senator.

Emperor Augustus

Born: 63 BCE

Died: 14 CE (aged 77) from natural causes

Class: patrician

Looks: short, slim

Interests: sociable family man; public speaking; modest gambler

Weaknesses: not a strong military leader so he gave this role to his very capable generals

Quotes: 'I found Rome built of bricks. I leave her clothed in marble.'

Political career: Consul in 43, 33, 31–23, 5 and 2 BCE; Emperor of Rome from 27 BCE to 14 CE

Achievements: ruled Rome for 40 years and expanded the Empire significantly, and began the 200-year period of relative peace in the Roman Empire

Honours: became the first and greatest Roman emperor. Was given the title 'Father of the Country' in 2 BCE. Was made a 'god' when he died in 14 CE.

Interesting info: reformed Rome into a great city with excellent buildings, such as restoring and building 82 new temples to the gods in only one year. He was socially conservative, and imposed penalties on couples who did not have any children. He even banished his only daughter, Julia, for having an affair.



Source 15.14 A bronze statue of Emperor Augustus

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

HISTORICAL THOUGHT

Romans believed the left side of anything was unlucky. The Latin word for 'left' is our word 'sinister'. Emperor Augustus never put his left shoe on first.

How did the empire function?

Pax Romana

Pax Romana the name given to the 200 years of peaceful growth and development during the Roman Empire

Emperor Augustus's rule from 27 BCE began a period in Roman history called ***Pax Romana*** – meaning 'the Roman Peace'. For most of the next 200 years, Rome had a stable government, a strong legal system, widespread trade and, most importantly, relative peace without major wars or invasion. As more and more countries were defeated by the might of the Roman army, a system of provinces, which was started under the Republic, was expanded. Each new province was ruled by a governor who was paid by Augustus. This was a fairer and better system than under the Republic, when governors were unpaid and extorted money from the people of the provinces. Laws and punishments were the same throughout every province. But during this time, there were both good emperors, who were respected for making wise decisions, and bad emperors, who were hated for being cruel. Some emperors used their unlimited wealth and power well but others did not.

RESEARCH 15.2

The Romans recognised the power of history. Understanding the history of a country gives it a great future if you learn from the lessons of the past. Historians give us an idea of what life was really like in Rome because they lived there during the time that we are studying. Their writing is therefore called a primary source.

Use the internet and your library's resources to research one of the following influential Roman historians in more detail:

- Polybius (200–118 BCE)
- Sallust (86–34 BCE)
- Petronius (27–66 CE)
- Tacitus (55–116 CE)
- Suetonius (69–140 CE).

Be sure to research the major achievements of the historian you choose. Gather information about his birth, life, death and, importantly, his most popular writings. Present your findings to the class as a PowerPoint presentation, Prezi presentation or poster.

Why and how did the Roman Empire end?

The empire was over-stretched under Trajan; Hadrian rolled it back to manageable limits. The causes of the decline of the Roman Empire are related to emperors undertaking expensive wars for personal glory and the expansion of barbarians outside the empire as well as disease. The leadership of the empire was unstable, and army generals became desperate to control Rome. The instability was apparent in the fact that 30

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

out of 42 emperors were assassinated between 138 CE and 361 CE. Robbers and pirates had been suppressed during the late Republic, but now became powerful again in the Mediterranean Sea, disrupting trade routes and travel. The northern borders of the Empire were attacked by ferocious barbarians called the Huns. This was such a threat that Emperor Constantine moved the capital of the empire from Rome to Constantinople (now called Istanbul in Turkey). This left the city of Rome relatively unprotected and unable to stop invasions by the Goths in 410 CE and again in 476 CE. The mighty Roman Empire was over.



Source 15.15 A painting by Thomas Cole depicting the collapse of Rome

DEVELOPING YOUR UNDERSTANDING 15.6

1. Rewrite the caption of Source 15.15 in your workbook.
2. Why do you think the sky is painted with lots of dark clouds and smoke?
3. What do you notice about the large statue on the right-hand side?
4. Find and explain three things that are happening in this painting.
5. Do you think the artist believed that the collapse of Rome was a good thing or not? Explain why you think this.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Romans were intelligent architects, scientists and engineers. Some of the most famous buildings in Rome included the Forum, Pantheon and Colosseum, as well as amphitheatres, villas, bath-houses, temples, aqueducts, roads and arches.
- Romans' love of competition and humour meant that entertainment was an important part of everyday life. The most popular forms of entertainment were music, theatre, chariot racing, gambling, gymnasium activities and the gladiator games.
- After quick and successful expansion due to the power of the army, the Roman Empire lasted for 500 years and was dominated by the 200 years of relative peace begun by Emperor Augustus. A series of cruel emperors who made poor decisions gradually led to the weakening of the Empire, which was eventually overthrown in 476 CE. The Roman Empire collapsed in the West, but carried on in a different form in the East, called the 'Byzantine Empire'.
- Legend says Rome was founded by twin boys, Romulus and Remus, who fell from the heavens but were saved by a mother wolf and later adopted by a shepherd. The city of Rome was founded on the Tiber River.
- The Roman Republic was established after the Romans overthrew their Etruscan kings. This system involved common people, called citizens, electing officials and passing laws. The most powerful group was the Senate, which advised the most powerful men, the *consuls*. The most famous *consul* was the military genius Julius Caesar, who was assassinated in 44 BCE.
- Rome was divided into rigid social classes. The wealthy families were called patricians, and the rest were called plebeians. Both were supported by the accepted system of slavery. Men, women and children all had specific roles and clothing. Religion was a crucial part of everyday life in Rome. There were gods to oversee every aspect of daily life and they were worshipped with large temples, shrines and festivals.

Short-answer questions

1 How was Rome founded?

2 What was the role of religion in Roman life?

3 What were the roles of men, women and children?

4 Explain why the Roman army was so important.

5 Discuss the factors that influence where and how Romans were buried.

Source analysis

Study Source 15.16. This stone carving is from a tombstone in Gaul in the first century CE. It was tradition for the grieving parents to hold a feast in honour of the lost loved one. In this carving, the young boy is shown alive. Answer the following questions:

1 Identify the two ways in which Romans could sit while having dinner.

2 How do we know that the mother and father love their child?

3 Describe and name the types of clothing that the members of the family are wearing.

4 Based on the clothing and furniture, do you think the family is patrician or plebeian?

5 Who do you think the figures on the left and right might be? Why do you think this?

6 What are funerals like today? How are they the same as or different from Roman funerals?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 15.16 A stone carving of a grieving family

Extended-response question

Discuss the types of entertainment that the Romans enjoyed. Be sure to include some analysis of what this tells us about Roman culture.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Depth Study 3
The Asian world



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



16 Ancient China

Before you start

Main focus

A study of the early imperial period of ancient China provides some understanding of China's continuity as the world's longest surviving culture.

Why it's relevant today

Its innovations and inventions had widespread influence which still shape life today.

Inquiry questions

- How was ancient imperial China established and organised?
- What belief systems were important in forming the values of the ancient Chinese?
- How has ancient China influenced other civilisations, both ancient and modern?
- What have been the legacies of ancient Chinese civilisation?

Key terms

- Agriculture
- Buddhism
- Bureaucracy
- Confucianism
- Daoism
- Dynasty
- Feudalism
- Imperial
- Legalism
- Standardisation

Significant individuals

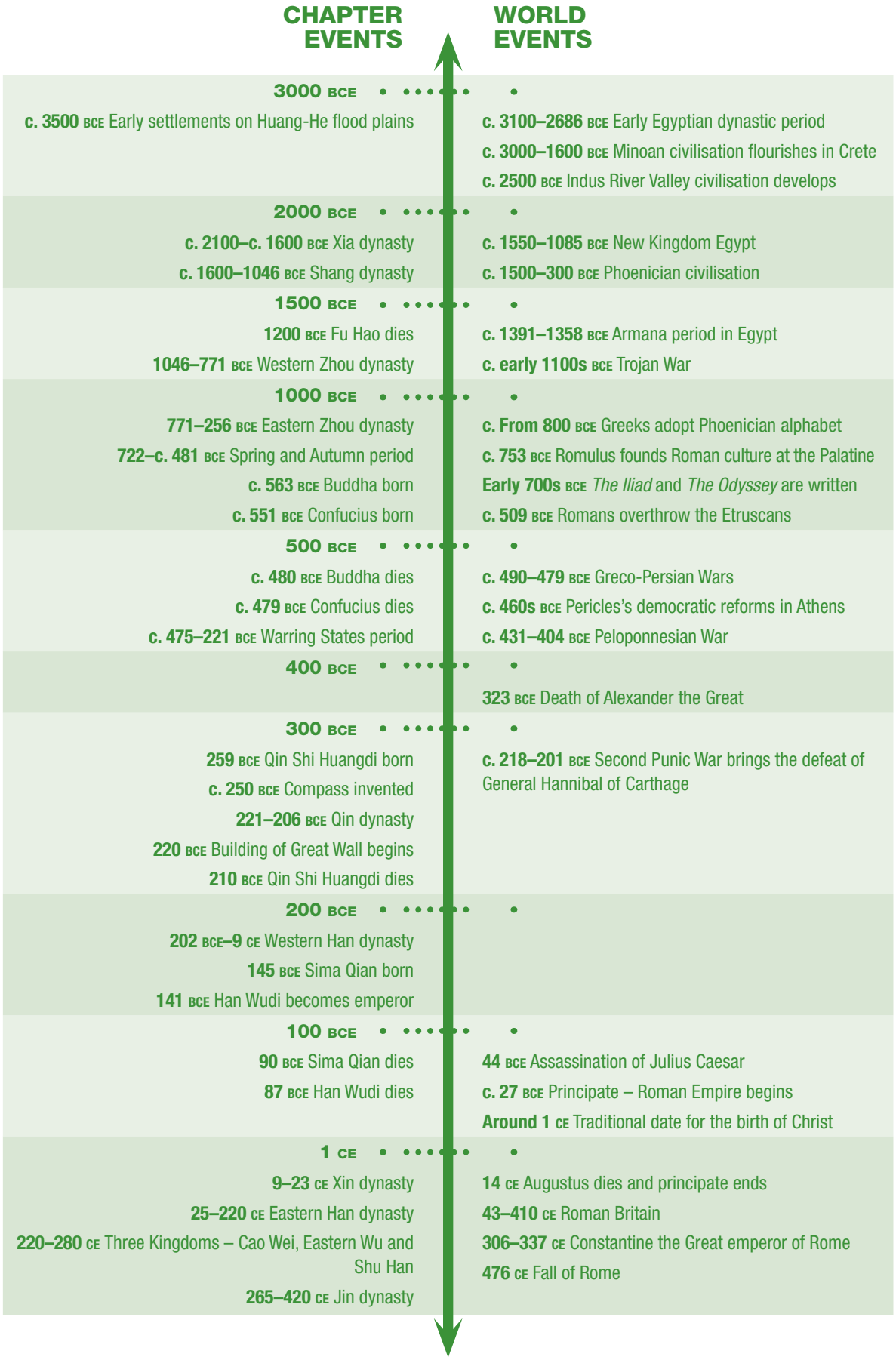
- Confucius
- Han Gaozu
- Han Wudi
- Laozi
- Qin Shi Huangdi
- Sima Qian

Let's begin

China stands as possibly the greatest civilisation of ancient times not simply because of its physical size in terms of population and geographical area – both of which were larger than the Roman empire, which existed at the same time – but also because of the level of sophistication China demonstrated as an ancient culture. The depth of innovation and invention it possessed sets it apart from other ancient civilisations, as demonstrated by the archaeological discovery of the buried terracotta army of the first Chinese emperor. The extent of ancient China's influence on history and the development of Western society and culture can be seen from the commonplace use of money to the significance of communicating ideas by printing them on paper.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

16.1 Physical features and their influence

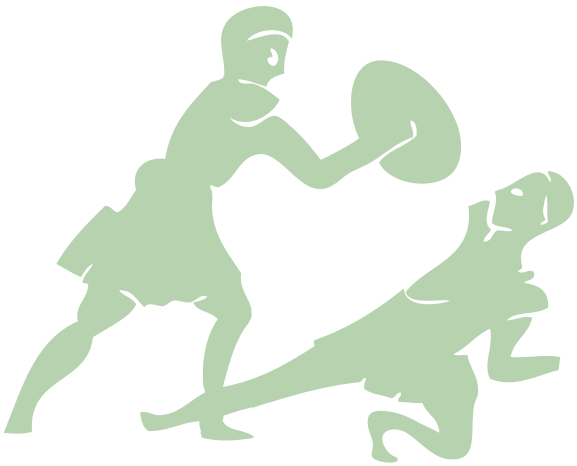
The geography of China is extremely varied. To the north and north-west are the Gobi and Taklamakan Deserts and the vast wastelands of Mongolia, and further east is Siberia. In the south are **impenetrable** mountain ranges like the Himalayas as well as dense rainforest jungle. The western part of the country is mountainous and is dominated by the Tibetan Plateau. In the east is the world's largest ocean, the Pacific. There is wide variation in climate, from cold temperate zones to equatorial and tropical areas. China has some of the driest and most **impassable** deserts in the world. The highest mountains on Earth are part of the ranges that border the country. Historically, these features acted as natural barriers and served to isolate China as well as to create separate geographical zones within the borders of the country.

impenetrable unable to be penetrated or passed through

impassable unable to be travelled on or across

Yellow and Blue Rivers

Ancient China's geography included forests, grasslands, plains, hills and mountain ranges, but perhaps the country's most influential feature was two great rivers. The first of these, the Yangzi or Yangtze River (Chang Jiang), is today the longest river in Asia at 6418 kilometres, and the third-longest in the world. It flows from the glaciers in the Tibetan Plateau across south-west, central and eastern China before emptying into the East China Sea at Shanghai. In early times, it was referred to as the 'Blue River' to distinguish it from the Yellow River.



The second, the Yellow River (Huang He) is the second-longest river in China and the sixth-longest in the world at an estimated length of 5464 kilometres. It gets its name from the yellow **loess** that blows from the **steppes** of Central Asia and into the river, giving it a yellow appearance. The Loess Plateau is an area of some 640 000 square kilometres in the middle of China, which has some of the most **erodible** soil on earth.

loess yellow wind-borne clay dust

steppes a vast area of grasslands that spans much of central Asia

erodible subject to erosion; easily worn away by water and wind

tributary a river flowing into a larger river or body of water

The Yellow River is called 'the cradle of Chinese civilisation', as it was the most prosperous region in early Chinese history. The Wei River is a major **tributary** of the Yellow River.

The Pearl River (Xi Jiang) is another extensive river system in southern China. Measured from the farthest reaches of incorporated rivers, the Pearl River system is China's third-longest river, measuring 2200 kilometres, and the second largest by volume.

Ancient China developed along these rivers because these water flows aided **agriculture**.

They provided fresh water for consumption and **irrigation**, helped by cycles of floods that deposited silt and created some of the best **arable** land in the world. However, the Yellow River is particularly prone to major flooding and has changed its course several times over the past two millennia.

agriculture cultivating the land, producing crops and raising livestock

irrigation a system of bringing a supply of water to a dry area, especially in order to help crops to grow

arable able to be cultivated for the growing of crops

In the north, a cool climate and silt deposits from the Yellow River created very fertile farming areas. Central China has a warmer climate and high rainfall. These conditions, together with water from the Yangtze River, allowed a great variety of crops to be grown. Poor soils in the mountainous regions of the west were better suited for grazing animals and herding. The hotter southern part of China was ideal to grow rice and tea. As China grew, all these areas became part of the country and contributed to its wealth and development.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.1

1 List four examples demonstrating the diversity of China's geography.
2 How did China's geography make it difficult to travel and communicate within China?
3 Identify the three main rivers in China.
4 Which of these is also called 'the cradle of Chinese civilisation'? Why?
5 Using the map in Source 16.1 as a reference, identify the natural geographical boundaries separating China from nearby states in:
   A the central north
   B the west
   C the south-west
   D the east.
6 Which of these would have required additional human-made barriers to keep out neighbouring peoples?
7 Explain how China's geography contributed to ancient China's isolation.

Concept of *Zhong Guo*

China's isolation distinguishes it from other ancient civilisations, such as those of the Greeks or the Romans, which grew through contact with other cultures. As a result, China can today directly trace many aspects of its culture to ancient times. In their isolation, the Chinese saw



Source 16.2 Chinese map of the world dated 1763 CE, positioning China at the centre of the map. It is inscribed 'drawn by Mo Yi Tong and copied from a map made in the 16th year of the Emperor Yongle' (1418 CE).

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

outsiders as **barbarians**. Innovation inside China followed the demands peculiar to this closed society. Examples of Chinese inventions in antiquity include the compass, paper, printing with ink, the clapper bell, noodles, the eating fork, cultivation of rice, silk, the food steamer, bellows, the window crank, the kite, the fan, porcelain ('china'), playing cards, the wooden wheelbarrow, the hot-air balloon, natural gas as a fuel, cast iron and tea. The term *Zhong Guo* has long been applied as a name for China (*zhong* means 'central' or 'middle', while *guo* means 'kingdom'). The notion of China as the 'Middle Kingdom' partly refers to the idea that it is at the centre of civilisation. This also reflects the impact of isolation on Chinese self-perception. The Chinese saw themselves as living in a place poised between heaven and earth.

barbarians people who live outside the limits of the society and are therefore believed to be uncivilised and primitive

Xia dynasty

People living in the Huang He flood plains developed agriculture and settled into small villages around 3500 BCE. In time, these settlements grew into larger groups, and it is from these groups that China's first ruling dynasty, the Xia, may have emerged. We don't know much about the Xia dynasty because there are no written records. Chinese script was not developed until after the decline of the Xia, during the early Shang period. Current estimates place the Xia in the period c. 2100 BCE–1600 BCE.

The history of the Xia is controversial, as historians and archaeologists disagree as to whether the dynasty actually existed. The major reference to its existence lies in the writings of Han dynasty historian Sima Qian (c. 145–90 BCE). It is the first dynasty listed in his major work, *The Records of the Grand Historian*, also known as *Shiji* (written between 109 and 91 BCE), which recounted Chinese history up until his own time. **Bronze smelts** from the Xia dated to around 2000 BCE have been identified in Henan province in western China. Symbols predating Chinese characters have been discovered on pottery and bronze crafts from this period. No conclusive physical evidence has yet been found, although bronze and pottery artefacts have been attributed to the period. The end of the Xia is said to have resulted from the Battle of Mingtiao in 1600 BCE.

bronze smelts sites where a process of melting copper and tin, and combining them under high levels of heat to produce bronze, was carried out

RESEARCH 16.1

Use the internet to research Sima Qian and his major work, *The Records of the Grand Historian*. What evidence does it provide of the early history of China up until 1000 BCE? How accurate do you think Sima Qian's work is? How do you think we can judge this? Write a summary of your findings in two or three paragraphs.

16.2 Role of key groups

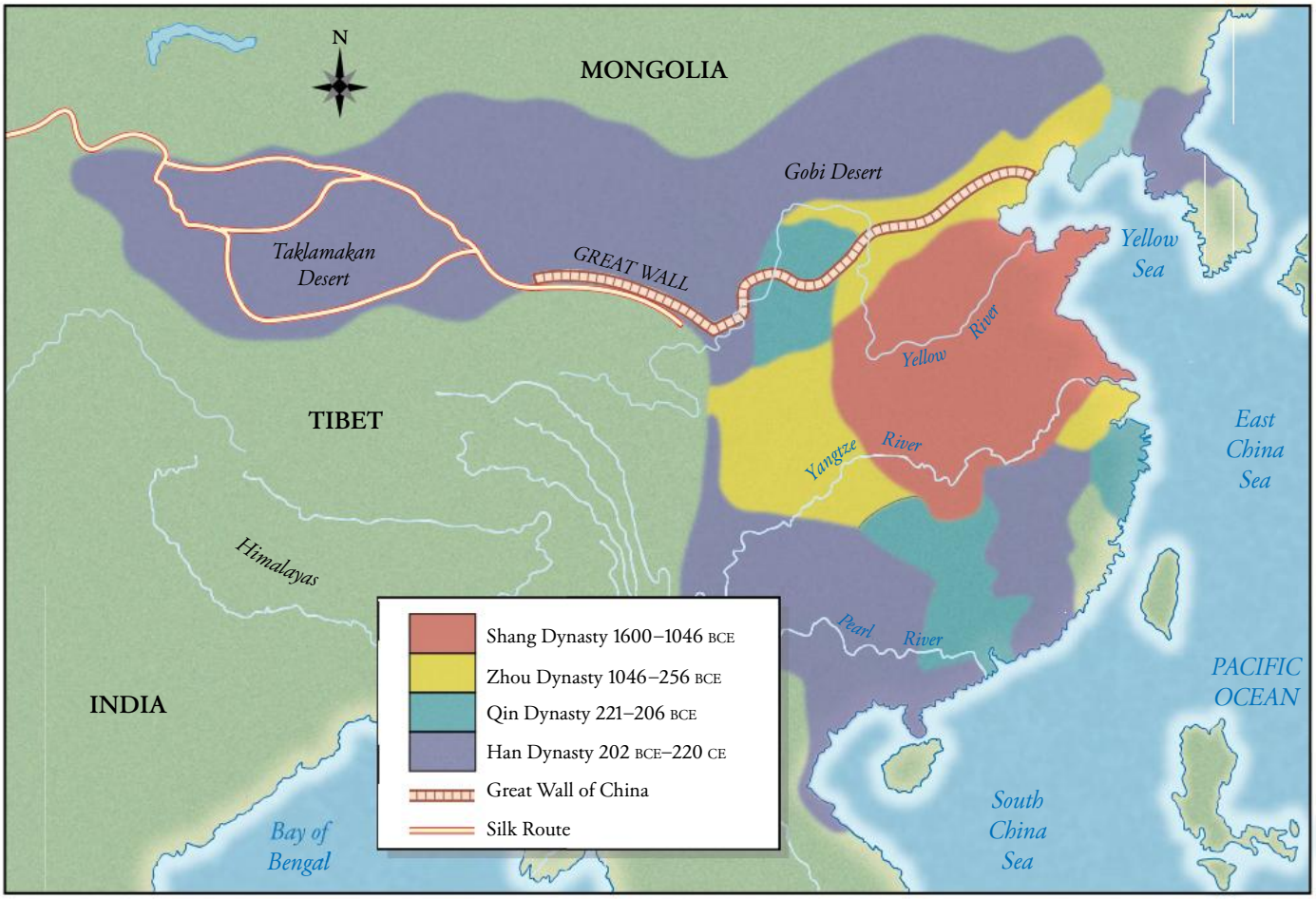
The history of China is characterised by a long series of **dynasties**. The first four of these provided the pattern for China's government for nearly 2000 years.

dynasty a succession of rulers from the same family

Shang dynasty

The modern estimate of the rule of the Shang is c. 1600–1046 BCE. According to historical tradition, the Shang dynasty followed the (possibly mythical) Xia. Archaeological evidence suggests the Shang emerged with the capital Anyang in the northern river valleys of the Yellow River by 1500 BCE. Shang

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 16.3 Map showing extremities of the four early dynasties in China, the original Great Wall and the early Silk Route

feudalism the type of rule based on land usage where the ruler owns all the land and allows others to occupy and use it in return for taxes, money, goods or services

sovereign self-governing and independent

antecedent something that happens or exists before something else

divination an occult process or ritual that attempts to gain insight into a question or situation by way of a standardised process such as reading signs in natural objects or fortune telling

rule was a form of **feudalism**. The Shang kingdom was thus not a **sovereign** dynasty that dominated a large part of ancient China, but rather one state among several.

The Shang is the first Chinese dynasty to have left historical records. The script found on oracle bones of the Shang dynasty represents the oldest forms of Chinese writing found and is the direct **antecedent** of the modern Chinese characters used today. Oracle bones were engraved tortoise shells or animal bones, and were used in **divination** ceremonies. Asking questions of the gods or ancestral spirits, priests heated the bones until they cracked and then used the position of the cracks to divine the answers. The bone was then inscribed with the name of the



Source 16.4 Shang period tortoise shell oracle bone showing script

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 16.5 Example of Shang dynasty bronze work

priest, the date and the question asked. Among the information found on oracle bones is the royal **genealogy** of the Shang dynasty. Approximately 100 000 of these bones have been discovered since they were first found in the 1920s CE.

Apart from agriculture, the Shang economy involved large-scale production of bronze-ware vessels and weapons – industries that required a large labour force to mine and process the copper, tin and lead **ores** used in bronze production. The large workforce led to the development of a **bureaucracy** to oversee the miners, labourers and skilled craftsmen. The high level of Shang craftsmanship is confirmed by bronze, jade, pottery and bone artefacts found in tombs from the period. The Shang remained in power for over 500 years with the kingdom extending over 100 000 square kilometres. Its influence – though not its political control – spread as far northeast as the area of modern Beijing. The last Shang king, Zhou Xin, was allegedly cruel and **decadent**, causing a revolt in which some subjects went over to fight on the side of the Zhou invaders from the south-west. The king committed suicide after being defeated by Wu Wang, King of Zhou, at the battle of Muye (c. 1046 BCE).

genealogy the history of families and the line of descent from their ancestors

ores naturally occurring mineral deposits from which metals can be extracted

bureaucracy a system of government where state officials make the important decisions

decadent showing unrestrained or immorally self-indulgent behavior

Zhou dynasty

The Zhou dynasty originated in the Wei River valley. The Zhou came to power after defeating the Shang in 1046 BCE, and ruled until the third century BCE, the longest period of any Chinese dynasty. In that time, the dynasty produced great works in arts, philosophy, technology and astronomy.

Zhou society was based on agricultural production and a feudal social structure. The massive area controlled by the dynasty was too large to administer directly, so the king's land was divided into territories controlled by nobles appointed by the king, each receiving their title through inheritance. The lords then divided their land among the peasants to grow crops, and these crops were used to pay **taxes**. This version of feudalism was made more difficult by the poor means of communication available at that time. Consequently, these territories became more independent over time – still prosperous, but distant from the central Zhou dynasty leaders. However, political and military control of China by the Zhou dynasty's ruling family only lasted during the Western Zhou period (up to 771 BCE); after this time, the dynasty's centralised authority was slowly eroded by feudal warlords.

taxes compulsory contributions made for the support of the government

The Eastern Zhou is the name given to the second part of the Zhou dynasty (771–256 BCE)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

and is divided into the Spring and Autumn periods (722–c. 481 BCE) and the Warring States period (c. 475–221 BCE). The Zhou had to flee eastward after their king was killed in 771 BCE; they never regained complete power after this.

After 771 BCE, the Zhou kings lost control and many independent states rebelled against them. They waged war with each other for over 200 years, only occasionally obeying the Zhou king. Though the Zhou kings were not in control, they still believed they were appointed by heaven as lords of these territories, which were now kingdoms.

Confucianism a philosophical system of ethics based on the teachings of Confucius (c. 551–479 BCE)

Daoism a philosophy based on the teachings of Laozi, seeking harmony with nature

Legalism a philosophy of administration in ancient China, where all people under the ruler were subject to a code of publicly proclaimed laws and punishments

The Eastern Zhou was also a golden age of cultural and intellectual development. Philosophical schools emerged that would influence Chinese government and culture, including **Confucianism**, **Daoism** and **Legalism**. The changes brought by these schools of thought played a large part in the decline of the Zhou dynasty itself.



Source 16.6 The earliest Chinese coins were made in the shape of miniature hoes, spades and knives. They were probably first issued around the tenth century BCE and continued in use during the Zhou period. Flat-handled spade coins (shown here) made from copper appeared around 300 BCE.

DEVELOPING YOUR UNDERSTANDING 16.2

1. Define 'dynasty'.
2. Explain what oracle bones were and how they were used.
3. What artefacts characterised the economy of the Shang dynasty?
4. Consider the information provided so far, especially by Source 16.3. Use your computer (or the school's computer) to make a timeline of the period covering the Xia, Shang and Zhou dynasties. Describe key developments of these periods including oracle bones, bronze-ware and Chinese schools of philosophy.

   To help you with your design, find the link to the Tiki Toki website at www.cambridge.edu.au/hass7weblinks. This is a free website, and will allow you to incorporate illustrations to demonstrate aspects or features of these dynasties, such as oracle bones.
5. Source 16.6 shows an example of coinage introduced during the Zhou period. Why do you think they were shaped like this?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Mandate of Heaven

doctrine a rule or principle that forms the basis of a belief taught to people as truthful or correct

Five Confucian Relationships the duties of respect that shape society: ruler to ruled, father to son, husband to wife, elder brother to younger brother and friend to friend

despotic acting in a cruel and repressive way

mandate authority given to a leader or government, effectively permitting them to rule

The Mandate of Heaven (*Tianming*) was first used by the Zhou Dynasty to justify its overthrow of the Shang dynasty, and would be used by succeeding Chinese emperors to justify their claimed right to rule.

The **doctrine** was defined by the **Five Confucian Relationships**, and stated simply that heaven would bless the authority of a just ruler, but would be displeased with a **despotic** ruler and would withdraw its **mandate**, leading to the overthrow of that ruler.

The Mandate of Heaven would then transfer to those who would rule best. In the Eastern Zhou, it may have acted as a justification for those who challenged the authority of the ruling dynasty.

The Spring and Autumn period

In 771 BCE, the Zhou kings lost control of their vassal territories. This period saw great economic growth, even though there was constant warfare between the territories. The development of iron production improved agricultural techniques, causing both the amount of food grown and the population to increase. Population growth led to bigger markets (and wealthier merchants) and, most crucially, bigger armies. These changes allowed rulers to control more territory.

This period gets its name from the *Spring and autumn annals*, a chronicle of the state of Lǔ, which was a **vassal state** to Zhou. The chronicle covers the years 722–479 BCE. Lǔ was the home state of Confucius.

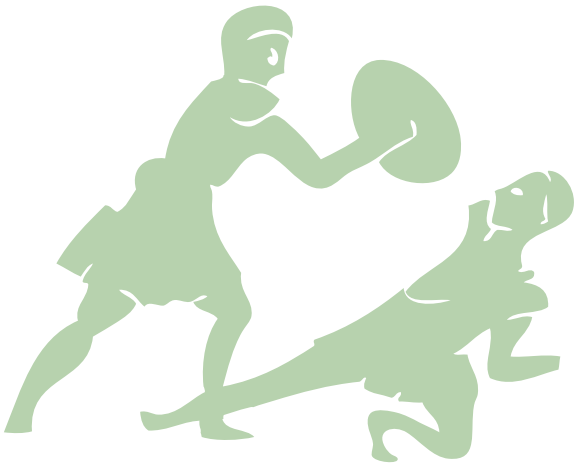
vassal state under feudalism, this was a region that gave loyalty, homage and tribute to the king, in return for his protection

Warring states

As the process of increased wealth and strengthening of armies continued, the number of individual states declined as they were absorbed by those that were more powerful. Some of these territories now were larger and more powerful than the original Zhou kingdom. This chaotic period was dominated by the remaining seven powerful sovereign states, each with its own king, ministry and army. Apart from the Zhou, these were Qin, Han, Wei, Chu, Yan and Qi. The Zhou dynasty was overthrown in 256 BCE, but internal fighting continued until the emergence of the Qin as the inheritors of the Mandate of Heaven in 221 BCE.

Qin dynasty

Qin is considered the first Chinese imperial dynasty because for the first time the whole of China was unified under one ruler, Ying Zheng, ruler of Qin, who declared himself Shi Huangdi, meaning the 'emperor of the first generation' after conquering the other states in 221 BCE. This brought the Warring States period to an end.



HISTORICAL THOUGHT

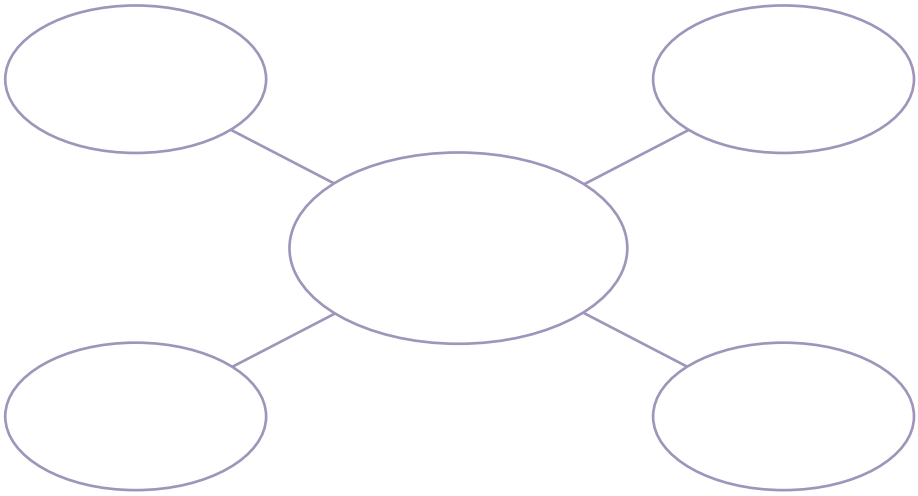
The invention of the Chinese sword occurred during the Warring States period and was seen as a great advance. It was first used mostly in bronze form, but by the third century BCE, stronger iron swords had been developed and were increasingly being used.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.3

1 What was the Mandate of Heaven?

2 What use would the Mandate of Heaven be to a ruler? Outline the benefits using the graphic organiser below.



3 Is there a pattern associated with the way in which successive dynasties came to, maintained and then lost power? How might this have prompted the adoption of *Tianming*?

Han Gaozu

The Han dynasty was founded by Gaozu when he became emperor in 202 BCE. Four years of warfare had followed his overthrow of Ziying, the last Qin ruler, in 206 BCE. The period of Han rule is significant because the reforms initiated by Han Gaozu set the pattern not just for subsequent Han rulers but also for succeeding dynasties. Han Gaozu's original name was Liu Bang and he had led a **peasant** rebellion against the Qin. He reduced taxes, encouraged the replacement of texts burned by the Qin and disbanded his armies to restore peace, encouraging soldiers to go back to the land to increase food production.

peasants poor agricultural workers

The system of government introduced by Han Gaozu borrowed its core features from the Qin dynasty, particularly the idea of having regions administered by officials rather than employing a feudalist system. Excluding kingdoms, the country was divided into political units of **provinces** (*zhou*), prefectures (*jun*) and **counties** (*xian*). Han Gaozu's reforms seemed to reflect a desire to benefit ordinary people, and the Han period is seen by many as a 'golden age' in Chinese history. The dynasty he founded lasted over 400 years and had enormous influence. Today, the largest ethnic group in China calls itself the 'Han people'.

province the largest of the geographical regions into which China was divided by the early emperors to maintain control and collect taxes

county the smallest of the geographical divisions; several counties would fit inside a prefecture and several prefectures would then fit into a province

Han Wudi and China's rise to prominence

Han Wudi was the seventh Han emperor. He ruled from 141 BCE to 87 BCE. During his reign, China grew to its largest extent to that point. He conquered territory from northern Vietnam in the south, Kyrgyzstan in the west and in the north-east

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

parts of Korea. With an estimated population at that time of 60 million, China had become the largest country in the world. However, expanding China's borders had to be paid for through increased taxation and maintaining the strength of the army through expanded conscription. Salt, a dietary requirement essential for the peasantry, and iron, the most commonly used material to make tools and everyday **implements** (including cooking pots), were taxed to fund these campaigns.

implements useful pieces of equipment, usually specially shaped or designed to do particular tasks

Han Wudi completed Gaozu's centralisation of government. He listened to Confucian scholars and followed their principles in setting up the state's bureaucracy. To be appointed, government officials had to be able to write 8000 characters in the state language, have knowledge of traditional texts and have competent military skills. These skills were assessed at an annual examination conducted by the scholar and historian Sima Qian.

