CAMBRIDGE
HUMANITIES & SOCIAL SCIENCES
FOR QUEENSLAND

7

KATHLEEN COLLIN BRETT DASCOMBE BENJAMIN HEGERTY
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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.

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Peoples of this nation. We acknowledge the traditional custodians of the lands on which our company
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present. Cambridge University Press is committed to honouring Australian Aboriginal and Torres
Strait Islander Peoples' unique cultural and spiritual relationships to the land, waters and seas and
their rich contribution to society.*

About the cover
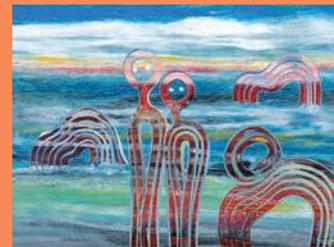
Fiona Omeenyo
Day on the beach
Acrylic on canvas, 72×102cm

This painting by Fiona Omeenyo is called *Day on the beach* (2018). This is a representation of the connection to a specific place, here the natural environment of Lockhart River – in particular Double Stone at Quintell Beach. This is particularly explored in the Geography subject within the Humanities and Social Sciences for Queensland series.

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About the authors

Kathleen Collin (*contributing author: History*) has over 25 years of History teaching experience at Independent and Catholic high schools in NSW and Qld. She has held a range of roles including Head of Faculty, Dean of Curriculum, Director of Learning and Teaching and Head of Secondary. She was a member of the writing team for the NSW Ancient History HSC Examination, an Assessor for the NSW HSC Extension History paper, and is a confirmer and external marker in Senior History for the QCE. Kathleen is now the Assistant Principal – Strategy and School Operations at her current school. She is also an executive member of the Queensland History Teachers' Association. Kathleen has always had a love of History that she gained from her father and grandfather who inspired her passion for politics and the past. It has been a delight for her to be able to nurture her three children and numerous students' interest in the discipline as well.
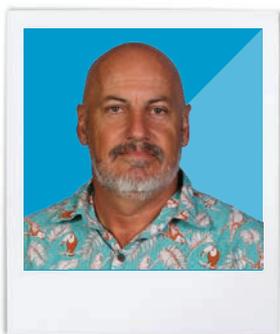
Brett Dascombe (*contributing author: Geography*) teaches Senior Geography and Humanities at his current school. He has taught for 19 years and is a Lead Endorser and Lead Confirmer for geography at QCAA. He also participated in the writing of the new Queensland geography syllabus and uses spatial technologies extensively in his classroom, with students winning national awards in 2020. Brett has provided professional development sessions for teachers in Queensland and presents regularly at conferences, including AGTA, EduDrone, Impact Innovators Showcase and for ESRI Australia in 2020, highlighting the benefits of using spatial technologies in the geography classroom. He has also worked as a sessional academic at QUT teaching geography.

Benjamin Hegerty (*lead author: History*) is a History teacher and Head of Humanities and Social Sciences at his current school in Brisbane. He is an executive member and past Vice-President of the Queensland History Teachers' Association (QHTA) and has contributed to the QCAA in various roles, as the Brisbane Central District Review Panel Chair for Ancient History, QCAA Subject Matter Expert for Ancient History, Lead Endorser and Lead Confirmer. Ben was involved as a contributing author for the Cambridge University Press textbook, Senior Ancient History for Queensland, and completed his Master of History through the University of New England. He has presented multiple workshops and seminars on History pedagogy at state and national education conferences.

Nina Holland (*contributing author: Geography*) has been a high school teacher since 2003, teaching humanities subjects of Senior Geography and junior Humanities. Within this job, Nina has also created opportunities for teachers to network and share their knowledge through the development of the 'Gold Coast GeoNet'. Developing from that, Nina joined with Bond University from 2009 to 2013, to organise and run a yearly conference for Geography teachers. Nina is currently an Experience Senior Teacher with Education QLD and part of the GTAQ committed to Building Geography in Queensland as she is passionate about sharing more geography with more teachers.
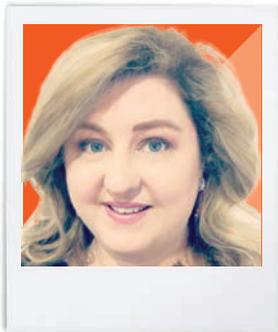
Jessica Prouten (*contributing author: Economics & Business* and *Civics & Citizenships*) has been teaching in Queensland schools for over 15 years, teaching across a range of curriculum areas from History, to English, Business, Geography and Legal Studies. She has also been involved in designing ACARA-based programs stretching business down to the primary years. Jessica is currently a Head of Department on the Gold Coast and has been involved in the implementation of the new QCE.

Alison Quin (*contributing author: History*) is descended from the Tagalak people of the Gulf Country of far north Queensland. Alison has worked in First Nations education through her career, starting as a high school teacher and moving into community-led education initiatives. Her vision is for all students in Australia to learn about and through the two knowledge traditions of this continent – First Nations and Anglo-Australian – to create a future that respects and empowers this Country and its many peoples.
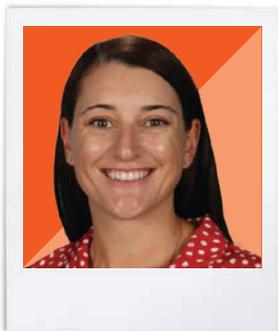
Emily Sill (*contributing author: Economics & Business* and *Civics & Citizenships*) is a Head of Faculty in Business and Technology at a Catholic school in Brisbane. She actively supports business education in Queensland and has taught Business, Economics and Mathematics for over a decade. Emily has developed resources to support students in Senior Business, is an experienced assessor, and is a member of the Business Educator's Association of Queensland's executive team. Emily enjoys designing classroom resources drawn from recent events, effectively linking theory and practice for students. Before teaching, Emily worked extensively in Marketing and HR.

Vince Wall (*contributing author: History*) is a History and Modern History teacher with an interest in ensuring Aboriginal and Torres Strait Islander Peoples' perspectives are embedded in classroom practice. In a career of over 30 years, Vince has extensive school leadership experience in both curriculum and pastoral roles. He has a Master's degree in Educational Leadership and a Master's degree in Arts (Historical Studies).

About the cover artist

Fiona Omeenyo first appeared on the contemporary art scene in the late 1990s as one of the more prominent members of the newly established far north Queensland's renowned Lockhart River 'Art Gang'.

Source: Photo by Mick Richards

'My country Pathacy (Chester River near Coen) that's where my Grandmother is from. My figures are about family and country. I do my painting to carry my culture on and so my children will know our stories.' The artist's figurative compositions connect ancestral spirits with her kin relationships. For the artist, ancestors exist simultaneously with the present-day generation. Accordingly her themes constantly revolve around bloodline and connectivity. A continuous relationship with past and present is expressed through the artist's sense of line and space (both positive and negative).

About the illustrator

Jean-Michel Girard is an illustrator based in Québec City, Canada, who has 30 years' professional experience working around the world. While Jean-Michel is able to work in a wide variety of styles (from hyperrealism to cartoon), he has specialised in historical illustrations as he is a longtime history aficionado. His attention to historical detail is extraordinary. Jean-Michel uses digital tools but with traditional drawing methods.

How to use this resource

Book structure

- All chapters have been closely aligned to the Queensland Curriculum for Humanities and Social Sciences for Year 7.
- This book contains four parts, with each part covering one of the four topic areas: History, Geography, Economics and Business, and Civics and Citizenship.
- Every chapter starts with an engaging 'Setting the scene' story to help you jump into a new topic, and includes an activity that can be used to spark classroom discussion.
- Each chapter has a 'Chapter overview' which lists 'Learning goals' for the chapter.
- Each chapter is divided into numbered sections, and each of these sections covers content descriptors from the Queensland Curriculum.
- Each chapter section starts with 'Focus questions' to drive your inquiries into the Humanities.
- In History, following the inquiry approach, each chapter is constructed around an over-arching key inquiry question and several sub-inquiry questions. The inquiry questions are colour-coded to help students recognise their features:
  - An interrogative
  - A historical concept
  - Specific content
  - Scope and scale.
- In all chapters QR codes are included for easy access to related videos.
- At the end of each section are Developing your understanding questions. The History chapters also have Reflecting on your learning questions. At the end of each chapter are End-of-chapter assessment activities.

Activity types

This series uses a range of activity types including the following:

- Developing concepts and skills (activities that scaffold important concepts and skills from the Queensland Curriculum)
- Making Thinking Visible activities based upon Harvard's Project Zero's innovative Visible Thinking Routines (a guide to using these activities is available for teachers in the Online Teaching Suite)
- Reflecting on your learning and developing your understanding review questions at the end of each section (questions in both print and digital formats)
- Multiple other activity types, particularly in End-of-chapter activities, that vary from analysing historical visual sources to graph interpretation and map-reading
- Activities cover a range of different learning types and levels (a Glossary of cognitive verbs used in this series is available for teachers in the Online Teaching Suite).

Digital resources

This series uses the interactive Edjin platform, and includes both a student and a teacher edition.

In the **Interactive Textbook** version of this book, students will find the following key resources:

- Images that can be zoomed in on (this is really useful for reviewing any images to analyse at a larger size)
- Interactive Chapter quizzes and Scorcher quizzes (timed, competitive and fun tests of knowledge)
- Videos, image galleries, widgets and other multimedia materials, such as zoomable maps
- Additional geographic tools, such as a guide to using topographic maps and a series of skills videos
- Downloadable worksheets for all activities
- Suggested solutions
- Additional content to the print book
- A PDF downloadable version of this student textbook.

In the **Online Teaching Suite**, teachers will find:

- Guidance on using the digital versions of the book
- Teaching programs and teaching tips
- Curriculum grids for each topic area
- Additional activity worksheets.

Icons

This icon in the margin of the page represents additional material is in the Interactive Textbook.

This brain icon with bracketed text indicates a Deeper thinking question, or questions, to help you dive deeper into an idea within the history chapters.

The speech balloons convey some good points for class discussion.

Part 1

History

What is History?

People have always been interested about who they are and where they come from. They have often asked questions about themselves such as 'What happened?' 'Why did it happen?' and 'How did it happen?'. These questions, in some cultures, have led to the study of a field of knowledge called 'history'.

The person often referred to as the first historian was an ancient Greek called Herodotus. Herodotus, and other early historians, used memories and records of past events to make sense of their world.

Not all cultures understand time in the same way as Europeans. Aboriginal and Torres Strait Islander Peoples have a very different understanding of time. To study history, we need to think of time as Herodotus did. We can imagine time as a line joining the past, present and future in turn. This is called chronological order. Historians often show this understanding of time passing using a diagram known as a **timeline**.

From our moment in the present, we can look back at things that have already happened – things in the past. History is the study of the past. We can use what we learn about the past to help us to understand our moment in time and to plan for the future.

timeline a graphical representation of the passing of time, usually arranged by periods, and on which important events are marked in chronological order

▲ **Source A** Ancient Aboriginal hand stencils in the Mount Moffat section of the Carnarvon National park, central Queensland. The Carnarvon National Park is significant to the Bidjara, Karingbal and Kara Kara Peoples.

Events can be understood from different perspectives. In fact, people often argue about what an event means. New discoveries are made all the time and can change what we know about the past. We may never know the 'truth' about what happened, but each new finding helps us to get a better understanding of the past.

The skills and knowledge that you gain in history will give you a new understanding of the world today. You will learn how to find and understand historical sources. You will learn to think creatively and critically about information that you study. Finally, you will come to your own conclusions about historical issues based on the evidence available.

Introducing historical concepts and skills: _using historical sources as evidence_

A good detective is always looking for clues and historians do the same thing!

▲ **Source B** A kangaroo bone fragment discovered 20 years ago in the Kimberley region, NT, is Australia's oldest-known piece of Indigenous jewellery. This bone artefact which is over 40 000 years old was excavated at Carpenter's Gap 1, a rockshelter in the traditional country of Bunuba people. Photograph provided by Michelle Langley.

primary source a source of information about the past created in the time being studied

artefact an object that is made by a person, such as a tool or a decoration; it is usually of historical interest

oral history the recording of past events in a spoken form including through song, story or dance

secondary source a source of information about the past created after the time being studied

perspective the way we see something, a point of view or attitude to something

Historians' favourite kinds of clues are **primary sources**. Sometimes primary sources are **artefacts** (like a vase), sometimes they are documents (like a diary). In addition, in Australia's history, they are stories that have been told and handed down from generation to generation. These stories can be extremely reliable – especially when they are in the form of **oral histories** or oral traditions, a type of source that originates in ancient times and has been passed through generations and which provides a valuable insight into the values, attitudes and beliefs of ancient Aboriginal and Torres Strait Islander Peoples. Telling stories is a powerful way to remember details and to convey abstract ideas. The one thing that primary sources all have in common is that they were created _at the time of the event_ or person you are studying.

Secondary sources are also especially useful to historians. Secondary sources are things that were created _after the event_ that interpret the event and help us to understand it. A textbook is an example of secondary sources. These sources help us by providing the views of experts who have studied the same topic. They tell us what they think about the events or peoples from that time. People can have quite different **perspectives** of the same events, so primary and secondary sources are useful tools to help us to develop our own ideas about the past. When we explain what we think happened in the past, we need to use primary and secondary sources to justify our ideas.

Primary and secondary sources help us to understand different perspectives and, sometimes, the reasons why people acted the way they did.

In Australia, we need to remember that sometimes primary and secondary sources may include images and recordings of people who have died. For Aboriginal and Torres Strait Islander Peoples, the people who have passed away need to be treated with respect. There are special rules, called protocols, for how to treat people who have passed away.

It's a shaped point made on kangaroo leg bone, and at each end we can see traces of red ochre.
…
This artefact was found below a deposit dated to 46 000 years ago, so it is older than that date.
…
The bone we found is most consistent with those used for facial decoration.

▲ **Source C** Researcher Dr Michelle Langley, discussing Source B

Aboriginal and Torres Strait Islander students and teachers learning from this chapter will need to use their own protocols for working with references to people and objects from the past. Where possible, the authors have consulted with Aboriginal and Torres Strait Islander knowledge holders on how to respectfully include historical and cultural sources in this textbook.

► **Source D** Message sticks have been used by Aboriginal and Torres Strait Islander Peoples for thousands of years to transfer information between communities. The message sticks in this image are in the Queensland Museum. They demonstrate one of the challenges of working with some historical sources. The Europeans who gave these artefacts to the museum did not record who created the sticks or where they were collected from.

They are made of wood and the carved markings on message sticks are symbols that are specific to the area where they are made. Message sticks were carried by couriers and served as a reminder list of what the courier had to tell the other communities upon arrival. Invitations to festivals such as the Bunya Nut Festival, and important announcements such as births, marriages and deaths were also sent to communities via message sticks. The message stick also served as a passport to ensure that the courier could travel safely through other people's countries to get [to] the final destination. Because the courier had to carry message sticks a long way, they were often small enough to fit into the palm of the hand.

▲ **Source E** Queensland Museum Network, July 2014

ACTIVITY A: CHECK YOUR UNDERSTANDING

1 **Explain**, by using Sources B and C, the difference between primary and secondary sources. Hint: to do this, you can copy and fill the following graphic organisers.

Definition	Features
Primary source	
Examples	Non-examples

Definition	Features
Secondary source	
Examples	Non-examples
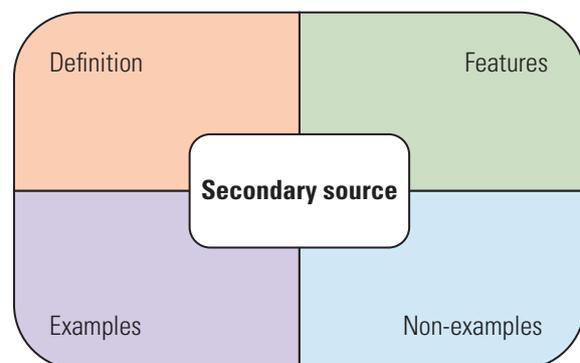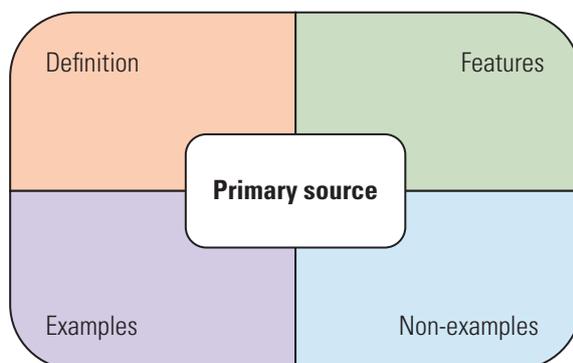
2 **Refer** to Sources D and E. Imagine you are a historian studying how First Nations Peoples communicated. Are message sticks a primary source in this case? What about Source E? **Justify** your answer.

Historical overview: the ancient world

Out of Africa

Although there are different theories put forward by historians, fossil evidence suggests that the earliest humans [*Homo sapiens*] lived and evolved in Africa between 400 000 and 130 000 BCE. *Homo sapiens* migrated from Africa to Europe and Asia more than 100 000 years ago.

Stone Age cave painting of a horse, Lascaux, France

EUROPE

ASIA

AFRICA

INDIAN OCEAN

AUSTRALIA

Ancient Australia

Humans reached Australia more than 60 000 years ago, perhaps as much as 120 000 years ago. They probably arrived by sea during a period of glaciation, when ice connected New Guinea and Tasmania to the Australian continent, which made the crossing shorter and safer.

This Historical overview is designed to help you to understand:

- The location of the ancient civilisations
- The timeframe of the ancient civilisations.

You should read all the text closely in the Historical overview, watch the videos, then complete the activities that follow.

NORTH AMERICA

The Americas
A land bridge connecting Asia to the North American continent, combined with boats, allowed humans to cross from Europe to North America and spread down to South America between 40 000 BCE and 20 000 BCE.

ATLANTIC OCEAN

PACIFIC OCEAN

The South Pacific
Humans reached and spread across the South Pacific somewhere between 1100 BCE and 1300 CE. There is still debate among historians as to whether the first humans to reach the South Pacific islands migrated from Asia or from South America.

SOUTH AMERICA

Probable migration routes

→ Before 100 000 years ago

→ From 100 000 to 10 000 years ago

Evidence for the development of ancient societies

Historians rely upon archaeologists and scientists to find and analyse sources for evidence about the development of ancient societies across the world. Because many everyday objects – including clothing, timber and paper – decay over time, the types of artefacts used by historians to learn about ancient societies are usually made of stone, pottery or metal.

A terracotta warrior from the tomb of Chinese emperor Qin Shi Huangdi

Farming
Different forms of farming evolved, depending on the types of animals and crops suited to the area. Domesticating animals for food and growing crops meant that Neolithic people were no longer forced to move about to search for food. They were able to adopt a more sedentary lifestyle and even produce surplus amounts of food that could be traded for other goods.

Trade
Ancient societies developed Stone Age barter systems between different groups into networks of trade across much of the world. From 130 BCE, China, India, Persia and Europe established the trade routes known as the Silk Road.

40 000 BCE
Construction of the Brewarrina fish traps, Australia

10 000 BCE
Neolithic period begins (New Stone Age)

100 000 BCE
Homo sapiens have begun to migrate from Africa

6500–4000 BCE
Beginning of agriculture in Europe and Egypt

4000–2500 BCE
Farming and villages in western India

2 000 000 BCE
Palaeolithic period begins (Old Stone Age)

5000 BCE
Farmers in the Andes in South America begin to domesticate potatoes

63 000 BCE
Humans living at Madjedbebe, Australia

8000–4000 BCE
Development of agriculture and silk weaving in China

Religion
From the gods and goddesses of ancient Egypt and Greece to the Aboriginal Dreaming, detailed systems of belief developed in all ancient societies. These beliefs determined the laws, social organisation, marriage and rituals associated with death, fertility and crop production.

15 000–10 000 BCE
Painting of the Lascaux caves in France

Social classes
The wealth created by agriculture and trade led to specialised jobs such as craftspeople, artists, scribes and priests, as well as leaders. Most ancient societies were hierarchical, with their leaders at the top and warriors, priests, scholars and peasants below them.

Rule of law
Written laws, such as the Code of Ur-Nammu (c.2100 – 2050 BCE) and the Code of Hammurabi (c.1700 BCE), developed in many ancient societies. In other societies, laws were remembered and taught via song, story and art.

▲ **Video**
Evidence of ancient societies

Key features of ancient societies

From around 10 000 BCE, the **Neolithic period** saw the development of more settled societies across much of the world. As people learned how to domesticate animals and plants, hunter-gatherer tribes gave way to larger communities, ultimately leading to the development of cities.

Farming scene from an ancient Egyptian tomb
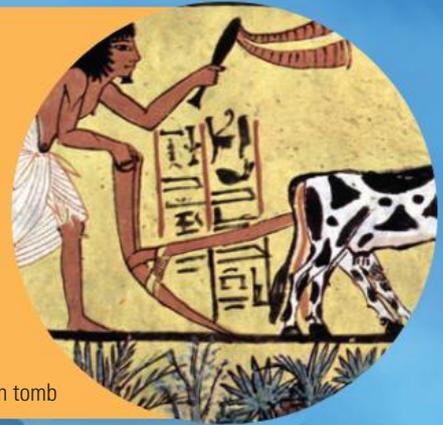
ACTIVITY: HISTORICAL OVERVIEW

1 Using the map, list the two continents humans first settled in after they moved out of Africa.
2 Suggest why human migration to North America probably occurred earlier than human migration to New Zealand.
3 **Identify** two examples of evidence supporting the idea that humans have lived in Australia for at least 40 000 years.
4 What challenges might historians face when analysing ancient written sources as evidence about the past?
5 Why might the rulers of ancient societies such as Sumer and Babylon have written down their laws and displayed them in public spaces?

Neolithic period an era of change when people who used stone tools moved away from hunting and gathering to settle in an area to farm animals and crops

Art
Artworks, including statues, architecture and paintings on rock, papyrus and paper, can provide evidence of daily life, religious beliefs and the environments and politics of ancient societies.

Iconography
Iconography refers to the symbols used to represent the beliefs and values of a society. Studying these symbols, such as the scarab beetle in Egyptian artefacts or the Yin and Yang from ancient China, provides historians with evidence about the values of ancient societies.

Writing
Writing was first developed in ancient Sumer (cuneiform script) and Egypt (hieroglyphs), emerging from 3400 to 3200 BCE. Writing developed in India around 2600 BCE and in China between 1500 and 1000 BCE. Translating ancient texts and inscriptions can provide important evidence for historians.

2700–2200 BCE
Pyramids built in Egypt

800–700 BCE
Rise of the Greek *poleis* (city-states)

58–50 BCE
Roman conquest of Gaul, led by Julius Caesar

166 CE
Roman merchants reach China by sea

3180–1500 BCE
Neolithic settlements (e.g. Skara Brae) and megaliths (e.g. Stonehenge) built across Europe

79 CE
The Roman cities of Pompeii and Herculaneum are destroyed by a volcanic eruption

Pottery
Ancient pottery has been found across Africa, Europe, Central and South America, and Asia. Pottery enabled humans to store or transport food, allowing them to remain in one place rather than following food sources. Ancient pottery gives evidence of the food eaten by people in ancient societies, as well as the goods traded between different settlements.

Tools
The earliest human tools were made from stone or animal bone. Metal tools were used from around 4000 BCE, made first from copper, then bronze and finally iron from around 1500 BCE. From tools, historians can learn about farming, hunting, housing and clothing, as well as weapons, used by ancient peoples across the world.

▲ **Video**
Key features of ancient societies

Depth study 1

Investigating the ancient past

Overview

Aboriginal and Torres Strait Islander Peoples are contemporary peoples who have the longest continuing cultures on Earth. Indigenous peoples have existed on and been connected to the Australian continent since 'the Creation time' – over 65 000 years ago. There are more than 260 distinct Aboriginal and Torres Strait Islander nations. Each has its own languages, cultures, knowledge systems and histories. In studying this living culture, we can respect its diversity by identifying the clans, nations, language groups and/or places that particular knowledge comes from. Aboriginal and Torres Strait Islander knowledge and cultures belong to those communities. They decide what can be shared, and who it can be shared with.

> **perspectives** different views of the past
>
> **cause and effect** the reasons for events and the consequences of these events
>
> **continuity and change** the reasons why things have changed or stayed the same

In Depth study 1, you will learn some of the skills of being a historian. Studying Aboriginal and Torres Strait Islander history means studying both an ancient and a modern society. The depth study brings together Aboriginal and Torres Strait Islander ways of knowing about the past as well as historians' ways of knowing about the past. It shares some of the First Nations' stories of what has come before now.

▲ **Video**
Depth study overview

As you study Depth study 1, you should reflect on how all Australians might use their knowledge of the past to build a better tomorrow.

Learning goals

After completing Depth study 1, you should be able to answer these questions:

- How do we know about the ancient past?
- Why and where did the earliest societies develop?
- What emerged as the defining characteristics of ancient societies?
- What key beliefs and values emerged, and how did they influence societies?
- Which significant people, groups and ideas from this period have influenced the world today?
- To what extent was the culture of First Nations Peoples in Australia shaped by the environment?

Introducing historical concepts and skills: *sequencing chronology*

This first depth study focuses on the concepts of **perspectives, cause and effect** and **continuity and change**.

▶ **Source F** Rock art at Awunbarna, which dates back thousands of years. This site sits on the lands of the Bininj peoples of western Arnhem Land.

To what extent was the culture of First Nations Peoples in Australia shaped by the environment?

Setting the scene: the complexity of Country

The Indigenous Peoples of Australia can trace their connection to the Australian continent to before European colonisation in 1788. The Indigenous Peoples of Australia are also referred to as Australia's First Peoples. There are two Indigenous Peoples in Australia: the Aboriginal Peoples of mainland Australia, and the Torres Strait Islander Peoples of the Torres Strait Islands. The Torres Strait Islands are located to the north of Queensland's Cape York Peninsula. Source materials often use different words to refer to Aboriginal and Torres Strait Islander Peoples and nations of Australia, including First Nations, First Peoples or Indigenous Peoples. Throughout this chapter, we will mainly use the terms Aboriginal and Torres Strait Islander Peoples, as well as First Nations.

colonisation the process of invasion, settlement and establishing control over

► **Source 1.1** This map attempts to represent the language, social or nation groups of Indigenous Australia. It shows only the general locations of larger groupings of people which may include clans, dialects or individual languages in a group. It used published resources from the eighteenth century to 1994 and is not intended to be exact, nor the boundaries fixed. It is not suitable for native title or other land claims. David R Horton (creator), © AIATSIS, 1996. No reproduction without permission. To purchase a print version visit: https://shop.aiatsis.gov.au/

Aboriginal and Torres Strait Islander Peoples should be aware that this chapter contains images and names of people who have, or may have, passed away.

THE AIATSIS MAP OF INDIGENOUS AUSTRALIA
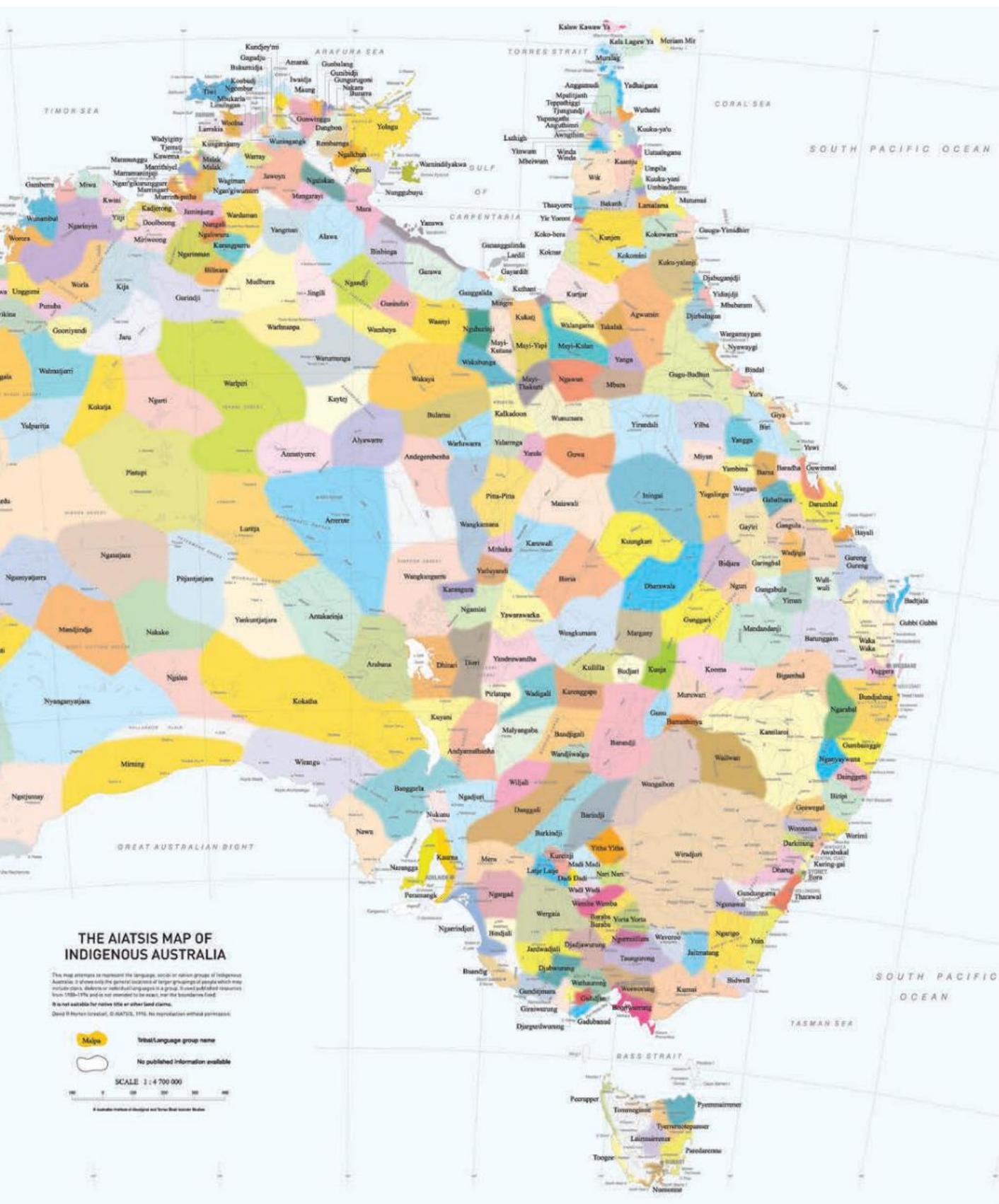
MAKING THINKING VISIBLE 1.1

See, think, wonder

Examine Source 1.1 A map of Indigenous Australia.

Step 1: See

1 **List** five details that you can see when you look closely at the map.

2 **Identify** the origin of this source. (Hint: look at the sourceline next to the map. Sourcelines often explain who created the source, and when and where it was created. In this case, you should consider who owns the copyright to the map – if you need to, you could research AIATSIS online to help answer this question.)

Step 2: Think

3 **Reflect on** what you see: what does this source make you think about?

4 Why do you think there are so many nations marked on this map?

5 How does this map differ from conventional political maps of Australia? What might this map suggest about the nature of First Nations history in Australia?

Step 3: Wonder

6 What does this map make you wonder?

Country a living entity that people are custodians for

There are over 260 distinct and diverse groups of Aboriginal and Torres Strait Islander Peoples. These diverse peoples have existed for thousands of years. Wherever possible, it is important that we acknowledge and respect the specific identity of each group. Historians do this best by identifying First Nations Peoples by their nation, language group or by the place where a person's specific traditional knowledge, culture and ancestors came from. This place is referred to as a person's **Country**.

The concept of Country is thousands of years old. This continuity is central to understanding Aboriginal and Torres Strait Islander societies, traditions and cultures.

ACTIVITY 1.1

Research activity

1 The AIATSIS map (Source 1.1) is not a map of Traditional Land Owners. Conduct research online to **identify** which traditional Countries the following Australian cities are located on:

- Brisbane
- Cairns
- Mackay
- Townsville
- Gold Coast
- Toowoomba.

2 **Identify** on which traditional Country your school is located. Is there any evidence of culture (the language, artworks etc.) of the traditional owner of the land at your school?

Chapter overview

Introduction

This chapter will help you develop an understanding of how historians and archaeologists investigate history, including the range of sources that can be used. It does this by exploring the history of Australia as it was long ago, the people who lived here then, and how 'ancient' times connect to the many vibrant Aboriginal and Torres Strait Islander Peoples, cultures and beliefs of today. It explores the traditional relationships between First Nations Peoples and Country. It explores their beliefs, their values and their practices in managing the land.

This chapter also looks at the historical sources available to us today that help us to understand Australia's pre-contact past. It explores oral histories and archaeological evidence. It also challenges you to consider our ongoing responsibility to treat First Nations Peoples' traditions, heritage, artefacts and remains respectfully and to reflect on how we might conserve the ancient past for future generations.

Key inquiry question

'To what extent was the culture of First Nations Peoples in Australia shaped by the environment?'

Every key inquiry question should have:

- An open interrogative
- A historical concept
- Specific content
- Scope and scale.

So, let's dissect this key inquiry question: ''To what extent was the culture of First Nations Peoples in Australia shaped by the environment?'

To answer a key inquiry question in a historical investigation, it is helpful to break the question into sub-inquiry questions.

Sub-inquiry questions

After completing this chapter, you should be able to answer these sub-inquiry questions:

- How do we know about ancient Australia?
- How did geography influence the development of First Nations Peoples?
- How did First Nations Peoples use and manage the land?
- How do First Nations cultures, beliefs and values continue to connect to Australia today?

Historical skills

After completing this chapter, you should be able to:

- Sequence events and developments within a chronological framework using dating conventions to represent and measure time
- Use relevant historical terms and concepts
- Devise questions to frame a historical inquiry when researching
- Identify and select a range of sources to answer inquiry questions
- Identify the origin and purpose of primary and secondary sources
- Locate, compare, select and use information from a range of sources to answer inquiry questions
- Draw conclusions about the usefulness of sources
- Examine sources to provide explanations of points of view.

▲ **Video**
Five interesting facts about First Australians

Timeline of key events

What came before this topic?

- **130 000 BCE** *Homo sapiens* emerged in Africa
- **65 000 BCE** It is unclear exactly when humans migrated to the Australian continent but artefacts dated to 65 000 years ago, found in Kakadu National Park, NT, are the oldest known definitive proof of humans on the continent.

Aboriginal cave paintings, Kakadu National Park

▲ **Video**
Kakadu National Park

Remains of Lake Mungo

65 000 BCE
Earliest archaeological evidence of Aboriginal and Torres Strait Islander Peoples dates from this time; the artefacts are from Mudjedbebe in the Northern Territory

40 000 BCE
The famous Mungo Lady and Mungo Man lived at this time in the lands of the Paakantji, Ngyiampaa and Mutthi Mutthi peoples, which are a part of what is now known as the Willandra Lakes Region, a World Heritage area of New South Wales

11 000 BCE
Much of Australia's coastline begins to be changed by inundation as ice sheets covering the earth begin to melt. New Guinea and Tasmania are separated from mainland Australia. Australia's current coastline took shape around 6000 years ago

A representation of Diprotodon optatum, the largest known marsupial from the Pleistocene of Australia

50 000–25 000 BCE
Evidence of megafauna living in Australia at this time has been found in many locations in Queensland. Megafauna existed alongside the First Peoples of Australia

20 000 BCE
Peak of the Ice Age; the climate was dry and there was little rain, which made the deserts of Australia much larger. Australia is joined to nearby land masses (New Guinea and Tasmania) by 'land bridges'. However archaeologists believe water crossing by boats or rafts was always necessary to reach mainland Australia

Responding to the timeline

1. Paleontology is the study of fossils. In Australia, paleontologists study dinosaurs and megafauna. **Research** and **explain** the different hypotheses regarding the cause of the extinction of megafauna in Australia.
2. **Describe** how the environment might have changed while First Nations Peoples were living in Australia, and **propose** how they might have had to adapt to survive.
3. **Investigate** the historical mystery of the death of Kaakutja, an Aboriginal man killed 800 years ago.

What came after this topic?

- **1770 CE** British navigator and explorer, James Cook, arrives in Australian waters and maps Australia's east coast. He has contact with numerous First Nations Peoples, including the Guugu Yimithirr people at what came to be known as Cooktown in the Cape York Peninsula. Cook spent 48 days at Cooktown repairing his damaged vessel *HMS Endeavour*. Cook claims the east coast of Australia for the British Empire.
- **1788 CE onwards** Invasion and colonisation of Australia by the British Empire. During the 1800s, much of Australia experienced a period known as the Frontier Wars between Aboriginal and Torres Strait Islander Peoples and colonisers

The First Fleet sails through Sydney Heads to enter Port Jackson on 26 January 1788.

Researchers from the University of Western Australia uncovered evidence of one of Australia's most ancient settlements while exploring the Dampier Archipelago in Western Australia.

1500 CE
Makassan peoples from Indonesia begin to visit northern Australia on a seasonal basis, trading with Aboriginal people on the mainland.
There were many visits to Australia's shores during the 1600s and 1700s. Other than the Makassan peoples who visited annually, through the 1600s and 1700s, seafarers from the Dutch East India Company regularly sailed along the Australian coastline on their way to the East Indies (now Indonesia) as part of the spice trade

8000 BCE
Climate settled into a pattern broadly similar to present-day Australia

7000 BCE
Evidence of stone houses from this time has been found in the Dampier Archipelago, WA

3000 BCE
There is evidence of the arrival of the dingo and the extinction of the Tasmanian tiger on mainland Australia around 5000-4000 years ago

7500 BCE
Sea levels rise 100 metres and the extensive plains of the Northern Territory, in what is now the Gulf of Carpentaria, are inundated. The rising sea levels had a profound impact on societies, with numerous Aboriginal and Torres Strait Islander oral histories preserving the details of coastal flooding and populations evacuating the coastal regions and migrating inland.

1200 CE
A skeleton, now known as Kaakutja, discovered in Toorale National Park, NSW, has been dated to around this time, and is thought to be the first known boomerang-attack victim

A typical Makassan boat. This depiction was painted by a Yolngu artist, Nagingapa Naminyamanja, in 1969.

BCE stands for 'Before the Common Era' (sometimes, 'Before the Current Era'), while CE stands for 'Common Era' (sometimes, 'Current Era'). There is also a calendar known as the 'Gregorian calendar' that uses the term BC instead of BCE and AD instead of CE. BC stands for 'Before Christ' and AD stands for 'Anno Domini', which is Latin for 'the year of our lord' (meaning from the time Jesus was born).

1.1   How do we know about ancient Australia?

FOCUS QUESTIONS

- How can modern science provide insight into ancient Australia?
- How can oral traditions and histories in Aboriginal and Torres Strait Islander communities provide insight into ancient Australia?
- What are relevant ethical considerations regarding historical research into Aboriginal and Torres Strait Islander matters?

Archaeology

In addition to exploring the oral histories of Aboriginal and Torres Strait Islander Peoples, modern researchers can learn a great deal about early societies from the physical evidence that is located within the Australian landscape. Specialised researchers who discover and analyse physical remains and artefacts of past societies are known as **archaeologists**.

archaeologist a person who researches human history and prehistory using scientific methods to discover the origins and developments of human societies

excavate to carefully dig up or reveal something in the ground

Everything we do has history, but most of that history was never written down. Historians often rely on written sources. Archaeologists don't have to! In a broad sense, archaeology is the study of past people through the things they used and places they inhabited.

Some parts of the past can seem almost invisible! Archaeologists reconstruct some of the invisible past through careful study, **excavation**, scientific analysis and collaboration with communities.

Written sources give opportunities for literate people to tell their stories, but archaeologists construct their understandings of the past from more than written sources. We use artefacts and remains left behind, such as bits and pieces of broken pottery, stone tools, seeds and bones, to uncover the past. Archaeologists find ways to "see" the lives of people who existed sometimes thousands of years ago! These people rarely feature in writing and often didn't write about themselves – the majority of people who have ever lived on this planet!

▲ **Source 1.2** Associate Professor Catherine Freeman, an archaeologist from the Australian National University

▲ **Video**
Space archaeology

The locations where archaeologists carry out their fieldwork are known as archaeological sites. Which sites to work on are identified through detective work that uses both historical sources and modern tools such as remote-sensing satellites, drone scanning, ground-penetrating radars, and metal detectors.

In Australia, archaeological sites may be located on land that has been occupied by First Nations Peoples for thousands of years. In these places, archaeologists work closely with traditional owners as they carry out their research. Because Australia's history is often deeply connected to the living cultures and beliefs of Aboriginal and Torres Strait Islander Peoples, Australian archaeologists may often work on sites of great spiritual and cultural importance. Their work may even uncover the physical remains of the ancestors of Aboriginal and Torres Strait Islander Peoples. Sadly, in the past, there have been occasions where the beliefs of First Nations Peoples have been disrespected. Modern researchers and archaeologists in Australia must work sensitively and respectfully in partnership with traditional owners.

Attention to detail is extremely important in the work of archaeologists. While some artefacts may be on the surface of the earth, sometimes archaeologists need to excavate to uncover the remains of a past community. Excavations such as these are known as 'digs'. During a 'dig', archaeologists work in teams and use modern technology.

Archaeologists conduct ground-penetrating radar surveys of archaeological sites before the dig starts.

An archaeologist controls the ground-penetrating radar and pushes it across the surface being surveyed.

A computer controls the radar and records the exact locations of discoveries underground. Discoveries might include physical remains and artefacts or even unusual changes in the shape of the ground itself.

High-frequency radio signals are transmitted into the ground. The radar 'listens' for those signals as they are bounced back at it from within the ground.

The radar is supported on a rugged and mobile platform.
The radar sends high-frequency radio signals into the ground and records how those signals are reflected back to the radar's antennae from within the ground.

◄ **Source 1.3** An archaeologist carries out a ground-penetrating radar **survey** in the Rinyirru National Park on the Cape York Peninsula. The archaeological team carrying out this survey worked closely with the site's traditional owners.

survey in archaeology, a survey is a type of physical investigation where an archaeologist carefully collects information about past human activities in a location

▲ **Source 1.4** A **shell midden** located in Weipa on the Cape York Peninsula. Middens can be thousands of years old. Some still sit on the surface, and they can extend under the ground. Often, middens are located at traditional feasting locations near the coast.

RESPONDING TO THE SOURCES — 1.1

Use Sources 1.2, 1.3 and 1.4 to answer the following questions:

1 **Explain** how archaeology might be a useful source of information about the lives of ancient First Nations Peoples.
2 **Identify** some challenges or limitations that archaeologists investigating the history of ancient First Nations Peoples might encounter.
3 **Explain** what archaeologists of ancient First Nations cultures need to take into consideration to properly and sensitively conduct their investigations.

While individual artefacts and other remains uncovered at archaeological sites can often tell us a great deal about the past, it is often important for groups of artefacts and remains to be considered together. Like completing a jigsaw puzzle, archaeologists often assemble many pieces to reveal a more complete picture of the past in a location.

Stratigraphy

Archaeologists know that different layers of earth have naturally formed at different time periods. This knowledge allows them to draw some conclusions about the ages of the remains that they excavate in a dig.

Identifying, analysing and studying these layers is called **stratigraphy**. A 'stratum' is a single layer of earth, whereas 'strata' is plural and means many layers of earth. Archaeologists and geologists use a variety of scientific methods to date strata – even if for some reason the strata have been disturbed.

shell midden a large mound of seashells piled up as a result of being thrown away after humans consumed the shellfish within the shells

stratigraphy the archaeological term that refers to interpreting and analysing the way different layers of earth (or strata) represent the relationship between events and time periods

Keeping each layer of earth (stratum) separate is important in an archaeological dig. As remains and artefacts are found in the excavation, they can be matched to the time period of the stratum in which they are found. This allows archaeologists to understand and sequence events **chronologically**.

Archaeological stratigraphy is the record left behind from sequences of human activity and the natural environmental changes of time passing. It's basically the story of the past upside down …

As people do things (such as build a house, dig a well, or dump rubbish) they leave marks that remain in the earth.

By looking at these remains and how they fit together in the earth, an archaeologist can reconstruct all these practices from the present time backwards and deeper to the point when things came to be deposited.

We can also understand what happened during each of the phases where marks were left in the earth by looking at the assemblage of the materials we find. These can be artefacts but we also find natural things like pollen, seeds, and even evidence of microscopic intestinal parasites!

Together, these sorts of studies allow us to date the various layers of earth from the very recent material to the very oldest. The layers help us tell the story of people at different times in the past. We can see the changes that happen over time … We can even tell how healthy people were!

Excavating a site is like reading a book. Every layer of earth is like a different chapter … but archaeologists have to be careful and knowledgeable enough to find the story by being able to separate each layer from the ones around it!

▲ **Source 1.5** Associate Professor Catherine Freeman, an archaeologist from the Australian National University in Canberra, explains stratigraphy in an email exchange with the authors in December 2020.

chronology the method of arranging events in the order in which they occurred, from earliest to latest

radiocarbon dating a method of calculating the age of less than 50 000 years old organic materials, like hair, bones, wood etc. by measuring the amount of a particular type of carbon (carbon-14) in them; also known as carbon-14 dating

◄ **Source 1.6** Basalt axe flakes discovered in the Kimberley, WA. These fragments were found in the same layer of sediment as a charcoal sample that was **radiocarbon dated** to be 48 875–43 941 years old. The remains of ancient axe heads have been found across Australia. Why are they significant archaeological finds, and what do you think they were used for?

RESPONDING TO THE SOURCES — 1.2

Using Sources 1.5 and 1.6, **explain** how stratigraphy can help archaeologists give a date to the artefacts they locate.

ACTIVITY 1.2

Working with historical sources

Examine the diagram in Source 1.7. This diagram illustrates the strata at an archaeological site in a coastal region of Queensland.
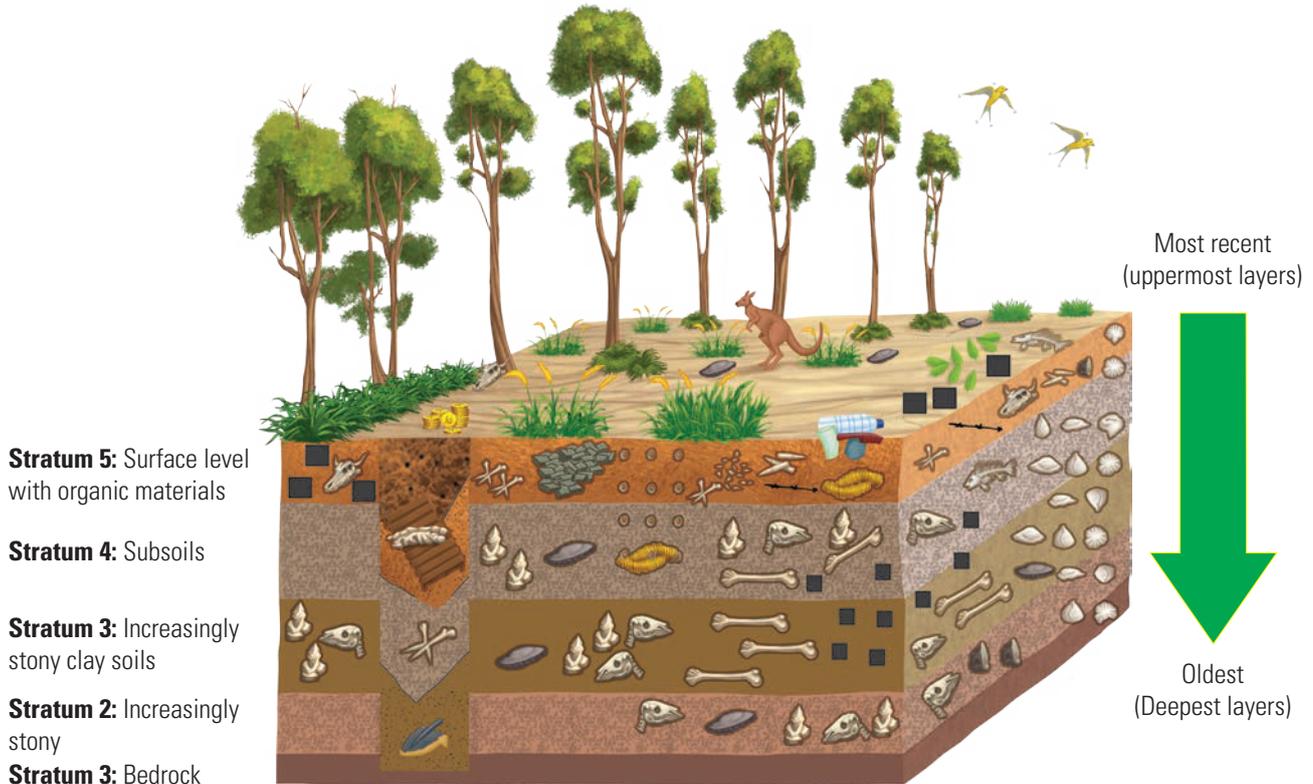
Stratum 5: Surface level with organic materials

Stratum 4: Subsoils

Stratum 3: Increasingly stony clay soils

Stratum 2: Increasingly stony

Stratum 3: Bedrock

Most recent (uppermost layers)

Oldest (Deepest layers)

Musket balls, bullet, spent cartridge casings

Rusting pieces of barbed wire

Charcoal

Fish bones

Nails

Bones of kangaroos and other native animals

Bone artefacts

Pile of opened shells from the nearby seaside

Burnt vegetation and organic material

Pre-decimal coins

Decimal coins

Plastics, aluminium and other litter

Fragments of building materials including bricks and cement

Broken ceramic from plates and shards of glass from bottles

Collapsed and decomposing remains of an old miners' ladder

Broken miner's shovel head

Cow bones

Large numbers of stone artefacts

Evidence of concrete foundations for a building

Grindstone

Pit at the entrance to a disused gold mining shaft

▲ **Source 1.7** The strata at a possible archaeological site in a coastal region of Queensland.

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1 **List** the human activities that you can identify that have taken place on this site.

2 **List** the different groups of people who appear to have lived and/or worked on this site.

3 **Describe** the human activities that appear to have taken place at these different levels:

    a Stratum 2

    b Stratum 3

    c Stratum 4.

4 **Explain** why human activities may have changed over time as revealed by stratum 2, 3 and 4.

5 **Explain** the way in which human activity seems to have changed in this area during the formation of stratum 5.

6 **Explain** how it is possible for the remains of a shovel to have been found in stratum 2.

7 **Explain** how it is possible that iron nails have been found in stratum 3.

8 **Consider** the locations of the distinct types of coins carefully. What might these locations reveal to archaeologists?

9 **Write** a paragraph that reveals the possible history of the location. Start with what the evidence found at the earliest layers reveals and continue through the layers in chronological order of events until you reach today at the surface of the site.

ACTIVITY 1.3

Drawing conclusions about the usefulness of primary and secondary sources

When studying history, we use primary sources (created in the time being studied) as well as secondary sources (created after the time being studied) to develop an understanding of the past. Sources 1.8 to 1.13 provide a selection of the kinds of primary and secondary sources that are useful in developing an understanding and appreciation of the history of First Nations Peoples in Australia.
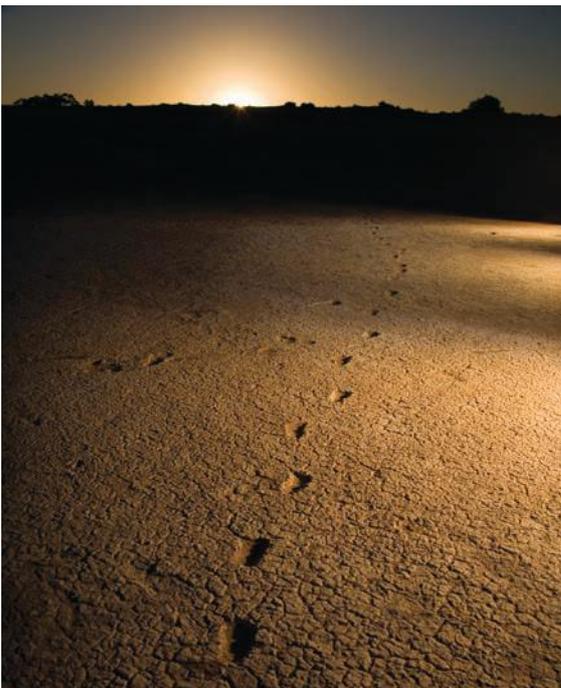
▲ **Source 1.8** Fossilised human footprints discovered in the Willandra Lakes Region, a World Heritage Site, in NSW. These prints were made 19 000 to 23 000 years ago.
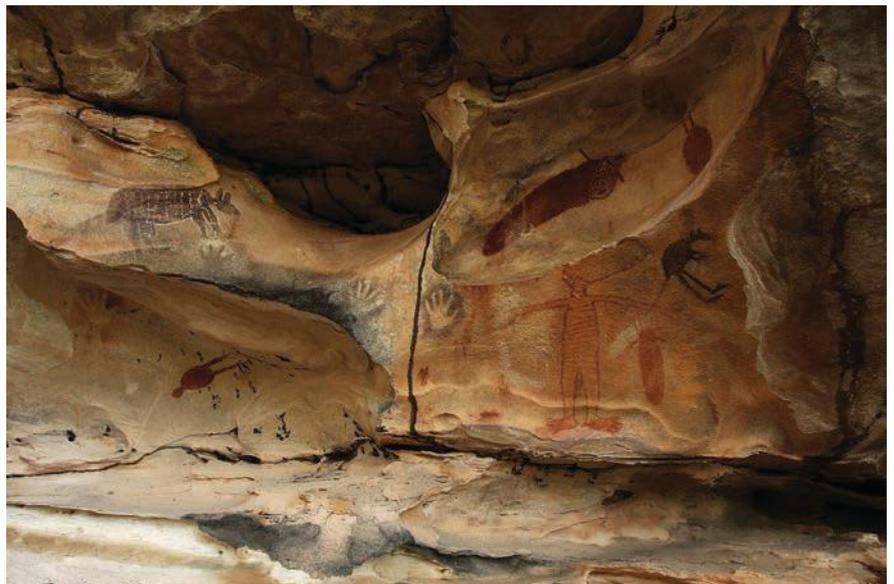
▲ **Source 1.9** Artwork of Giant Horse Aboriginal rock art galleries in the Quinkan Country, Laura, SA. Paintings, stencil art and engravings, dating back over 15 000 years, cover the lands traditionally home to the Kuku, Yalanji, Guugu Yimithirr and Kuku Thaypan people.