Like his Qin and Han predecessors, Han Wudi used Legalism to govern his empire. The punishment for perceived failures and disloyalty was often exceedingly harsh. For example, in 99 BCE Sima Qian was arrested for the crime of grand insult (to the emperor's brother-in-law) and was sentenced to death. His charges were reduced to lesser punishments – either a fine, which he was not rich enough to pay, or **castration** and a 3-year prison sentence.

castration removal of the testicles of a man, making reproduction impossible

Around 100 BCE, there were peasant revolts throughout the empire in response to the heavy taxation and human workforce burden resulting from unending warfare. This unrest was made worse in 96 BCE when Han Wudi began a series of witchcraft **prosecutions**, which finally led to the death of his eldest son. Han Wudi died in 87 BCE.

prosecutions legal proceedings against people because of crimes they are alleged to have committed

Han culture

There was great creativity in the arts and sciences during the Han dynasty. Han Wudi gave Confucianism exclusive support, and it formed the philosophical basis of Han social, political and cultural life. Confucian ideas of ritual, respect and devotion to family, and harmonious relationships were connected under Han Wudi, with the Daoist ideas of a yin–yang **cosmology**, an arrangement that justified the imperial system of government within the natural order of the universe. Art and science were seen as extensions of that order, so poetry, literature and philosophy flourished.

cosmology ideas about the origin and structure of the universe

Shifting power

The Han dynasty was interrupted when Wang Mang, a court official, proclaimed himself emperor of the Xin dynasty in 9 CE and attempted to give wealthy landholdings to the peasantry. Wang Mang's seizure of power coincided with **famine** in parts of the empire, eventually resulting in peasant revolts opposing the Xin. In 23 CE, peasant forces overthrew and killed Wang Mang and installed a new emperor, Gengshi, who had connections to the Han. The Han dynasty was properly restored to power in 25 CE when Guangwu became emperor.

famine a period of severe shortages of food, resulting in widespread hunger

End of the Han

The first period of Han rule (206 BCE–9 CE) is now distinguished by historians as the Western Han. After the period of the Xin dynasty, the restored Han era is called the Eastern Han (25–220 CE). In this period, there was increasing intervention in state matters by civil servants, who were often **eunuchs**. This was partly due to the failure of members of the dynasty to take proper responsibility for running the empire. A war between the eunuchs and palace officials (168–170 CE) demonstrated the weakening leadership of the Han. These problems were made worse by growing peasant unrest.

eunuch a civil servant who has been castrated

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

The dynasty was shaken by a major and prolonged rebellion (184–205 CE) led by a Daoist sect calling themselves the 'Yellow Scarves' (a reference to the rebels' distinctive headdresses). Even though the rebellion was eventually defeated, the military leaders and local administrators involved gained independence in the process, hastening the collapse of the Han dynasty in 220 CE.

The end of the Han dynasty was followed by a period of conflict between three states: Cao Wei, Eastern Wu and Shu Han (220–280 CE). In the latter part of this conflict, the Jin dynasty (265–420 CE) emerged.

HISTORICAL THOUGHT

The world's best-preserved mummy is that of the wife of the ruler of Dai, a Western Han imperial **fiefdom**. Her name was Xin Zhui, and she died between 178 and 145 BCE, at around 50 years of age. Given her position, she has been nicknamed 'Lady Dai'. Found in 1971, her body was remarkably well preserved – her skin was supple and soft; her limbs could still be moved and bent at the joints; her hair was still complete; type A blood was found in her veins; and all her internal organs were intact, including the contents of her stomach from her last meal.

fiefdom the lands controlled by a feudal lord

DEVELOPING YOUR UNDERSTANDING 16.4

1. Discuss the significance of the reforms of Han Gaozu.
2. Outline the Qin initiatives Han Gaozu borrowed.
3. Explain the cost of Han Wudi's military success.
4. Identify when the Xin dynasty occurred.
5. What names are given to the two halves of the Han dynasty?
6. Who were the Yellow Scarves?
7. Which dynasty finally emerged in 280 BCE to succeed the Han?
8. Reflect on what ideas became prevalent under Han Wudi to serve as the ethical and cultural basis of the Han dynasty.

Social structure

There were five social classes and work varied according to a person's social position. Sources 16.7–16.11 below show each of these five classes. Even though they were the Nong class, peasants generally remained impoverished, while those in the Shang group, which included money-lenders, often became quite wealthy. Sources 16.7–16.11 show the five classes of ancient China at work.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

scholars educated men who had been schooled in calligraphy (writing Chinese) and Confucian texts; usually civil servants or government officials

gentry rural landowners, who were businesspeople, renting out parts of their vast amount of property to poorer people, like peasants, and maintaining their own private armies or militia to defend themselves

Shi

The top level of society, whose members were educated. They included **scholars** and **gentry**, who ran the government, planned battles and enjoyed a comfortable way of life.



Source 16.7 Painting of a northern Qi scholar official, assisted in his writing by servants

commodity an item that is bought and sold, especially a raw material or something that is manufactured, for which there is commercial demand



Nong

Food was the most precious **commodity** to sustain the society, and the second most valued social group was made up of farmers and peasants. This was by far the largest group in Chinese society.

Source 16.8 Painting of peasants at work in a rice field

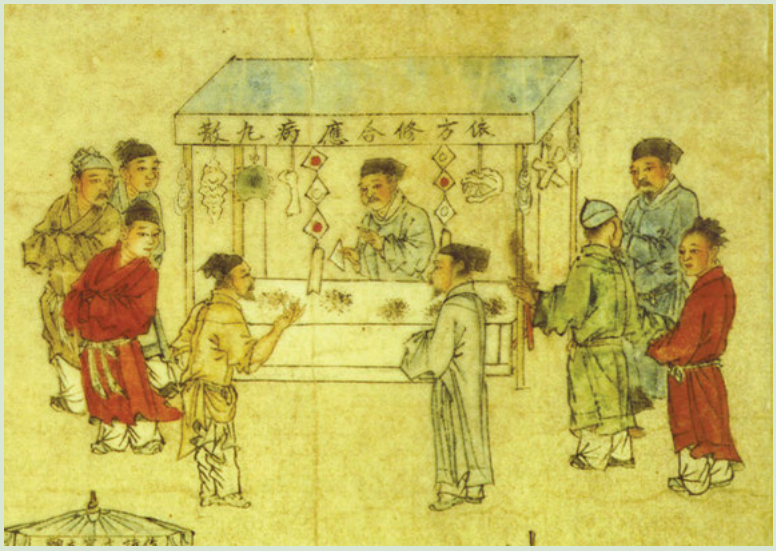
Gong

Craftsmen and artisans, or people with certain skills, constituted the next social level. Many of these worked for the government or privately, sometimes employing artisans under them.



Source 16.9 Painting from Eastern Han period showing various artisans working with wood, stone and lacquer paint

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Shang

The lowest class consisted of **merchants** and traders. Even though they were at the bottom, they were regarded as important members of the community.

merchants business people who were often quite wealthy, but were looked down upon – mainly because they sold things that other people made

Source 16.10 Painting of a merchant selling his wares

Nubi

Nubi were slaves often forced into labour, and could include war captives, enslaved debtors and criminals. While there is debate about the extent of slavery in antiquity, given its conflict with Confucian values, there is little doubt about the role of slaves in projects like the building of the Great Wall.



Source 16.11 Painting showing a slave pouring a drink, while another slave assists someone to stand up

Family

Living together as an extended family was common in ancient China, with grandparents, parents and children in the same household. This pattern applied to all social classes. From the Han period onwards, Confucian principles were prominent – for example, valuing the family, respect for elders, family loyalty and placing the needs of the family as a whole ahead of individuals' desires. The oldest man was the official head of the family, while the oldest woman oversaw the daily running of the household. Parents chose marriage partners for their children and, once married, a woman would move to her husband's family house and show obedience to him and his parents.

Men and women

Confucius taught that women were inferior to men, and this view became widespread. A woman could increase her worth if she gave birth to boys, as families preferred male children, and poor families often killed female infants in times of need. Farming was seen as men's work, so boys were expected to assist on the farm from an early age and their higher status resulted from this. Even so, at harvest times all members of

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

dowry money, domestic goods or livestock paid to the groom's family by the bride's family at marriage

the family, including women and girls, worked in the fields. Boys got the opportunity to go to school at the age of 6, but girls received no formal education. The family of a girl had to provide a **dowry** to ensure a man would marry her, and this represented an extra burden for many.

Men were allowed to have more than one wife, although the first wife held higher status and her children would have the right of inheritance. An emperor also had **concubines**, who were kept to provide him with entertainment and sometimes children. To be a concubine was seen as a great privilege.

concubine a woman who was the lover of the emperor, was not married to him and resided in or near the royal court

DEVELOPING YOUR UNDERSTANDING 16.5

1 Identify where most of ancient China's population lived.
2 What Confucian values contributed to the importance of the family in ancient China?
3 Compare the different approaches to the idea of law presented by the philosophies of Legalism and Confucianism.
4 Examine Sources 6.7–11 closely:
   - **A** What different types of work can you recognise?
   - **B** For each example of work you identify, suggest the social class to which that person might belong.

Lotus feet

Under later dynasties, wealthy families often had their daughters' feet bound to create 'lotus feet'. The toes and arches of the feet were broken and then each foot was tightly bandaged with the toes curled underneath so that the bones healed into a stunted shape. The result was that these girls developed tiny, deformed feet, which were regarded by men as beautiful. Women with lotus feet walked with great difficulty and some needed to be carried. Bound feet rendered women dependent on their families, particularly their men, and therefore they supposedly became an alluring symbol of **chastity**, social status (because they could not work) and male ownership.

chastity abstaining from sex on moral grounds

Food

millet a grain crop with small seeds used for food

Food in ancient China varied on a regional basis. Some common aspects were observed. From at least 4000 BCE, the two staple grain crops were **millet** in northern China and rice in the south. These were supplemented by many other crops, including cabbage, soybeans, peas and bamboo shoots. Irrespective of social position, the Chinese ate two meals a day – one at mid-morning and the other before nightfall. Each meal had cooked grain (*fan*) and vegetables (*cai*).

The poor ate roast duck, chicken or fried fish, supplemented by vegetables, grains and soup. Rice wine would have been provided at these occasions. From about 100 BCE, villages started to have artificial ponds to breed **carp**.

carp a type of large freshwater fish with a single fin on the back

The rich cooked in elaborate ways such as stir-frying or steaming. They were cooked for by servants who used elaborate bronze and iron cooking pots. The rich ate more meat, eggs and fish than the poor. On special occasions, the wealthy had access to even more exotic foods, such as bear paw, shark fin and wild boar.

Law and order

Laws were often harsh under principles like Legalism. Legalism was based on the concept that

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

humans were predisposed to evil or wrongdoing. This belief led to the understanding that a code of laws and punishments was needed in order to maintain order in society. The first several emperors adopted Legalistic approaches, and although this did tie forms of punishment to particular types of crime, the penalties were often severe. Qin Shi Huangdi set down strict disciplinary codes, brutally persecuted critics of his regime and set up a nationwide network of spies and **informants**.

informants people whose job it was to gather details on others and then inform the authorities

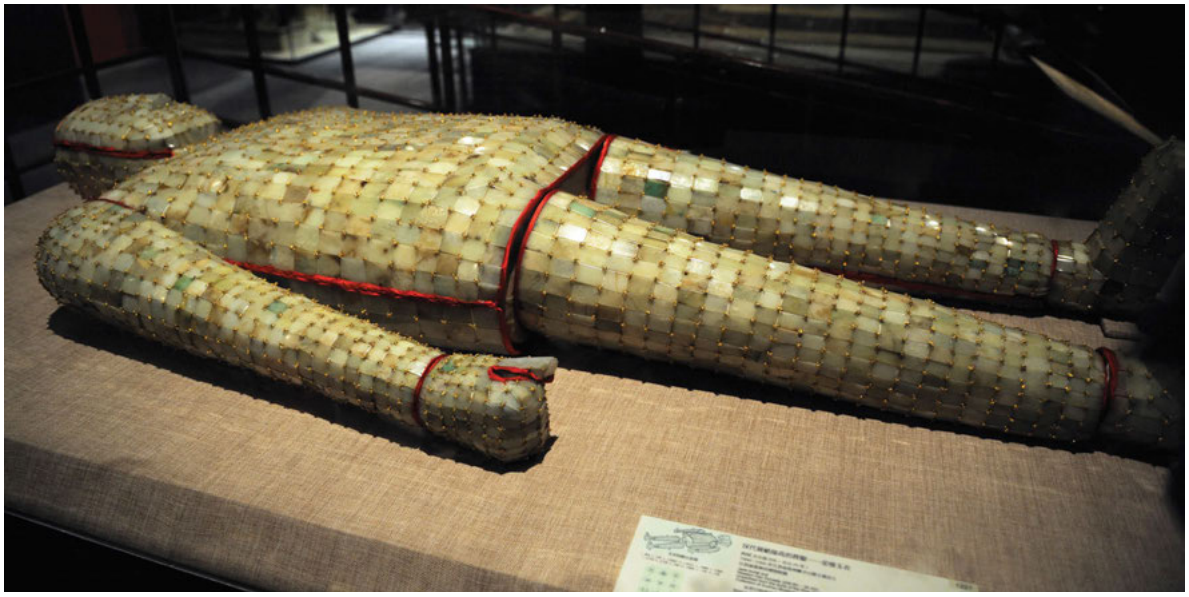
The Confucian philosophy, in contrast to Legalism, stated that social control and social order could only be created through education. Confucianism influenced the ancient Chinese legal system as it suggested that humans were inherently good and that order was based on respect. Confucian values came to prominence during the Eastern Han dynasty and were reflected in laws from that time. Early Han emperors abided by Legalistic approaches, despite their elevation of Confucius and his teaching.

Death and burial

The ancient Chinese believed that the afterlife was a continuation of life on earth. The wealthy prepared for death by arranging tombs. It was very important that all the things they needed were buried with them in their tomb. Some people had objects made especially for this purpose. The powerful and wealthy of ancient China had their tombs furnished with very fine objects made from the very best materials. They had large sets of ritual vessels in their tombs so they could continue to make offerings to their ancestors. They often had weapons buried with them to show their power and to be used in the afterlife. It is believed that the tomb of Qin Shi Huangdi may be filled with mercury, which was believed to be a substance that created immortality.

HISTORICAL THOUGHT

Up until the period of the Qin, it was not uncommon for kings to have their servants buried alive with them.



Source 16.12 This jade burial suit contained the body of Liu Sheng, brother of Emperor Han Wudi, who died in 113 BCE. The suit is made from over 2000 jade plates sewn together by gold wire. Jade had a very important role in ancient Chinese burials. Jade objects were placed on top of and around the body. The ancient Chinese came to believe that jade had the power to protect their bodies. Royal tombs from the Han dynasty onwards have contained bodies wearing jade burial suits, to protect the corpses from decay.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.6

1. Compare the differences between the food available to the rich and the poor.
2. Compare the difference between the Legalist view of human nature and the Confucianist view.
3. What were ancient Chinese attitudes about death? How does Source 16.12 relate to these?
4. Explain the role of women in ancient Chinese society. Look at women from different social classes.

16.3 Significant beliefs, values and practices



Source 16.13 Song dynasty (960–1279 CE) painting with the theme 'Confucianism, Daoism and Buddhism are one'

There were three great belief systems that had an influence on ancient China. Daoism and Confucianism emerged during the Warring States period, followed by Buddhism some centuries later. Additionally, before the birth of these three philosophies, the Chinese had religious practices like the worship of ancestors. This worship honoured elderly family members and was based on the belief that spirits of dead ancestors would protect the family. Worship usually centred on household shrines.



Source 16.14 The *taijitu*, a Chinese symbol traditionally representing the Daoist idea of *yin yang* ('opposites in nature'); *yin* represents the dark, cold and passive parts of nature, while *yang* represents the light, hot and active parts.

Laozi and Daoism

Traditionally, Daoism derives from Laozi (meaning 'old master') and his book, *Daodejing*, a philosophical work central to Daoism and Chinese Buddhism. However, the question of whether Laozi actually existed, whether he is a

mythical figure or whether he is a combination of a number of people is unclear. *Dao* literally means '[the] way', The central idea of Daoism is balance or harmony, especially with nature.

Daoism is better understood as a way of life than as a religion. Daoist teachings are based on revelations from various sources. There are differing interpretations of these revelations within Daoism, but all the sects share certain core beliefs, particularly the centrality of the *taijitu* (*yin yang*) symbol, and the notion of *wuwei* (knowing when to act and when not to act). The Daoist notion is that everything has both *yin* and *yang* aspects, but if either is allowed to be stronger than the other, then the balance in nature is broken. Daoists believed that life should be peaceful and filled with joy, and it was their view that most of the things that people regarded as necessary for a civilised society – government, money, laws, power and social position – didn't help to achieve this.

DEVELOPING YOUR UNDERSTANDING 16.7

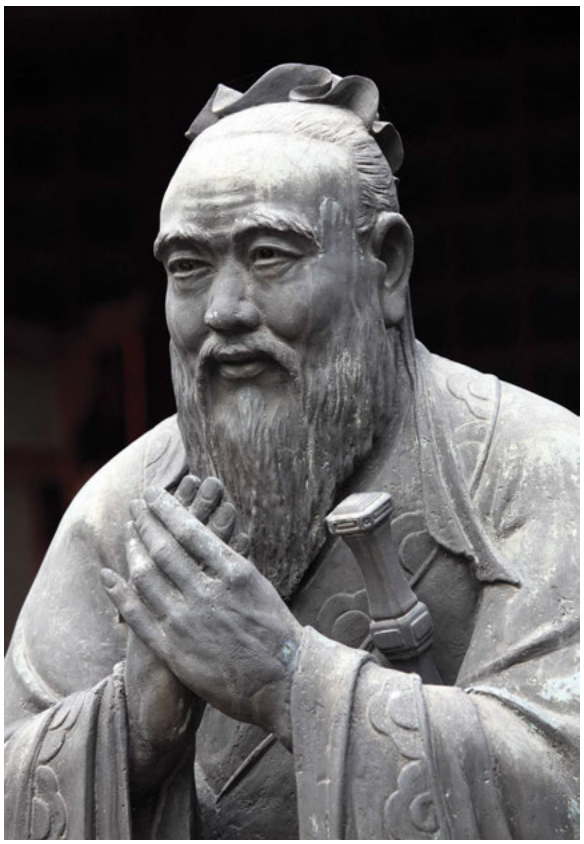
1. List four major religious beliefs or practices of ancient China.
2. What does *dao* mean?
3. Who was Laozi?
4. What is the literal meaning of *wuwei*? Can you think of a real-life example of how this idea might be applied?
5. Source 16.15 represents the *taijitu*. Explain how this relates to Daoist beliefs.

Confucianism

Confucius (c. 551–c. 479 BCE) was a thinker and social philosopher of the Eastern Zhou period, who emphasised personal and public **morality**, correctness of social relationships, justice and sincerity. The turmoil of his own and subsequent times made his clear ideas attractive. During his lifetime, he travelled throughout China teaching and presenting his views. No original texts of his survive, and most of what became the philosophy of Confucianism was written down by followers in the centuries after his death. His ideas are mainly known from a collection of 499 statements and observations compiled about 30 to 50 years after his death, called the *Lun Yu* (literally 'Classified/Ordered Sayings'), or *The Analects*.

morality standards of conduct based on what is generally accepted as right or wrong

In Confucian teaching, the family was the basis of society, and ideas such as strong familial loyalty, ancestor worship, respect of elders by children and the family as a basis for an ideal government were very important. This meant that a good ruler was one who treated his subjects as a family.



Source 16.15 Statue of Confucius at Confucian temple in Shanghai, China

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Confucius had little widespread influence during his lifetime, but by the beginning of the Qin period his ideas had gained prominence. Confucianism has arguably had a deeper impact on Chinese culture than any other philosophy. Its principles were to have as profound an effect on the organisation of government as they did on people's ordinary social and personal values.

Buddha and Buddhism

Buddhism a religion that has a variety of beliefs, practices and traditions based largely on the teachings of Siddhartha (the historical Buddha)

Four Noble Truths Buddha's teaching that life involves suffering and that suffering is caused by desire; by conquering desire, one can end this suffering

The origins of **Buddhism** in China are lost in legend. What is known is that Buddhism originated in northern India where Prince Siddhartha Gautama (c. 563 BCE – c. 480 BCE) began a search for 'enlightenment' at the age of 29. He taught and studied for over 50 years and was the first Buddha ('enlightened one'). According to tradition, he first discovered enlightenment when he was 35 years old, and from this experience conceived the **Four Noble Truths**, which became the heart of Buddhist teachings:

1 Existence is suffering (dukkha).
2 Suffering arises from attachment to desires.
3 Freedom from suffering (nirvana) occurs when attachment to desire ceases.
4 Freedom from suffering is possible by practising the 'Eightfold Path', which lays down a process to acquire ethical, moral and mental discipline.

Buddhism also taught that people are **reincarnated** after they die and continue to have many lives until reaching nirvana.

reincarnation living again in a new body or form after death

It is now thought that Buddhism came to China from what was then north-west India (present-day Afghanistan and Pakistan) and was spread via the trade routes associated with the Silk Road to reach Han China. After entering China, Buddhism appears to have blended readily with early Daoism, possibly in the first century BCE. Within 600 years, Buddhism had become the largest religion in China, as it remains today.

Source 16.16 Leshan Giant Buddha, in Sichuan province in south-western China, is the largest Buddhist statue in the world and took about 90 years to create (713–803 CE). It is 71 metres high and is carved out of the cliff face.



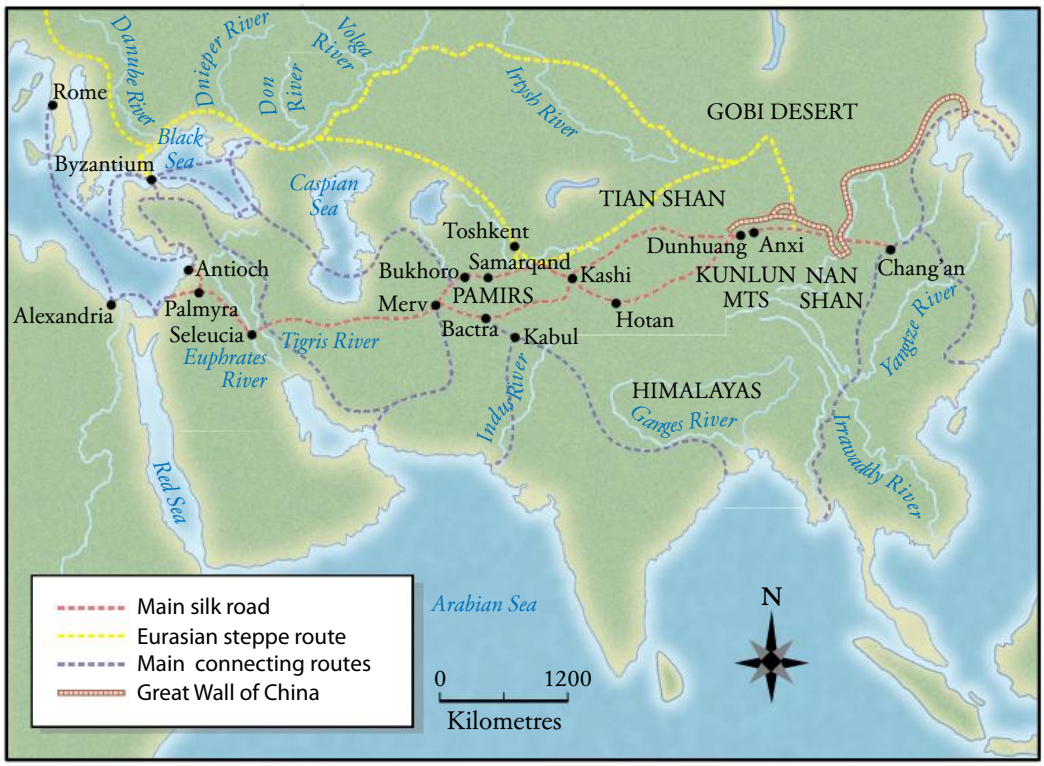
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.8

1 Who was Confucius?
2 Discuss why people were attracted to his ideas.
3 What is the *Lun Yu*?
4 Where and with whom did Buddhism originate?
5 Explain how Buddhism reached China.
6 Consider what Source 16.16 suggests about the impact of Buddhism in China.
7 Design a poster to depict important aspects of one of these philosophies. The poster should be designed to be used as a teaching resource for display in a Years 7–8 classroom. Write a 250-word explanation of the connection between the aspects and how they are presented in the poster.

Contacts and conflicts

Even though China was geographically isolated, there was some contact with distant foreign cultures through trade. Most importantly, an informal network of trade routes connected East, South and Western Asia with the Mediterranean world. Today this network is called the 'Silk Road' because of the profitable silk trade with China that began during the Han dynasty under the emperor Wudi. The main route of the Silk Road (the red line in Source 16.17) wound all the way through to Central Asia and modern Afghanistan and Iran to the east coast of the Mediterranean Sea, and still further along the trading centres in the Near East, and then Europe. By the thirteenth century, the Eurasian steppe route (the yellow line in Source 16.17), which travelled through Mongolia and



Source 16.17 The main routes of the Silk Road and the Eurasian steppe route

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

modern Siberia, Kazakhstan and Georgia, provided another widely used means to transport Chinese silk to Europe.

While the caravans along these routes carried slaves, luxuries such as **frankincense**, satin and **hemp**, **musk** and other rare perfumes, spices, medicines, jewels, glassware and even exotic food plants like rhubarb, silk was by far the most profitable commodity traded. The Silk Road also served as a medium for the spread of knowledge, ideas, cultures and disease.

frankincense an aromatic resin from an African tree, used as incense – especially in religious ceremonies – and in perfumes

hemp an Asian plant, the fibres of which can be used to make canvas, rope, paper and cloth

musk a pungent and greasy secretion from a gland in the male musk deer, used to make a strong perfume

Silk production

To control the production and trading of silk, the Chinese kept secret the process of making silk until the fourth century CE, when the information was inadvertently publicised in northern India and then spread to Europe. Chinese silk was, however, always considered superior. The process of silk weaving was developed over 4000 years ago, and it is much the same today. The practice of breeding silkworms for this purpose is known as **sericulture**. The cocoons of silk moths are placed in hot water to release the silk filaments and kill the moth larvae (silkworms). The **filaments** are combined to form **yarn**, which is wound and finally dried. Each cocoon (about 500 millimetres in length) can yield from 500 to 1200 metres of silk fibre.

sericulture the commercial breeding of silkworms for their silk

filament a slender strand or fibre

yarn a continuous twisted strand of fibre



Source 16.18 Nineteenth-century silk from China showing the classic dragon motif

DEVELOPING YOUR UNDERSTANDING 16.9

1. What was the Silk Road?
2. Under which emperor of which dynasty did this trade begin?
3. List eight things traded on the Silk Road apart from silk.
4. Apart from trade in goods, what else did the Silk Road help to spread?
5. How long ago was the silk-making process developed?
6. Discuss why the Chinese kept the process secret.
7. How much silk can be produced by one silkworm cocoon?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.10

1 List four pieces of information you can gain from Source 16.17.

2 What does Source 16.17 suggest about why Chinese silk was seen as superior to that from other places?

HISTORICAL THOUGHT

The oldest evidence of the silk trade is the finding of silk in the hair of an Egyptian mummy of the twenty-first dynasty, c. 1070 BCE. Tests in 1993 confirmed the dating of these fibres and the suggestion that the Chinese were possibly trading silk to the West this long ago.

Trade

Silk became a prime trading commodity during the Han dynasty, and generated enormous wealth for China because of the Romans' obsessive demand for it, which made silk literally worth its weight in gold. The Romans called China Serica ('Land of Silk'). The silk trade between China and Europe lasted from the first century BCE until about 1400 CE. This coincides with spread of the 'Black Death' (bubonic plague), possibly originating in China in c. 1346 CE, and then moving through the Middle East and reaching its height in Europe in around 1350 CE.

The Chinese merchants mainly sold their silk to **Parthian** merchants, who in turn dealt directly with the Romans. Gan Ying was a Chinese military **envoy** who was sent on a mission to Rome in 97 CE by Han general Ban Chao. Following the Silk Road, he travelled as far as the Persian Gulf coast of Parthia (modern Iran) and he is recorded as the Chinese person who went the furthest west during antiquity, gathering what information he could.

Parthia an ancient culture that was part of the Persian empire at its height, stretching from the northern reaches of what is now south-eastern Turkey to eastern Iran

envoy somebody acting as a diplomat on behalf of the ruler

Apart from silk, there was also a huge demand for Chinese tea and porcelain, and Chinese merchants became very wealthy as a result. Chinese ideas and inventions got passed along with the trade, including the compass, paper money and the **abacus**. Western traders journeyed to the east to obtain more of these goods. The most famous European to travel westwards via the Silk Road and to reach China, over a thousand years after the expedition led by Gan Ying, was an Italian merchant, Marco Polo. He accompanied his father and uncle, both Venetian merchants, on an epic 24-year journey to Asia, returning to find Venice at war with Genoa (another Italian city) in 1293 CE. Marco Polo was imprisoned by the Genoese and during his captivity told stories about his travels to a fellow prisoner, Rustichello da Pisa, who wrote them down and later incorporated them into a book that made Marco Polo famous. The book's detail created enormous interest about China in Europe. Despite the book's popularity, many could not believe the lavish and extraordinary descriptions of Chinese culture it contained, so it also became known in Italy as *Il milione* ('*The million*'), because sceptics alleged it contained a million lies.

abacus a wooden calculating machine

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

> Kublai, who is styled grand khan, or lord of lords, is of the middle stature, that is, neither tall nor short; his limbs are well formed, and in his whole figure there is a just proportion. His complexion is fair, and occasionally suffused with red, like the bright tint of the rose, which adds much grace to his countenance. His eyes are black and handsome, his nose is well shaped and prominent.

Source 16.19 Extract from *Travels of Marco Polo the Venetian*, translated by Thomas Wright, Book II, Chapter IV

DEVELOPING YOUR UNDERSTANDING 16.11

1. Explain why the Romans called China Serica.
2. Who provided the trading link between the Chinese and Europeans in ancient times?

RESEARCH 16.2

In groups, undertake research in your library and/or on the internet to find out about the journeys of Zhang Qian in the second century BCE. What was his role? How significant was he in influencing the Han decision to pursue the silk trade, establish contact outside of the Middle Kingdom and develop the Silk Road? Prepare a map showing his travels, some of the goods that he brought both into and out of China, and some of the peoples he encountered.

16.4 Role of significant individuals

Qin Shi Huangdi

imperial related to an empire or emperor/empress

The Qin is considered the first Chinese **imperial** dynasty because for the first time the whole of China was unified under one ruler. Ying Zheng, the ruler of Qin who came to the throne at age 13 in 246 BCE, declared himself Shi Huangdi, meaning the 'Emperor of the First Generation', after conquering the other kingdoms in 221 BCE. This brought the Warring States period to an end. Ying Zheng was 36 when he proclaimed himself emperor. While King of Qin, he survived at least two assassination attempts. This experience led him to introduce Legalism as a way of maintaining order in Qin. Everyone was expected to obey the rule of law. The discipline resulting from this system was one of the main reasons for the Qin army's victory, along with the experience gained from defending Qin's remote western frontier and its advanced weaponry. Individually, the forces of the other six states that had emerged from the chaos of the first half of the Warring States period were no match for the Qin.

A new organisation of society

As the first emperor, Qin Shi Huangdi's challenge was to establish one government over the inhabitants of states that had been at war for centuries. The existing kingdoms had been organised by feudalism, a system that had resulted in continual warfare. In 221 BCE, Qin Shi Huangdi noted: 'If I restore feudal holdings, war would return. Then peace could never be found.' After compelling the families of those who had opposed him to live in the Qin capital, Xianyang, he had all weapons confiscated and brought back to the capital where they were melted down and turned into bells. Resistance to the rule of Qin in the

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

conquered states meant that a continuing military occupation was required. Qin Shi Huangdi then divided China into 36 **prefectures**, each governed by three officials – one to control the army, another to oversee taxation and legal matters, and a third to ensure that the emperor's instructions were being followed. This was the first two-tier administrative system to exist in China. Appointments were based on merit, not on the previous practice of hereditary rights.

prefectures local areas or districts to which people are assigned, and which are ruled over by government-appointed officials

Standardisation

Working with his chief minister, Li Si, the emperor abolished the distinctions that would remind the people of the former separate states. A unified state was achieved through **standardisation** of different aspects of life, particularly the economy. Weights and measures, currency and even the length of the axles of carts (to facilitate transport on the road system) were changed to meet new uniform requirements.

standardisation to remove variations in things and bring them into conformity with each other throughout society

The Chinese writing system was also standardised to promote unification. Under Li Si, variations of the writing forms within the Qin script were removed and a new standardised script made official throughout all the conquered regions. Regional scripts were abolished and one language for all of China was enforced.

Transport and communications were vital to maintain unity and control. A network of 6800 kilometres of roads spread out from Xianying. Road widths were standardised, and fresh horses were provided at specific intervals along the roads to allow the emperor's messengers to get their deliveries through. Bridges were upgraded or built to assist this process. As well as helping the emperor's messengers, the improved roads increased trade and growth.



Source 16.20 Introduced in c. 210 BCE, a standard *ban liang* coin typically weighed between 6 and 10 grams, and was made from copper.

DEVELOPING YOUR UNDERSTANDING 16.12

1. Outline two reasons why the army of Qin was victorious at the end of the Warring States period.
2. How many prefectures did Qin Shi Huangdi establish and how was each of them run?
3. What steps did the new emperor take to stop the threat of a return to feudalism?
4. Write a paragraph explaining the purpose and the process of standardisation introduced by Qin Shi Huangdi.

The Great Wall

Qin armies had gained experience during the Warring States period by defending their western borders. This meant that the new emperor was fully aware of the dangers posed by external threats. Walls had been built as early as the seventh century BCE to defend against the Xiongnu tribes in the north and the other warring kingdoms. Qin Shi Huangdi ordered the destruction of these internal walls because they impeded the process of unification. The notion of a continuous fortified defensive barrier began with him, and work started as early as 220 BCE. This wall included watch towers at intervals and required troops as **garrisons**.

garrison a group of soldiers stationed to protect a particular location

A **conscripted** workforce of possibly one million people was employed to construct a 'great wall', approximately 2400 kilometres in length. It is hard to know its exact length because no historical records indicating its length survive, and also because little of the rammed earth and mountain rock construction of the Qin dynasty wall has survived. Subsequent dynasties provided continual repairs to and rebuilding or extending of this vital defence against invasion. Much of today's Great Wall dates from the Ming period (1368–1644 CE), when bricks and stone were employed to deal with the threat of Mongol invasion.

conscripted forced into service

The Great Wall has over 5000 kilometres of continuous structure.

Source 16.21 The Great Wall of China was started by Qin Shi Huangdi. This section is at Simatai, near Beijing.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Legalism and authority of the emperor

Intolerance to opposition was a strong feature of the first emperor's rule. The chief minister, Li Si, instituted a code of Legalism, which had been developed in the Qin Kingdom. Under this system, those who obeyed the ruler were rewarded and those who did not faced severe punishment. Legalist thought served as a means to both control the population and eliminate **dissent**.

dissent disagreement with a practice and refusal to conform to the rules laid down by the emperor

Legalism appeared to bring social stability and made impressive public works possible. But a building project as large as the Great Wall involved mass suffering and hundreds of thousands of deaths – as many workers were forcibly separated from their families, underfed, beaten and worked to death. The Great Wall was known to later generations as the 'world's longest cemetery'. An incident known as the 'burning of the books and burying of the scholars' (*fenshu kengru*) demonstrates the price of control under Legalism. The book burning occurred when Li Si argued with some scholars. They asserted that earlier rulers had treated their families better than Qin Shi Huangdi treated his family.

Qin Shi Huangdi was fearful of dying. He spent enormous resources searching out possible ways to cheat death. A year after the order to burn the books, the emperor ordered more than 460 scholars in the capital to be buried alive or beheaded after he had apparently been deceived by two **alchemists** about a process to prolong his life.

alchemist a person who practised an early, unscientific form of chemistry that sought to change base metals into gold, and discover a life-prolonging elixir and a universal cure for disease

DEVELOPING YOUR UNDERSTANDING 16.13

1. Explain why the Great Wall was built.
2. How did the building of the Great Wall affect the ordinary people?
3. What was the purpose of the policy of Legalism?
4. List two benefits of Legalism.
5. Outline the negative effects of Legalism as used by Qin Shi Huangdi.

Qin's death and legacy

Qin Shi Huangdi's quest for the elixir of life grew to occupy most of his time in his last years. He died in 210 BCE in Shaqiu prefecture, while on a tour of eastern China. It is believed that the emperor died after swallowing toxic mercury pills supplied by his court alchemists to make him immortal. Mercury was believed to have properties that could prolong life.

After his death, the empire of Qin only lasted until 206 BCE, when Liu Bang (subsequently Han founding emperor Gaozu) led a successful revolt against the last Qin ruler, Ziying. In death, perhaps Qin's greatest legacy was the **mausoleum** complex at Xian that some estimate occupies an area of over 50 square kilometres.

mausoleum large tomb structure containing bodily remains

DEVELOPING YOUR UNDERSTANDING 16.14

1. Describe how Qin Shi Huangdi died.
2. What is ironic about the circumstances of his death?
3. Why did Li Si try to keep the emperor's death a secret until his body was brought back to the capital?
4. Name the three Qin emperors and state for how long each ruled.

RESEARCH 16.3

Research Li Si on the internet. Copy and complete this profile scaffold. Note that there will be several things to list for achievements/influence.

Name

Year of birth

Position in Qin dynasty

Achievements/influence

Year of death

Circumstances of death

Terracotta warriors of Xian

In 1974 CE, workmen digging a well near Xian in central China found at a depth of 4 metres a slightly larger than life-size human figure made from fired clay. They reported their find to local authorities, resulting in the State Cultural Relics Administration performing an initial excavation, which revealed a trench with rows of similar **terracotta** statues. It was determined that this army had been created for the emperor Qin Shi Huangdi, whose burial mound and tomb are located 1.5 kilometres to the west of the site. Over the next 4 years, three separate pits were discovered and excavation was begun. This was the Emperor's army for the afterlife.

terracotta kiln-baked clay used to make an unglazed ceramic

Three pits

Pit No. 1 is the largest, and is about 210 metres long. It contains over 6000 statues, including **infantry**, archers and 30 **chariots**, each drawn by four full-scale terracotta horses. Most of the heavily armed infantry in this pit was arranged in nine columns, with over 500 archers guarding the flanks of the army. About half of this pit has been excavated – 1087 soldiers, 32 horses and remnants of eight chariots have been uncovered so far. Originally wooden pillars held up a roof of plastered wooden beams to protect the terracotta army and to support between 5 and 7 metres of earth fill that buried the site. However, a fire destroyed some of these pillars, causing the soil to crush some of the figures, but also making the figures easier to discover because they were closer to the surface.

infantry soldiers marching or fighting on foot; foot soldiers collectively

chariot a two-wheeled horse-drawn vehicle without seats

Pit No. 2 is L-shaped and smaller, but still covers 6000 square metres. Over 900 statues of soldiers and 350 chariot horses, 124 **cavalry** horses and the remains of 89 war chariots have been uncovered. The soldiers are infantrymen and crossbowmen. Chariots are accompanied by a charioteer, an officer archer and three infantrymen. This site is estimated to hold up to 1400 figures and is only partially excavated.

cavalry soldiers who fought on horseback

The U-shaped Pit No. 3 is smaller still (500 square metres) and has been interpreted as a 'command post' for the army units arranged in the other pits. A number of the figures here appear to be officers. Many of the 64 warriors found in this pit had been smashed in antiquity and their real weapons taken. Bronze and wood weapons – swords, **crossbows**, spears, daggers and **halberds** – have since been discovered. The soldiers in the first two pits are on average 1.8 metres in height and those in the

crossbow a weapon consisting of a bow attached crosswise to a stock with a winding mechanism and a trigger – it fires short, heavy arrows called bolts

halberd a weapon consisting of an axe blade and pick with a spearhead on top, mounted on a long wooden handle

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 16.22 Pit No. 1 with the protective structure built in 1979 to allow excavation and restoration to take place year-round on site. Rows of soldiers and horse-drawn chariots face the east, the direction from which invaders were expected.

third pit average 1.9 metres. The excavation at Xian has been underway for over 35 years.

Virtually all the figures had originally been brightly painted and equipped with real weapons. These were mainly made of wood, which had rotted away after being buried for over 2000 years. An enormous aircraft hangar-like building has been erected over Pit No. 1 to protect the site and enable continuous excavation and restoration work. All the warriors are placed facing the emperor's burial mound and mausoleum, which is about 2 kilometres away. At the time of writing, this had not yet been excavated.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 16.15

1. Locate the site of the terracotta army.
2. Explain why the existence of the terracotta army was unknown until 1974.
3. How far from the emperor's burial mound and tomb is the terracotta army located?
4. How many statues of soldiers, including officers, have been uncovered so far?
5. Pit No. 3 is the smallest, but is thought to be the most important for the terracotta army. Can you explain why?
6. Why are the figures shown facing east in Source 16.23? What does this suggest about their purpose?
7. What evidence does Source 16.22 tell us about conservation issues being addressed by the archaeologists and specialists working at the site?



Source 16.23 No two warriors are the same. Every head has been individually modelled with unique features. The range of faces depicted is intended to represent the various ethnicities under the emperor's authority. Hairstyles are varied and complex, and possibly denote the rank of the wearer. Six types of soldiers were found among China's great terracotta army. The scale of creating the army is unique. It is estimated that kilns would have needed to fire the statues at 800–1000°C. Centuries of burial caused chemical reactions between the soil and the painted lacquer used to vividly colour the statues. When exposed to the air, the paint shrank, cracked and rapidly faded. New techniques are being experimented with to stop this process on future excavations.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Time capsule

The excavations at Xian provide a unique insight into life in China over 2000 years ago. The organisation of the terracotta army provides a sense not only of the military strength that Qin Shi Huangdi had at his disposal, but also the organisation of the army and the technologies it would have employed in the process of overcoming the other kingdoms to unify China. The enormity of the scale of the site at Xian also suggests much about the authority of the Qin emperor. The coordination of various craftspeople and workers to make the terracotta army alone is unmatched by any other historical find. The Chinese historian Sima Qian, writing a century after Qin Shi Huangdi's death, estimated that the creation of the emperor's mausoleum and its surroundings involved 700 000 labourers over a period of 40 years.



Source 16.24 Ancient tower on a city wall in Xi'an, China

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Subsequent dynasties, especially the Han, added to Qin's legacy of standardisation and Legalism.
- Three great religious beliefs that influenced ancient China were Daoism, Confucianism and Buddhism. Arguably, Confucianism had the most profound impact on Chinese culture.
- Chinese culture was finally spread through trade, especially in silk, which the Chinese controlled for over 1400 years.
- Archaeological evidence for ancient China dates back to 3500 BCE, making it the oldest continuous culture in the world.
- China's geography meant that it developed in isolation from outside influences. The Chinese called their land Zhong Guo, or 'Middle Kingdom', because they saw it as being poised between heaven and earth.
- The history of China is characterised by a long series of dynasties, possibly starting with the Xia c. 2100 BCE.
- China was first united under the Qin dynasty emperor Shi Huangdi in the third century BCE. He initiated the building of the Great Wall and his tomb is a unique complex, partly consisting of thousands of life-sized terracotta figures replicating the Qin army.

Short-answer questions

1 Explain how the Silk Road helped to increase contact between China and the world beyond the Middle Kingdom.

2 Identify the changes Qin Shi Huangdi made to the walls that had been built before he came to power.

3 Outline the main types of evidence we have for the Shang dynasty and explain what this evidence tells us about it.

4 Who was Han Wudi and why is he important in early imperial China?

5 What were the main ideas of Daoism?

Source analysis

Study Source 16.25 and answer the following questions:

1 How does this source reflect ideals during the Han period, but especially from the time of Han Wudi?

2 Han military might was partly based on its use of cavalry. Do you think that this flying horse may have a symbolic connection to this? In your answer, consider the role of the military (including cavalry) in the establishment of the Han dynasty.

3 What does this source suggest about Han craftsmanship and metal technology?

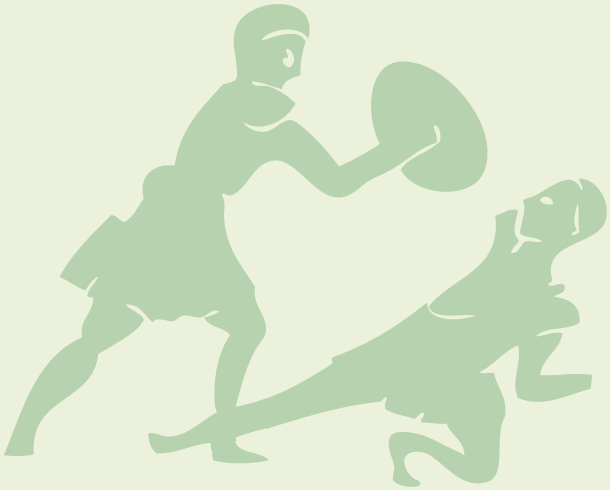
Extended-response question

Assess the achievements of early imperial China, from the Qin to Eastern Han. In your answer, identify positive aspects – such as introducing a standardised currency. You also should at least acknowledge the negative effects. Make notes and then prepare your response as an essay.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 16.25 Han dynasty bronze sculpture of a wingless flying horse. It is meant to be understood metaphorically rather than literally; it represents an ideal horse that can gallop so fast it seems to outrun the wind. The idea of balance in nature is achieved by the sculpture balancing on one hoof, which is stepping on a swallow in flight.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



17 Ancient India

Before you start

Main focus

Ancient India was one of the earliest river valley civilisations, and its story is one of tradition and change, chaos and calm.

Why it's relevant today

From small beginnings, the ideas that began in ancient India have spread throughout the world and influenced millions of people. Modern medicine, mathematics and religion all owe a debt to ancient India.

Inquiry questions

- What physical features of India played an important role in influencing the location of settlements?
- How was ancient Indian society structured?
- Why, when and how did a number of the world's major religions have their foundations in ancient Indian society?
- What is the legacy of ancient India?

Key terms

- Caste
- Hinduism
- Indus River Valley
- Jainism
- Karma
- Mauryan Empire
- Missionary
- *Sati*
- Vedic

Significant individuals

- Chandragupta Maurya
- Emperor Ashoka the Great
- Siddhartha Gautama Buddha
- Vardhamma Mahavira

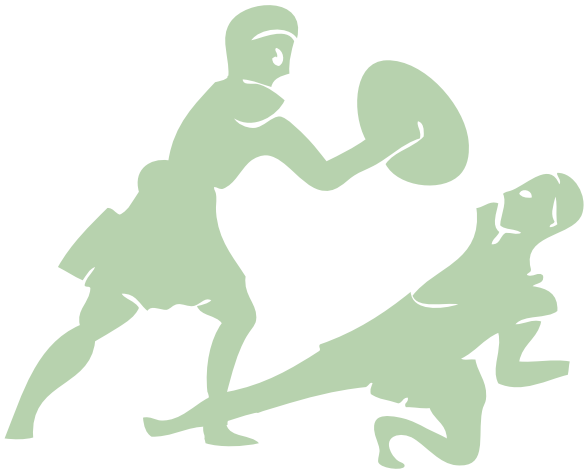
Let's begin

The earliest settlements in ancient India formed in the Indus River Valley, where plentiful rain and fertile soils provided an ideal environment for agriculture and a settled, urban way of life. Archaeologists have discovered sophisticated cities at Harappa and Mohenjo Daro. Controversy surrounds the decline of this Harappa culture, and provides ample evidence of the important work of historians in interpreting data and separating fact from opinion. The rise of the Ganges river culture led to the building of a mighty empire whose people had contact with many other parts of the ancient world through trade and the exchange of ideas.

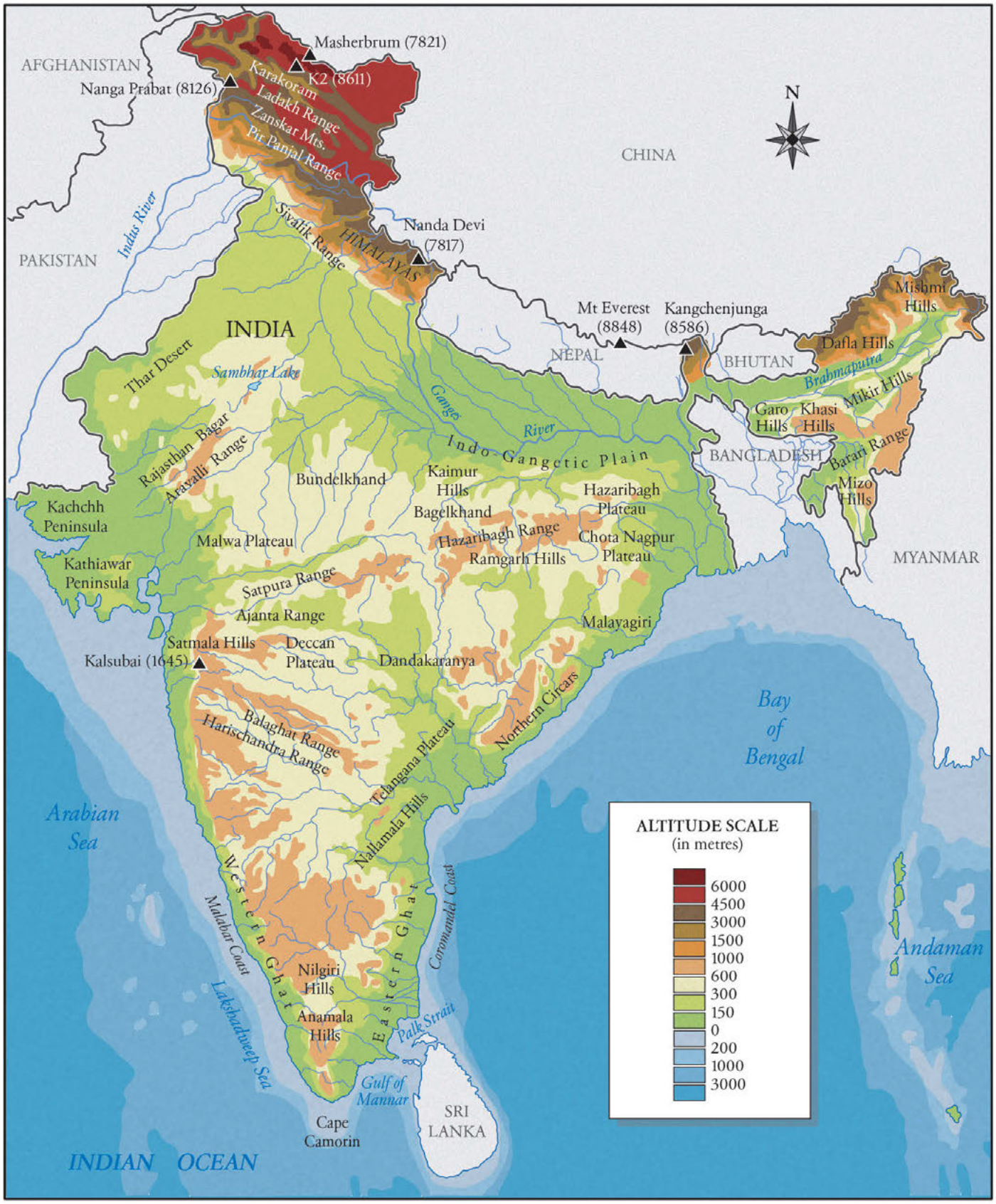
ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Timeline

CHAPTER EVENTS	WORLD EVENTS
3000 BCE	
c. 3200 BCE Earliest settlements in north-west India	**c. 3500 BCE** Early settlers in Nile Valley
c. 2500–1700 BCE Indus Valley civilisation	**c. 2580 BCE** Great Pyramid of Giza was built
c. 2500–1550 BCE Establishment of cities	**c. 2500–2000 BCE** Period of Mycenaean expansion in the Mediterranean
2000 BCE	
c. 1550 BCE Decline of Indus River civilisation	**c. 1525–1028 BCE** Shang dynasty in China
c. 1500–1200 BCE Vedic scriptures written	
c. 1500–600 BCE Early Vedic period	
1000 BCE	
c. 800–500 BCE Later Vedic period	
600 BCE	
c. 563 BCE Birth of Siddhartha Gautama Buddha	
c. 550 BCE Birth of Vardhamma Mahavira	
	c. 499–494 BCE Revolt of Ionian cities against Persian rule; rise of Classical Greece
	c. 332 BCE Alexander the Great invades Egypt
c. 325 BCE Alexander the Great reaches India	
c. 320–298 BCE Chandragupta Maurya	**c. 321 BCE** The first Roman road built
c. 321–185 BCE Mauryan Empire	
c. 304–232 BCE Emperor Ashoka the Great	
300 BCE	
	c. 300 BCE Start of the Han dynasty in China



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.1 The physical features of ancient India played a major role in determining the location, way of life and religious beliefs of the earliest settlements.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

17.1 Physical features and their influence

Gondwana name given to a giant continent that is thought to have existed some 500 million years ago, consisting of Australia, South America, Africa, India and Antarctica

India is a very ancient land. It is thought that many millions of years ago, it was part of a giant supercontinent called **Gondwana**. Forces from within the Earth pushed India into the continent of Asia and the mighty Himalayas were formed. India is a sub-continent (part of the large continent of Asia). The Himalayas affected the climate, landforms and settlement patterns of India. They are the source of many large rivers, such as the Indus, Sarasvati (Saraswati), Ganges and Brahmaputra. Their large, fertile valleys, filled with rich **alluvial** soil, provided ideal places for settlement. The Indus and Ganges Rivers form a region known as the Great Plains or Indo-Gangetic Plain. In central India there is an area of higher land known as the Deccan Plateau and two hilly areas, the Western and Eastern Ghats, which run down the coastlines. In the north-west, the Thar Desert has formed due to the limiting effect the presence of the mountains has

alluvial relating to oil that is carried and deposited by water, usually by rivers in flood

HISTORICAL THOUGHT

The Sarasvati (Saraswati) River is believed to have supported over 1600 settlements in the Indus Valley. During the Vedic period of India's history, it was sacred: a mother and goddess. Around 1500 BCE, there appears to have been less rain falling in the Indus Valley and the Sarasvati River stopped flowing, making it hard for the people of the Indus Valley civilisation to continue to live there.



Source 17.2 The national symbol of modern India is based on the Lion Capital, which was erected by the Emperor Ashoka at Sarnath in 250 BCE. The symbols used by Emperor Ashoka are evidence of his Buddhist beliefs. Amazing skill and effort were required to make and transport these columns.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

monsoon rainy season caused by the seasonal reversal of wind direction

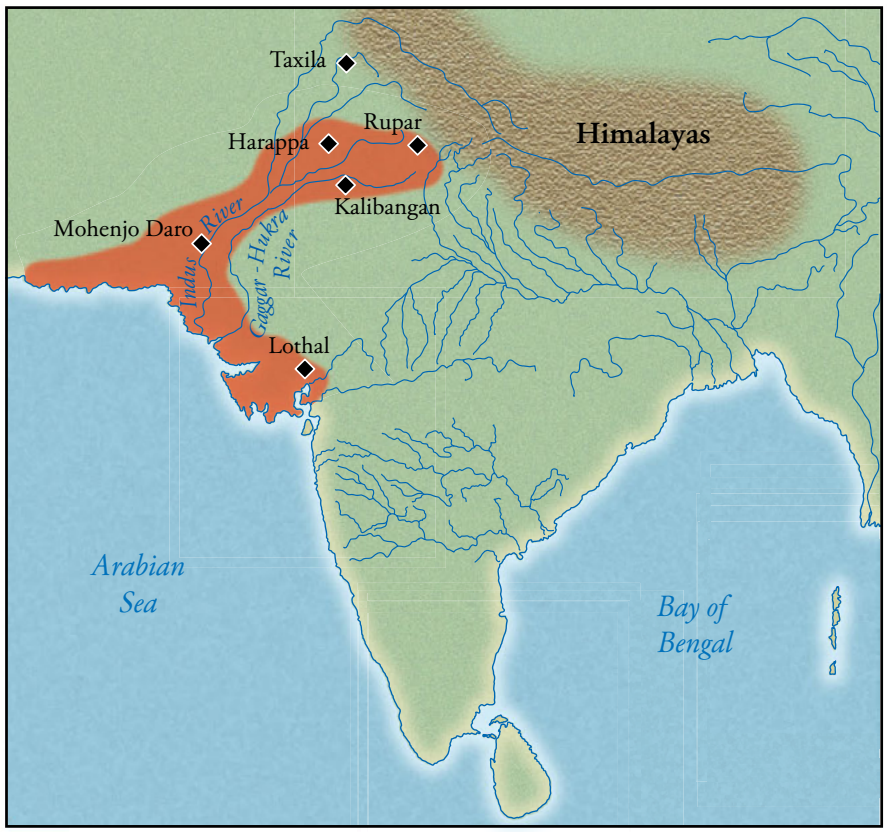
passes passageways or gaps in mountain ranges

on the amount of rainfall received. The geographic areas of India are sometimes named for the different amounts of rainfall they receive. India experiences seasonal rains known as **monsoons**. The rivers provided for travel within ancient India, and the surrounding oceans and seas encouraged the establishment of trade with other cultures. The Himalayas provided a barrier against invaders, but the **passes** also allowed for trade, travel and the spread of new ideas and beliefs.

Historians and scientists believe that the first people to inhabit the Indus Valley (the area now known as Pakistan) had migrated eastward from Africa. They were **nomadic** Stone Age hunter-gatherers. The abundance of water and the presence of fertile soils saw a shift to a crop-growing, settled way of life in large cities. Melting snow from the Himalayas and heavy rain from the monsoon often caused the rivers of the Indus Valley to flood their settlements. These people, who depended on the annual flooding to replenish the soil and provide water for their crops, were unable to predict when the flooding would occur or whether the monsoon would provide sufficient rainfall for their needs. They depended so heavily on the rains and the flooding of the rivers that they developed a close relationship with, and respect for, nature. They made and worshipped images of animals and thought of their rivers, trees and the monsoon rains as sacred.

nomadic when people wander from place to place in search of food for themselves and their animals

The name 'Harappa' or 'Harappan' was given to the Indus River civilisation that began to develop around 2600 BCE. In about 1920 CE, archaeologists discovered the remains of many orderly and organised cities along the Indus and Ghaggar- Hakra Rivers. Barley and wheat were the main crops grown. Buffalo, sheep and cattle were raised. Fish from the rivers also represented an important food source. Cotton was grown and used to make clothing and was later traded. The Harappans built massive grain stores (granaries) and used the river mud to fashion bricks that they baked in kilns. Archaeologists assume that they did this because of the climate, which was wet and humid, and would have eroded sun-dried bricks. There is supporting evidence for this



Source 17.3 The location of the major settlements of the Harappan period. The Indus Valley civilisations supported a large population and a number of well-planned and organised urban settlements such as Harappa and Mohenjo Daro.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

assumption or theory: archaeologists have found that the city of Mohenjo Daro had been built and rebuilt at least six times, presumably after having been destroyed by floods. The neighbouring city of Harappa had been rebuilt five times. There was also a plentiful supply of wood in the nearby forests for firing the brick kilns. Harappan **seals** made from terracotta show images of rhinoceroses, elephants and tigers, indicating the presence of forests and swamps. Water played an important part in Harappan culture. The Great Bath at Harappa was probably used for **ritual** bathing, and many homes also had baths or pools; all cities had drainage and plumbing. It is believed that bathing, cleanliness and purity may have had some religious significance for a people who relied so much on water for their livelihood, and that this was seen as a way of showing respect. Trade by sea and river flourished during the Harappan period. Archaeologists have suggested that Mohenjo Daro was carefully located to take advantage of copper mines, and that the coastal city of Lothal was sited to provide access to the Deccan Plateau and for sea trade with the Arabian Peninsula and Persian Gulf. Trade goods included metals, precious stones and cotton.

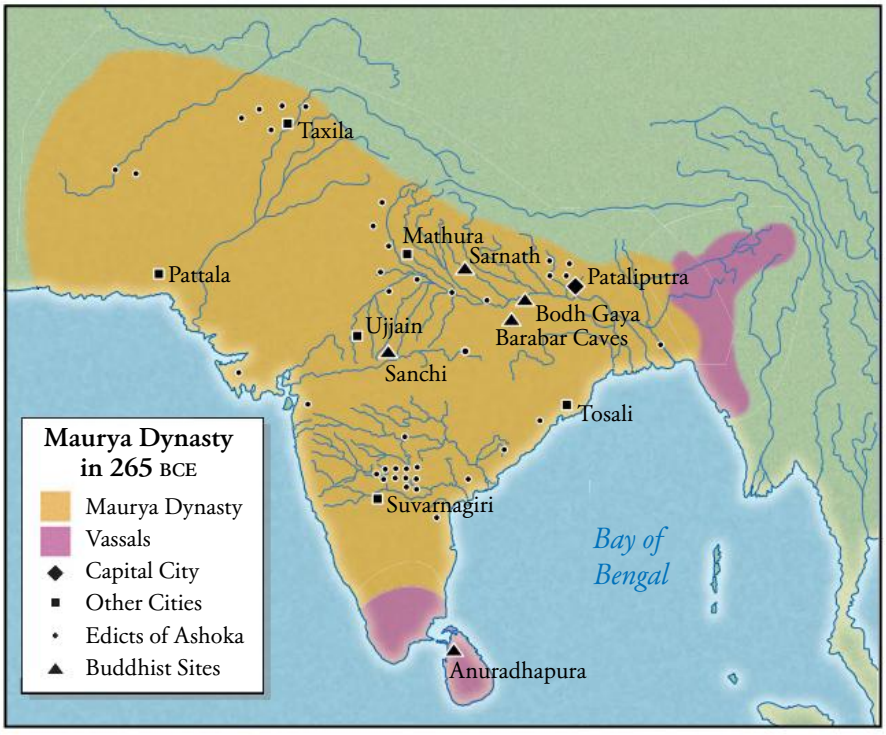
seals small terracotta and stone items marked with images of animals and text

ritual an action performed as part of religious ceremony

Around 2000 BCE, a race of lighter-skinned people from Central Asia began to settle in the Indus River Valley. The term 'Aryan', which was used to identify these people as having a lighter skin colour than the Harappans, later came to mean 'master' or 'nobleman'. The Aryans created a much more rigid social organisation based on ***varnas*** and focused on a more complex set of religious beliefs called the **Vedas**. There has been much debate over whether the warlike Aryans actually invaded the Indus Valley, but there is little real evidence for the 'invasion' theory. Unlike the Harappans, the Aryans built no cities. They lived in family groupings in small villages, with several villages forming a tribal unit. They were originally herders but there was a gradual shift from reliance on cattle to an agricultural society. By about 1500 BCE, the Indus River civilisation was in decline.

varna a class of people within the Aryan social system; there were four *varnas*

Vedas Hindu sacred writings consisting of four books; in Sanskrit, Veda means 'sacred knowledge'



Source 17.4 By c. 265 BCE, under the rule of Chandragupta Maurya and later his grandson, Emperor Ashoka, the Mauryan Empire covered most of the Indian subcontinent. The reign of Ashoka the Great has been referred to as the Golden or Classical Age, as it was a time of peace, prosperity and progress for India.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Scientists have found evidence that the climate in the Indus Valley was changing. There was a decline in rainfall – possibly due to the failure of the monsoon – and the Sarasvati (Saraswati) River ceased to flow. Various other reasons for these changes have been put forward, including the possibility of faulting in the earth's crust causing the river to be swallowed up.

The Aryan or **Vedic** culture began a gradual shift to the Ganga (Ganges River Valley) in the east. The Ganges and Brahmaputra Rivers provided water and fertile soil, and the milder climate allowed for the establishment of agriculture and the development of cities. The Aryans followed the seasons and worshipped gods and goddesses related to the sky, the earth, rain, water, rivers and animals. At first the Aryans settled in the hilly areas, but the use of iron tools allowed them to clear the dense forests that grew in the Ganges Valley so that rice could be grown. This rice-based agriculture was able to sustain a large population. Irrigation was used to ensure a constant food supply, and sea trade with Persia brought wealth and stability to the civilisation. The **caste** system provided for different classes within Vedic society: teachers, warriors, merchants and workers. Everyone had their place, and this increasingly was determined by birth. Sixteen powerful kingdoms formed. By 600 BCE, the two most powerful kingdoms were Kosala and Magadha. Alexander the Great of Macedonia invaded India in about 325 BCE, but his armies only made it as far as Gandhara, the plain to the west of the Indus River. The hot, humid conditions experienced by Alexander's troops contributed to their rebelling and refusing to continue with his military campaign. In 323 BCE, Chandragupta Maurya, a local warrior, used the confusion created by Alexander's invasion to seize power. Over the next 30 years he created the vast Mauryan Empire.

Vedic refers to the Aryan Hindu culture, which was based on the Vedas

caste a word later applied to the *varnas* formed by the Aryans; a caste system was one in which a person's place in society was determined by birth rather than by occupation or effort

17.2 Role of key groups

The Indus Valley civilisation

There is little evidence of the way in which Indus Valley society was organised. No palaces have been found, but archaeologists and historians have put forward the theory that the society was most likely a **theocracy**, ruled by a small group of priest-kings or a council of high priests who organised religious rituals, trade and building. A statuette discovered at Mohenjo Daro in 1927 has been called 'The Priest-King'. The different types of buildings and artefacts, such as the Indus seals, found in Harappan settlements also indicate that there were farmers, skilled craftsmen, merchants and traders who all played important roles within the society.

theocracy government by religious leaders such as priests



Source 17.5 The Priest-King statuette found at Mohenjo Daro. The decorations and symbols on the figure, as well as the fine house in which it was found, suggest that he may have been a leader. Archaeologists have therefore named him the 'Priest-King'. The statuette has provided archaeologists and historians with important clues to the way in which Harappan society might have been organised.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

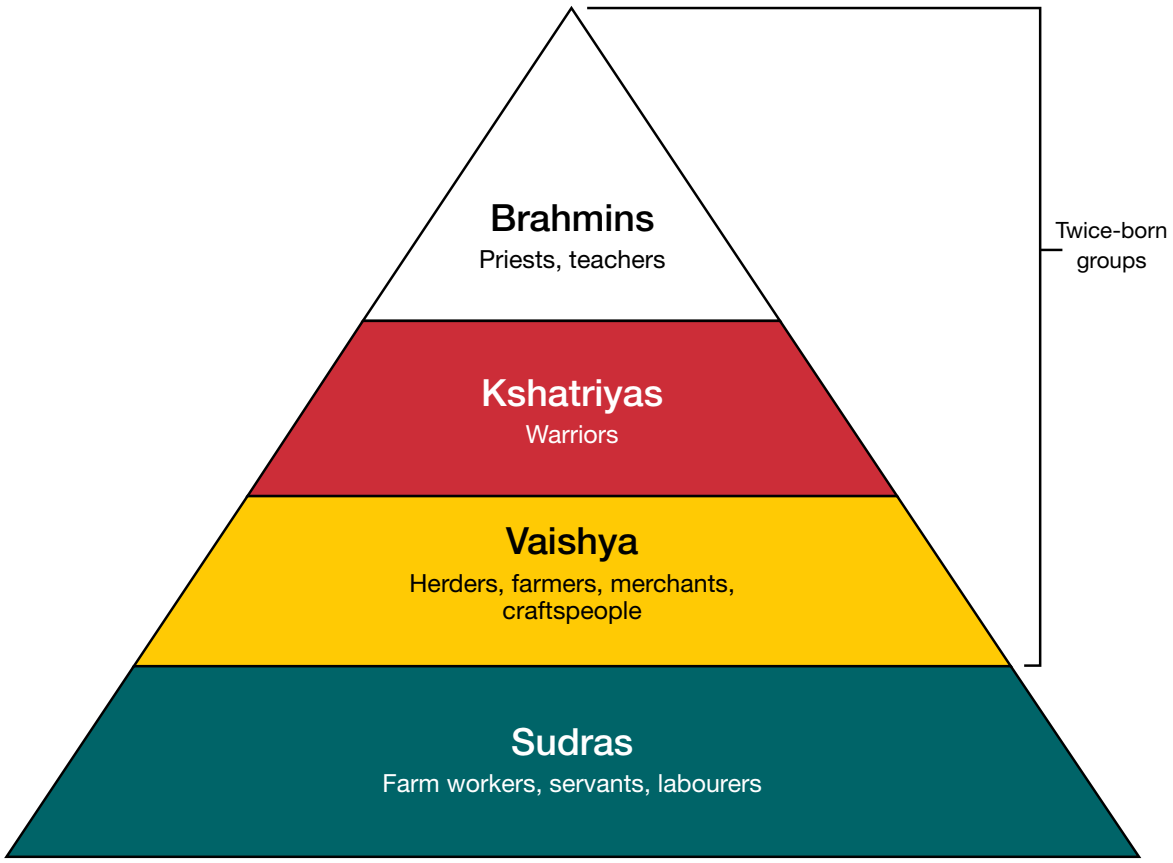
DEVELOPING YOUR UNDERSTANDING 17.1

Study Source 17.5 and answer the following questions:

1. List the features of the statuette that would have led archaeologists to conclude that he played an important role in Harappan society.
2. Some features of the statuette have been lost. Conduct your own research and find out more about these 'lost features' of the statuette and the location in which it was found.
3. Explain whether your own findings strengthen the belief that he was important in Harappan society. Provide evidence from your research to support your explanation.
4. Reach your own conclusion on the importance of the 'Priest-King' and his role in Harappan society.