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▲ **Source 1.10** Illustration of some of Australia's extinct megafauna. Can you identify Megalania, the world's largest land-dwelling lizard, Macropus, the world's biggest kangaroo, Protemnodon, a giant forest wallaby, Quinkana, a land dwelling crocodile and Phascolonus, a giant wombat?

▲ **Source 1.11** Bone tools found in Riwi Cave in the Kimberley, WA. These artefacts have been dated to be more than 35 000 years old. Permission granted by Gooniyandi Traditional Owners of Mimbi Community.

▲ **Source 1.12** Gweagal men defend their land. This painting from 1872 shows Lieutenant James Cook arriving at Botany Bay in New South Wales and facing resistance from Gweagal men of the Dharawal Country. Cook's journal, a primary source, also records this incident, which took place on 29 April 1770.

▲ **Source 1.13** Part of a skeleton of a Diprotodon from Cox's Creek, Tambar Springs, NSW. Diprotodon was a megafauna marsupial that is a distant relative of wombats and koalas. It lived until about 44 000 years ago.

1 **Examine** Sources 1.8 to 1.13. Determine which sources would be suitable to investigate the following:

- Human presence in Australia prior to European colonisation
- Megafauna found in Australia.

2 **Classify** each source as primary or secondary and give a reason.

3 **Explain** what information each source would provide for your investigation.

luminescence dating a method of determining how long ago mineral grains were last exposed to sunlight or heat

Pleistocene Epoch a long period of geological time that includes the last glacial period, where temperatures were cooler and sea levels lower

Physical evidence

The oldest physical evidence that has been found of humans reaching mainland Australia is more than 65 000 years old. The evidence was found in northern Arnhem Land at the Madjedbebe rock shelter in Mirrarr Country. More than 10 000 artefacts were discovered there, including wall paintings, charcoal from cooking fires, food remains, artefacts such as stone axe heads, grinding stones and bone fragments. To determine the age of the artefacts at the rock shelter, archaeologists used a combination of radiocarbon dating and **luminescence dating**.

▲ **Source 1.14** Archaeologist Chris Clarkson works with local Djurrubu rangers at the Madjedbebe excavation site in the Mirrarr Country of Arnhem Land, Northern Territory, in 2015. Evidence of human life 65 000 years ago was found in Arnhem Land.

ACTIVITY 1.4

Working with historical sources

The Madjedbebe site in the Northern Territory was excavated by a team of archaeologists led by Professor Chris Clarkson from the University of Queensland. The team worked in partnership with the traditional custodians of the Mirrar Country.

The Madjedbebe site is a sandstone rock shelter – an overhanging rock wall that is decorated with Aboriginal art. The site contains evidence of very early human occupation in this area of mainland Australia during the **Pleistocene Epoch**. Sources 1.15 and 1.17 relate to the archaeological site Madjedbebe.

We found evidence for the mixing of ochre with reflective powders made from ground mica to make a vibrant paint.
...
We also found new forms of stone tools such as edge-ground hatchet heads (and even the grinding stones used to sharpen them). These were useful in cutting bark and wood, shaping wooden tools and extracting difficult-to-obtain foods from trees. The grinding stones from the site indicate a range of fruits, seeds, animals and other plants were ground up for food. These are the oldest known examples of seed-grinding stones found in Australia, if not the world. In ancient fireplaces from the site we also recovered pieces of burnt pandanus nuts, fruit seeds and yams, which give us clues to the earliest plant foods consumed at the site.

▲ **Source 1.15** Extract from 'Buried tools and pigments tell a new history of humans in Australia for 65 000 years', Chris Clarkson, et al., The Conversation, July 2017

Among the charred plant remains are fruit pips, nutshells, peelings and fibrous parts from tubers, and fragments of palm stem. These are the discarded leftovers of meals cooked and shared at the rockshelter tens of thousands of years ago.

…

Several of these plant foods would have required processing. This included the peeling and cooking of roots, tubers and palm stems; the pounding of palm pith to separate its edible starch from less-digestible fibres; and the laborious extraction of pandanus kernels from their hard drupes.

▲ **Source 1.17** '65 000-year-old plant remains show the earliest Australians spent plenty of time cooking', Anna Florin et al., *The Conversation*, February 2020

▲ **Source 1.16** Axes and grinding stones from the Pleistocene found in the excavations

1 Using Sources 1.15 and 1.17 determine what the evidence from this site reveals about daily life of ancient First Nations people.

2 As a class, **discuss** why archaeologists and others might believe it is important to work in partnership with Australia's First Peoples when excavating and researching sites such as Madjedbebe.

ACTIVITY 1.5

A historical mystery, Australia's megafauna extinction

Many First Nations Peoples' stories tell of a time of giant animals. The well-known story of the Rainbow Serpent is just one of these stories. The first peoples of Australia lived alongside now-extinct large animals called **megafauna**.

megafauna large animals over 40 kilograms, such as the elephant, rhinoceros and extinct diprotodon

Physical evidence of megafauna and representations of these creatures in Aboriginal and Torres Strait Islander Peoples' art have been found in many archaeological sites, including at Madjedbebe.

hypothesis a theory based on facts, or a suggested answer to a question, to be proved or disproved

The extinction of Australia's megafauna remains, to this day, the subject of a debate. The following sources provide a selection of some **hypotheses** that have been presented to explain the extinction of megafauna in Australia.

The megafauna extinction debate hinges on the coincidence of the arrival of Aboriginal Australians around 45 000 years ago, and the impacts they had on Australia's environment, including extinctions. Some scientists have suggested Aboriginal people drastically transformed the ecology of Australia.

The hypothesis is that through sustained burning Aboriginal people wiped out fire sensitive 'dry rainforest' that once grew across inland Australia. This changed the vegetation to flammable eucalypts and spinifex grasslands, and drove Australia's megafauna extinct.

▲ **Source 1.18** Extract from 'Did fire kill off Australia's megafauna?', David Bowman, *The Conversation*, October 2013

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Our study found that the demise of the megafauna in south-west Australia took place from 45 000 to 43 100 years ago and was not linked to major changes in climate, vegetation or biomass burning but is consistent with extinction being driven by 'imperceptible overkill' by humans.

▲ **Source 1.19** Extract from 'Humans killed most of Australia's megafauna: study', Karl Gruber, *Australian Geographic*, January 2017

Climate change, not early humans, was likely responsible for the extinction of Australia's megafauna, according to groundbreaking research that has rewritten the ancient history of our continent.

▲ **Source 1.20** Extract from 'Groundbreaking research rewrites Australia's ancient history', Stuart Layt, *Brisbane Times*, May 2020

lunette a crescent-shaped chain of dunes bordering a lake bed or valley in arid or semi-arid locations

It is generally thought from the archaeological record that people first arrived in Australia about 50 000 years ago, perhaps as long as 60 000 years back. Many of the megafauna were slow-moving and perhaps easily hunted, but they would also have been vulnerable to changes in their environment. However there is little evidence to show that early Australian people hunted the big animals.

The earliest signs of people at Willandra Lakes are about 45 000 years old, and preserved in their campsites are the remains of what they ate. None of the Willandra megafauna have been found in campsites. In the ancient Willandra menu, meat meant mainly shellfish, yabbies, fish and a vast array of small mammals, including hare wallabies, bettongs, bandicoots, bilbies and native rats. These species could be caught in either the lake or in **lunette** burrows. Larger kangaroos are less common in the remains, but perhaps these were caught and eaten away from the lakes. Maybe megafauna too were hunted and eaten on the plains?

▲ **Source 1.21** Extract from the Mungo National Park website

1 **Analyse** Sources 1.17 to 1.20 to identify the hypothesis that each author presents for the extinction of megafauna in Australia.

2 **Conduct** additional research and, with a partner, discuss which hypothesis you think is most convincing regarding Australia's megafauna extinction.

Oral traditions and histories

Elders knowledge custodians, responsible for passing the traditional knowledge on to the right people in the right context at the right time

deep time the long period of time before the arrival of Europeans on the Australian continent, stretching back as far as we now know, to at least 60 000 BCE

knowledge stories an expression of a rich, complex and spiritual way of seeing the world. Each group of Aboriginal and Torres Strait Islander Peoples has its own body of traditional knowledge and its own belief system

Dreaming stories stories connected to specific Country, to specific places and/or to specific things in a place

Aboriginal and Torres Strait Islander Peoples communicate their understandings, traditions and knowledge to each other through story, in instructions or directions, through dance, and in song. Sharing knowledge in this way can be referred to as oral tradition or oral history. The careful passing on of oral traditions is an important responsibility of
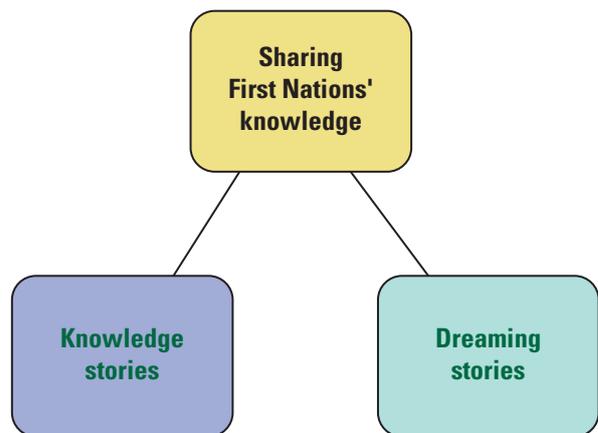
the **Elders.** The oral traditions and histories of First Nations Peoples have been passed down through the generations for thousands of years. Many of these traditions trace back to **deep time.**

Sharing First Nations' knowledge

Knowledge stories

Dreaming stories

Such knowledge is a central part of Aboriginal and Torres Strait Islander Peoples' cultures. This knowledge helps to ensure that cultural practices and values from the earliest generations of First Nations Peoples remain strong today. Also, traditional knowledge helps Aboriginal and Torres Strait Islander Peoples maintain links with their ancestors.

Some historians believe that oral histories, which rely on the memory of individuals, are less reliable historical sources than tangible objects, such as written documents or artefacts.

The lack of exact chronologies and dates is often one of the shortcomings listed for oral traditions, with some historians considering oral traditions and histories unreliable, trusting them less than conventional historical sources. Nicholas Reid, a researcher, has said a key feature of First Nations storytelling culture is a distinctive 'cross-generational cross-checking' process:

It's an extraordinary thing. We don't find this in other places around the world … Say I'm a man from central Australia, my father teaches me stories about my Country. My sister's children, my nephews and nieces, are explicitly tasked with the kin-based responsibility for ensuring I know those stories properly. They take those responsibilities seriously. At any given point in time, my father is telling the stories to me and his grandkids are checking. Three generations are hearing the story at once … that's a kind of scaffolding that can keep stories true. When you have three generations constantly in the know, and tasked with checking as a cultural responsibility, that creates the kind of mechanism that could explain why [the First Nations peoples of Australia] seem to have done something that hasn't been achieved elsewhere in the world: telling stories for 10 000 years.

▲ **Source 1.22** Researcher Nicholas Reid describes how oral traditions could be faithfully passed down in First Nations cultures across 300 generations in a way that does not exist in any other part of the world.

MAKING THINKING VISIBLE 1.2

Know, New, Question

Australian researchers have compared an ancient Greek technique of memorising data to an even older technique from Aboriginal culture – using medical students.

Medical students, and doctors, need to retain large amounts of information – from anatomy to diseases and medications.

'Because one of the main stressors for medical students is the amount of information they have to rote learn, we decided to see if we can teach them alternate, and better, ways to memorize data,' Dr Reser said.

In Aboriginal culture, which relies on oral history, facts like navigation, food sources, tool use and inter and intra tribal political relationships are important for survival. Aboriginal methods of memorising also used the idea of attaching facts to the landscape, but with added stories which describe the facts and the placement to facilitate recall.

In the study, one group of students used a technique called 'memory palace' in which they memorised facts by 'placing' them into a memory blueprint of the childhood home, allowing them to revisit certain rooms to recapture that data. Another group of students were taught a technique developed by Australian Aboriginal people over more than 50 000 years of living in a **custodial relationship** with the Australian land.

custodial relationship First Nations Peoples are known as the traditional owners or custodians of the land in Australia

The students who used the Aboriginal method of remembering had a significantly improved retention of facts compared to the control and the 'memory palace' group.

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Importantly, a qualitative survey found that the students using the Aboriginal technique found it more enjoyable, 'both as a way to remember facts but also as a way to learn more about Aboriginal culture', Dr Reser said.

▲ **Source 1.23** Adapted from 'New study finds ancient Australian Aboriginal memory tool superior to "memory palace" learning among medical students', Monash University website, May 2021

1 How do you remember important things?

2 What new memory techniques were mentioned in this article?

3 What questions do you have?
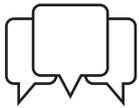
Discuss whether research like the one reported in Source 1.23 increases or decreases the reliability of First Nations Peoples' oral histories as historical sources for ancient Australia.

As a historian, I have always been keenly aware of the limitations of documents, which only go back a few centuries on this continent. But this is not where Australian history began. We now know that this country's Indigenous history extends over 60 000 years.

▲ **Source 1.24** Historian Billy Griffiths on historical sources for Ancient Australia

RESPONDING TO THE SOURCE — 1.3

Using Source 1.24, **reflect on** the difficulties historians have working with First Nations ways of knowing, and knowing about, the past.

ACTIVITY 1.6

Hearing the perspectives of your local traditional knowledge holders

In history, we need to remember that all sources privilege a particular point of view – this is called perspective. This point of view can be narrow or only be the point of view of some people. Historians should try to look at history from a number of different perspectives and to weigh up these perspectives before drawing conclusions about the past.

Even though we know that Aboriginal and Torres Strait Islander Peoples share their histories through oral traditions, we often rely on written sources of history when studying Australia's past. These written historical sources only tell us part of the story – that is, only a particular perspective. This point of view is sometimes only the perspective of those who held power as Australia was colonised. These sources can often omit or misrepresent the histories of Aboriginal and Torres Strait Islander Peoples.

One way of engaging with the perspectives of First Nations Peoples is to ask a custodian of the traditional knowledge to visit and share some of their oral history with your class.

1 **Explore** with your teacher ways in which you might engage with local custodians of knowledge. Perhaps a local Elder is willing to share their perspectives with your history class.

2 **Identify** ways in which your class might engage respectfully, and reciprocally (which means to respond to a gesture with a corresponding one), with this custodian of knowledge if they wished to share their community's traditions with your history class.

3 **Compile** a list of questions about the First Nations history of the Country on which your school is located that you might ask this Elder.

Respecting Aboriginal and Torres Strait Islander traditions: the Lake Mungo controversy

Lake Mungo is one of the most significant archaeological sites in Australia. Located in the Willandra Lakes Region in south-west New South Wales, the region is home to the Paakantji, Mutthi Mutthi and Ngiyampaa peoples. Aboriginal peoples arrived in the area approximately 40 000 years ago. Today, Lake Mungo is a semi-arid desert environment but thousands of years ago it was filled with water. Remains of Aboriginal people have been excavated at Lake Mungo by archaeologists. This excavation has been part of a significant controversy about how archaeology in Australia should be conducted.

When researchers – led by a non-Indigenous geologist and archaeologist, Jim Bowler – began to study the area in the late 1960s and early 1970s, they found evidence of the traditions of early societies in the area. This included evidence of funeral practices in which bodies were washed with ochre and cremated.

At this time, archaeologists had not yet developed today's appreciation of the importance of working closely with local traditional owners and communities. Australian archaeologists excavated the remains of 'Mungo Man' and removed the bones from the area. Over the years, research teams took many other bones and artefacts that they found in that area 'out of Country' for study. This was not an uncommon practice at the time around the world. The researchers made many important scientific discoveries about the length of human settlement in Australia and about ancient customs and practices – especially those regarding funeral practices. The excavations, however, came to be widely criticised.

Since the 1960s, Australians have been journeying towards **reconciliation**. On this journey, we are challenged to keep learning, respectfully, about the history of Aboriginal and Torres Strait Islander Peoples and their cultures. The controversy over the respectful treatment of the Lake Mungo remains was part of this journey.

In November 2017, 'Mungo Man' and the ancestral remains of 104 other people were returned to Elders and reburied according to traditional custom, on Country, at Lake Mungo.

reconciliation bringing together Aboriginal and Torres Strait Islander Peoples and other Australians to create good relationships

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The recovery and management of the remains of ancestors is an issue of great sensitivity to Aboriginal people. This sensitivity comes from both cultural beliefs and the treatment of Aboriginal people by governments, scientists and others in the recent past. Many skeletons and other remains, both ancient and modern, were taken and studied without permission. Some were scattered, sent overseas and kept in collections. This is still a controversial issue today and not all remains have been returned to their Country and their people.

▲ **Source 1.25** An extract from the Mungo National Park website, written by the Willandra Lakes Traditional Tribal Groups Elders Council and New South Wales National Parks and Wildlife Service (2021)

Let remains alone

Aboriginal people have demanded that excavation of archaeological remains from Lake Mungo in western New South Wales cease … A lawyer acting on behalf of the people had written to the archaeologists concerned to say they should stop and return all finds to the traditional owners. A similar letter had been sent to the National Parks and Wildlife Service asking that permits no longer be given for this type of archaeological work. Some other groups had also written letters about interference with burial sites in other areas.

The Lake Mungo excavation was described as a 'crisis' … [and] draft laws which had been drawn up for the protection of sacred sites were criticised … There were also calls made for the Australian Government to consider legislation to control of the trade in valuable Aboriginal artefacts. Some of these were even being sold overseas.

▲ **Source 1.26** Adapted from an article in *The Canberra Times*, 28 September 1974, p. 7

▲ **Source 1.27** In November 2017, the remains of 'Mungo Man' and 104 other ancestors were returned to their Country at Lake Mungo.

A 42 000-year-old man finally goes home

anthropologists scientists engaged in the study of humankind, both from past and present societies

Traditional owners say the return of the remains of the historic Mungo Man, who was removed by scientists from his resting place more than 40 years ago, will provide closure and is a step toward reconciliation.

More than four decades ago **anthropologists** removed the ancient skeleton of an Aboriginal man — the discovery of which rewrote Australian history.

Now he has been returned home to his descendants, travelling for days in a hearse from Canberra.

…

Traditional owners hosted a welcome home ceremony attended by hundreds to celebrate the historic return of the 42 000-year-old remains of Mungo Man to his original resting place.

'Today is one of those catalytic moments that we need to enhance Australian society, and bring empathy into, understanding the Aboriginal culture,' said Paakantyi man Michael Young, who is also a member of the Aboriginal Advisory Group for Mungo Man's return.

…

Mungo Man was buried with his limbs stretched out, his hands crossed across his groin and was covered in ochre that had been brought from more than 200 kilometres away.

It was some of the earliest uncovered evidence of ritualistic burial in the world, and proved that early Aboriginal Australians had a robust belief and burial system — around the same time as Neanderthals were roaming Europe.

After his remains were uncovered he was moved to Australian National University in Canberra where he was kept for about 40 years.

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Geologist Jim Bowler found Mungo Man and said the profound scientific discoveries could not have taken place if he was not moved.

…

'The Aboriginal people voiced their objection, we were intruding into their history, not our history.'

…

While many are celebrating the historic return of Mungo Man, there are major concerns there is still no final resting place for him.

…

Mr Bowler said state and federal governments should do more to create a respectful final place of rest.

…

'He needs a major memorial, a major identification of his iconic status. In the pages of earliest Australian history his name stands out, and we have failed to make a final resting place for a historic remains.'

▲ **Source 1.28** On 17 November 2017 at Lake Mungo, Mungo Man and the remains of others were carried in a casket made from 5000-year-old red gum to their ancestral lands, with Aboriginal Elders leading a ceremony.

▲ **Source 1.29** Extracts from 'Mungo Man returned to ancestral home where he died 40 000 years ago', Isabella Higgins, ABC website, November 2017

▲ **Source 1.30** First Nations Peoples and others gather for a traditional, on Country, funeral ceremony for Mungo Man's remains and the remains of others. Mungo Man was the ancestor of the Mutthi Mutthi, Ngiyampaa and Paakantyi peoples. These three communities worked together for 40 years until a government decision was made in 2015 to repatriate (return) his and other remains.

RESPONDING TO THE SOURCES — 1.4

1 Using Source 1.25, list reasons why the recovery of the remains of ancestors is important to Australia's First Nations Peoples.

2 Using Source 1.26, **identify** two actions that First Nations Peoples would like to see stopped. **Explain** why they feel this way.

3 Using Source 1.29, **explain** the reason why geologist Jim Bowler believed removing Mungo Man was the correct decision to make. **Explain** the argument against this.

4 **Explain**, in a paragraph that refers to Sources 1.25 to 1.30, why archaeologists and historians must treat Aboriginal and Torres Strait Islander Peoples' cultures and traditions with great sensitivity, care and respect.

As a class, discuss your responses to the following question: 'Is it ethical to allow the study/removal or display of skeletons for research purposes or tourism anywhere else in the world?'

ACTIVITY 1.7

Ethical understanding: is it OK to display human remains?

Select one of the following displays of human remains:

- The Capuchin Crypt
- The Tollund Man
- Ötzi
- The Cambodia Killing Fields
- The body of St Francis Xavier
- The Plaster casts of Pompeii
- The Lady of Ampato

or another suitable example provided by your teacher.

1 **Identify** whose remains they are and where they are located.
2 **Identify** how they died.
3 **Research** and **explain** why the remains are on display.

ACTIVITY 1.8

Attitudinal scale in a moral dilemma

In your class, create an attitudinal scale from one end of the classroom to the other. At each end will be the absolute opposing viewpoints regarding whether it is ever acceptable to display the remains of humans.

1 Each student will place themselves along the scale continuum. Various students will be asked to **justify** why they are standing where they are.
2 Each student will then have the opportunity to move after hearing the viewpoint of others in the class. Students will again be asked for **justifications**.

REFLECTING ON YOUR LEARNING 1.1

Reflect on what you have learned in this section:

1 Based on the information and sources in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How do we know about ancient Australia?'
2 How could the information and sources in this section contribute to answering your overall inquiry question: To what extent was the culture of First Nations Peoples in Australia shaped by the environment?

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

1.2   How did geography influence the development of First Nations Peoples?

FOCUS QUESTION

How did climate change and variations in sea levels influence the colonisation of Sahul by the ancient First Nations Peoples?

Migration to Sahul

The history of Aboriginal and Torres Strait Islander Peoples and cultures needs to be considered alongside the long story of the Australian landmass. The **climate** and shape of the land have an impact on where humans migrate and how our cultures develop. These factors also influence how we live, the beliefs we have, and our relationship with the environment. The history of the world's geography has influenced where and how the first humans established communities.

The last Ice Age began about 115 000 years ago. During this time, land was gradually exposed, which allowed the first humans to migrate to other areas by walking. The Ice Age ended about 11 700 years ago when sea levels rose because of the melting ice caps. This made the gaps between lands larger and some groups were cut off from other groups entirely. For most of the Ice Age, mainland Australia and Tasmania were joined by **land bridges** to the island of New Guinea forming a large landmass that is now called **Sahul**. Sahul separated when the sea levels rose about 10 000 years ago.

climate the general weather conditions usually found in a specific place

land bridge a connection between two land masses that allowed humans and animals to cross to new areas

Sahul an ancient continent that once existed; it was made up of modern mainland Australia, Tasmania, the Torres Strait Islands, New Guinea, and parts of Indonesia
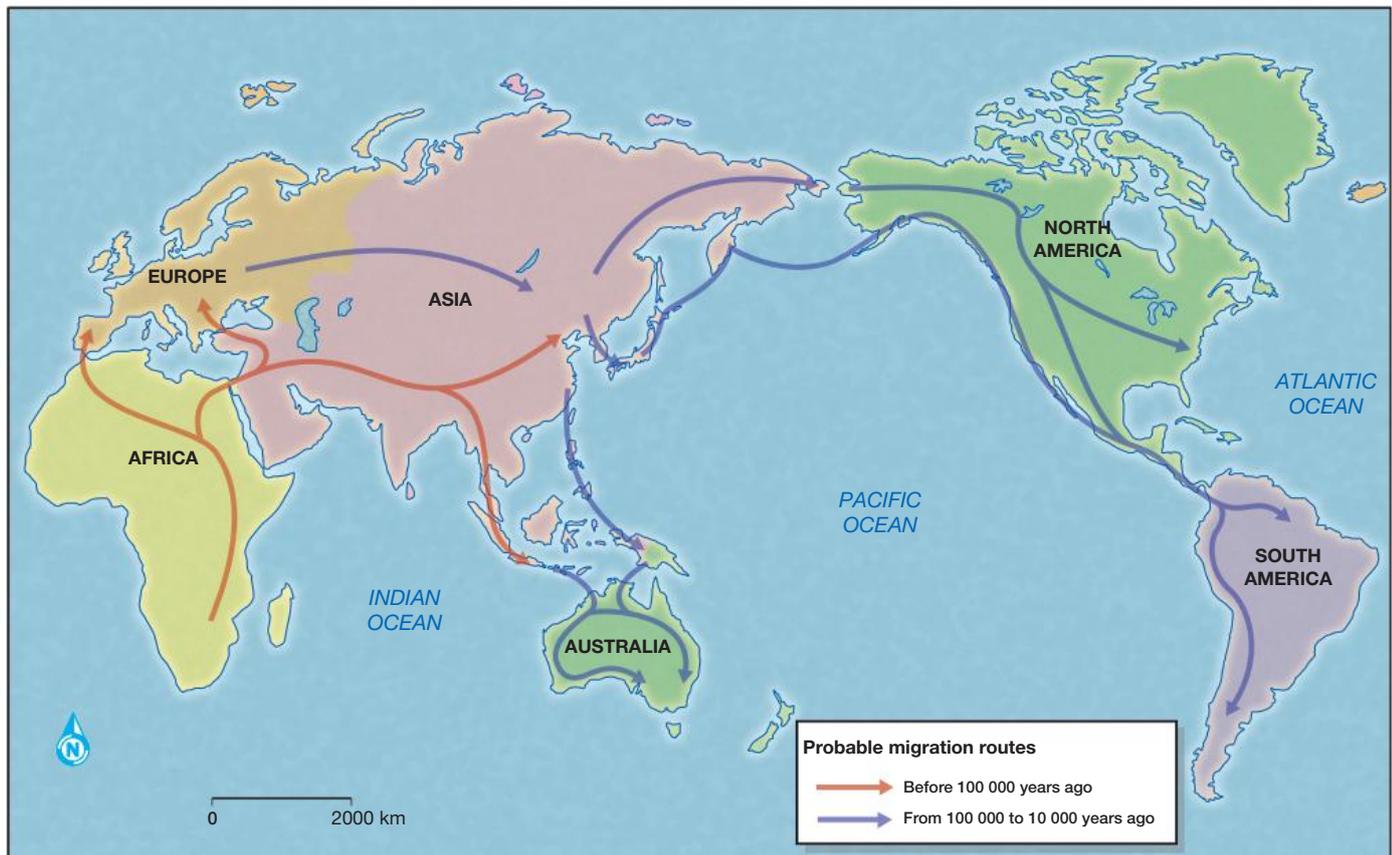
▲ **Source 1.31** During the last Ice Age, the first humans were able to migrate to other areas by walking. This map shows the migration routes of early humans.

CHAPTER 1   TO WHAT EXTENT WAS THE CULTURE OF FIRST NATIONS PEOPLES IN AUSTRALIA SHAPED BY THE ENVIRONMENT?

34

Since Tasmania was connected to the Australian mainland during the Ice Age, Bass Strait did not exist. Instead, the area was a plain populated by Aboriginal communities. These groups could move back and forth on dry land between what we now call Victoria and Tasmania.

Following an initial migration 50 000 years ago, populations spread rapidly around the east and west coasts of Australia … Those first Australians entered a landmass we collectively call 'Sahul', where New Guinea was connected to Australia. The Gulf of Carpentaria was a massive freshwater lake at the time and most likely a very attractive place for the founding population.

… [T]he first Aboriginal populations swept around the coasts of Australia in two parallel waves. One went clockwise and the other counterclockwise, before meeting somewhere in South Australia. The occupation of the coasts was rapid, perhaps taking no longer than 2000 to 3000 years. But after that, … populations quickly settled down into specific territory or Country, and have moved very little since … [These] people – once settled in a particular landscape – stayed connected within their realms for up to 50 000 years despite huge environmental and climate changes. We should remember that this is about ten times as long as all of the European history we're commonly taught.

This pattern is very unusual elsewhere in the world and underlines why there might be such remarkable Aboriginal cultural and spiritual connection to land and Country.

▲ **Source 1.32** Scientists Alan Cooper, Ray Tobler and Wolfgang Haak from the University of Adelaide describe the Aboriginal migration into Australia that took place about 50 000 years ago.

Scientific evidence tells us that the first humans arrived in Tasmania about 40 000 years ago. We also know that sea levels rose to form Bass Strait approximately 12 000 years ago, cutting Tasmania off from the rest of Australia.

Interesting fact

For thousands of years a land bridge, known as the Bassian Plain, connected mainland Australia to Tasmania and First Nations Peoples could travel back and forth between Victorian and Tasmania.

Based on language groups studies, it is believed that there were at least three successive waves of colonisation of Tasmania by First Nations Peoples.

The ancestors of Aboriginal Tasmanians remained isolated on Tasmania for around 8000 years, from the end of the Ice Age until European exploration and colonisation.

Most prehistorians take seafaring – defined as deliberate, place-to-place, open-ocean voyaging – to be a relatively recent phenomenon, dating no earlier than the terminal Pleistocene, 10–15 000 years ago. Others regard this assessment as too conservative, drawing attention to evidence of a more remote origin, associated with the initial colonization of Sahul (Pleistocene Australia-New Guinea).

Archaeological evidence and demographic modelling indicate that seafaring was central to the colonization of Sahul and parts of Near Oceania roughly 45 000 years ago.

▲ **Source 1.33** Extract from 'Pleistocene Sahul and the origins of seafaring', James O'Connell et al., 2008
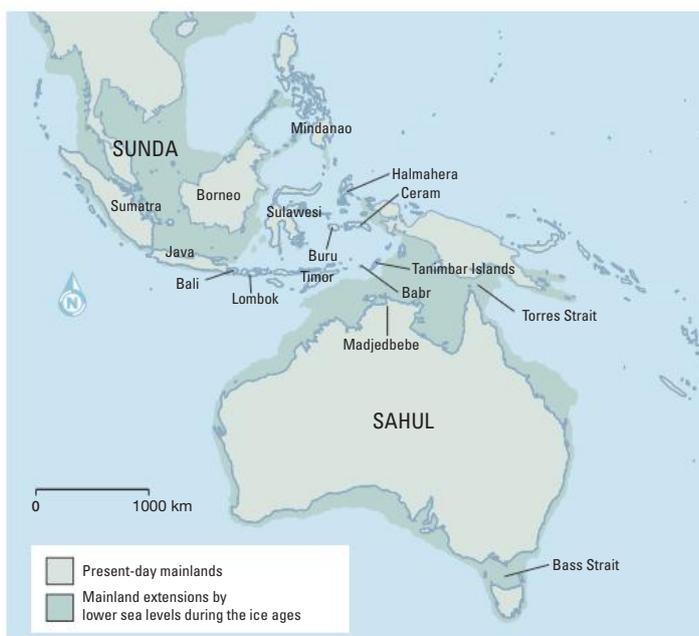
◄ **Source 1.34** Australia's landform 20 000 years ago. There were bridges of land connecting some of the islands of Indonesia to South-East Asia (Sunda). There were also bridges of land connecting New Guinea, mainland Australia and Tasmania (Sahul).

RESPONDING TO THE SOURCES — 1.5

1   Source 1.31 shows the movement of early humans across the world. These waves of migration took place over thousands of years. According to this source, on what continent did humans first emerge?

2   Using Source 1.31, **explain** where the first humans migrated to (before 100 000 years ago).

3   **Define** the term 'Sahul' using Source 1.32.

4   Using Sources 1.32–1.34 **describe** how First Nations Peoples may have arrived in Australia.

Climate changes: the Ice Age (20 000 BCE–11 700 BCE) and rising sea levels (11 000–3000 BCE)

During the Ice Age, the climate became cooler. During this time, many forests disappeared, and some areas transformed into deserts. Researchers have discovered that when the climate cooled, the populations of Aboriginal and Torres Strait Islander Peoples reduced and sought sanctuary in well-watered areas.

After the Ice Age, sea levels rose and 'drowned' one-quarter of the Sahul landmass. The Torres Strait was transformed into a series of islands. New Guinea and Tasmania were cut off from mainland Australia. The inundation that took place after the Ice Age wasn't a sudden flood. Sea levels rose only 1–2.5 centimetres each year. However, in low-lying coastal areas, this small increase was

enough to submerge areas of land hundreds of metres wide in just one year. In a single lifetime, Aboriginal and Torres Strait Islander Peoples may have experienced significant loss of land. Some groups had to move further inland when the seas rose. Others found that their ancestral Country located on peaks of higher ground had, over generations, become transformed into islands.

Rising sea levels are mentioned in First Nations deep time stories. For example, a story from Gunggandji Country near Cairns tells of grassy plains and sacred places that are now located under the Coral Sea near Green Island. All of these stories are similar because they tell of a time when parts of the Australian coastline that are now under the sea were dry land. Many of these stories are sacred and describe the way the landscape was 'drowned' as a result of the actions of spiritual, ancestral beings.

► **Source 1.35** A map – developed by researchers Patrick Nunn (from the University of the Sunshine Coast) and Nicholas Reid (from the University of New England) – showing 21 locations where recorded Aboriginal and Torres Strait Islander Peoples' knowledge stories tell of rising sea levels.
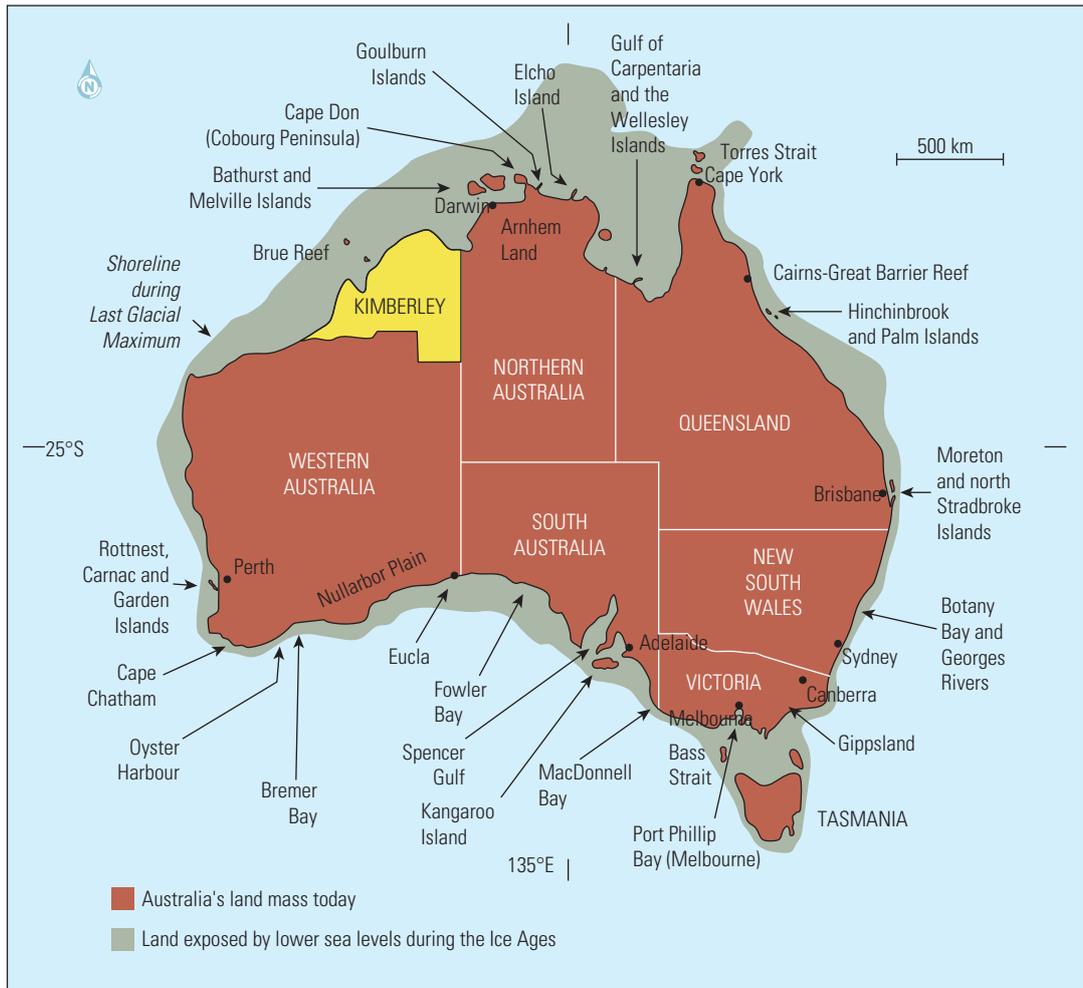
Researchers Nunn and Reid summarised the following knowledge stories that were shared with them in 2016:

The principal story concerns two Aboriginal peoples, the Noonuccal of north Stradbroke and the Nughies of Moreton. One version states that a bailer shell kept by the Noonuccal contained power over the winds and was coveted by the Nughies. When the keeper of the bailer discovered this, he summoned the winds and commanded them to blow so hard that the connection between the islands would be severed, something that caused the Nughies to become stranded thereafter on Moreton Island.

▲ **Source 1.36** A knowledge story about the rising sea levels in the area that separated Moreton and north Stradbroke Island near Brisbane

According to Gungganyji informants … the barrier reef was the original coast here at a time when a man called Gunya was living here. [After he] consumed a customarily forbidden fish, the [ancestors] caused the sea to rise in order to drown him and his family. He evaded this fate by fleeing to the hills but 'the sea … never returned to its original limits.

▲ **Source 1.37** A knowledge story about the rising sea levels near Cairns

In the beginning, as far back as we remember, … we roamed freely throughout the land without having to get in a boat like we do today. Then Garnguur, the seagull woman, took her raft and dragged it back and forth across the neck of the peninsula letting the sea pour in and making our homes into islands.

▲ **Source 1.38** A knowledge story about the rising sea levels near the Wellesley Islands in the Gulf of Carpentaria. This story was shared by a non-Indigenous source in 2015.

In the Whitsunday Islands … the distance became too great, with the mainland over 30 kilometres away … the people were left to cope on their own [and] they did so by becoming specialised marine **foragers**. They developed their own artistic traditions and a distinct social and **linguistic** identity. They invented new tools to suit their particular **subsistence** needs: fishhooks from shellfish and turtle shell, spear points from bone and wood, as well as nets and shell-scraping tools.

▲ **Source 1.39** A non-Indigenous archaeologist, Scott Cane, explains the impact of rising sea levels on the Ngaro Country in Queensland's Whitsunday Islands. The Ngaro were skilled seafarers who navigated their three-piece canoes over large distances to trade, fish and hunt small whales.

forager a person or animal that goes from place to place in search of things that they can eat or use

linguistic related to language or the study of language

subsistence the state of existing by having just enough resources like food and water to stay alive

RESPONDING TO THE SOURCES — 1.6

Use Sources 1.36–1.39 to answer the following questions:

1   Represent one of the knowledge stories that explains the rising sea levels through a dramatic performance or artwork.

2   Locate the sites on a map of Australia and corroborate the information in the sources to respond to the statement: 'sea levels rose in Australia and caused change'.

3   **Suggest** how rising sea levels could have been the push for particular innovations or developments.
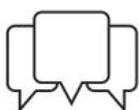
Discuss how useful and valuable oral histories might be for potentially gaining an insight into the effect that sea level rises might have had on ancient First Nations Peoples.

MAKING THINKING VISIBLE 1.3

+1 Routine

1   Take two to three minutes of individual reflection to create, from memory, a list of key ideas you recall from this section.

2   Swap your list with the list of one of your classmates. Take one to two minutes to read that list and add new things (such as details, missing ideas, a correction etc.).

3   Repeat step 2 at least two times with different classmates.

4   Retrieve your list. Read through and review all the additions made to your list. Add any new ideas you might have had from reading three other lists.

REFLECTING ON YOUR LEARNING 1.2

Reflect on what you have learned in this section:

1   Based on the information and sources in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did geography influence the development of First Nations Peoples?'

2   How could the information and sources in this section contribute to answering your overall inquiry question: To what extent was the culture of First Nations Peoples in Australia shaped by the environment?

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

1.3   How did First Nations Peoples use and manage the land?

FOCUS QUESTIONS

- What farming techniques did ancient First Nations Peoples use?
- How did ancient First Nations Peoples manage available water resources?
- What methods were used by ancient First Nations Peoples to catch fish?
- How did ancient First Nations Peoples use fire to manage the land?
- How did ancient First Nations Peoples use the Sun, Moon and stars?

nomadic people without a fixed home

hunter-gatherers members of a society that live by hunting and collecting wild food, rather than by farming

The ways in which Aboriginal and Torres Strait Islander Peoples manage the Australian landscape are deeply connected to the concept of Country. Country is vitally important to First Nations Peoples. 'Country' means more than just the land and all the things on it. It also means the spiritual relationships that exist between all the things in a place.

Because Aboriginal and Torres Strait Islander Peoples are custodians of Country, they are responsible for keeping it healthy and strong.

What farming techniques did ancient First Nations Peoples use?

Aboriginal and Torres Strait Islander Peoples, on Country today, continue to actively manage the land in complex ways. They use unique agricultural systems developed by their ancestors. These systems have been shared in First Nations knowledge across many generations. These systematic ways of using the Australian landscape have also been recorded by non-Indigenous people since the earliest times of European contact, exploration and colonisation.

Until recently, there was a widespread belief that Aboriginal and Torres Strait Islander Peoples lived **nomadically**. Most nomadic groups follow a fixed annual or seasonal pattern of movements and settlements. Historians and archaeologists are still researching and debating the nature of First Nations Peoples' societies: were classical First Nations societies similar to farming communities of ancient Europe or were they closer to a **hunther-gatherer** lifestyle? Non-Indigenous primary sources have been used to confirm the oral histories of many Aboriginal and Torres Strait Islander Peoples and to demonstrate that First Peoples' ancestors had settled and actively managed the land in ways that were unlike nomadic hunter-gatherers.

Historian Bruce Pascoe's 2014 book, *Dark Emu*, explored much of the evidence related to Aboriginal and Torres Strait Islander Peoples' farming practices. Pascoe's research, which used the original journals of the first European explorers and settlers in Australia, examined how different First Nations groups farmed many foods including various types of yams and seeds. The historic journals that Pascoe quotes from reveal glimpses of what Australia might have been like before the Europeans came, and perhaps what ancient Australian societies were like.

> Areas beyond the high-rainfall zones of the coastal regions favoured grain as the staple crop, whereas in wetter areas yam production took over.

▲ **Source 1.40** A description by historian Bruce Pascoe of Aboriginal and Torres Strait Islander farming practices before the arrival of Europeans

> [The] women were spread over the plain as far as the eye could see, collecting murrnong … I inspected their bags and baskets … and each had a load as much as she could carry.

▲ **Source 1.41** An 1841 description by George Augustus Robinson of Aboriginal and Torres Strait Islander women digging for yam, similar to a sweet potato, cited in historian Bruce Pascoe's book, *Dark Emu*.

Yams were not the only plant grown, but there is evidence of yam agriculture in Australia. Different varieties of yams were grown in different ways on different Country. A European colonist commented there were 'millions of murnong' (yams) being grown and harvested by Aboriginal people in south-east Australia. Others commented on another important aspect of First Nations' agriculture – the growing of grain crops such as millet. Grain crops are seed crops that can be used as cereals and in breads and are mainly grown in dry grassy plains common within Australia's 'grain belt'.

ANU Archaeologists have found the earliest evidence of Indigenous communities cultivating bananas more than 2000 years ago.

The evidence of cultivation and plant management dates back 2145 years and was found at Wagadagam on the tiny island of Mabuyag in the western Torres Strait.

The site comprised a series of retaining walls associated with gardening activities along with a network of stone arrangements, shell arrangements, rock art and a mound of dugong bones.

Soils from the site showed definitive evidence for intensive banana cultivation in the form of starch granules, banana plant microfossils and charcoal.

Lead researcher, Kambri-Ngunnawal scholar Robert Williams, says the findings help dispel the view that Australia's first peoples were 'only hunter gatherers'.

....

'Our research shows the ancestors of the Goegmulgal people of Mabuyag were engaged in complex and diverse cultivation and horticultural practices in the western Torres Strait at least 2000 years ago'.

▲ **Source 1.42** Extract from 1ndigenous banana cultivation dates back over 2000 years', Australian National University website, August 2020

▲ **Source 1.43** An illustration of a decorated digging stick. Murnong yams were harvested using special digging sticks often made from wattle wood.

▲ **Source 1.44** A murnong yam plant, also known as a Yam Daisy. This photograph shows the flower (above ground) where the edible tuber grows beneath the ground. The blooming of the flower was an indicator that the root was ready to be harvested.

RESPONDING TO THE SOURCES — 1.7

1 Using Sources 1.40–1.44, **describe** the evidence each source provides to corroborate the statement: 'First Nations Peoples in Australia practised agriculture'.

Farming societies are often perceived as more advanced, more sophisticated than 'mere' hunter-gatherers societies.

2 As a class, **discuss** whether you think ancient First Nations cultures and societies were complex, with a profound understanding of their environment.

3 Do you think ancient First Nations cultures and societies need to be recognised as complex, to be validated historically, and get the same level of appreciation than other ancient societies, such as ancient Egypt or ancient China?

► **Source 1.45** This diagram shows the traditional Aboriginal and Torres Strait Islander Peoples' grain belt compared to the modern Australian grain belt. It shows how much of the continent Aboriginal and Torres Strait Islander Peoples were able to use for agriculture.

Legend:
- Ancient Aboriginal grain belt
- Contemporary grain belt
- Where the ancient Aboriginal and contemporary grain belts overlap
- Region along the the Darling river where European explorer Hamilton Hume noted, in the 1820s, that First Nations Peoples gathered grain from wild oats and made an dible paste by grinding it.

0   500   4000 km
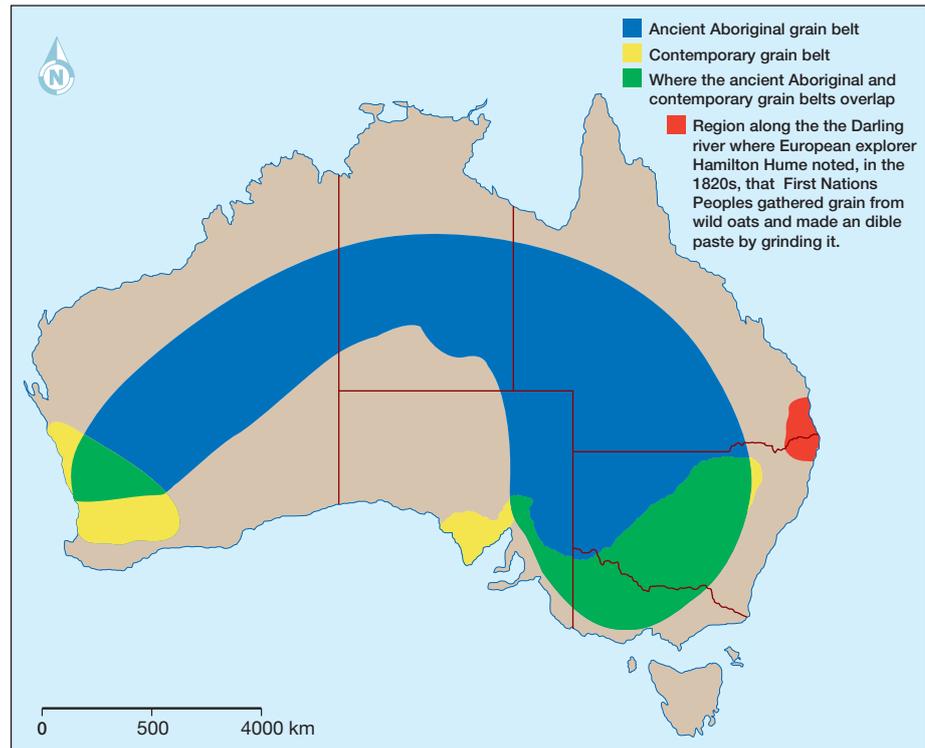
The Aborigines farmed as an activity rather than a lifestyle. They grew crops of tubers such as yams, grain such as native millet, macadamia nuts, fruits and berries. People reared dingoes, possums, emus and cassowaries, moved caterpillars to new breeding areas and carried fish stock across country.

They knew that kangaroos preferred short grass, native bees preferred desert bloodwood, koalas tall eucalypts and rock wallabies thick growth. The Aborigines set templates to suit land, plants and animals. Explorers such as Eyre, Mitchell and Leichhardt noted how Indigenous Australians fired grass to bring on short green pick to attract kangaroos and other animals. To do this they had to make sure the grass was nutritious and to provide shelter so that the kangaroos would not feel vulnerable.

▲ **Source 1.46** Extract from 'The first farmers', Tony Stephens, *The Sydney Morning Herald*, October 2011, a review of the book *The Biggest Estate on Earth* by Bill Gammage

Bruce Pascoe's research suggests that early European explorers in Australia were aware that Aboriginal and Torres Strait Islander Peoples had developed sophisticated systems of agriculture. Those systems may have required building dams and wells; planting, irrigating and harvesting seeds; and preserving, storing and trading surplus produce. First Nations Peoples used complex land management alongside hunting and foraging practices. Many of these methods are still in use 'on Country' to this day.

In many areas of Australia, large settled campsites were long established features of Aboriginal and Torres Strait Islander societies before the Europeans arrived. Primary sources, archaeological records and oral traditions give us insight into what Australia was like before the Europeans came. Research reveals that Australia's pre-contact communities were diverse and complex, and that trade and communication between large campsites and villages were key features of the life of First Nations Peoples in many areas.

ACTIVITY 1.9

Concept map

Create a diagram or mind map that demonstrates aspects of ancient Australian use of the land.

ACTIVITY 1.10

Who were the first bakers?

So, Aboriginal people were the first bakers on earth, by a long way … An old grinding stone was found in the Northern Territory at Kakadu and the starch in that grinding stone was 65 000 years old.

▲ **Source 1.47** Bruce Pascoe, extract from the documentary *World's first bakers?*, available on the ABC website

It is often said that before colonisation Aboriginal people only 'hunted and gathered' our food. However, this is not the case as our ancestors had sophisticated farming and agricultural techniques as well. This included planting seeds to create vast farms filled with crops, caring for the soil, harvesting the crops and storing the produce.

In fact, Aboriginal people may be the world's oldest bakers, as we baked bread made from the grains harvested from our farms. Aboriginal farming and agriculture suited the different climates and environment. Food we grew included yams and tubers (like potatoes), grains and grasses including types of rice, fruit and vegetables and much more. We also built dams, trenches and wells so we had sources of water for our crops.

▲ **Source 1.48** Extract from the Food and Agriculture page, deadlystory website

Our results suggest the use of the wild ancestors of domesticated cereals (e.g. wild **einkorn**) and club-rush tubers to produce flat bread-like products. Cereal-based meals such as bread probably become staples when Neolithic farmers started to rely on the cultivation of domesticated cereal species for their subsistence.

einkorn a cereal grain, considered to be the oldest wheat

The discovery of charred food remains at Shubayqa 1 provides direct empirical data for the production of bread-like foodstuffs 4000 years before agriculture emerged in south-west Asia.

▲ **Source 1.49** A description of the discoveries made at an archaeological dig at a site called Shubayqa 1, located in the country of Jordan. 'Archaeobotanical evidence reveals the origins of bread 14 400 years ago in northeastern Jordan', Amaia Arranz-Otaegui et al., *Proceedings of the National Academy of Sciences*, July 2018

▲ **Source 1.50** A photograph of the archaeological dig site of Shubayqa 1, Jordan, which contained stone fireplaces where bread-like remains dating to about 14 400 years ago were discovered.
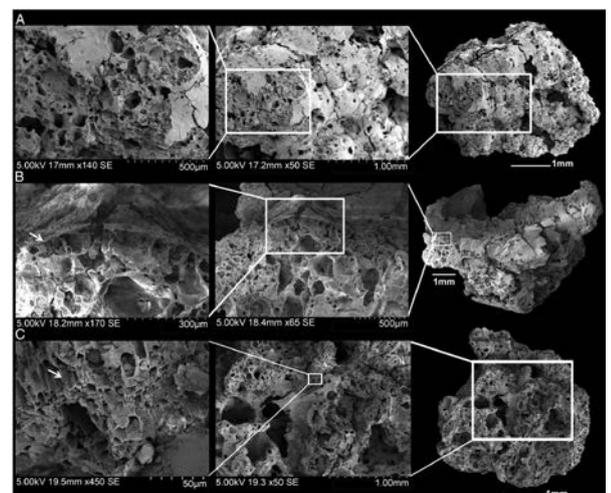
▲ **Source 1.51** Scanning electron microscope images of bread-like remains from Shubayqa 1, with different samples showing the characteristics of bread-like substances (such as typical porous matrix of bread with small closed voids)

»

»

Seed-grinding technologies in prehistoric societies have been linked to the development of agriculture and complex societies.