Aryan/Vedic civilisation

By about 1500 BCE, tribes of people known as Aryans had arrived in the Indus Valley. They were a warlike people, and archaeologists have found weapons and other artefacts to indicate a warrior class. Each tribe was led by a hereditary chief. The Aryans did not have a written language but passed on stories of their beliefs, conquests and traditions by word of mouth (orally). These stories were called Vedas, meaning 'knowledge'. Each of the four Vedas was divided again into the Samhitas



Source 17.6 The Aryans introduced a system of social organisation based on the four *varnas*, or classes, which were determined by occupation. In time, this led to a more rigid hierarchy, where birth determined a person's place in society.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

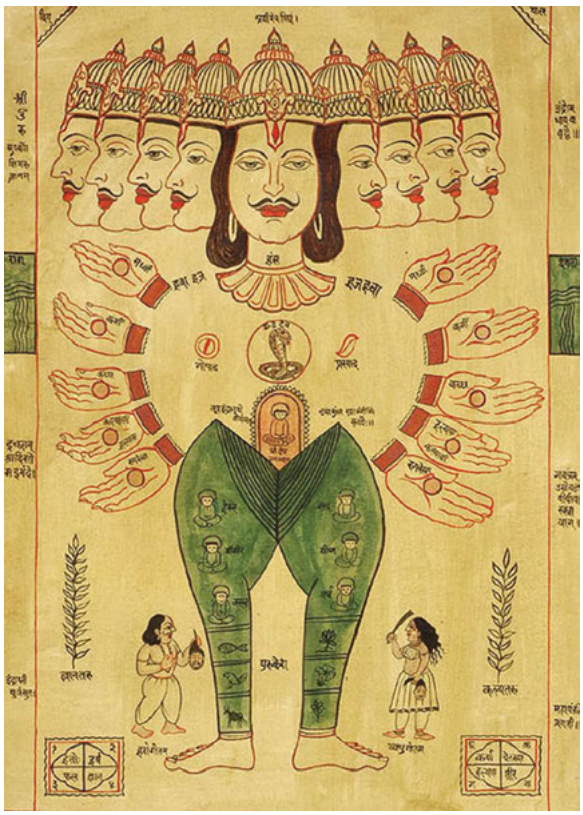
Brahmin highest order or *varna* within the Aryan social system; Brahmins are the priests and teachers

Sanskrit ancient language of India

Hinduism religious belief developed by the Aryans, involving killing animals (sacrifices) for many different gods and goddesses

(hymns), the Brahminas (rituals), the Aranyakas (religious thoughts) and the Upanishads (broader beliefs or philosophies). The priests, or **Brahmins** (Brahmans), were required to memorise this vast store of divine knowledge in order to perform the sacrifices that would ensure the society prospered. Pleasing their many gods and goddesses was viewed as vital to the safety and prosperity of the society and its people. The Vedas were later written down in Vedic **Sanskrit**, which was a difficult language. Since few people could read, this added to the power of the priests. The Vedas and their teachings provided the basis for **Hinduism**.

Many of the hymns and poems contained in the Vedas were chanted, creating a kind of meditation and focusing the mind on higher things. The Vedas covered all aspects of daily life and provided a framework for the social and legal systems. Politics and religion were also covered in the Vedas. The four Vedas (the Rig Veda, Yajur Veda, Sama Veda and Artharva Veda) were believed to have been passed down by a higher power to wise men within the society, but most historians believe they were written by Aryan scholars. The Rig Veda described how the god Purusha sacrificed himself to make Aryan society: his mouth became the Brahmins (Brahmans) or teachers; his arms became the Kshatriyas or warriors; his thighs became the Vaisyas or merchants, farmers, herders and craftsmen; and his feet became the Sudra (Shudra) or servants (see Source 17.11). This story is part of Indian mythology, and probably should not be taken as evidence for the formation of the *varna* or social class system. There is historical evidence that when the Aryans came to the Indus Valley, they already had a number of different classes of people based on occupation, and simply added the existing population to the fourth or lowest-ranked *varna*. Each *varna* within both early and later Vedic society had a role to play to make society work as a whole. At first movement between varnas was possible, but as time passed the system became much more rigid, resulting in the formation of a caste system based on birth rather than occupation.



Source 17.7 Purusha or Cosmic Man was viewed by Hindus as the creator of all life. The head, body and feet of Purusha were linked to the different *varnas*.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Brahmins (Brahmans)

Within the Vedic *varna* system of social organisation, the Brahmins (Brahmans) were responsible for creating and preserving the sacred texts and carrying out the many rituals required. They were the teachers and intellectual leaders. They were forbidden to eat meat, or drink milk or alcohol. They had to bathe every day to remain pure. The priests chanted and read out the hymns and holy texts to 'speak to' the gods and goddesses. They also performed animal sacrifices and fire rituals (*yajna*) to please and nourish the gods. These rituals grew more and more complicated and lengthy, and the power and influence of the Brahmins increased. Male Brahmins could marry a woman from a lower *varna* but female Brahmins were only allowed to marry someone from their own class. When the Aryans first established the *varna* system, males from non-Brahmin families could become Brahmins.

Kshatriyas

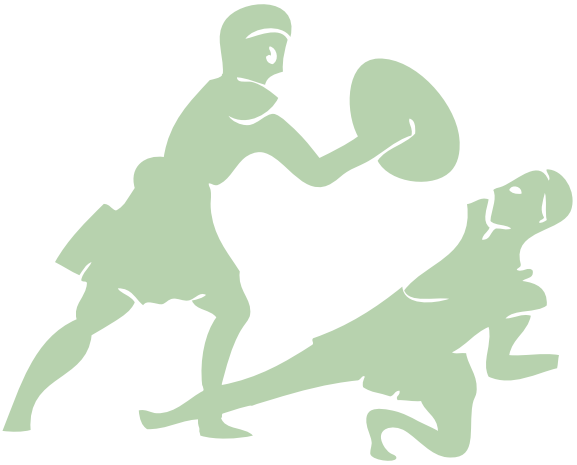
The Kshatriyas were the warrior-nobles; they had always been important in Aryan society. The earliest Vedas actually placed the Kshatriyas in the first *varna*, probably because of the importance of their role in defending and protecting the people on their migrations into new and unfamiliar territories. It was their role to be ready for war and to practise their skills in the martial arts. The Kshatriyas could learn but not teach the Vedas. Their diet was not as restricted as that of the Brahmins but they could not marry outside their own *varna*. Their children were well educated and expected to follow in their fathers' footsteps. Many Kshatriyas were wealthy and owned herds of cattle. They helped administer laws and kept order in the society.

Vaishyas

The Vaishyas were the merchants, traders and skilled craftsmen. Vaishyas could be traders or farmers who owned their own land or businesses, and employed others to work for them. The *varna* system did not greatly affect the lives of the Vaishyas, as they had money and were important in establishing trade and commerce with surrounding countries. This *varna* kept the economy working, and also assisted in the provision of money for religious buildings like temples, so it was valued.

Shudras

Most people in Vedic society belonged to the lowest *varna*, the Shudras. They formed the servant and labourer class. Shudras were expected to be 'loyal' to their masters and increasingly they were required to perform tasks that were unpleasant or not acceptable to the other *varnas* in a religious sense. Since their role was to serve others, they were not required to learn the Vedas; however, in the early Vedic period they were able to enter the temple and participate in some ceremonies.



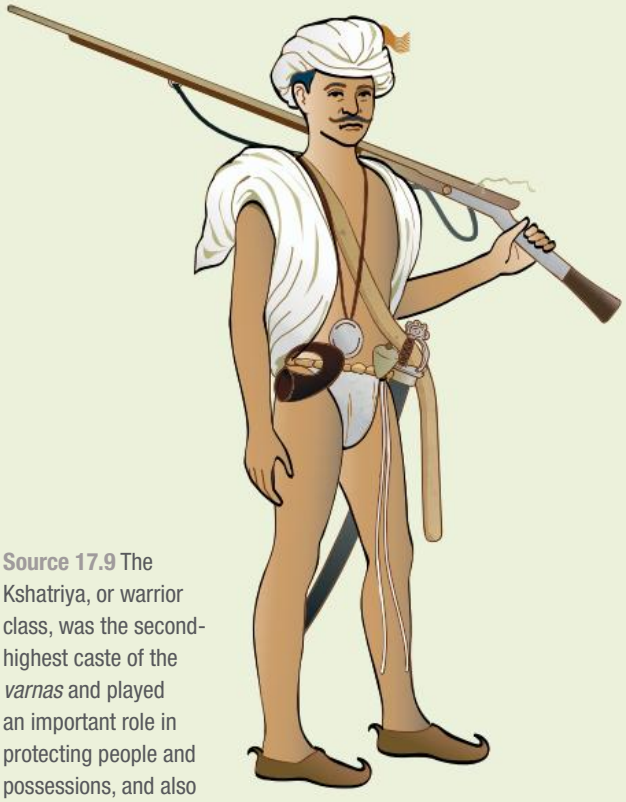
DEVELOPING YOUR UNDERSTANDING 17.2

Study Sources 17.8 to 17.11 on the next page and summarise the roles of the four different *varnas* within the Vedic social system.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.8 The Brahmins (Brahmans) were the highest of the *varnas*.



Source 17.9 The Kshatriya, or warrior class, was the second-highest caste of the *varnas* and played an important role in protecting people and possessions, and also expanding the land area held by the Aryans.



Source 17.10 The Vaishya was the third level in the *varnas*; Vaishyas were important for trade and agriculture, which provided income for Aryan society.



Source 17.11 The Shudras were the lowest level of the *varnas*. Over time, this *varna* or caste came to contain modern India's most disadvantaged people, the Dalits – 'Outcasts' or 'Untouchables'.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 17.3

1 Role-play an important religious festival to ensure a good harvest and prosperity for your village. Your teacher will give you a card that will identify you as one of the following:
   - Brahmin
   - Kshatriya
   - Vaishya
   - Shudra.

2 Your duties will be as follows:
   - Brahmins will plan, give orders, organise others to do the work, conduct all rituals like sacrificing animals and lighting the sacred fire, and be the most important people. They will be respected, praised and obeyed.
   - Kshatriyas will keep order, punish people who do the wrong thing and protect those who are in danger.
   - Vaishyas will provide all the resources needed to make the religious festival a success; for example, food, money, animals and building materials.
   - Shudras will do all the work and serve others. They will not have a say in the planning of the activity and will receive no reward or praise for the work they do.

3 As you act out the festival, each of the *varnas* will need to stay within the roles assigned to it to complete the task.

4 Discuss whether you believe that the division of the society into *varnas* was effective in achieving your goal. Why or why not?

HISTORICAL THOUGHT

Brahmins, Kshatriyas and Vaishyas were all considered to be 'twice born'. This simply referred to the fact that males of these *varnas* were permitted to read the Vedas. They wore a sacred thread to signify their 'second' birth. Females of these *varnas* had the sacred thread tied around their hands as part of their marriage ceremony.

Role of women

The ideal woman was described in the Rig Veda as being beautiful and able to bear children. She was to be kind and caring to her husband and a good mother to her children (preferably sons). The religious writings expressed the wish for every woman to be 'the mother of a hundred sons'. In an agricultural society, men were considered more important than women because they could do the hard work in the fields and with the animals. Women were expected to remain at home. Their jobs included cleaning, washing, cooking and looking after the children. They also had the job of making sure the sacred flame on the family altar was kept burning to ensure that the gods and goddesses would bless the household with money and good health. This was considered an important task and earned them respect. At the

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

same time, the Vedic Samhitas (hymns) described women being involved in farm work, drawing water, churning milk to make butter, making wine and sewing. Vedic women appear to have been able to own property, and high-born women were educated, took part in debates and wrote poetry.

RESEARCH 17.1

Research life in Harappa or Mohenjo Daro and present your findings as a PowerPoint presentation. Be sure to include the following:

1. a map to show the location of the city you have chosen
2. a description of:
   - the surroundings
   - daily life
   - religious beliefs and practices
3. an explanation of the different reasons given for the decline of the Indus River civilisation.

The Mauryan Empire

During the later Vedic period, Hindu culture, beliefs and social organisation spread to the Ganges River Valley. The Aryan leaders developed a new tribal culture. The priests remained powerful, and increasingly women were excluded from religious ceremonies. The priests now stressed that each *varna* must remain separate and movement between *varnas* was not allowed.

Under Brahmanic tradition, kingship was now seen as coming from the gods, and rulers no longer sought the approval of their subjects. The king was the protector of his people and his role was to maintain the laws. Tax collectors ensured a supply of money for building and teachers (*gurus*) were important for the transmission of knowledge. The ***asrama* system** of Hinduism set out the rules and responsibilities of people. Sanskrit became the official language. The Mauryan period has been referred to as the 'Classical Age' of ancient India. During this time, trade and commerce flourished. The number of gods and goddesses increased and religious rituals gained even greater significance. Small kingdoms developed, and fighting was frequent as rulers tried to gain more territory and greater power. Around 323 BCE, Chandragupta Maurya used the chaos that resulted from this constant rivalry between kingdoms to become powerful. The failure of Alexander the Great's Indian campaign was also an opportunity he used to his advantage. He was a smart man who knew how to use spies and trickery to achieve his goals. Over the next 24 years, he built the Mauryan Empire. Under his grandson, Emperor Ashoka (c. 269–232 BCE), the Mauryan Empire dominated all of northern India (see Source 17.4).

***asrama* system** Hindu pathways to a religious life involving study, and purity of thought and action

17.3 Significant beliefs, values and practices

Funerary customs

Archaeologists working in the Indus Valley have discovered a number of graves, which have led to the conclusion that the funeral practices associated with burials were varied. Some bodies appear to have been wrapped in reeds, and others in cotton cloth. Some were then placed in wooden coffins. Burial pottery was often buried with bodies. Large pottery urns dating from around 1900 BCE were used to store human ashes, providing the earliest evidence for the practice of cremation (the burning of a body).

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.12 Harappans buried their dead. These discoveries show the burial of a mother and child. Some were placed in coffins while others were wrapped in cotton cloth or other material.

pyre a pile of wood for burning

The burning or cremation of bodies increasingly was associated with the Hindu belief system. Hindus worshipped many gods and goddesses, most of them linked to nature. The god of fire, Agni, was believed to carry a person's soul to the underworld to Yama, the god of death. The body was not important once a person died, so it was burned to both purify and release the soul. There were many things families had to do when a relative died, such as lamenting or wailing to show their grief. If they did not have enough family members to do this, they could hire professional mourners. The son or eldest male in the family played an important role. He had to light the funeral **pyre**. Even the type of wood used in the pyre was important.

self-immolation the act of willingly or deliberately sacrificing oneself by burning

sati the ritual act of a widow being burned to death on the funeral pyre of her dead husband

A man's widow would be expected to scream and tear at her clothes, then leap into the funeral fire to show her grief and be burned with him. This practice of widow **self-immolation** was referred to as ***sati*** and may have been restricted to the higher classes. Agni's role was to take



Source 17.13 Agni, god of fire, played an important role in delivering the souls of those who had died and been cremated to Yama, god of death, to await rebirth.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

reincarnation living again in a new body or form after death

the liberated soul and guide it to the underworld to wait for rebirth into a new body. This process or cycle of life, death and rebirth is called **reincarnation**. *Antyesti* was the Sanskrit word for the funeral ceremony.

Cremation was also part of Jain funeral practice. As with Hinduism and Buddhism, the purpose of cremation was to release the soul and allow for reincarnation. The difference was that Jains believed a person's soul could come back not only as another human, animal or plant, but even as an element of the earth like fire or wind.

karma Hindu (and Buddhist) belief that the way a person lives his or her life has an effect on how happy or successful he or she will be in his or her next life

Hindus believed in ***karma*** – that the consequences of past actions and behaviours worked both during a person's lifetime and also after death. Each person brought his or her past life to the next reincarnation. *Samsara* was the Sanskrit word used for this cycle of birth, death and rebirth.

DEVELOPING YOUR UNDERSTANDING 17.4

Study Source 17.13 and answer the following questions:

1. Describe Agni's appearance.
2. What features of his appearance would tell you that he was the god of fire?
3. Why do you think fire was associated with purification?
4. Do Hindus still cremate their dead?
5. Are widows still burned to death on their husbands' funeral pyres?
6. Why is the River Ganges an important part of modern Hindu funerary practice?
7. Research and outline the funerary practices of modern Hindus.



Source 17.14 This picture, painted c. 1820 CE, shows a Hindu funeral. The body is being carried to the river to be cremated.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

During the reign of Chandragupta Maurya, the Hindu way of life – and especially the killing of many animals as ritual sacrifices to ensure that the gods and goddesses were pleased – caused some members of society to dislike Hinduism and to turn away from its beliefs. The power held by the Brahmins made them unpopular with many ordinary people, who were excluded from the religious rituals used to receive the blessings of the gods and goddesses. It was an unsettled time in India, and many were looking for new belief systems. Two significant figures arose, Gautama (later Siddhartha or Buddha) and Mahavira. Siddhartha Gautama Buddha (c. 563–486 BCE) was the founder of the Buddhist religion or way of life. Buddhism was based on the **Four Noble Truths** and the **Eightfold Path**. Buddhists believed in reincarnation, but by following the teachings of the Buddha they could gain enlightenment or release from the cycle of birth, death and rebirth and achieve ***nirvana***. ***Stupas*** were erected to house sacred remains and relics. The most remarkable of the stupas was the Great Stupa at Sanchi, constructed by Emperor Ashoka in 250 BCE.

Four Noble Truths Buddha's teaching that life involves suffering and that suffering is caused by desire; by conquering desire, one can end this suffering

Eightfold Path Buddha's higher teachings that were designed to help people end suffering by behaving and thinking in 'right' ways

nirvana a state of release from all suffering

stupa originally a simple mound built to house Buddhist remains; a place of worship for Buddhists



Source 17.15 The Great Stupa at Sanchi

DEVELOPING YOUR UNDERSTANDING 17.5

The earliest stupas constructed in India were simple mounds.

1 What was their purpose?
2 Who constructed the stupa at Sanchi?
3 When and why was it built?
4 Explain the significance or meaning of the symbols used with different parts of the Great Stupa at Sanchi; for example, the dome or central mound, and the toranas or gateways.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Buddhist nuns wrote the *Therigatha*, a collection of short poems, which showed that women were equal to men within the Buddhist faith. It is believed that they were handed down by word of mouth (orally) for many centuries before being written down by nuns who were disciples of Buddha. They focused on issues that were important to women, such as:

1 the death of a child:

The way of which men come we cannot know;
Nor can we see the path by which they go.
Why mourn then for him who came to you,
Lamenting through the tears? …
Weep not, for such is the life of man.
Unasked he came and unbidden he went.
Ask yourself again whence came your child
To live on earth this little time?
By one way come and by another gone,
As human to die, and pass to other births –
So hither and so hence – why should you weep?

Source 17.16 Thig. VI.1 'Pancasata patacara'

2 the willingness to give up a comfortable and wealthy life to follow the Buddhist teachings:

Born in a high-ranking family with much property, great wealth …
Sons of kings sought for me …
One of them sent my father a message saying
'Give me Anopama.
I will give you in return eight times her weight in gold and jewels.'
But I, having seen the One Self-awakened, unsurpassed, excelling the world,
Paid homage at his feet.
He Gotama, for sympathy, taught me the Dhamma.
And as I sat in that very seat,
I attained the third fruit
[of non-return]
Then I cut off my hair, and went forth into homelessness.
Today is the seventh day since I made craving wither away.

Source 17.17 Thig VI.5 'Anopama, the millionaire's daughter'

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 17.6

Study the two poems in sources 7.16 and 7.17 and answer the following questions:

1 What do they show about the women who wrote them?

2 What do you understand by the following?

- 'as human to die and pass to other births'
- Dhamma (Dharma)
- 'non-return'

DEVELOPING YOUR UNDERSTANDING 17.7

Copy and complete the chart to show the basic similarities and differences between the Hindu, Buddhist and Jain belief systems/religions.

Religion	Founder/ origin	Main beliefs	Sacred texts/ writings	Funeral practices/ what happens after death	Symbols
Hinduism					
Buddhism					
Jainism					

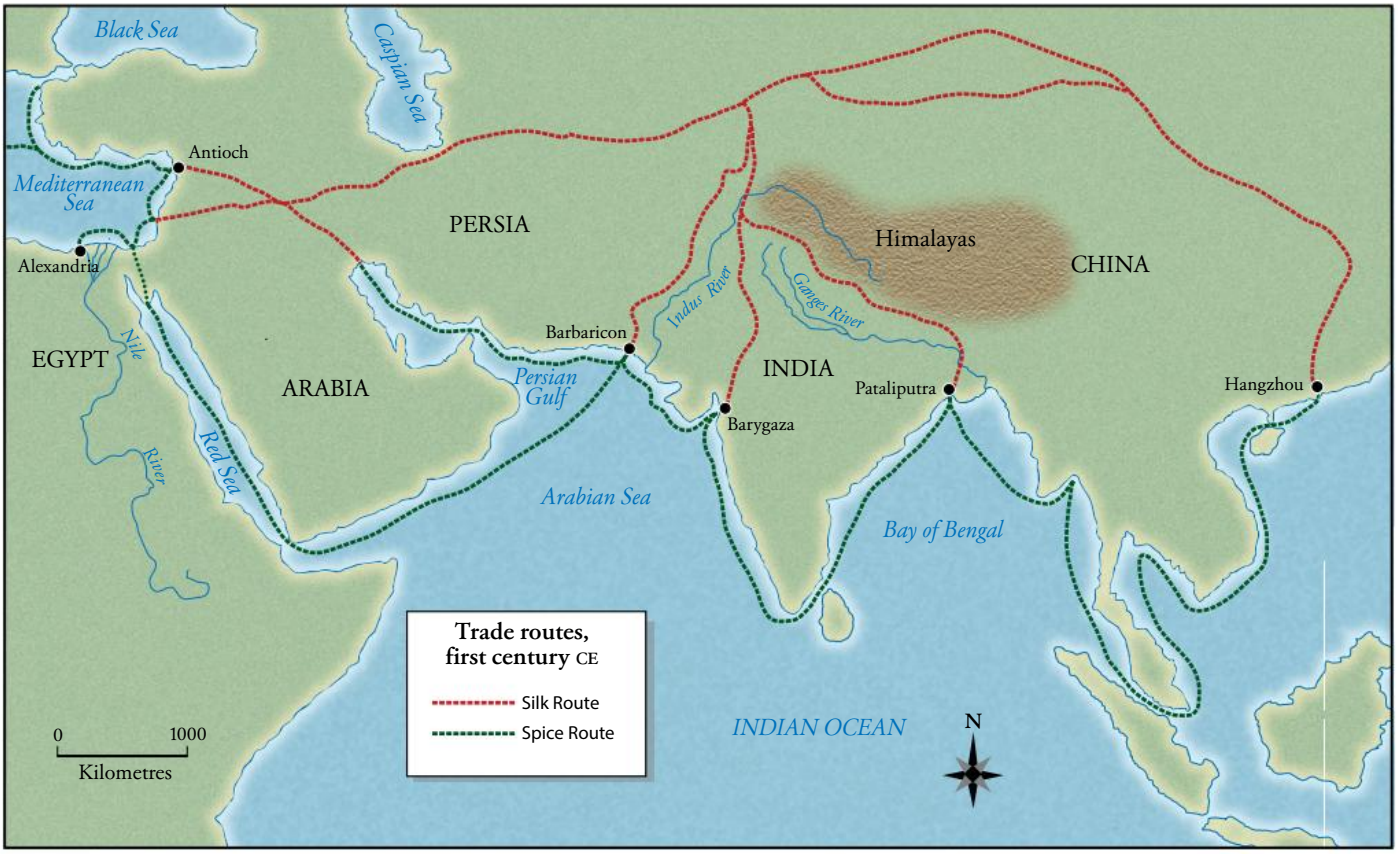
17.4 Contacts and conflicts

Expansion of trade

Archaeologists have found physical evidence to indicate that trade played an important role in ancient India. Digs at the Indus Valley cities of Harappa and Mohenjo Daro have uncovered raw materials such as copper, which was found mainly in Oman, and jewellery made from agate and jasper, the local stones found in Kutch and Gujarat. Harappan seals may have been used as part of the trading process – either worn by merchants to identify themselves or by their images stamped on to trade goods. In Harappa, objects from the areas we now call the Middle East, including textiles, combs, beads and dice, were found. Mummies wrapped in cloth dyed with indigo and items made from tamarind wood, both from India, have been found in Egyptian tombs.

Teakwood and muslin cloth from India were used in ancient Babylon. Overland caravan routes linked different parts of India, and rivers and seas were used for more distant trade. Lothal was an important port. Indian exports included timber, ivory, shells, textiles and beads. Silver, tin, woollens and grains were imported. Between c. 1250 BCE and c. 153 CE, China, Rome and India developed more advanced trade networks. Established sea and land routes began to link

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.18 This map shows the trade routes used between Rome, Egypt, north-east Africa and India. Greek navigators used such documents to show ports, landmarks and distances.

East and West. Strabo, a Greek geographer and historian, refers to this trade between Rome and India in his writings. The first trade routes between Greece and India began about c. 130 BCE, when Greek traders sailed along the west coast of India using the seasonal monsoon winds. They sought Indian spices, including black pepper, cinnamon, cassia, cardamom, ginger and turmeric. From the Mediterranean region, India imported copper, silver, olive oil and wine.

Under the Persian ruler Cyrus (c. 559–530 BCE), an extensive road system was developed. This Royal Road was extended by the third Persian king, Darius (c. 521–485 BCE). Persian coinage found in the Ganges Valley indicates that there was a regular interchange of commerce between India and the Persian Empire. Luxury goods such as silk, amber, incense and spices became important trade items, and special road networks were developed to provide safe and speedy passage. However, bands of robbers on land and pirates at sea still made trade hazardous. Large numbers of Roman coins have been found in southern and western India, indicating that trade continued to expand both during and after the time of Chandragupta Maurya and his grandson, Ashoka. The historian Pliny commented on the large amount of gold being spent by the Romans on Indian commodities such as fine muslin cloth.

Rise of the Mauryan Empire

The Mauryan Empire (c. 321–185 BCE) (see Source 17.4) was formed out of the confusion and chaos that followed the invasion of northwestern India by Alexander the Great in 326 BCE. Although Alexander did not remain long in India, his idea of building an 'empire' impressed a young Chandragupta Maurya. He studied Macedonian military methods and used fighting units of **mercenary** soldiers to bring the divided kingdoms of northern India under his control. He set about reforming the society and used many ideas from Persia

mercenary a soldier who sells his services in return for money

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

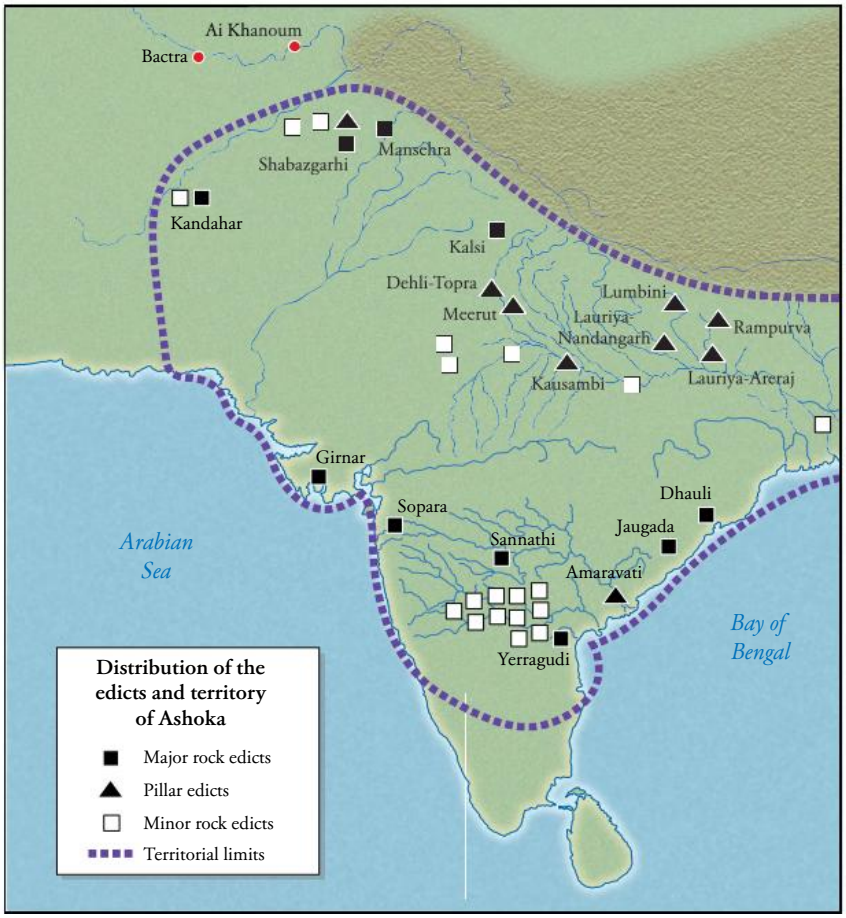
and Greece, such as coinage and tax collection, to build a strong economy.

Under Chandragupta, trade flourished and land routes were established. The *varna* system was reorganised so that farmers were recognised as being as important as soldiers. Irrigation ensured a constant supply of water, and rice provided a steady food supply. In his capital, Pataliputra (now the modern-day city of Patna), Chandragupta built a magnificent fortress. Megasthenes, a Greek historian and ambassador, described mighty walls (ramparts) of tree trunks and a moat that had 570 towers and 64 gates. Cobbled streets ran between houses several storeys high and there were gardens filled with flowering trees and vines. Eighty commemorative pillars, inspired by Persian architecture, supported the roof of a palace some 6 metres high.

Chandragupta had a clever and cunning adviser named Chanakaya (Kautilya), and employed spies to make sure he knew everything that was going on in his capital and throughout his empire. Some sources say that towards the end of his life Chandragupta changed from Hinduism to Jainism, becoming an ascetic and actually starving himself to death as part of his religious devotions. He died in 298 BCE and was succeeded by his son Bindusara and later his grandson Ashoka.

After a terrible battle at Kalinga, where thousands of people were slaughtered and others enslaved, it is said Ashoka began to question the use of violence. Around 258 BCE, Ashoka is said to have converted to Buddhism and followed its teaching of non-violence (ahimsa) for the remainder of his reign. Ashoka's legacies include his **edicts**, which were carved on massive stone pillars, large rocks and cave walls. He placed these at different locations around his capital and along roadways so that his people could read them. Their message was one of peace,

edict an order given by an authority





Source 17.19/7.20/7.21 Map showing the distribution of Ashoka's rock edicts and pillars, a remnant of the pillar showing details of his sixth edict and one of his pillar edicts

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

dharma the Hindu and Buddhist ideas of good order and harmony maintained in the world

right thought and action, and accepting personal responsibility for one's actions. Ashoka believed in ***dharma***, and his aim was for his empire to be ruled in a fair and just way.

The time of the Mauryan Empire is sometimes referred to as India's Golden or Classical Age. Following Ashoka's death in 233 BCE, weak leadership led to a decline in the strength of the empire. The last Mauryan king was assassinated in 185 BCE.

RESEARCH 17.2

Research the rock edicts and rock pillars of Ashoka the Great and answer the following questions:

1. What was the total number of edicts produced by Ashoka during his reign?
2. Where did he usually place his edicts? Why?
3. What languages were used on the inscriptions? Why?
4. Where could you find the actual remnant shown in Source 17.20?
5. Describe the skill and technology required to:
   - construct, and
   - transport Ashoka's pillars.
6. Examine the edicts of Ashoka. Do you believe that they were genuine reflections of a Buddhist view of life (religious) or more about the efficient running of his empire and winning over the support of his people (political)? Discuss.

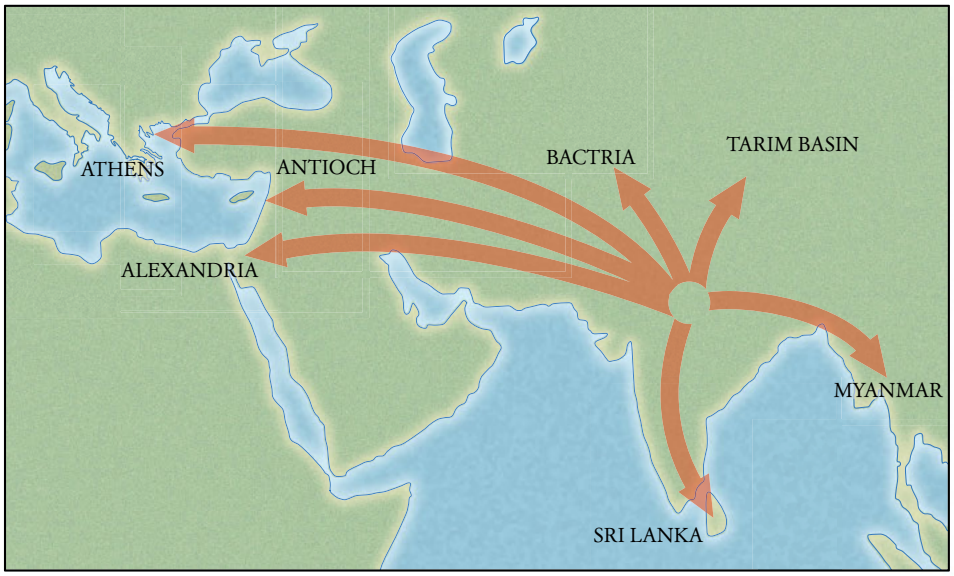
Spread of philosophies and beliefs

During the reign of Emperor Ashoka, Hinduism, Buddhism and Jainism developed and people were free to choose and follow their own religion. The Emperor also promoted the spread of Buddhism.

sects religious groups who change some of the main teachings within an established religion

Different Buddhist **sects** developed and monks undertook **missionary** work by travelling the roads and mountain passes to spread the teachings of the Buddha. In c. 250 BCE, Ashoka sent his son Mahendra (Mahinda) to Sri Lanka. Mahendra was a follower of the Theravada sect. Within a century, Theravada Buddhism had

missionary person sent to spread a particular religious faith in another country

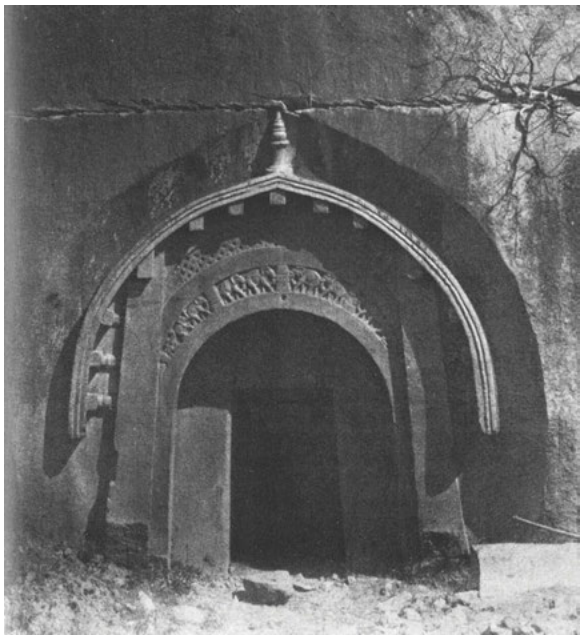


Source 17.22 Map showing the spread of Buddhism from India during the reign of Emperor Ashoka the Great

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

reached Thailand. Today it remains Thailand's official religion. Missionaries travelling the Silk Road also introduced Buddhism into China. By about c. 600 BCE, Buddhism had declined in India and Hinduism had reasserted its influence by widening public acceptance of many different gods and goddesses, and its religious practices. However, the stupas and pillars erected by Emperor Ashoka and the many human-cut caves such as the Barabar Caves serve as reminders of the power of Buddhist beliefs in India. Jainism shared many common beliefs with Buddhism, and became well established in southern and western India. Jain **Thirthankars** also took their beliefs to Sri Lanka (then Ceylon) and the area known today as Myanmar (Burma).