This paper reports new evidence from Cuddie Springs for the antiquity of seed-grinding in Australia.

Excavations in 1991 and 1994 established the presence of an archaeological record overlapping with fossil megafaunal remains; 33 grinding-stone fragments reported here were recovered from a 2x2-m excavation.

Twenty-five grinding-stones have definite microscopic traces of use including evidence of plant tissues and/or distinctive use-polish from processing siliceous plants.

▲ **Source 1.52** Extracts from a 1997 research article by archaeologists Richard Fullagar and Judith Field describing the discovery at Cuddie Springs (northern New South Wales) of stones believed to have been used for grinding seeds.

1 **Conduct** independent historical research to create a timeline of the history of bread from 65 000 BCE to 650 CE (you could, for instance, include the oldest examples of cereal grinding, of flour making, of use of yeast etc.)

2 Using Sources 1.47–1.51 and the timeline you have created, **discuss** whether these sources might help support the idea that ancient First Nations Peoples were the first bakers, as suggested by historian Bruce Pascoe.

How did ancient First Nations Peoples manage available water resources?

First Nations Peoples managed their water supplies and resources in different ways depending on where they lived. Aboriginal and Torres Strait Islander communities across many regions of Australia built systems of rock wells. Some wells collected rainwater. Other wells collected water from underground sources. Since animals also seek fresh water, these precious water reserves often needed to be carefully protected from animal pollution and contamination.

Rock wells are common in south-west Queensland, where the ancestors of the Gunggari people carved rock 'water tanks'. Similar wells exist in other areas of Queensland. Ancestors of the Wakka Wakka, Jarowait and Barrungam peoples even carved wells into hard ironstone rock formations near the Bunya Mountains. One of the many rock wells in south-west Queensland is believed to be about 12 metres deep.

[Wells] are located along Dreaming paths and at other sites of mythological significance. Many of the wells and rock holes are associated with other evidence of human occupation, including artefact scatters, scarred trees, grinding grooves and quarries. The wells represented significant quantities of water, especially for small groups, which may have stayed in any one location for only short periods. Water supplies were often protected by placing a rock or branches over the opening. People in the Charleville area said Aboriginal people used to walk from Charleville to Maranoa Downs, sinking wells along the tracks they made.

▲ **Source 1.53** In 1998, North West Natural Resources Management Cultural Heritage Strategy – a First Nations group that works with governments – commented on the wells of south-west Queensland. The illustration depicts a rock well with a stone cover, as the report described.

They'd find a big flat sandstone rock where all the water went to the middle. They'd light fires there and they'd crack all the sandstone; they dug it away. They'd light another fire. They built these wells – most were shaped like a keg. They were narrow at the top, wider in the belly and narrow at the bottom. They dug them around 4 foot (about 1 metre) deep on the tops of sandhills, where the sandstone is. Some of them have a big flat rock on top of them, some of them are just open. That's how they saved their water!

▲ **Source 1.54** Elder Lindsay Black explains how Aboriginal people made wells in the Central Highlands area of Queensland.
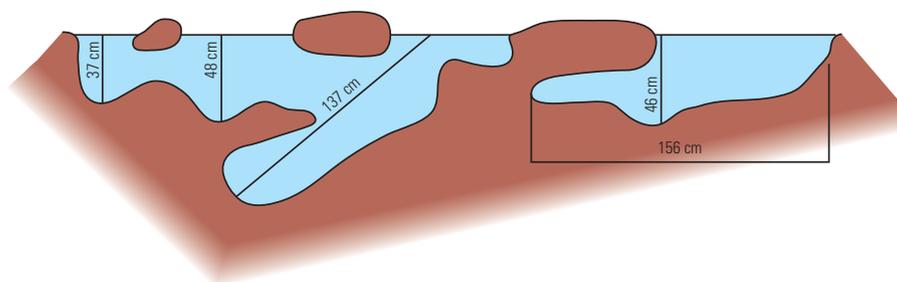
▲ **Source 1.55** Longitudinal section, showing the profile of Bull Gully Aboriginal Rock Wells, Victoria. The wells were strategically dug into sandstone in a natural rainwater catchment. The narrow mouths serve to reduce evaporation and pollution by animals or wind-borne debris. It is possible that the wells were, in the past, covered to further conserve water. The maximum depth of the wells is about 130 centimetres, for a capacity of approximately 160 litres, which represents a valuable water resource, particularly in dry seasons. Local residents indicated that they don't have any knowledge of the wells ever drying up.

▶ **Source 1.56** Water tanks, known as 'gnamma' holes, are natural cavities varying in shape and depth commonly found in hard rock and used by First Nations Peoples. They are replenished from underground stores and rainwater run-off. These gnamma holes are on top of Pildappa Rock, a granite outcrop in Eyre Peninsula, South Australia.

RESPONDING TO THE SOURCES — 1.8

1 Use Sources 1.53–1.56 to **explain** how rock wells were used by Aboriginal people on mainland Australia to collect and manage water supplies.

2 **Suggest** what tools may have been required to create these rock wells, or develop a theory for how these wells may have been created.

3 What might the presence of these rock wells suggest about the level of knowledge or awareness of their environment possessed by ancient First Nations Peoples?

4 How do these rock wells support the idea that ancient First Nations Peoples were skilled at adapting to their natural environment?

5 **Compare** these rock wells to other potential sources of water.

   a **Suggest** the relative advantages/disadvantages of using rock wells.

   b **Suggest** why ancient First Nations Peoples might have preferred a rock well to other sources of water.

6 What does the presence of rock wells **suggest** about the challenges that ancient First Nations Peoples faced?

fish traps the ways fish are captured in sea, rivers, creeks and streams. Sometimes fish traps are pools of shallow water against artificially built walls or fences. In other locations, traps might be woven nets or baskets placed in weir and pond systems

fish weir a way of channelling fish into fish traps by using a fence or wall built into the water of a river, creek or stream; the fence allows the water to freely flow through it

What methods were used by ancient First Nations Peoples to catch fish?

Fish traps and **fish weirs** are quite common throughout northern Australia. Fish traps and fish weirs were used to catch fish and to farm fish. The Burarra people of Arnhem Land, for example, farmed barramundi in fish traps and fish weirs. Fish traps were built in locations along sandy beaches, near mangrove forests, near rivers and creeks. Each trap is traditionally cared for by the people with custodial connection to it.

Indigenous people throughout Australia have constructed fish traps and weirs over a long period of time and there is considerable variety in types, numbers, size and location of these sites. They were designed to capture aquatic animals, predominantly fish, and the more durable of these structures (i.e. those made of stone) are still visible on Australia's coasts and rivers today. Fish were also caught in natural pools and in a variety of small portable traps … The terms 'traps' and 'weirs' are often used interchangeably … A 'weir' is an obstruction placed in a stream or tideway or along a shoreline to channel fish to where they can be gathered … a 'trap' is a device placed in an area to capture and impound fish …

▲ **Source 1.57** Queensland researchers Michael Rowland and Sean Ulm explain First Nations' fish traps and weirs.

A fence made of wooden branches and other vegetation. The gaps between the branches are wide enough to allow water and small fish to move through the fence.

Water level

Creek bed

Woven nets, shaped like tubes, are placed into gaps in the fence to capture larger fish as they try to swim through the barrier. Often nets had woven funnels inserted into their entrance and wider bellies to make it hard for larger fish to swim out of the net.

▲ **Source 1.58** Fish traps and fish weirs are ancient methods of catching fish. This illustration shows an example of a fish weir. Fish weirs were built across creeks and narrow rivers. Water can continuously flow through the weir. Weirs were built from materials readily available in the landscape, including wood, logs, branches, rock or coral.

As shown in Source 1.59, a fish trap is positioned behind a fish weir. A woven funnel is inserted into the mouth of a net. It depicts a barramundi fish trap used by the Burarra people of Arnhem Land. Aboriginal and Torres Strait Islander Peoples also used these traps to farm fish.

▲ **Source 1.59** Fish traps and fish weirs are ancient methods of catching fish. This illustration shows an example of a fish weir and a fish trap typical of those used in northern Australia.

ACTIVITY 1.11

Using Sources 1.57–1.60 and additional independent research if necessary, suggest how fish traps might have worked in a creek or a river.

▲ **Source 1.60** Brewarrina Fish Traps. A complex system of channels built on the Barwon River in northern New South Wales. These traps along 500 metres of the river herd the fish so they can be easily caught. They also encourage sustainable fishing, allowing the small fish to pass through, and have been managed by First Nations Peoples for many thousands of years – some estimates put the age of the traps at 40 000 years.

▲ **Source 1.61** An aerial photograph of the stone fish traps underwater at the Torres Strait Island of Erub. There are many documented fish traps and weirs along Queensland's coast and inland waterways. Researchers have mapped over 30 fish traps on the island of Erub alone.

Coastal fish traps rely on making use of the changing tides to trap fish. Aboriginal and Torres Strait Islander Peoples have detailed and complex traditional knowledge of tidal patterns and the seasons. This knowledge often relied on studying moon cycles and, in some areas, astronomy.

A rock or coral wall separating shallow water from deeper waters. The walls create pens that flood at high tide and drain at low tide. These pens are the fish traps.

Shoreline

Fish and other marine creatures swim over the walls and into the pens at high tide. When the water level goes down at low tide, the fish are trapped inside the pens. They are gathered from the traps by the local people.

▲ **Source 1.62** Coastal fish traps. This diagram shows traditional fish traps along a coastline.

▲ **Source 1.63** Stone fish traps exposed at low tide at the Torres Strait Island of Mer. Stone fish traps consist of complex systems of rock walls. Building and maintaining these stone traps took enormous effort over many generations. The fish traps on Mer were built using approximately 3500 tons of lava rock that was hauled to the coast from inland areas.

RESPONDING TO THE SOURCES — 1.9

1   Use Source 1.57 to **define** the terms 'fish trap' and 'fish weir'.

2   Use Sources 1.60–1.63 to **explain** how fish traps work in coastal areas.

3   **Suggest** what might have been the advantages and disadvantages of using fish traps as a source of food.

4   **Explain** how these sources provide an insight into the way ancient First Nations Peoples adapted to their environment, or how they managed their environment in a sustainable manner.

5   **Create** a model of a fish trap.

Eel farming

There is evidence that Aboriginal and Torres Strait Islander Peoples across the Australian continent have used sophisticated systems of **aquaculture** for thousands of years. An important example of aquaculture is at Budj Bim in south-west Victoria. The Gunditjmara system of weirs and ponds at Budj Bim is one of the oldest and largest systems of aquaculture in the world. The Gunditjmara people modified more than 100 square kilometres of their Country to build a system that bred, farmed and harvested eels. Eels were harvested by using woven eel traps, which were placed in the water channels and ponds the Gunditjmara people had created. Researchers have evidence suggesting that the system is over 6000 years old.

aquaculture the raising of water animals such as fish for food, or the growing of plants in water for food

Australia's Aborigines, long considered a nomadic people, appear to have farmed eels and built stone dwellings in the southeast of the country for 8000 years, according to archaeologist Dr Heather Builth.

Professor Peter Kershaw, a Monash University palynologist – or expert in ancient pollen – studied the pollen record in the sediments of swamps identified by Builth as being eel-farming areas. He found evidence of a sudden change in vegetation consistent with an artificial ponding system, and initial radiocarbon dating of the soil samples suggest the ponds were created up to 8000 years ago.

▲ **Source 1.64** Extracts from 'Aborigines may have farmed eels, built huts', Anna Saleh, March 2003, ABC website

Historical evidence shows that the Gunditjmara people cooked the eels through a process of 'smoking'. They did this in special hollowed-out trees. The heat from a fire set underneath a hanging eel dehydrated it. This would preserve the eel for trade or storage. There is evidence that smoked eels of the Gunditjmara were traded across Victoria and in South Australia.

▲ **Source 1.65** This photograph shows an eel trap woven from plant fibres; this trap is from Budj Bim in Victoria.

The eel traps at Budj Bim comprise a vast network of weirs, dams and stone canals to manipulate water levels in various lake basins. Some of the channels are hundreds of metres long and were dug out of basalt lava flow.

These structures force eels and other aquatic life into traps as water levels rise and fall. The canals also appear to have been used to create holding ponds to keep eels fresh until they were needed for food. Not only did this provide the region's Gunditjmara people with a year-round food supply, it was also important for trade.

The site also features the remnants of almost 300 stone houses — the only remaining permanent settlement built by an Indigenous community in Australia.

▲ **Source 1.66** Extract from 'Budj Bim, a 6000-year-old Aboriginal engineering site, earns World Heritage status', Rachael Brown, July 2019, WEC 2019 website

RESPONDING TO THE SOURCES — 1.10

Use Sources 1.64–1.66 to answer the following questions:

1 **Explain** how eel traps were particularly well suited to the environment.
2 **Compare** the eel traps to fish traps. What similarities or differences are there?
3 **Suggest** how these sources might help support the idea that ancient First Nations Peoples were highly proficient in adapting to their environment and to their particular regional geographical conditions and circumstances.

How did ancient First Nations Peoples use fire to manage the land?

Fire is very important in the cultures of Aboriginal and Torres Strait Islander Peoples. Fire is used as a tool to look after Country; First Nations Peoples made widespread use of fire to manage their landscape. Fire has been used to keep waterways clear, to encourage the growth of seeds, to develop hunting grounds, to protect sacred parts of the landscape, and to make trade routes easier. The widespread use of fire as a tool for hunting, cooking, signalling and warmth is extensively recorded. Researchers have also shown that fire has long been used to crack rocks. It is also customary to use fire to shape or form weapons and to fashion tools.

Cultural burning

Fire-stick farming, or cultural burning, is an example of an ancient and traditional practice. It has been used by Aboriginal and Torres Strait Islander Peoples for over 60 000 years. Although this

▲ **Source 1.67** Warlpiri people burning spinifex to promote growth, Tanami Desert, Northern Territory. Fire has been used in land management for thousands of years by First Nations Peoples.

land-management technique is still used today, it is difficult in many areas for First Nations Peoples to access Country to carry out cultural burning as they traditionally would have. Fire-stick farming involves knowing Country carefully and then burning a 'patchwork' of the landscape. This form of land management helps to regenerate the vegetation. This is sometimes expressed as knowing that some areas 'want to be burnt' while others need to be left to grow.

Burning Country is a spiritual and community event. It is connected to important knowledge. Fires are carefully watched and tended to, often by young people. Not all Country is burnt in fire-stick farming. Deep gullies and rainforests, for example, are usually avoided as are areas that contain bush foods and bush medicines. The tops of trees are also spared. This allows safe havens for birds, animals, insects, seeds and fruits. The best time to light a fire is carefully selected. Cultural burning takes place when winds are gentle and conditions are predictable.

Aboriginal and Torres Strait Islander Peoples call the fires that they deliberately light 'cool fires'. Cool fires burn slowly, 'trickle' through the landscape, and can be easily put out. David Claudie, a custodian of the north Kaanju homelands of Cape York, describes the use of fire as 'Indigenous science'. Non-Indigenous historian Bill Gammage has argued that fire-stick farming made resources

Fire is really important. It has its own Dreaming. There are people and families who are responsible for the fire Dreaming. They know the songs and the ceremony …

My grandfather used to talk with the other men about the best time and place to burn. They would wait for the right wind and pick the right grass. They were careful not to burn Country belonging to other people.

▲ **Source 1.68** Veronica Dobson – a skilled educator and Arrente woman – describes the traditional importance of fire.

'abundant, convenient and predictable' for Aboriginal Australians.

First Nations Peoples also use 'cool fires' to lessen the amount of 'fuel' in the native environment. Reducing the number of plants and wood in an area helps to prevent large and dangerous bushfires. This is one of the reasons why the large bushfires we see today in Australia were not common before 1788.

Canopy
up to 17 m

The canopy is not burned during cultural burning. This gives shelter to animals while also preserving seeds and fruits. Caring for the canopy also provides shade and helps the landscape to recover.

In 'hot fires', the flames often reach high into the canopy of the trees and destroy the entire landscape. The soil is often baked, all wildlife, fruits and seeds are often destroyed.

Shrubs
up to 5 m

Non-Indigenous fire management practices often burn large areas of land at a higher height than cultural burning. These fires are also considered 'hot fires'.

Cultural burning, or 'cool fires', involves burning grasses, leaf litter, and the lower bark of trees. The fire spreads slowly and is closely watched. Animals have time to flee. They are sometimes channelled and hunted as they flee.

Grasses

With cultural burning, seeds, nutrients and roots remain safe and some moisture remains in the soil. This helps the landscape to recover and the native grasses and herbs to regrow. Fallen logs remain largely unburnt. This leaves behind habitat for animals.

◄ **Source 1.69** This diagram shows First Nations Peoples' cultural burning practice.

◄ **Source 1.70** Engraved drawing of Aboriginal people hunting kangaroos, from the book *Ridpath's Universal History* by John Clark Ridpath, 1897

natives a colonial word for First Nations Peoples of Australia, which is no longer used as it has derogatory meanings

Fire, grass, kangaroos, and human inhabitants, seem all dependent on each other for existence in Australia. For any one of these being wanting, the others could no longer continue. Fire is necessary to burn the grass, and form those open forests, in which we find large forest-kangaroo; the **native** applies that fire to the grass at certain seasons, in order that young green crop may subsequently spring up, and so attract and enable him to kill or take the kangaroo with nets. In summer, the burning of the long grass also discloses vermin, birds' nests etc., on which the females and the children, who chiefly burn the grass, feed.

▲ **Source 1.71** This is an account, in 1848, by the Scottish explorer Thomas Mitchell, describing the fire management practices he observed being used by the First Nations Peoples he encountered. Source: T. Mitchell. (1848). *Three Expeditions into the Interior of Eastern Australia; with Descriptions of Recently Explored Region of Australia Felix, and of the Present Colony of New South Wales*. London: T. & W. Boone, pp. 412–13.

mosaic pattern a combination of diverse pieces of land as in grass and adjoining forest

In eastern Tasmania, human firing increased the extent of the **mosaic pattern** of open sclerophyll forest and grassland plains. This is the optimum habitat for some of the macropods, such as the Forester Kangaroo, and the plains provided extra food for the Kangaroos, wallabies, emus, and native hens on which the Aborigines fed … It is interesting that, through firing, man may have increased his food supply and thus probably his population. At the most general level, firing at the bush, in the same way as clearing a forest to create a field, increased the proportion of solar energy per unit of the ground that man could utilize. Perhaps we should call what the Aborigines did 'fire-stick farming'.

▲ **Source 1.72** Rhys Jones. (1969). Fire-stick farming. *Australian Natural History*, vol. 16, pp. 226–7

ACTIVITY 1.12

Sources 1.67 to 1.69 relate to modern use of fire by Aboriginal and Torres Strait Islander Peoples, while Sources 1.70 to 1.72 relate to their practices at the time of colonisation.

1 **Identify** the information that each source provides regarding the use of fire by ancient First Nations Peoples.

2 **Compare** and **contrast** the presented purposes of the burning practices as understood by both authors Thomas Mitchell and Rhys Jones.

3 **Create** a diagram or mind map on the benefits of fire for ancient First Nations Peoples.

ACTIVITY 1.13

Working with historical sources

This painting was created about 30 years after the arrival of the First Fleet.

1 **Categorise** this painting as either a primary source or a secondary source if you are investigating the practices of:

    a First Nations Peoples in the early 1800s

    b ancient First Nations Peoples.

    Give a reason for your answer.

2 Using the information in this chapter and Source 1.73, **suggest** how ancient Aboriginal and Torres Strait Islander Peoples might have used fire to help them live sustainably within the Australian environment. In your answer, refer to specific parts of the painting.

3 **Research** cultural burning and firestick farming online. **Compare** and **contrast** Lycett's painting with photographs of modern cultural burning practices. Have the practices changed drastically in the past 200 years?

▲ **Source 1.73** This watercolour was painted by Joseph Lycett (c. 1817). It is titled, *Aborigines using fire to hunt kangaroos*.

How did ancient First Nations Peoples use the Sun, Moon and stars?

Ancient Aboriginal and Torres Strait Islander Peoples' knowledge includes an understanding of the interactions, cycles and patterns of nature. The seasons, the movement of stars, and the life cycles of animals and plants are interconnected patterns that are treasured in First Peoples' culture. Careful custodianship of Country means being able to identify and understand the expected changes in the environment.

When the stringybark tree starts losing its bark, it is also the time that mullet fish start to make their way up the coast in large numbers to spawn. Traditionally, the Gubbi Gubbi people wait for the sea eagle to start catching these fish before they also start fishing. By this time, the larger, mature fish have passed by to spawn so it will be the younger fish that get caught. The indicators of the stringybark tree and sea eagle help the Gubbi Gubbi to see a pattern in nature, which allows them to manage their food resources.

▲ **Source 1.74** This knowledge story – from the Gubbi Gubbi people of the Sunshine Coast area in Queensland – explains one of the patterns of natural indicators.

RESPONDING TO THE SOURCE — 1.11

1 Read Source 1.74. **Identify** two natural events that the Gubbi Gubbi people traditionally waited for before they began fishing for mullet.

2 Refer to Source 1.74 to **explain** why it was important for the Gubbi Gubbi to wait for the sea eagle to start catching fish before they began fishing.

3 **Explain** why knowledge of the indicators of the natural world might have been important to the lives of ancient First Nations Peoples.

constellation a group of stars that appear to form a recognisable pattern in the night sky

astronomy the study of natural objects outside the Earth's atmosphere such as planets, moons, stars, galaxies and comets

celestial a celestial, or astronomical object, is a natural thing existing outside the Earth's atmosphere

bora a location where sacred rituals are held by First Nations Peoples

This knowledge and understanding of the interactions, cycles and patterns of nature was refined over tens of thousands of years. It is a complex part of the knowledge that has been passed down in the living culture of Australia's First Peoples. Sometimes, this knowledge has been communicated through art.

First Peoples' astronomy

The positions of **constellations** in the night sky change in predictable patterns. Because of this predictability, Aboriginal and Torres Strait Islander Peoples used the phases of the moon, the movement of planets and stars, and other **astronomical** features as indicators to help them. The vastness of the Australian night sky not only helped First Nations Peoples to navigate across large distances but also to build predictable seasonal calendars that sustained the complex life of their communities.

The positions of **celestial** bodies were indicators of changing weather patterns, animal behaviour and plant growth. For example, in the traditions of some Torres Strait Islander People, a shark constellation, Baidam, also called the 'Pleiades cluster', was

◄ **Source 1.75** A non-Indigenous researcher has speculated that this rock engraving, at the Basin Track, Ku-ring-gai Chase National Park, NSW, represents the Sun woman and Moon man during an eclipse, as one figure partially obscures the other (which is what happens during an eclipse). Consulting with local Elders might shed more light on the meaning of this engraving.

used to help navigate boats on long voyages, to predict the seasons for growing fruits and vegetables, and even to indicate shark mating season – a dangerous time to be in the water!

In many parts of mainland Australia, the stars of the Pleiades were thought to be ancestor women travelling across the landscape. On the east coast of Australia, this constellation was used as an indicator of whale migrations. In other parts of Australia, the Pleiades cluster was linked to other natural events that coincided with the beginning and end of winter.

Another constellation used by almost all Aboriginal and Torres Strait Islander communities is the Milky Way galaxy. This is because these stars can be seen from all across Australia. For many First Nations Peoples, the galaxy represents a celestial river or stream.

Another famous example of a constellation that is used to mark seasonal change is the 'Celestial Emu', which is sometimes associated with the Kamilaroi and Euahlayi people of New South Wales. When this constellation first appears in the sky in late April, it marks the beginning of the emu breeding season. When the constellation changes its direction in June, the emus nest and lay their eggs. This is the time to gather the eggs for food. Later, in August, the constellation begins to change shape again. At this time of the year, it appears as two circles in the night sky. This indicates that it's time for sacred ceremonies to begin at the Kamilaroi and Euahlayi circular-shaped **bora** grounds.

MAKING THINKING VISIBLE 1.4

See, think, wonder

Observe Source 1.75

1 What do you see?

2 What do you think about what you see?

3 What does it make you wonder?

At the end of the cycle, the Celestial Emu takes shape in the sky. At first, it sits at a waterhole indicating that waterholes are full in Kamilaroi and Euahlayi Country. In late summer, the Emu dips below the horizon, indicating that the waterholes are drying and that it is time to move on to new areas. The Emu does not appear in the sky again until the breeding season.

MAKING THINKING VISIBLE 1.5

+1 Routine

1 Take one to three minutes of individual reflection to **create**, from memory, a list of key ideas you recall from this section.

2 Swap your list with the list of one of your classmates. Take one to two minutes to read that list and add new things (such as details, missing ideas, a correction etc.).

3 Repeat step 2 at least two times with different classmates.

4 Retrieve your list. Read through and review all the additions made to your list. Add any new ideas you might have had from reading three other lists.

ACTIVITY 1.14

Concept map

Create a diagram or mind map that demonstrates the ways that First Nations Peoples used astronomy.

ACTIVITY 1.15

Group research task

In small groups, select one of the following questions:

- How did First Nations Peoples use fire?
- How did First Nations Peoples use water?
- How did First Nations Peoples use astronomy?
- How did First Nations Peoples use agriculture?

Conduct research and **create** a poster/movie/presentation/infographic to present your findings to the rest of your class.

REFLECTING ON YOUR LEARNING 1.3

Reflect on what you have learned in this section:

1 Based on the information and sources in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did First Nations Peoples use and manage the land?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'To what extent was the culture of First Nations Peoples in Australia shaped by the environment?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

1.4   How do First Nations cultures, beliefs and values continue to connect to Australia today?

FOCUS QUESTIONS

- What were the defining characteristics of the earliest Australian societies?
- What key beliefs and values emerged in Aboriginal and Torres Strait Islander communities over thousands of years and how did these beliefs and values influence societies?

Deep time

Many First Nations Australians believe that their ancestors have 'always been here'. They see their connection to the land as something that has 'always' existed – this connection is a deep link stretching from the present back into the very beginnings of existence. This time frame goes well beyond the European idea of 'ancient history'. For Aboriginal and Torres Strait Islander Peoples, the time of deep history was when the ancestors revealed themselves as people speaking directly to present generations. To First Nations Peoples, the time of deep history is joined to the present day through a living landscape, through knowledge stories, and through 'the Dreaming'. This very distant past is often studied by scientists such as archaeologists, palaeontologists and geologists.

> Australian Aboriginal people hold a sense of a much longer history that challenges the western historical imagination … Time is multi-layered … [There is a] connectedness between human and other living beings, and in which the Earth itself is a living force. [It is an] undated, multi-layered 'now', with living spirits present and walking around, conducting themselves in the everyday.

▲ **Source 1.76** Researcher Ann McGrath describes how deep time connects to the present.

Diversity of First Nations Peoples today

As seen in previous sections, Aboriginal and Torres Strait Islander Peoples are the First Australians, and have the oldest continuous living cultures in human history.

There are many First Peoples who have diverse cultures; there can be shared cultural characteristics, while other characteristics are unique to a cultural group.

It is important to understand that they are not one homogeneous group. As we've seen at the start of the chapter (see Source 1.1), First Nations Peoples are a diverse group of hundreds of nations. It has been estimated that, at the time of colonial invasion in 1788, 250 languages and 600 dialects were spoken in over 500 different nations, many with very different and distinctive cultures and beliefs.
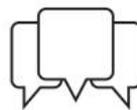
Culture is defined as the way of life, especially the general customs and beliefs, of a particular group of people at a particular time.

Discuss what culture means to you.

RESPONDING TO THE SOURCE — 1.12

Using Source 1.76, **explain** the First Nations Peoples' concept of time.

ACTIVITY 1.16

First Nations Peoples' cultural connections

Conduct independent research and **create** a mind map, or diagram, of the cultural connections of Aboriginal and Torres Strait Islander Peoples.

You can, for instance, include connections to Country, **kinship**, the environment, language, ceremonies, cultural events etc.

kinship a system in First Nations cultures that establish a person's relationships and responsibilities to others, the land, its resources, and the universe

▲ **Source 1.77** Art in Carnarvon Gorge National Park. Demonstrating the richness of Australia's First Nations cultures, this fragile art is on the sandstone walls of Carnarvon Gorge National Park in Queensland's Central Highlands, near Rolleston. Ochre stencils of tools, weapons, ornaments and ceremonial objects are primary sources that provide an insight into the lives of the gorge's traditional owners. The Carnarvon Gorge system is described as a place of learning and of great spirituality by the Bidjara and Karingbal communities. There is occupational evidence of this site dating back 19 500 years, and it is thought to have been in use for at least 3650 years.

▲ **Source 1.78** Rock art in Cape York. This example of rock art is at the Giant Horse archaeological site in Queensland's Cape York. Quinkan rock art was created between 28 000 and 4000 BCE, and holds great spiritual significance. The art links the past with the present and is studied by archaeologists who work together with local people.

In this photograph, a local Laura Ranger, Gene Ross, is sharing his traditional knowledge with a visiting Djurrubu Ranger, Clarrie Nadjamerrek, who was visiting the site from the Northern Territory.

MAKING THINKING VISIBLE 1.6

See, think, wonder

Closely **examine** the rock art displayed in Sources 1.77 and 1.78, then write responses to the questions below.

1 What do you see?
2 What do you think about what you see?
3 What does it make you wonder?

First Nations Peoples have adapted to the continent, have managed the land for thousands of years, and have developed traditions, such as cultural burnings, that are still practised to this day.

It is estimated that First Nations Peoples now represent only 2.4% of the total Australian population.

However, they continue to make essential contributions to the development of Australia, and to our identity, as a country.

Sustainability is a big focus today with environmental concerns.

How could some of the practices of First Nations Peoples be useful in responding to these problems?

ACTIVITY 1.17

Learning from First Nations Peoples

1 In small groups or individually, using resources from this chapter, **create** a mind map or write a short paragraph on how First Nations Peoples used their environment sustainably for thousands of years. You might want to focus on one particular aspect only (such as fire management or bush food).
2 **Suggest** how the practices of ancient First Nations Peoples can be valuable today.

ACTIVITY 1.18

Defining characteristics of the earliest Australian societies

Using resources from this chapter and additional independent research where necessary, **create** a mind map, or a diagram, or write a short paragraph to explain what the key characteristics of ancient First Nations Peoples were.

ACTIVITY 1.19

Cultural traditions revival

In Section 1.3, you studied the Gunditjmara system of weirs and ponds at Budj Bim.

Gunditjmara Country was a natural wetland with many swamps and creeks where Aboriginal people could rely on a permanent supply of fresh drinking water.

Due to the cold and wet climate, the Gunditjmara built stone huts, in which they lived permanently.

To further protect them from the cold, they also used the skins of possums and kangaroos as blankets and clothes.

1 **Research** the reasons some First Nations Peoples used possum skin cloaks, prior to European colonisation. **Explain** the practical and cultural importance of the cloaks.

2 **Research** why woollen blankets started to replace possum skin cloaks after European colonisation. **Explain** some of the issues with replacing possum skin cloaks with woollen blankets.

3 **Investigate** whether some First Nations Peoples still create and use possum skin cloaks. Are there differences (in fabrication, significance or use) between the possum skin cloaks prior to colonisation and now?

4 Select one of the following traditions, and **investigate** their importance today:

   • Smoking ceremonies
   • **Welcome to Country** ceremonies
   • Corroborees
   • Welcoming babies to Country
   • Walkabouts.

▲ **Source 1.79** Portrait of Aboriginal woman Teenminnie, wife of Pelican, wearing a kangaroo skin cloak, Point McLeay region, South Australia, c. 1860, National Library of Australia

Welcome to Country
a ceremony by which an Indigenous Elder introduces a person to, and grants permission to go onto, Country

REFLECTING ON YOUR LEARNING 1.4

Reflect on what you have learned in this section:

1 Based on the information and sources in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How do First Nations cultures, beliefs and values connect to Australia today?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'To what extent was the culture of First Nations Peoples in Australia shaped by the environment?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

END-OF-CHAPTER REFLECTION

Step one: reflect on your sub-questions

At the end of each section of this chapter, you were asked to **reflect on** how the information in the
section related to the overall inquiry question:

**'To what extent was the culture of First Nations Peoples in Australia shaped by
the environment?'**

1   For each of the sub-questions below, write a brief response (approximately two to three sentences)
to **reflect on** the sub-question. Do you feel that you have a good understanding of each section of
this chapter?

- How do we know about ancient Australia?
- How did geography influence the development of Aboriginal and Torres Strait Islander Peoples?
- How did Aboriginal and Torres Strait Islander Peoples use and manage the land?
- How do Aboriginal and Torres Strait Islander cultures, beliefs and values continue to connect to
Australia today?

(If you prefer a visual approach, you could to do this as a mind map instead.)

Step two: reflect on the key inquiry question

2   Now, based on what you have learned in this chapter, write a short paragraph in response to the
question: 'To what extent was the culture of First Nations Peoples in Australia shaped by the
environment?'

Step three: future questions

3   Based on your learning in this chapter, what questions do you have about ancient Australia?

4   **Reflect on** the questions you or your classmates raised at the beginning of the chapter at the end
of the 'Setting the scene' activities. Have you answered most of these questions? Which questions
have not been answered?
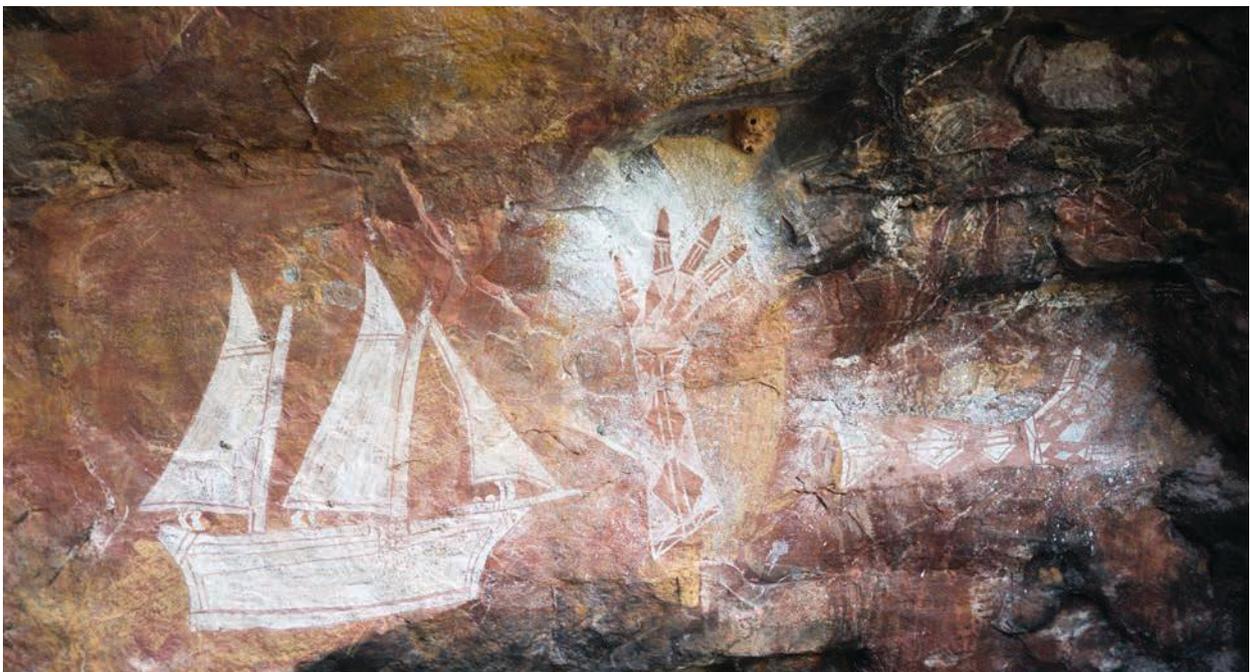
▲ **Source 1.80** A Makassan sailing ship featuring in rock art in Arnhem Land

End-of-chapter assessment 1

1 Project

Investigating the ancient past

A project assesses students' responses to a single task, stimulus, question, situation or scenario that gives students authentic opportunities to demonstrate their historical knowledge, understanding and skills.

Using additional background research, **create** a short presentation (2 to 3 minutes) in response to the question: '*What is the most likely explanation for the movement of First Nations Peoples in ancient times?*'

Hints: you could decide between options such as hunter-gatherer lifestyle, food sources/availability, seasonal movement based on climate, etc.

2 Investigation

Testing a hypothesis

An investigation assesses students' abilities to identify, select, analyse, organise and draw conclusions about evidence from primary and secondary sources. This involves testing a hypothesis or answering a research question.

Your task is to assess the accuracy of the following hypothesis: 'Australia was not ***terra nullius*** prior to European settlement'.

> ***terra nullius*** land belonging to no one

Using information and evidence from this chapter, and additional background research, **create** a short presentation (2 to 3 minutes) responding to the question: 'What evidence is there that Australia was not *terra nullius* prior to European settlement?'

3 Investigation

Answering a research question

Using the evidence included in this chapter and additional background research, **create** a short presentation (2 to 3 minutes) responding to the question 'To what extent does the evidence suggest that the lives of First Nations Peoples in ancient times were significantly shaped by their environment?'

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:
- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Depth study 2

The ancient European and Mediterranean world – 60 000 BCE–650 CE

Overview

Have you ever wondered why we vote or where the idea for the Olympics came from? Many of the traditions and cultural norms in Australia come from the ancient civilisations of Europe and the Mediterranean. Our society and values are based on several of the ideas and skills developed in these ancient societies, which included democracy, architecture, religion and engineering.

The chapters in this Depth study explore two of the most significant ancient civilisations of the Mediterranean: Egypt and Rome. You will investigate their physical features, key groups and individuals, beliefs and practices, and key historical events. As you investigate this topic, think about what we do today in Australia that originated in these ancient civilisations.

Learning goals

After completing Depth study 2, you should be able to answer these questions:

- How do we know about the ancient past?
- Why and where did the earliest societies develop?

- What emerged as the defining characteristics of ancient societies?
- What key beliefs and values emerged, and how did they influence societies?
- What were the causes and effects of contact between societies during this period?
- Which significant people, groups and ideas from this period have influenced the world today?

Introducing historical concepts and skills: *cause and effect*

The chapters in this Depth study have a special focus on the concept of **cause and effect.** This means you will be developing your ability to explain why things happened in the past and what the results of those events were.

There are many different types of causes and effects. Causes and effects can be political, economic and social. There is also usually more than one cause or effect for an event, so do not fall into the trap of thinking an event only has one trigger or one result. As you read the chapters in Depth study 2, you can look out for opportunities to build your understanding of cause and effect.

▶ **Source A** The ruins of Palmyra in Syria
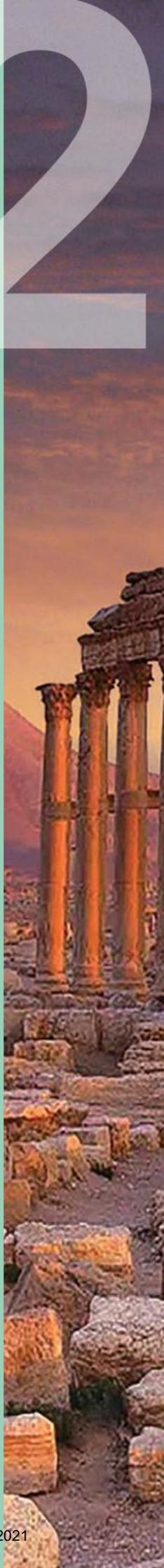
Ancient Egypt: what made Egypt a successful civilisation?

Setting the scene: a history mystery – how did King Tutankhamun die?

Have you seen this picture before? The death mask of King Tutankhamun is one of the most famous ancient artefacts ever discovered. Made from thick sheets of beaten gold, inlaid with semiprecious stones, this priceless mask is a powerful reminder to us today of the incredible wealth and success of the ancient Egyptian civilisation. Found in Tutankhamun's tomb by Howard Carter in 1922, this mask was one of over 5000 artefacts revealed when the tomb was discovered. The contents of Tutankhamun's tomb tell us a lot about ancient Egypt and the life of Tutankhamun. However, to this day, the cause of Tutankhamun's death at the age of only 18 remains a mystery to historians and archaeologists around the world.

The most popular theories are:

- **Theory one**: Tutankhamun was murdered, perhaps by a close associate such as his vizier (the pharaoh's most important adviser), Aye (also spelled Ay)
- **Theory two**: Tutankhamun died as a result of a chariot accident – he may have died instantly when the accident occurred, or he may have died later through blood poisoning from an infected wound
- **Theory three**: Tutankhamun died from a disease such as malaria from a mosquito bite.
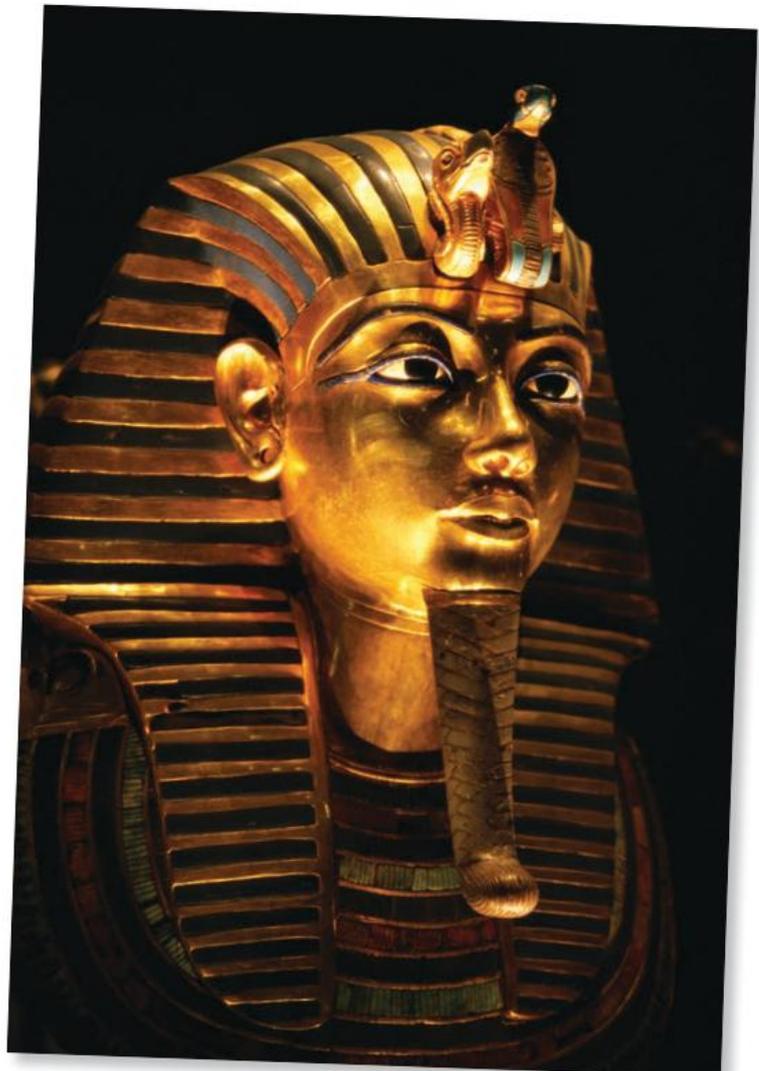
▶ **Source 2.1** The death mask of Tutankhamun

You are now going to begin your inquiry into the success of the ancient Egyptian civilisation by testing your skills as a historian. How do you think Tutankhamun died? How can evidence be useful in supporting your theory?

ACTIVITY 2.1

Step 1: Analyse and evaluate

1 Individually, in pairs or in small groups, use the following questions to help you **analyse** and **evaluate** the evidence for Tutankhamun's death. Try to determine which theory each piece of evidence might support.

    a **Describe**. What is this and who might have made it? When and/or why might it have been made?

    b **Analyse**. What is a key detail from the evidence that might relate to the investigation, and how does it shape your thinking?

    c **Evaluate**. How useful or reliable do you think it is and why? How might it **corroborate** or contrast with evidence from other sources?

Step 2: Synthesise

2 **Synthesise** your evidence by organising the sources into groups. You may wish to do this on the class whiteboard or on paper. Use the three theories as headings to help you do this. Which theory appears to have the most evidence to support it?

Step 3: Hypothesise

3 Develop a **hypothesis** regarding how Tutankhamun died, using at least three pieces of evidence to support your argument. Present your hypothesis and evidence to the class in a format chosen by your teacher. Formats include a presentation, poster, paragraph, mind map, role-play, magazine article or short video.

Step 4: Reflect

4 **Reflect on** your learning by making a list of what else you would like to know about ancient Egypt and the success of this civilisation. Share this list with your class before you begin this chapter. By the end of this chapter, see what questions you have found answers to!

> **analyse** consider in detail for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences
>
> **evaluate** examining and judging the merit or significance of something
>
> **corroborate** to confirm an idea or conclusion by providing new evidence that supports earlier evidence
>
> **synthesise** combine different parts or elements (information, ideas, components) into a new whole, in order to create new understanding
>
> **hypothesis** a theory based on facts, or a suggested answer to a question, to be proved or disproved

▲ **Video**
Exploring Tutankhamun's burial chamber

Evidence

Source 1
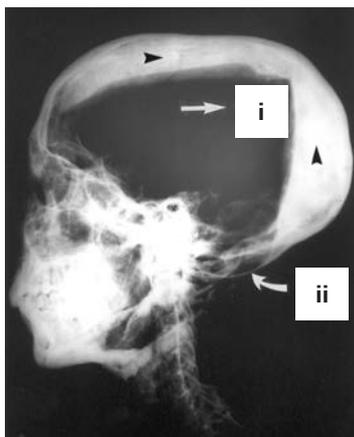
◄ **Source 2.2** This scan of Tutankhamun's skull shows i) where bone fragments have been dislodged and ii) a bulge in the skull. Was this caused by a blow from a blunt object or by a heavy fall? Remember that when Tutankhamun died, the **embalmers** who removed his brain likely damaged the skull.

embalmer a priest (or someone else) in ancient times who treated human remains with spices and other materials to help preserve the remains and stop them decaying

Source 2

My husband is dead and I have no son. People say that you have many sons. If you send me one of your sons, he will become my husband for it is repugnant to me to take one of my servants (or subjects) as a husband.

▲ **Source 2.3** A letter likely written by Tutankhamun's wife, Ankhsenamun, asking the king of the Hittites to send his son to marry her following Tutankhamun's death. Did she perceive her life to be in danger by someone wishing to take Tutankhamun's place?

Source 3

… I was ready to send my son to be king. But you were already on the throne and I did not know. Concerning what you have written to me: 'Your son has died, but I have not caused him any ill.'

When the queen of Egypt wrote me again, you did not … But if you had ascended to the throne in the meanwhile, you should have sent my son back to his home … your servant Hani holds us responsible … What have you done with my son?

▲ **Source 2.4** A letter from the Hittite king to Aye. Aye was Tutankhamun's vizier and replaced him as Egyptian pharaoh after his death. In this letter, the Hittite king complains that the son he sent to marry Ankhsenamun, with the intention of becoming pharaoh of Egypt, had disappeared.

Source 4
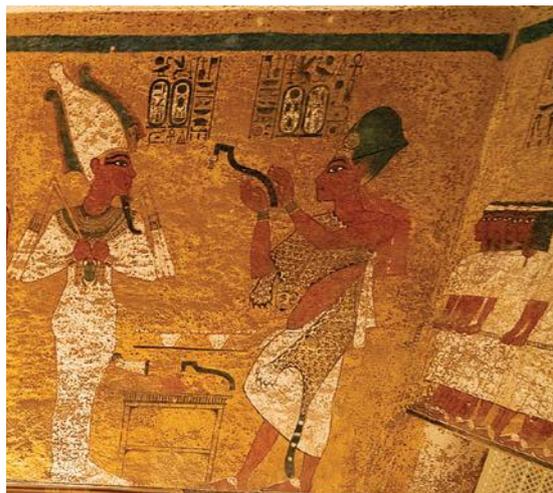
▲ **Source 2.5** This painting is on the wall of Tutankhamun's tomb. It shows the vizier Aye (right) performing the 'opening of the mouth' funerary ceremony on the dead king (left), so that his soul could eat and drink in the afterlife. As Tutankhamun died at such a young age, without heirs, who would be next on the throne?

Source 5
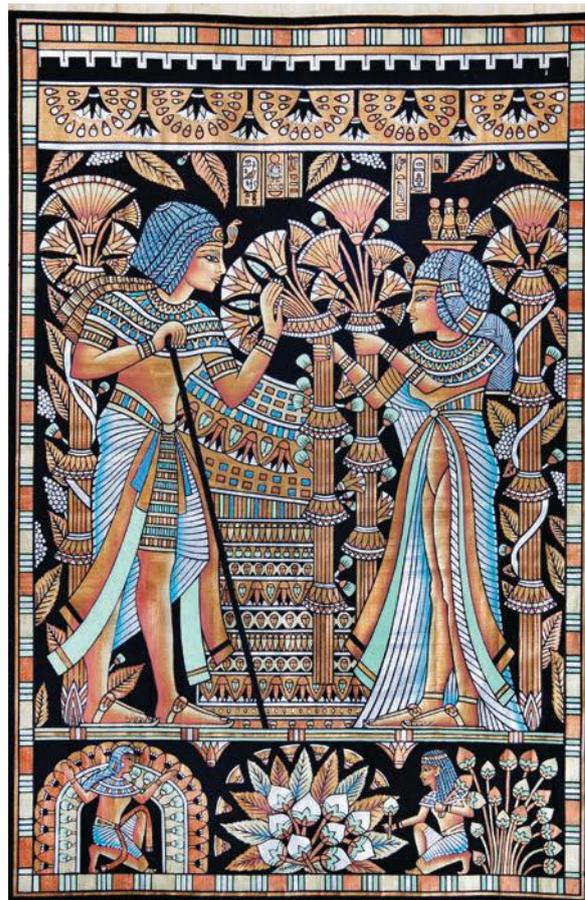
▲ **Source 2.6** This image was copied from an ivory chest found in Tutankhamun's tomb. This picture features Tutankhamun and his wife, Ankhsenamun. Tutankhamun is depicted supporting his weight with a walking stick. Over 100 walking sticks were discovered among the contents of Tutankhamun's tomb, and CT scans of his body suggest that Tutankhamun had a fractured lower leg and a deformed foot at the time of his death. Did he have an injury or a genetic condition that weakened his foot?

Source 6

▲ **Source 2.7** Tutankhamun's hunting chariot. This photograph from 1923 shows two men examining a chariot found in Tutankhamun's tomb. Hunting with a bow and arrow while riding on a chariot appears to have been one of Tutankhamun's preferred pastimes. This would not have been an easy skill to master and was a high-risk activity, as a fall from a chariot could result in broken limbs or worse.

Source 7

▲ **Source 2.8** This photograph from the *New York Times* shows Howard Carter examining Tutankhamun's coffin. The discovery of Tutankhamun's tomb was a huge media event, which led to the archaeologists rushing their examination of the body and their unwrapping of the mummy. As a result, items and even body parts went missing and the body was damaged. Would this affect the accuracy of **forensic** studies of the body?

Source 8

… studies revealed areas of patchy skin changes on the pharaoh's left cheek and neck … they must have had malaria tropica, the most severe form of malaria … Unfortunately, there is also no distinct evidence in ancient Egyptian texts of treatments for malaria, and there are no references to the fevers and chills associated with the disease. However, the Nile Delta and the fringes of the Nile Valley were marshy areas and thus excellent breeding grounds for the mosquito genus Anopheles … A sudden leg fracture possibly introduced by a fall might have resulted in a life-threatening condition when a malaria infection occurred. Seeds, fruits, and leaves found in the tomb, and possibly used as medical treatment, support this diagnosis.

▲ **Source 2.9** This extract from a 2010 article describes the forensic studies of Tutankhamun's corpse. How accurate would these studies be, considering the age and condition of the corpse?

Source 9

▲ **Source 2.10** This colourised photo shows some of the contents of Tutankhamun's tomb at the time it was discovered. Over 5000 items were discovered in the tomb. The items were haphazardly organised in the tomb, which might suggest his burial was conducted in a hurry. Does this indicate a sudden, unexpected death, rather than a gradual decline in health?

Source 10

… a tall, blunt object, it seemed, had struck the king with great force. No weaponry we knew of could have caused the necessary injury. However, we felt that another theory was worth investigating again: the possibility that Tutankhamun died in a chariot accident, and that, more specifically, the fatal impact was caused by a chariot wheel … Had the king been kneeling or crouching down and struck by the wheel of the chariot, he would undoubtedly have suffered massive injuries to his torso …

▲ **Source 2.11** This extract – from an article in the BBC's *History Extra* magazine – describes possible explanations for the fact that Tutankhamun's body was missing ribs at the time of embalming. Why might the body have been missing ribs?

forensic relating to scientific methods of investigating history or crime, and may involve scientific tests of human remains

Chapter overview

Introduction

The ancient Egyptians were one of the world's earliest and most impressive civilisations. Over 5000 years ago, they began the process of organising themselves into a large society that included a centralised government, organised religious beliefs and practices, monumental architecture, written literature, and a clear social hierarchy. Incredibly, this civilisation survived for over 3000 years, and managed to maintain many of its valued traditions and cultural practices virtually unchanged for thousands of years. Without a doubt, the longevity of the civilisation of the ancient Egyptians must be considered one of the great success stories of human history.

As you read this chapter, use the information and sources provided to build your knowledge and understanding of the unique features that characterise the civilisation of ancient Egypt, and consider how they help you to answer the key inquiry question below.

Key inquiry question

'What made ancient Egypt a successful civilisation?'

Every key inquiry question should have:

- An open interrogative
- A historical concept
- Specific content
- Scope and scale.

So, let's dissect this key inquiry question: 'What made ancient Egypt a successful civilisation?'

To answer a key inquiry question in a historical investigation, it is helpful to break the question into sub-inquiry questions.

Sub-inquiry questions

After completing this chapter, you should be able to answer these sub-inquiry questions:

- How did ancient Egypt's physical features influence its success?
- How important was the role of the pharaoh to ancient Egypt's success?
- What was life like for key groups in ancient Egypt and how did they contribute to its success?
- What role did religious beliefs, values and practices play in ancient Egypt's success?
- How did ancient Egypt benefit from contact and conflict with other societies?
- What role did individuals, such as Queen Hatshepsut, play in making ancient Egypt successful?

Historical skills

After completing this chapter, you should be able to:

- Sequence events and developments within a chronological framework using dating conventions to represent and measure time
- Use relevant historical terms and concepts
- Devise questions to frame a historical inquiry when researching
- Identify and select a range of sources to answer inquiry questions
- Identify the origin and purpose of primary and secondary sources
- Locate, compare, select and use information from a range of sources to answer inquiry questions
- Draw conclusions about the usefulness of sources
- Examine sources to provide explanations of points of view.

▲ **Video**
Five interesting facts about ancient Egypt

▶ **Source 2.12** An ancient Egyptian bas-relief of the god Horus

Timeline of key events

What came before this topic?

c. 3500 BCE People arrived in Egypt and settled along the Nile River Valley

c. 3000 BCE
Hieroglyphic script
is developed

Early Dynastic Period

c. 2613–2181 BCE
The great pyramids
at Giza are built
(4th dynasty)

Old Kingdom Period

c. 1493 BCE
Under Queen Hatshepsut, a
voyage to Punt opens up new
trade routes and brings back
exotic riches to Egypt
(18th dynasty)

New Kingdom Period

c. 3150 BCE
King Narmer of Upper Egypt
conquers Lower Egypt and
unifies the two lands. This marks
the beginning of Egypt being
ruled by a single, powerful
pharaoh (1st **dynasty**)

Early Dynastic Period

c. 2670 BCE
The first stone pyramid
is built at Saqqara
(3rd dynasty)

Early Dynastic Period

c. 2040–1640 BCE
The high point of ancient
Egyptian art and architecture

Middle Kingdom Period

dynasty a succession of rulers from the
same family; in ancient Egypt and China,
some dynasties included rulers that were not
related to the ruling family. The 3000 years of
ancient Egyptian civilisation are traditionally
divided into approximately 30 to 32 dynasties

Old Kingdom the term used to group the pharaohs of the 4th to 6th dynasties.
The capital of Egypt at this time was at Memphis and the chief god was Re
(also spelled Ra). The Great Pyramids at Giza were constructed during this time

New Kingdom the term used to group the pharaohs of the 18th to 20th
dynasties. The capital of Egypt at this time was at Thebes and the chief god
was Amun-Re. Egypt expanded its empire widely during the New Kingdom
and the chariot was introduced. Pharaohs were generally buried in the Valley
of the Kings. Notable pharaohs of this period were Amenhotep III, Hatshepsut,
Thutmose III, Akhenaten, Tutankhamun and Ramses II

Responding to the timeline

1 The following terms are used on this timeline. **Determine** their meaning.
   a c. (circa)   **b** BCE
2 What is a dynasty? Try to **explain** this concept to a friend. Where else in the world, either today or
   in the past, have countries been ruled by dynasties?
3 **Identify** the period of ancient Egyptian history when young King Tutankhamun ruled.

>>

What came after this topic?

30 BCE After Queen Cleopatra VII's death, Egypt lost its independence and became part of the Roman Empire

c. 1336 BCE
Tutankhamun becomes pharaoh of Egypt (18th dynasty)

New Kingdom Period

747–332 BCE
The Nubian, Assyrian and Persian armies conquer Egypt

Late Period

305 BCE
Ptolemy I becomes pharaoh of Egypt (Ptolemaic dynasty)

Greco-Roman Period

30 BCE
Cleopatra VII, the last pharaoh, commits suicide after failing to prevent the Romans invading Egypt (Ptolemaic dynasty)

Greco-Roman Period

c. 1346 BCE
The 'heretical' pharaoh, Akhenaten, moves the capital of Egypt from Thebes to Akhetaten (18th dynasty)

New Kingdom Period

1279 BCE
Ramses II (The Great) becomes pharaoh of Egypt (18th dynasty)

New Kingdom Period

332 BCE
Alexander the Great conquers Egypt

Greco-Roman Period

196 BCE
The Rosetta Stone is carved

Greco-Roman Period

≫

4 **Determine** approximately how many years there were from the time of the foundation of ancient Egypt under King Narmer to the end of ancient Egypt's independence with the death of Cleopatra VII?

5 **Identify** the dynasty and kingdom during which the famous great pyramids of Giza were constructed.

6 **Research** one of the significant individuals mentioned on this timeline. Create a biographical profile poster to put up on the wall of your classroom. You may wish to use the following headings to help structure your poster:

- Historical context
- Early life
- Achievements
- How they were perceived by their contemporaries
- Their overall role in Egyptian history.

2.1 How did ancient Egypt's physical features influence its success?

FOCUS QUESTIONS

- Where in the world was ancient Egypt?
- What challenges did Egypt's geography and climate pose to the success of the ancient Egyptian civilisation?
- How did the inundation of the Nile River help the ancient Egyptians to overcome the challenges posed by Egypt's geography and climate?
- How did ancient Egyptian farmers use the Nile River?
- How did the ancient Egyptians use the Nile River for transport?
- How else did the physical features of ancient Egypt support the success of the ancient Egyptian civilisation?

Nile River the main river running through Egypt

Lower Egypt the northern region of Egypt around the Nile Delta. The major city in this region was Memphis. The land here was flat, fertile and closer to sea level (thus the label of 'Lower' Egypt)

Upper Egypt the southern region of Egypt, stretching along the Nile Valley from Memphis in the north to Aswan in the south. The major city in Upper Egypt was Thebes

Positioned in the north of Africa, Egypt sits alongside the **Nile River** in the Sahara Desert.

Before 3100 BCE, Egypt consisted of a series of separate villages situated alongside the Nile River. Most people lived near the narrow strip of land by the Nile's banks (known as the Black Land) as it was the best place to grow crops and farm animals. The rocky, sandy desert land farther away from the Nile River was known as the Red Land, because of the colour of the soil. There was little rain in the Red Land, making it harder for plants and animals to grow, so fewer people settled there.

As these villages grew, two larger groupings emerged in the north and in the south, known as **Lower Egypt** and **Upper Egypt** (see Source 2.13). Lower Egypt, the northern region around the Nile Delta (the mouth of the Nile River), was flatter and had fertile soil. Whereas Upper Egypt, the southern region of the Nile Valley between Memphis and Aswan (and later on, down to the region of Kush), was narrower and drier and had only a thin strip of fertile land along the banks of the Nile River.

RESPONDING TO THE SOURCE — 2.1

1 The region where the Nile River meets the Mediterranean Sea is known as the Nile Delta. **Examine** Source 2.13 and conduct some research to find out why it is called a 'delta'.

2 It can be confusing that Lower Egypt is to the north of Upper Egypt. **Examine** Source 2.13 and **conduct** some research to find out why the region to the south is called Upper Egypt.

▲ **Source 2.13** A map of ancient Egypt from c. 1500 BCE

What challenges did Egypt's geography and climate pose to the success of the ancient Egyptian civilisation?

The Nile River

When we look at satellite images of present-day Egypt (see Sources 2.14 and 2.15), we can see the dark, fertile soil that surrounds the Nile River. The lush green stands out next to the harsh yellow sand of the Sahara Desert.

As the Nile River flows down from the mountains in the south to the Mediterranean in the north, it creates a long, narrow strip of fertile farmland, which weaves through the desert like a ribbon.

▲ **Source 2.14** Present-day Egypt. A satellite image of present-day Egypt.
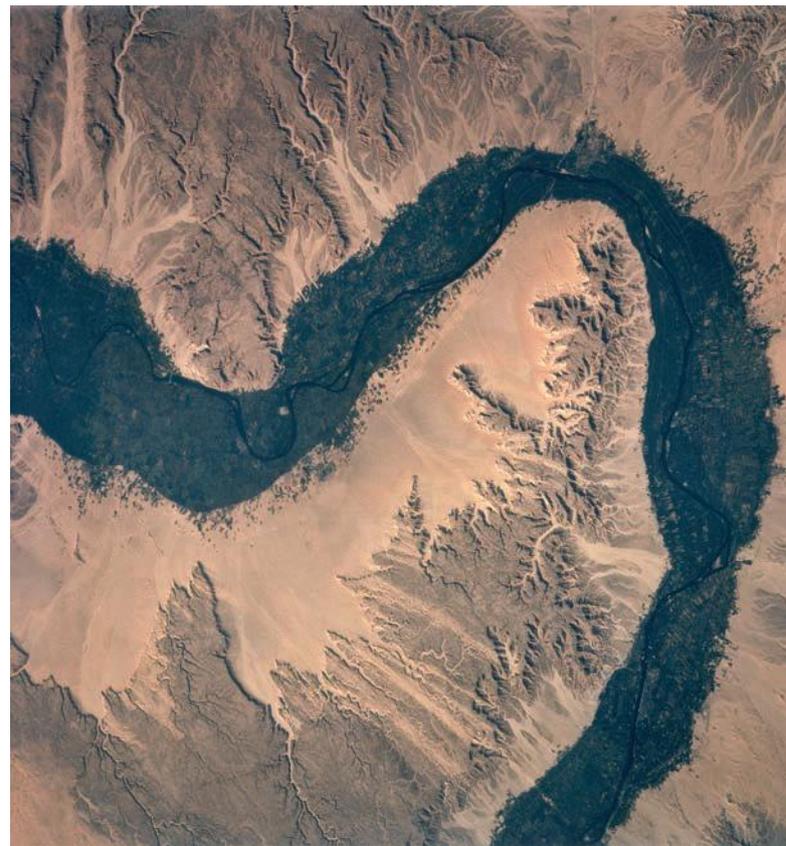
▲ **Source 2.15** This image of the Nile River was taken from the space shuttle *Columbia* in 1996. You can see that the regions alongside the river are a rich and fertile green.

RESPONDING TO THE SOURCES — 2.2

1   Even though Sources 2.14 and 2.15 are satellite images of present-day Egypt, the geography of ancient Egypt was similar. Imagine you are viewing Egypt from space: **describe** the geography of the place you see.

2   Based on the satellite images in Sources 2.14 and 2.15, **infer** what challenges the geography of Egypt might present for the people who live there.

3   **Describe** which areas of Egypt might be most likely to sustain life. Why?

4   Does Source 2.15 depict the Nile River in Upper Egypt or Lower Egypt? **Explain** how you know.

Egypt's climate

The climate of ancient Egypt was probably like the climate of Egypt today. Egypt has two main seasons: a hot summer between May and October, and a mild winter from November to April. Temperatures range from very hot during the day to very cold night-time. Sometimes, it snows in the south near the mountains. There is little rainfall for most of the year, so people rely on the Nile River as a source of fresh water.

Cairo's climate	January	February	March	April	May	June	July	August	September	October	November	December
Average temperature (°C)	13.1	14.1	17.4	20.7	24.1	27	27.6	27.6	25.8	23.5	19.2	15.1
Minimum temperature (°C)	7	7.4	10.5	12.9	16.2	19.3	20.7	20.8	19.1	16.8	13.1	9.1
Maximum temperature (°C)	19.3	20.9	24.3	28.5	32.1	34.8	34.6	34.5	32.5	30.2	25.4	21.1
Precipitation/ rainfall (mm)	5	3	2	1	0	0	0	0	0	0	3	4

▲ **Source 2.16** Present-day climate data for Cairo. In ancient times, this city was called Memphis.

Brisbane's climate	January	February	March	April	May	June	July	August	September	October	November	December
Average temperature (°C)	24.9	24.7	23.5	21.3	18.2	15.6	14.6	15.4	17.7	20.4	22.7	24.2
Minimum temperature (°C)	20.3	20.2	18.8	16	12.8	10	8.6	9.1	11.5	14.8	17.4	19.3
Maximum temperature (°C)	29.6	29.2	28.3	26.6	23.6	21.2	20.6	21.7	24	26.1	28	29.2
Precipitation/ rainfall (mm)	162	167	135	93	83	67	63	41	34	90	104	129

▲ **Source 2.17** Present-day climate data for Brisbane, Queensland

RESPONDING TO THE SOURCES — 2.3

1 Source 2.16 shows present-day climate data (temperature and precipitation) for Cairo, which is in the same place as the ancient city of Memphis. **Analyse** this information to answer the following questions:

    a What is the month with the highest average temperature?

    b What is the month with the lowest average temperature?

    c How much rainfall does Cairo get each year?

    d How would you describe Cairo's climate?

2 **Determine** what types of challenges the climate of ancient Egypt might have presented for the people who lived there.

3 In pairs, **compare** the climate of Brisbane (Source 2.17), or the place where you live, to the climate of Cairo. With your partner, **discuss** what main differences and/or similarities you notice. Which climate would each of you prefer to live in and why? Use a climate data website (visit https://cambridge.edu.au/redirect/9482) to find temperature and precipitation (rainfall) data for the place where you live.

MAKING THINKING VISIBLE 2.1

Colour, symbol, image

This thinking routine encourages you to distil ideas and present them in a new form, and to give reasons for your choices. It can be done on computer or on paper.

COLOUR What colour best represents ancient Egypt's climate and geography? (place in the box below)	SYMBOL What symbol best represents ancient Egypt's climate and geography? (place in the box below)	IMAGE What image best represents ancient Egypt's climate and geography? (place in the box below)
Why did you choose this colour?	Why did you choose this symbol?	Why did you choose this image?

How did the inundation of the Nile River help the ancient Egyptians to overcome the challenges posed by Egypt's geography and climate?

In ancient times, heavy summer rain fell each year in the mountains of Ethiopia; this water travelled north, causing the Nile in Egypt to flood and spill over the riverbanks. This process is called the **inundation**.

The predictability of the Nile floods allowed the Egyptians to develop an annual calendar of 12 months, divided into three seasons. These seasons, based on the Nile fluctuations, were:

Akhet (Inundation): June–September, when the Nile flooded agricultural land

Peret (Emergence): October–February, the time of planting, when the water levels receded

Shomu (Harvest): March–May, the time of harvest

▲ **Source 2.18** The fluctuations in the Nile River. This diagram depicts the seasonal inundation of the Nile River.

When the flood waters receded, a layer of thick black dirt, called **silt**, was deposited along the banks of the river. The silt carried by the inundation was full of rich vitamins and minerals, which provided the ancient Egyptians with the ideal conditions for growing their crops. However, the Egyptians had to watch and measure the water levels carefully, as each year the level of inundation was different.

A large inundation could flood and destroy whole villages. A small inundation could mean there was not enough water for the farms, resulting in failed crops and thirsty animals. Without enough water, people would certainly go hungry. Many large-scale building projects – such as the construction of the great pyramids at Giza – were probably completed by Egyptian farmers during the inundation season, when they were unable to work on their farms.

inundation the yearly flooding of the Nile River

silt rich, fine soil carried in the waters of a river

Praise to you, O Nile, that comes from the earth, and comes to nourish Egypt. He that spills out, giving the fields water to drink and making the people strong. He makes one man rich and loves the other. He that waters the meadows, he that Ra created to feed all cattle. He that gives drink to desert places which are far from water. He that makes barley and wheat, so that temples can keep festivals …

If the inundation is poor, then men can no longer live and breathe, and all men are poor. The foods of the gods are short, and millions of men will die. When the river rises, the whole land is joyful, all jaws begin to laugh and every tooth is shown.

When the Nile floods, offerings are made to you, cattle are slaughtered for you, birds are fattened for you, prayers are said for you. You are fruitful, O Nile, you are fruitful.

▲ **Source 2.19** An excerpt from the 'Hymn to the Nile', a prayer from the people of Egypt to the Nile River (19th dynasty; c. 1292–1190 BCE)

RESPONDING TO THE SOURCE — 2.4

Form pairs or small groups. Select one person to take on the role of an ancient Egyptian priest, who will perform the 'Hymn to the Nile' from Source 2.19 to your group. Try to come up with some hand gestures to help bring your performance to life. After your performance, **discuss** the following questions as a group:

1 Why might this hymn have been created?
2 In what ways does the hymn suggest the Nile River was important to the lives of people in ancient Egypt?
3 What does the hymn suggest the consequences were if the Nile did not flood?

How did ancient Egyptian farmers use the Nile River?

Farmers constructed trenches and dams next to the Nile River to store and share water across wider tracts of land. This allowed them to raise water from the Nile River and increased the amount of land available for farming. During the early New Kingdom, Egyptian farmers developed a **shaduf**, a wooden arm with a counterweight on one end and a bucket on the other, which was operated by hand to lift water out of the Nile to water crops. Over time, more sophisticated systems, such as the water wheel, were developed by engineers and architects. Technology such as 'nilometers', which measured the water level of the Nile River, allowed Egyptians to make predictions about the inundation for the year and how much food would likely be able to be produced.

shaduf hand-operated device for lifting water from rivers, used in ancient Egypt from 2000 BCE to irrigate the land

Cereal crops: wheat and barley (for making bread and beer)

What did ancient Egyptians eat?

Meats: goats, pigs, cattle, sheep, fish, ducks, geese

Fruits and vegetables: leeks, garlic, melons, squashes, lettuce, dates, grapes, pomegranates, olives

▲ **Source 2.20** What did ancient Egyptians eat? As there was only one harvest season, fresh food was only plentiful once a year. For the rest of the year, the ancient Egyptians relied on salted or dried food.

▲ **Source 2.21** An ancient Egyptian garden. This scene of a garden was painted in the tomb of Ipuy at Thebes (19th dynasty; c. 1279–1213 BCE).

RESPONDING TO THE SOURCE — 2.5

1 What technology is the person using in Source 2.21? **Describe** the features of this technology and explain how it enabled ancient Egyptians to grow more food for Egypt's increasing population.

2 The image in Source 2.21 was painted on the interior wall of the tomb of an ancient Egyptian nobleman named Ipuy. **Explain** why Ipuy might have chosen to have this painting in his tomb.

How did the ancient Egyptians use the Nile River for transport?

Boat travel was the main form of transport in ancient Egypt. The Nile River acted as a kind of highway for the Egyptians, connecting their major cities. Large wooden ships with square sails and oars were used to transport trade goods (like grain and linen), to transport statues of gods or the mummified bodies of pharaohs to their burial sites as part of religious ceremonies, and to carry heavy stones from stone quarries to construction sites. Smaller boats made from papyrus were used for travelling short distances and were also used by wealthy Egyptians for fishing and hunting. Wheeled vehicles, such as chariots, were not widely used until they were introduced around the beginning of the New Kingdom.

▲ **Source 2.22** An ancient Egyptian ship. This depiction of an Egyptian ship is from the tomb of Menna, a scribe of the king (18th dynasty).

▲ **Source 2.23** An ancient Egyptian boat. This painting is from the tomb of Ipuy at Thebes (19th dynasty; c. 1279–1213 BCE).

RESPONDING TO THE SOURCES — 2.6

1 What do you think the boats in Sources 2.22 and 2.23 are being used for? **Explain** your answer.
2 **Compare** the similarities and differences in the design of the boats depicted in Sources 2.22 and 2.23. **Explain** the reasons for the differences in their designs.

How else did the physical features of ancient Egypt support the success of the ancient Egyptian civilisation?

The land around the Nile provided the ancient Egyptians with many natural resources. As Egypt was hot and dry, Egyptians used the flax plant to create linen cloth for clothing that was cool and lightweight. Men wore kilts that went from waist to knee, while women wore shifts from chest to knee. Sometimes, farmers are shown wearing loin cloths. In winter, woollen cloaks were worn during the evening for warmth. The **papyrus** plant is most well-known for its use as a writing material, but had a range of other uses, including making sandals, boats, ropes, baskets, mats and toys.

papyrus a plant that was common in the Nile Delta; ancient Egyptians had many uses for papyrus, including as an early form of paper

Copper from mines in the eastern desert was used to make weapons, containers and tools, while knives, axes and other tools were made from flint (a sharp stone). Egyptian gold mines in the eastern desert and in Nubia to the south provided gold for jewellery and decorative ornaments.

Mud bricks made from the Nile's clay provided the building materials for most brick houses, even for the pharaohs' palaces. Houses for commoners were often two-roomed buildings with a roof, on which the family slept at night. The kitchen was usually a wood fire in the rear yard of the house. Bathrooms, as we know them, did not exist. People used pots as toilets and washed either in rivers or with

▲ **Source 2.24** This depiction of daily life is on the walls of a tomb located near the Step Pyramid of Djoser (c. 2670 BCE).

water channelled from them. Furniture was minimal, except for stools, as wood was scarce. The houses of wealthier Egyptians were located close to the floodplain, so that the occupants could enjoy any breeze available from the water. These houses often had water features or ponds containing fish and were usually decorated with **frescoes**. There would have been more furniture, such as beds with headrests, in the houses of the wealthy.

fresco a style of painting where the paint is applied directly onto the plaster that covers a wall while the plaster is still wet

RESPONDING TO THE SOURCE — 2.7

1 **Describe** the clothing worn by the Egyptians in Source 2.24. How was this clothing well-suited to life in Egypt?

2 Do you think the people in Source 2.24 are from a higher class or a lower class of Egyptian society? **Explain** what makes you think this.

MAKING THINKING VISIBLE 2.2

+1 routine: A routine for identifying important ideas worth remembering

1 Having worked through Section 2.1, individually write down key points you can take away from the text. What have you learned about how the Nile River enabled life to be successful in ancient Egypt? Try to do this without rereading the text.

2 Now, pass your notes to the right. The person next to you should take 1–2 minutes to read through your notes and then to add one new note to the page. This can be new information, an elaboration on another note, or a connection between ideas.

3 Continue to pass notes around the room two more times.

4 Return all notes to the original owners.

5 Now, you may read and **reflect on** the additional notes made on your page and **consider** new ideas you may have picked up from reading other students' work.

REFLECTING ON YOUR LEARNING 2.1

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did ancient Egypt's physical features influence its success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

2.2   How important was the role of the pharaoh to ancient Egypt's success?

FOCUS QUESTIONS

- Who was the first pharaoh?
- What was the role of the pharaoh?
- How did ancient Egyptians know if their pharaoh was successfully fulfilling their duties?

unification the process of combining things or people

intermediary one who comes between. The pharaoh was the intermediary, or link, between the gods and humans on earth

pharaoh a term used today to describe the kings of Egypt. It derives from the ancient Greek *per aa*, meaning 'the one who lives in the great house'. The rulers of ancient Egypt from the Old Kingdom onwards were called kings, with the title of pharaoh not appearing until sometime in the New Kingdom. The term 'pharaoh' has become virtually interchangeable today with the title of 'king' and will generally be the preferred term used throughout this chapter

ma'at the ancient Egyptian concept of truth, balance, justice and order – Ma'at is the god of divine balance

Who was the first pharaoh?

The **unification** of Egypt under King Narmer in approximately 3150 BCE is considered to be the start of ancient Egyptian civilisation. For the first time, the regions of both Lower Egypt and Upper Egypt were brought under the control of a single, all-powerful ruler. This became the first example in the world of a nation-state, where one central government ruled an area of land with clear and fixed boundaries, and where the people felt themselves to be a part of the same nation and obeyed its rules. King Narmer ruled Egypt from his new capital city, Memphis, and his example became the model for all future pharaohs to follow.

What was the role of the pharaoh?

As the **intermediary** between the people and the gods, the **pharaoh** was considered to be a god on Earth. The ancient Egyptians thought the pharaoh was the human form of the god Horus, and that he was descended from the great god Re (who became Amun-Re in the New Kingdom). They believed that the pharaoh had magical powers and was responsible for keeping the gods pleased with the people of Egypt and maintaining a state of order and harmony, known as **ma'at**.

Religious leader: participate in religious ceremonies as the high priest of Egyptian religion; act as the link between the gods and the people

Protector: protect Egypt's borders from enemies through warfare and diplomacy

Chief judge: make laws; preside fairly over important decisions and settle disputes; punish wrongdoers

What were the roles performed by the pharaoh?

Builder: oversee great building projects such as temples and monuments to honour and please the gods; construct a fine tomb for the afterlife

Administrator: collect taxes, expand trade, and ensure Egypt was well-administered; pharaoh technically owned all the land in Egypt

▲ **Source 2.25** This diagram shows the many roles performed by the pharaoh.

Source 2.26 provides instructions from an old king of either the 9th or 10th dynasty to his son, Merikare, on how to be a successful ruler:

Ensure that a man may say even in your absence that you punish fairly …

Do not be evil; kindness is good. Make your name remembered through people's love for you …

Respect your nobles, feed your people … Strengthen Egypt's borders, keep Egypt's frontier well-defended …

Make your officials wealthy, so that they act by your laws … poor men will not be honest … and will be susceptible to bribery.

Do justice … do not oppress the widow, do not expel a man from his father's property … be careful not to punish wrongfully; do not kill, as it does not benefit you, but punish instead with beatings or with imprisonment …

Guard your borders, secure your forts …

Make great monuments that are worthy of the god, as this will also keep your name alive …

Attend monthly religious ceremonies, wear the appropriate attire, visit the temple … enter the sanctuaries and eat bread in the temple, give substantial offerings to the gods …

Maintain your monuments with your wealth … God will recognise you for this service.

Do not destroy the monuments of others, but quarry new stone for your monuments …

Do not ignore my advice, which provides the laws of kingship and instructs you so that you may rule the land and reach the afterlife successfully!

▲ **Source 2.26** An adapted extract from a famous set of instructions preserved on papyrus, known as 'The Teaching for Merikare' (9th–10th dynasty).

RESPONDING TO THE SOURCE — 2.8

1 In Source 2.26, what advice does the older pharaoh give Merikare on how to be a successful pharaoh? **Analyse** Source 2.26 and **identify** instructions for how to fulfil the various roles of a pharaoh.

A pharaoh's roles	Advice for how to successfully fulfil this role
Religious leader	
Chief judge	
Administrator	
Builder	
Protector	

2 Using Source 2.26 and the information on the roles of a pharaoh above, **create** a job advertisement for the next pharaoh of ancient Egypt. Your job advertisement may include the following features:

a A company logo

b A position description, outlining the key roles and responsibilities of the job

c Some information about the benefits of the role to encourage applicants to apply.

Try to make your job advertisement as visually appealing as possible! You may wish to look up other job advertisements online to get a sense of other kinds of details that may be relevant. You may complete this electronically, or in hard-copy form, such as a poster.

How did ancient Egyptians know if their pharaoh was successfully fulfilling their duties?

As most of ancient Egypt's population could not read nor write, visual depictions of the pharaoh in statues or on the walls of public buildings were an important way for pharaohs to reassure their people that they were successfully performing their duties, such as pleasing the gods and protecting Egypt's borders. As time went on, the idea of the 'warrior pharaoh' became very important and it became typical for Egyptian rulers to show themselves crushing their enemies or demonstrating feats of physical excellence. This visual language is explored in Table 2.1, which shows some of the common symbols (and their meanings) used in depictions of pharaohs in ancient Egypt.

TABLE 2.1 Some features commonly found in depictions of pharaohs, and their meanings

Feature or symbol		Meaning
	The dual crown, or pschent – this was made up of two earlier crowns: the tall, white crown of Upper Egypt and the shorter red crown of Lower Egypt	The union of Egypt under one ruler
	A 'uraeus' cobra, with its head raised, ready to attack; this was often accompanied by an image of a vulture	Symbolises royalty and protection; when accompanied by a vulture, means the unification of two lands
	A flail or whip	Symbolises the pharaoh's authority to make their people obey them
	A rounded 'crook' or shepherd's staff, used to pull sheep back to the herd	Symbolises the pharaoh's role in guiding his people
	Large, jewelled collars and beautiful headdresses	A sign of great wealth and prosperity
	False beard	Signifies status as a living god and to associate themselves with Osiris, the king of the underworld
	Ankh, appearing as a cross with a loop at the top	Symbolises eternal life

»

»

Feature or symbol		Meaning
	Arms crossed in front, holding flail and crook, wrapped in mummy bandages	Signifies that the pharaoh has joined Osiris, the king of the underworld; this image is normally associated with death and funerary practices and commonly features on coffins
	Pharaohs were always depicted as larger than any other figure except for gods	Symbolises divine status, and the belief that the pharaoh represented the whole of Egypt
	'Smiting' pose, with an outstretched arm about to strike a defeated enemy	Image of a warrior pharaoh who is able to protect Egypt against enemy threats

▲ **Source 2.27** An artist's impression of three types of crown worn by pharaohs: the dual crown or pschent (left); the red crown of Lower Egypt (middle); the white crown of Upper Egypt (right). What other features can you identify?

Source spotlight: the Narmer Palette

The symbols and images used on the Narmer Palette (1st dynasty) provide a good example of early depictions of the pharaoh. These symbols and images must have worked, as they were used by almost every pharaoh for the next 3000 years, until the death of Cleopatra VII!

Narmer holds a mace; he is about to strike his defeated enemy.

Narmer's royal sandal-bearer stands behind him.

Narmer is wearing the following items:

- The white crown of Upper Egypt
- A ceremonial bull's tail
- A false beard.

What do you think each of these items symbolises?

Horus holds a defeated enemy with a rope. The reeds on the back of the enemy may symbolise Lower Egypt. What might be the purpose of including Horus beside the pharaoh?

Possibly an image of 'the strong bull' or a representation of the cow-goddess, Hathor.

Images of a catfish ('nar') and a chisel ('mer') give us the pharaoh's name: Narmer.

Ten beheaded enemies lie on the ground before the king.

A defeated enemy

Two defeated enemies lie on the ground outside a walled city.

Narmer, wearing the red crown of Lower Egypt, walks in a procession with a priest.

Four figures carrying standards walk in front of Narmer. What do you think this scene depicts?

Two mythical creatures known as 'serpopards'. What might be the reason for their necks to be intertwined this way?

Who might these be?

A bull tramples a prisoner and a walled city. What might be the meaning of this scene?

▲ **Source 2.28** The Narmer Palette. This image shows the front and reverse sides of the Narmer Palette, from Hierakonpolis (1st dynasty; c. 3150 BCE). Some features have been highlighted in different colours to assist your analysis of this source.

RESPONDING TO THE SOURCE — 2.9

1 With a partner, or in a small group, **analyse** the features of the Narmer Palette in Source 2.28. Share your theories for the questions that accompany the annotations.

2 **Compare** the size of the king to the size of other figures in this source. Suggest reasons for this difference.

3 **Identify** where King Narmer can be seen wearing the white war crown of Upper Egypt and the red crown of Lower Egypt. **Interpret** what message this may have been intended to convey to anyone who viewed this source.

4 **Identify** and make a list of as many features on this source as you can that support the idea that King Narmer wished to be seen as a great warrior and conqueror. **Explain** how each feature might support this image of the king.

RESPONDING TO THE SOURCE — 2.10

Copy the table below into your notes, then use it to record the symbols on the statue of Hatshepsut in Source 2.29. **Explain** the probable meaning of each of these symbols.

	Symbol	The meaning of the symbol
A		
B		
C		
D		
E		
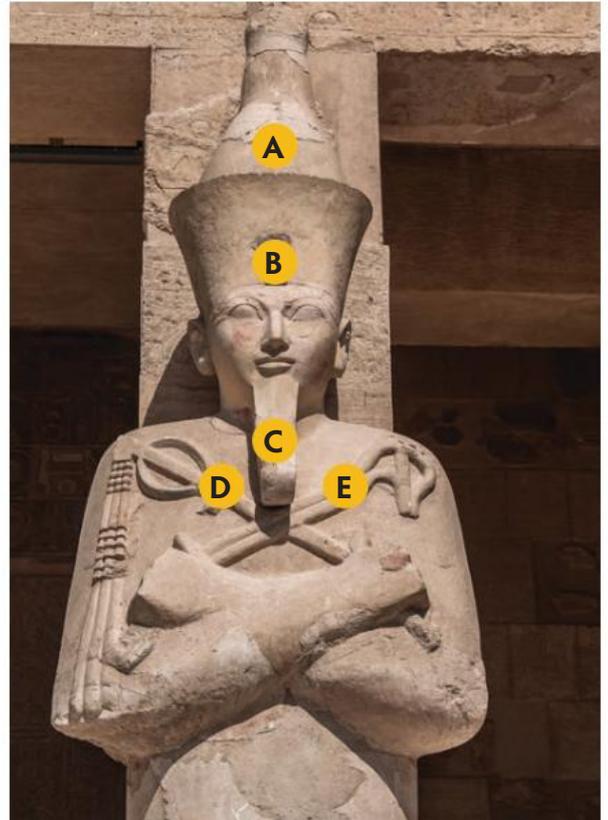
▲ **Source 2.29** Hatshepsut was a female pharaoh during the New Kingdom (18th dynasty). This statue of Hatshepsut (1508–1458 BCE) is from her mortuary temple at Deir el-Bahri.

MAKING THINKING VISIBLE 2.3

I used to think … now I think …

1 Take a minute to **consider** what ideas you had about pharaohs before beginning this section. When you are ready, complete the following phrase: 'I used to think that pharaohs …'

2 Now, think about how your ideas about pharaohs have changed as a result of the information and sources you have read in this section. In just a few sentences, **explain** what you now think about pharaohs. When you are ready, complete the following phrase: 'Now I think that pharaohs …'

3 As a whole class, **discuss** how your ideas about pharaohs have changed as a result of what you have learned in this section. What questions do you still have about pharaohs?

REFLECTING ON YOUR LEARNING 2.2

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How important was the role of the pharaoh to ancient Egypt's success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

2.3 What was life like for key groups in ancient Egypt and how did they contribute to its success?

FOCUS QUESTIONS

- How was society organised in Ancient Egypt?
- How did life compare for different groups in Egyptian society?
- What was the role of women in ancient Egypt?
- What was the role of the vizier and scribes in ensuring ancient Egypt was successfully managed?

How was society organised in ancient Egypt?
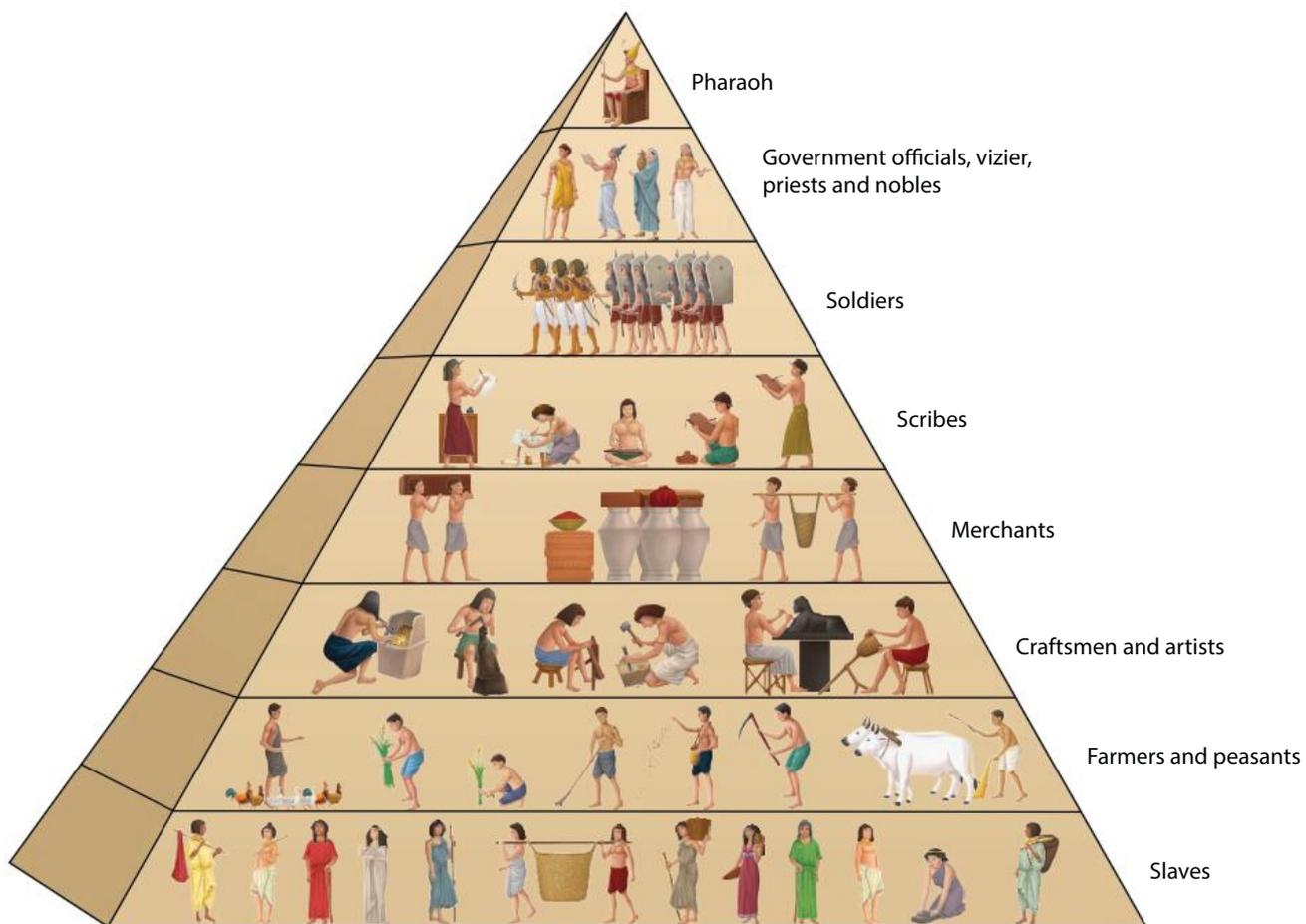
▲ **Source 2.30** The rigid social order of ancient Egyptian society. This diagram shows the structure of ancient Egyptian society.

RESPONDING TO THE SOURCE — 2.11

1 **Examine** Source 2.30.
   a Which groups in ancient Egyptian society had the most power? What kinds of roles might they have performed? What does this suggest ancient Egyptian society valued?
   b Which groups in ancient Egyptian society had the least power? What kinds of roles might they have performed? What does this suggest ancient Egyptian society did not value?
2 **Explain** how a rigid social order might have helped maintain peace and stability in ancient Egypt.

How did life compare for different groups in Egyptian society?

ACTIVITY 2.2

Visit the British Museum's 'Ancient Egypt' website (https://cambridge.edu.au/redirect/9483).
Read about a day in the life of a nobleman compared to a farmer.

1 Copy the table below into your notes. Then, use the table to **compare** the daily life of an Egyptian noble with a commoner.

Noble	Farmer

2 Do you think the source suggests the nobleman had a better life than the farmer? **Argue** to support your answer.

What was the role of women in ancient Egypt?

Women in ancient Egypt had similar legal and economic rights and status to men. They were able to own property, including land, slaves and livestock. Also, unlike in other ancient societies, women could be involved in legal proceedings without a male being present.

Despite their legal and economic status being greater than women in most other ancient civilisations, most women in ancient Egypt were restricted to roles and occupations related to the home and family, such as managing the household, cooking and making clothes. Young girls were generally taught homemaking skills and were expected to marry at around 12 or 13 years of age. These were generally arranged marriages.

Poorer women were not generally taught to read or write and probably helped their husbands work in the fields, or took on jobs as weavers, cooks, singers, musicians or dancers. Wealthy women would have had a higher level of literacy and would likely have had servants do the housework and cooking for them and could sometimes become physicians and priestesses. Royal women would have had private tutors who trained them in reading and writing, in preparation for their life at court.

So while the most common female title in Egypt's 3000-year history was 'lady of the house' (housewife), many women worked in the temple hierarchy. Other women were overseers and administrators, or they held titles ranging from doctor, guard and judge to treasurer, vizier (prime minister) and viceroy.

And some women were also monarchs, from the regents who ruled on behalf of underage sons to those who governed in their own right as pharaoh, a term simply meaning 'the one from the palace'. Yet some Egyptologists still downgrade female rulers by defining them by the relatively modern term 'queen', which can simply refer to a woman married to a male king. And while the c. 15th-century BCE Hatshepsut ruled as a pharaoh in her own right, she is still often regarded as the exception that proves the rule – even though the evidence suggests there were at the very least seven female pharaohs, including Nefertiti and the great Cleopatra.

▲ **Source 2.31** Historian Joann Fletcher describes some of the roles of women in ancient Egyptian society.

RESPONDING TO THE SOURCE — 2.12

1 In pairs or small groups, use the information in Source 2.31 to create a mind map to **analyse** the question: 'How did women contribute to the success of ancient Egyptian civilisation?'

How did women contribute to the success of ancient Egyptian civilisation?
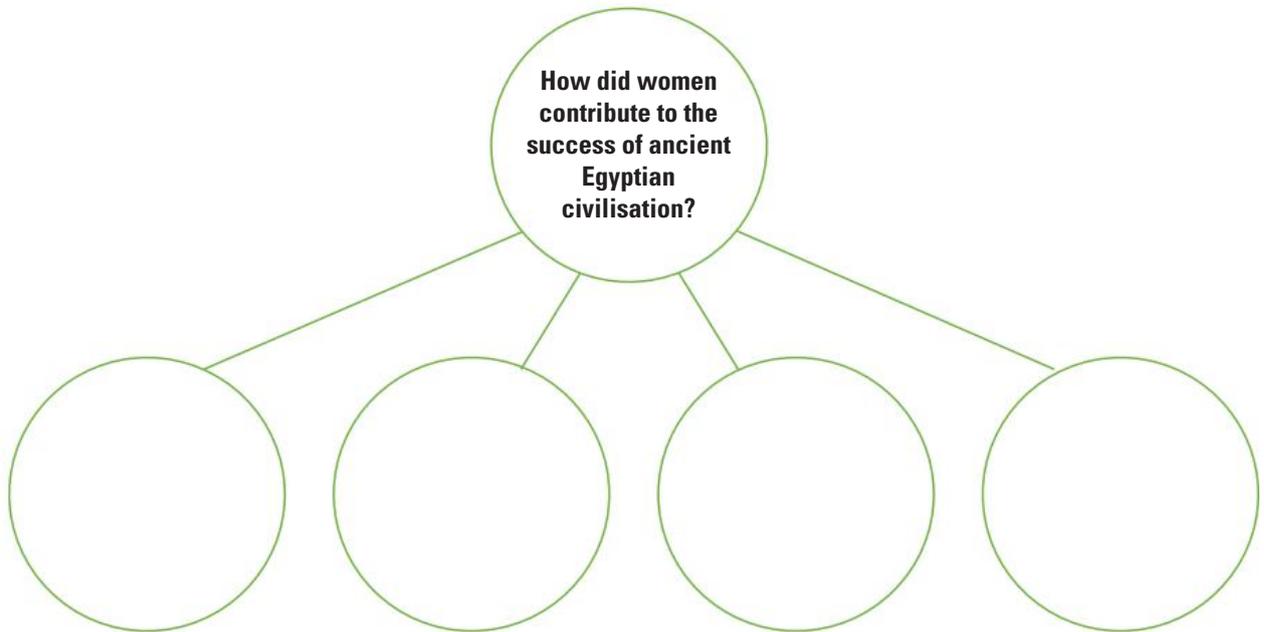
2 **Compare** the experience of women in ancient Egypt with women in Australia today. What similarities and what differences are there? Represent your ideas in the form of a Venn diagram.

Women in ancient Egypt   Women in Australia today

▲ **Source 2.32** This wall painting is from the tomb of Nebamun, a nobleman of the 18th dynasty (c. 1370 BCE).

RESPONDING TO THE SOURCES — 2.13

1 What occupations can you **identify** in Source 2.32?

2 **Identify** which social class the women portrayed in Source 2.32 might have belonged to. Where do you think they belong on the social pyramid in Source 2.30?

3 **Propose** why Nebamun may have chosen to have the image in Source 2.32 painted on the walls of his tomb.

What was the role of the vizier and scribes in ensuring ancient Egypt was successfully managed?

Vizier

The **vizier** was one of the most powerful and wealthy people in ancient Egyptian society. Viziers were appointed by the pharaoh and were usually members of the royal family. This was the case of Nebet, the first female vizier in ancient Egypt's history, who was appointed by her son-in-law, the pharaoh Pepi I (6th dynasty).

It was the vizier's job to oversee the running of the country (much like a modern-day prime minister). The vizier's responsibilities included:

- Making sure that there was enough grain
- Supervising **irrigation** projects
- Collecting taxation
- Settling disputes between nobles.

People like tax-collectors, judges, scribes and the treasury all reported to the vizier, who in turn advised the pharaoh.

Scribes

Scribes assisted the government by keeping written records of the activities in their village, supervising workers, and overseeing the payment of wages and the use of resources from the royal storehouses. As only 1 per cent of ancient Egypt's population learned to write, scribes occupied a highly respected position in ancient Egyptian society.

> 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.

▲ **Source 2.33** A description of the role of the scribe, from *The Satire of the Trades*, written by a scribe named Kheti sometime during the Middle Kingdom (11th–12th dynasties; c. 1240–1640 BCE).

Writing

Hieroglyphs are the most famous form of Egyptian writing, but they were not used all the time. The simpler **hieratic** script was used more for everyday writing. Many symbols of the hieratic script are simplified versions of the more complex hieroglyphic script. Very few people learned to read and write; this became the specialist job of priests and scribes.

vizier the most important adviser and helper of the pharaoh

irrigation the practice of supplying land with water so that crops and plants will grow

hieroglyphs pictures or symbols that represent words or concepts

hieratic a simplified version of the hieroglyphic script intended for everyday use
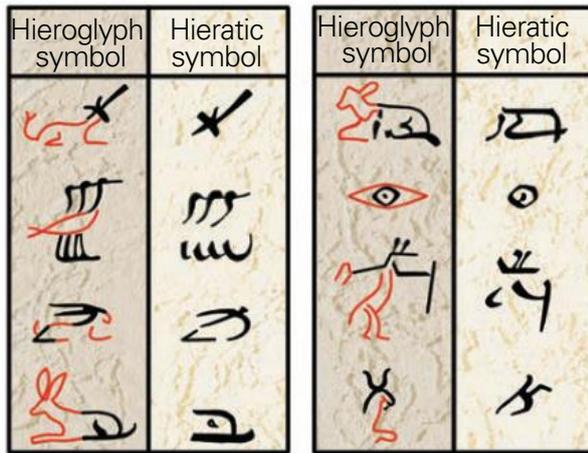
▲ **Source 2.34** This diagram shows a sampling of some hieroglyphic scripts beside the hieratic scripts. It is clear that hieratic script is simplified hieroglyphs.

▲ **Source 2.35** This frieze is on the wall of the tomb of Menna. It shows scribes recording information about crops during a harvest. It was painted during the New Kingdom (18th dynasty).

ACTIVITY 2.3

Identify the group in ancient Egyptian society that would have been responsible for the following tasks.

Role/task	Group
Managing the household	
Keeping accurate records of financial transactions	
Fighting in battle against Egypt's enemies	
Entertaining household guests through song and dance	
Supporting the pharaoh in the management and administration of the country	

MAKING THINKING VISIBLE 2.4

Think, pair, share

1 Think: Take a minute to **consider** the following question: 'Was life in ancient Egypt fair for all groups?'
2 Pair: Turn to a neighbour and **discuss** your responses to the question. Take turns to speak, listen carefully and ask questions of one another.
3 Share: Share your ideas as a whole class to **create** a list of ideas to respond to this question.

REFLECTING ON YOUR LEARNING 2.3

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What was life like for key groups in ancient Egypt and how did they contribute to its success?'
2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

2.4 What role did religious beliefs, values and practices play in ancient Egypt's success?

FOCUS QUESTIONS

- What were the religious beliefs, values and customs of the ancient Egyptians?
- What does the evidence relating to death and funerary customs reveal about ancient Egypt?
- Why was the burial of a pharaoh considered to be so important to the success of ancient Egypt?

What were the religious beliefs, values and customs of the ancient Egyptians?

The ancient Egyptians were **polytheistic**. The different gods they believed in had different roles and responsibilities, which made some gods more important than others. The ancient Egyptians worshipped their gods by singing hymns, writing poetry, and making sacrifices to them at temples and in their own homes. Sometimes, they would pray to particular gods depending on their needs, such as praying to the Nile flood god, Hapi, to bring fresh water for a good harvest. Gods this important were worshipped officially by the pharaoh and by priests in special temples devoted to particular gods, whereas 'local' gods were worshipped in towns and villages.

**polytheistic** worship of more than one god

Ordinary ancient Egyptians did not practise their religion in the same way as people today. That is, today people might visit a church or a mosque, whereas in ancient Egypt, the temples were special places where priests took responsibility for praying to the gods and leaving offerings to make them happy. The pharaoh, as the highest priest in the land, could enter temples to talk to the gods who lived there. Ordinary people could give offerings and donations, as well as attend public ceremonies and events for their favourite gods.

The topmost god, covered with stars, is Nut. She is the sky god. Here, she arches out over the Earth. It was thought that Nut would swallow the sun at the end of each day and it would travel through her body to be reborn at dawn.

▲ **Video**
The myth of Osiris
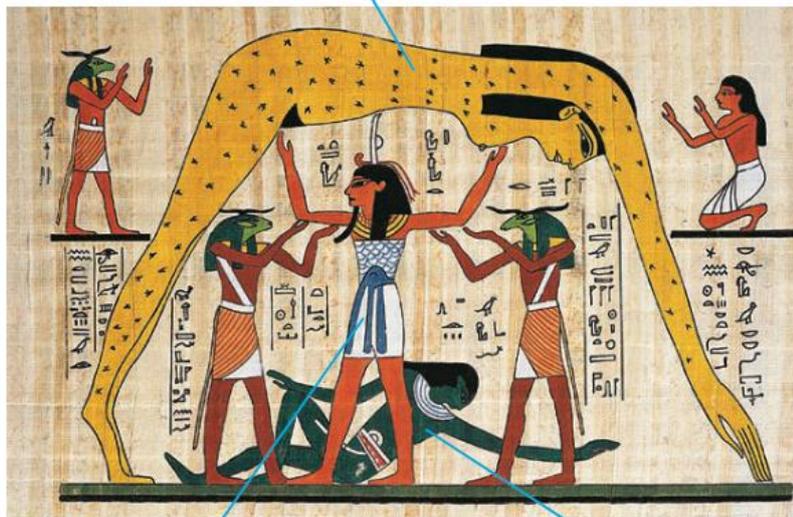
Supporting Nut is the air god, Shu. We can see he is assisted by other deities, one with a ram's head. Shu was said to be Nut's father.

Lounging on the bottom is the Earth god Geb. Geb was thought to cause earthquakes and the growth of crops.

▲ **Source 2.36** The creation of the world. An artist's reconstruction of a scene from the 'Greenfield Papyrus', discovered in a tomb in Thebes. The drawing shows the creation of the world according to ancient Egyptians (21st–22nd dynasty; c. 950–930 BCE).

▼ **Source 2.37** This is an artist's impression of the main gods of ancient Egypt.

Atum God of the sun, who emerged from the sea and created all the other gods.

Tefnut Goddess of rain, often shown as a woman with the head of a lioness and a disc representing the sun.

Osiris God of fertility, agriculture and chief judge in the afterlife. Often shown with green skin, representing the green of the Nile Valley and as partially mummified. When the pharaoh died, he ascended into the heavens to become united with Osiris.

Nephthys Goddess of death and the home, normally shown with a headdress shaped like a house and a basket.

Shu God of peace, lions, air and wind. Often depicted with feathers on his head, representing dry, warm air.

Geb God of the Earth, vegetation and snakes.

Isis The wife of Osiris, and goddess of motherhood and magic. Sometimes worshipped as a sky goddess as she could transform into a bird. Usually represented as a woman wearing a sheath dress with a throne-style headdress and sometimes shown with wings.

Thoth God of wisdom, writing and medicine. Usually depicted with a male body and the head of an ibis (a sacred bird in Egypt). His long beak resembled the scribe's pen and he recorded judgements of people in the afterlife.

Nut Goddess of the sky, usually depicted with a water pot on her head.

Seth God of chaos, violence, deserts and storms. The Egyptians did not have an idea of good and evil, but rather order versus chaos. Represented as a male body with the head of an unknown animal – a curved snout and blunt ears. It has been argued that he resembles a camel, a donkey or an aardvark.

Amun-Re A god that became popular in the New Kingdom, due to his association with the pharaohs of the 18th and 19th dynasties. Amun was originally the god of air, but he was combined with the sun god, Re. Usually shown as a male wearing a golden double plume headdress.

Anubis God of embalming and the dead. Represented as a male body with a black jackal head, usually carrying an ankh.

RESPONDING TO THE SOURCE — 2.14

1 **Examine** the descriptions and images of the Egyptian gods in Source 2.37. Suggest how Egypt's unique location on the Nile River might have influenced the development of beliefs for at least three of these gods.

bas-relief a method of sculpture where stone is cut from around a shape, giving the shape the appearance of projecting out from the stone

2 Copy the table below into your notes. This table lists some requests that ancient Egyptians may have asked of their gods. Using the information in Source 2.37, **identify** the god(s) that they might have sought assistance from for each request.