Thirthankar 'ford'; Jains believed that Mahavira was one of a long line of religious teachers who showed others the way and each teacher was regarded as building bridges or fords for the whole religion



Source 17.23 Caves such as the Barabar Caves were used by Buddhist and Jain monks and travellers (pilgrims). They were places of worship, retreat and meditation. Many of the designs and inscriptions reflect Persian influences.

HISTORICAL THOUGHT

Despite its association with Nazi Germany, the swastika was originally a symbol of well-being that dates back to ancient India, and is used in Hinduism, Buddhism, and Jainism. The swastika dates back to the Indus Valley civilisation.



Source 17.24 A swastika in modern-day India marks where Ghandi was born

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Many gods of Hinduism

There are many gods and goddesses worshipped within Hinduism. It is mostly accepted that there is one ultimate deity, Brahma, and all other gods are considered to be aspects of him. It has been said that there are 330 million gods and goddesses in Hinduism; Source 17.25 shows some of the most popular.

Source 17.25 Hindu gods



Brahma
The Creator



Saraswati
Goddess of Knowledge, Music and the Arts



Parvati
The Divine Mother



Vishnu
The Preserver

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Ganesh
God of the Intellect and the Remover of Obstacles



Lakshmi
Goddess of Wealth and Prosperity



Kali
Goddess of Time and Death



Shiva
The Destroyer/Transformer

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

17.5 Role of significant individuals

Power of the sword versus the power of ideas

Chandragupta Maurya and his grandson Emperor Ashoka were both warriors, but their lives were changed when they adopted Buddhist beliefs. Siddhartha Gautama Buddha and Mahavira also broke away from their family backgrounds to choose a new path of religious enlightenment.

Chandragupta Maurya (320–298 BCE)

- Born the son of a chief of the Maurya clan
- Raised by a herder after the death of his father
- Later raised by Brahmin politician, Chanakya (Kautilya)
- Educated in military tactics and the arts
- Legendary meeting with Alexander the Great and a dream of power to come.
- Gathered mercenary soldiers and with public support defeated the ruler of the Nanda dynasty
- c. 325 BCE took the throne of the Magadha kingdom
- c. 322 BCE founded the Maurya dynasty
- c. 305 BCE defeated Alexander's successor, General Seleucus I Nicator
- Extended the Mauryan Empire from the Himalayas to the southern tip of India
- Maintained an army of some 600 000 soldiers
- Built an organised and prosperous government and society
- Used Chanakya as his adviser
- Accepted Jainism and spent his last days in the service of the sage Bhadrabahu at Sravana Belgola in south-west India

Emperor Ashoka (Asoka) (304–185 BCE)

- Ashoka was the grandson of Chandragupta Maurya and a prince of the Mauryan dynasty.
- It is believed that he came to the throne following a power struggle with one or more of his brothers. In 206 BCE, Ashoka attacked the city of Kalinga.
- Following a terrible battle, Ashoka is said to have renounced warfare and adopted Buddhist principles. Ashoka's rock edicts and pillar edicts (see Sources 7.20 and 7.21) were erected in public places so that he could direct his subjects in what he believed were the right ways of thinking and living.
- Ashoka tried to improve the life of his subjects by building medical centres in the countryside, improving roads, providing wells and planting trees.
- His reign was a time of religious freedom. He encouraged the spread of religious ideas, and missionaries travelled outside to China and South-East Asia.
- He constructed stupas and rock caves, which served as retreats for monks and nuns.

Siddhartha Gautama (Buddha) (563–483 BCE)

- He was born into the Kshatriya caste.
- Various legends are told about his birth and early life.
- At the age of 29, Gautama gave up his life of luxury to become a wandering ascetic.
- He sat under a sacred tree near Uruvela for 6 years, teaching and fasting.
- He then abandoned his life of self-denial to seek a Middle Path to enlightenment.
- The term 'Siddhartha' was added to his family name to show that he had reached his goal.
- At 35, Gautama became a Buddha ('enlightened one') and spent the rest of his life travelling and teaching his followers.
- He died in 483 BCE.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.26 The Gandhara Buddha is one of the earliest statues of Buddha. It dates from the first century BCE and shows the influence of Greek art.

Vardhamma Mahavira (Mahavira) (550–527 BCE)

- Born c. 550 BCE, he was the son of a Kshatriya warrior.
- His youth was a time of opposition to the Brahmin sacrificial rites, a movement that later grew in importance and size.
- Vardhamma Mahavira and his family believed in the bond between humans and animals through reincarnation, and therefore opposed animal sacrifices.
- At around age 30, Mahavira renounced his life of luxury to become a monk.
- He practised *sallekhana* (voluntary self-starvation).
- He travelled naked and without any possessions except for a bowl for water.
- He meditated and developed the doctrine of *ahimsa* (non-violence).
- After 12 years, he created the Jain monastic order.
- He was given the title 'Jina', meaning 'conqueror', as he had overcome all worldly attachment and sense of self.
- He died in 527 BCE.

RESEARCH 17.3

Read the summaries of the lives of Chandragupta Maurya, Emperor Ashoka, Siddhartha Gautama (Buddha), Vardhamma and Mahavira. Choose one of these significant individuals and complete a research project, including the following:

1. Give your reasons for choosing this individual.
2. Write at least half a page on the early life of this individual.
3. Explain how this individual broke away from his established family background.
4. Outline the new beliefs of this individual.
5. Explain why this individual believed he needed to follow a new or different path.
6. Demonstrate how the beliefs of this individual affected others.
7. Identify what physical evidence is left of this individual's life and beliefs.
8. Discuss how important you believe this individual was and is to India's history.

You may present your research as a poster, structured essay or PowerPoint presentation.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- The earliest inhabitants of the Indus Valley were nomadic hunter-gatherers who had migrated from Africa. Fertile soils and plentiful water allowed the development of agriculture, trade and a settled life in well-planned cities.
- The Aryans entered the Indus Valley around 2000 BCE. They also brought new social and belief systems.
- By about 1500 BCE, environmental conditions in the Indus Valley caused a move to the Indo-Gangetic Plain in northern India.
- The Aryan or Vedic society was based on the Vedas or Hindu religious writings, and power was concentrated in the hands of the Brahmin class or *varna*.
- In about 325 BCE, Alexander the Great extended his military campaign into India; however, his soldiers rebelled and he was forced to withdraw.
- Chandragupta Maurya became the most powerful leader in ancient India. He established the Mauryan Empire, which grew to cover most of the subcontinent.
- Opposition to the increasing use of sacrifices by Hindus resulted in the formation of new religious beliefs, and two significant men of ideas – Siddhartha Gautama Buddha (Buddhism) and Vardhamma Mahavira (Jainism) – were born.
- Chandragupta Maurya and his grandson Ashoka became followers of Buddhism.
- India traded and exchanged ideas with many neighbouring countries. The spread of Buddhism and Jainism was encouraged.

Short-answer questions

1 Explain why settlers moved from the Indus Valley to the Ganges Valley.

2 Early civilisations worshipped gods and goddesses who were closely linked to nature. Why was this?

3 Why was the *varna* system introduced by the Aryans?

4 During the period of the Mauryan Empire, trade flourished. What evidence is there to support this statement?

5 Ashoka is called 'the Great'. Do you think he deserves this title? Why or why not?

6 What beliefs were shared by both Buddhism and Jainism?

Source analysis

Refer to Source 17.2 at the beginning of this chapter and answer the following questions:

1 Ashoka became a Buddhist. What symbols on the capital tell us that?

2 Were columns and pillars the only way in which Ashoka spread his messages?

3 What were his messages called?

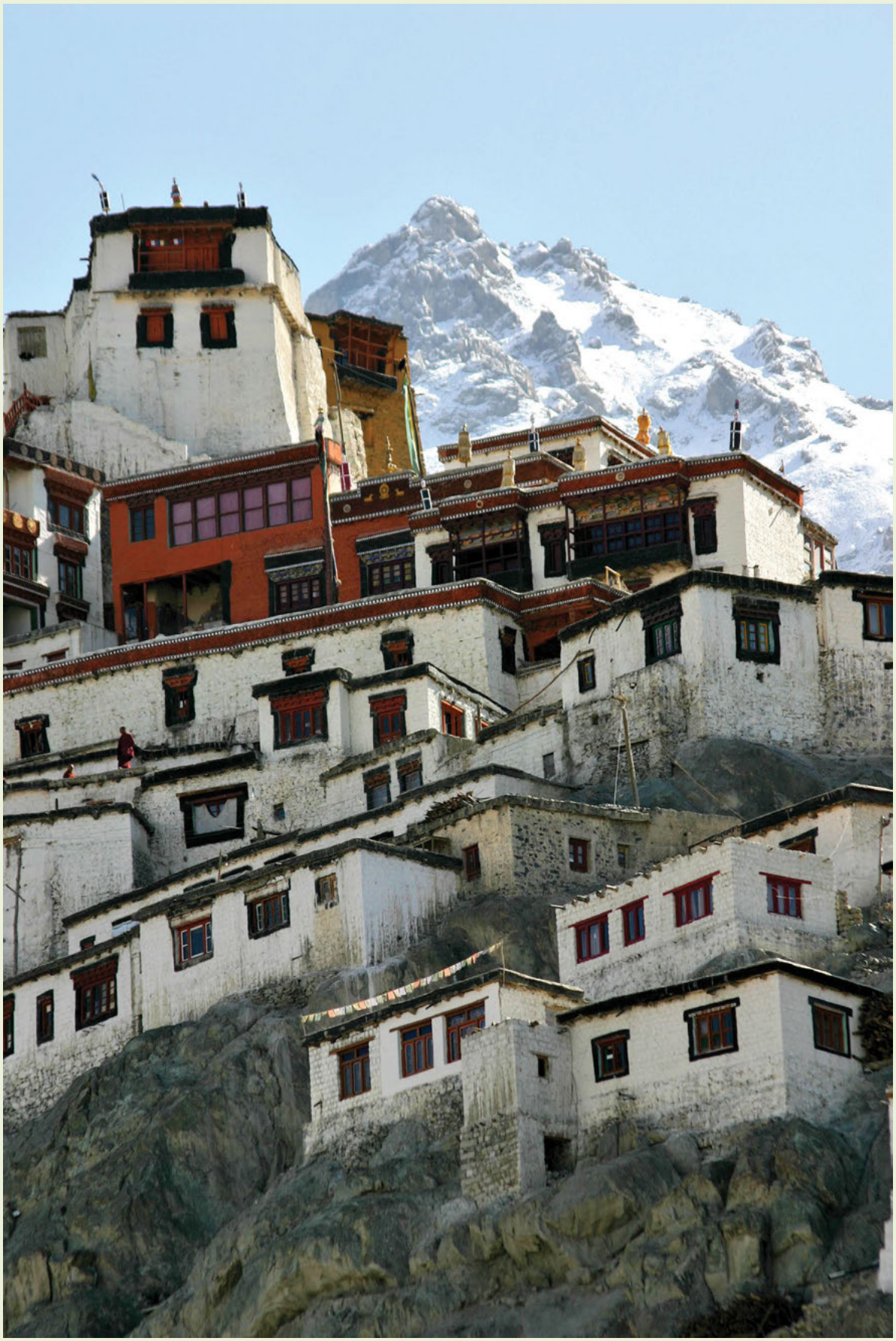
4 What were they meant to tell his people?

5 Why might this capital and its symbols have been chosen for modern India?

Extended-response question

From its beginnings in the Indus River Valley, India grew to play an important role in the trading, cultural and religious life of the ancient world. What factors do you believe allowed it to do this? Present your findings as either a structured essay or on a poster. Be sure to include specific evidence to support your claims and show your research in your findings.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 17.27 Buddhist monastery in the Himalayas (Ladakh, Kashmir, India)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Civics and citizenship

Law and citizens

Protecting Australians

rights the fundamental entitlements of a person, generally through law; rights are automatically applicable to a person

right to a fair trial a right that occurs in an unbiased legal system where no person can be discriminated against for his or her religion, ethnicity or gender

The Australian legal system (or the judiciary branch of power) is designed to uphold the law by protecting the **rights** of Australians and fairly punishing those that break the law. It is important to have an unbiased legal system where no person can be discriminated against under law based on their religion, ethnicity or gender. The **right to a fair trial** exists in many countries and in international law.



Source 7.2.1 The Supreme Court of Western Australia

Legal Aid a program funded by the Australian government offering free legal advice for those who cannot afford a legal representative

In Australia, we have the right to choose our legal representation. This means that a person can select a barrister or solicitor to represent him or her in court. However, legal representation can be very costly. If a person cannot afford legal representation he or she may be eligible for **Legal Aid**; a program that offers free legal advice for those from a disadvantaged background. However, this program is underfunded and does not guarantee free access to legal representation for everyone. According to the organisation 'Community Law Australia', approximately 490 000 people do not have access to legal representation.

In order to ensure that the law is executed fairly, we have judges. It is the judge's role to run the court proceedings, listen to the charges made against the accused, listen to all the witnesses and/or evidence and make a final ruling on the case. It is important for the judge to remain impartial, which means that they hold no opinions or views that could influence their ruling.

Innocent until proven guilty

'Innocent until proven guilty' is a very commonly used phrase, and it is an important aspect of the Australian legal system. In Australia, all people accused of a crime are protected by the **presumption of innocence**. This means that the court system must assume that the person accused of a crime is innocent until there is enough evidence to prove overwhelmingly that they are guilty. This ensures that no one can be punished for a crime without a suitable amount of evidence or because of a prejudice. This means that the **burden of proof** is the responsibility of the person or group accusing the defendant of committing a crime (this person or group is called the **plaintiff** or the **prosecution**). The burden of proof means that evidence that indicates, beyond any reasonable doubt, that the accused is guilty must be provided. As the accused is innocent until proven guilty, it is the responsibility of the plaintiff or prosecution to prove guilt; the defendant does not need to prove that he or she is innocent.

presumption of innocence protection for all people accused of a crime that means the court system must assume the person accused of a crime is innocent until proven guilty

burden of proof evidence that indicates, beyond any reasonable doubt, that the accused is guilty

plaintiff the person or group who brings a case against another in court

prosecution the person or public official who institutes legal proceedings against the person accused in court

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

A responsible citizen

A citizen of Australia is someone who was either born in Australia or has been granted citizenship through application. Some people choose to live and work in Australia without citizenship (on a visa), but being an Australian citizen entitles a person to particular rights and responsibilities.

Being a 'responsible citizen' is phrase often used to refer to the responsibilities we have to our communities, whether it be our classroom, school or social groups. A good citizen is someone who takes their responsibilities seriously and who protects the rights of others in their community.



Source 7.2.2 In Australia, citizens have five responsibilities.

An Australian citizen has five responsibilities to the Australian community under the law: to obey the laws, pay taxes, defend Australia (should the need arise), enrol to vote and vote when required, and serve on a jury (if called upon).

A **jury** is another way in which Australia protects people accused of a crime through the legal system. A jury is a group of citizens who are sworn with the responsibility to decide a verdict and punishment on certain cases in court. There are 12 members to each jury and they must be people who are neither connected to the case nor are legal experts. The jury system can be seen as a good method of being fair as it is made up of members of society and the 12 people need to agree upon a decision. However, some people argue that the jury system is unfair as members of the jury are not likely to have a lot of legal knowledge and could be swayed by their own prejudices.

jury a group of citizens who are sworn with the responsibility to decide a verdict and punishment on certain cases in court

DEVELOPING YOUR UNDERSTANDING 7.2.1

1. Identify three ways that the Australian legal system protects people in Australia.
2. Describe the reason why it is important for a judge to remain impartial.
3. List the advantages and disadvantages of the jury system in Australia.
4. Outline three different responsibilities of a citizen of Australia and why they are important to the broader community.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.2.3 The Commonwealth Law Courts, Victoria Square, Adelaide, South Australia

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Economics and business



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



18 Consumers and producers in the market

Before you start

Main focus

Every day, people in Australia buy products and services to use. All of us are consumers and many people (producers) work in businesses that produce goods and services. It is important to understand how consumers and producers influence each other. Consumers have wants and needs and producers operate to meet these wants and needs. This chapter explores this cycle and how it is vital to the Australian economy.

Why it's relevant to us

We live in a country where a market system operates. As producers and consumers it is important to understand this system.

Economics and business knowledge relates to the theories, ideas and issues surrounding the relationships between different parts of the economy. Every time you pick up a newspaper or turn on the television news, economics and business information will be presented. News headlines about unemployment, company mergers, changes in the value of the Australian dollar, interest rates, taxation and consumer spending are all part of economics and business. In order to be informed consumers and members of society, we need to understand all of these ideas and issues.

Inquiry questions

- How might consumers influence producers in Australia and in the Asia region?
- What is the relationship between consumers and producers?

Key terms

- Consumer
- Market system
- Mixed market economy
- Producer

Let's begin

Every time you decide to buy something, such as new clothes or a DVD, or go out with your friends to see a movie, or eat a meal at a restaurant with your family, you are a consumer. Many people and businesses operate to provide you with these items and services. It is important to understand the impact your decisions and actions have on the economy.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

18.1 The relationship between consumers and producers

In all economies there are groups who are consumers and producers. A producer is an individual or business that makes goods or provides a service. Examples of goods are motor vehicles, computers, furniture, clothing and smartphones. Services include things such as getting a haircut or going to the movies.

consumer a person who buys goods and services made by producers

producer a person or business that makes goods or provides services to others

A **consumer** (a customer) is a person who uses a product or service that has been made by a **producer**. How the two relate might differ according to the type of economic system. There will be, however, some kind of relationship. Consumers have a number of needs and wants. A need is something that is essential for consumers and could include food and shelter, whereas a want is an item or service a consumer would like to have but does not have to have. Examples of a want could include a new car, a new pair of shoes or a holiday.



Source 18.1 Shopping for leisure is often done for the purpose of purchasing items that are classified as wants.

Economics and business fact

The annual quantity of tablets bought is expected to overtake the total of PCs bought by 2015.

DEVELOPING YOUR UNDERSTANDING 18.1

1 Define the following and provide an example for each term.

- **a** Consumer
- **b** Producer
- **c** Want
- **d** Need

2 Discuss whether the following are wants or needs. Provide reasons for your answers.

- **a** iPhone
- **b** Water
- **c** Going to a football match
- **d** Breakfast
- **e** Textbooks

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

A producer or business exists to create goods or services that meet the needs of consumers. A consumer may either buy the goods or services or decide not to. One way to make sure consumers will buy goods or services is to undertake market research to see if there is consumer demand for the product. If businesses complete effective market research, they can create goods and services that consumers will be happy to buy.

There is some disagreement about whether consumers determine what will be produced by demanding producers make and supply certain products and services, or whether producers make goods and services and then use advertising and marketing to convince consumers to buy their products.

Economics and business fact

Spending by consumers increased by 1.6% in the 12 months leading up to March 2013.

DEVELOPING YOUR UNDERSTANDING 18.2

'All producers make goods and services, and consumers will buy anything that is produced.' Discuss this statement and include the points below.

1. Define the concepts of consumers and producers.
2. Explain how producers can influence consumers.
3. Do you agree with the statement? Justify your response.

18.2 Setting prices for products

market system an economic system in which the forces of demand and supply determine prices

mixed market economy a market economy in which there is also government intervention

Businesses in Australia mainly use the **market system** to determine prices for their products. A pure market system is an economic system in which there is no government intervention. In Australia the economy is based on the market system; however, there is government intervention, therefore it is known as a **mixed market economy** (a mix of the market system and government regulation and laws).

Generally under a market system the price of a product or service is determined by how much a consumer is prepared to pay for that good or service. For example, three people attending a house auction, who all want to buy the house, will bid against each other until the one willing to bid the highest amount gets the property. This is one way that producers allow the market to set prices.



Source 18.2 One way of determining a price is in an auction setting, where the product will go to the highest bidder.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Economics and business fact

Australia was the first country in the world to have a complete system of plastic bank notes. Plastic notes provide increased security against counterfeit money.

Determining the prices they set for their goods and services is very important for producers, as prices will have a direct impact on their sales and therefore revenue, and it will influence how willing consumers are to buy their products. Auction is just one method of determining prices. Other price setting methods include:

1 *Recommended retail price.* Wholesalers and suppliers will often set a recommended retail price (RRP) for a product. While a retail business does not have to follow this, it is usually a good starting point.

2 *Percentage mark-up.* This means that a mark-up is added to the cost price of an item. For example, a business may decide to add 50% to the cost price of every product. An item that costs $10.00 will therefore be sold for $15.00 ($10.00 plus 50% ($5.00) equals $15.00).

3 *Competition and competitor's prices.* To ensure it gains customers, and retains them from competitors, a business may need to adjust some of its pricing methods. For example, some businesses will have 'specials' to try to attract customers.



Source 18.3 Businesses may take different approaches to pricing their products or services.

DEVELOPING YOUR UNDERSTANDING 18.3

1 Visit the website for a supermarket or general store and locate their catalogue.

2 List five items that are on sale. How much would customers save if they bought the goods when they are on sale?

3 Look at the breakfast cereal in the catalogue. Find four similar breakfast cereals; for example, in terms of package size. How much does each breakfast cereal cost (per 100 grams)? Is there a difference in price between the different kinds? Explain two reasons why prices might be different.

4 Calculate the prices of the products below.

a The cost of making a hamburger at the local fish and chip shop owned by Sam is $3.50. Sam would like to make 20% profit. What is the retail price of the hamburger?

b Faith has decided to set up a coffee shop in a shopping centre. There is another coffee shop around the corner. It sells coffee and cake for $7.00. Faith would like to sell hers for 10% cheaper. What is the price for the coffee and cake?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Why do businesses set certain prices for their products?

Though, as we have seen, there are a variety of methods for determining prices, businesses will often simply charge as much as the consumer is willing be pay. If a good or service is very popular and in high demand by customers, but there is only a limited supply, then the producer will be able to charge a higher price. This often occurs when something first comes on to the market and there is a rush by consumers to have the product. When a breakthrough in technological innovation, for example, sees the release of an innovative new product onto the market (such as the iPad), there are often many consumers willing to pay a high price for the product because they want to be among the first to have it. Sometimes consumers will pay a lot more for an item as there is only one or two businesses that make that particular product or provide that service.

DEVELOPING YOUR UNDERSTANDING 18.4

Read the following article and complete the tasks that follow.

Hundreds of thousands of Australian travellers will be forced to pay up to five times more for answering an international call on their mobile phone while overseas. Telstra has begun notifying travellers among its 15.3 million mobile subscribers about changes to international roaming rates. While it is advertised as a victory for consumers, the new price structure will mean that people travelling overseas will be billed between 100% and 500% more in more than 180 countries.

These countries include the most common destinations for Australian travellers, such as New Zealand (up from 64¢ to $1.50), Indonesia ($1.55 to $4) and Europe, with Italy, Germany, France and Spain all attracting rises of at least 194%. Accepting calls in the UK, meanwhile, will jump from 70¢ to $2, and in Ireland 77¢ to $2.50. While some incoming roaming charges have gone up, Telstra claims the impact has been offset by reductions in outgoing call rates.

But the Australian Communications Consumer Action Network (ACCAN) lashed out at Telstra for introducing 'massive price hikes' under the guise of its global roaming rates. Consumer groups accused Telstra of 'gouging' (extracting from) customers, and the government of doing little to protect Australians against dramatic price rises.

'The direct marketing material from Telstra explaining the changes to its customers is misleading at best,' said Mark Callender, a ACCAN spokesperson. 'They have not made clear that each country now has a single price for every type of call and that most call types are actually more expensive.'

Optus and Vodafone have already introduced a flat pricing structure for outgoing and incoming calls, but Telstra has set its fees much higher in most cases. Optus charges $1 a minute for receiving calls in the US while Telstra will charge $3.

The Telstra spokesman denied the letter was misleading. 'We were changing 792 prices – which is not possible to communicate in a single letter.' He said the 'simplification' of call rates was designed to help customers 'more easily calculate' the costs of making and receiving calls while overseas.

Source 18.4 Adapted from Eamonn Duff and Heath Aston, 'Travellers to pay Telstra up to 500% more'

1 Describe the impact of the changes in process on consumers travelling overseas.

2 Suggest why Telstra can charge so much for some services.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.





Source 18.5 Telstra is a market leader and charges much more than its competitors.

The state and federal governments also have some control over producers if they try to overcharge consumers, and there are a number of laws and bodies in place to assist with this.

18.3 How can consumers influence producers in other countries?

As Australia is part of a global economy, the needs and wants of overseas consumers can influence local producers and determine what they make. Australia trades with many different countries throughout the Americas, Europe, Asia and the Pacific. Demand from China has increased to the extent that it is now one of Australia's largest trading partners. Demand from overseas consumers in countries such as China can therefore have a significant impact on local producers.

Many Australian companies have developed trade links in the Chinese municipalities of Shanghai and Beijing, as well as in the Guangdong province and the Chinese Special Administrative regions of Hong Kong and Macau. Members of the Australian Chambers of Commerce in Shanghai, Beijing, West China, South China and Hong Kong and Macau were invited to participate in the Sweeney Research survey conducted between October and November 2013. Almost all respondents (95%) have operations in mainland China, with Shanghai, Guangdong and Beijing the top three most popular Chinese locations. A third of respondents operate in Hong Kong and Macau. Australian businesses were starting to expand into China to develop their business further. Relationships are being built in both the supply of products and in developing suppliers.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- A market economy is one in which there is no government intervention.
- Under a market economy the price of a good or service is determined by how much a consumer is prepared to pay for it.
- Businesses may determine the price of a product by setting a recommended retail price, a percentage mark-up or basing it on their competitors' prices.
- If a good or service is in high demand by customers then the producers will be likely to charge a higher price as customer desire will justify them paying this set price.
- Australia trades with many different countries throughout the Americas, Europe, Asia and the Pacific.
- In all economies there are groups of consumers and producers. Producers make goods and services. Consumers purchase the goods and services.

Short-answer questions

1. Outline the relationship between consumers and producers in Australia.
2. Explain the difference between a need and a want.
3. Summarise three price setting methods.
4. Suggest why consumers are more likely to pay a higher price for in-demand products.
5. Identify the advantage of Australian companies operating in China.

Extended-response question

Construct a poster for a new type of smartphone designed by you. List the features of the phone and display the price you think would be reasonable for the phone. Once you have completed the poster, in one paragraph justify the price you set. Consider how the price compares to competitor prices. Are there features this phone has that other phones don't?

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



19 Personal, organisational and financial objectives

Before you start

Main focus

Individuals and businesses need to set and maintain their own financial goals for both the short term and the long term. Many businesses in Australia and the rest of the world fail because they do not keep accurate financial records. It is important that businesses are able to manage their finances in the short and long term to make sure that the business is successful. This chapter will examine the way individuals and businesses need to manage their finances and plan for the future, to meet their own goals and objectives.

Why it's relevant to us

In our society we need money or credit to purchase goods and services. Most consumers will need to manage their finances in order to have enough money to buy all the goods and services they want. Even though you are not working yet, you probably get pocket money or money for birthdays or special occasions. It is important to start to learn how to budget and manage your money so that you can buy the things you want both now and in the future. Often small businesses fail due to poor record keeping and a lack of accurate financial records. Keeping a check on business finances means the business owner can make better decisions and the business can be successful in the long term.

Inquiry questions

- Why is it important to set and maintain financial goals and objectives?
- Why is it sometimes necessary to give up short term expenditure and income to gain long term benefits?
- Why should financial records be kept by consumers and businesses? What is a business plan and why is it important for a business to develop?
- How do businesses use their financial records to support decision making?

Key terms

- Budget
- Business plan
- Cash flow
- Cash payment
- Cash receipt
- Credit card
- Financial goals
- Financial record
- Loss
- Profit
- Savings
- Transaction
- Wants

Let's begin

Think about the last time you went shopping. Did you find lots of items or goods you would have liked to buy but did not have the money for? If you did, you would have realised that sometimes decisions have to be made about what you want to buy now and that you sometimes need to save to buy something in the future. It is very important that all businesses plan for the future to ensure that they are successful. If businesses don't keep proper financial records, it is unlikely that they will succeed.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

19.1 Why is it important to set financial goals and objectives in the short and long term?



Source 19.1 It's important to save for long- and short term financial goals.

While money is not everything in life, it is important as we live in a society in which money is needed to purchase goods and services. It is therefore essential that everyone is able to manage their finances. In the short term, most goals will revolve around saving up enough money to buy an item or go out with friends. Short term spending is often spending over the next week, month and up to a year. In the long term, goals will usually involve saving up for large and expensive items such as a trip, a car or even a house. Sometimes individuals might have to go without something in the short term to ensure long term financial security. The long term time frame is usually two or more years.

Most individuals have unlimited **wants** and limited means. Limited means includes time, resources and money. In many instances a choice has to be made between competing wants. This is known as an **opportunity cost**. When you make a decision between two competing wants or events, and have to forgo something, the thing that you have to forgo is known as the opportunity cost. For example, imagine that you want to go to the movies with your friends on Saturday afternoon but you also have a family birthday party you are expected to attend. A choice has to be made; if you go to the birthday party, the opportunity cost is not going to the movie.

wants things you would like to have but can go without

opportunity cost the alternative you have to go without in a choice between two competing things or events

Economics and business fact

Australian household debt levels are still regarded as being high, despite the fact that consumers have been cutting back on their credit card borrowings and personal loans since the **Global Financial Crisis**.

Global Financial Crisis a worldwide economic crisis that led to many countries having poor economic conditions

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 19.1

Imagine that you have unlimited money to buy anything you would like.

1. List 10 items or wants you have. This might include a new phone or a holiday.
2. Look at the list you have compiled. Imagine you have been given $500. Now list the items in order from the most wanted to the least wanted.
3. Are you able to buy everything on the list? If not, explain the opportunity cost of forgoing some of the items.

19.2 Budgeting and managing your money

It is important that individuals learn to manage their money and finances. A good starting point is to budget so that short term and long term goals can be met. Sometimes in the short term (daily, monthly or even over a year) you can get by without a budget, but in the long term it is vital that strategies and methods are put in place to meet future **financial goals**.

financial goals goals about saving and spending

Economics and business fact

Australia is in the middle of a **credit boom**! Australia has the highest household debt to disposable income ratio in the world – even higher than America.

credit boom the rapid increase of lending by financial institutions

Source 19.2 A budget is a good starting point when setting financial goals.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

19.3 Managing your money – how to get started

Money and finances can be managed through setting up (and sticking to) a **budget**. A budget is usually a document or record that sets out all of the money (such as wages or pocket money) earned by an individual and the amount they spend. Completing a budget helps you plan for the future and stops some of the worry about not having enough money to pay the bills or buy food.

budget a record of the income coming in and the money going out (expenditure) for an individual

credit card a card that allows a consumer to buy something 'on credit', which means he or she pays for it later; in contrast, a debit card is one which has money on it and the consumer can only spend up to the amount on the debit card

A budget also helps people plan for the future and not live from one pay to the next. It also allows people to find the right balance between spending and saving. Keeping a budget might allow someone to pay off a **credit card** or loan and to save money.

How to prepare a budget

A good way to start a budget is to look at how much money you get every week, fortnight or month and then look at how much you need to set aside for necessities such as food, transport and clothing. When a student completes a budget it is fairly straightforward and simple as the amount of money coming in and what it is needed for is not complex.

It is also a good idea to plan and budget over a one-year period as it gives you an idea of income and **expenditure** over the whole year. When working out your money priorities, think about which items you need for your basic living expenses and which are extras or things you could do without if you needed to save some money.

expenditure money going out

Ahmed and Zena, for example, want to save up to have a holiday at the end of the year. Ahmed also likes to go out every Friday night and often spends money buying dinner. Zena is concerned about this as she does not believe they will be able to save up enough for their holiday. Ahmed and Zena sat down and worked out a budget to account for all of their spending. They agreed that Ahmed could still go out but not buy dinner every Friday. This allowed them to save an extra $30 each fortnight that they could put towards their holiday. They both decided that they would take their lunch to work each day and to buy a coffee only on the weekends. This allowed them to save another $100 each fortnight.

Setting out a budget

Dina currently has no savings. It's January and she wants to buy a new iPad before the end of the year. It will cost her $650. Dina has a part-time job and works every Saturday morning at the local bread shop. She earns $120 a month and her parents give her $40 a month pocket money. In October she will receive $150 cash for her birthday and $75 at Christmas. Her main spending is $15 a week for her mobile phone ($60 a month). She will also spend $80 on Christmas presents for her family in December and a total of $80 for her parent's birthdays, which are both in May. How long will it take for Dina to buy the iPad?



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Revenue												
Wage	120	120	120	120	120	120	120	120	120	120	120	120
Pocket money	40	40	40	40	40	40	40	40	40	40	40	40
Presents money										150		75
Total revenue	*160*	*160*	*160*	*160*	*160*	*160*	*160*	*160*	*160*	*310*	*160*	*235*
Spending												
Phone	60	60	60	60	60	60	60	60	60	60	60	60
Presents					80							80
Total spending	*60*	*60*	*60*	*60*	*140*	*60*	*60*	*60*	*60*	*60*	*60*	*140*
Revenue less spending	100	100	100	100	20	100	100	100	100	250	100	95
Balance forward each month	100	200	300	400	420	520	620	720	820	1070	1170	1265

Dina can buy her iPad in August.

Handy hints when budgeting

A budget is not very difficult to complete. There are a number of worksheets and budget planners you can use. One website is MoneySmart at www.cambridge.edu.au/hass7weblinks. The Victorian state government and the federal government have a range of online tools to help you create a budget. These include the Victorian government's MoneyHelp budget planner tools and the Australian Securities and Investment Commission's MoneySmart budget planner (find both at www.cambridge.edu.au/hass7weblinks).

Here are a number of helpful hints that will get you started on a budget.

1 *Set realistic goals.* It is important that your budget is realistic. There is no point in aiming to save $200 a week or spend $100 on your phone plan if you don't have enough income to do it. You should also start with achievable goals – start with something simple. You are then likely to reach that goal and feel happy. Make sure that the budget covers all commitments and any bills before spending money on anything else.

It is also important that you can learn to say 'no' and resist the temptation to buy something you cannot afford. To successfully manage your budget, make sure there is some money put away for a 'rainy day' and in case of emergencies. Once you have reached your goals, it also a good idea to set up some 'rewards'. This might mean buying something you would like after your **savings** goals have been met.

savings what is left when spending is less than income or money coming in; can be used for future spending or investments

2 *How much money can I save?* If you have more money coming in than going out, then you are saving money. A budget will show you how much money you are receiving and how you are spending it. A budget might also show where you where you can cut spending in order to save more money.

3 *Reduce your expenses.* If you want to save money, you have to cut back on how much you spend. When you think about your next purchase, consider if it's something you really *need* or if it's just something you really *want*.

Why do budgets often fail? Budgets often fail because people set unrealistic goals. You need to make sure that the budget includes the occasional treat. Some people find it difficult to budget and need to get professional help and advice. Every state in Australia has a government department where people can get help and advice.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 19.2

Part 1

Jake has decided that he would like to buy a car in 18 months' time. He would like to spend about $14 000 on a car. He is worried at the moment as all of his money seems to be spent by the end of the month. He has saved $3500 so far.