Request	Which god(s) would ancient Egyptians have sought assistance from?
For a relative to enter the afterlife	
For the Nile inundation to reach the required level	
For success in a battle	
For good fortune in the household	
For a plentiful harvest	
For a new mother to have a safe birth	
For a medical procedure to be successful	

RESPONDING TO THE SOURCES — 2.15

1 The body shape of the earth-god, Geb, is often depicted the same way as seen in Source 2.36. **Suggest** how his body shape might be interpreted to represent two mountains and a valley.

2 **Suggest** why Geb was often depicted with green on his body.

3 Shu, the air god, is represented with a feather on his head. Why was a feather associated with this god?

4 **Examine** Source 2.38 closely. What is Hapi carrying in his hands? Why is he carrying this?

5 Why would ancient Egyptians have considered it important to worship gods such as Shu, Nut, Geb and Hapi?

6 **Discuss** this question with a partner: why might the ancient Egyptians have chosen to explain the earth, sky and heavens through stories of gods with human characteristics?

▲ **Source 2.38** Hapi, the Nile flood god. This **bas-relief** shows Hapi carrying produce such as grain. This bas-relief is at the Temple of Khnum in Esna (Ptolemaic and Roman period; c. 180–145 BCE).

What does the evidence relating to death and funerary customs reveal about ancient Egypt?

What did ancient Egyptians believe happened after death?

Ancient Egyptians believed in a cycle of life, death and rebirth. Every evening, they saw the sun 'die' in the west, go through a period of rejuvenation, and be 'reborn' the following morning in the east. They believed that after death, they would journey through the underworld to be reborn in the afterlife. Many tombs contain everyday items like hairbrushes and water jugs; this suggests that ancient Egyptians thought life after death would continue in much the same way as life before death.

mummification a method of preserving a corpse by removing the internal organs and drying out the body

What were the burial practices of ancient Egyptians?

Some societies bury their dead in coffins, while others cremate them in fire. The ancient Egyptians did far more. This is because the ancient Egyptians believed that without an appropriate burial, a person's soul or life force would not reach the afterlife.

When a person died in ancient Egypt, their body was taken to an embalmer, who helped to ensure the body would last forever. The embalmer preserved the body so that it would not decay, giving the deceased a physical body in which to live in the afterlife.

Many of the Egyptian gods were influenced by their landscape, so it is no surprise that their burial practices were influenced by it too. There is a chance that **mummification** was discovered by accident in the hot Egyptian sun. The ancient Egyptians became so good at the craft of embalming that many mummies found today are in excellent condition.

RESPONDING TO THE SOURCE — 2.16

What was the purpose of mummification? **Identify** the steps from Source 2.40 that suggest the deceased was expected to live on in the afterlife.

▲ **Source 2.39** Newly discovered Egyptian coffins in October 2020

▼ **Source 2.40** The mummification process. This exact process would only have been performed on wealthy people.

The body is laid out and washed. Any missing body parts are replaced with wooden substitutes.

The internal organs, except for the heart and kidneys, are removed. These organs are placed in **canopic jars**. The brain is removed through the nose, using a long hook, and the body is packed with natron.

The wrapped body is placed in a decorated wooden sarcophagus. The sarcophagus was decorated elaborately depending on how wealthy the person was.

There is a procession led by people wailing and crying (some of them official mourners paid to cry). The body crosses the Nile River in a boat, landing on the western side of the river. This symbolises the journey into the afterlife. Prayers are read by the priest and animals are sacrificed.

The sarcophagus is taken to the tomb, where the priest performs an important ceremony called 'The Opening of the Mouth'. Offerings are made to the deceased to keep the person nourished in the afterlife. Ancient Egyptians would often mummify animals, such as cats or birds, to protect and comfort the deceased.

canopic jars jars for preserving the internal organs of the deceased, as part of the process of mummification; different jars were made for different organs

RESPONDING TO THE SOURCE — 2.17
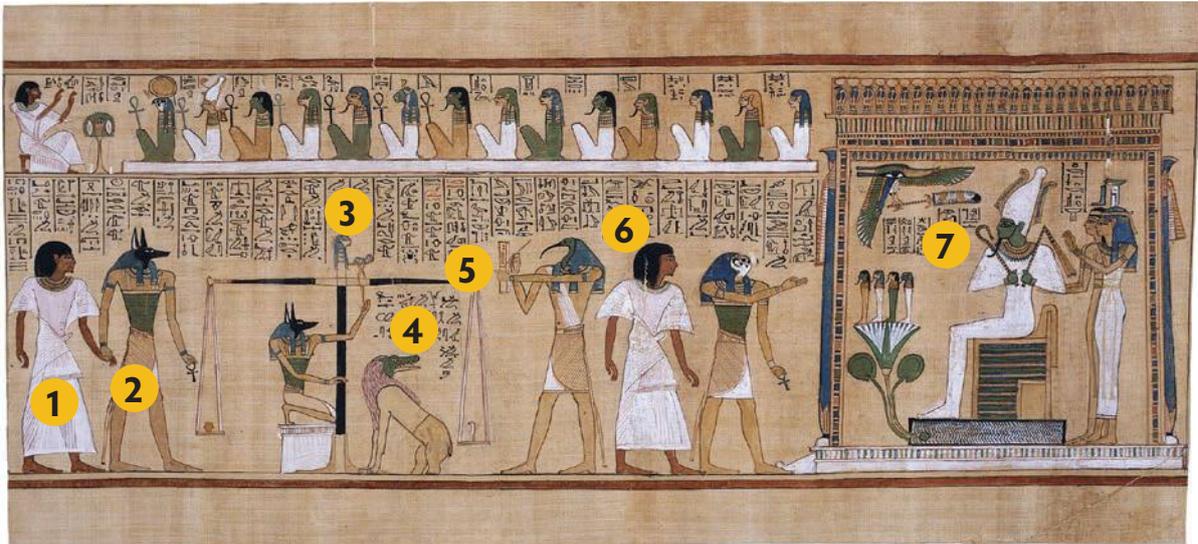
▲ **Source 2.41** A deceased person being tested before they can reach the afterlife. This ancient drawing depicts someone who has just died being judged in the presence of Osiris (the king of the underworld). Historians refer to this drawing as the 'Judgement of Hunefer' (19th dynasty; c. 1310 BCE).

Source 2.41 depicts what many ancient Egyptians believed happened once they died, and the tests that the deceased would face to reach the afterlife. Copy the table below into your notes. Using the table, **organise** each event to match its correct place in the sequence of events shown in the 'Judgement of Hunefer'. The first is done for you.

| Event	Sequence
Osiris is seated under the canopy. He is with his sisters Isis and Nepthys. Among other titles, Osiris is the Lord of the Underworld and the Judge of the Dead. Once Hunefer has been proven righteous before Osiris, he can pass through to eternity in the Field of Reeds.	
Ammit will consume Hunefer if his heart is too heavy with sin. Ammit 'the Devourer' is depicted here as a fearsome beast. He is part crocodile, part lion and part hippopotamus. Once consumed by Ammit, the dead cease to exist.	
Hunefer is the dead person in this image. He is being led into the judgement hall by Anubis. Hunefer was a royal scribe and the Book of the Dead was produced for him.	1
Anubis leads Hunefer into the hall. This jackal-headed god is the god of embalming and the dead. He was thought to oversee the process of mummification. In fact, many priests would wear a mask of Anubis during mummification ceremonies. A smaller Anubis can be seen weighing the heart.	
Ma'at is the small figure atop the scales. We can recognise this god by her ostrich feather, which represents truth. But ma'at was also a concept: ma'at was the ethical principles ancient Egyptians lived by, such as honour and truth.	
Horus is the falcon-headed god and can be seen leading Hunefer. If Hunefer has told the truth, Horus will lead him forward to the throne of Osiris to worship the god of the underworld.	
Thoth is to the right of the scales. Thoth is ibis-headed and records the results of the weighing. It is said that Thoth gave written language to the Egyptians so many scribes took him as their patron. Thoth is a god of equilibrium and balance, so it is not surprising to see him associated with Ma'at (divine balance).	

Why was the burial of a pharaoh considered to be so important to the success of ancient Egypt?

Ancient Egyptians believed a pharaoh was somewhere between a representative of the gods and an actual god. Therefore, it was extremely important that the pharaohs were in good health, well looked after and replaced quickly when they died. Ancient Egyptians believed that dead pharaohs joined Osiris (the king of the underworld) in the afterlife, and that pharaohs continued to look after Egypt even in death.

The most famous tombs of ancient Egypt are the Giza pyramids, but there are many more. The Giza pyramids were built to the west of the Nile River, where the sun sets, as this location was thought to be closer to the resting place of the gods. The most well-known pyramids were all built in the Old Kingdom period, when the chief god was the sun god Ra. The Middle Kingdom and the New Kingdom did not build pyramids in the same style as the Old Kingdom and they were not as large. In the New Kingdom, most pharaohs were buried in underground tombs in the Valley of the Kings, near the ancient city of Thebes.

The pyramid of Khufu, sometimes referred to as the Great Pyramid of Giza, is the largest pyramid of three built by the pharaoh Khufu. It was constructed during the Old Kingdom and has three main chambers. Source 2.42 shows the layout of the buildings and the Great Pyramid's interior.

Source 2.42 The Great Pyramid of Giza. This diagram shows the layout of one of the pyramids built by the pharaoh Khufu (4th dynasty).
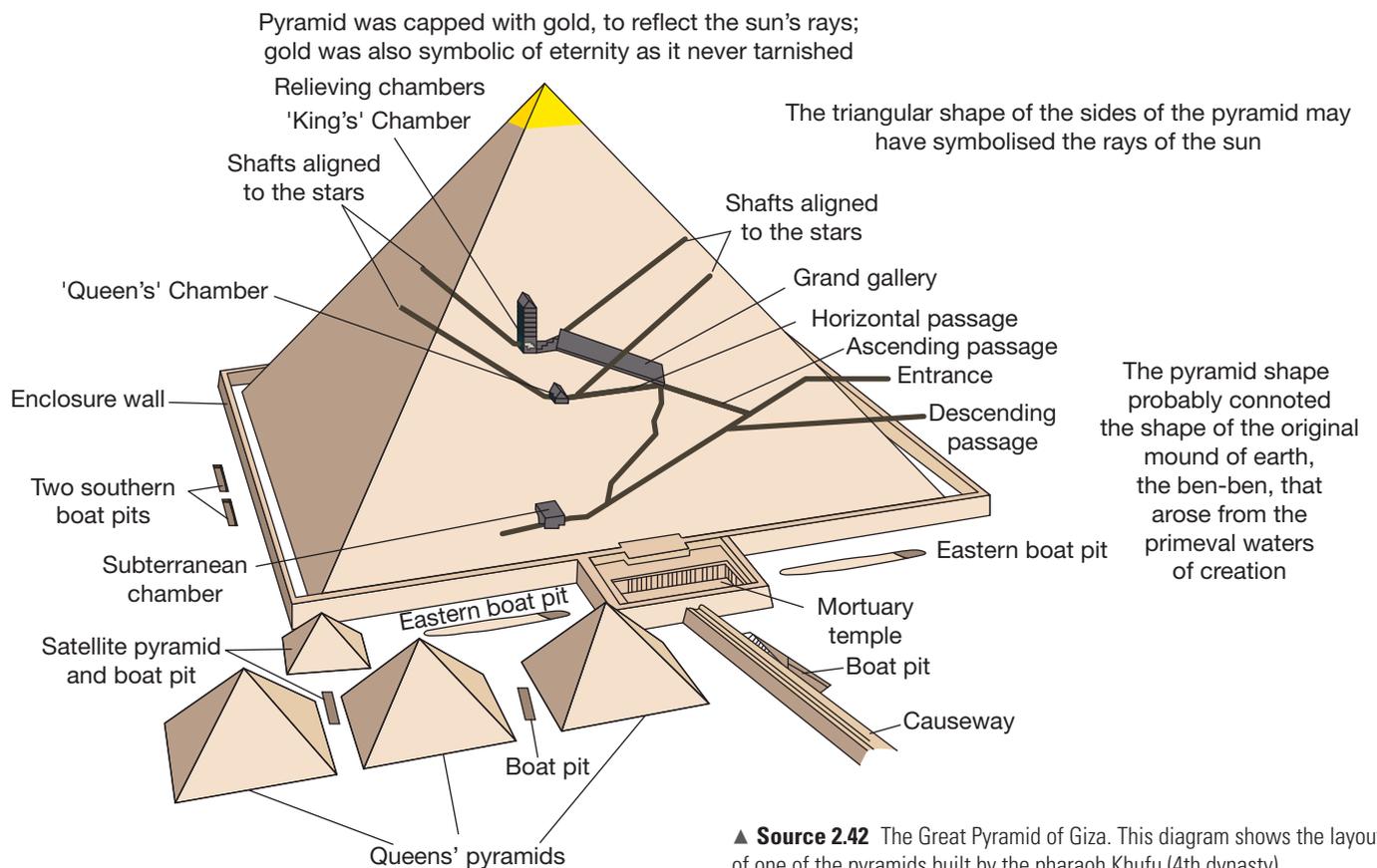
RESPONDING TO THE SOURCE — 2.18

1   **Examine** Source 2.42. How were the pyramids powerful symbols of the pharaohs' importance? How did the pyramids symbolise the pharaohs' special connection to the sun god Ra?

2   **Propose** a reason why the queens' pyramids were built so close to the pharaoh's pyramid.

3   **Suggest** why Khufu's pyramid in Source 2.42 has shafts aligned to the stars. What could this indicate about ancient Egyptian beliefs about what happened to the pharaoh when they died?

»

4 You can see in Source 2.42 that there were multiple boat pits located beside the pyramid. **Conduct** some research to answer this question: 'Why were boats buried near the tombs of the pharaohs?'

5 Research task: How were the great pyramids at Giza constructed? Individually, in pairs or small groups, **research** the theories surrounding the construction of the great pyramids. Decide which theory you think is the most convincing and why. You might present your findings to your class as either:

    a An annotated poster that visually depicts the different theories and the strengths and limitations of each one, or

    b A short spoken presentation to a small group or to the whole class.

MAKING THINKING VISIBLE 2.5

Attitude scale

1 Discuss: A coffin similar to the one shown in Source 2.43 was sold to a private buyer by Christie's Auction House in New York on 28 October 2019. It was sold for US$3 255 000. The money raised went towards supporting a private museum owned by a British investment banker. With a partner or as a class, discuss responses to the following question: 'Should ancient Egyptian coffins be able to be bought and sold?'

▲ **Source 2.43** Ancient Egyptian coffins similar to this one have been sold through public auction houses around the world. Painted wooden coffin from Deir el-Bahri (c. 18th Dynasty).

2 If time permits, **conduct** a little more research into the sale and purchase of ancient Egyptian coffins. **Consider** issues like how these coffins were originally acquired, the rights of the deceased, the benefit to tourism and historical knowledge, and whether these items should be allowed to be privately owned.

3 In your class, **create** an 'attitude scale' from one end of the classroom to the other. At each end, place the absolute opposing viewpoints:

- Ancient Egyptian coffins should not be allowed to be bought and sold.
- Ancient Egyptian coffins should be allowed to be bought and sold.

    a Each student is to stand along the scale in the place that represents their attitude to the buying and selling of ancient Egyptian coffins. Students are to **justify** why they are standing where they are.

    b After hearing the viewpoints of others in the class, students can move to a different position on the attitude scale. Again, students are to **justify** why they are standing where they are.

REFLECTING ON YOUR LEARNING 2.4

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What role did religious beliefs, values and practices play in ancient Egypt's success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

2.5   How did ancient Egypt benefit from contact and conflict with other societies?

FOCUS QUESTIONS

- How did warfare and military expansion contribute to the success of the ancient Egyptian civilisation?
- How did ancient Egypt benefit from trade with foreign nations?

From the time of the Old Kingdom to the New Kingdom, ancient Egypt significantly expanded the size of its territory. Pharaohs would have been very proud of Egypt's military strength and advertised their victories in prominent locations, such as on the walls of temples. The pharaohs also expanded Egypt's trade connections and secured Egypt's borders through peace treaties. As you read the information that follows, consider how the conquest of land, the expansion of trade, and peace treaties contributed to the growth and success of ancient Egypt.

How did warfare and military expansion contribute to the success of the ancient Egyptian civilisation?

The map in Source 2.44 shows the change in Egypt's borders from the Old Kingdom to the New Kingdom.

◄ **Source 2.44** The change in Egypt's borders from the Old Kingdom to the New Kingdom. This map shows the expansion in the extent of territory controlled by ancient Egypt from the Old Kingdom to the New Kingdom.

RESPONDING TO THE SOURCE — 2.19

Examine Source 2.44.

1 **Compare** ancient Egypt's territory in the Old Kingdom to the territory it controlled in the New Kingdom. **Describe** what differences you notice.

2 **Describe** which foreign kingdoms Egypt may have encountered and successfully overtaken.

3 **Suggest** what this expansion indicates about ancient Egypt's military strength in comparison with that of its neighbours.

An example of military success: the Battle of Kadesh

The Battle of Kadesh took place in 1274 BCE, during the reign of the pharaoh Ramses II. Egypt and the Hittite empire had been enemies for a long time. Ramses II was young, ambitious and keen to prove that he was a great pharaoh. He wanted to claim Kadesh, controlled by the Hittites, for Egypt. This takeover of land would expand Egypt's trade connections, while also driving away the Hittites and increasing Egypt's territory. To achieve this, Ramses II set out to Kadesh with over 20 000 soldiers, including 2000 **chariots**. Ramses II defeated the Hittite army in battle but was unable to capture the city of Kadesh. Interestingly, both sides of the battle claimed a decisive victory!

chariot a wheeled carriage drawn by one or more horses – chariots were used for sporting purposes and to carry soldiers to war
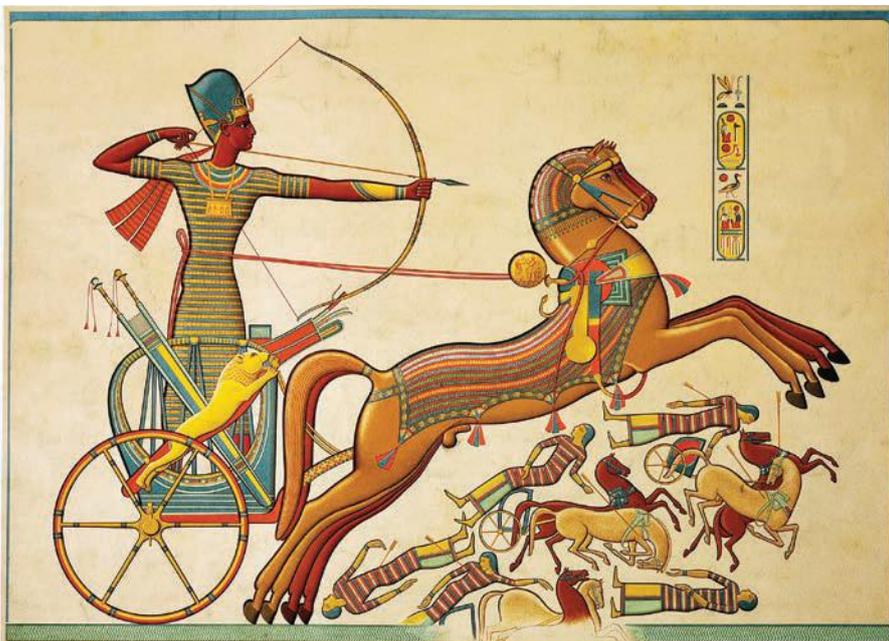
Effects of the Battle of Kadesh

As Ramses II had caused the enemy to retreat, he returned to Egypt to tell of his victory in battle. This helped to solidify his power because the people perceived him to be a powerful leader. Ramses II had many images of his 'victory' carved into temple walls so that every Egyptian knew of how he 'defeated' the Hittites in battle. This helped reinforce Ramses II's image as a great and powerful pharaoh.

Peace treaty with the Hittites

Another interesting outcome of the Battle of Kadesh was an eventual peace treaty between Ramses II and the Hittites. This peace treaty set 90 years of peace between the two civilisations and allowed for increased trade and the sharing of technological advancements. It is considered to be the world's first peace treaty; a copy of this treaty is now mounted on the wall of the headquarters of the United Nations in New York City. Nine years after the peace treaty between Egypt and the Hittites was agreed upon, the alliance was strengthened with a diplomatic marriage between Ramses II and Maathorneferure, the eldest daughter of Hattusili III, the Hittite king.

◀ **Source 2.45** This coloured engraving of a bas-relief is from the walls of the Abu Simbel temple. The engraving depicts Ramses II at the Battle of Kadesh. The image was created in the late nineteenth century based on copies of drawings of the inscriptions on the temple walls (19th dynasty; c. 1275 BCE).

The following is an account of the Battle of Kadesh, attributed to pharaoh Ramses II himself:

There was no officer with me, no charioteer, no soldier. My infantry and my chariotry had run away before the enemy and no one stood firm together with them …

Amun came when I called to him; he gave me his hand and I rejoiced … I found that my heart grew stout and my breast swelled with joy. Everything which I attempted I succeeded … I was before the enemy like Seth in his moment. I found the enemy chariots scattering before my horses. Not one of them could fight me. Their hearts quaked with fear when they saw me and their arms went limp so they could not shoot. They did not have the heart to hold their spears. I made them plunge into the water like crocodiles. They fell on their faces, one on top of another. I slaughtered them at my will … Those who fell down did not rise …

▲ **Source 2.46** An account of the Battle of Kadesh, from an inscription on the walls of the temple of Abu Simbel (19th dynasty; c. 1275 BCE).

RESPONDING TO THE SOURCES — 2.20

1   **Explain** or list the outcomes of the Battle of Kadesh.
2   **Describe** how Ramses II is depicted in Source 2.45.
3   **Compare** the depictions of Ramses II in Sources 2.45 and 2.46. What similarities and/or differences are there between how he is represented in the two sources?
4   Sources 2.45 and 2.46 were located on the exterior walls of Ramses II's temple at Abu Simbel. **Suggest** who the audience might have been and why Ramses II wanted these carved onto his temple walls.
5   How realistic do you think the depictions of Ramses II are in these sources? **Describe** how these sources might be useful to historians.
6   **Develop** a paragraph to respond to the following question: 'Should the Battle of Kadesh be seen as a great moment in ancient Egyptian history?'

How did ancient Egypt benefit from trade with foreign nations?
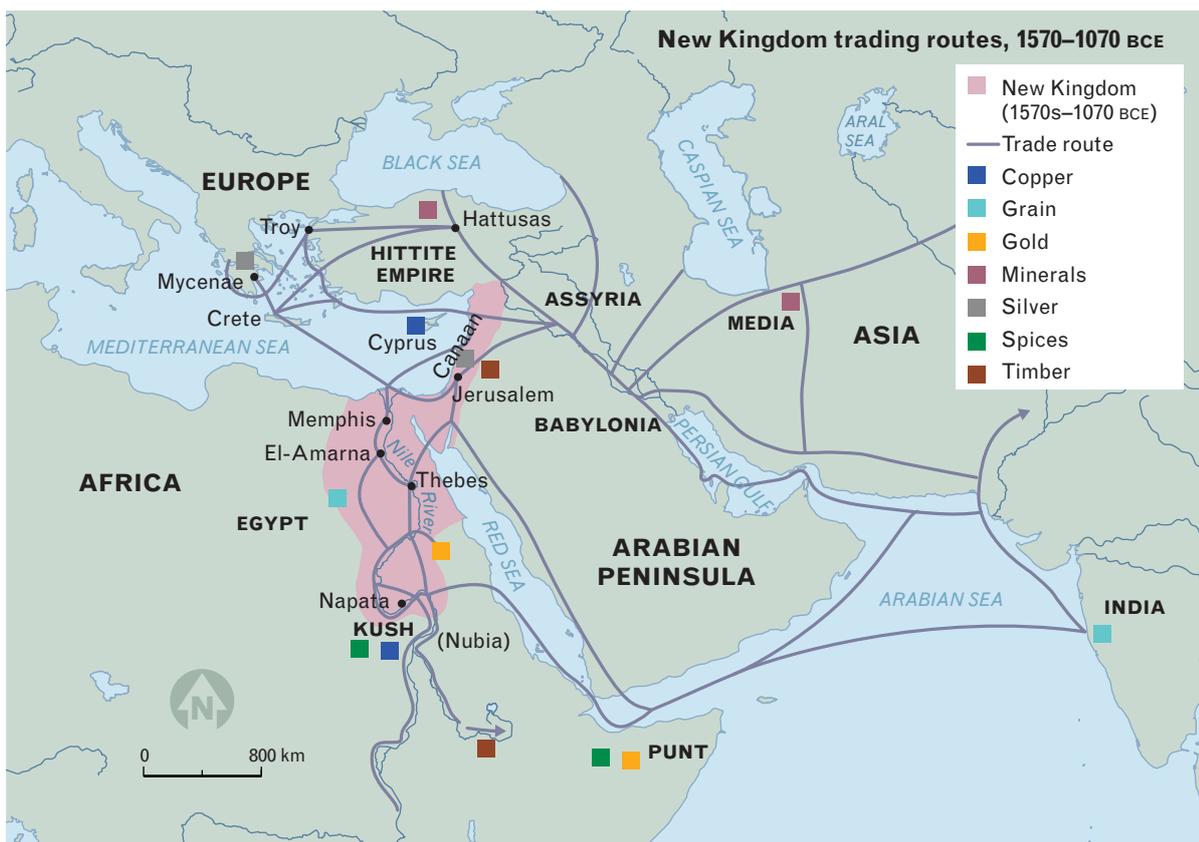
▲ **Source 2.47** This map shows the New Kingdom's trade routes, trading partners and some of the goods that were traded during 1570–1070 BCE.

RESPONDING TO THE SOURCE — 2.21

Examine Source 2.47.

1 **Identify** the main goods that Egypt exported.

2 **Identify** the main goods that Egypt imported. Why might ancient Egypt have needed to import these goods?

3 In the period between the Old Kingdom and the New Kingdom, ancient Egypt conquered the region of Kush (Nubia). **Identify** what Egypt's motivation might have been to gain control over this region.

4 Earlier in this section, you read about how Ramses II wanted to gain control of the region around Kadesh, which is south of the Hittite empire. **Summarise** what might have been his objective in gaining control over this region.

MAKING THINKING VISIBLE 2.6

Headlines routine

This routine draws on the idea of using newspaper-type headlines as a vehicle for summing up and capturing the essence of an event, idea, concept, topic, etc. It can be done on computer or on paper.

1 a **Create** a headline for an ancient Egyptian magazine or newspaper article written during the reign of Ramses II, which captures the most important aspect of the outcomes of the Battle of Kadesh. Once finished, share these headlines with a partner, then with your class.

   b You may wish to use one of the two online headline-generating tools below to bring your headlines to life. Take a screen shot or save the image to your class notes.

   Online headline-generating tools:

   • Website tool one: https://cambridge.edu.au/redirect/9484

   • Website tool two: https://cambridge.edu.au/redirect/9485.

2 If you wish to extend yourself further, **design** the front cover of the magazine or newspaper article on the Battle of Kadesh. Your front cover should include:

   a Your headline

   b An image

   c Three interesting bullet points identifying key features of the battle.

REFLECTING ON YOUR LEARNING 2.5

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did ancient Egypt benefit from contact and conflict with other societies?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

2.6   What role did individuals, such as Queen Hatshepsut, play in making Egypt successful?

FOCUS QUESTIONS

- How did Hatshepsut come to power?
- What were Hatshepsut's main achievements?

To answer the inquiry question (What made ancient Egypt a successful civilisation?), it can be useful to look at the impact particular individuals had on the success of the civilisation. While Queen Hatshepsut had some unique circumstances due to her gender, her methods of gaining and maintaining power were similar to many other pharaohs. Therefore, her actions can be used as an example of the ways pharaohs helped increase the success of their civilisation.

Some questions to consider as you read the information and sources in this section are:

- Can the actions of individuals help make a civilisation successful?
- Why weren't there more female leaders in the ancient world?
- What obstacles did female leaders in ancient times have to overcome?
- What can we learn about overcoming challenges and adversity from the examples of female leaders of the past?

Queen Hatshepsut (1507–1458 BCE), ruling in the 18th dynasty, faced significant challenges at the start of her reign. Hatshepsut was a female pharaoh in a society where pharaohs were almost always male. Her reign was constantly under threat from **usurpers** and nobles who thought she was not the rightful pharaoh. Look at the sources on the next page and determine how Hatshepsut gained and maintained control over Egypt and how she demonstrated to her people that she was an effective pharaoh.

How did Hatshepsut come to power?

When the pharaoh, Thutmose II, died, the next in line to the throne of Egypt was his and Hatshepsut's two-year-old son, Thutmose III. As Thutmose III was too young to become pharaoh, Hatshepsut took on the role of **regent**, meaning she was crowned as pharaoh and ruled in Thutmose III's place until he was old enough to do so himself. Controversially, Hatshepsut did not **relinquish** her position as pharaoh when her son came of age, but she held on to the position until her death. Evidence from the time suggests that it is likely that when Thutmose III was old enough, he and his mother ruled as **co-regents**; however, where they are depicted together, Hatshepsut is almost always shown as the dominant partner.

Probably due to her unconventional situation, Hatshepsut tried to present images of herself that would reassure her people of her right to rule. At her temple at Deir el-Bahri, images and accompanying text present Hatshepsut as the daughter of the god Amun-Re himself, and other images present her real father, Thutmose I, declaring Hatshepsut to be his chosen successor. Additionally, statues and imagery of Hatshepsut at the temple depict her in the traditional clothing of the male pharaohs, including the false beard, and with a masculine body shape.

**usurper** one who tries to take power illegally or through force

regent a person who exercises power in a kingdom if the expected king or queen is too young

relinquish voluntarily give up something

co-regent two rulers who rule a kingdom jointly

The god Amun-Re says: '… Hatshepsut shall be the name of this my daughter, … She shall exercise the excellent kingship in this whole land. My soul is hers, my property is hers, my crown is hers, that she may rule the Two Lands.'

▲ **Source 2.48** An adapted version of an inscription called the 'Divine Birth' inscription, from the walls of Hatshepsut's temple at Deir el-Bahri (18th dynasty). This inscription records an event where the god Amun-Re declared Hatshepsut to be his daughter, but the details of this event were fabricated by Hatshepsut for political reasons.
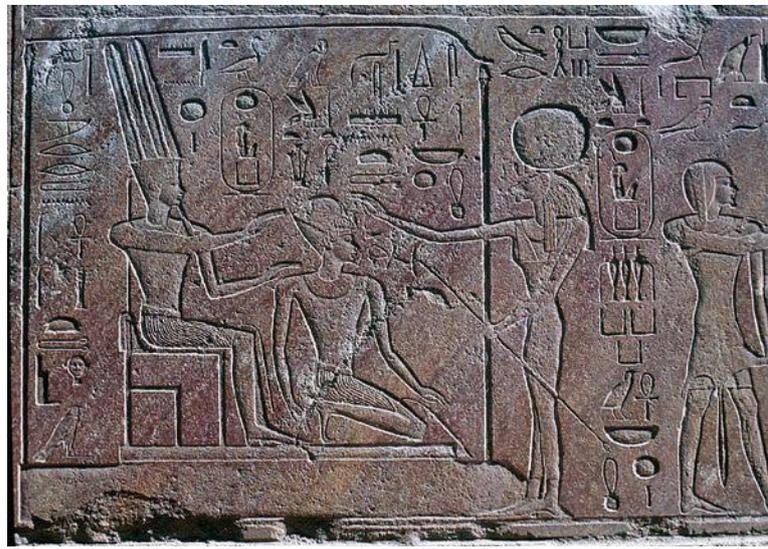
▲ **Source 2.49** This scene is called the 'Coronation scene'; it is from an inscription on the walls of Hatshepsut's temple at Deir el-Bahri (18th dynasty). It is a fictional scene, invented by Hatshepsut, that depicts Thutmose I presenting Hatshepsut to his people as his chosen successor. However, this never occurred.

▲ **Source 2.50** This statue of Hatshepsut was probably created early in her reign (18th dynasty). It is currently on display at the Metropolitan Museum of Art in New York.

▲ **Source 2.51** This statue of Hatshepsut shows her kneeling and making an offering to Amun-Re (18th dynasty).

RESPONDING TO THE SOURCES — 2.22

1 **Interpret** what is said in Source 2.48. Who was supposed to have said these words?

2 **Develop** a theory for why Hatshepsut might have ordered this (the words in Source 2.48) to be written on the walls of her temple at Deir el-Bahri.

3 **Interpret** the main message conveyed by the image in Source 2.49. Suggest why Hatshepsut might have thought it was important to have this image shown on the walls of her temple at Deir el-Bahri.

4 With a partner, **compare** the images of Hatshepsut in Sources 2.50 and 2.51. **Identify** similarities and differences between them and suggest reasons why her depiction might have changed over time.

What were Hatshepsut's main achievements?

Hatshepsut's reign lasted 20 years – far longer than any previous female ruler of Egypt. One of her main achievements was sending a trading voyage to a foreign land called Punt, which resulted in Egyptian ships bringing back an impressive array of exotic, valuable goods. We know Hatshepsut considered this to be a significant event of her reign, as she publicised inscriptions containing an account of the voyage, as well as images of the ships and goods, on the walls of her temple at Deir el-Bahri. Hatshepsut is not particularly known as a warrior pharaoh, though some successful military campaigns did occur during her reign. She constructed hundreds of statues, monuments and buildings, including:

- The two tallest obelisks in the world at the time, at the entrance to the Temple of Karnak

- The Red Chapel at Karnak
- Her most famous legacy, the huge mortuary temple at Deir el-Bahri.

▲ **Source 2.52** Hatshepsut's enormous temple at Deir el-Bahri. The purpose of this temple was to serve as a site for ancient Egyptians to worship and pay respect to Hatshepsut after her death. Her actual burial place was in the Valley of the Kings, on the other side of the cliffs behind the temple.

RESPONDING TO THE SOURCES — 2.23

Hatshepsut faced some unique challenges in ensuring she had a stable and secure reign over Egypt. They can be summarised as:

- She had to establish that her rule was legitimate.
- She had to demonstrate that her gender was not an issue.
- She had to show her people that she could successfully fulfil her role as pharaoh.

Copy the analysis table on page 104 into your notes. Then, use Sources 2.53 to 2.56 to complete this table. In the table, **explain** how Hatshepsut successfully overcame these challenges. You may wish to conduct some additional research online.
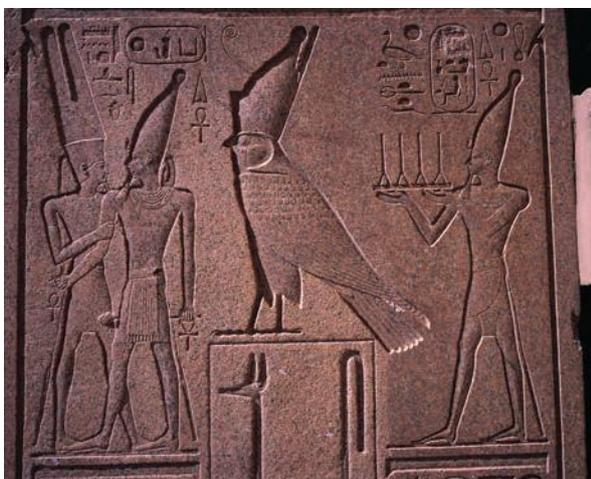

▲ **Source 2.53** Hatshepsut and the god Horus. This is from a fallen obelisk at Karnak temple.


▲ **Source 2.54** Statues of Hatshepsut from her mortuary temple at Deir el-Bahri. Hatshepsut is depicted with a variety of symbols associated with Osiris (the king of the underworld), including the double crown, false beard, crook and flail (in the shape of an ankh).

>>

Das an einer Wand des Terrassentempels von Dêr-el-bah'eri (Westseite von Theben) abgebildete Geschwader, welches unter der Königin Makara-Ha.t.schop (17. Jahrh. v. Chr.) von Aegypten nach dem Lande Pun (südl. Arabien und Somaliküste) entsendet worden.
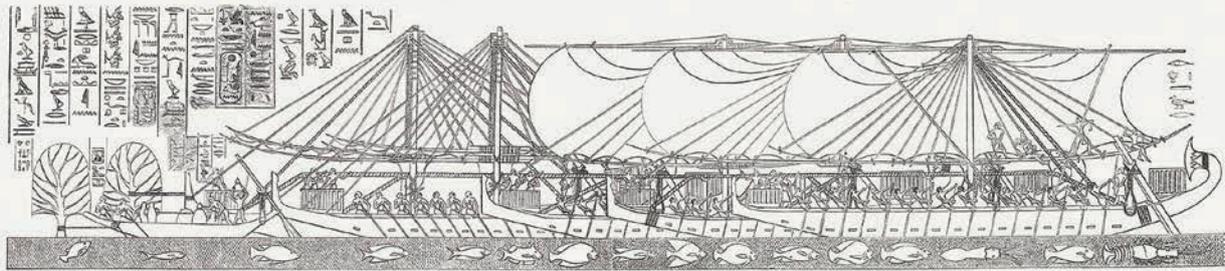
1. Die Landung des Geschwaders an der Küste von Pun.
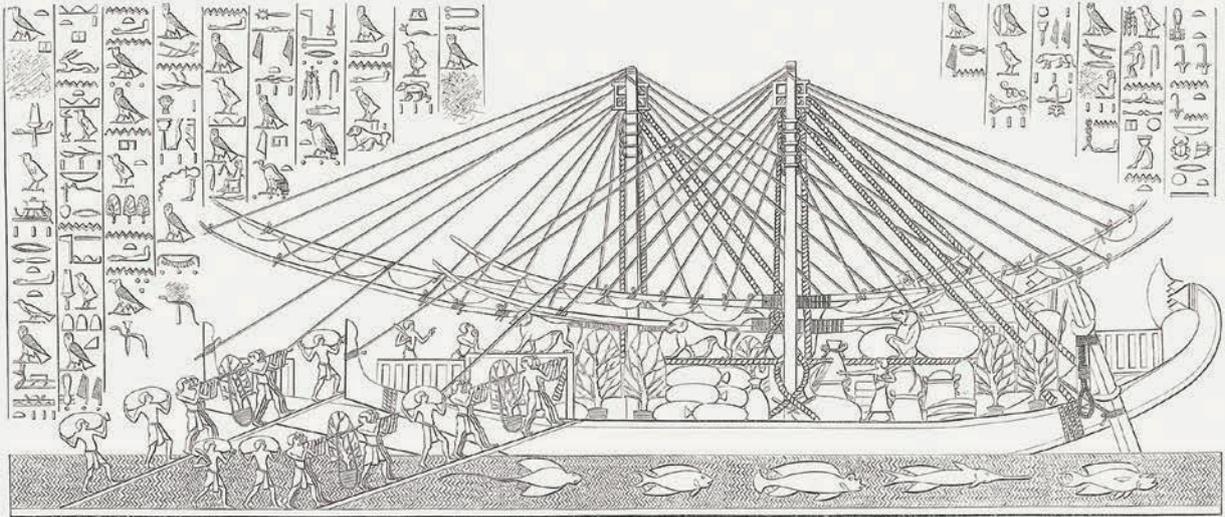
2. Die Befrachtung der Schiffe.

▲ **Source 2.55** Hatshepsut's trading voyage to Punt. This image shows Hatshepsut's boats being loaded with the many goods that were brought back to ancient Egypt. This is a copy of an image inscribed on the walls of Hatshepsut's mortuary temple at Deir el-Bahri.

> The loading of the cargo boats with great quantities of the marvels of the land of Punt, with all good woods of the divine land, heaps of gum of anti (incense) and trees of green anti, with ebony, with pure ivory, with green (pure) gold of the land of Amu, with sandalwood, cassia wood, with balsam, resin, eye paint, with monkeys, greyhounds, with skins of panthers of the south, with inhabitants of the country and their children (slaves). Never were brought such things to any king since the world was.

▲ **Source 2.56** A description of Hatshepsut's trading voyage to Punt, listing the many valuable and exotic items that were brought back to ancient Egypt. This was inscribed on the walls of Hatshepsut's mortuary temple at Deir el-Bahri, next to the image of the boats being loaded with the valuable goods.

Analysis table

Source	Describe the source – what is it?	Analyse the source – what does it say or show? What impression might it give of Hatshepsut?	Evaluate the source – how might this have helped Hatshepsut overcome one of the challenges she faced during her reign?
2.51			

Repeat each row for each source in this activity.

MAKING THINKING VISIBLE 2.7

Podcast or role-play: 'Great female pharaohs of ancient Egypt'

1 **Investigate** the reign of Hatshepsut, or another female pharaoh of ancient Egypt, such as Nefertiti or Cleopatra.

2 In pairs, use your research to **create** a script for either a one to two-minute podcast or for a role-play interview with this pharaoh. The topic of the script is the 'great female pharaohs of ancient Egypt'.

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In your podcast or interview, consider topics such as:

- Historical context
- Early life
- Achievements
- How they were perceived by their contemporaries.

REFLECTING ON YOUR LEARNING 2.6

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What role did individuals, such as Queen Hatshepsut, play in making Egypt successful?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Egypt a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

END-OF-CHAPTER REFLECTION

Step one: reflect on your sub-questions

At the end of each section of this chapter, you were asked to reflect on how the information in the section related to the overall inquiry question:

'What made ancient Egypt a successful civilisation?'

1 For each of the sub-questions, write a brief response (approximately two to three sentences) to respond to the sub-question. Do you feel that you have a good understanding of each section of this chapter?

- How did ancient Egypt's physical features influence its success?
- How important was the role of the pharaoh to ancient Egypt's success?
- What was life like for key groups in ancient Egypt and how did they contribute to its success?
- What role did religious beliefs, values and practices play in ancient Egypt's success?
- How did ancient Egypt benefit from contact and conflict with other societies?
- What role did individuals, such as Queen Hatshepsut, play in making Egypt successful?

    (If you prefer a visual approach, you could to do this as a mind map instead.)

Step two: reflect on the key inquiry question

2 Now, based on what you have learned in this chapter, write a short paragraph in response to the question: 'What made ancient Egypt a successful civilisation?'

Step three: future questions

3 Based on your learning in this chapter, what questions do you have about ancient Egypt?

4 **Reflect on** the questions you or your classmates raised at the beginning of the chapter at the end of the 'Setting the scene' activity. Have you answered most of these questions? Which questions have not been answered?

🛡️ End-of-chapter assessment 2

1   Project 1

A project assesses students' responses to a single task, stimulus, question, situation or scenario. A project gives students authentic opportunities to demonstrate their historical knowledge, understanding and skills.

Scenario

The use of replica artefacts is becoming more common in museums, particularly in Australia, as it saves the time and cost of transporting the originals and reduces the risk of damaging priceless items by shipping them overseas.

Your task is to create a display for a new ancient Egypt exhibition at the Queensland Museum. Your display will consist of a replica of an ancient Egyptian artefact, as well as a two-paragraph object label to describe the artefact to museum visitors.

Step 1: Select *one* of the following areas to focus your research on:
- Warriors and warfare (armour, weapons, fighting techniques, historical battles and wars)
- Daily life (health, government, laws, housing, women's lives, children's lives)
- Religion (beliefs, rituals, death and burial, gods)
- Architecture (pyramids, temples, tombs, monuments)
- Another topic with your teacher's approval.

Step 2: Complete some background research on your topic and **identify** an artefact that is relevant and useful for gaining a better understanding of the topic.

Step 3: Copy the analysis table below into your notes. Then use it to **analyse** your artefact.

Step 4: Create a replica of your artefact. If you are unable to complete this step, just use a photo of the original artefact.

Step 5: Use your analysis table to help you write the two-paragraph object label that will accompany the artefact. It must include paragraphs on the following topics: What are the features of the artefact? How is this artefact useful for learning about ancient Egypt? A quick Google image search for 'museum object label' will provide you with plenty of examples and ideas for how to format and present your own object label.

Analysis questions	Your response
What are the features of the artefact? • What is the artefact? (source type) • When was it created (and by who, if known)? (origin) • What was happening at the time the artefact was made that is relevant to the inquiry? (context) • Is the artefact a primary or secondary source? • Why might this artefact have been created? (motive) • Who might have the artefact been created for? (audience)	
How is this artefact useful for learning about ancient Egypt? • What evidence does the artefact provide about your chosen topic? (explicit and implicit information) • Overall, how is this artefact useful for learning about the ancient Egyptian civilisation and/or reasons for its success? (usefulness)	

Step 6: Include a reference list that shows at least *four* sources of information for your object label.

Length: 400–600 words

2 Project 2

Scenario

You are the mighty pharaoh of Egypt, but your power is unexpectedly challenged by a young rival. Write a short persuasive speech to remind your people of the amazing things you have done for them and how you have contributed to the success and glory of Egypt.

Step 1: You may select from one of the following individuals (or get confirmation from your teacher if you would like to research another individual):

- Khufu
- Hatshepsut
- Thutmose III
- Amenhotep III
- Akhenaten
- Ramses II
- Cleopatra VII.

Step 2: Design a handout to accompany your speech. Include an image, a headline that highlights why your pharaoh is a success, and *three* interesting bullet points or facts about your pharaoh's greatest achievements.

Step 3: Create a timeline that accurately displays *five* key events from the life of your pharaoh. Ensure that you follow the conventions of a timeline.

Step 4: Write the speech. It must include paragraphs on *at least two* of the following topics: What have been your military achievements? How have you kept the gods happy? How have you spread Egypt's influence through trade, peace treaties or other forms of diplomacy? How have you impressed your people with great building projects? How have you respected tradition? How have you overcome challenges or adversity? What makes you an inspiring example to your people?

Step 5: Include a reference list that shows at least *four* sources of information for your article.

Length: 400–600 words

3 Practice examination question

Statement

'Some of the qualities expected of successful pharaohs were that they pleased Egypt's gods, protected Egypt as great warriors, built fine monuments and expanded Egypt's influence through trade and diplomacy.'

Question

Based on the above information, does Hatshepsut deserve to be considered a successful pharaoh?

Using Sources 2.48 to 2.56 in Section 2.6, write a paragraph to present an **argument** in response to this question. Make sure you include in-text references, i.e. (Source X) where you refer to evidence.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:
- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

CHAPTER 3

Ancient Rome: what made ancient Rome a successful civilisation?

Setting the scene: Pompeii – a historical time capsule

In the first century CE, Pompeii was a wealthy and successful city in the Roman Empire. It was a busy tourist town where Romans went to holiday.

Located on the coast of Italy, the people of Pompeii traded their wheat, grapes and olives for valuable items from other parts of the Roman Empire. The streets of Pompeii were decorated with beautiful murals and sometimes were graffitied with phrases like 'Aufidius was here', 'Marcus loves Spendusa' and 'Romula hung out here with Staphylus'.

People moved through the streets of Pompeii to visit temples to worship their gods, such as at the Temple of Apollo, and they socialised and made business deals in the public baths. However, Pompeii prospered under the shadow of an active volcano – the great Mount Vesuvius.

On 24 August 79 CE, Mount Vesuvius erupted, covering the entire city of Pompeii in a layer of volcanic ash and toxic gases. People were killed where they stood. The eruption preserved the city like a historical time capsule, which has allowed archaeologists and historians to learn a great deal about life in the Roman Empire by studying the well-preserved artefacts from Pompeii. And new discoveries are being made all the time!

ACTIVITY 3.1

Time capsule

In this activity, you will use evidence to create a written or spoken presentation about daily life in the Roman Empire.

Question

What might the evidence from Pompeii suggest about the lives of ancient Romans?

»

▼ **Source 3.1** The ruins of Pompeii

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Instructions

Step 1: Select

1 Either individually, in pairs or in small groups, choose one of the following topics for your investigation:

- Food and diet
- Entertainment and leisure activities
- Work, business and trade
- Religious beliefs
- Home, family and daily life
- Social structure.

Step 2: Analyse and evaluate

2 **Identify** which of the eight sources provided below might be relevant and useful for your chosen topic. Use the following questions to help you **analyse** and **evaluate** the evidence relating to your chosen topic. If you have time, you may wish to conduct additional research to locate other information and sources.

Describe	• What is this and who might have made it? • When and/or why might it have been made?
Analyse	• How might this relate to your investigation? • What insights might it provide about life in Pompeii in relation to your topic?
Evaluate	• How useful or reliable do you think it is and why? • How might it **corroborate** or contrast with evidence from other sources?

analyse consider in detail for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences

evaluate examining and judging the merit or significance of something

corroborate to confirm an idea or conclusion by providing new evidence that supports earlier evidence

synthesise combine different parts or elements (information, ideas, components) into a new whole, in order to create new understanding

hypothesis a theory based on facts, or a suggested answer to a question, to be proved or disproved
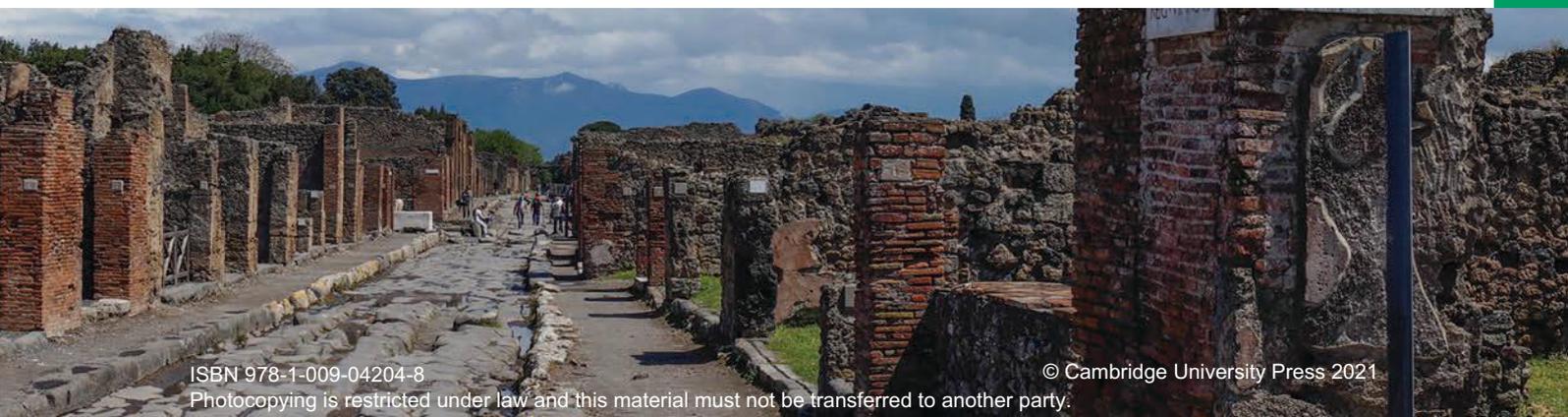
Step 3: Synthesise

3 **Synthesise** your evidence by organising your notes into a mind map or table. You may wish to do this on the class whiteboard or on paper.

Step 4: Hypothesise

4 Develop a **hypothesis** about what daily life in Pompeii was like – specifically focus on your chosen topic. Use at least three of the pieces of evidence to support your argument. Present your hypothesis and evidence to the class in a format chosen by your teacher. Formats include a presentation, poster, paragraph, mind map, role-play, magazine article or short video.

Step 5: Reflect

5 **Reflect on** your learning by making a list of what else you would like to know about ancient Rome and the success of this civilisation. Share this list with your class before you begin this chapter. By the end of this chapter, see what questions you have found answers to!

Evidence

▲ **Source 3.2** A map of Pompeii

1 House of Caecilius Jucundus
2 House of the Moralist
3 House of Julia Felix
4 House of the Vettii
5 House of the Silver Wedding
6 House of the Faun
7 House of Menander
8 House of Octavius Quarto
9 House of the Surgeon
10 House of the Ancient Hunt

11 House of L.C. Secundus
12 Villa of Cicero
13 Villa of the Mysteries
14 Temple of Apollo
15 Temple of Jupiter
16 Temple of Isis
17 Temple of Fortuna Augusta
18 Temple of Lares
19 Temple of Venus
20 Temple of Vespasian

21 Doric Temple
22 Gladiators´ Barracks
23 Forum
24 Basilica
25 Building of Eumachia
26 Macellum
27 Amphitheatre
28 Small theatre
29 Large theatre
30 Stabian Baths

31 Forum Baths
32 Great Palaestra
33 Small Palaestra
34 Central Baths
35 Triangular Forum
36 House of the Tragic Poet
37 Suburban Baths

Area of life object relates to	Object description
TABLE 3.1 Everyday objects discovered at Pompeii (P) and Herculaneum (H)	
Household	• Cradle (H) • Tripod (P) • Bronze kitchen utensils (P) • Bronze heaters (P) (H) • Lamps (P) (H) • Brazier (H) • Three-legged table (P) • Day couch (P) • Bell for calling servants (H) • Bronze handles (H)

Area of life object relates to	Object description
Commerce	• Wine and olive presses (P) • *Amphorae* (containers) (H) • Cart packed with wine jars (P) • Lava millstones (P) • Dolia (P) (H) • Bronze scales (P) • Glass jars (H)
Food	• 81 carbonised loaves of bread (P) • Eggs and fish on a table (P) • Carbonised eggs (H) • Bread, cakes, fruit on a table (H) • Beans and grains on a counter (H) • Jar full of nuts under a counter (H)
Entertainment	• Gladiator's helmet (P) • Pair of dice (H) • Black and white backgammon pieces (H)
Medicine	• Surgical instruments: needles, probes, gynaecological forceps, catheters, pincers, scalpels and scissors (P)
Transport	• Gig for transportation of people (P) • Boat (H) • Woven cord: horses; 'sandals' (H)

> **dolia** (singular: dolium) large rounded earthenware jars with a wide mouth

SOURCE 3

Wall inscription from the Estate of Julia Felix:

For rent, for the term of five years, from the thirteenth day of next August to the thirteenth day of the sixth August thereafter, the Venus bath, fitted up for the best people, shops, rooms over shops, and second-story apartments in the property owned by Julia Felix, daughter of Spurius.

Wall inscription:

Umbricia Januaria declares that she has received from Lucius Caecilius Jucundus 11 039 sesterces, which sum came into the hands of Lucius Caecilius Jucundus by agreement as the proceeds of an auction sale for Umbricia Januaria, the commission due him having been deducted …

Inscriptions on jars:

Finest fish sauce by Umbricius Abascantus
Scaurus's finest mackerel sauce
Best finest mackerel sauce from the workshop of Aulus Umbricius Abascantus
Scaurus's finest mackerel sauce from Scaurus's workshop.

Graffiti on a wall:

The gladiatorial troupe of Aulus Suettius Certus will fight at Pompeii on the 31 May. There will be a hunt and awnings. Good fortune to all Neronian games.

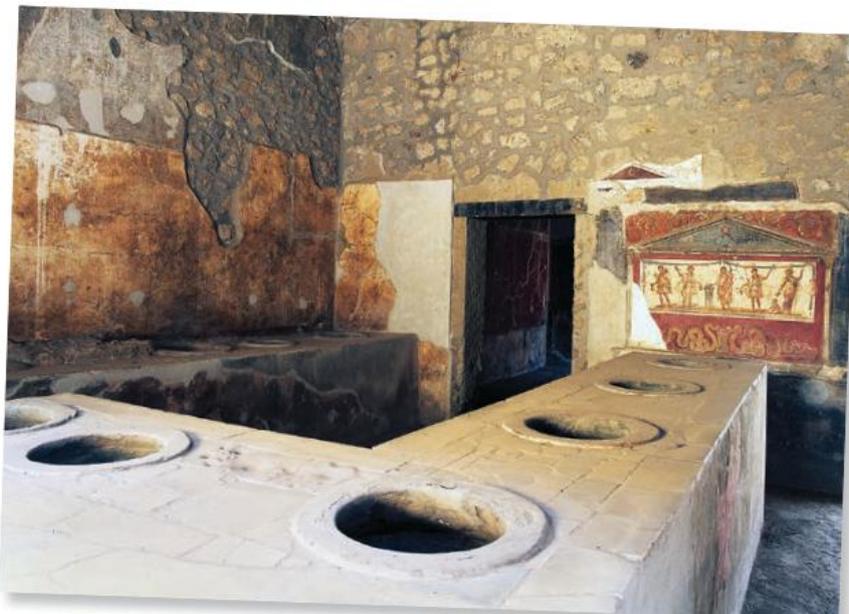▲ **Source 3.3** Some inscriptions and graffiti from Pompeii

SOURCE 4
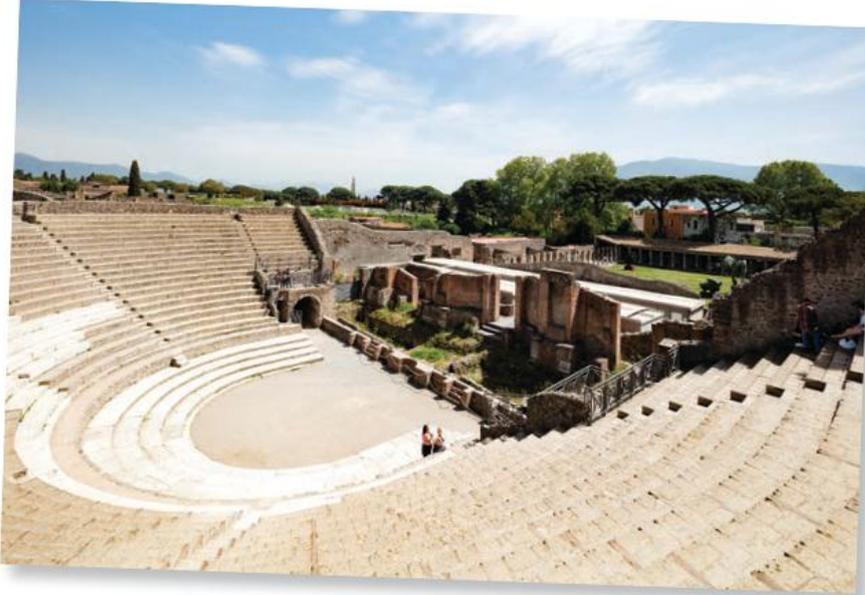
◄ **Source 3.4** These remains of a Roman theatre are in Pompeii, overlooking Mount Vesuvius.

SOURCE 5

▲ **Source 3.5** This statue of the priestess Eumachia is in Pompeii's Forum.

SOURCE 6

◄ **Source 3.6** These are the remains of a *thermopolium* (a fast-food restaurant) in Pompeii. Evidence indicates that beneath the holes in the marble counter were jars with food or wine.
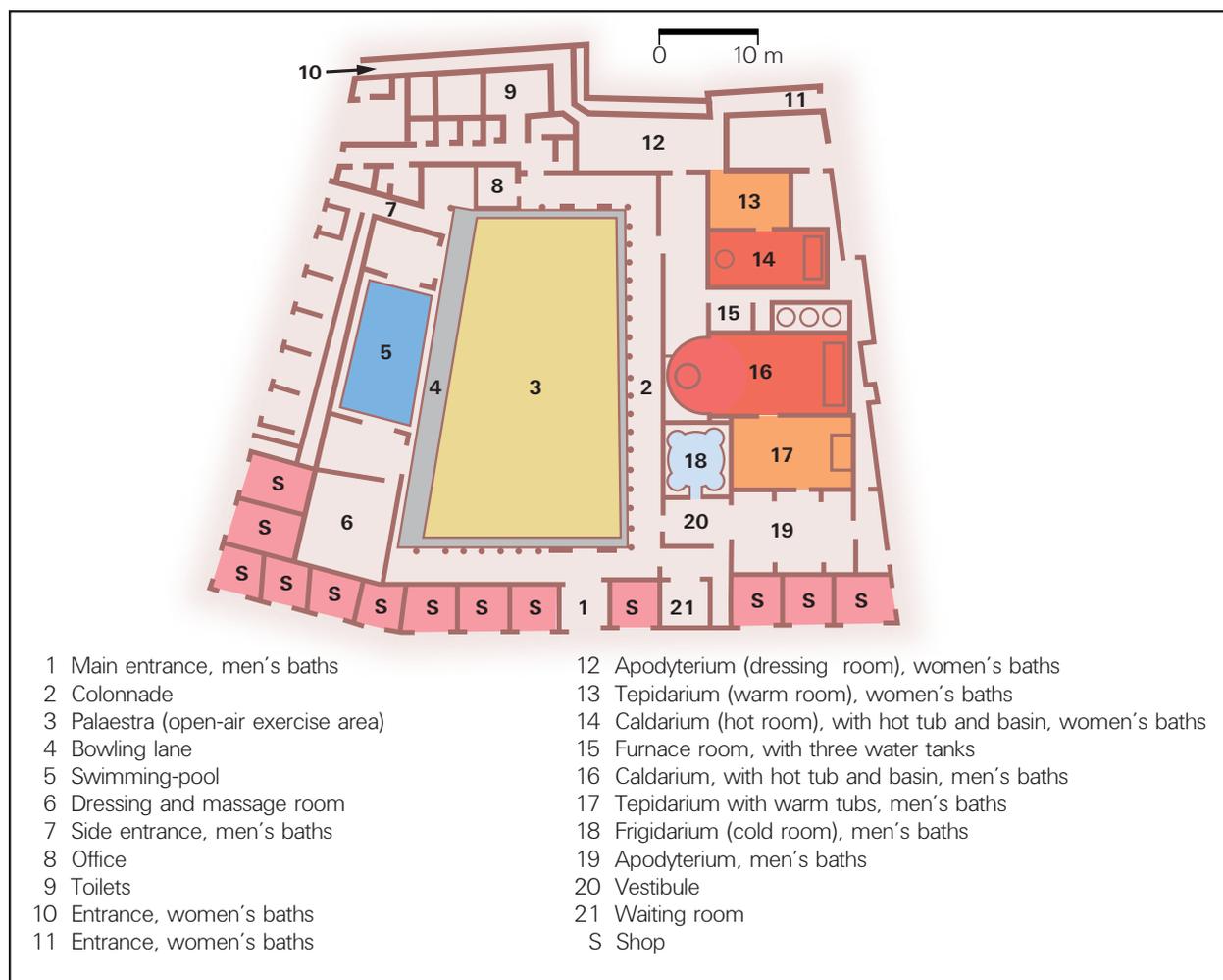
SOURCE 7

Aulus Clodius Flaccus [presented] a procession, bulls, bull-fighters, and their fleet-footed helpers, three pairs of stage-fighters, boxers fighting in bands, and Greek-style fighters; also [he presented] games with every musical entertainment, pantomime, and Pylades; and he gave 10 000 sesterces to the public coffers …

… at the games of Apollo [he presented] in the Forum a procession, bulls, bull-fighters, and their fleet-footed helpers, and boxers fighting in bands; on the next day in the Amphitheatre [he presented] by himself thirty pairs of athletes and five pairs of gladiators, and with his colleague [he presented] thirty-five pairs of gladiators and a hunt with bulls, bull-fighters, boars, bear and the other hunt-variations …

▲ **Source 3.7** An inscription on the tomb of a Pompeian *duumvir* (town councillor) named Aulus Clodius Flaccus

SOURCE 8

1 Main entrance, men's baths
2 Colonnade
3 Palaestra (open-air exercise area)
4 Bowling lane
5 Swimming-pool
6 Dressing and massage room
7 Side entrance, men's baths
8 Office
9 Toilets
10 Entrance, women's baths
11 Entrance, women's baths
12 Apodyterium (dressing room), women's baths
13 Tepidarium (warm room), women's baths
14 Caldarium (hot room), with hot tub and basin, women's baths
15 Furnace room, with three water tanks
16 Caldarium, with hot tub and basin, men's baths
17 Tepidarium with warm tubs, men's baths
18 Frigidarium (cold room), men's baths
19 Apodyterium, men's baths
20 Vestibule
21 Waiting room
S Shop

▲ **Source 3.8** This plan shows the layout of the Stabian Baths in Pompeii. The shops would have sold bath supplies such as snacks, towels and oils.

Chapter overview

Introduction

Ancient Rome was one of the greatest civilisations in human history. It was an enormous empire that lasted for hundreds of years. Evidence of the success of this civilisation and the effect it has had on today's world is all around us – in the shape of our sporting stadiums, the format of the calendars on our walls, and the laws and political institutions of our nation. As you learn more about the extraordinary civilisation of ancient Rome, you might just start to notice how much your own world today has been influenced by ancient Romans.

As you read this chapter, consider how the information and sources you encounter help you to answer the following key inquiry question:

Key inquiry question

'What made ancient Rome a successful civilisation?'

Every key inquiry question should have:

- An open interrogative
- A historical concept
- Specific content
- Scope and scale.

So, let's dissect this key inquiry question: 'What made ancient Rome a successful civilisation?'

To answer a key inquiry question in a historical investigation, it is helpful to break the question into sub-inquiry questions.

Sub-inquiry questions

After completing this chapter, you should be able to answer these sub-inquiry questions:

- How did ancient Rome's location and physical features influence its success?
- What was life like for different social classes in ancient Rome and how did they contribute to its success?
- What was life like for women in ancient Rome and how did they contribute to its success?
- What was life like for slaves in ancient Rome and how did they contribute to its success?
- What role did religious beliefs, values and practices play in ancient Rome's success?
- How did ancient Rome benefit from contact and conflict with other societies?
- What role did individuals, such as Julius Caesar, play in making ancient Rome successful?

Historical skills

After completing this chapter, you should be able to:

- Sequence events and developments within a chronological framework using dating conventions to represent and measure time
- Use relevant historical terms and concepts
- Devise questions to frame a historical inquiry when researching
- Identify and select a range of sources to answer inquiry questions
- Identify the origin and purpose of primary and secondary sources
- Locate, compare, select and use information from a range of sources to answer inquiry questions
- Draw conclusions about the usefulness of sources
- Examine sources to provide explanation of points of view.

▲ **Video**
Five interesting fact about ancient Rome

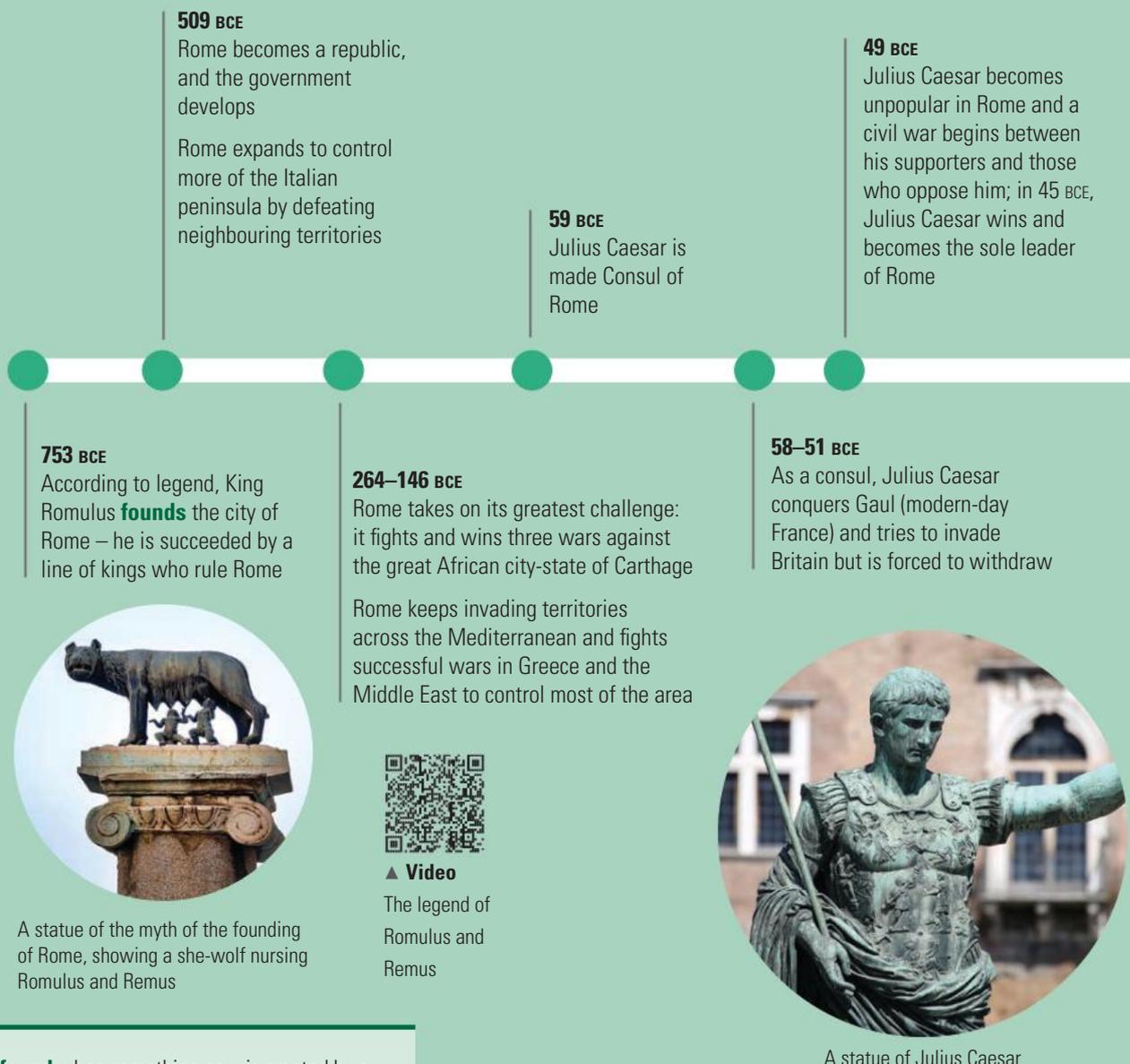▼ **Source 3.9** The ruins of the Colosseum in modern-day Rome

Timeline of key events

What came before this topic?

- **1000 BCE** Evidence that Rome was settled
- **1000–700 BCE** Latins (including Romans), Etruscans, Sabines and Samnites settled in Italy
- **c. 750–400 BCE** Greek settlements in southern Italy and other parts of the Mediterranean were established

A statue of an Etruscan woman (c. 425 BCE)

509 BCE
Rome becomes a republic, and the government develops

Rome expands to control more of the Italian peninsula by defeating neighbouring territories

59 BCE
Julius Caesar is made Consul of Rome

49 BCE
Julius Caesar becomes unpopular in Rome and a civil war begins between his supporters and those who oppose him; in 45 BCE, Julius Caesar wins and becomes the sole leader of Rome

753 BCE
According to legend, King Romulus **founds** the city of Rome – he is succeeded by a line of kings who rule Rome

264–146 BCE
Rome takes on its greatest challenge: it fights and wins three wars against the great African city-state of Carthage

Rome keeps invading territories across the Mediterranean and fights successful wars in Greece and the Middle East to control most of the area

58–51 BCE
As a consul, Julius Caesar conquers Gaul (modern-day France) and tries to invade Britain but is forced to withdraw

A statue of the myth of the founding of Rome, showing a she-wolf nursing Romulus and Remus

▲ **Video**
The legend of Romulus and Remus

found when something new is created by a people – generally a city or place

A statue of Julius Caesar

What came after this topic?

- **c. 500 CE** The Roman Empire is separated into smaller kingdoms, run by barbarian rulers (even Italy is split into separate states)
- **800 CE** The French ruler, Charlemagne, creates an empire covering what are now France, northern Spain, Italy, Germany, Austria, the Czech Republic, Hungary, Italy and Croatia
- **1453 CE** The Christian Byzantine or eastern Roman Empire continues until it finally collapses and is taken over by the Islamic Turks

A portrait of Charlemagne, who was one of the most powerful kings during the medieval period in Europe

A statue of Augustus

27 BCE
The rule of the first Emperor, Augustus, begins; he is the great-nephew of Julius Caesar – the republic of Rome becomes the Roman Empire

79 CE
Pompeii and Herculaneum are buried by the eruption of Mount Vesuvius

c. 200 CE
The borders of the Roman Empire come under increased attacks by '**barbarian**' tribes – under pressure, several costly wars weaken the empire

313 CE
Emperor Constantine accepts Christianity as a religion after centuries of Christians being persecuted and shunned – Christianity later became the official religion of the Roman Empire

44 BCE
A group of Roman senators murder Julius Caesar

64 CE
A big fire occurs in Rome – Emperor Nero blames the Christians, who are a new religious community

80 CE
The Colosseum in Rome is opened

283 CE
The Roman Empire is split into the eastern and western empires

402–410 CE
The Goths and Vandals ('barbarian' tribes) take control of parts of the Roman Empire – in 410 CE, Alaric the Goth **sacks** the city of Rome itself

barbarian someone from another place who spoke a different language; for ancient Romans, a barbarian was any person who was not part of the Roman Empire

sack to invade and destroy a city

Responding to the timeline

1. The following terms are used on this timeline. What do they mean?
   a   c. (circa)   b   BCE
2. **Use** the timeline to identify three challenges faced by ancient Romans. These could be natural disasters, major changes or attacks.
3. **Create** two historical questions about significant events shown on the timeline. These questions should identify what you would like to learn more about as you move through the chapter.
4. **Research** one of the significant individuals mentioned on the timeline. Create a biographical profile poster to put up on the wall of your classroom. You may wish to use the following headings to help structure your poster:
   - Historical context
   - Early life
   - Achievements
   - How they were perceived by their contemporaries
   - Their overall role in Roman history.

3.1 How did ancient Rome's location and physical features influence its success?

FOCUS QUESTIONS

- Where was ancient Rome located?
- What were the advantages of ancient Rome's geographical location?

navigate sail or travel over a stretch of land or water, especially carefully or with difficulty

▲ **Video**
Roman expansion

Rome began as just one city, but the rulers of Rome conquered all of Italy, and then expanded across Europe, North Africa and the Middle East. Ancient Rome maintained control over its vast empire for hundreds of years. As you read through the information and sources in this section, think about how Rome's location and physical features may have created the conditions that allowed it to become such a successful civilisation.

Where was ancient Rome located?

Ancient Rome was located close to the western coastline of Italy, on the banks of the Tiber River. The early settlers of Rome may have chosen this site because of the presence of a small island in the river – the only one of its kind along the Tiber – which made the river easier to cross at that point. Unlike some other rivers in Italy, the Tiber River could be **navigated** by boats from the mouth of the river for many kilometres inland, meaning the Romans had easy access to the Mediterranean Sea.

▲ **Source 3.10** The growth of the Roman Empire. This map shows the growth of the Roman Empire between 275 BCE and 117 CE.

RESPONDING TO THE SOURCE — 3.1

Examine Source 3.10.

1 **Describe** the growth of the Roman Empire from 275 BCE to 117 CE.
2 **Suggest** how Rome's geographic location may have played a part in the successful growth of the empire.
3 Using Google Maps, **identify** which present-day countries were part of the Roman Empire.

What were the advantages of ancient Rome's geographical location?

The region surrounding ancient Rome, called **Latium**, had very good conditions for growing food, with nutrient-rich volcanic soil and a generally mild climate. As Rome expanded to include the territory of its neighbours – the Latins and Etruscans – the Romans used the Tiber River to transport goods from these regions to the city. From there, **surplus** goods could be transported to the sea to be traded with other cities.

Having a central location in the middle of the Mediterranean Sea was very useful for the ancient Romans. This central location made it easier for ancient Romans to travel, trade and eventually conquer territory all across Europe and North Africa, and to manage their empire from a central location. The ancient Romans used the sea so much for transport and trade that they named it *mare nostrum*, which translates as 'our sea'.

Geographic features such as mountains and hills may have deterred invaders and made the region easier to defend. The **Italian peninsula** is home to two large mountain ranges: the Alps in the north (which separate Italy from the rest of Europe) and the Apennines (which run in a line from north to south through the centre of Italy). The Alps offered Italy some protection from enemies, particularly in winter, when the mountain passes became dangerous to get through. In 218 BCE, the Carthaginian general, Hannibal, invaded Italy (see Sources 3.11 and 3.12) but this was a rare achievement and his army suffered significant losses.

Latium the region of central Italy where the city of Rome was located

surplus an amount left over when needs are met

Italian peninsula the region now covered by the country of Italy, from the Alps in the north, to the central Mediterranean Sea in the south

ACTIVITY 3.2

Think: what geographical features would set up a city for long-term success?

Imagine you had the opportunity to choose a suitable location to build a new city. The city would need to support a population of one million inhabitants. What geographical features or resources would you look for when choosing the ideal site for this city?

1 With a partner or in a small group, **develop** a list of all the geographical features that the site of a new city would ideally have to ensure its long-term success.
2 Then, with your partner or group, narrow down this list to the three most essential features – these are the features that the city could not survive without.
3 **Share** your ideas as a class – did everyone agree on the most important features of a city?

▲ **Source 3.11** The route of Hannibal's invasion. This map shows Hannibal's route as he crossed over the Alps and then invaded Rome in 218 BCE.

> The dreadful vision was now before their eyes; the towering peaks, the snow-clad pinnacles soaring to the sky … the people with their wild and ragged hair, stiff with frost … There was great confusion and excitement amongst the men, and still more among the terrified horses … the horses were soon out of control … In the confusion many men were flung over the sheer cliffs which bounded each side of the pass and fell to their deaths thousands of feet below. But it was worst for the pack-animals. Loads and all, they went tumbling over the edge almost like falling bricks.

▲ **Source 3.12** The Roman historian, Livy, writing around the end of the first century BCE, describes the experiences of Hannibal's army attempting to cross the Alps.

RESPONDING TO THE SOURCES — 3.2

1 Use Source 3.11 to **describe** the natural features that protected ancient Rome.
2 Use Source 3.12 to **explain** how the mountainous region of the Alps created problems for Hannibal's invasion of Italy in 218 BCE.

The city of Rome itself was built on seven hills, which may have provided the city with further protection in the early years of its development, helping the farmers and villagers who lived there to defend their territory from invaders.

The following sources by ancient Roman writers describe some of the reasons for the choice of Rome's location:

… With good reason did the gods and men choose this site for the founding of the city. Rome's hills provide a healthy environment, the Tiber is favourable for navigation upstream to inland crops and downstream to the sea, and the sea itself is close enough for trade and yet far enough that we are not in danger of invasion by foreign fleets. Consider too Rome's location at the centre of Italy. This site is uniquely suited by nature for the expansion of a city – as is proven by the size itself of our city while yet so young.

▲ **Source 3.13** The Roman historian, Livy, writing around the end of the first century BCE, records an account of a speech supposedly spoken by a Roman general in around 390 BCE.

The entire region of Latium is blessed with fertility, except for a few areas which are marshy and **pestilential** … and some other areas that are mountainous and rocky. Even these places, however, are not entirely barren and useless, since they provide abundant **pasturage** and wood, as well as some fruits that do well on marshy or rocky soil …

The Romans enjoy an amazing **abundance** of quarries and timber, as well as rivers that accommodate the transportation of such materials …

▲ **Source 3.14** The Roman geographer, Strabo, writing around the beginning of the first century CE, describes the benefits of Rome's location.
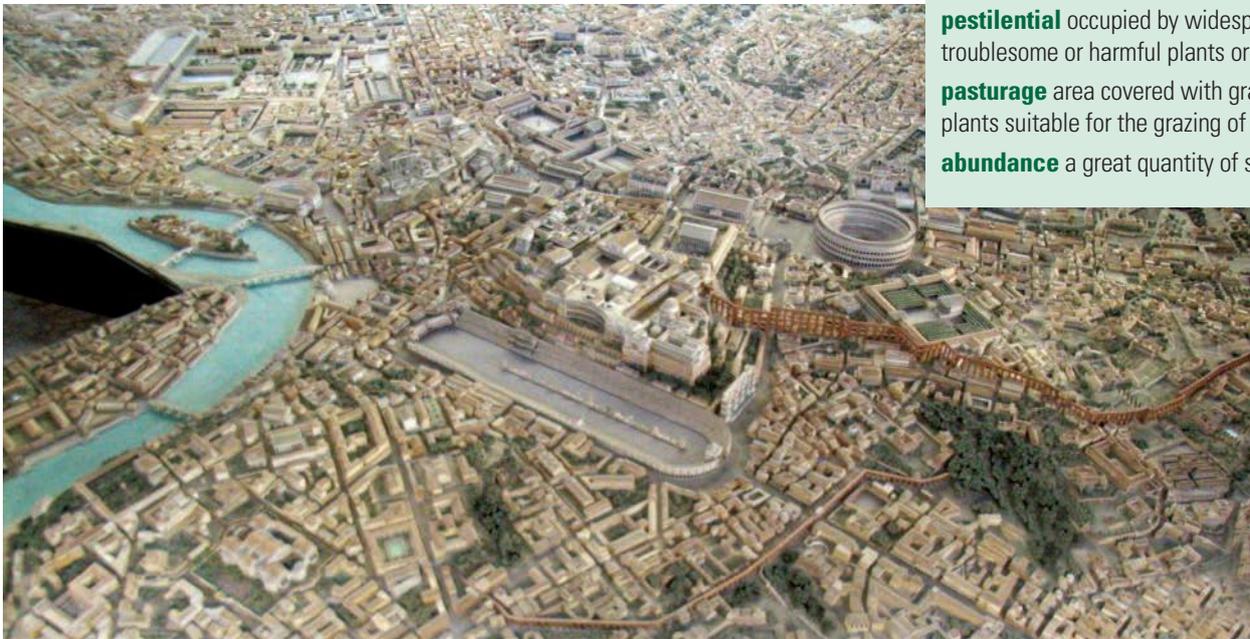
pestilential occupied by widespread, troublesome or harmful plants or animals
pasturage area covered with grass or plants suitable for the grazing of livestock
abundance a great quantity of something

▲ **Source 3.15** A bird's-eye view of ancient Rome. This image is a modern reconstruction of what the ancient city of Rome would have looked like.

RESPONDING TO THE SOURCES — 3.3

1 Use the information in Sources 3.13 and 3.14 to complete the table below.

Source	Describe Who is it by? (origin)	Analyse What information does this source provide about Rome's location?	Evaluate How does this information help answer the inquiry question: 'What made ancient Rome a successful civilisation?'
3.13			
3.14			

2 Which of these sources suggests there was a problem with the site of ancient Rome? **Identify** this problem and, with a partner, **discuss** how the people of ancient Rome might have overcome it.

3 Look at Source 3.15. **Identify** the location of the island in the Tiber River. Why might this have influenced the choice of where Rome was founded?

MAKING THINKING VISIBLE 3.1

+1 routine: a routine for identifying important ideas worth remembering

1   Having worked through Section 3.1, individually write down key points you can take away from the text. What have you learned about how ancient Rome's location and physical features helped the civilisation to be successful? Try to do this without rereading the text.

2   Now, pass your notes to the right. The person next to you needs to take one to two minutes to read through your notes and then add one new note to the page. This can be new information, an elaboration on another note, or a connection between ideas.

3   Continue to pass notes around the room two more times.

4   Return all notes to the original owners.

5   Now, you may read and **reflect on** the additional notes made on your page and add ideas you may have picked up from reading other students' work.

REFLECTING ON YOUR LEARNING 3.1

Reflect on what you have learned in this section:

1   Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did ancient Rome's location and physical features influence its success?'

2   How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

▲ **Source 3.16** The modern Roman cityscape

3.2 What was life like for different social classes in ancient Rome and how did they contribute to its success?

FOCUS QUESTIONS

- Who were the nobles and what was their role in Roman society?
- What was the role of the plebeians in ancient Rome?

In 509 BCE, the last king of Rome was overthrown, and a **republic** (a form of government where citizens vote for their head of state) was created. In this new type of government, the **patricians** and **plebeians** had the power to meet in groups called citizens' assemblies to elect representatives to rule on their behalf. The elected rulers of Rome, the **consuls**, were assisted by a **Senate**, a group of experienced nobles who provided advice and guidance. The Roman republic lasted until the rule of Julius Caesar, who ruled as a consul but was assassinated by fellow Romans who thought he had become too powerful. Julius Caesar was eventually replaced by his great-nephew, Augustus, who became the first emperor of Rome. From this time on, the political institutions of the republic continued, but under the control of the emperors of Rome, who had total authority over every aspect of Roman society.

As you read through the information and sources in this section, consider how the features of ancient Rome's political system and the groups in this society contributed to its success. What was life like for Rome's citizens and others who lived in Rome at this time? Would they have been content to live under this system? What features of this society are similar or different to Australia today?
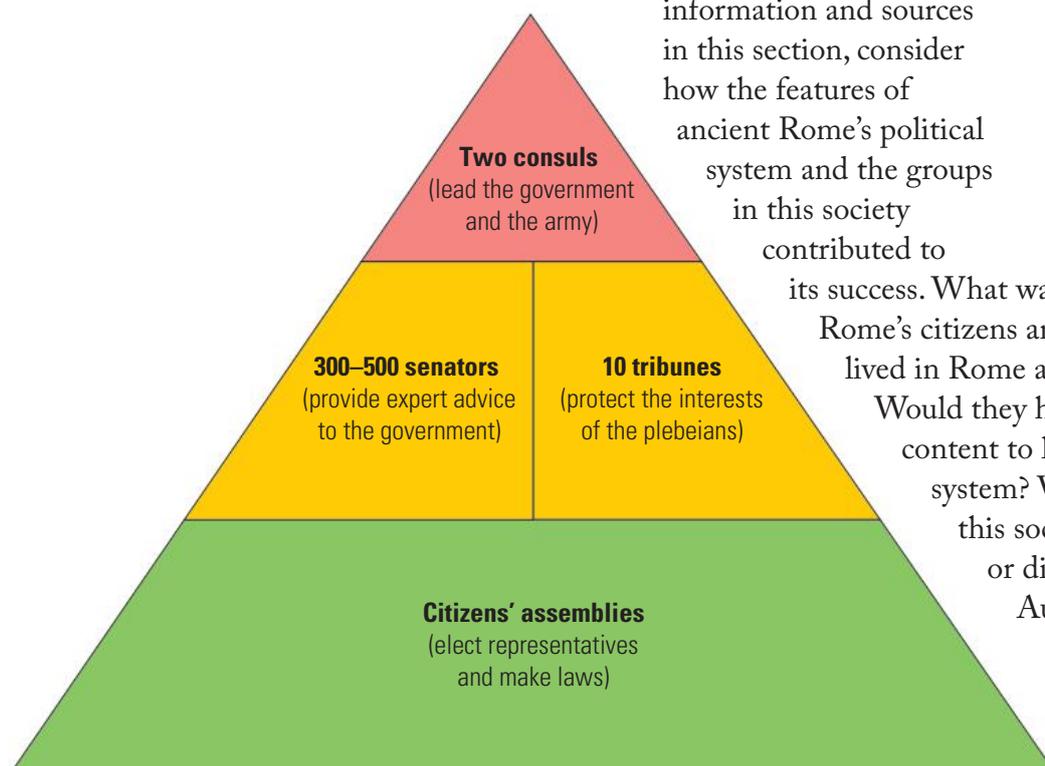
republic the political system in Rome from c. 509 BCE to c. 27 BCE, where citizens were protected by the law and had the power to elect their political leaders

patrician any member of a group of citizen families who formed the ruling class of the early Roman Empire, the patricians owned land and held political power

plebean commoner, free Roman citizen who was not a patrician

consuls the political leaders of ancient Rome, elected each year by the citizens

Senate a powerful political body in ancient Rome, consisting of hundreds of nobles (senators) who had previously served in government – the consuls were expected to follow the advice given by the Senate on important decisions

Two consuls
(lead the government and the army)

300–500 senators
(provide expert advice to the government)

10 tribunes
(protect the interests of the plebeians)

Citizens' assemblies
(elect representatives and make laws)

▲ **Source 3.17** The government of the Roman republic. Are there any similarities to Australia's system of government?

RESPONDING TO THE SOURCE — 3.4

Examine the diagram in Source 3.18.

1 Which groups in ancient Roman society would have had the most and least power?

2 What kinds of roles might members of these groups have performed?

3 What does this suggest ancient Roman society valued?

4 Does Source 3.18 suggest that it might have been possible for an individual to move higher up the social hierarchy? **Explain** your answer.

hierarchy organised structure in order of rank or status by factors such as wealth or social group
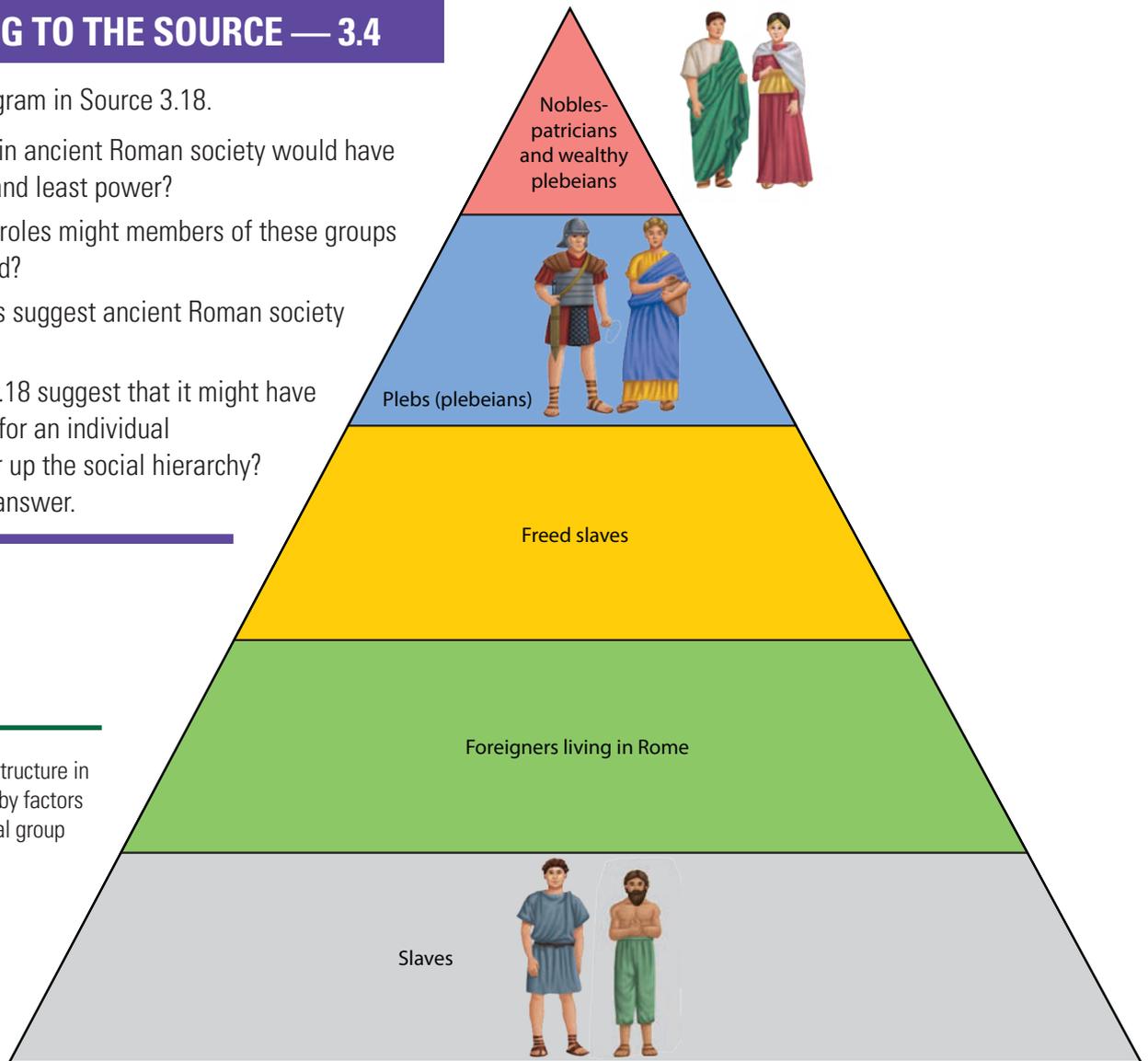
▲ **Source 3.18** The social **hierarchy** of ancient Rome in the late republic period. Note the change from the early republic period, when only patricians were members of the nobility.

Who were the nobles and what was their role in Roman society?

citizen male person in ancient Rome who was recognised as having the rights of citizenship. The children of Roman citizens automatically became citizens. Women were not considered to be citizens. Citizenship could be granted to ex-slaves who had been freed or to foreign non-citizens as a reward for service

During the time of the early Roman kings, the patricians were the noble men of Rome. When the last king of Rome was overthrown in 509 BCE, the patricians took on the role of ruling the Roman republic. Their descendants became the ruling nobility of Rome and only Romans born into patrician families could be members. For a little over 100 years, the position of consul, which was the top leadership position in Rome, could only be held by patricians. The rest of Rome's **citizens** belonged to the group known as the plebeians.

Dionysius of Halicarnassus, a Greek historian writing around 20 BCE, described the creation of the patricians and plebeians by Romulus, the first king of Rome:

> After Romulus had distinguished the more powerful members of society from the less powerful, he then set up laws and established what things were to be done by each of the two groups. The patricians were to serve as priests and magistrates, lawyers and judges. The plebeians were to till the land, herd livestock, and work for wages as craftsmen, tradesmen, and labourers.

▲ **Source 3.19** Dionysius of Halicarnassus' description of Romulus founding Rome

RESPONDING TO THE SOURCE — 3.5

1 Based on your analysis of Source 3.19, **identify** the roles allocated to patricians and the roles allocated to plebeians by Romulus.

2 **Propose** one or two reasons why the story by Dionysius should not be considered to be completely historically accurate.

Over time, the plebeians became angry that the patricians had more power, and from around 500–287 BCE, they rebelled against the patricians' control of Rome. By 287 BCE, the plebeians had won full legal and political equality with patricians and there was a new nobility in Rome, consisting of the patricians as well as wealthy plebeians, many of whom were richer than the patricians. Members of this new nobility occupied the highest positions in Roman politics (including being consuls and senators) and were responsible for governing Rome and providing leadership for Rome's armies and religious groups. These men spent much of their time in Rome's Forum: the administrative, political, economic and religious centre of the city.

▲ **Source 3.20** This photograph shows the remains of Rome's Forum today. What effect do you think the size and scale of these buildings would have had on visitors to ancient Rome?

What was the role of the plebeians in ancient Rome?

The remainder of Rome's poorer working citizens are referred to as the plebeians (plebs). The plebs were the ordinary working citizens of Rome. Being free citizens gave the plebs several rights and privileges in Roman society (see Source 3.21) and raised them in status above non-citizens and slaves.

As you can see from Source 3.19, the plebs were farmers, craftsmen, tradesmen, shopkeepers, soldiers and labourers. Unless they were extremely wealthy, most plebs did not generally have important roles in society.

Although, from 287 BCE, the plebs did have their own special political assembly called the Council of the Plebs, which could pass laws that were in the interests of the plebs, and that applied to everyone, including patricians. This assembly was led by 10 **tribunes** (all plebs), who had the power of veto over any political decisions made in Rome. This allowed them to protect the rights of the common people by being able to block any decision made by the consuls or by any other political body in ancient Rome.
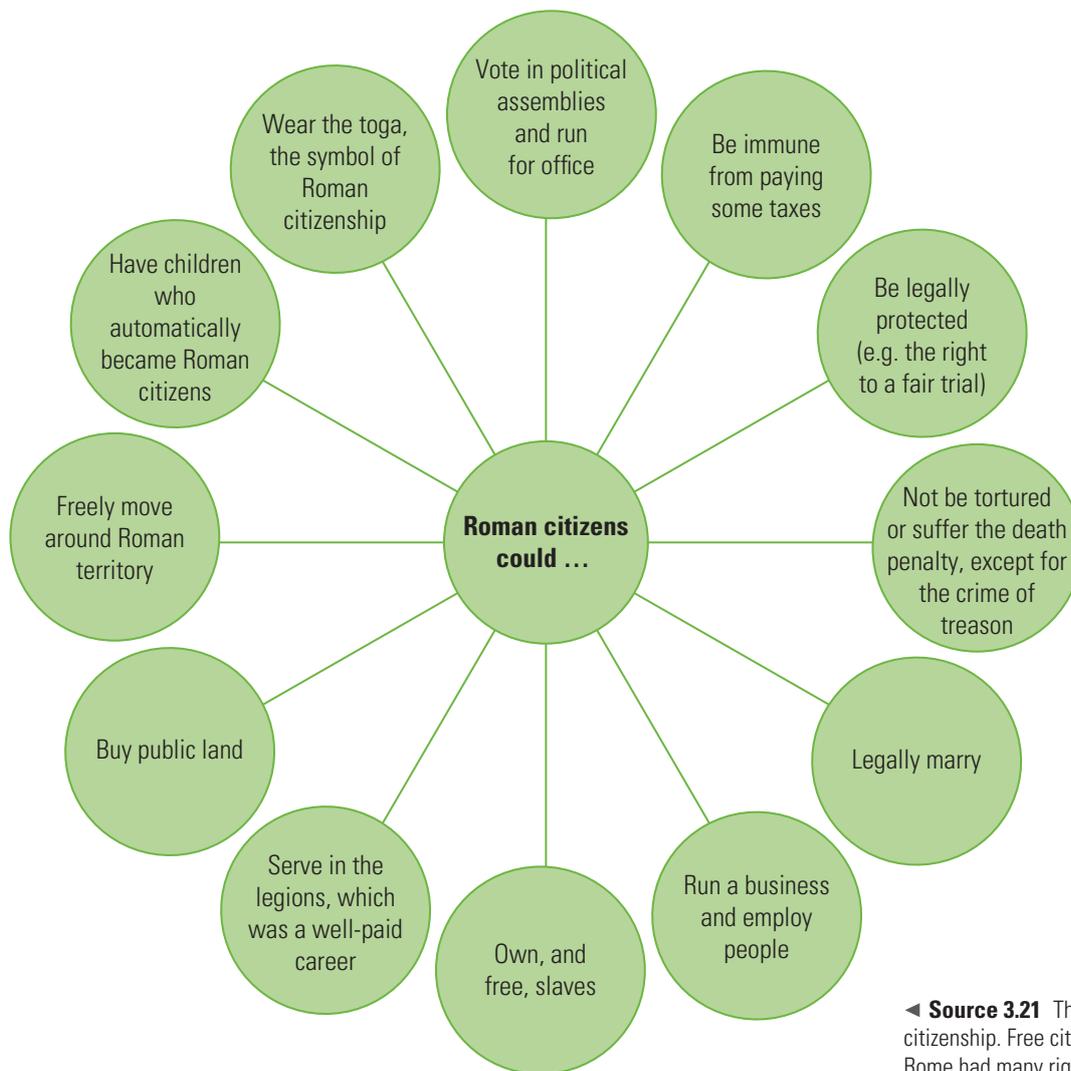
tribune one of 10 plebs elected each year to lead the Council of the Plebs – the tribunes were expected to act in the best interests of the plebs

It is important to note that only men who were not slaves were considered to be citizens in Rome. This meant that women did not have a role to play in government and could not vote. The rights of women varied over time, but they were never given political privileges.

ACTIVITY 3.3

Evaluate political institutions

1 **Explain** why it might have been important for ancient Rome's long-term success that its citizens were able to vote for their leaders.

2 **Identify** two similarities and two differences between the political institutions of ancient Rome and Australia today.

Vote in political assemblies and run for office

Wear the toga, the symbol of Roman citizenship

Be immune from paying some taxes

Have children who automatically became Roman citizens

Be legally protected (e.g. the right to a fair trial)

Roman citizens could …

Not be tortured or suffer the death penalty, except for the crime of treason

Freely move around Roman territory

Buy public land

Legally marry

Serve in the legions, which was a well-paid career

Own, and free, slaves

Run a business and employ people

◄ **Source 3.21** The benefits of Roman citizenship. Free citizens in ancient Rome had many rights and privileges.

MAKING THINKING VISIBLE 3.2

Think, pair, share

1 Think: Take a minute to **consider** the following question: 'Was life in ancient Rome fair for all groups?'

2 Pair: Turn to a neighbour and **discuss** your responses to the question. Take turns to speak, listen carefully and ask questions of one another.

3 Share: Share your ideas as a whole class to **create** a list of ideas to respond to this question.

REFLECTING ON YOUR LEARNING 3.2

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What was life like for different social classes in ancient Rome and how did they contribute to its success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

3.3   What was life like for women in ancient Rome and how did they contribute to its success?

FOCUS QUESTIONS

- What was the role of women in ancient Rome?
- How did women contribute to ancient Roman society?

What was the role of women in ancient Rome?

Like most societies in the ancient world, Rome was a **patriarchal** society, meaning that women's lives were generally controlled by male relatives, such as their fathers or husbands. Women in ancient Rome were not considered to be citizens in the way that men were and were not allowed to vote or be involved in politics. Unless a woman had three or more children, she was also required to have the approval of a male guardian for decisions on legal or business matters. The decision about who a woman would marry was made by her father. The legal minimum age for marriage was 12, although the average age that Roman girls were married was probably closer to 14 years old.

In some aspects of their lives, Roman women had more independence than women in other parts of the ancient world, such as in Greece or the Near East: they were able to inherit property, run a business, and accumulate considerable wealth. There is evidence of women in the Roman Empire acting as **benefactors** for their communities, building monuments and lending their public support to male candidates in election campaigns. Women could also serve as high-ranking priestesses in religious cults. They were also able to divorce their husbands.

The role played by women in ancient Roman society depended on their social status. Women from the wealthy, governing class were valued for being beautiful, honest, and dutiful wives and mothers. Married women from the nobility were expected to bear children and look after the household. Spinning, weaving and sewing clothes was considered to be part of their role. Women from the lower social classes were much more likely to be involved in manual labour as they were required to work to earn a living and support their families financially. Evidence suggests that lower-class women performed a diverse range of roles in society, including as weavers, fish-sellers, laundresses, shopkeepers and butchers.

patriarchal a system of society or government controlled by men

benefactor someone who provides another person or group with money or other help to support them

matron a freeborn, respectable woman in ancient Rome

Why should I mention your personal virtues – your modesty, obedience, affability, and good nature, your tireless attention to wool making, your performance of religious duties without superstitious fear, your artless elegance and simplicity of dress? Why speak about your affection toward your relatives, your sense of duty toward your family (for you cared for my mother as well as you cared for your parents)? Why recall the countless other virtues which you have in common with all Roman **matrons** worthy of that name?

▲ **Source 3.22** This text is from an inscription dated around the end of the first century BCE, discovered in Rome. It was written by a husband to honour his wife, Turia. What insights does it provide into the character and behaviour expected of Roman women?

Why should we pay taxes when we do not share in the offices, honours, military commands, nor, in short, the government, for which you men fight between yourselves, with such harmful results?

▲ **Source 3.23** A speech made by Hortensia, a Roman woman, at a large public meeting in Rome in 42 BCE. Hortensia was the leader of a large group of women who were objecting to proposed taxes on women's luxury items.

RESPONDING TO THE SOURCES — 3.6

1 Use Source 3.22 to **identify** the qualities expected of the 'ideal' Roman woman.

2 **Explain** what Sources 3.22 and 3.23 suggest about the status of women in ancient Roman society.

ACTIVITY 3.4

How did women contribute to ancient Roman society?

The following four primary sources provide insights into the various roles performed by women in ancient Rome. Read and **analyse** the sources and then answer the questions that follow.

Eumachia daughter of Lucius, public priestess, made (this building) with her own money …
She dedicated it in her name and in the name of her son, M. Numistrius Fronto.

▲ **Source 3.24** An inscription on a large public building in the centre of Pompeii, which was probably used by the **fullers**, who manufactured and sold fabric. The inscription mentions the name of Eumachia, the patron of the fullers in Pompeii, who paid for the building's construction.

For rent, in the estate of Julia Felix, daughter of Spurius: elegant baths for respectable people, shops with upper rooms, and apartments. From the 13th August next, to the 13th August of the sixth year, for five continuous years. The lease will expire at the end of the five years.

▲ **Source 3.25** This is a translation of a landlord's advertisement written on the side of a large building estate in Pompeii. This building estate featured gardens, a pool, and its own private bathing complex.
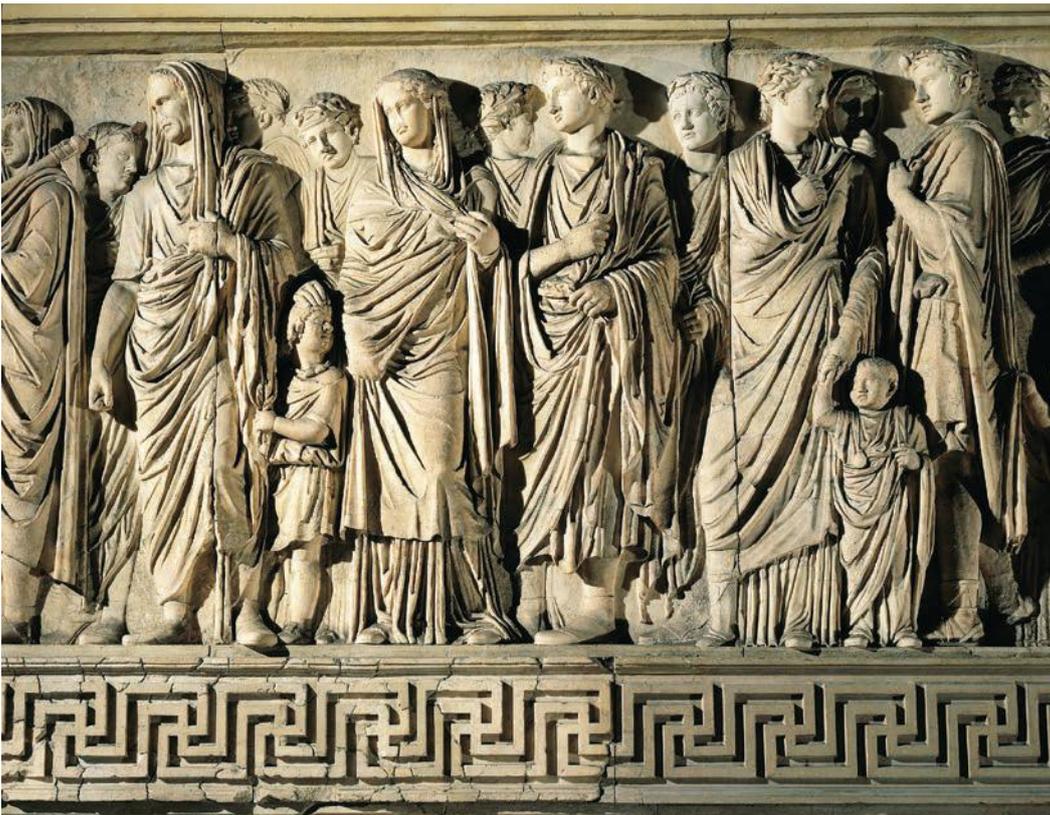
fuller a laundry worker in ancient Rome

frieze a space on the side or front of an ancient Roman building, which often featured some form of sculptural decoration

◀ **Source 3.26** A public religious procession. A **frieze** from ancient Rome, created between 13 and 9 BCE by the Emperor Augustus. It depicts a public religious procession. The adult figures in the front row, from left to right, are the Emperor Augustus, his daughter Julia, and his close friend Agrippa.

◄ **Source 3.27** This fresco is from a *fullonica* (laundry) in Pompeii called the *Fullonica of Veranius Hypsaeus*. This fresco shows female workers putting up clothes for drying. Laundries in ancient Rome offered services such as washing clothes, removing stains and processing newly manufactured fabric for making clothes (around first century CE).