- His income is $1550 a month from his apprenticeship.
- He also works for three weeks of the year as a lifeguard over February and earns $500 in total.
- His expenses are:
  - $60 a week for train fares
  - $35 a week for entertainment and going out
  - $30 a month for health insurance
  - $65 a month for a mobile phone plan
  - $70 a week board paid to his parents
  - $50 a fortnight for a gym membership.

(Assume there are four weeks in a month.)

1 Complete a budget for Jake (using the budget set out on page 387 as a guide).

2 How much can Jake save in one year? (Assume the year runs from January to December.)

3 Explain how long it will take Jake to save up for a car.

Part 2

Design a website, pamphlet or poster providing advice and ideas on how to budget and save.

There are a number of places you can get help when trying to set up a budget. Check out the websites for the following at www.cambridge.edu.au/hass7weblinks:

- MoneyHelp. This Victorian government website includes tools and advice about ways to manage financial debt.
- Financial Information Delivered Online (FIDO). The Australian Securities Investment Commission (ASIC) provides tips and advice about budgeting.
- The Commonwealth Bank's SmartStart website has a lot of resources to help your budget.
- Commonwealth financial counselling program. The federal Department of Families, Housing, Community Services and Indigenous Affairs provides free financial counselling services for people experiencing financial difficulty. Go to the website of the Department of Social Security and search for 'financial counselling'.

How can I save for the long term?

Everyone needs to make decisions about what they would like to buy. There is always a need to balance what you would like in the short and long term. Sometimes going without something in the short term – not buying something immediately – will allow you to save money for a larger item in the long term.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 19.3 It is important to know your current spending habits when trying to save for the long term.

Economics and business fact

If you borrowed $16 000 over four years at 9.99% per year, the total interest on the loan would be $4276. By saving some money as a deposit, the loan amount is less and the interest paid is reduced.

If you keep a budget and know what you are spending your money on, it is more likely you will be able to put some money away each week. Once this money is put into the bank it can earn some interest, which will also help with long term goals and savings.

There are a number of steps a person can take to save money:

1 Look at your current spending habits and expenses and work out what the savings goals are.
2 Work out what you are saving for. This should be specific.
3 Creating a budget for each week, fortnight or month.
4 Cut out unnecessary expenses. This might mean bringing lunch from home each day as over time this adds up to a lot of money.
5 Set small targets to meet along the way. If you wanted to save $500, for example, then after every $100 saved you could tick off a goal. You might also put a picture of what you want to save for somewhere so it reminds you of your goal.

19.4 Business goal setting

business plan the formal plan set out by a business or organisation usually for one or more years

Just as individuals have to plan for the future, set goals and manage their needs and wants, so do businesses. One way a business can set goals is through developing a **business plan**.

A business plan is usually made up of a number of parts or components:

- a cover page
- a summary of the main points
- the overall ideals and goals of the business
- information about the business (a profile)
- an explanation of the products sold or services provided
- a marketing plan (how will the business persuade consumers to buy the products)
- a financial plan
- any extra information in an appendix.

If business owners establish a business plan and think about what they want from the business, they are more likely to succeed as it has set clearly defined goals and objectives. Having a long-term goal assists the business in putting aside money and savings for the future.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 19.4 A business plan is made up of many components.

Economics and business fact

The number of business failures in Australia has risen sharply in the past few years. This has been due to a lot of factors such as increased interest rates and the poorer global economic conditions.

RESEARCH 19.1

Use the internet search 'business plan samples' and examine one type of plan. Identify:

- the name of the business
- its location
- the types of product or service produced by the business
- one aspect of the marketing plan.

Present your findings in a report summarising the business plan.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 19.5 The four Ps of a marketing plan are product, promotion, price and place.

19.5 Financial records

All businesses have to keep records. If the business does not have accurate records, it is unlikely to be successful and its owner will have no idea how the business is progressing.

Most records have to include some details so that the business can complete its financial records. This information includes:

- the date of a **transaction**
- the type of transaction; for example revenue or expenses
- the value or amount of the transaction
- the names of those involved.

transaction a record of an event such as a sale or purchase completed by a business

If these documents are not kept, it is almost impossible for the business to keep track of what it is doing.



Source 19.6 An example of a cash receipt

Types of financial records

financial record evidence of a transaction that has occurred in the business

Businesses use different types of **financial records**. This section will focus on small businesses as their records are simpler than those of large organisations.

Cash transactions

Once a business starts operating, it must make sure transactions are correctly recorded. A **cash receipt** is a document that provides evidence of a cash sale. The receipt received

cash receipt a document that provides evidence of a cash sale

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

cash payment a cash transaction where the business has purchased something or paid a bill

by the customer (the business also has a copy of this) is a record of the sale. A business has a **cash payment** whenever it buys something for the business to either sell to customers or to help the business run.



Source 19.7 The purchase of coffee beans to sell to customers is an example of a cash payment. The cash book contains a record of all of the payments and receipts of the business. It sets these out and allows the business to keep track of how much money it has.

Guy's Pet Grooming Service

Cash book for the month ended May 2015

Cash receipts						Cash payments					
Date	Details	Rec. no.	Fees	Pet products	Bank	Date	Details	Ch. no.	Products	Wage	Bank
2/5	Dog bath and full groom	101	250		250	3/5	Wages	122		350	350
7/5	Dog bath and full groom – oatmeal upgrade and flea treatment	102	370		370	10/5	Shampoo	123	154		154
14/5	Pet minding	103	175		175	14/5	Wages	124		295	295
23/5	Shampoo	104		245	245	24/5	Wages	125		250	250
28/5	Cat bath and full groom	105	350		350	30/5	Shampoo	126	95		95
30/5	Total		1145	245	1390	30/5	Total		249	895	1144

Source 19.8 Example of a cash book

Budgets

Just as individuals have to budget, so too do businesses. Budgeting is important because business owners need to estimate expenses and revenue so there is enough money to keep the business is viable. If this is not done, it is difficult for the business to keep track of what is actually happening and what is expected to occur.

Different businesses can budget in different ways, but every budget contains all the expenses the business is likely to incur (for example, rent, wages, electricity bills and wages). Estimates should also be made of how much revenue could be brought in over the period of time. This estimation can be difficult and might have to be adjusted over time once the business has a better idea of what revenue it will get each month.

Businesses should also research to see what businesses in the same industry or geographical area are doing, and speaking to local business owners will also help with the budget. A business might keep a spread sheet (Excel or similar) to estimate the revenue and expenses.

It is important for a business to be conservative in its estimates as sometimes unexpected events occur. Looking at ways to cut expenses and costs

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

is something that can be done when a budget is completed. By setting out all of the spending for the year, the business can look at what might be reduced. Budgets are also set up to change and modify over time – they then become more accurate and will help the business keep track of what it is doing.

DEVELOPING YOUR UNDERSTANDING 19.3

Read the extract below and answer the questions that follow.

Leli and Lilly have started their own small business called the 'A & L Café'. It is a coffee shop in a suburban shopping centre. They are not sure about the amount of sales they will get or how much their expenses will be. Lilly thinks she should complete a budget for the next six months, but Leli does not believe this is necessary.

1 Explain what a budget is.
2 Suggest two reasons why a business should keep a budget.
3 Describe what the business would need to do if it finds that the budgeted expenses are more than the expected sales.

Income statement

profit the amount of money gained when revenue is more than expenses

loss the amount of money lost when revenue is less than expenses

Businesses also use financial reports such as income statements (also known as '**profit** and **loss** statements') to calculate whether they have made a profit or loss during a period of time (usually one year). The profit and loss statement sets out the revenue (sales, fees or income) earned by the business and the expenses or costs associated with earning this revenue. Expenses can include rent, electricity, buying stock or goods to sell, wages and phone services. The difference between revenue and expenses is either profit or loss. If revenue is greater than expenses, a profit is made; if expenses are greater than revenue, the business has suffered a loss.

It is important that all businesses monitor their financial situation. Billabong, for example, suffered a $860 million loss in 2012–13. It has lost nearly $1.2 billion since 2011. While most small businesses would not suffer the same types of losses, it is still important that they are clear about their financial positions.



Source 19.9 Billabong brand's worth decreased from $614 million to $90 million in six months.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 201 Cambridge University
Photocopying is restricted under law and this material must not be tra ed to another party

Economics and business fact

The company ThankYou Group was so small when it began that one of the co-founders originally wore his father's suits and took his P-plates from his car before each of his meetings. The social enterprise now sells around 200 000 bottles of ThankYou Water a month and raises money for water projects in Cambodia, Kenya and Uganda.

Cash flow

cash flow the movement of money coming in and going out of the business

Another important financial concept is **cash flow**. This is the movement of money into or out of the business. It is usually measured over a period of time. Cash flow gives the business an idea of how much money or cash is in the business to pay for expenses.

Cash flow statement **Greensy's Car Wash** **Statement of cash flows for the three months ended 30/06/2015**	
Cash flow from operating activities	**$**
Receipts from customers	75 000
Payments for supplies	(2 400)
Payments to employees	(42 000)
Rent	(19 000)
Advertising	(3 600)
Net cash flow from operating activities (receipts less payments)	8 000
Cash at beginning of period	2 800
Cash at end of period (cash at the beginning plus net cash flow)	10 800

Source 19.10 Example of a cash flow statement

DEVELOPING YOUR UNDERSTANDING 19.4

Determine whether the statements below are true or false. If the answer is false, explain why it is incorrect.

1. All business should keep accurate financial records.
2. Cash flow measures all cash coming in and going out of a business.
3. Businesses should only worry about how much profit they make and not worry about cash.
4. Only large businesses have to keep financial records.
5. Income statements measure income and expenses and calculate profit.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Most people want more than they can afford to buy and have to make choices.
- It is important to learn to manage money and personal finances. This can be done through a budget.
- Developing a budget includes setting realistic goals, reducing expenses and making choices between short term and long term wants.
- Sometimes saving for the long term means going without in the short term.
- Many businesses fail because they do not keep accurate records.
- All businesses (large and small) have to develop business plans and keep financial records.
- A business plan is important and has a cover page, a summary of the main points, the overall goals and ideals, information about the business, the products and services provided, a financial plan and a marketing plan.
- Financial records include cash transactions (cash receipts and cash payments) and a cash book.
- Businesses should keep a budget so that owners can estimate revenue and expenses and plan for this.
- An income statement measures income and expenses. It is also known as a profit and loss statement.
- Businesses should keep track of cash coming in and going out. This can be done through a cash flow statement.

Short-answer questions

1. Explain the difference between long term and short term financial goals.
2. Summarise the benefits of setting a budget.
3. Describe the effects of the different types of goals on consumer choices.
4. List the different types of financial records and provide a definition for each one.
5. Explain three different components that usually feature in a business plan.

Extended-response question

Interview a person (they might be a relative or friend of the family) who runs their own business. Ask them the following questions:

- Who completes the financial records for your business?
- What types of records do they keep?
- Do they have a business plan? If so, what do they include in it?

Once this is done, get into a group of four and compare your answers, and then share this with the other groups. Summarise the discussion and share this with another group.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



20 Characteristics of entrepreneurs and successful businesses

Before you start

Main focus

Where do ideas and new products come from? Why do some people seem to see possibilities for new businesses that other people don't? Businesses are continually developing ideas and looking for new markets to sell their products in. Many successful businesses and well-known products have all started from one person's vision and a great idea. If people did not have the ability to start a new business and be willing to take a risk then many ideas would simply remain an idea. This chapter will look at the behaviours and skills that successful entrepreneurs and businesspeople possess. It will also examine the factors that contribute to the success of local businesses. Successful businesses are important to the continuation of Australia's high standard of living.

Why it's relevant

It is important to have people that develop ideas and come up with new businesses so Australia can continue to be a thriving country. This will ensure that Australia continues to be a prosperous country and enjoy a good standard of living.

Inquiry questions

- What skills and behaviours do entrepreneurs have?
- What factors contribute to successful local businesses?

Key terms

- Communication
- Entrepreneur
- Initiative
- Innovative
- Niche
- Skills
- Vision

Let's begin

Why is it that some people come up with really good ideas and everyone else says, 'What a good idea. I wish I had thought of that!' There are some people who are able to see a niche (or gap) in the market and take action to meet that demand or need.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

20.1 What is an entrepreneur?

entrepreneur a risk-taking person; someone who starts new businesses

An **entrepreneur** is someone who sees possibilities and is willing to take risks to put their ideas into practice. Sometimes entrepreneurs succeed and make large amounts of money, while at other times they fail spectacularly. There are lots of examples of entrepreneurs who have failed and have had to declare themselves bankrupt because their great idea did not work in practice. While many people talk about the skills an entrepreneur might possess, it is often a quality or attribute that a person possesses that allows them to successfully start up a new business opportunity.

Possessing the will to continue to try even after a failure is often the sign of a true entrepreneur. Richard Branson, for example, is the founder of Virgin Airways and is one of the richest men in the United Kingdom. He is well known for his willingness to take risks in business. He started up Virgin Records and grew the record label by signing bands that had controversial reputations. He has gone on the start other businesses such as Virgin Atlantic and Virgin Australia, Virgin Money, Virgin Trains and a new space tourism company called Virgin Galactic, which will take people into space.



Source 20.1 Richard Branson has profited from taking risks.

What skills, attributes and behaviours do entrepreneurs display?

The type of **skills** and attributes entrepreneurs typically possess include:

- developing a vision
- having **initiative**
- being **innovative**
- taking risks
- being enterprising.

skills a set of learned abilities that enable a task or tasks to be carried out well

initiative possessing high levels of creativity and resourcefulness

innovative new, original and inventive

Developing a vision

Vision is considered to be an ability to see the 'big picture' and make connections between possibilities and ideas. Many entrepreneurs are considered to be people with a clear vision who see the way an idea can be put into practice.

vision an idea or big picture and the ability to see possibilities

Having initiative

To say a person has initiative means that they have high levels of creativity, inventiveness, ingenuity and resourcefulness. Entrepreneurs need to be creative and proactive, rather than sit back and wait for an opportunity.

Being innovative

To be innovative means coming up with groundbreaking, inventive and original ideas. Often new inventions and ideas come from a person who has the ability to identify a problem and then come up with a novel solution or **niche** in the market.

niche a position, product or activity that suits particular talents and interests

Taking risks

Entrepreneurs are by definition risk takers. The investment of time, money, energy and resources into converting an idea into reality is a gamble and requires a willingness to take risks as there is no guarantee of success.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Being enterprising

Being enterprising basically means having a lot of 'get up and go', or the independence, energy, ability and enthusiasm to follow an idea or project through to its completion.

All of these characteristics are interrelated. An entrepreneur usually has all or most of these characteristics. It can be difficult to come up with an idea and then have the drive to put the idea into practice.

DEVELOPING YOUR UNDERSTANDING 20.1

1. Visit the BizMove Business Guides website at www.cambridge.edu.au/hass7weblinks and take the Entrepreneur Test.
2. Once you have finished, look at the score you received. Discuss whether or not you are a potential entrepreneur.
3. Compare your score with other students in the class. How many are potential entrepreneurs?

20.2 Examples of successful entrepreneurs

Jason Madelena

Jason Madelena is proof that the mining boom is not over yet. Madelena is the sole owner and managing director of Kalgoorlie-based mining and infrastructure services company Titan Plant, founded in the late 1990s. His personal wealth is now $34 million.

Tim Gurner

Tim Gurner is co-owner of Urban Inc., a major developer of residential properties in inner-city Melbourne. Gurner started his first business, a gym, at the age of 20 and now has a personal wealth of $26 million.

Simon Crowe

Simon Crowe is the founder and main owner of fast food chain Grill'd. Crowe began Grill'd because he wanted to eat burgers that did not make you feel bloated and heavy. The healthy option burger franchise has earned him a personal wealth of $23 million.



Source 20.2 Tim Gurner, co-owner of Urban Inc.



Source 20.3 Simon Crowe, founder of Grill'd

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Tammy May

Tammy May is the founder and public face of MyBudget, a personal finance and debt relief company. MyBudget is a strong business with more potential to grow and increase May's current personal wealth of $20 million.



Source 20.4 Tammy May, founder of MyBudget

Mark Zuckerberg

In 2006, when he was just 22 years old, Mark Zuckerberg, the creator of Facebook, turned down an offer from Yahoo to buy his company for $1 billion. Today he is worth tens of billions of dollars, as a result of his great idea and its spread across the internet.



Source 20.5 Mark Zuckerberg, creator of Facebook



Source 20.6 Markus Persson, creator of *Minecraft*

Markus Persson

Markus Persson is the creator of the simple yet addictive game *Minecraft*. Even before its official launch, *Minecraft* had a strong following. Following the release, Persson became an instant millionaire.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 20.1

Select one of the entrepreneurs mentioned in this chapter, or choose your own. Using the internet, research the success story behind your chosen entrepreneur. Present your findings in a PowerPoint presentation for the class.

In your presentation you should summarise the entrepreneur's:

- qualifications
- business story
- reasons for success.

Economic and business fact

Henry Ford was one of the first entrepreneurs. Ford made the first mass-produced car. He cut prices and risked making a loss. He reduced the number of hours employees had to work and increased their wages. Many employees were then willing to work longer hours when required because they knew they were going to be paid well if they did so.

20.3 How do local businesses become successful?

Many local businesses take a long time to get established and become successful. There are a number of key reasons why some businesses do make it. These reasons include:

- location
- quality of service
- a high-quality product
- good management skills and practices.

Location

'Location, location, location!' is an old catchcry in the real estate industry, highlighting the importance of where a business is located. If a business relies on being close to customers, close to suppliers, or close to transport and infrastructure, then where it is located in relation to these becomes a key consideration when establishing and running the business. Some businesses, such as those that sell goods online rather than from a shopfront, may not see being based close to their customers as an important consideration. However, it may be important to be located close to postal services or transport networks.

DEVELOPING YOUR UNDERSTANDING 20.2

Suggest where the businesses listed below could locate based on the facilities needed. For example, a restaurant would need to have car parking available and perhaps be on a main street so that people driving by might stop. Justify each of your responses.

1. A new hardware shop is opening in a new housing estate.
2. A new fish and chip shop is opening in an inner-city suburb.
3. A new car dealer is going to set up shop in a country town.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Quality of service

Customer service is very important; many people will tell their friends and family if a business has poor customer service. *Choice* magazine published a survey on customer service in major Australian retail stores. 'Shadow' shoppers were used to rate the customer service of 10 of Australia's retailers, including Harvey Norman, Target, Myer and JB Hi-Fi. *Choice* reported that the majority of stores in the survey provided a 'frustrating' shopping experience, with staff often ignoring customers and showing a lack of product knowledge. Follow the link at www.cambridge.edu.au/hass7weblinks to read an article on the report.



Source 20.7 Excellent customer service is necessary for a business's success.

Economics and business fact

A report from the Kauffman Foundation found that entrepreneurs are usually better educated than their parents and that entrepreneurship does not always run in the family.

Tips for delivering customer service excellence

It can cost a business five times as much to win a new customer than to keep a current one. Research shows that emotion is more influential than logic when making a purchase. It is important for a business to provide a special customer experience by being prepared for different customer needs and expectations. The following are important tips:

- Focus on service first.
- Give customers the best experience possible.
- Always work on improving your service.
- Always show the customer respect.
- Managers should encourage their staff and use incentives to help motivate employees.
- Always listen to your customers.
- Businesses should hire good employees.

High-quality product

Being a part of a global economy means that Australian businesses need to be internationally competitive. Providing high-quality products creates a 'win-win' situation for both customers and companies, as these companies tend to enjoy customer loyalty and therefore repeat business, which helps ensure they develop a positive reputation. Customer loyalty leads to more sales as customers will continue to purchase from the business rather than look elsewhere to buy the product or service. If customers are happy with the product or service, they usually pay the price set by the business. Employees usually enjoy working in a 'high-quality' business as relationships with customers are positive, which improves employee satisfaction and motivation.

Good management skills and practices

Businesses are run by people, and the quality of employees and managers is usually the difference between one business and another. Managers need to have a range of skills and expertise that include:

- time management and organisational skills
- planning skills
- **communication** skills

communication
exchanging information

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



- negotiation skills
- delegation skills (passing on authority to employees)
- visionary skills
- decision-making and problem-solving skills.

Source 20.8 It is important for managers to communicate well with their staff members.

DEVELOPING YOUR UNDERSTANDING 20.3

1 Examine the management skills listed above. Choose two of them and explain how a manager could use these skills.

2 Take the Job Test and Job Quiz found on the My Career Quizzes website by following the link at www.cambridge.edu.au/hass7weblinks.

a Discuss what the tests tell you about the type of job you might like to do.

b Summarise the skills you would need for this job.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Reflecting and consolidating

Chapter summary

- Entrepreneurs are typically visionary, have initiative, are innovative thinkers, are enterprising and are willing to take risks. Successful entrepreneurs are often those who have recovered from past failures.
- Successful entrepreneurs are able to see a niche in the market and are willing to risk investing time, money, energy and resources into converting their idea into a successful business venture.
- There are many examples of successful young entrepreneurs who have made millions of dollars by coming up with an idea and then working hard to make it become a reality.
- Location, product quality, customer service and good management skills and practices are all important ingredients in making a business successful.
- High-quality companies enjoy customer loyalty, and therefore repeat business, as customers tend not to shop around when they are satisfied with a business's product and level of customer service.

Short-answer questions

1 Define the term 'entrepreneur'.

2 Explain why countries need entrepreneurs in their economy.

3 Outline what is meant by a gap or 'niche' in the market.

4 Explain why location might be important for some businesses.

5 Describe two management skills and why they are important to the success of a business.

Extended-response question

Read the following article and respond to the statement below.

> As Executive Officer of Saltwater Freshwater Arts Alliance and Creative Director of the National Aboriginal Design Agency (NADA), Alison Page is committed to creating opportunities for economic independence and promoting leadership within her Aboriginal community. She is the owner of a design practice, which was established with a loan through Indigenous Business Australia's Business Development and Assistance Program. Her practice includes interiors and art as well as a jewellery line called 'Diamond Dreaming'. She also graduated from the Melbourne Business School's MURRA Indigenous Business Master Class Program. The experience and knowledge she gained has assisted her in running the National Aboriginal Design Agency.

Source 20.9 MURRA Indigenous Master Class Program graduate, Alison Page

Discuss why governments put programs such as these in place to support people wanting to run their own business.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



21 Working and deriving an income

Before you start

Main focus

Everyone works at some stage in their life. It might be once you turn 15 and get a part-time job, or when you leave school and start working either full time or part time in the workforce. There are many reasons why people work and this contributes to the wellbeing of people and society in general. Work is important for people and there are many ways to get a wage or income.

Why it's relevant to us

While you are not old enough to work yet, you will in a few years' time and members of your family (older brothers and sisters, parents and other relatives) are most likely to be, or have been, in the workforce at some stage. Work enables people to earn income to buy goods and services and allows them to have a good standard of living. Work and employment also contribute to society and the economy at large. When a business employs people, it provides goods and services for the community and also gives opportunities for those in the workforce to have a productive and fulfilling career.

Inquiry questions

- How can work affect an individual's standard of living and happiness?
- How can work affect the economy?
- What are the different ways individuals can generate income; for example, owning a business, being a shareholder or being a landlord?

Key terms

- Better Life Index
- Dividend
- Efficiency
- Negative gearing
- Primary industry
- Productivity
- Salary
- Secondary industry
- Standard of living
- Superannuation
- Tertiary industry
- Wage

Let's begin

Most of the population aged between 18 and 65 years are in, or at some stage have been in, the workforce. Many have either worked as an employee in a business or have owned and run their own business. Australia's standard of living is dependent on the workforce as businesses and employees produce goods to purchase and services to assist the community.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

21.1 Types of employment

conditions of employment that part of an employment contract that sets out the duties, responsibilities, hours of work, salary, leave and other privileges to be enjoyed by employed people

salary a fixed annual (yearly amount) where no extra is paid if overtime (extra hours) is worked

wage regular payment calculated on an amount per hour worked

penalty rates rates of pay that are higher than normal rates and paid for work performed outside normal working hours or in other exceptional conditions

Payment is an important part of the **conditions of employment**. When employed a person may be paid in **salary**, a fixed annual (yearly amount) where no extra is paid if overtime (extra hours) are worked. Or they may be paid **wages**, where employees are paid per hour worked. If they work more than their normal time they are paid at a higher rate. Wage earners are also usually paid extra for working on public holidays and on Sundays. This is known as **penalty rates**.

An Australian employee may be employed as:

- *permanent full time:* usually employed for 35 or more hours a week. This type of employee is entitled to a salary or wages or other benefits such as four weeks' annual leave at full wages, superannuation, long service leave and paid sick leave.
- *permanent part time:* a permanent employee with all of entitlements to holidays and sick leave of a full time employee, but works less than 35 hours per week. This type of employee is guaranteed a set number of hours of work.
- *casual:* called in to work by an employer when required. A casual employee is not entitled to employment benefits such as sick leave and annual leave but will usually be paid a higher hourly wage than a permanent employee to compensate. More than 25% of Australia's workforce is in casual employment.
- *fixed-term contract:* employed for a set period of time; for example, six or 12 months. Fixed-term employees are often employed to replace employees on leave.

Economics and business fact

On 21 April 1856, stonemasons at the University of Melbourne marched to Parliament House to push for an eight-hour working day. An agreement with employers for a 40-hour week was eventually reached in 1948 and Australian workers welcomed the new divisions of the day: eight hours' work, eight hours' recreation and eight hours' sleep.

Source 21.1 When employed a person may be paid by salary or wages.



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

21.2 What kind of work do Australians do?

efficiency a measure of how well resources such as time, money, materials and labour are used

productivity the amount of output produced from a given amount of input, measured over time

Australians participate in a range of activities in the economy. If no one worked, it would mean that Australia would have to bring in all of its products and goods from overseas and there would be no one to provide services to the population.

When Australians work, it allows them to provide goods and services and earn a wage or salary. It also allows for Australia as a nation to become more productive. Being productive or having good **efficiency** means a business and the country as a whole will be able to use its resources and can increase **productivity**.

People in Australia are usually employed in the **primary**, **secondary** or **tertiary** sectors of the economy.

primary industry the industry that relates to farming and raw materials

secondary industry the manufacturing part of the economy

tertiary industry the service part of the economy

Sector	Explanation	Examples
Primary	This is the sector of the economy relating to the agriculture and raw materials.	Sheep, dairy and wheat farming Mining of minerals
Secondary	This sector relates to manufacturing industry where goods are made.	Car manufacturers such as Ford and Toyota Food companies such as SPC and Mars
Tertiary	This sector covers service businesses such as education, finance and hospitality.	Hairdresser Accountant Chef

Source 21.2 Sectors in the Australian economy



Source 21.3 An example of a business in the tertiary sector



Source 21.4 An example of a business in the primary sector

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.





Source 21.5 An example of a business in the secondary sector

DEVELOPING YOUR UNDERSTANDING 21.1

1. Survey three people and ask them what their occupation is.
2. Classify this as primary, secondary or tertiary industry.
3. Compare your results with those of other students in the class. As a class total the number in each sector and then graph the information. You may wish to do this using a spreadsheet.

RESEARCH 21.1

Imparja Television is a Nothern Territory and South Australian Indigenous shareholder-owned broadcasting station in Alice Springs, operating since January 1988. It helped with the creation of National Indigenous Television (NITV) and now provides broadcast services via satellite to Indigenous Community Television (ICTV) as well as 10 Indigenous radio stations.

Source 21.6 Imparja Television

Nine Imparja has the largest broadcast area in Australia, covering 3.6 million square kilometres across six states and territories with an estimated audience of 430 000 people. It comes free-to-air and competes with the national market for advertising revenue.

Read about Imparja Television at its website at www.cambridge.edu.au/hass7weblinks.

Answer the following questions:

1. Identify what industry this business belongs to.
2. Explain where the business gets its revenue from.
3. Using your findings and information from the website, design a brochure to advertise Imparja and help them compete for advertising revenue.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

21.3 How can work affect an individual's living standard?

Most Australians in full-time jobs work a 38-hour week, although many work longer hours than this. This means people spend a lot of their time at work. It is important, therefore, that a person enjoys his or her job and feels that he or she are contributing to society as well as being paid a wage or salary.

Having a job influences a person's life in many ways. It affects the material standard of living of a person (and often their family), their happiness and their non-material standard of living.

What is meant by 'standard of living'?

standard of living the level of material welfare of a community, class or person

The concept of the **standard of living** is an important one and can mean many different things. It depends on whether you are looking at the amount of income or wealth a person has (an economic concept) or whether you are looking at non-economic aspects. In an economic sense the concept of 'standard of living' can be defined as the level of material welfare of a community, class (social or economic group) or person.

One of the most common measurements of the standard of living is **Gross Domestic Product (GDP).** It measures the total value of goods and services produced in a country in a given period of time, usually one year. By looking at total GDP you can get an idea about the amount of goods and services available to the population. Using GDP per capita (per person) gives an even better idea of the standard of living in a country as it measures the goods and services available for each person within a country. In Australia the standard of living is generally considered to be high. There are, however, some differences within the population: some people have a high standard

Gross Domestic Product (GDP) a measure of the total value of production of goods and services in an economy over a period of time (usually one year)

Source 21.7 Melbourne, one of the world's most liveable cities, has a high standard of living.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 21.8 The standard of living in Australia is considered high. Unfortunately, not all countries are as lucky.

Economics and business fact

The gross domestic product value of Australia represents 2.45% of the world economy.

of living whereas other people in Australia have poor or low living standards. Overall, Australia is a prosperous and successful country. It is recognised around the world for the general wellbeing of the population, good educational facilities, good health services and a relatively low crime rate.

For a country to enjoy a high standard of living it is important that productivity levels are high and that businesses can be competitive. Productivity can be defined as how much output or product can be made with a certain number of inputs. If inputs such as parts, labour, equipment and buildings are used to produce a large amount of goods or services, a system is said to have high levels of productivity.

Better Life Index an index used to assess the quality of life in a country based on a number of different indicators

Other measures are important, as material wellbeing is only one indicator of a person's quality of life. One is the **Better Life Index**. Australia ranks among the top countries under this index. This index measures the quality of life in a country based on a number of different indicators. These include:

- dwellings with basic facilities
- housing expenditure
- rooms per person
- household income
- personal earnings
- household net finances
- household wealth
- employment rate
- job security
- long-term unemployment rate
- quality of community support
- education levels
- student skills
- years in education
- air pollution
- water quality
- involvement in rule and law making
- voter turnout
- life expectancy
- life satisfaction
- safety
- work–life balance.



Source 21.9 Air pollution is one of the indicators of the Better Life Index. Residents in Beijing, China, constantly struggle with air pollution.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 21.2

Visit the OECD Better Life Index at www.cambridge.edu.au/hass7weblinks and answer the questions below.

1 **a** Identify where Australia ranks on the following topics: education, community and environment.

b List one fact or feature for each area you have looked at.

2 Identify the average life expectancy in Australia.

3 Describe the level of education and student skills in Australia.

4 Discuss why an index like this would provide more information than a measure that only looks at one economic indicator, such as level of income.

What is the link between work and a country's standard of living?

If people are able to get a job, they can make sure that the whole population has a better standard of living. It also stops them from falling into poverty. As our economic or material standard of living depends on how much we earn – it allows us to access goods and services such as housing, a car, food and consumer items – it is important that people have access to jobs and income. The more income a person earns, the greater access he or she has to material goods and the higher is his or her standard of living (in economic terms). On the other hand, members of society who have limited access to a job often have little income or money and this influences the amount of goods and services they can buy, and also affects their standard of living. While Australians generally enjoy a high standard of living by international standards, there are some people in this country who have a relatively low standard of living. Some members of our community are living in poverty.



Source 21.10 Even though Australia has a high standard of living, there are still people living in poverty.

Economics and business fact

In terms of employment, in Australia over 73% of people aged 15 to 64 years have a paid job. However, there is a considerable gap between the richest and poorest – the top 20% of the population earn six times as much as the bottom 20%. Fourteen per cent of employees work very long hours in Australia.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

What is meant by poverty?

Poverty can be defined as a person or family being poor – lacking the means to provide material needs or comforts. Poverty means that people have a low standard of living compared to the rest of society. They cannot afford to buy things that most people in the community can afford. There are different types of poverty; these are **absolute** and **relative poverty**. In Australia there is relative poverty. This is when people are considered poor as their living standards fall below a community-accepted standard. It also means that these people cannot participate in activities that others consider normal. In Australia unemployment is a major cause of poverty.

relative poverty the state of poverty where people fall below a community-accepted standard of wealth

absolute poverty the state of poverty where someone does not have adequate food, clothing or shelter

Economics and business fact

The poorest 40% of the world's population have only 5% of the world's income and the richest 20% have 75% of the world's income.

In some countries there is absolute poverty. This means people have nowhere to live and no food. In some developing countries people can die from starvation.

21.4 How can individuals generate and earn income?

There are a number of ways people can gain (or generate) income. Some of the ways include:

- owning a business
- dividends from shares
- owning a rental property.

Owning a business

Many people decide to establish and run their own business. There are a number of reasons why people decide to do this. Some of these include:

- being your own boss
- flexible hours of work
- being rewarded for your hard work
- being able to introduce a new idea or product.

Being a successful business owner allows the owner to gain an income and profit from his or her own hard work and ideas.



Source 21.11 There are many benefits to owning your own business.

Economics and business fact

Small businesses are important to Australia as they make a significant contribution to the economy. Nearly 70% of the Australian workforce is employed in a small business. The states with the largest populations have the largest number of small businesses.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 21.3

Read the following information and answer the questions that follow.

The following franchises present business opportunities for people to run their own business with the support of a company that provides training and a recognisable product. The number of people operating franchises in Australia is increasing as they allow someone to run a business with backup and support provided.

Example 1

Gametraders
United in play

Source 21.12 Gametraders

Gametraders specialise in buying selling and trading video games of every format from the Atari and Super Nintendo to the latest systems. We also sell a broad range of gaming related accessories such as figurines, pop culture, Anime, Manga and trading cards. The Gametraders Live concept incorporates the above plus exciting activities such as trading card tournaments.

Gametraders Live

We are extremely proud to announce our new concept franchise stores, Gametraders Live.

Gametraders Live is best described as a gamers and cosplayers paradise. They are big and there will be plenty of activities and things to do. There are sofas for our guests to relax and interact, snacks, coffee, drinks, activities, events, film nights and much more.

Source 21.13 Gametraders Live concept franchise stores

Example 2

At Wendys, we've grown a successful franchise brand on the back of a deliciously simple strategy: give people what they want, and make it fun. It's an uncomplicated approach backed by a serious, results-driven business.

We've been serving our irresistible range of treats to thousands of customers every week for more than 30 years …

Wendys

Source 21.14 Wendys

Source 12.15 Wendys franchises

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

1 Explain two reasons why someone might buy one of the franchises listed above.
2 Which franchise would you buy? Give two reasons for your choice.
3 A franchise allows someone to run their own business with an established brand. Suggest why this would be seen as a positive thing.

Dividends from shares

dividend a payment made by a corporation to its shareholders, usually as a distribution of profits

A shareholder is someone who purchases shares in a company. Most people purchase shares in large companies that are listed on the Australian Stock Exchange. Once shares are purchased, shareholders often gain **dividends** (money given to shareholders when the company makes a profit). If someone is able to buy shares in different companies, over time he or she can gain income.