Analysis table

Source	Describe the source – what is it?	Analyse the source – what does it say or show about the roles of women in ancient Rome?	Evaluate the source – how might women have benefited Roman society through the role depicted in this source?
3.24			

Copy and complete this table, adding a new row for each source in this activity.

RESPONDING TO THE SOURCE — 3.7

1 **Examine** Source 3.26, which shows a royal woman being featured in a public portrait beside an emperor. Why might the emperor Augustus have chosen to include his daughter Julia alongside him on this public monument? What might this reveal about the role played by royal women in ancient Roman society?

How did women contribute to the success of ancient Roman civilisation?
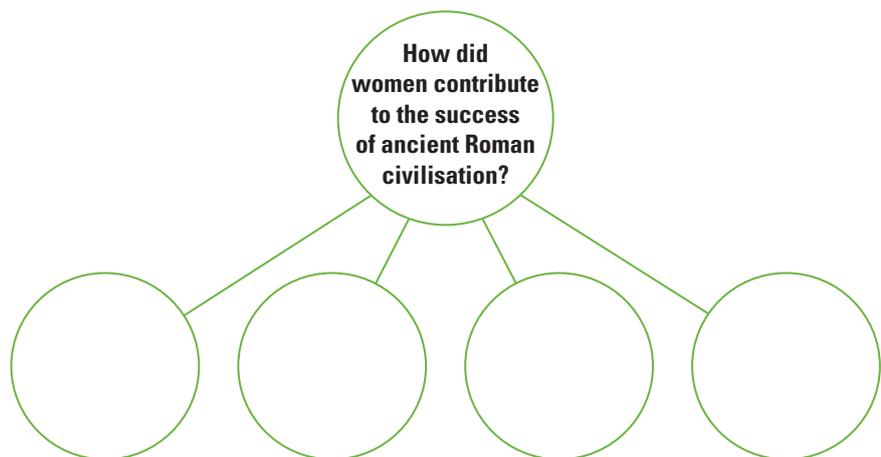
2 In pairs or small groups, use the information and sources in this section to **create** a mind map to respond to the question: 'How did women contribute to the success of the ancient Roman civilisation?'

≫

»

3 Compare the experience of women in ancient Rome with the experience of women in Australia today. What similarities and what differences are there? Represent your ideas in a Venn diagram.

Women in ancient Rome   **Women in Australia today**
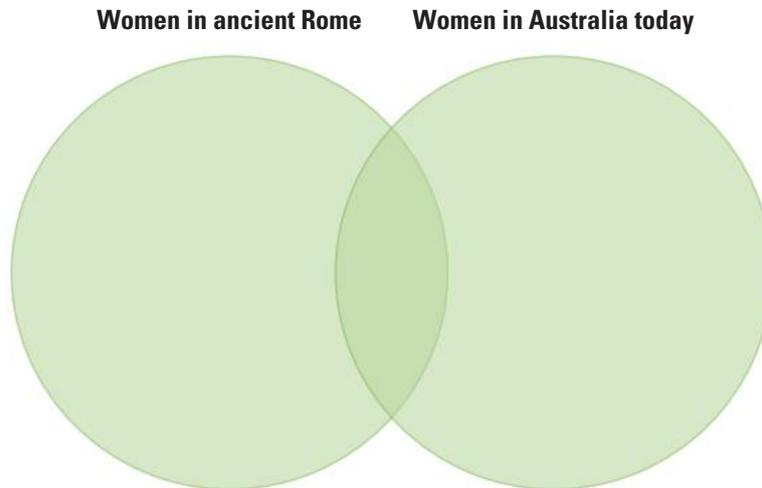
MAKING THINKING VISIBLE 3.3

Podcast or role-play: 'Great women in ancient Rome and its empire'

1 Investigate the life and career of a prominent woman who lived in ancient Rome or within its empire. For example, Agrippina the elder, Agrippina the younger, Livia Drusilla, Octavia the younger or Boudicca.

2 Use your research to **create** a script for either a one to two-minute podcast or for a role-play interview with this woman. The topic of the script is the 'great women in ancient Rome and its empire'.

In your podcast or interview, consider topics such as:

- Historical context
- Early life
- Achievements
- How they were perceived by their contemporaries.

REFLECTING ON YOUR LEARNING 3.3

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What was life like for women in ancient Rome and how did they contribute to its success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

3.4 What was life like for slaves in ancient Rome and how did they contribute to its success?

FOCUS QUESTIONS

- What was the role of slaves in ancient Rome?
- What was the role of gladiators in ancient Rome?

What was the role of slaves in ancient Rome?

Slaves made up a significant portion of the population in ancient Rome. They were considered to be property and could be bought, sold, given as gifts and rented out to others. Slaves were bought and sold at slave auctions in the marketplace.

Many slaves had been captured in war, but others were convicted of crimes and forced into slavery as punishment. Children could be sold into slavery by their families if they could not afford to look after them. Those born to mothers who were slaves automatically became slaves.

One important feature of Roman life was that when slaves were freed, they could become Roman citizens, although they had fewer rights than citizens who had been born free.

This ensured that the Roman citizen population was constantly expanding and was open to people from many backgrounds and cultures. Freed slaves took on the names of the families that had freed them and had obligations to their ex-owners.

As Source 3.28 shows, slaves carried out a wide variety of roles in ancient Roman life.

▲ **Source 3.29** Household slaves carrying wine **amphoras** to serve guests. This **mosaic**, called the 'Butler's Mosaic', is from Dougga, Tunisia, which was a **province** of ancient Rome (second century CE).

amphora a container generally used in ancient Rome to hold wine or oil

mosaic a decorative pattern or image made from pieces of coloured stone, glass or ceramic

province territories or regions outside of Rome that were controlled by Rome as they were part of the empire

▲ **Video**
Exploring a gladiator mosaic

What roles did slaves perform in Roman society?

Cooks · Soldiers · Messengers · Cleaners · Builders · Servants · Accountants · Gladiators · Farmers · Doctors

▲ **Source 3.28** Slaves performed a wide range of roles in ancient Roman society.
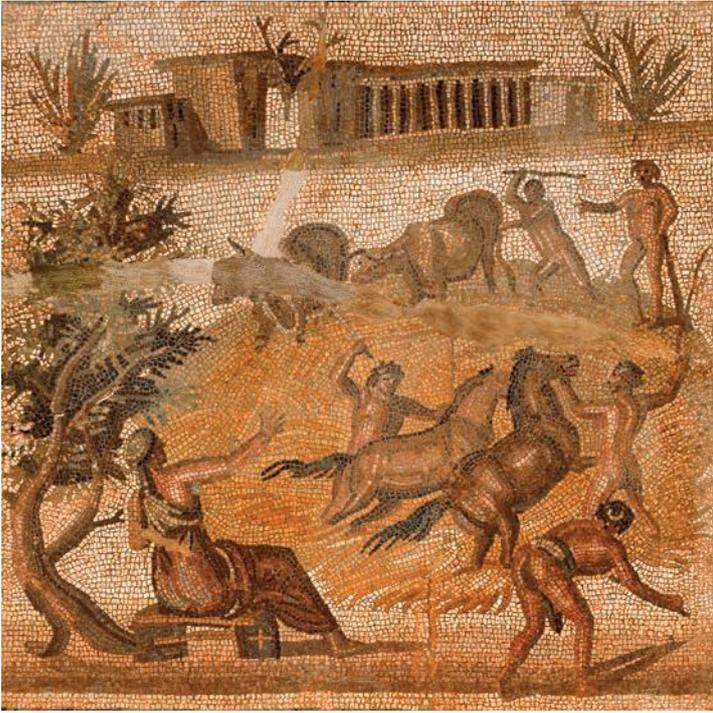
▲ **Source 3.30** Slaves leading horses and oxen to tread on grain stalks to separate the grain. This mosaic is from a farm in Libya, which was a province of ancient Rome. Grain was a staple food of ancient Roman society (second century CE).

By the light of lamps long tunnels are cut into the mountains … The miners carry the ore out on their shoulders, each man forming part of a human chain working in the dark, only those at the end seeing the daylight … men may not see daylight for months on end.

▲ **Source 3.31** Pliny the Elder, a Roman historian and scholar, describing the work of slaves in the gold mines of ancient Rome (c. 77 CE)

RESPONDING TO THE SOURCES — 3.8

1 **Analyse** Source 3.28. Would it be accurate to claim that slaves in ancient Rome were uneducated? Use information from the source to support your answer.

2 Sources 3.29, 3.30 and 3.31 show slaves performing different roles. **Identify** these roles. **Explain** how these roles might have contributed to Roman society.

3 **Describe** the object in Source 3.32. Suggest what its purpose might have been.

4 **Infer** what the inscription on Source 3.32 reveals about how owners viewed their slaves. (The translation of the inscription is in the source caption.)

What was the role of gladiators in ancient Rome?

Some slaves played the less desirable role of **gladiator**. Gladiators were men trained to fight each other in public displays of combat. This was a popular form of entertainment in ancient Rome. Public gladiatorial displays were sponsored by wealthy families and politicians, which made them popular with the citizens of ancient Rome. Later in Rome's history, large-scale gladiatorial displays were used by Roman emperors to increase their popularity among their subjects.

Fights were often between two gladiators: one was a highly agile fighter who carried a net and was lightly armed; and the other was a heavily armed, slower-moving fighter. At the end of a fight, the losing gladiator could have their life spared, assuming they had survived combat.

gladiator a man trained to fight with other men in the Roman arena for the entertainment of Roman audiences

◄ **Source 3.32** A slave's collar. The inscription reads: 'I ran away. Hold me; when you will have brought me back to my master Zoninus, you get a gold coin' (fourth century CE).

Most gladiators were slaves, purchased by their owners for the purpose of training them to become fighters at gladiatorial schools. Others were prisoners of war, criminals or slaves who had displeased their master and were sold to gladiatorial schools as punishment. Some were even free-born men who signed up to become gladiators as they had no other form of income. Gladiators who were slaves generated income for their owners, who hired them out as a form of entertainment. Because of this, and because gladiators were highly skilled and expensive to train and maintain, it was actually in the owners' best interests that their gladiators survived combat.

▲ **Video**
Aerial footage of the Colosseum

▼ **Source 3.33** The Colosseum. This diagram is an artist's impression of the features of the Colosseum in Rome, which hosted large-scale gladiatorial displays. The Colosseum had room for around 80 000 people. What effect might these displays have had on the people of Rome?
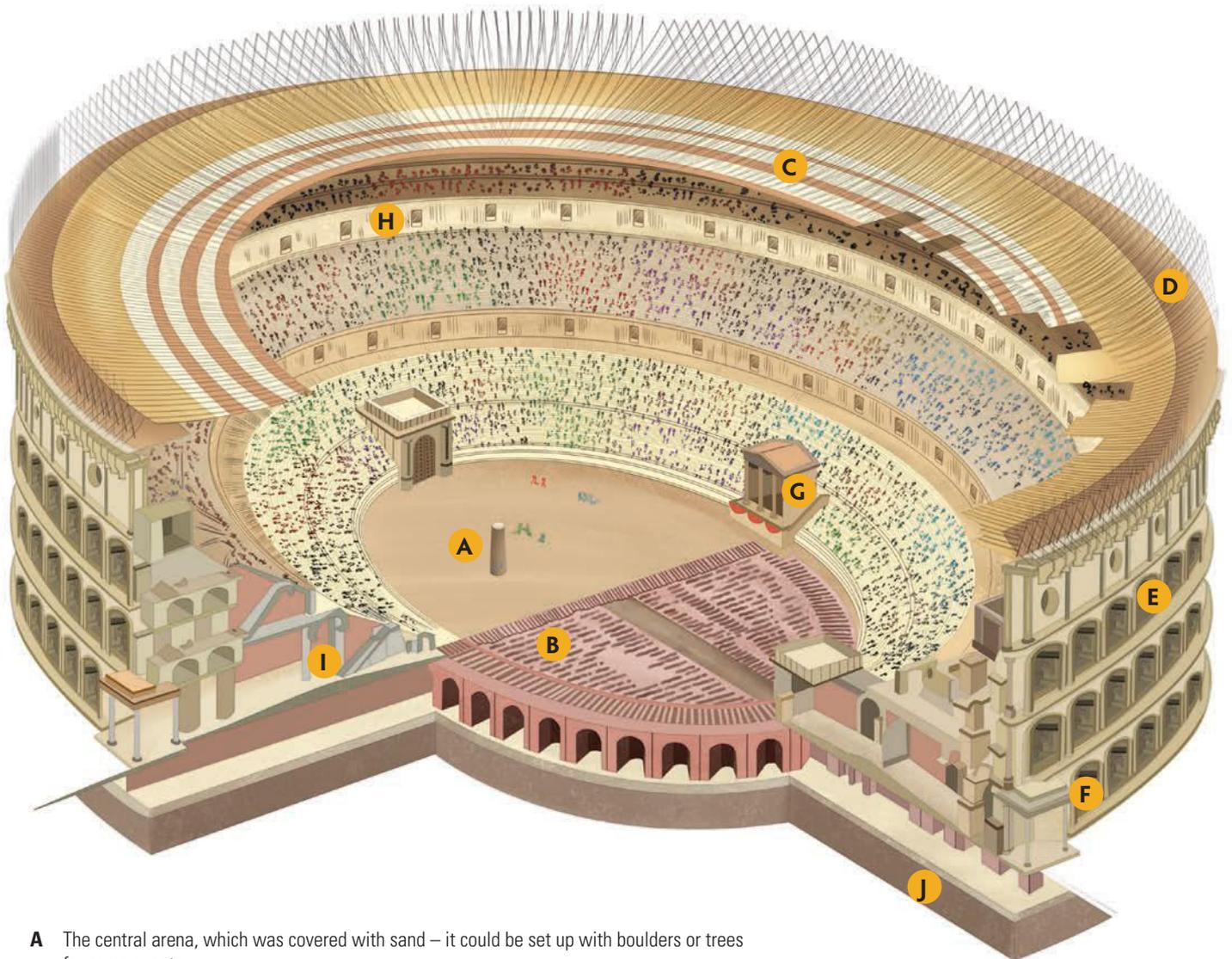
A   The central arena, which was covered with sand – it could be set up with boulders or trees for some events

B   The hypogeum, which had tunnels, compartments and animal pens beneath the surface of the arena; the Romans used a complex system of pulleys, counterweights and ropes to lift things into the area, including scenery and animals in cages

C   Sails, which protected spectators from the sun and rain

D   Gilded bronze shields that supported the sails

E   Archways containing statues

F   The façade, which was made of a type of limestone called travertine

G   The emperor's special box

H   Several levels of seating – seats closer to the arena were more expensive. Behind the wealthy citizens sat the middle-class citizens. Next came slaves and foreigners, and finally, in the standing areas only, were the poor. Women were also in this top tier, separated from the poor by a row of columns; they sat on wooden bleachers

I   The public entrances where tickets were sold; these entrances had staircases giving access to the upper levels

J   Exits

manumission the act of releasing a person from slavery; this appears to have been more common in ancient Rome than in other ancient societies of the time

While gladiatorial combat was very dangerous, and the chance of being killed was quite high, successful gladiators could become famous and earn a fortune. Once they had earned enough money or impressed their owner sufficiently, many gladiators were **manumitted**, meaning they bought or were granted their freedom. Gladiators who lived past the age of 30 may have become trainers or managers at gladiatorial schools. There is also evidence to suggest that, in between their fights, gladiators socialised with others outside the training schools and had families.

In the arena, different kinds of gladiators used different kinds of weapons. The *murmillo*, for example, wore a helmet decorated with the image of a fish, and fought with a *gladius* (short sword) and a long, rectangular shield. The *retiarius* attempted to capture his opponent with a net and stab them with a trident. A third type of gladiator, the *secutor*, carried a long, rectangular shield and wore a smooth-sided helmet that covered his face.

▲ **Source 3.34** Different kinds of gladiators used different kinds of weapons. This drawing is an artist's impression of the equipment used by two types of gladiator, a *murmillo* (left) and a *retiarius* (right).

CELADUS, THE THRACIAN, MAKES ALL THE GIRLS SIGH.
CRESCENS, THE NET FIGHTER, HOLDS THE HEARTS OF ALL THE GIRLS

▲ **Source 3.35** A translation of graffiti inscribed on the wall of a Pompeii building. Although gladiators were at the bottom of the ancient Roman social ladder, some became very popular and gained followings of fans and admirers. There is a possibility, however, that graffiti such as this may have been written by the gladiators themselves!
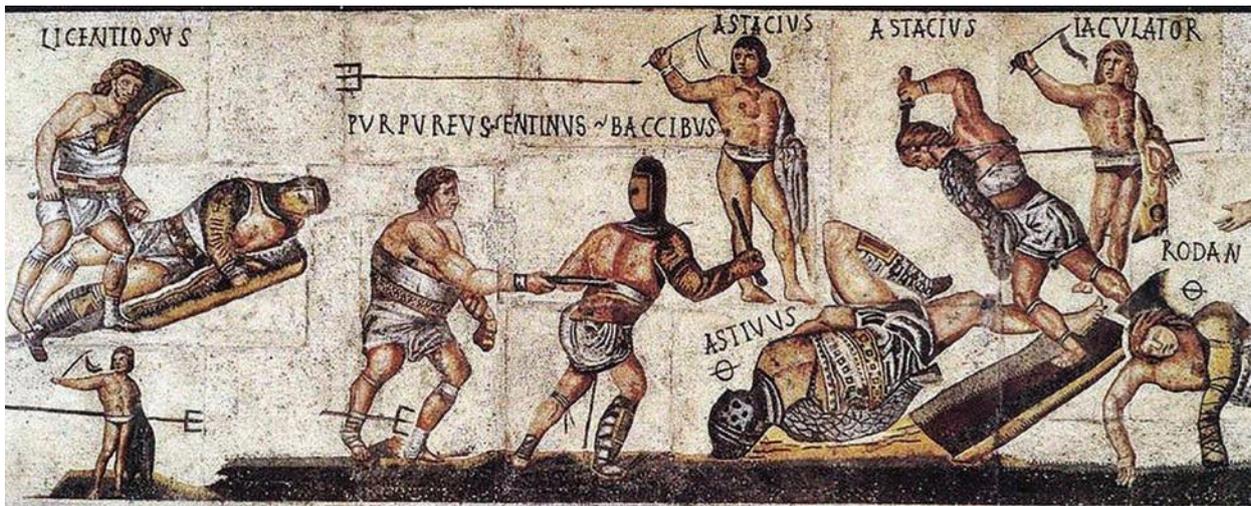
▲ **Source 3.36** Detail from a mosaic in the Villa Borghese in Rome, showing gladiators fighting (c. 320 CE)

Lavish entertainments won voter support and might even erase public memory of political blunders since the voters could forgive a man's sins if he provided impressive spectacles. In the republican period, the [games] were often used by the upper class as a political tool to maintain the support of the lower class. In the imperial period, the emperor did not, of course, have to worry about winning votes. But he did need to keep the people happy and contented, since an unhappy populace might riot and demand a new emperor.

▲ **Source 3.37** Historian Jo-Ann Shelton explains the role played by public spectacles (such as gladiatorial shows) in ancient Rome.

RESPONDING TO THE SOURCES — 3.9

1 **Analyse** the diagram of the Colosseum in Source 3.33. How might the gladiatorial games have reinforced the power and control of the emperor over Rome?

2 **Compare** the equipment used by the *retiarius* and *murmillo*, shown in Source 3.34. With a partner, **discuss** which type of gladiator would have had an advantage in combat. Make sure to explain your answer.

3 **Analyse** Source 3.36 to identify two types of gladiator shown in the scene. Suggest why the owners of this villa chose to use this image to decorate their home.

4 **Explore** what Sources 3.35 and 3.36 suggest about the attitudes that ordinary Romans had towards gladiators.

5 Some gladiators were criminals forced to become gladiators as punishment, or enemies of Rome who had been captured in war. They did not receive training or defensive equipment in their fights. **Suggest** how this might have influenced crime rates in ancient Rome.

6 **Identify** three ways the author of Source 3.37 suggests that gladiatorial games benefitted ancient Roman society.

7 **Discuss** this question with a partner: 'What sport or form of entertainment in today's world do you think is the most similar to that of the gladiators, and why?'

MAKING THINKING VISIBLE 3.4

Colour, symbol, image

This thinking routine encourages you to distil ideas and present them in a new form, and to **justify** the reasons for your choices. It can be done on computer or on paper.

COLOUR What colour best represents life for slaves in ancient Rome? (place in the box below)	SYMBOL What symbol best represents life for slaves in ancient Rome? (place in the box below)	IMAGE What image best represents life for slaves in ancient Rome? (place in the box below)
Why did you choose this colour?	Why did you choose this symbol?	Why did you choose this image?

REFLECTING ON YOUR LEARNING 3.4

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What was life like for slaves in ancient Rome and how did they contribute to its success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

3.5 What role did religious beliefs, values and practices play in ancient Rome's success?

FOCUS QUESTION

What role did religious beliefs play in everyday life in ancient Rome?

What role did religious beliefs play in everyday life?

In ancient Rome, religion had a very important place in the daily lives of the people. The ancient Romans were **polytheistic**, meaning they worshipped more than one god. They believed there were many gods who had different roles to play in determining events in the world.

polytheistic worship of more than one god

To keep the gods happy and to ensure they supported everything the ancient Romans did, the people of Rome left offerings and performed sacrifices for the gods. People

King of the gods
- God of sky and thunder
- Patron god of Rome

Jupiter

- God of freshwater and the sea, earthquakes, hurricanes and horses
- Often depicted with his trident

Neptune

- God of war, guardian of agriculture
- The embodiment of aggression and what was considered manliness

Mars

- Twin brother of Diana
- God of music, healing, light and truth

Apollo

- God of fire, volcanoes, metal work and the forge

Vulcan

- God of translators and interpreters, trade and travel
- Messenger of the gods

Mercury

Queen of the gods
- Wife and sister of Jupiter
- Protector of Rome's women

Juno

- Goddess of agriculture and harvests
- Protector of farmers, pastoralists, and plebeians

Ceres

- Goddess of wisdom, arts, trade and strategy
- Born from the head of Jupiter – she leapt out of his head, fully grown and wearing armour!

Minerva

- Mother of the Roman people
- Goddess of love, beauty, fertility and desire

Venus

- Twin sister of Apollo
- Goddess of the hunt, the moon and birth

Diana

- The sacred fire of the Vestal Virgins
- Goddess of hearth, home and family

Vesta

▲ **Source 3.38** An artist's impression of the main gods of Rome

would leave offerings to particular gods and ask for help in their lives. For example, a person might leave an offering to the god Apollo, the god of healing, if they were unwell. If they were preparing for battle, they might pray to Mars, the god of war.

Ancient Romans worshipped the gods in the many temples that were built across the Roman Empire. People also worshiped the gods in their homes and set up shrines for their household and favourite gods.

As ancient Rome was a polytheistic society, Romans were very accepting of other gods. When the Romans conquered other societies and incorporated them into the Roman Empire, they allowed the conquered people to keep their own gods, rather than forcing them to adopt the Roman gods. This made it easier for Rome's new subjects to accept living under Roman rule and contributed to the stability of the Roman Empire. In some cases, as the empire expanded, the Romans even began to worship some of these foreign gods themselves, such as the Egyptian god Isis, who had a temple built for her in Pompeii.

Over time, the role of the emperor became partly religious. After the death of the first Roman emperor, Augustus, it was believed that all emperors would become gods when they died. Across Rome's empire, its subjects built temples to honour and worship the deceased emperor and his family. These temples were a way of displaying loyalty to Rome and were a reminder to the locals of the fact that they were part of the empire.

When thinning a grove of trees, it is essential to observe the following Roman ritual. Sacrifice a pig as a … offering and repeat the following prayer: 'Whether you are a god or goddess to whom this grove (of trees) is sacred … I pray in good faith that you will be benevolent and well-disposed to me, my home, my family, and my children. For these reasons therefore be honoured by the sacrifice of this pig …'

▲ **Source 3.39** Advice written around 160 BCE from the Roman author, Cato the elder, to Roman farmers, on how to ensure the forest spirits were soothed when a grove of trees was cut down. For Roman farmers, religion was a necessary aspect of farming and successful harvests.

… after they have captured a town, when brutality in victory might be expected, the Romans pay honour to the gods of the conquered people. They invite to Rome gods from all over the world, and they make them their own … and thus, while the Romans were adopting the religious rites of all nations, they also won for themselves an empire.

▲ **Source 3.40** An extract from a work titled *Octavius*, written around 197 CE by a Christian writer named Minicius Felix. This source provides an insight into how Rome treated the religious beliefs of its subjects.

RESPONDING TO THE SOURCES — 3.10

1 Copy the table below into your notes. This table lists some requests that ancient Romans may have asked of their gods. Using the information in Source 3.38, **identify** the god(s) that they might have sought assistance from for each request.

Request	Which god(s) would ancient Romans have sought assistance from?
For a safe voyage across the sea	
For good fortune in romantic relationships	
For success in a battle	
For good fortune in the household	
For a plentiful harvest	
For a new mother to have a safe birth	
For a public musical performance to be successful	

≫

2 **Suggest** how the ancient Romans' beliefs in the gods might have affected their everyday actions and behaviour.

3 **Analyse** Source 3.39. What advice did Cato give farmers? What might Cato have believed would occur if the advice was not followed?

4 **Explain** what Source 3.39 suggests about what the ancient Romans believed in relation to the role played by gods and spirits in everyday life.

5 Use evidence from Source 3.40 to **describe** how Rome treated the religions of the societies it conquered. How might this have helped the long-term success of the empire?

MAKING THINKING VISIBLE 3.5

I used to think … now I think …

This activity shows you a routine for reflecting on how and why our thinking has changed.

1 Take a minute to **consider** what ideas you had about religion in ancient Rome before beginning this section. When you are ready, complete the following phrase:

'I used to think that religion in ancient Rome …'

2 Now, **compare** how your ideas about religion in ancient Rome have changed as a result of the information and sources you have read in this section. In just a few sentences, write down what you now think about religion in ancient Rome. When you are ready, complete the following phrase: 'Now I think that religion in ancient Rome …'

3 As a whole class, **discuss** how your ideas about religion in ancient Rome have changed as a result of what you have learned in this section. What questions do you still have about religion in ancient Rome?

REFLECTING ON YOUR LEARNING 3.5

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What role did religious beliefs, values and practices play in ancient Rome's success?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.
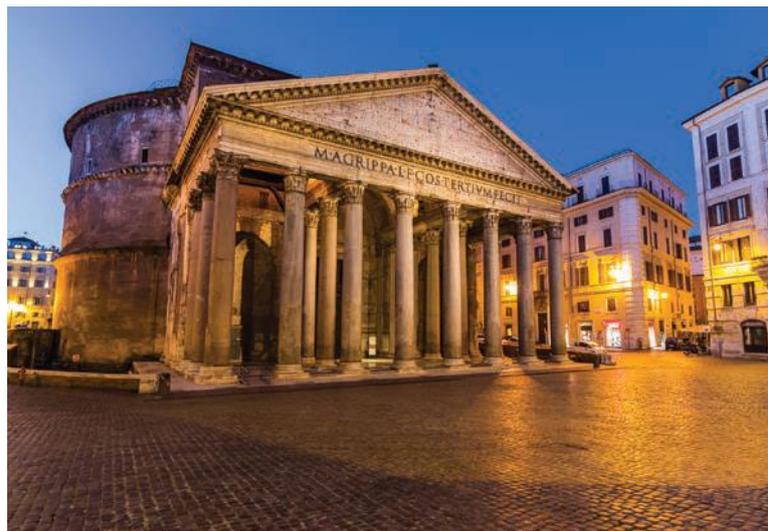
▲ **Source 3.41** The Pantheon in modern Rome

3.6   How did ancient Rome benefit from contact and conflict with other societies?

FOCUS QUESTIONS

- What role did Rome's army play in the development of the empire?
- How did ancient Rome benefit from contact and trade with other societies?
- What was life like for those living under Roman rule?
- How did the Roman Empire end?

As you can see in the timeline and map at the beginning of this chapter, ancient Rome grew from being a small settlement to a city that controlled one of the largest empires the ancient world had ever seen. Rome's navy controlled the Mediterranean Sea, and its army conquered most of Europe, North Africa and the Near East.

As you read through the sources and information in this section, consider how Rome was able to build and maintain control over a large empire for such a long time. How did Rome benefit from this empire? What did the people conquered by Rome think about their rulers? What do you think was the main factor in the success of Rome's empire?

What role did Rome's army play in the development of the empire?

The ancient Roman army was incredibly large, very well trained and highly organised. It enabled Rome to invade and conquer neighbouring peoples, even those who were as good at fighting as they were themselves.

The ancient Roman army was divided into legions, which were groups of around 5000 **legionaries** and a further 5000–6000 **auxiliary** soldiers. There were approximately 30 legions stationed around the Roman Empire, mainly on the borders of the empire where it was less peaceful.

> **legionary** a soldier in a Roman legion, which was a section of the Roman army
>
> **auxiliaries** non-citizen troops recruited from non-Roman tribes

As if born for the sole purpose of wielding arms, they never take a break from training, never wait for a situation requiring arms. Their practice sessions are no less strenuous than real battles. Each soldier trains every day with all his energy as if in war … no confusion causes them to break from their accustomed formation, no fear causes them to shrink back, no exertion tires them. Certain victory always attends them since their opponents are never equal to them …

The Romans are never caught unexpectedly by an attack of the enemy. Whatever hostile territory they invade, they do not engage in battle until they have built a camp …

Absolute obedience to the officers creates an army which is well behaved in peacetime and which moves as a single body when in battle – so cohesive are the ranks, so correct are the turns, so quick are the soldiers' ears for orders, eyes for signals, and hands for action …

I have discussed the army at some length not so much wishing to praise the Romans as wanting to console those they have conquered and to deter those thinking about revolt.

▲ **Source 3.42**   A description of the reasons for the success of the Roman army, written by an author named Flavius Josephus, in the late first century CE. Originally from Jerusalem, Josephus participated in a rebellion against Rome and was taken prisoner but was later freed and became friends with the emperor, Vespasian. He was highly impressed with Rome's military strength.

We see that the Roman people have subjugated the whole world by no means other than thorough training in the use of weapons, strict discipline in military camps, and practice in warfare … We owe our success against all other people to our skilful selection of recruits; to our teaching, as I mentioned earlier, of the use of weapons; to our hardening the soldiers with daily exercise; to our acquainting them in field manoeuvres with everything that can happen on the march and in battles; and to our severe punishment of idleness …

Young soldiers must very frequently be required to carry loads up to [twenty kilograms] and to march at the military pace (approximately thirty kilometres in five hours), for on arduous expeditions there will be pressing need for them to carry food supplies as well as arms …

Every recruit must learn how to construct a camp. Nothing else is found to be so advantageous and so necessary in war. If a camp is built correctly … it is like carrying around a walled city with you everywhere …

▲ **Source 3.43** A description of the qualities of the Roman army, by an author named Vegetius, writing in the late fourth century CE. Almost nothing is known about Vegetius's background.
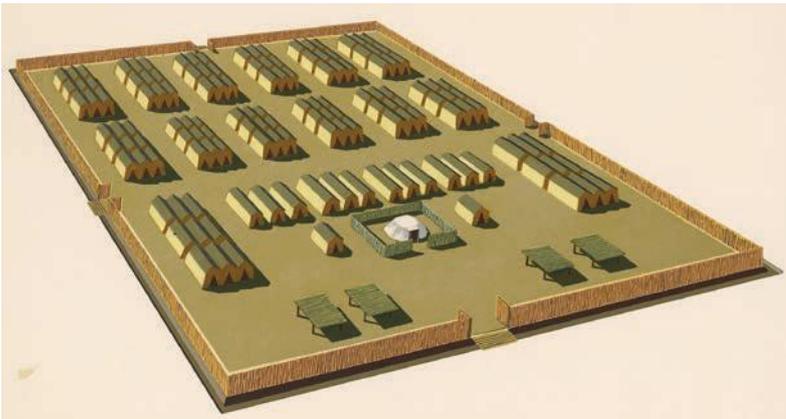
▲ **Source 3.44** A Roman soldiers' camp. This image is an artist's impression of a Roman legionary camp.

▲ **Source 3.45** Scenes of the Roman army. This section of Trajan's column – a monument built in the city of Rome by the emperor, Trajan – tells the story of his victory over an enemy called the Dacians. The scenes on this monument provide us with a valuable insight into the practices of the Roman army (c. 106 CE).

RESPONDING TO THE SOURCES — 3.11

1 Use Sources 3.42, 3.43 and 3.44 to **identify** and **explain** at least three advantages the Roman army had over its opponents.

2 In Source 3.42, Josephus mentions his reasons for writing about the Roman army. **Identify** those reasons.

3 **Compare** Sources 3.42 and 3.43. In what ways does the information in Source 3.43 corroborate the information in Source 3.42?

4 **Identify** what new information Source 3.43 provides about the Roman army that was not stated in Source 3.42.

5 Between the authors of Sources 3.42 and 3.43, which one would you consider to be a more reliable source of information on the Roman army? **Explain** your response.

6 With a partner or in a small group, **analyse** the images on Trajan's column (Source 3.45). **Discuss** your answers to the following questions:

   a What details do you notice in the scenes that might provide evidence of the strengths and advantages the Roman army had as a fighting force?

   b Given that this was a monument made by ancient Romans to celebrate Rome's victory over the Dacians, how reliable do you think it is as a source of information about this battle?

   c What does the creation of a sculpture like this tell us about the image of ancient Rome that the Romans wanted to project?

»

»

7 **Create** an enlistment poster to attract new recruits to the Roman army. You may wish to **conduct** some additional research online to help with this task. Your poster should include:

a At least one image

b A call to action (e.g. 'Enlist now!')

c At least three reasons why new recruits would benefit from joining the Roman army.

How did ancient Rome benefit from contact and trade with other societies?

The Roman army's successful invasion of territories – as shown in Trajan's column (Source 3.45) – gave ancient Rome access to valuable goods. For example, gold, silver and salt were taken from Dacia, and after Britain was conquered, it supplied lead, tin and woollen products to Rome.

The Roman Empire was also wealthy because of trade. Goods were traded within the empire and with neighbours. Within the empire, wine, olive oil and pottery were produced and swapped with neighbours in Africa and the Middle East, often for

luxury items that the Roman Empire could not produce, such as silks, spices and dyes. People were also traded as slaves across the Mediterranean Sea. There is even evidence suggesting that the Roman Empire traded with China and India.

Ships were used to transport goods and roads were built to move goods across the land.

Today, many Roman roads still exist. The roads were originally built to move tradeable goods and to allow the army to move around the empire.
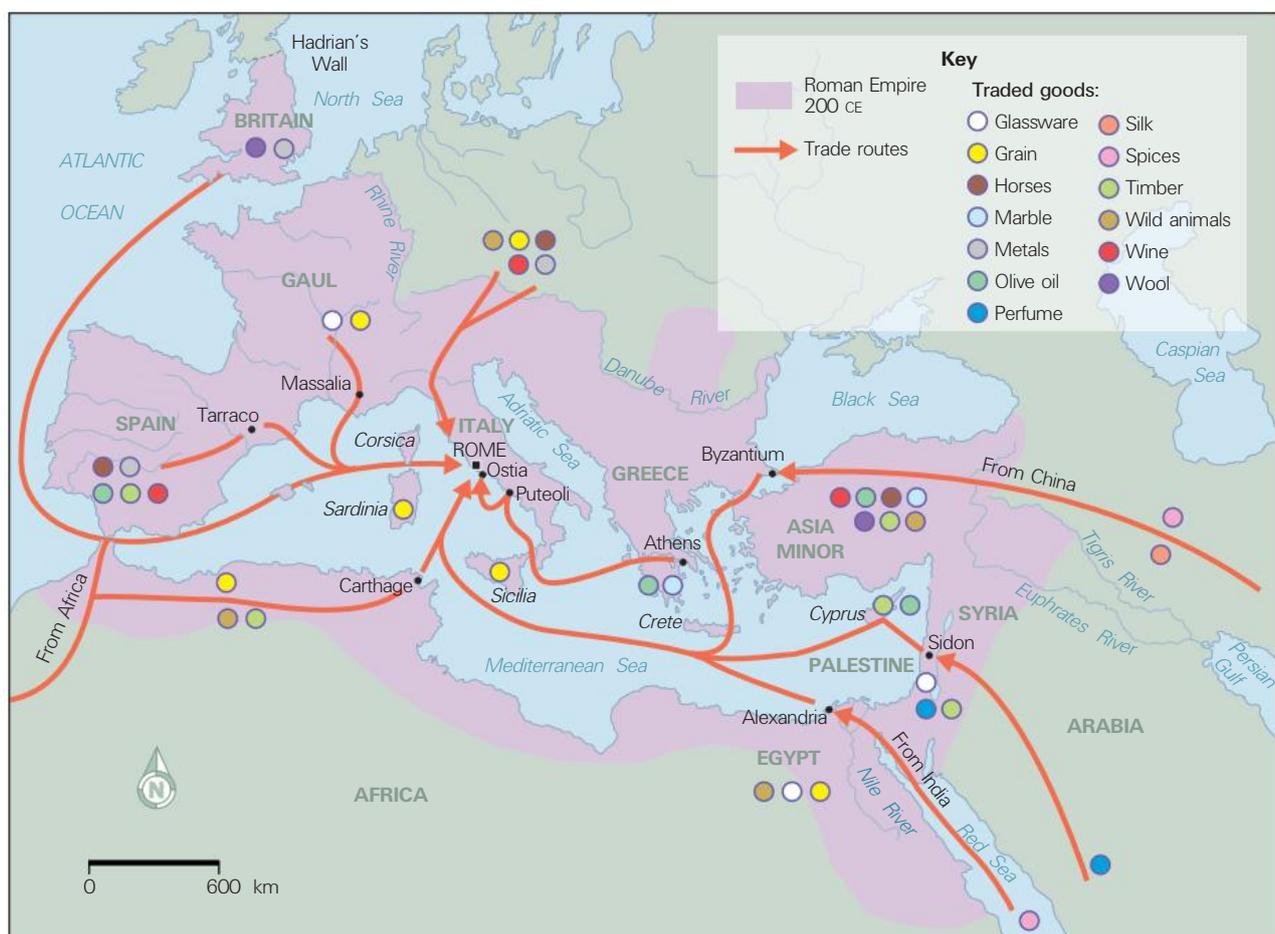
▲ **Source 3.46** Trading valuable goods. This map shows the Roman Empire's main trade routes, and the goods traded, around 200 CE.

Large continents lie all around the Mediterranean, and from them, to you, flow constant supplies of goods. Everything is shipped to you, from every land and from every sea – the products of each season, of each country, of each river and lake, the crafts of Greeks and other foreigners. As a result, if anyone wants to see all these items, he must either travel through the whole world to behold them, or live in this city. Everything that is grown or manufactured by each people is not only always present here, but is present in abundance. So many ships land here bringing cargo from all over, during every season, after every harvest. And thus the city seems like a common market for the world. You can see so many cargoes from India or, if you wish, from Arabia Felix … clothing from Babylonia and ornaments from foreign lands beyond arrive here … Egypt, Sicily, and the cultivated part of Libya are your farms. The arrival and departure of ships never cease … Everything comes together here: trade and commerce, the transportation industry, agriculture, metallurgy, every skill which exists now and has existed, all that is produced and grows.

▲ **Source 3.47** A description of the city of Rome by the Greek writer Aelius Aristides, who lived in the second century CE

RESPONDING TO THE SOURCES — 3.12

1 Use the map in Source 3.46 to **describe** the items Rome imported from:

   a Egypt   **b** China   **c** Greece.

2 **Identify** three items imported by Rome described in Source 3.47.

What was life like for those living under Roman rule?

While there were occasional rebellions and revolts against Roman rule, for the most part, Rome's subjects were probably content to be part of the Roman Empire – not that they had a choice! Being a subject of Rome meant access to Roman citizenship, the benefits of Roman technology and culture, and relative peace under the protection of Rome's legions. In fact, the term *pax Romana* ('the Roman peace') was coined by the ancient Romans to describe life in the Roman Empire.
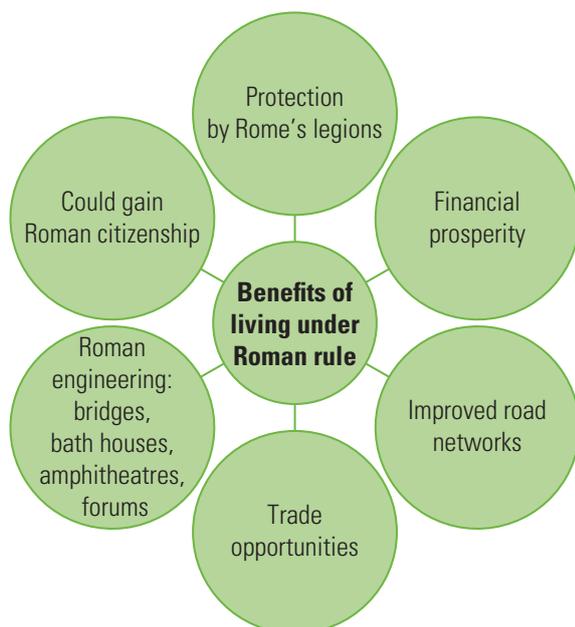
Tyranny and war always existed in Gaul until you yielded to our authority … (we) have imposed on you only this one demand: that you pay the costs of keeping peace here [through taxation].

In other respects we are equals. You yourselves often command our legions and govern this and other provinces. You are in no respect excluded or shut out. Although you live far from Rome, you enjoy as much as we do the benefits of praiseworthy emperors …

… if the Romans are driven out – may the gods forbid! – what situation could exist except wars among all these races? … you have gold and natural resources, which are the chief causes of war. Therefore, love and cherish peace and the city of Rome, which you and I, conquered and conqueror, hold with equal rights.

▲ **Source 3.49** Part of a speech by a Roman general who prevented a revolt by Rome's subjects in Gaul, present-day France, in 70 CE. The speech was actually written by the historian Tacitus, who wrote it based on what he thought the general might have said.

Protection by Rome's legions

Could gain Roman citizenship

Financial prosperity

Benefits of living under Roman rule

Roman engineering: bridges, bath houses, amphitheatres, forums

Improved road networks

Trade opportunities

▲ **Source 3.48** The possible benefits of living under Roman rule

… the Romans, whose oppression you have in vain tried to escape by obedience and submission. Plunderers of the world they are, and now that there is no more territory left to occupy their hands which have already laid the world waste, they are scouring the seas. If the enemy is rich, they are greedy; if the enemy is poor, they are power-hungry …

They rob, they slaughter, they plunder – and they call it 'empire.' There they make a waste-land, they call it 'peace.'

Nature has planned that each man love his children and family very dearly. Yet these are torn from us by conscription to be slaves elsewhere … our possessions and our money are consumed in providing tribute; our farmland and our yearly produce are consumed in providing them with grain; our very bodies and hands are worn down while clearing forests and swamps for them, who beat and insult us.

▲ **Source 3.50** Part of a speech made at the end of the first century CE by a British war chief named Calgacus, encouraging Rome's subjects in Britain to revolt against Roman rule. The speech was actually written by the historian Tacitus, who wrote it based on what he thought the chief might have said.

▲ **Source 3.51** This Roman bath house is located in Bath, England. How might Roman infrastructure such as bath houses have benefited the people in Rome's empire?
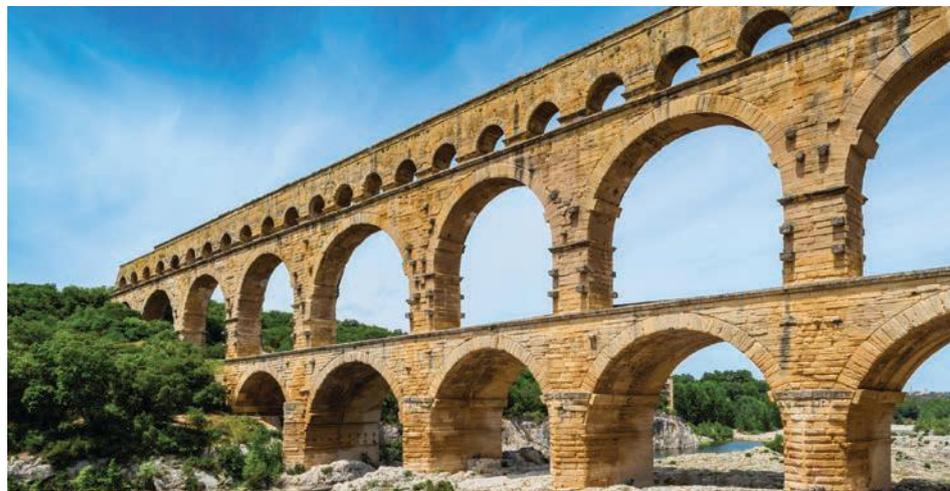
▲ **Source 3.52** This aqueduct (named the *Pont du Gard*) still stands in France today. It was built during the first century CE, to transport water to the Roman colony of Nemausus (now Nîmes). How might Roman engineering such as aqueducts have benefited the people in Rome's empire?

RESPONDING TO THE SOURCES — 3.13

1 Using Sources 3.49 and 3.50, make a list of all of the positives and negatives of life under Roman rule that you can **identify**.
2 Overall, does it seem like there were more positives or negatives to life under Roman rule?
3 Who is the author of Sources 3.49 and 3.50? **Explain** some of the issues in relation to the reliability of these sources.
4 **Conduct** some research into the design and purpose of two Roman technologies that were common across its empire: the bath house (Source 3.51) and the aqueduct (Source 3.52). Discuss this question with a partner: would the bath house or the aqueduct have brought greater benefit to Rome's subjects?

How did the Roman Empire end?

The Roman Empire ended during the fifth century CE. Historians argue over when and how it ended and what caused the empire to weaken. One reason was undoubtedly the invasion of barbarian tribes from a number of the empire's frontiers. These invasions occurred from early in the third century CE.

Germanic tribes invaded from the east, Vandals came from Africa to the south, and Goths from the north, led by Alaric, invaded and sacked Rome in 410 CE (Source 3.53). The Roman Empire was unable to defeat these invading peoples. Ultimately, the western half of the empire was broken up into smaller kingdoms, ruled by the barbarian tribes who had managed to defeat the once invincible Roman army.
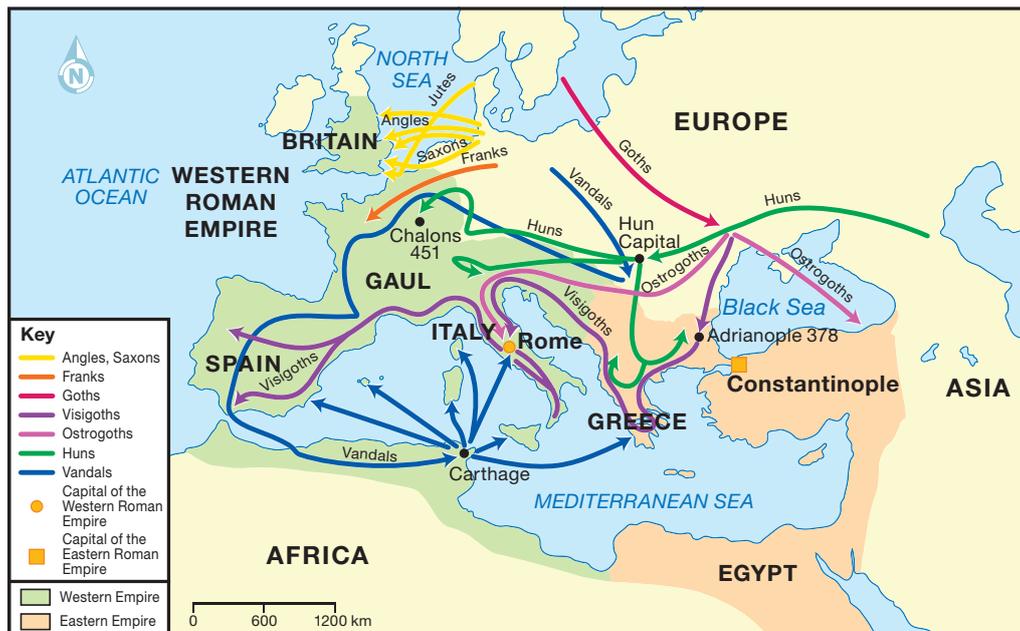
▲ **Source 3.53** The invasion of the Roman Empire. This map shows which groups invaded the Roman Empire, and the routes they took (c. 100–500 CE).

MAKING THINKING VISIBLE 3.6

Generate, sort, connect, elaborate

This is a routine for organising your understanding of a topic through concept mapping. You will **create** a concept map to help you make connections between your ideas.

1 With a partner, **consider** the following question: 'Should the Roman Empire be remembered today as a period of peace and harmony, or fear and oppression?'

2 Review and **reflect on** what you have learned about the features of the Roman Empire in this chapter. You may conduct additional research if you wish.

3 **Generate** a list of ideas on the topic you have explored.

4 **Structure** your ideas on a blank page, placing central ideas in the middle of the page and more loosely related ideas towards the outside of the page.

5 **Connect** your ideas with lines to show which concepts have something in common or are connected in some way. Write a short explanation along the line to explain how the ideas are connected.

6 **Elaborate** on your concept map by adding new ideas and concepts that come to mind.

REFLECTING ON YOUR LEARNING 3.6

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did ancient Rome benefit from contact and conflict with other societies?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

3.7   What role did individuals, such as Julius Caesar, play in making ancient Rome successful?

FOCUS QUESTIONS

- How did Julius Caesar come to power?
- What were Julius Caesar's main achievements?
- Hero or villain: how was Julius Caesar perceived by his contemporaries?

To answer the inquiry question (What made ancient Rome a successful civilisation?), it can be useful to look at the impact particular individuals had on the success of the civilisation. Julius Caesar (100–44 BCE) is well known for being assassinated for trying to rule Rome as a dictator for life. However, his political and military career can be used as an example of the ways individual Romans helped to increase the success of their civilisation.

Some questions to consider as you read the information and sources in this section are:

- How did individuals like Julius Caesar contribute to ancient Rome's success?
- What methods did ancient Romans like Julius Caesar use to gain success?
- How should we view Julius Caesar today?

How did Julius Caesar come to power?

Julius Caesar was one of the most famous political and military leaders of ancient Rome. He was a very popular politician and a highly successful general who won many battles in the region of Gaul, now modern-day France. Caesar contributed to his own fame by writing biographical accounts of his own military campaigns and victories. He also became the lover of the most powerful woman in Egypt, the queen or pharaoh, Cleopatra VII.

Although Caesar was popular among his soldiers, members of the Roman Senate feared his growing popularity and power, believing that it would cause problems in
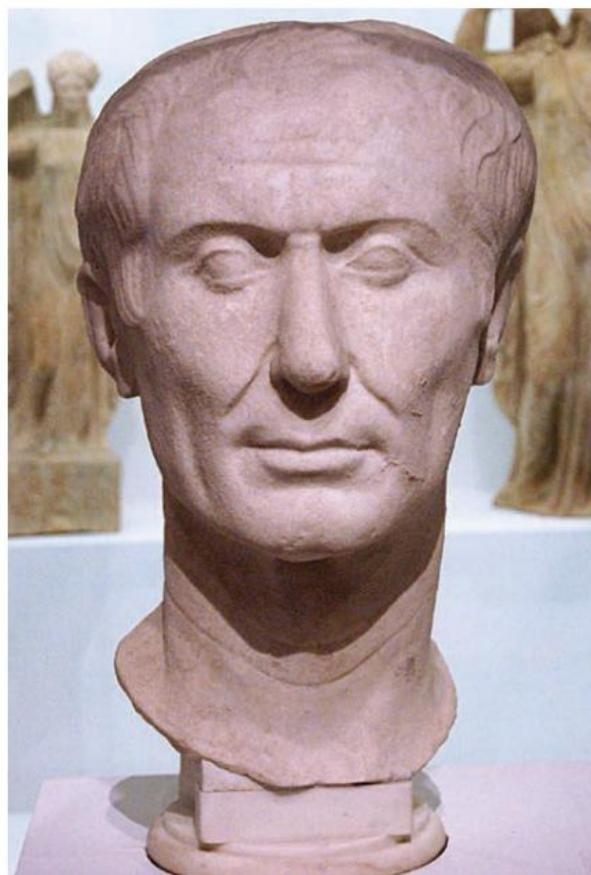
▲ **Source 3.54** Known as the 'Tusculum portrait', this is believed to be the only surviving portrait of Julius Caesar that was produced during his lifetime (c. 100–44 BCE). Would you describe this portrait as glamourised or realistic?

Rome if a single individual was too powerful. This led to a civil war between Caesar and the Senate, which Caesar won.

In power with no real opposition, Caesar was eventually declared to be the dictator of Rome for life. However, in 44 BCE, a group of high-ranking Roman nobles killed Caesar by stabbing him to death, declaring to the people of Rome that they had done so for the good of the republic.

What were Julius Caesar's main achievements?