RESEARCH 21.2

Use a newspaper or visit the ASX website at www.cambridge.edu.au/hass7weblinks, browse through the information and research five different companies.
1 What is the share price if you bought or sold these shares?
2 Has the share price gone up and/or down during the last 12 months?
3 What was the amount of the last dividend given by the company?
4 Choose one of the companies you researched and put the information into a short report about its shares.

Owning a rental property

Many Australians buy a house, shop, factory, unit or apartment and then rent or lease it to someone else. This allows the owner to gain income as the owner is paid a rental fee. There are a number of expenses associated with owning a rental income: insurance, rates, maintenance of the property and paying a real estate agent to manage the property, to name a few.

negative gearing a way to reduce your tax bills because any expenses more than the rental income can be claimed as a tax deduction against other income you might receive

A rental property can also be attractive to some people as they are able to **negatively gear** the property if the rental income is less than the expenses generated from the property. This means that expenses can be claimed against taxable income. If there is a loss, a tax refund might be gained because total income is reduced.



Source 21.16 Renting out property results in the owner being paid rental income.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

RESEARCH 21.3

Go to a website such as realestate.com.au (see www.cambridge.edu.au/hass7weblinks) and find out how much it would cost to rent a house or apartment in your suburb or local area.

1 Calculate how much this would be over one year.
2 List three possible expenses you might incur if you owned this property.

21.5 How do retired people earn an income?

The population in Australia is ageing and more people are working into their late 60s and early 70s. Even though people are working longer there is still a need for them to save enough money to live on once they do not receive an income. According to the *Australia to 2050: Future Challenges* report produced by the Australian Government, the median age has increased by 4.3 years over the last 20 years. It has increased from 33 in 1993 to 37.3 in 2013. Over the next 20 years the population will age even more.

Because of this ageing population, an increasing number of retirees will need to be supported by a smaller workforce. It is therefore important that people plan and try to support themselves in retirement. There are a number of ways people past retirement age can earn an income. These include:

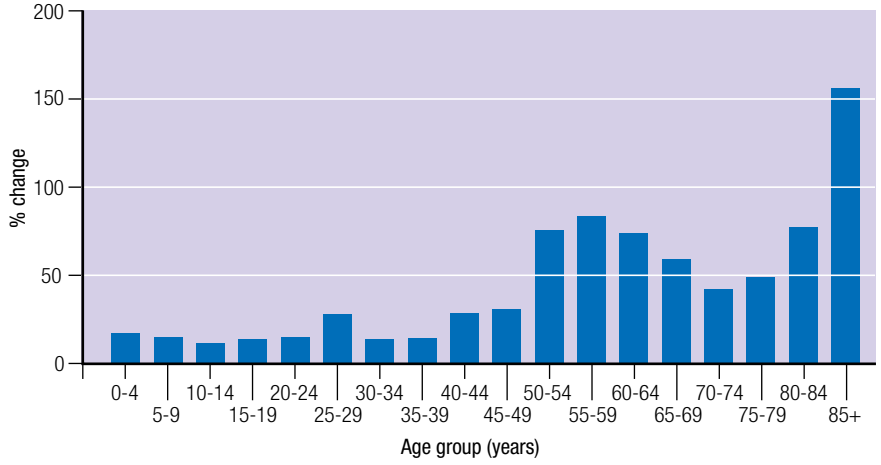
- age pension
- superannuation
- private savings.

Age pension

In Australia, the federal government ensures that all people over retirement age have access to a pension if they cannot support themselves. The range of pensions include:

- age pensions
- disability support pension
- sickness and mobility allowances
- wife pensions
- widow pensions
- bereavement allowances
- carer payments and allowances.

There are eligibility requirements for the pension. The Department of Human Services states that to access a pension females have to be aged over 64.5 years, and males 65. All recipients have to pass an income and assets test (this means the amount of assets or items people own has to be below a certain amount).



Source 21.17 Population change by age group, 1993–2013

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Superannuation

superannuation financial contributions made during working life to fund retirement

Superannuation is a way of saving for retirement. People can make contributions while they are working, and employers must also contribute around 9% of an employee's wage or salary. These contributions accumulate (collect) over time. The money is invested by superannuation funds in shares, property and government bonds, and upon retirement allows for an income stream or regular amount of money coming in from the superannuation fund.

Private savings

Sometimes those who have participated in the workforce for a long time and have made wise investment decisions or have been able to save a significant amount of money over their working life may be able to live off the interest generated by their investments or savings, providing them with a steady income stream.



Source 21.18 Age pension, superannuation and possible private savings provide a source of income to retired individuals.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Reflecting and consolidating

Chapter summary

- Most people between the ages of 18 and 65 years are, or have been, in the workforce.
- An employee is paid either a salary or wage and can be employed permanently part time or full time, casually or on a fixed-term contract.
- Employment can improve the standard of living of individuals and the country as a whole.
- There are different sectors in the economy: primary, secondary and tertiary.
- Standard of living can be defined in a number of economic and non-economic ways.
- Individuals can also gain income through:
  - owning a business
  - dividends from shares
  - owning a rental income.
- Retired people earn an income through age pension, superannuation and possibly private savings.

Short-answer questions

1 Explain the following concepts:
   - **a** wages
   - **b** salary
   - **c** dividends.

2 Describe why the standard of living is measured in different ways.

3 Suggest how employment and people working can improve the standard of living for Australians.

4 Explain the differences between permanent and casual employment.

5 Compare the differences between a wage earner and a salary earner.

Extended-response questions

1 Go to the Australian Taxation Office (ATO) by following the link to www.cambridge.edu.auand research the following areas:
   - **a** Calculate the income tax rates for the current financial year (1 July to 30 June).
   - **b** Calculate how much tax you would pay if you earned $53 000 a year.
   - **c** Explain why the tax rate goes up the more money income a person earns.
   - **d** Identify the company (business) tax rate in Australia.
   - **e** Construct a mind or concept map (you can use a website such as Text 2 Mind Map – find it at www.cambridge.edu.au/hass7weblinks) to set out the different types of tax an individual could pay.

2 Present all your information in a short report aimed to educate others about the ATO and paying their taxes.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Civics and citizenship

Citizenship, diversity and identity

Who are Australians?

multicultural referring to the preservation of different cultures and cultural identities within a unified society (such as Australia)

Australia is a **multicultural** society, with a rich diversity of people from many different backgrounds. According to the Australian Bureau of Statistics there are 25 million people living in Australia. Of those people, 24% were born in a different country and 43% have at least one parent who was born in a different country; 455 026 (2.3%) of the population are Aboriginal or Torres Strait Islander peoples. Despite the presence of convicts in our early colonial history, only 20% of contemporary Australians have convict ancestors.

Many Australians speak more than one language and over 15% of the population does not speak English at home. There are over 200 different languages spoken in Australia.



Source 7.3.1 Was Steve Irwin a good representation of a typical Australian?

multi-faith supporting many different religions and beliefs

secular not related to religion; a secular society is one that is not governed by religious laws

Australia is also a **multi-faith** and **secular** country. The term 'secular' means that the government, law and order are separate from religion or faith. The government cannot enforce a religion or faith by law. All people living in Australia have the right to freely practise any religion or faith. Religious diversity is one example of multiculturalism in Australia. Over 14 different religions are practised across the country. Approximately 18% of the population does not practise any religion or faith. The largest religious group is Catholicism (63%) and the smallest religious group is Judaism (0.7%). The fastest growing religion in Australia is Buddhism, which has increase by 109% between 1991 and 2006. Based on this information, there is no such thing as a 'typical' Australian!

Values in Australian society

'Values' is a very important concept for any country, organisation or group of people. Values are the beliefs and morals that members of a community think are worthwhile and important. It is through shared values that a community is formed. Your school may have its own values that identify what your school community acknowledges as important.

Australians are well known for valuing giving everybody 'a fair go'. This slang saying has roots in several different values: equality, compassion, respect and inclusion.

As of 2007, new citizens and new residents to Australia have to sign a 'Values Statement' which outlines the ideals that the Australian community upholds. Applicants are asked to read the *Life in Australia* booklet, which outlines Australian history, cultural practices and social values. The 'Values Statement' was introduced to help new

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

residents settle into the Australian community. According the *Life in Australia* booklet, the values of the Australian community are:

- respect for the freedom and dignity of the individual
- equality of men and women
- freedom of religion
- commitment to the rule of law
- support for parliamentary democracy
- a spirit of egalitarianism that embraces mutual respect, tolerance, fair play, compassion for those in need and pursuit of the public good
- equal opportunity for individuals, regardless of their race, religion or ethnic background.

The First Peoples

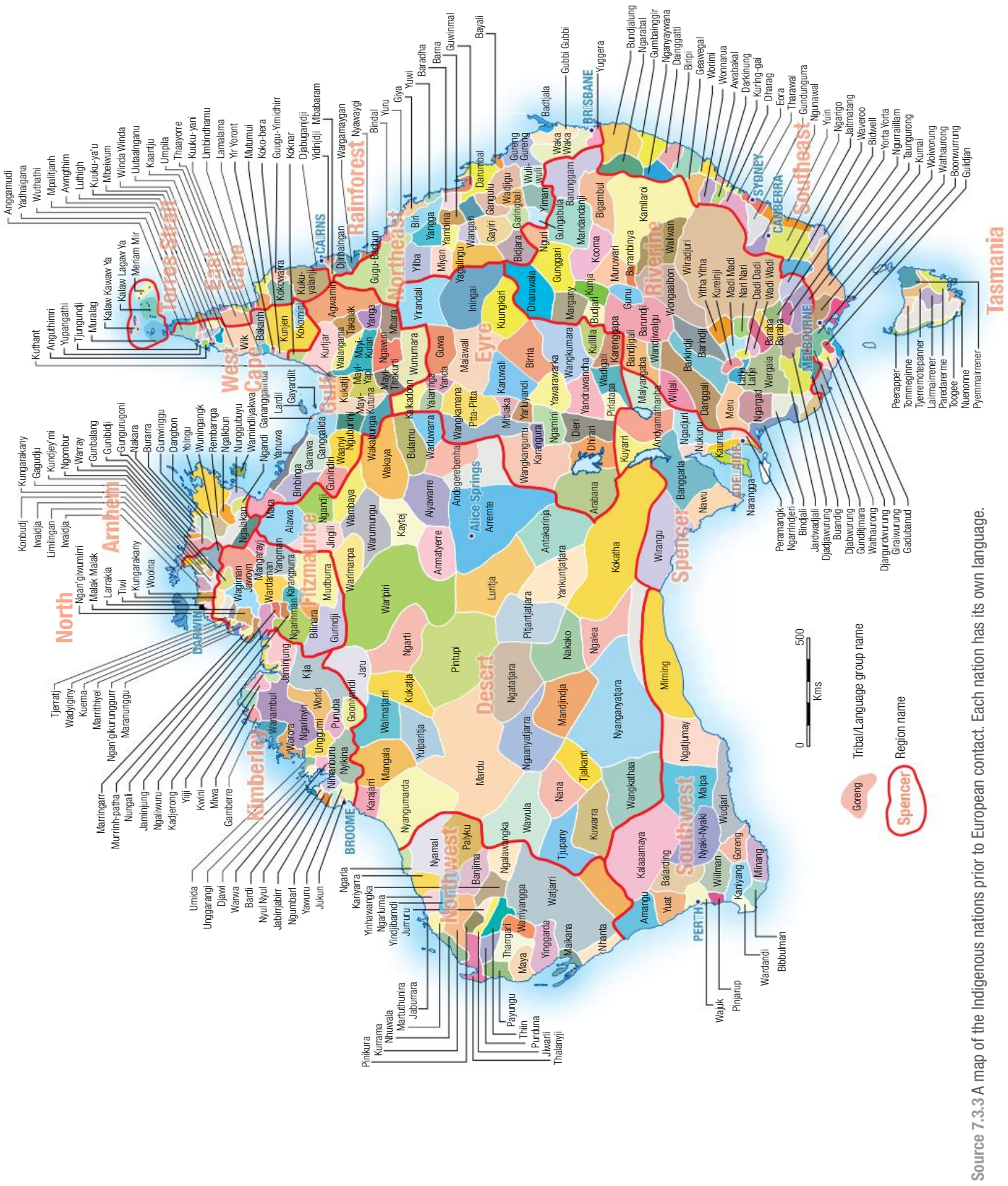
Australia is an ethnically and linguistically rich country. However, it is also the country with the highest amount of extinct languages. Before the European arrival to Australia, there were estimated to be 350–700 different languages spoken by Aboriginal and Torres Strait Islander groups. Currently, only 150 languages remain and of those only 20 are safe from extinction.

Contemporary Australia places a high value on the culture and identity of Aboriginals and Torres Strait Islander peoples and has dedicated many different sites and cultural activities that protect and celebrate Indigenous Australian identity. Indigenous culture and migration to Australia have had a long and difficult history. Locations such as Birrarung Marr are a small step towards reconciliation. Birrarung Marr is an inner-city park between the Yarra River and the Melbourne CBD. The park is designed to be a celebration of Aboriginal and Torres Strait Islander peoples' culture through the inclusion of Indigenous artwork and the playing of recordings by members of the Kulin nation (the traditional name for the Melbourne area).

Source 7.3.2 Pedestrian bridge at Birrarung Marr, Melbourne



ISBN 978-1-107-43510-0 © Malcolm McInerney et. al 2014 Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.



Source 7.3.3 A map of the Indigenous nations prior to European contact. Each nation has its own language.

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

DEVELOPING YOUR UNDERSTANDING 7.3.1

1 Define the key terms 'secular', 'multicultural' and 'multi-faith' in your own words.

2 Present and analyse the following data on most commonly spoken languages other than English in Victoria.

Language	2011	2006
Italian	124 856	133 326
Greek	116 802	117 875
Mandarin	103 743	64 375
Vietnamese	86 592	72 161
Cantonese	72 903	66 853

a Create a bar graph which outlines the data and highlights the change in languages spoken in 2006 and 2011.

b Outline which languages have had an increase in use and which have decreased.

3 Investigate one way that your local community acknowledges and values Aboriginal and Torres Strait Islander cultures.

4 Conduct an interview with a relative, friend or teacher who was born in a country different from Australia (or has a parent born in a country different from Australia). Investigate the reasons why the person moved to Australia and the values they think are important to Australian society. Report your findings to your class.



ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Glossary

GEOGRAPHY

abrasion erosion caused by the rocks that are carried along by water

aesthetic relating to the nature and appreciation of beauty

aesthetic values the values or appreciation placed on something due to its beauty

affinity a natural liking for or attraction to a particular person, place or idea

affordability the extent to which people are able to pay for something, such as housing

agriculture the farming of animals and plants (crops)

algal bloom the build-up of algae that can destroy ecosystems

alluvial made up of material from the water of rivers and/or floods

aquatic relating to water; for example, in reference to plants, animals or activities

aqueduct a human-made channel or passage for conveying water

aquifer a geological formation conducting or containing groundwater that can supply water to wells or springs

arid having a severe lack of rainfall – below 250 millimetres per year

ashram a building where people (mainly Hindus) practise yoga, meditation and other spiritual activities

atmosphere the gaseous envelope surrounding the Earth; the air

baptism a ceremony purifying the spirit through contact with holy water

biodiversity the number and variety of species of living things within a region

biosecurity the protection of humans, other animals and plants against diseases or other harmful biological agents

biosphere the ecosystem comprising the Earth and all living organisms that inhabit it

blue water freshwater in lakes or rivers

brackish water water that absorbs salts from the soil but has a lower salt content than seawater

catchment (or drainage basin) the total area where water from precipitation collects and drains downhill into a body of water such as a river, lake or ocean

centrality the attractiveness of an urban place in terms of accessibility, functions, facilities and activities

civic planner someone who plans the layout, development and growth of cities and urban areas

climate change a gradual change to the world's current climate state that may affect the future of the planet

commodity a resource that can be bought and sold

communicable diseases infections and diseases that can be transmitted from one person to another

community a group of people sharing the same locality or similar interest

community needs necessary conditions for the best role, development or wellbeing of the community

condensation the process whereby water molecules join together and so change from a gaseous to a liquid state

condenses changes from vapour to liquid

conducive favourable, helpful

conservation preserving and restoring resources from loss, damage or neglect

continuous resources resources that are in no danger of being used in excess of their long-term availability

coolamon a basin-like dish made from wood or bark

country the Aboriginal concept of place, which includes all aspects of the environment, including life

cubic metre the volume of a cube with its edges 1 metre in length (equal to 1000 litres)

cultural value the emphasis placed on something for its importance and place in society, such as the inclusion of water in rituals, heritage and the Dreaming

debris the remains of something that has been destroyed or broken up

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

decentralisation the process in which population and industry move from an urban centre to outlying districts

degradation a reduction in the quality of an environmental resource

demographic a group of people with a particular shared characteristic

demographic profile a collection of demographic information used to create a mental picture of the average member of the population

depletion a reduction in the quantity of an environmental resource

deposition the laying down of sediments that have been transported by water or wind

desalination plants factories that convert seawater, through a complex scientific process, into fresh drinking water

developing countries poorer countries of the world that are seeking to become more advanced economically and socially

disparity the state of being unequal

distribution how something is shared out among a group or spread over an area

diversion the transporting of water away from a river, normally for the purpose of irrigating farmland

drought a shortage of rainfall over an extended period of time

economic value a dollar amount placed on an asset to show how much it is worth

economic water scarcity a situation in which a place has adequate local supplies to meet water needs, but lacks money to create the infrastructure for the population to access safe drinking water

economies of scale a fall in average costs resulting from an increase in the scale of production

ecosystem a community of living things, including animals, plants and microorganisms

elevation height above sea level

enclave a small, distinct area or group that is enclosed or isolated within a larger one

environmental relating to the physical environment

environmental conservation preserving and restoring the environment to ensure no further degradation

environmental resources natural resources that have originated directly from the biophysical environment

environmentalist a person who acts to preserve the quality of the natural environment

erosion the wearing away of the surface of the Earth by the action of wind and water

estuaries bodies of water formed where freshwater from rivers and streams flows into the ocean, mixing with the seawater

ethnicity a person's racial or cultural background

evaporates changes from liquid to vapour

evaporation the part of the water cycle where water changes from liquid into a gas and escapes into the atmosphere

evapotranspiration the process whereby water travels up through plants and is released into the atmosphere by evaporation

expressionist art an art movement that uses distorted forms to create intensity and express heightened emotions

fjord a long narrow inlet with steep sides or cliffs created by glacial activity

flood a large overflow of water that drowns areas of land, usually causing extensive damage to those areas

flood plain low-lying land along river valleys, lakes, and coastlines that is subject to flooding

functions certain purposes or activities

geopolitical power the political influence exerted by a place on the surrounding region

ghats steps leading to the banks of a river

globalisation the process by which the world is becoming more interconnected, with an increase in social and economic integration between countries (e.g. an increase in international trade and communication)

green space an area of grass, trees or other vegetation set apart for recreational purposes in an urban environment

green water moisture in the soil

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

groundwater water that is located beneath the Earth's surface

hazard a situation that poses a threat to life, health, property or the environment

hydraulic erosion erosion caused by the power of water and gravity

hydroelectric the use of flowing water to generate electricity

hydrological hazard a hazard associated with water that has the potential to cause death, loss of possessions and loss of crops, leading to famine

hydropower the generation of energy by harnessing the power of water

hydrosphere the water on or surrounding the surface of the globe, including water in the atmosphere

hydrotherapy treatment to manage pain and increase movement of the body via the use of water and gentle exercises while immersed

impressionist art art characterised by short brush strokes of bright colours that tend to blend together smoothly when looking at the finished piece from a distance

industrialisation the modernisation of a country, involving large-scale infrastructure development, economic growth and a movement towards more efficient, mechanised methods of production

infiltration the process in which water on the ground surface soaks into the soil

infrastructure structures and services needed for society to operate properly, such as transport, water supply, health services and education systems

intertidal zone the area at the edge of a body of water (e.g. the ocean) that is exposed at low tide and underwater at high tide

investment spending money on something for a financial reward or return

irrigate to water farmland using water that has been diverted (e.g. by human-made channels) from the river system

kin people closest to you related by blood; kinship usually refers to family

lithosphere the solid portion of the Earth made up of the crust and upper mantle

liveability conditions in a place that make it easy or difficult to live there

low pressure system a weather pattern in which atmospheric pressure at sea level is below that of surrounding locations

mangrove tree a type of tree with unique features that enable it to grow in intertidal zones or estuaries

megalopolis a long continuous urban area

Mesopotamia the region around the Tigris and Euphrates rivers – modern day Iraq

meteorologists people who study weather and climate

multicultural describing a society that reflects and is open to many different cultures

Newstart part of the system of social welfare payments for financial help provided by the Australian government

noise pollution annoying and unpleasant levels of sounds, such as from aircraft or traffic

non-renewable unable to be naturally replenished and sure to be used up at the human rate of use

non-renewable resources resources that cannot be replenished in a human lifetime

patronage customers paying for goods or services

peninsula a piece of land going out into water from a larger land mass

periphery the edge or outskirts

photosynthesis the process by which plants convert solar energy and carbon dioxide into glucose and oxygen

physical water scarcity a situation in which a place lacks local supplies of water to sustain current standards of living

precipitation water that falls from clouds and may be in the form of rain, hail, snow or sleet

public servant a person who holds a government position by election or appointment

public transport a form of transport that can be used by any member of the public, whether free of charge or for a fee

recreational value the emphasis people place on something in terms of its leisure purposes and enjoyment

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

remoteness distance

renewable able to be naturally replenished and not be completely used up at the human rate of use

renewable resources resources that can be replenished in a relatively short amount of time through reproduction or other biophysical processes

respiration inhalation and exhalation of air by humans and animals; breathing

reticulated sewerage the system of pipes and drains that takes raw sewage from a dwelling to a sewage treatment plant, removing the need for open channels that smell and are unhygienic

riparian relating to the banks of or near a river

river mouth the end of the river system where water exits into a sea or lake

river regulation the building of dams and other structures so that people can regulate (control) the flow of water through the river system

run-off water (from precipitation) that flows over the land and collects in rivers, lakes, seas and oceans

salinity the salt content of water

saltwater describing a group of Indigenous people from the north of Australia in an area marked by coastal and marine environments, including mangroves and coral reefs

sanitation the provision of adequate facilities such as toilets, and services such as garbage collection, to promote community health and hygiene

sea changers colloquial term for people who opt for a perceived improved quality of life by moving to the coast

sediment material eroded from the land and river banks and deposited elsewhere

self-determination the essential right of all people to freely decide their own political status and to freely pursue their own cultural, economic and social development

semi-detached houses two houses that are joined by a shared wall

settlement a settled community

settlement hierarchy an ordering of settlements by their size and population. Settlements at the top of the hierarchy, such as large cities, are few in number but hold more status, power and influence. Settlements further down the hierarchy are smaller in size and influence, but greater in number.

severe storms storms, including thunderstorms and cyclones, that cause serious damage to the country

shaduf a device used in Egypt and other Eastern countries for raising water, especially for irrigation, consisting of a long suspended rod with a bucket at one end and a weight at the other

social activist a person involved in a campaign to promote change, stop change or direct change associated with social issues and policy

socio-cultural relating to both society and culture

specialisation of labour labour where the workers spend time in only one area of work

sphere of influence an area over which a place has influence; how far people are willing to travel for a particular service

storm surge ocean water that is pushed onto land by the effects of a severe storm or cyclone

streetscapes views of streets, including the road, connecting buildings, trees and open spaces

subculture a group of people who share characteristics that are different from those of the rest of society

sustainability the wise use of resources so they are available indefinitely into the future; society, environment and economy must all be carefully considered

terra nullius land belonging to no one

terrace farming a farming method in which a series of steps (terraces) are levelled on the side of a hill or mountain for agricultural production

terraces rows of houses that share their sidewalls with the adjacent houses

topography the shape of the land

transpiration the process by which plants lose water to the atmosphere

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

transpire to absorb and release heat as water evaporates from plant leaves or animal skin (thereby cooling the plant or animal)

transportation the process of moving along sediments (rock materials and soil) by water or wind

tree changers colloquial term for people who opt for a perceived improved quality of life by moving to the countryside

tributaries smaller rivers that flow into larger rivers

tropical cyclones storms that form over the ocean as a result of warm waves, clouds and low air pressure

troposphere the atmospheric layer closest to the ground, containing 99% of the atmosphere's water vapour

tsunami an ocean wave, sometimes large, caused by an undersea earthquake, volcano, landslide or other disturbance

urban consolidation building up existing urban areas rather than moving people to the edges of the city

urban sprawl growth of housing on the edge of a city

urbanisation the process whereby more and more people are coming to live in towns and cities

urbanised having a higher proportion of people living in towns and cities than in rural areas

water cycle the continuous cycling of water through the Earth's spheres via processes of evaporation, condensation, precipitation, run-off and infiltration

water scarcity a situation in which there is insufficient water to maintain current standards of living

weathering the loosening of rocks by chemical or physical processes

wharf a human-made landing place for ships on a shore

woomera a notched stick used to propel spears or darts

HISTORY

abacus a wooden calculating machine

afterlife the second stage of life, when the souls of the dead go to another world

agoge Spartan education system

agriculture cultivating the land, producing crops and raising livestock

alchemist a person who practised an early, unscientific form of chemistry that sought to change base metals into gold, and discover a life-prolonging elixir and a universal cure for disease

alluvial relating to soil that is carried and deposited by water, usually by rivers in flood

antecedent something that happens or exists before something else

anthropologists researchers who study humans and their societies by concentrating on culture

aqueduct structure designed to transport freshwater to cities

arable able to be cultivated for the growing of crops

archaeologists researchers who study cultures, especially ancient civilisations, by excavating and describing their remains

archaeology the study of the past through excavating and interpreting the remains found

artefact object made by humans

***asrama* system** Hindu pathways to a religious life involving study, and purity of thought and action

assembly a group of people with the power to vote on the decisions of the Senate

Attica region in east-central Greece that had Athens as its *polis*

ballast man a person who organised the load in the bottom of a ship so that the ship was balanced

barbarians people who live outside the limits of the society and are therefore believed to be uncivilised and primitive

Brahmin highest order or *varna* within the Aryan social system; Brahmins are the priests and teachers

Bronze Age the period when humans began to make items out of bronze

bronze smelts sites where a process of melting copper and tin, and combining them under high levels of heat to produce bronze, was carried out

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Buddhism a religion that has a variety of beliefs, practices and traditions based largely on the teachings of Siddhartha (the historical Buddha)

bureaucracy a system of government where state officials make the important decisions

Canaan a region that in ancient times was on the eastern Mediterranean, covering parts of modern-day Israel, Jordan and Lebanon

carp a type of large freshwater fish with a single fin on the back

caste a word later applied to the *varnas* formed by the Aryans; a caste system was one in which a person's place in society was determined by birth rather than by occupation or effort

castration removal of the testicles of a man, making reproduction impossible

cataract a large and sudden wave of water

caulker a person who waterproofed ships

cavalry soldiers who fought on horseback

cereal crops grains grown for eating, such as corn, wheat and barley

chariot a two-wheeled horse-drawn vehicle without seats

chastity abstaining from sex on moral grounds

citadel a fortress built to defend a city

civilisation a society that has developed an organised system of government, social customs and religious beliefs, and a number of forms of technology including writing and the arts

commodity an item that is bought and sold, especially a raw material or something that is manufactured, for which there is a commercial demand

concubine a woman who was the lover of the emperor, was not married to him and resided in or near the royal court

Confucianism a philosophical system of ethics based on the teachings of Confucius (c. 551–479 BCE)

conscripted forced into service

consul the highest role in the government of Rome

cosmology ideas about the origin and structure of the universe

county the smallest of the geographical divisions; several counties would fit inside a prefecture and several prefectures would then fit into a province

crossbow a weapon consisting of a bow attached crosswise to a stock with a winding mechanism and a trigger – it fires short, heavy arrows called bolts

cubit the length from your elbow to your fingertips

cuirass armour made from a breastplate and a back-plate fastened together

cultivate to raise crops by working the land

cuneiform Sumerian writing that used sharp tools to create wedge-shaped symbols on clay tablets

Daoism a philosophy based on teachings of Laozi, seeking harmony with nature

Darius I ('the Great') king and emperor of the Persian Empire, who launched the First Persian War against the Greeks in 490 BCE

decadent showing unrestrained or immorally self-indulgent behaviour

deity a god

democracy the form of government eventually adopted and popularised by the Athenians, where male citizens took part in decision-making through voting

dendrochronology (tree-ring dating) a method of dating using the pattern of rings inside a tree trunk

deoxyribonucleic acid (DNA) found in living things and unique to each person through their genetic make-up

despotic acting in a cruel and repressive way

dharma the Hindu and Buddhist ideas of good order and harmony maintained in the world

dissent disagreement with a practice and refusal to conform to the rules laid down by the emperor

divination an occult process or ritual that attempts to gain insight into a question or situation by way of a standardised process such as reading signs in natural objects or fortune telling

doctrine a rule or principle that forms the basis of a belief taught to people as truthful or correct

domesticate to tame or to make part of home life

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Dorians Greek-speaking people from the north who conquered the Mycenaeans around 1150 BCE

dowry money, domestic goods or livestock paid to the groom's family by the bride's family at marriage

dynasty a succession of rulers from the same family; in Egypt, however, some of the dynasties included pharoahs that were not related to the ruling family

edict an order given by an authority

Eightfold Path Buddha's higher teachings that were designed to help people end suffering by behaving and thinking in 'right' ways

enlightenment a spiritually enlightened state of being

envoy somebody acting as a diplomat on behalf of the ruler

epigraphers researchers who study ancient inscriptions

erodible subject to erosion; easily worn away by water and wind

Etruscans the name of the northern Italian people who greatly influenced early Roman society

eunuch a civil servant who has been castrated

exile banishment from a *polis*, usually after a vote of the citizens

famine a period of severe shortages of food, resulting in widespread hunger

fertile able to produce a large number of quality crops; the ability to produce offspring or reproduce

feudalism the type of rule based on land usage where the ruler owns all the land and allows others to occupy and use it in return for taxes, money, goods or services

fiefdom the lands controlled by a feudal lord

filament a slender strand or fibre

Five Confucian Relationships the duties of respect that shape society: ruler to ruled, father to son, husband to wife, elder brother to younger brother and friend to friend

forage to search for food

Four Noble Truths Buddha's teachings that life involves suffering and that suffering is caused by desire; by conquering desire, one can end this suffering

frankincense an aromatic resin from an African tree, used as incense – especially in religious ceremonies – and in perfumes

fresco an interior type of pictorial wall painting where the pigment or paint to create the picture is applied to the wet plaster surface of the wall and then allowed to dry

garrison a group of soldiers stationed to protect a particular location

genealogy the history of families and the line of descent from their ancestors

gentry rural landowners who were businesspeople, renting out parts of their vast amount of property to poorer people, like peasants, and maintaining their own private armies or militia to defend themselves

Gondwana name given to a giant continent that is thought to have existed some 500 million years ago, consisting of Australia, South America, Africa, India and Antarctica

greaves leather or bronze shin guards worn by *hoplites* to protect their legs in battle

halberd a weapon consisting of an axe blade and pick with a spearhead on top, mounted on a long wooden handle

Hammurabi a Babylonian king who introduced his famous early code of law for the welfare of his people

Harappan name given by archaeologists to the civilisation that occupied the Indus Valley of ancient India

heifer a young cow before she has had her first calf

hemp an Asian plant, the fibres of which can be used to make canvas, rope, paper and cloth

heresy a belief that is against what is generally accepted

Hinduism religious belief developed by the Aryans, involving killing animals (sacrifices) for many different gods and goddesses

historian someone who studies and writes about history

history the study of the past through examining the written evidence of a society

Homer ninth-century BCE Greek poet who wrote *The Iliad* (an account of the Trojan War) and *The Odyssey* (detailing Odysseus's epic journey home after that war)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

hominids a family of primates who date back about seven million years

Homo sapiens ('wise man') our species of modern humans

hoplites heavily armed Greek citizen foot-soldiers

hunter-gatherers humans who foraged and hunted for their food

Hyksos people of Asian and Semitic descent who settled in Egypt

hypocaust underfloor central heating system utilising a fire looked after by slaves

ice age a period of time when large parts of the planet were covered by ice

iconography images and symbols used to represent ideas

impassable unable to be travelled on or across

impenetrable unable to be penetrated or passed through

imperial related to an empire or emperor/empress

implements useful pieces of equipment, usually a specially shaped or designed to do particular tasks

indigenous people those who are native to a region or country; a capital letter (Indigenous) is used to refer to Australian Aboriginal or Torres Strait Islander peoples

infantry soldiers marching or fighting on foot; foot soldiers collectively

informants people whose job it was to gather details on others and then inform the authorities

inscription writing that has been carved into a hard surface such as solid stone, to help people remember a certain person or event

inundation flooding

irrigation a system of bringing a supply of water to a dry area, especially in order to help crops to grow

karma Hindu (and Buddhist) belief that the way a person lives his or her life has an effect on how happy or successful he or she will be in his or her next life

Kerameikos the cemetery of ancient Athens

Lakonia a region in southern Greece that had Sparta as its *polis*

Legalism a philosophy of administration in ancient China, where all people under the ruler were subject to a code of publicly proclaimed laws and punishments

legend a popular story that is believed by many people

legion a fighting group of 6000 soldiers, called legionnaires, and 1000 men on horses, called cavalry

loess yellow wind-borne clay dust

looting widespread stealing from public and private buildings, often with vandalism and violence

Lydia a kingdom of western Asia Minor located generally east of ancient Ionia in what is today part of Turkey

magistrates elected officials who had the power to put laws into practice

mandate authority given to a leader or government, effectively permitting them to rule

maritime associated with seafaring

maritime trade trade conducted across the sea

mausoleum large tomb structure containing bodily remains

megalith a monument made of stone

menial relating to work normally performed by a servant or to unskilled work

mercenary a soldier who sells his services in return for money

merchants business people who were often quite wealthy, but were looked down upon – mainly because they sold things that other people had made

midden deposits of rubbish made up of food, shells, etc.

millennium (plural millennia) period of a thousand years

millet a grain crop with small seeds used for food

Minoans the name given by Sir Arthur Evans to the civilisation that existed on the island of Crete until about 1450 BCE

missionary a person sent to spread a particular religious faith in another country

monarchy rule by one man or woman, who often takes the title of king, queen, emperor or empress

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

monotheism a religion that holds there is only one god

monsoon rainy season caused by the seasonal reversal of wind direction

morality standards of conduct based on what is generally accepted as right or wrong

mummification a method of preserving a dead body by removing the internal organs and drying out the body

Mungo Lady/Mungo Man the remains of an Aboriginal woman and man found at Lake Mungo, New South Wales

musk a pungent and greasy secretion from a gland in the male musk deer, used to make a strong perfume

Mycenaeans Greeks who conquered the Minoans and flourished as a civilisation in southern Greece between 1600 and 1100 BCE

myrrh a gum resin used in perfume, medicines and incense

myth a sacred narrative, either as a story or poem, explaining how the world and humankind came to be in their present form

Neolithic period (or New Stone Age period) an era marked by the development of farming and the domestication of animals

Neolithic revolution the early period of human history when people made the important change from hunting to farming

nilometer a device used to measure the water level of the Nile during the annual inundation

nirvana a state of release from all suffering

nomadic when people wander from place to place in search of food for themselves and their animals

nomads people who move from place to place without settling

numismatists researchers who study coinage

ochre an oxide found in rocks that is used to make colour pigments, such as yellow and red

oligarchy the form of government adopted by the Spartans in which power lies with only a few people

optically stimulated luminescence dating (OSL dating) a method of dating the layer of sediment in which the artefact was found

oracle a message from the gods in answer to a person's question, most notably via the sibyl, or priestess of the oracle at Delphi

oral tradition historical information that is passed on through speech or song

ores naturally occurring mineral deposits from which metals can be extracted

Palaeolithic period (or Old Stone Age period) an era of hunting and gathering societies and the use of stone tools

pantheon all the deities of a religion considered collectively

papyrus a tall reed with a triangular stalk that grew in wet, marshy conditions by the banks of rivers; the inside of the stalk could be cut into fine strips, which were woven together to make a smooth papery surface suitable for writing and painting

Parthia an ancient culture that was part of the Persian empire at its height, stretching from the northern reaches of what is now south-eastern Turkey to eastern Iran

passes passageways or gaps in mountain ranges

paterfamilias the name given to the male head of the household; the family's father

pathologists researchers who study human diseases

patriarchy a social system in which fathers are heads of households, descent is through the male line and men hold more power and authority than women

patrician a member of the wealthy ruling class

Pax Romana the name given to the 200 years of peaceful growth and development during the Roman Empire

peasants poor agricultural workers

Peloponnese the southern part of Greece

petroglyph rock art that is made by carving or engraving (pecking) the image into a rock face

phalanx the main military formation used by the Greek *hoplites*

pharaoh divine ruler of ancient Egypt

philologists researchers who study the language of literary and written texts

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Phoenicians the seafaring and trading civilisation from the eastern Mediterranean that was active between 1500 and 300 BCE

phonetic alphabet an alphabet where the signs or letters have a one-to-one correspondence with the sounds of the language

plebeian a member of the ordinary working class

polis (plural *poleis*) Greek city-state

prefectures local areas or districts to which people are assigned, and which are ruled over by government-appointed officials

primates a group of related mammals that includes humans, apes and monkeys

prosecutions legal proceedings against people because of crimes they are alleged to have committed

province the largest of the geographical regions into which China was divided by the early emperors to maintain control and collect taxes

pyre a pile of wood for burning

radiocarbon dating (carbon dating) measures the amount of radiation or carbon-14 in an organic or living object

regent a ruler who steps in temporarily to rule because the person who is to be pharaoh is not yet old enough to take up his or her position of authority

reincarnation living again in a new body or form after death

republic a political system where the government is chosen by the people and there is no monarch

ritual an action performed as part of religious ceremony

Sanskrit ancient language of India

sarcophagus an ornate coffin adorned with lavish carvings and inscriptions

sati the ritual act of a widow being burnt to death on the funeral pyre of her dead husband

scholars educated men who had been schooled in calligraphy (writing Chinese) and Confucian texts; usually civil servants or government officials

scribe an official who copied documents or performed clerical duties

seals small terracotta and stone items marked with images of animals and text

sects religious groups who change some of the main teachings within an established religion

self-immolation the act of willingly or deliberately sacrificing oneself by burning

Senate the powerful parliament made up of wealthy men who advised the consuls and people

serf a man who was bound to work the land of his master in return for a small amount of land to feed his family

sericulture the commercial breeding of silkworms for their silk

shaduf a wooden arm with a counter-weight on one end and a bucket on the other

silt rich, fine soil carried in the waters of a river

siphon a pipe used to transport water upwards from a container

slave a person who served a master or mistress and had no rights

smiths craftsmen who worked with metal, making tools, weapons and armour

sovereign self-governing and independent

standardisation to remove variations in things and bring them into conformity with each other throughout society

steppes a vast area of grasslands that spans much of central Asia

stola a shorter tunic worn as the outer garment for fashion

Stone Age a term used to describe the period of the human past when stone was the primary material used to make tools

strata the individual layers of human occupation revealed by archaeological excavations

strategos one of 10 generals elected to command the Athenian army

stratification the classification of different layers of human habitation revealed by archaeological excavations

stratigraphy a means of establishing a relative chronology through the levels or strata

strigil a blunt metal tool used to scrape olive oil and dirt off the skin to keep clean

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

strontium a metallic element that can resemble calcium

stupa originally a simple mound built to house Buddhist remains; a place of worship for Buddhists

taro the root of a herb cultivated for food in tropical areas

taxes compulsory contribution, made for the support of the government

terracotta kiln-baked clay used to make an unglazed ceramic

theocracy government by religious leaders such as priests

thermoluminescence dating (TL dating) method of dating used for inorganic matter

Thirthankar 'ford'; Jains believed that Mahavira was one of a long line of religious teachers who showed others the way and each teacher was regarded as building bridges or fords for the whole religion

toga a long garment worn on special occasions

tributary a river flowing into a larger river or body of water

Trojan War a legendary 10-year war between the Mycenaean Greeks and the city of Troy, caused by the abduction of Helen, the wife of King Menelaus of Sparta, the brother of King Agamemnon of Mycenae, by the Trojan prince Paris

tunic the basic piece of clothing worn by both men and women

tyranny form of government found in other Greek *poleis* and at one time in Athens, where power was taken by one man unlawfully

UNESCO Heritage Sites cultural and natural sites around the world that are listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being of outstanding value

varna a class of people within the Aryan social system; there were four *varnas*

vassal state under feudalism, this was a region that gave loyalty, homage and tribute to the king, in return for his protection

Vedas Hindu sacred writings consisting of four books; in Sanskrit, Veda means 'sacred knowledge'

Vedic refers to the Aryan Hindu culture, which was based on the Vedas

Xerxes son of Darius I, and then king and emperor of the Persian Empire, who launched the Second Persian War against the Greeks in 480 BCE

yam starchy root plant widely cultivated for food in warm climates

yarn a continuous twisted strand of fibre

zoologists researchers who study animals and animal life

ECONOMICS AND BUSINESS

absolute poverty the state of poverty where when someone does not have adequate food, clothing or shelter

Better Life Index an index used to assess the quality of life in a country based on a number of different indicators

budget a record of the income coming in and the money going out (expenditure) for an individual

business plan the formal plan set out by a business or organisation usually for one or more years

cash flow the movement of money coming in and going out of the business

cash payment a cash transaction where the business has purchased something or paid a bill

cash receipt a document that provides evidence of a cash sale

communication exchanging information

conditions of employment that part of an employment contract that sets out the duties, responsibilities, hours of work, salary, leave and other privileges to be enjoyed by employed people

consumer a person who buys goods and services made by producers

credit boom the rapid increase of lending by financial institutions

credit card a card that allows a consumer to buy something 'on credit', which means he or she pays for it later; in contrast, a debit card is one which has money on it and the consumer can

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

only spend up to the amount on the debit card

dividend a payment made by a corporation to its shareholders, usually as a distribution of profits

efficiency a measure of how well resources such as time, money, materials and labour are used

entrepreneur a risk-taking person; someone who starts a new business

expenditure money going out

financial goals goals about saving and spending

financial record evidence of a transaction that has occurred in the business

Global Financial Crisis a worldwide economic crisis that led to many countries having poor economic conditions

Gross Domestic Product (GDP) a measure of the total value of production of goods and services in an economy over a period of time (usually one year)

initiative possessing high levels of creativity and resourcefulness

innovative new, original and inventive

loss the amount of money lost when revenue is less than expenses

market system an economic system in which the forces of demand and supply determine prices

mixed market economy a market economy in which there is also government intervention

negative gearing a way to reduce your tax bills because any expenses more than the rental income can be claimed as a tax deduction against other income you might receive

niche a position, product or activity that suits particular talents and interests

opportunity cost the alternative you have to go without in a choice between two competing things or events

penalty rates rates of pay that are higher than normal rates and paid for work performed outside normal working hours or in other exceptional conditions

primary industry the industry that relates to farming and raw materials

producer a person or business that makes goods or provides services to others

productivity the amount of output produced from a given amount of input, measured over time

profit the amount of money gained when revenue is more than expenses

relative poverty the state of poverty where when people fall below a community-accepted standard of wealth

salary a fixed annual (yearly amount) where no extra is paid if overtime (extra hours) is worked

savings what is left when spending is less than income or money coming in; can be used for future spending or investments

secondary industry the manufacturing part of the economy

skills a set of learned abilities that enable a task or tasks to be carried out well

standard of living the level of material welfare of a community, class or person

superannuation financial contributions made during working life to fund retirement

tertiary industry the service part of the economy

transaction a record of an event such as a sale or purchase completed by a business

vision an idea or big picture and the ability to see possibilities

wage regular payment calculated on an amount per hour worked

wants things you would like to have but can go without

CIVICS AND CITIZENSHIP

amendment a change or addition to improve a piece of legislation

bicameral consisting of two chambers (houses)

burden of proof evidence that indicates, beyond any reasonable doubt, that the accused is guilty

citizen a person who has citizenship of a particular country, and who; has the responsibility to obey the laws of the country and participate in the political process of the country (such as through voting)

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

constitution the law upon which a state or organisation is governed

division of power the dividing of political powers between the federal, state and local governments

executive the government branch responsible for enforcing decisions and laws

federal government government with central power over a country as a whole

Governor-General the chief representative of the Crown in the Australian jurisdiction

judiciary the government branch responsible for interpreting laws and administering justice through courts

jury a group of citizens who are sworn with the responsibility to decide a verdict and punishment on certain cases in court

Legal Aid a program funded by the Australian government offering free legal advice for those who cannot afford a legal representative

legislative the government branch with the power to make laws

local government government with responsibility within a town or area

multicultural referring to the preservation of different cultures and cultural identities within a unified society (such as Australia)

multi-faith supporting many different religions and beliefs

Parliament the place and structures of creating laws and forming a government

plaintiff the person or group who brings a case against another in court

presumption of innocence protection for all people accused of a crime that means the court system must assume the person accused of a crime is innocent until proven guilty

prosecution the person or public official who institutes legal proceedings against the person accused in court

referendum a vote for any changes to the constitution; all Australian citizens are required to vote in a referendum, regardless of the state or territory they live in

right to a fair trial a right that occurs in an unbiased legal system where no person can be discriminated against for his or her religion, ethnicity or gender

rights the fundamental entitlements of a person, generally through law; rights are automatically applicable to a person

secular not related to religion; a secular society is one that is not governed by religious laws

separation of powers a model of political power in which the power of a country is divided into three separate areas (executive, legislative and the judiciary); it ensures that no one aspect of government and law can become more powerful than another

state and territory governments governments with responsibility within individual states and territories

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Index

Aboriginal and Torres Strait Islander peoples 419–20
  archaeological remains 210–13
  art and water 52
  Burrup Peninsula 212–13
  country 14
  demographics 142–3
  Dreaming 14–15, 211
  Gwion Gwion 213
  resources 211
  rock art 211–12
  saltwater country 48
  survival on the dry continent 15–16
  trade route 211
  and water knowledge and management 14–16
abrasion 29
absolute dating 201–2
Acropolis 261
administration and settlement 115
affordability 107
afterlife 240
age and demographics 134–5
age pension 414
agriculture
  ancient societies 182–3
  development of 179
  and settlement 114
  and water 35–6, 39–43, 76, 77
Akhenaten (pharaoh) 246–7
Alexander 280
algal blooms 65
amendment 173
ancient past 189–218
  archaeological remains as sources 210–14
  Australia 207–10
  chronology 201–3
  conservation 214–17
  historians and archaeologists 190–202
  historical investigation 203–6
ancient societies
  establishment of societies 181–2
  farming 182–3
  key features of societies 182–5
  religion 184–5
  rule of law 185
  social classes 183–4
  trade 183
ancient world 176–86
  early human migration 178, 179–81
  establishment of societies 181–2
  key features of societies 182–5
  timeline 177
anthropologists 200
aquatic resources 48
aqueducts 8, 287
aquifers 9, 26, 70
archaeological remains 210–13
archaeological sites 215
archaeologists 191–202
  how they work 197–200
archaeology 196–201
  choosing the site and research 197
  and chronology 201–2
  good fortune 199
  and history 196–7
  physical layout of the land 197
  processing the finds 199–200
  researching the site 199
  surface remains 198
  team and equipment 199
architecture, ancient Greece 271
arid regions 40
art
  Aboriginal rock 211–13
  ancient Greece 271
  and architecture 204
  frescoes 181, 255
  and iconography 181–2
  and water 50–2
artefacts 198, 204
arts and cultural landscape 161
Aryan/Vedic civilisation (ancient India) 184, 349–50, 351–4, 356
Ashoka, Emperor 368
ashrams 58
asrama system of Hinduism 356
atmosphere 29
Augustus, Emperor 30
Australia
  ancient 207–9, 211
  cities 156
  civics and citizenship 418–20
  collections and sites 214–15
  conserving the past 214–15
  early settlement 208–9
  First Peoples 419–20
  government 172–3
  housing in 121
  legal system 372
  society 418–19
  tropical cyclone season 95
  and virtual water 71
  water in 63–4, 301
  see also Aboriginal and Torres Strait Islander peoples
Australian Constitution 172, 173

baptism 54
baths (ancient Rome) 298–9
beliefs, values and practices
  ancient China 328–30
  ancient Egypt 234–43
  ancient Greece 268–73
  ancient Rome 293–300
Better Life Index 409
biodiversity 123
biosecurity 159
biosphere 19
blue water 26
boaties 49
Bowler, Jim 198
brackish water 27
Brahmins 351, 352, 353, 354
Bronze Age 182
Buddhism 184, 330, 359–60, 364–5, 368
  and water 53
budgeting 385, 386–9, 392–3
burden of proof 372
bureaucracy 227, 318
business goal setting 389–91
business ownership 411
business plan 389
businesses, how do they become successful 400–2

carbon dating 202
cash flow 394
cash transactions 391–2
catchment management 75–6
catchments
  and floods 86
  healthy river 76
  water 28–30
census 132–3
centrality and settlement 112–13
Chandragupta Maurya 359, 362–3, 368
chariot racing 298
China (ancient) 311–43
  beliefs, values and practices 328–34
  Buddhism 330
  Confucianism 319, 329–30
  contacts and conflicts 331–2
  Daoism 319, 328–9
  death and burial 327
  family 325
  Five Confucian Relationships 320
  food 326
  gong 324
  Great Wall 337
  Han culture 322–3
  Han Gaozu 321
  Han Wudi 321–2
  key groups 316–28
  Laozi and Daoism 328–9
  law and order 326–7
  legalism and authority of the emperor 319, 337
  lotus feet 326
  Mandate of Heaven (*Tianming*) 320
  map 313, 317
  men 325–6
  nong 324
  nubi 326
  physical features 314–16
  prefectures 335
  Qin Shi Huangdi 320, 334–7
  Shang 325
  Shang dynasty 316–18, 320
  shi 324
  significant individuals 334–41
  silk production 332, 333
  slaves 325
  social structure 323–5
  society 334–5
  Spring and Autumn period 320
  standardisation 335
  terracotta warriors of Xian 198, 199, 338–41
  timeline 312
  trade 333
  Warring states 320
  Zhou dynasty 318–19, 320
Christianity 185
  and water 54

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

chronology 201
and archaeology 201–2
cities, Australia's 156
citizenship 172–3, 372–4
ancient Greece 261–2
civic planner 123
civics and citizenship 172–3, 372–4, 418–20
Australian Constitution 172, 173
Australian government 172–3
government and democracy 172–3
law and citizenship 372
parliament, role of 173
responsible citizen 373
civilisations 226, 287
climate
ancient Greece 257–8
and housing 121
climate change, effects of 101
clothing
ancient Greece 262–3
ancient Rome 293
cloudbursts 84
coastal floods 84
colonisation, ancient Greece 259–60
Colosseum 300
commodity
definition 10
water as a 10
communities 106
community needs 167
concubine 326
condensation 26, 85
conditions of employment 405
conflict over water 65
conflicts
ancient China 331–2
ancient Egypt 242–3
ancient Greece 274–8
ancient Rome 301–4
Confucianism 319, 329–30
conservation
definition 11
environmental 57
of water 12, 57–8
consumers
definition 377
and producers in other countries 381
relationship between producers 377–8
continuous resources 6
credit cards 386
Crowe, Simon 398
cubic meters, water 31
cultural aspects and housing 121
cultural landscape 161
cultural value of water 48
cuneiform 181
cyclones 82, 92–9

dams 65–6
Daoism 319, 328–9
Darius I 258
Dead Sea 39
death and burial
ancient China 327
ancient Egypt 237–40
ancient Rome 297
see also funeral customs
decentralisation 127
degradation 11
democracy 258, 260–1
demographic characteristics 132–3
demographic profiles 133–6
demographics 128, 132–48
Aboriginal and Torres Strait Islander peoples 142–3
debating 136–40
in the future 145–7
life stages 143–5
limited choices 145
and settlement choices 141–2
dendrochronology 202
depletion 11
deposition 29
desalination plants 41, 67–8
Devil's Lair 209
dharma 364
diverse needs of groups 169
diversion, water 45, 66–7, 76
dividends from shares 413
Djoser (pharaoh) 243
documents (historical investigation)
non-official 203
private 203
public of official 203
Dorians 256
drinking recycled water 69
drought 83, 99–100
dynasties 227

economic criteria (natural resource management) 11
economic factors and settlement 141
economic value 56
economic water scarcity 62
economies of scale 142
ecosystems 82
education, ancient Greece 263–4
Egypt 35–6
Egypt (ancient) 221–50
Akhenaten 246–7
artisans 232
beliefs, values and practices 234–43
burial arrangements 237–8
contacts and conflicts 242–3
after death 239–40
Djoser 243
geography 226–7
Hatshepsut 244–5
history 227
map 223
Manetho's dynasties 228
mummification 240–1
Nefertiti 247
officials of the land 231
ordinary working people 232–3
pharaohs 227–31, 239
physical features and their influence 224–7
priests and priestesses 237
pyramids of Giza 239–40
queen consort 231
River Nile 224–36
role of key groups 227–34
scribes 231
significant individuals 243–9
social hierarchy 229
timeline 222
Tutankhamun 247–8
Valley of Kings 239
Valley of Queens 239
the vizier 231
women 233–4, 244–5
worship of gods 234–7
employment
in Australia 406–7
conditions 405
and individuals living standard 408–12
types of 405
and water scarcity 62–3
energy source (water) 44–8
enlightenment 184
entertainment (ancient Rome) 298–300
entrepreneurs 397–402
environmental advantages and housing 127–8
environmental conservation 57
environmental constraints and settlement 106
environmental damage (ancient past) 215
environmental disadvantages and housing 128
environmental factors and settlement 141
environmental quality 107
environmental resources 6–7
environmentalism 53
epigraphers 196
erosion 29, 81
estuaries 27, 84
ethnicity 132
Europe, housing in 121
Etruscans 287, 288
Evans, Arthur 198, 215
evaporation 21, 85
evapotranspiration 26, 85
expenditure 386
expressionist art 51

family
ancient China 325
ancient Greece 263
farming, ancient societies 182–3
federal government 172
financial goals, setting 384–5
financial records 391–4
budgets 392–3
cash flow 394
cash transactions 391–2
income statement 393
types of 391
Five Confucian Relationships 320
flash floods 84
flood plains 82
floods 82–90
causes of 84
classification of 84
conditions that lead to 85–7

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

people's experiences 87
Queensland 88–90
and water cycle 84–5
food
ancient China 326
ancient Rome 295–6
foragers 179
Forum (Rome) 288
Four Noble Truths 330, 359
frescoes 181, 255
funeral customs
ancient India 356–60
ancient Rome 297

Gan Ying 333
Ganges 58
geography
ancient Egypt 226–7
ancient Greece 257–8
geopolitical power 156
Gill, Edward 208
gladiator games 299–300
global action (natural resource management) 12
globalisation 34
gods
ancient Egypt 234–7
ancient Greece 268
Gondwana 347
government
Australian 172–3
and democracy 172–3
local 172
and settlement 115
Governor-General 172
Great Wall of China 336
Greco–Persian War
first 275–6
second 277–8
Greece (ancient) 252–81
Acropolis 261
Alexander 280
architecture 271
art 271
beliefs, values and practices 268–73
citizens 261–2
clothing 262–3
colonisation 259–60
contacts and conflicts 274–8
democracy 260–1
education 263–4
family 263
first Greco–Persian War 275–6
geography and climate 257–8
gods 268
Hellas 258
heroes 268
Homer 279
hoplites 274
Kleisthenes 279
legacy 280
map 254
metics 265
Minoans 255–7
Mycenaeans 255–7
myths 268
Olympic Games 272–3
oracles 268–9
Peloponnesian War 260, 278
Pericles 279
Persian threat 275
philosophy 271
Phoenicians 255–7
physical features and their influence 255–60
polis 258
role of key groups 260–8
second Greco–Persian War 277–8
significant individuals 279–80
slaves 265
social structure 262
sources and evidence 270
Sparta 265–7
theatre 270–1
timeline 253
triremes 275
women 263, 264
Greek Empire 184
green space 127
green water 19
grey water 69
Gross Domestic Product (GDP) 408
groundwater 19
Gurner, Tim 398

habitat loss and urban sprawl 123
Hammurabi 185
Han culture 322–3
Han Gaozu 321
Han Wudi 321–2
Harappan culture 183, 348–9, 350, 357
Hatshepsut (pharaoh) 244–5
healing and water 54
health
and safety (social landscape) 159
and water 38
and water scarcity 62
Hellas 258
Hinduism, gods of 352, 366–7
historians 191–202
at work 195–6
historical factors and settlement 141
historical investigation 203–6
literary texts 203
methods and sources; Myrtis 205–6
non-literary texts 203–5
primary sources 203
historical texts 203
history
ancient Egypt 227
archaeologists and historians investigating 191–202
and archaeology 196–7
collecting information 192
definition 190
lost texts 193–4
and prehistory 196
secondary sources 192–3
writing 191–3
home ownership 143–4
Homer 279
hominids 179
Homo sapiens 179
hoplites 274
housing 120–30
in Australia 121
in Europe 121
regulations and water-saving measures 75
residential areas 122
styles 127–9
transportation modes 125–6
types 121–2
urban sprawl 123–4
human migration, early 178, 179–81
human modification and flooding 85–6
human remains (historical investigation) 204
humans, early
evidence of first 179–80
migrations 179–81
societies 181–5
theories and questions of 180–1
hunter-gatherers 179
hydraulic erosion 29
hydroelectricity 44
hydrological hazards 82
hydropower 44
hydrotherapy 54
Hyksos 242

ice age 210
iconography 181–2
impressionist art 51
income
and demographics 133–4
earning 411–14
disparity 138–9
retirement 414–15
statement 393
India (ancient) 344–70
Aryan/Vedic civilisation 184, 349–50, 351–4, 356
beliefs, values and practices 356–61
Brahmins 351, 352, 353, 354
Chandragupta Maurya 359, 362–3, 368
contacts and conflicts 361–8
Emperor Ashoka 368
funerary customs 356–60
gods of Hinduism 352, 366–7
Harappan culture 183, 348–9, 350, 357
Indus Valley civilisation 350–1
key groups 350–6
Kshatriyas 351, 353, 354
map 346, 362
Mauryan Empire 356, 362–4
philosophies and beliefs 364–5
physical features 347–50
Shudra 351, 353, 354
Siddhartha Gautama (Buddha) 368
significant individuals 368–9
timeline 345
trade 361–2
Vaishya 351, 353, 354
Vardhamma Mahavira 369
women 355–6

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Indus Valley civilisation 350–1
industrialisation 34
infiltration 27, 85
infrastructure 108, 115, 123, 160
intertidal zones 27
investment, water as an 56–7
irrigation 39–43
Islam 184–5
islanders 49

job location and settlement 107
judiciary 173
jury 373
Julius Caesar 304–5

karma 358
Kleisthenes 279
Knossos (Crete) 198
Kshatriyas 351, 353, 354

Lake Eyre 31
Lake Gregory 209
Lake Mungo 198, 208–9, 210
land availability
  and housing 121
  and settlement 106–7
landscapes
  and liveability 157
  water in art 51
Laozi 328–9
law and order, ancient China 326–7
legal system in Australia 372
legalism and authority of the emperor 319, 337
legend 286
leisure activities 161
Libya 41
life stages and settlement choices 143–5
lifestyle
  Bronze Age 182
  choices 145
  and water scarcity 63
literary texts (historical investigation) 203
literature and water 53
lithosphere 19
liveable places 149–65
  health and safety 159
  and landscape 157
  measuring 163
  observable characteristics 153–63
  and social connections 158
  and streetscape 162–3
  what they have in common 164
  for young people 168
liveability, enhancing 166–73
  diverse needs of groups 169
  strategies 167
liveability myths 150–3
living near water 50–1
living standards and work 408–11
local action (natural resource management) 13–14
local government 172
lotus feet 326
low pressure systems 91
Lydia 258

Mandelena, Jason 398
Mandate of Heaven (*Tianming*) 320
mangrove trees 28
manufacturing and settlement 114
Marco Polo 333
market system 378
marriage customs (ancient Rome) 291, 297
Mauryan Empire (ancient India) 356, 362–4
May, Tammy 399
megacities 153–6
megalopolis 112
men and boys
  ancient China 325–6
  ancient Rome 291
mercenary soldiers 362
Mesopotamia 35
metics 265
middle-aged couples and settlement 144
mining and settlement 113
Minoans 255–7
mixed market economy 378
monarchy 258
money
  budgeting 385
  managing 385, 386–9
monsoons 348
monuments 215
morality 329
multicultural society 418
multiculturalism and demographics 139–40
Mulvaney, John 198
mummification 204, 240–1
Mungo Lady 198
Mungo Man 198
Murray River Basin 209
museums 214
music and water 55
Mycenaeans 255–7–6
Myrtis 205
myths, Greece 268

national action (natural resource management) 13
natural resource management 11–14
  economic criteria 11
  environmental criteria 11
  global action 12
  local action 13–14
  national action 13
  social criteria 11
  water conservation and sustainability 12
  water management 16
natural river floods 84
Nefertiti (pharaoh) 247
negative gearing 413
Neolithic period 179
Neolithic revolution 225
Newstart 138
Nile River 34, 65, 224–36
noise pollution 136
nomads 179
non-literary texts (historical investigation) 203–5
non-renewable resources 6
non-renewable water 41

oceans 56
older age and settlement 144
oligarchy 25
Olympic Games 272–3
optically stimulated luminescence dating (OSL dating) 202
oracles, ancient Greece 268–9
oral tradition 197, 204–5

Palaeolithic period 179
parliament 172–3
pathologists 200
patriarchy 183
patricians 289
Pax Romana 306
Peloponnese 257
Peloponnesian War 260, 278
penalty rates 405
people's place of settlement 106–8
Pericles 279
Persian threat, ancient Greece 275
Persson, Markus 399
pest species 76
pharaohs 227–31, 239
  Akhenaten 246–7
  Djoser 243
  Hatshepsut 244–5
  Nefertiti 247
  Tutankhamun 247–8
philologists 200
philosophy, ancient Greece 271
Phoenicians 255–7
phonetic alphabet 255
photosynthesis 4
physical water scarcity 62
place, importance of water to 58
places *see* liveable places
plaintiff 372
plebeians 289
polis 258
political factors and settlement 141–2
pollution
  noise 136
  and water 76
Pompeii 196
population
  density and housing 121, 123
  distribution 153
  growth 136–7
pottery 204
poverty 411
precipitation 21
presumption of innocence 372
prices, setting 378–80
primary industry 406
primates 179
private savings 415
producers
  and consumers in other countries 381
  definition 377
  relationship between consumers 377–8
products, setting prices for 378–81
profit and loss 393

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

prosecution 372
public transport 123, 126
Pyrmont, Sydney 127

Queensland floods 88–90
Qin dynasty 320
Qin Shi Huagdi 320, 334–7

radiocarbon dating 202
recreation
  and liveable places 161
  and water 36–7
recycling water 69–71
referendum 173
reincarnation 184, 330, 358
relative dating 201
relatives and settlement 107
religion
  in Australia 418
  ancient China 328–30
  ancient cultures 184–5
  ancient Rome 293–4
  and water 53–4
remoteness and settlement 110
renewable resources 6
rental property ownership 413
residential areas 122
resources
  continuous 6
  environmental 6–7
  non-renewable 6
  renewable 6
  water 6, 7
  see also natural resource management
respiration 4
republic 288, 289–90, 291
restoration (ancient past) 215–16
retirement income 414–15
right o a fair trial 372
river mouth 29
river people 48
river regulation 44
rivers 56–7
  healthy catchments 76
  major world 23
  Nile 34, 65, 224–36
  protecting 77–8
roads 287–8
Roman Empire 184, 301–3
  end of 306–7
  function of 306
  Pax Romana 306
  rise of 301–2
  system 303
  trade 302–3
Rome (ancient) 283–308
  aqueducts 287
  assemblies 291
  baths 297
  the beginning 286–7
  beliefs, values and practices 293–300
  chariot racing 298
  clothing 293
  Colosseum 300–1
  consuls 291
  contacts and conflicts 301–4
  design and building 287–8
  development 287
  Emperor Augustus 305
  emperors 303
  entertainment 298–301
  Etruscan influence 287, 288
  food 295–6
  Forum 288
  funeral customs 297
  gladiator games 299
  Julius Caesar 304–5
  key groups 288
  law and order 290–1
  magistrates 291
  map 285
  marriage customs 291, 297
  men and boys 291
  patricians 289
  physical features 286–93
  plebeians 289
  religion 293–4
  republic 288, 289–90, 291
  roads 287–8
  Senate 291
  significant individuals 304–7
  slaves 289–90
  structure 289–90
  theatre 298
  timeline 284
  trade 333
  Vestal Virgins 294
  women and girls 292, 294
Romulus and Remus 286–7
rule of law (early civilisations) 185–6
run-off 21–2

salary 405, 408
salinity 27
saltwater country (Indigenous people) 48
sanitation 4
Sanskrit 352
sarcophagus 238
Saudi Arabia 41–2
savings 387
Schliemann, Heinrich 197
sea changers 141
secondary industry 406
self-determination 145
self-immolation 357
semi-detached houses 121
separation of powers 172
settlement(s) 106–19
  centrality 112–13
  choices, factors that influence 141–2
  classifying 111–15
  communities 106
  definition 107
  environmental and socio-cultural factors 106–7
  environments conducive to 108–11
  factors affecting 109
  by function 113–14
  hierarchy 111–12
  people's place of 106–8
  and remoteness 110
  specialisation 112–13
  and stages of life 143–5
  what they need 115–17
severe storms 82
sewage, treated 69
shaduf 8, 226
Shang 325
Shang dynasty 316–18, 320
shares, dividends from 413
Shudra 351, 353, 354
Siddhartha Gautama (Buddha) 368
silk 332, 333
single people 143–4
slaves 265, 289–90
Snowy Mountains Scheme 44–5, 57
social activism 53
social classes *see* social structure
social connections and liveability 158
social criteria (natural resource management) 11
social factors and settlement 141
social hierarchy, ancient Egypt 229
social structure
  ancient China 323–5
  ancient Greece 262
  ancient societies 183–4
societies, establishment of ancient 181–2
society
  ancient China 334–5
  values in Australian 418–19
socio-cultural advantages and housing 127–8
socio-cultural disadvantages and housing 128
Sparta 265–7
specialisation of labour 115
sphere of influence 112
spiritual wellbeing and water 37
sport and water 49, 54–5
standard of living 408–10
state and territory governments 172
Stone Age 207
storm surge 82
storms 91–2
stormwater, recycled 69–70
stratification 201
subculture 49
superannuation 405, 415
surfers/surfing 49
sustainability 11
  and water conservation 12

taro 183
technological factors and settlement 142
technology, ancient world 182
terra nullius 142
terracotta warriors of Xian 198, 199, 338–41
terrace farming 42–3
terraces (housing) 121
tertiary industry 406
texts
  historical 203
  non-literary 203–5
theatre, ancient Greece 270–1
thermoluminescence dating (TL dating) 202

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.

Three Gorges Dam 45–7
timeline
  ancient Egypt 222
  ancient Greece 253
tree changers 141
triremes 275
tropical cyclones 82, 92–9
  in Australia 95
  dangers from 96–7
topography 26
tourism
  and ancient past 215
  and settlement 113–14
trade
  ancient China 333
  ancient India 361–2
  ancient Rome 302–3
  ancient societies 183
transpiration 85
transportation
  and erosion by water 29
  modes and housing 125–6
  on water 34–5
treated effluent and sewage 69
tributaries 29
Trojan War 256
troposphere 26
Troy 197
tsunami 82, 97–8
Tutankhamun (pharaoh) 247–8
Twain, Mark 53
tyranny 258

UNESCO heritage sites 216–17
university towns 114
urban areas and water 77
urban consolidation 123
urban design and water 75–6
urban floods 84
urban sprawl 123–5
urbanisation 61, 82
  and flooding 85–6

Vaishya 351, 353, 354
Valley of Kings 239
Valley of Queens 239
values in Australian society 418–19
Vardhamma Mahavira 369
Vestal Virgins 294
virtual water
  in Australia 71
  trade 70–1

wages 405, 408
wastewater treatment plants 69, 77
water 19–21
  and Aboriginal and Torres Strait Islander peoples 14–16
  and agriculture 35–6, 39–43, 76, 77
  and art 50–2
  and aesthetics 38
  in Australia 30–1
  challenges for the twenty-first century 78–9
  as a commodity 10
  conflict and cooperation 9
  conservation 12, 57–8
  cultural value of 48
  cycle 19, 23–30
  as an energy source 44–8
  hazards 81–103
  in healing 54
  and health 38
  importance to place 58
  and irrigation 39–43
  for life 21–3
  as an investment 56–7
  licences 72
  in literature 53
  living near 50
  managing 60–80
  as a marker of identity 48–50
  movement of 19–21
  in music 55
  in nature 18–31
  non-renewable 41
  and recreation 35–6
  recycling 69–70
  in religion 53–5
  as a renewable resource 6, 7, 41
  river catchments 76–8
  and spiritual wellbeing 37
  in sport 49, 54–5
  sustainability 12
  restricting the use of 72–3
  through a catchment 28–30
  through history 8–9
  uses of 34–49, 72–3
  value of 33–58
  why it is important 4–5
  in the world 21
water cycle and flooding 84–5
water scarcity
  alternative approaches 67–8
  in Australia 63–4
  being water-wise 73–5
  causes of 62
  and conflicts 64
  definition 62
  effects of 62–5
  and employment 62–3
  and health 62
  and lifestyle 63
  recycling 69–70
  restricting use of water 72–3
  sensitive urban design 75
  traditional solutions 65–7
  virtual water trade 70–1
water supply 61
water trade, virtual 70–1
water/population distribution 62
water-wise 73–5
weathering 29
Winton, Tim 53
women
  ancient China 325–6
  ancient Egypt 233–4, 244–5
  ancient Greece 263, 264
  ancient India 355–6
  ancient Rome 292, 294
World Heritage sites 216–17
World Water Day 12
Wright, Judith 53
writing history 191–3

Xerxes 258

yams 183
young people 143–4, 169

Zhou dynasty 318–19, 320
zoologists 200
Zuckerberg, Mark 399

ISBN 978-1-107-43510-0
© Malcolm McInerney et. al 2014
Cambridge University Press
Photocopying is restricted under law and this material must not be transferred to another party.