▲ **Source 3.55** This map of the Roman Empire shows the territories that Julius Caesar conquered before his death in 44 BCE.
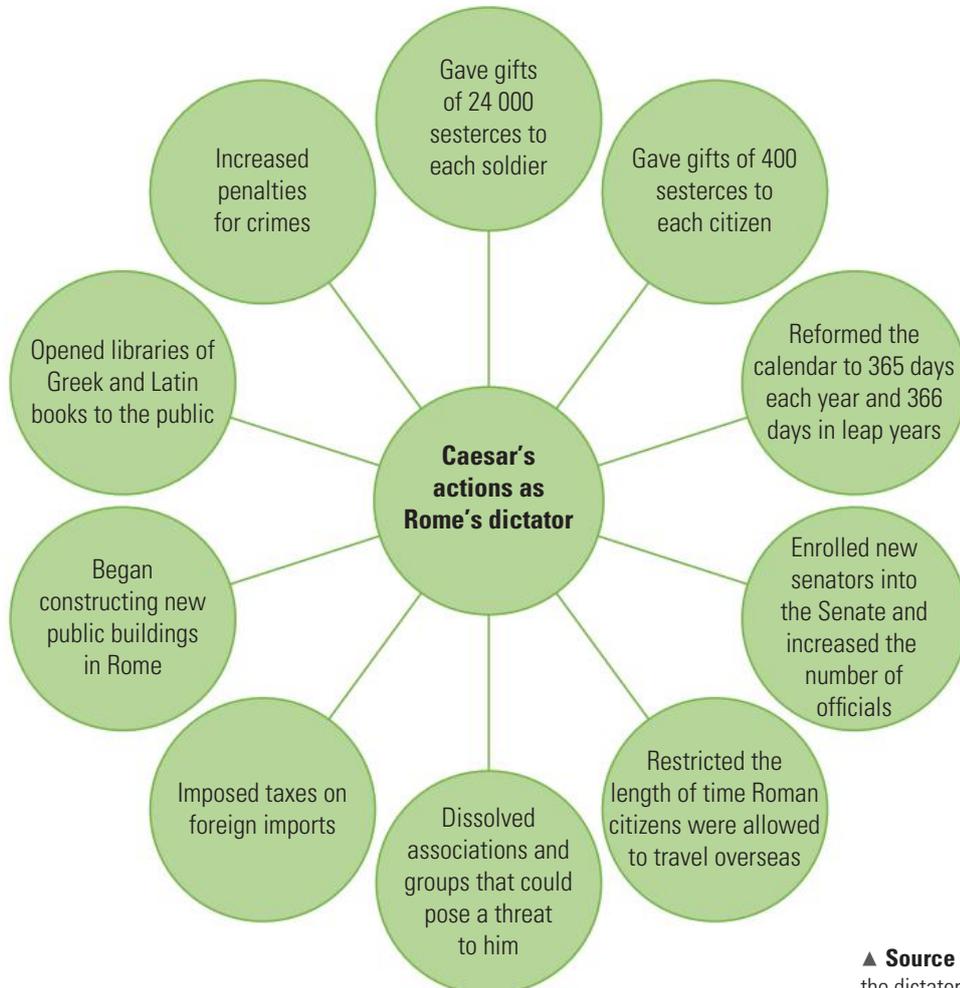
▲ **Source 3.56** Julius Caesar's actions as the dictator of Rome

RESPONDING TO THE SOURCES — 3.14

1 Using Source 3.55, **explain** how Julius Caesar contributed to the success of the Roman Empire.
2 **Consider** Caesar's actions shown in Source 3.56. With a partner, **discuss** what Caesar's motives might have been for each action – in other words, was this action made to benefit Rome, or to benefit himself?
3 Out of Caesar's actions in Sources 3.55 and 3.56, which one do you think had the most significant impact on the world? **Explain** your reasoning to a partner.

Hero or villain: how was Julius Caesar perceived by his contemporaries?

Does Julius Caesar deserve to be seen as a great Roman hero, or as a villain who sought only to benefit himself? Read the following sources relating to Julius Caesar to help you develop your own opinion of this famous Roman.

Caesar was a most skilful swordsman and horseman and showed surprising powers of endurance. He always led his army, more often on foot than in the saddle, went bareheaded in sun and rain alike, and could travel for long distances at incredible speed … If Caesar's troops gave ground, he would often rally them in person, catching individual fugitives by the throat and forcing them round to face the enemy again … He always addressed his soldiers not with 'My men', but with 'Comrades' … which put them into a better humour. He fixed the daily pay of the regular soldiers at double what it had been and occasionally gave each man a slave.

▲ **Source 3.57** The Roman historian, Suetonius, writing around 110 CE, describes Julius Caesar's relationship with his soldiers.

There was also a great crowd of women and children in the German camp … They began to flee in all directions, and were hunted down by the cavalry which I sent out for the purpose … A large number (of the Germans) were killed, and the rest plunged into the water and perished, overcome by the force of the current in their terror-stricken and exhausted state …

▲ **Source 3.58** Julius Caesar, writing around 52 BCE, describes a massacre of German tribespeople given under his orders. The tribe was looking for land in Gaul to settle on but was forced by Caesar to move elsewhere. Caesar imprisoned the leaders of the tribe when they came to him to seek peace and used the opportunity to launch a surprise attack on the now leaderless tribe. The result was a massacre of perhaps tens of thousands of people.

(Caesar) decided to deter all others by making an example of the defenders of Uxellodunum (a settlement in Gaul Caesar was trying to conquer). All who had used weapons [against him] had their hands cut off and were then let go, so that everyone might see what punishment was given to evildoers.

▲ **Source 3.59** Hirtius, one of Caesar's friends and a general who participated in the Gallic War, wrote this account of one of the final battles of the war (c. 42 BCE).

Caesar, victorious over all his enemies, returned to Rome, and pardoned all who had fought against him, an act of generosity almost beyond belief. He entertained the city with the magnificent spectacle of a gladiatorial show, a pretend battle of cavalry, infantry, and even mounted elephants … [His friend Mark Antony] had brought great **odium** upon Caesar by placing a royal crown on his head … [Caesar removed the crown] but in such a way that he did not seem to be displeased.

odium intense hatred or dislike

▲ **Source 3.60** Velleius Paterculus, a historian writing around 20–30 CE, described Caesar's actions after winning the civil war in Rome.

Our tyrant deserved his death … here you have a man who was ambitious to be king of the Roman people and master of the whole world; and he achieved it! The man who maintains that such an ambition is morally right is a madman, for he justifies the destruction of law and liberty …

▲ **Source 3.61** After the assassination of Caesar, the Roman politician and author Cicero wrote these words about Julius Caesar's death (c. 44 BCE).

RESPONDING TO THE SOURCES — 3.15

1 Copy the table below into your notes. **Analyse** and **evaluate** Sources 3.57 to 3.61, then complete the table.

Source	Describe the source – what is it? Who is it by?	Analyse the source – what does it say or show? What impression might it give of Julius Caesar?	Evaluate the source – does this support the view of Julius Caesar as a hero, or as a villain?
3.57			
3.58			
3.59			
3.60			
3.61			

2 **Develop** a paragraph in response to the question: 'Should Julius Caesar be considered a hero or a villain?'

ACTIVITY 3.5

Role-play: the courtroom of history!

Conduct a role-play of a mock trial of the conspirators who killed Julius Caesar.

1 Divide the class into two groups: the prosecution (who will argue that Julius Caesar was unfairly killed) and the defence (who will argue that the conspirators were right to fear Caesar).

2 Using the sources provided in this section, as well as additional research, each group will prepare arguments for their side of the trial. It may not be practical for all students to speak, so you may wish to select some representatives from each group to present their side's case.

3 Perform the trial as a class. You may wish to nominate someone to act as the judge/jury to decide which side has the stronger argument.
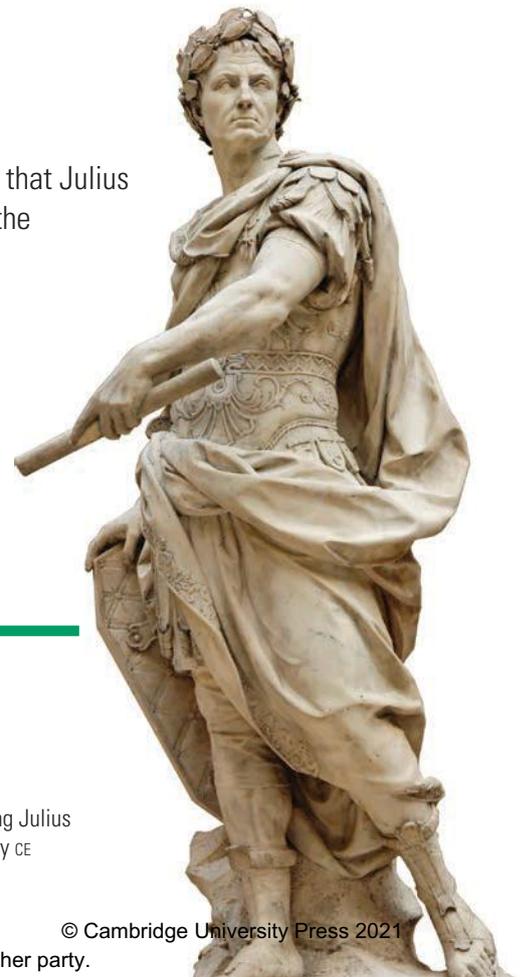
▶ **Source 3.62** A statue depicting Julius Caesar, created by the 17th Century CE artist Nicolas Coustou

MAKING THINKING VISIBLE 3.7

Attitude scale

1 **Conduct** a class discussion: 'Should Julius Caesar be seen as a hero or villain of ancient Rome?'

2 In your class, **create** an 'attitude scale' from one end of the classroom to the other. At each end, place the absolute opposing viewpoints:

- Hero
- Villain.

3 Each student is to stand along the scale in the place that represents their attitude to whether Julius Caesar was a hero or a villain. Students are to **justify** why they are standing where they are.

4 After hearing the viewpoint of others in the class, students can move to a different position on the attitude scale. Again, students are to **justify** why they are standing where they are.

REFLECTING ON YOUR LEARNING 3.7

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What role did individuals, such as Julius Caesar, play in making ancient Rome successful?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What made ancient Rome a successful civilisation?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

END-OF-CHAPTER REFLECTION

Step one: reflect on your sub-inquiry questions

At the end of each section of this chapter, you were asked to **reflect on** how the information in the section related to the overall inquiry question:

'What made ancient Rome a successful civilisation?'

1 For each of the sub-inquiry questions below, write a brief response (approximately two to three sentences) to **reflect on** the sub-inquiry question. Do you feel that you have a good understanding of each section of this chapter?

- How did ancient Rome's location and physical features influence its success?
- What was life like for different social classes in ancient Rome and how did they contribute to its success?
- What was life like for women in ancient Rome and how did they contribute to its success?
- What was life like for slaves in ancient Rome and how did they contribute to its success?
- What role did religious beliefs, values and practices play in ancient Rome's success?
- How did ancient Rome benefit from contact and conflict with other societies?
- What role did individuals, such as Julius Caesar, play in making ancient Rome successful?

(If you prefer a visual approach, you could to do this as a mind map instead.)

»

Step two: reflect on the key inquiry question

2 Now, based on what you have learned in this chapter, write a short paragraph in response to the question: 'What made ancient Rome a successful civilisation?'

Step three: future questions

3 Based on your learning in this chapter, what questions do you have about ancient Rome?

4 **Reflect on** the questions you or your classmates raised at the beginning of the chapter at the end of the 'Setting the scene' activity. Have you answered most of these questions? Which questions have not been answered?

End-of-chapter assessment 3

1 Project

Roman artefact assignment

A project assesses students' responses to a single task, stimulus, question, situation or scenario. A project gives students authentic opportunities to demonstrate their historical knowledge, understanding and skills.

Scenario

The use of replica artefacts is becoming more common in museums, particularly in Australia, as it saves the time and cost of transporting the originals and reduces the risk of damaging priceless items by shipping them overseas.

Your task is to **create** a display for a new ancient Roman exhibition at the Queensland Museum. Your display will consist of a replica of an ancient Roman artefact, as well as a two-paragraph object label to describe the artefact to museum visitors.

Step 1: Select *one* of the following areas to focus your research on:

- Warriors and warfare (armour, weapons, fighting techniques, technology, historical battles and wars)
- Daily life (health, government, laws, housing, women's lives, children's lives, slavery)
- Religion (beliefs, rituals, death and burial, gods)
- Architecture (aqueducts, forum buildings, the Colosseum, the Pantheon, temples, tombs, theatres, monuments)
- Another topic with your teacher's approval.

Step 2: Complete some background research on your topic and **identify** an artefact that is relevant and useful for gaining a better understanding of the topic.

Step 3: Copy the analysis table below into your notes. Then use it to **analyse** your artefact.

Analysis questions	Your response
What are the features of the artefact? What is the artefact? (text type) When was it created (and by who, if known)? (origin) What was happening at the time the artefact was made that is relevant to the inquiry? (context) Is the artefact a primary or secondary source? Why might this artefact have been created? (motive) Who might have the artefact been created for? (audience)	
How is this artefact useful for learning about ancient Rome? What evidence does the artefact provide about your chosen topic? (explicit and implicit information) Overall, how is this artefact useful for learning about the ancient Roman civilisation and/or reasons for its success? (usefulness)	

Step 4: Create a replica of your artefact. If you are unable to complete this step, just use a photo of the original artefact.

Step 5: Use your analysis table to help you write the two-paragraph object label that will accompany the artefact. It must include paragraphs on the following topics: What are the features of the artefact? How is this artefact useful for learning about ancient Rome? A quick Google image search for 'museum object label' will provide you with plenty of examples and ideas for how to format and present your own object label.

Step 6: Include a reference list that shows at least *four* sources of information for your object label.
Length: 400–600 words

2 Practice examination question

Based on the available evidence, does Julius Caesar deserve to be considered a great Roman leader?

Using Sources 3.55 to 3.61 in Section 3.7, write a paragraph to present an **argument** in response to this question. Make sure you include in-text references, i.e. (Source X) where you refer to evidence.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Depth study 3

The ancient Asia–Pacific world – 60 000 BCE–650 CE

Overview

Powerful ancient societies did not just exist in Europe and the Mediterranean; the Asia–Pacific world was home to the ancient civilisations of India and China during the same period. The cultural beliefs and practices of these unique civilisations have helped shape a region of the world that is close to and important for Australia today. The ancient past of our neighbours has impacted us in ways we often do not realise.

The chapter in Depth study 3 explores the history of ancient China. The content investigates this country's physical features, and the key groups and individuals, beliefs and practices, and major events in this civilisation's history. As you investigate the ancient Asia–Pacific world, think about the similarities and differences between ancient China and the other ancient civilisations you have studied so far.

Learning goals

After completing this Depth study 3, you should be able to answer these questions:

* How do we know about the ancient past?
* Why and where did the earliest societies develop?
* What emerged as the defining characteristics of ancient societies?
* What key beliefs and values emerged and how did they influence societies?

* What were the causes and effects of contact between societies in this period?
* Which significant people, groups and ideas from this period have influenced the world today?

Introducing historical concepts and skills: *continuity and change* and *historical significance*

Throughout the chapter in this Depth study, there will be a special focus on the concepts of **continuity and change** and **historical significance.** This means you will develop your ability to explain what changed and what stayed the same over time, as well as know what the most significant aspects of ancient civilisations were.

Identifying continuity and change is a key skill to have when you are studying history. This Depth study will help you to develop your ability to identify when things change and why, which groups are involved, and what types of things in a culture stay the same and are long-lasting. Determining historical significance is also a crucial skill to develop so that you can study history well. So much happened in the past that you need to be able to identify what is important and what is not. You can look for opportunities throughout this Depth study to develop both of these important skills in history.

▶ **Source A** This photograph shows the sun setting over the Great Wall of China as it looks today.

MAKING THINKING VISIBLE

See, think, wonder

Complete this activity on three post-it-notes.

1 What do you see in this image?
2 What does this image make you think about China at the time this section of the wall was built?
3 What does this image make you wonder? What questions do you have?
4 Divide the class into three groups. Each group is to collate the class's answers to one of the cognitions.

Report back: what did the class see, think and wonder? What patterns emerged? Were there any ideas that stood out?

Extension: follow up on one or more of the wonders and report back with an answer to the class.

CHAPTER 4

Ancient China: what were the characteristics of ancient China and how is ancient China still significant today?

Setting the scene: the terracotta army

In 1974, three farmers in Shaanxi province were digging a well when they came across some pieces of a clay figure. Excavations revealed thousands of life-size clay statues of warriors and horses, which had been buried in the vast tomb of the first emperor of China, Qin Shi Huangdi.

mausoleum a very large and expensive grand tomb

After Shi Huangdi unified China in the third century BCE, his reign was short. But in that time, he oversaw the building of sections of the Great Wall, created a standard for coins, weights and measures, and organised a royal palace and a royal **mausoleum** for himself.

Since the discovery of Qin Shi Huangdi's tomb, four pits have been partially excavated.

The single warrior uncovered by the farmers turned out to be one of at least 8000 individual soldiers. Every terracotta warrior is unique with different facial features, hair styles and positions. There are officers, archers, foot soldiers, charioteers and the horses to go with them. These warriors, which would have taken decades to make, were created to be included in Qin Shi Huangdi's mausoleum to accompany and protect him in the afterlife. The army all face outward from his tomb.

Chinese pronunciation

Chinese words can be tricky for English speakers to pronounce, as the Chinese language uses unfamiliar sounds and tones. Also, Chinese is written in characters rather than with letters, so a system called 'pinyin' was designed to translate characters into the Roman alphabet. English speakers can often sound out words written in pinyin as most of the vowels represent similar sounds to those in English. However, some of the consonants are very different. Here is a quick guide to help you with some of the differences.

c   'ts' as in lots

j   'j' as in jet

q   'ch' as in chop

r   'z' as in haze

x   'sh' as in leisure

zh 'j' as in job

z   'ds' as in woods

So, Zhou dynasty is pronounced 'joe' dynasty, while Xia is 'Shaa' and Qin is 'Chin'.

A dilemma has arisen for archaeologists and conservators attempting to excavate the tomb. While everybody is keen to uncover as much as possible, there have been serious difficulties in looking after the items that have already been found. Almost all the terracotta warriors were broken when they were discovered. Most of the warriors that you can now see on display are the smooth sandy colour of terracotta, but when they were first entombed, each one was brilliantly painted. Exposure to the air causes much of the paint to immediately shrink and flake from the terracotta. Scientists have worked to develop methods of uncovering new warriors and preserving the paint before it can disintegrate, but so far this has only been partially successful.

MAKING THINKING VISIBLE 4.1

Compass points

The terracotta army is a valuable source of information about ancient China, but unearthing it is harming the artefacts. In groups, decide what should happen next: continue to excavate the tomb or leave the remaining artefacts in the ground?

Use the 'compass points' below help you make a decision:

1 **E – Excited**. What excites you about further excavations? What are the positives?
2 **W – Worrisome**. What do you find worrisome about this proposition? What are the negatives?
3 **N – Need to know**. What else do you need to know to decide?
4 **S – Stance or suggestion for moving forward**. What is your current opinion on the idea? Give reasons for your decision.

Because of their exceptional technical and artistic qualities, the terracotta warriors and horses, and the funerary carts in bronze are major works in the history of Chinese sculpture … the information to be gleaned [gained] from the statues concerning the craft and techniques of potters and bronze workers is immeasurable.

▲ **Source 4.1** UNESCO World Heritage List

Context statement for Source 4.1

UNESCO is an agency of the United Nations that was established to share and protect information, ideas and culture. The World Heritage List is a list of places that are of outstanding universal value to humanity. They are placed on the World Heritage List to be protected for future generations to appreciate and enjoy.

The emperor was the target of several assassination attempts. Perhaps in response, Shi Huangdi became obsessed with the idea of immortality [living forever] … The ancient army was stationed just east of a necropolis [large cemetery] surrounding the tomb of Qin Shi Huangdi and was meant to stand guard during the Emperor's afterlife. Figures of acrobats and musicians would entertain the emperor through eternity.

▲ **Source 4.2** National Geographic special publication: *The most influential figures of Ancient History* (January 2016)

▲ **Source 4.3** The terracotta army. This photo shows some of the 8000 terracotta warriors buried in Qin Shi Huangdi's tomb.

▼ **Source 4.4** One of the terracotta warriors buried in Qin Shi Huangdi's tomb – traces of paint are still visible.

▲ **Video**
Exploring the Terracotta Warriors

▲ **Source 4.5** Every terracotta warrior was different. Traces of paint are still visible on this warrior's face.
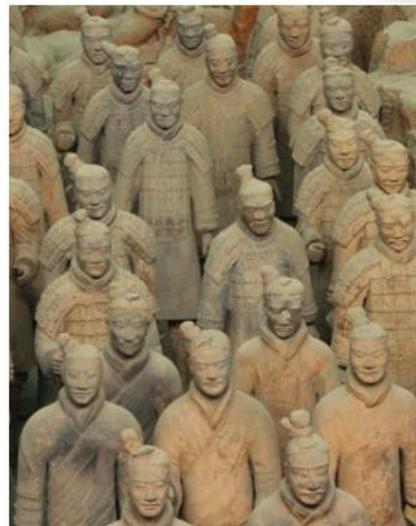
▲ **Source 4.6** These terracotta warriors were found in pit 1.

RESPONDING TO THE SOURCES — 4.1

1 Source 4.1 gives reasons why the discovery of the artefacts in Qin Shi Huangdi's tomb is so important. **Identify** two of these reasons.

2 Using Source 4.2, **identify** the roles that the following groups and individuals were to play in the emperor's afterlife:

   a the army   **b** acrobats and musicians.

3 Using Sources 4.3 to 4.6, **list** the information a historian could gain about ancient China from studying these artefacts.

4 Make your own terracotta warrior using playdough or clay. **Research** the armour, weaponry and appearance of the artefacts that have been uncovered. Remember every warrior is different. What is unique about your warrior? What is similar?

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Chapter overview

Introduction

Powerful ancient societies did not just exist in Europe and the Mediterranean; the Asia–Pacific world was home to the ancient civilisation of China during the same period. The cultural beliefs and practices of this unique civilisation have helped shape a region of the world that is close to and important for Australia today. The ancient past of our neighbours has impacted us in ways we often do not realise.

Key inquiry question

'What were the characteristics of ancient China and how is ancient China still significant today?'

Every key inquiry question should have:

- An open interrogative
- A historical concept
- Specific content
- Scope and scale.

So, let's dissect this key inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

To answer the key inquiry question in a historical investigation it is helpful to break the questions into sub-inquiry questions.

Sub-inquiry questions

After completing this chapter, you should be able to answer these sub-inquiry questions:

- Where did the earliest societies develop in ancient China and what geographic features influenced this development?
- How do we know about ancient China and what different perspectives can historians access to learn about China's ancient past?
- What emerged as the defining characteristics of ancient Chinese religion and social structure?
- Who was a significant individual of ancient China and what did that person achieve?
- How did contact and conflict with other societies change ancient China?
- What have been the legacies of ancient China?

Historical skills

After completing this chapter, you should be able to:

- Sequence events and developments within a chronological framework using dating conventions to represent and measure time
- Devise questions to frame a historical inquiry when researching
- Identify and select a range of sources to answer inquiry questions
- Locate, compare and use information from a range of sources to answer inquiry questions
- Examine sources to provide explanation of points of view.

▲ **Video**
Five interesting facts about Ancient China

Timeline of key events

What came before this topic?

In around 8000 BCE, China's hunter-gatherer societies began to plant and grow grain. Before agriculture developed fully, the Neolithic societies used stone, horn and bone tools. They wore fabric, clothing and animal skins, and had developed increasingly complex pottery designs.

Jade axe c. 4500–2300 BCE

2070–1600 BCE
The Xia **dynasty** rules part of north-eastern China. Societies during the Bronze Age produced harder and more durable metals like bronze by **smelting** copper and tin alloys. These new metals enabled the development of new technologies and improved weaponry.

c. 1200 BCE
Death of Lady Fu Hao, an important **consort** and Shang general

551–479 BCE
Life span of Confucius, an important Chinese philosopher

475–221 BCE
The *Warring States period* where Zhou rule begins to crumble and many states break away to govern themselves; the first parts of the Great Wall are built

2123–2025 BCE
Lifespan of Yu the Great

1600–1046 BCE
The Shang dynasty rules north-central China after the Xia tyrant, Jie, was overthrown in a rebellion by the Shang leader Tang. The stability of the Shang led to numerous advances in science and culture, including the development of writing. Sophisticated bronze-casting techniques were developed, and people moved away from using stone tools. Improvements in agriculture meant that less labour was required to produce food. Workers were freed up to build cities, tombs and canals.

1046–256 BCE
The Zhou dynasty defeats the Shang and rules north-central China. During this time, culture in Ancient China continued to develop. The **well-field system** was used to farm land

771–475 BCE
Spring and Autumn period after the Zhou lose control over the western regions

Bronze *zun* (wine container used in religious rituals) shaped like an elephant from the Shang dynasty, c. 1600–1046 BCE

dynasty a succession of rulers from the same family

smelting process of heating rocks and sediment to extract metals

consort a wife or companion of a ruler

well-field system system under which areas of land were divided into nine sections. Eight of these sections were farmed individually by different peasant families, while one was farmed collectively for the lord who owned the land

Bronze ring-handle with mask, c. 1046–771 BCE

Responding to the timeline

1 **Identify** what the information in the timeline indicates about the way that China was ruled.

2 **Discuss** whether there is evidence from the timeline that women could hold important roles in Ancient China.

3 Refer to the timeline and Source 4.7. How did the territory controlled by China change with each new dynasty? **Determine** how this change had been brought about.

What came after this topic?

Imperial China continued through several more dynasties, including the Mongolian Yuan dynasty, the powerful Ming dynasty and the Manchu Qing dynasty. The dynasties lasted until the removal of the child emperor Pu Yi in 1912 CE.

Detail of a decorated vase from the Ming dynasty

Terracotta warrior from Emperor Qin Shi Huangdi's tomb

221 BCE
Qin Shi Huangdi, who was King of the Qin, conquers the last of the warring states and becomes the first emperor of a unified China

202 BCE–220 CE
The Han dynasty rules China

c. 145 CE
Sima Qian, author of *Shiji* (the *Historical Records*) is born

581–618 CE
The Sui dynasty rules China for a short but significant period; the north and south of China are reunified

627 CE
Wu Zeitan, China's only female emperor, is born

50–121 CE
Lifespan of Cai Lun, reputed inventor of paper

220–589 CE
The *six-dynasties period* where there was some breakup of the Chinese state and six short-lived dynasties ruled from the capital of Jiankang

618–907 CE
The Tang dynasty rules China; many historians regard this period as a golden age of civilisation in China

221–206 BCE
The Qin dynasty rules China

Map

MONGOLIA

Gobi Desert

Taklamakan Desert

GREAT WALL

YELLOW SEA

TIBETAN PLATEAU

EAST CHINA SEA

Yellow River

Yangtze River

Himalayas

Pearl River

PACIFIC OCEAN

INDIA

500 km

Shang dynasty 1600–1046 BCE
Zhou dynasty 1046–256 BCE
Qin dynasty 221–206 BCE
Han dynasty 202 BCE – AD 220 CE
Great Wall of China
Silk Road

BAY OF BENGAL

SOUTH CHINA SEA
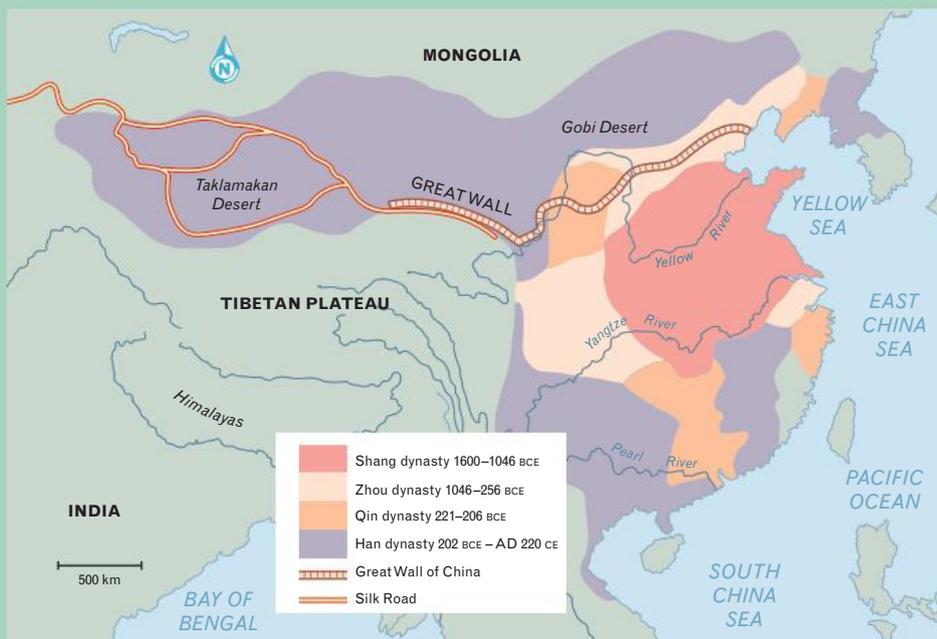
◀ **Source 4.7** The territory controlled by the ancient Chinese dynasties (each new dynasty incorporates the earlier one)

MAKING THINKING VISIBLE 4.2

Know, new, explore

1 **Identify** some ideas from the timeline that you already knew about ancient China.

2 **Identify** some ideas from the timeline that have given you new ideas about ancient China.

3 Which idea from the timeline would be interesting to explore and learn more about? **Justify** your choice.

RESPONDING TO THE SOURCES — 4.2

▼ **Source 4.10** A bronze ring-handle (c. 1046–771 BCE)

▼ **Source 4.9** A bronze *zun*. A *zun* is a wine container that was used in religious rituals (c. 1600–1046 BCE).

▲ **Source 4.8** A jade axe. Jade is a mineral (c. 4500–2300 BCE).

◄ **Source 4.12** A food vessel. This artefact was made from black pottery (c. 4700–3600 BCE).

▲ **Source 4.11** A decorated pot (c. 4700–3600 BCE)

► **Source 4.13** A double cup. This object includes a hollow tube between the two cups that allows liquid to flow from one cup to another. What may this cup have been used for? (c. 2500 BCE)

»

▲ **Source 4.14** A three-legged bronze vessel called a *ding*. *Dings* were used to cook food or to burn incense (c. 1780–1480 BCE).

▲ **Source 4.15** A bronze *jue*. A *jue* is a type of ancient Chinese vessel used to serve warm wine (c. 2000–1600 BCE).

▲ **Source 4.16** An owl-shaped *zun* (c. 1600–1050 BCE).

1 Copy the following table into your notes. Using information from the timeline and Sources 4.8 to 4.16, complete the table.

	Neolithic period	Xia dynasty	Shang dynasty	Zhou dynasty
Time period				
Agriculture				
Materials used				
Technological developments				
Other developments				
One artefact from the dynasty. Justify how you know the artefact is from the dynasty (e.g. the date it was made and one other reason).				

ACTIVITY 4.1

Questions for consideration

Describe one way in which artefacts from ancient China have changed over time. (Your description must give an account of the artefacts' characteristics and features.)

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4.1   Where did the earliest societies develop in ancient China and what geographic features influenced this development?

FOCUS QUESTIONS

- Where did the earliest societies develop in ancient China?
- What geographic features influenced the development of ancient China?

Yangtze River Western mis-naming of the whole river, which is Chang Jiang (long river) while the eastern section (from Nanjing onwards) is locally known as the 'Yangtze' or 'Yangzi' River

To the north and north-east of the Tibetan Plateau lies the Tarim Basin, which contains the Taklamakan Desert. The Tang dynasty of the seventh century was the first to establish control of this region. It was through this region that the main paths of the important trade route, the Silk Road, were travelled.

The core of ancient Chinese culture and civilisation grew in the flat, fertile plains of the country's north-east. The earliest civilisations in China developed along the banks of two key rivers: the Yellow River (1A) and the **Yangtze River** (1B). Both these rivers emerge from the heights of the Tibetan Plateau.
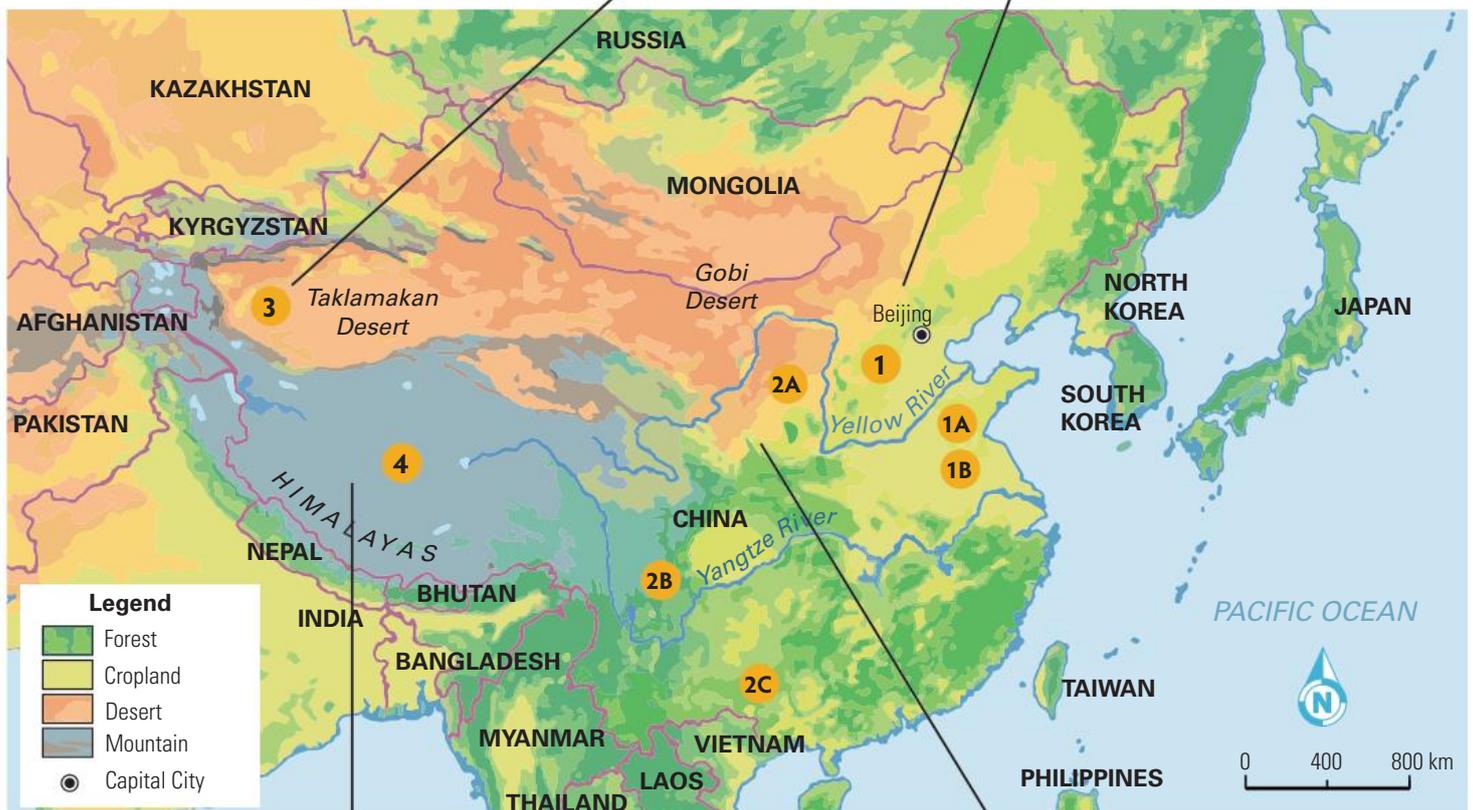
Video

Physical features of Ancient China

The Tibetan Plateau covers a wide area in west China. It consists primarily of a vast plateau that rises around 4.8 kilometres above sea level and is bound by the Himalayan Mountains to the south-west. China first claimed ownership of this land during the Yuan dynasty in the thirteenth century CE.

The central and eastern regions of China include the Loess Plateau (2A) and the Chinese Plain (1) to the north, and the Sichuan Basin (2B) and southern hills to the south (2C).

▲ **Source 4.17** This map shows the geographical features and borders of China.

RESPONDING TO THE SOURCES — 4.3

Use Sources 4.7 and 4.17 to answer the historical investigation question: 'Where did the earliest societies develop in ancient China and what geographic features influenced this development?'

To answer an inquiry question in a historical investigation, it is helpful to break the questions into sub-questions:

1   Where did the earliest civilisations of ancient China develop? What were the geographic features of these first locations?
2   How did these geographic features benefit the ancient Chinese civilisations that settled there?
3   What geographic features may have limited or stopped the expansion of ancient Chinese civilisations? **Identify** the challenges ancient Chinese civilisations faced because of these geographic features.

REFLECTING ON YOUR LEARNING 4.1

Reflect on what you have learned in this section:

1   Based on the information and sources you have encountered in this section and in the timeline, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'Where did the earliest societies develop in ancient China and what geographic features influenced this development?'
2   How could the information and sources in this section and the timeline contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

▲ **Source 4.18** The Yangtze River in modern-day Yunnan Province

4.2 How do we know about ancient China and what different perspectives can historians access to learn about China's ancient past?

FOCUS QUESTIONS

- How do we know about ancient China?
- What different perspectives can historians access to learn about China's ancient past?

Early Chinese history: fact or fiction?

Around 4000 years ago during the Neolithic period, the people living in China decided they no longer wanted to roam the land. The idea of having a stable place to call home was appealing and the banks of the mighty Yellow River seemed like an ideal location to start a civilisation. However, there was a significant problem for communities living along the river. Frequent flooding damaged crops and property, and sometimes the water swept away people. But living near the river was vital to the future of the **fledgling** civilisation. The Yellow River was necessary for trade and agriculture, so a solution needed to be found to manage the river's unpredictability and its destructive power.

fledgling something that is new or young and without much experience

embankments ridges of earth or stone walls used to hold back water

levee earth embankments built along riverbanks to prevent flooding

canal man-made waterway

A man named Gun was chosen to fix the problem. Gun's solution was to use soil to build **embankments** and **levees** that would protect the farms from rising water. However, the strength of the Yellow River's floodwaters proved to be too strong. After nine years of attempting to hold back the water, a devastating flood broke through the embankments and wiped out crops, destroyed buildings and killed many people. Gun was dismissed from his post (possibly executed) and his son Yu was appointed to find a permanent solution.

Yu worked tirelessly for 13 years to protect the people and their farms from the devastation of another flood. He redirected the waters out towards the sea by using a combination of levees and **canals**. The ultimate success of his plans was so appreciated by the people that the then ruler, King Shun, passed the throne on to Yu, rather than to his own son. This is how Yu became the first ruler of the Xia dynasty.

▲ **Source 4.19** These drummers are celebrating the birth of King Yu in twenty-first-century China.

Yu the Great, as he became known after his death, has been revered throughout Chinese history as an ideal ruler. There has long been doubt, however, about whether Yu was a historical figure or a mythological king designed to promote the values of a good ruler. There is no written record that exists from the time of Yu or any artefacts that can be directly linked to him.

Nevertheless, a recent scientific study of the Yellow River Basin has found physical evidence of significant flooding around 1920 BCE. This evidence matches the era identified in later historical writings, which suggests that the story of Yu may be more than myth.

ACTIVITY 4.2

Questions for consideration

Compare the ways Gun and Yu tried to prevent the Yellow River from flooding surrounding areas.

▲ **Source 4.20** King Yu. This painting on silk is from the Song dynasty (960–1279 CE).

Sometimes myths are created to teach important lessons. If King Yu is a myth, what important lessons could people learn from his story?

RESPONDING TO THE SOURCES — 4.4

Explain how Sources 4.19 and 4.20 show that King Yu has been well regarded throughout Chinese history.

Was King Yu a real historical figure?

Like endless boiling water, the flood is pouring forth destruction. Boundless and overwhelming it overtops hills and mountains. Rising and ever rising, it threatens the very heavens. How the people must be groaning and suffering!

▲ **Source 4.21** Emperor Yao describing the flood – quoted in the *Book of History (Shujing)*

Context statement for Source 4.21

Emperor Yao was the father of King Shun. He abdicated (gave up) his throne so that Shun could rule but he was still alive when Shun was king. Shun ruled China at the time of the flood and was a member of the Xia dynasty (2205–2197 BCE).

The *Book of History (Shujing)* was, according to tradition, compiled by Confucius (551–479 BCE). Many copies were destroyed during the rule of Emperor Shi Huangdi (Qin dynasty). The text was reconstructed by Fu Sheng, (a Chinese writer and scholar, who hid a copy of the original text in the walls of his house during the book burnings conducted by Shi Huangdi. After the Qin dynasty ended (206 BCE), Fu Sheng retrieved some of the scrolls to assist him to reconstruct the work.

Legend has it that a great flood engulfed China 4000 years ago. Lasting for more than 20 years, it was finally tamed by the heroic efforts of [King] Yu, whose Xia dynasty marked the birth of Chinese civilisation …

But now we have the first compelling evidence that the flood did actually happen at the time and place chronicled in the legend.

In the Jishi Gorge, along the Yellow River [an archaeological team has] discovered rocks and sedimentary formations that could only have existed as a result of a cataclysmic flood …

'The flood they documented is in the right place and time to explain the origin of Yu's flood,' says David Montgomery of the University of Washington in Seattle …

'It's probably beyond the reach of science to prove the origin of an oral tradition handed down generation to generation for a thousand years before the first written records,' he says. But it … provides another example of how some of humanity's oldest stories – tales often taken as mythology of folklore – may be rooted in natural disasters that really happened.

▲ **Source 4.22** An interview with Professor David Montgomery in the *New Scientist* magazine, 4 August 2016

Context statement for Source 4.22

David Montgomery is a professor of earth and space science at the University of Washington. He holds a PhD in Geomorphology (a study of the features of the Earth's surface).

New Scientist is the world's most-popular weekly science and technology magazine.

RESPONDING TO THE SOURCES — 4.5

1 **Analyse** Sources 4.21 and 4.22. Using the questions in the table below, decide if King Yu was a real historical figure.

Questions	Source 4.21	Source 4.22
What is the source? (text type)		
Who published or compiled the source? (origin)		
When was the source written? (origin)		
What was happening at the time the source was written that is relevant to the inquiry question? (context)		
How long after the period of King Yu and the flood was the source written? (context)		
Is the source a primary or secondary source?		

»

»

Questions	Source 4.21	Source 4.22
Why might this source have been created? (motive)		
Who might the source have been written for? (audience)		
Who is speaking in the source? Provide some information about this person (perspective)		
What evidence does the source provide about the existence of King Yu and/or the great flood? (explicit information)		
From this evidence, what can you say the author's opinion is regarding whether King Yu was a real historical figure? (implicit information)		

2   **Evaluate** Sources 4.21 and 4.22. Using the questions in the table below, decide how useful and reliable these sources are to a historian trying to discover whether King Yu was a real historical figure.

Questions	Source 4.21	Source 4.22
How useful is this source for deciding if King Yu was a real historical figure? What relevant information does it provide?		
In what way is the source not very helpful in answering the inquiry question?		
What are some features of the source that make it trustworthy?		
What are some features of the source that make you doubt its accuracy?		

3   Was King Yu a real historical figure? **Synthesise** evidence from Sources 4.21 and 4.22 to answer this question.

   a   First develop a thesis – a thesis is the answer to your question in a statement with a reason why. For example, King Yu was/was not a real historical figure because …

   b   Combine information from each source to prove your thesis.

MAKING THINKING VISIBLE 4.3

Why do you think that?

Label four areas of the classroom:

- Yes – definitely
- Yes – probably
- No – definitely
- No – probably.

1 Stand in the area of the classroom that matches your opinion on whether King Yu was a real historical figure.

2 A representative from each area is to **justify** why they have taken this stance based on the evidence.

3 After hearing the viewpoints of the different areas, move to a different area if you have been convinced otherwise.

To what extent was Qin Shi Huangdi a good ruler?

Qin Shi Huangdi (259–210 BCE) became King Zheng of Qin in 238 BCE at the age of 21. A previous ruler, Shang Yang, had started conquering other Chinese states. Qin Shi Huangdi completed this task in 221 BCE and gave himself the title of Shi Huangdi, which means 'first emperor'. This was because he believed that uniting all the Chinese lands made him greater than a mere king.

The Qin dynasty was very short compared to the Zhou dynasty it replaced. While the dynasty lasted only 15 years, it was a time of great change. For 11 of those 15 years, Qin Shi Huangdi ruled with an iron fist and began an ambitious plan to reshape the country. He divided the land into 40 different states and appointed governors who were loyal to him to run them. In order to control the leaders of the conquered states, they were all required to live in the Qin capital. This limited their ability to oppose his authority.

Not everyone was happy about Qin Shi Huangdi's way of ruling, so in 213 BCE a group of scholars tried to convince Qin Shi Huangdi to give the states more autonomy. Rather than give in to this request, Qin Shi Huangdi ordered that all books be burned that were not about practical topics like medicine or agriculture. He also ordered that

any scholars who disobeyed him be executed. He believed that the scholars were using history to criticise him, so it was necessary to eliminate any history that did not support his ideas. It was said that 460 scholars were buried alive. Citizens were encouraged to inform on one another and people who were convicted of crimes were executed, mutilated or put to hard labour.
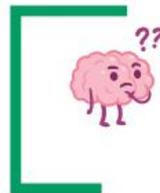
Another group in history who burnt books was the Nazi Party. What kind of books did this group burn? Is it ever acceptable to burn books?

Not all of Qin Shi Huangdi's changes were brutal. Some of his reforms had long-lasting benefits for Chinese society. Qin Shi Huangdi created a set of standards for weights to ensure that all merchants and craftsmen were using the same measurements. He rewrote the laws to make them consistent throughout the country, and he made taxes uniform. To replace the many different kinds of money being used, he adopted a single type of coin: round with a square hole in the centre. These coins could be threaded on to rope or a ribbon to be kept safe. They continued to be used until the modern era.

The writing system was also standardised during Qin Shi Huangdi's rule, so that all states used the same characters. These kinds of changes created consistencies between the various states that unified China as an empire. After the death of Qin Shi Huangdi, the empire rapidly fell to pieces as none of his successors had the power to hold it together. In 202 BCE, Liu Bang, the leader of the Han, declared himself to be emperor and the Han dynasty began.

MAKING THINKING VISIBLE 4.4

Circle of viewpoints

1 As a class, brainstorm different people's viewpoints or perspectives of Shi Huangdi. For example, Shi Huangdi's perception of himself, and the perspectives of loyal governors, scholars, merchants and craftsmen.

2 Choose one viewpoint to **explore**, using these sentence starters:

- I am thinking of Shi Huangdi from the viewpoint of … (the viewpoint you have chosen)
- I think … (describe the topic from your viewpoint; be an actor – take on the character)
- A question I have from this viewpoint is … (ask a question from this viewpoint).

The First Emperor is the sort of person whose heavenly nature is stubborn and self-satisfied … the Supreme One enjoys using punishments and executions as a sign of his authority, and since all under Heaven hang on to their salary in fear of punishment, nobody dares to fulfil his loyal duties. Since the Supreme One does not hear about his faults, he grows more arrogant every day, and his subordinates, cringing in terror, practice duplicity [being two-faced or deceitful] in order to win his forbearance [patience and acceptance].

▲ **Source 4.23** Sima Qian's description of Qin Shi Huangdi

Context statement for Source 4.23

Sima Qian was a historian who is considered to be the father of Chinese history. It is believed Qian was born in about 145 BCE. Qian wrote the *Shiji* (*Historical Records*) – a general history of China – in approximately 94 BCE. Qian was greatly influenced by the work of Confucius. Shi Huangdi tried to have all of the works of Confucius destroyed.

The Chinese historical tradition, in which Records of the Grand Historian (Sima Qian) is the closest Source to Shi Huangdi's era, casts a real *damnatio memoriae* [negative portrayal] on the king, a condemnation [criticism] that practically remains unchallenged in a milieu [time period] dominated by Confucian followers … Shi Huangdi was a strategic thinker, because he accomplished great things, the most important being the unity between [the] Qin state and other rival states. Taking into consideration his decisions and actions, we can underline that he had an authoritarian [controlling] personality, acting as The Supreme One. He was vengeful, unforgiving – being adept of [skilled at] punishments and executions.

▲ **Source 4.24** A psychological analysis of Shi Huangdi, which was published by a group of psychologists in a behavioural sciences journal in 2014

Context statement for Source 4.24

A psychologist is a professional trained in the science of how people think, feel, behave and learn. The journal that this article was published in was peer reviewed. This means that other experts in the field checked the research and claims in the article and deemed them to be accurate.

Why might the followers of Confucius be critical of Shi Huangdi? Why is it important that historians find out as much as they can about the authors of the sources they use to research the past?

The great sage [wise person] created his order,

Establish and fixed the rules and measures …

He instructed the feudal lords;

Brilliantly He spread culture and grace,

Enlightening them through rightness and principle …

Just was He in punishment, trustworthy was He in acting,

His awesome influence radiated to all directions,

And there was none who was not respectful and submissive [obedient].

He boiled alive and exterminated the violent and cruel …

▲ **Source 4.25** An inscription ordered by Shi Huangdi

Context statement for Source 4.25

Shortly after completing his final conquest and uniting the empire of China in 221 BCE, Shi Huangdi, accompanied by members of his court, began to tour the newly conquered regions. On the tops of mountains, Shi Huangdi erected a series of stones that had inscriptions etched into them. These inscriptions were recorded in Sima Qian's *Historical Records*. The inscriptions were designed to express the greatness of the Qin dynasty and the first emperor to these newly conquered lands.
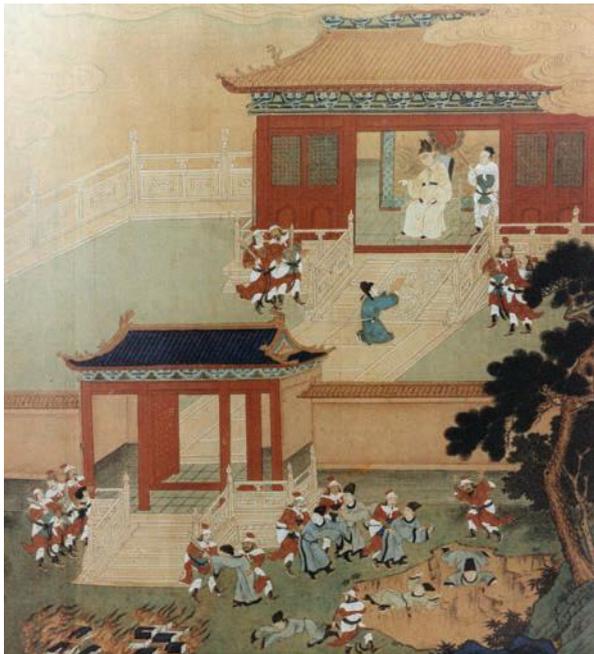
▲ **Source 4.26** 'Killing the scholars and burning the books'. This eighteenth-century painting is by an anonymous Chinese artist.

[Qin Shi Huangdi was] one of the great heroes of Chinese history.

▲ **Source 4.27** A Chinese historian praises Shi Huangdi in 1941 (Feibai, *Qin Shi Huangdi Zhuan*, 1941).

Context statement for Source 4.27

In 1941, when this text was written, China was being attacked by foreign countries and was weak. At this time, historians began to see a strong leader like Shi Huangdi in a positive light. The first emperor had united and strengthened China.

Context statement for Source 4.28

Jia Yi (200–168 BCE) was a Confucian poet who lived during the Han dynasty. The Han dynasty was founded by a rebel leader who overthrew the Qin. The Han portrayed the previous Qin dynasty in a negative light to justify their right to rule. Confucian scholars were also very negative about Shi Huangdi as he had burned the writings of Confucius and buried Confucian scholars alive.

Later when the First Emperor ascended [the throne] he flourished and furthered the accomplishments of the six generations before him. Brandishing his long whip, he drove the world before him; destroying the feudal lords, he swallowed up the domains of the two Zhou dynasties … He then abolished the ways of ancient sage kings [wise kings from the past] and put to the torch the writings of the Hundred Schools in an attempt to keep the people ignorant. He … put to death men of fame and talent … all with the aim of weakening his people.

▲ **Source 4.28** A description of Shi Huangdi by Jia Yi

?? How do politicians and leaders share messages about themselves and their achievements today? Why might they do this? Why do historians have to make sure they find a range of sources when they are researching a person from the past?

Why was Shi Huangdi seen in a more positive light in China in 1941? Why might opinions about people and events change over time? Can you think of any examples?

▲ **Source 4.29** 'Burning of the Chinese books, by order of the emperor'. This painting, by the Western artist J. W. Giles, was painted in 1847.

RESPONDING TO THE SOURCES — 4.6

1 **Sequence** the sources about Shi Huangdi (Sources 4.23 to 4.29) chronologically by making a timeline to scale and plotting the sources and their authors on the timeline. Give your timeline a title, provide the scale and use correct dating conventions.

2 **Analyse** the features of the sources about Shi Huangdi (Sources 4.23 to 4.29). Use the questions in the table below to guide your analysis. Complete *one* source as a class and the rest in pairs. Groups could be allocated *one* source each, and then answers shared with the class.

Questions	Response for the source
What is the source? (text type)	
Who published or compiled the source? (origin)	
When was the source written or created? (origin)	
What was happening at the time the source was written that is relevant to the inquiry question? (context)	
How long after the rule of Shi Huangdi was the source written or created? (context)	
Is the source a primary or secondary source?	
Why might this source have been created? (motive)	
Who might the source have been written or created for? (audience)	
Who is speaking in the source? Provide some information about this person and how they might have felt about Shi Huangdi (perspective)	

»

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Questions	Response for the source
What evidence does the source provide about the actions of Shi Huangdi? (explicit information)	
From this evidence, what can you say the author's opinion is regarding whether Shi Huangdi was a good ruler? (implicit information)	

3 **Evaluate** the sources about Shi Huangdi (Sources 4.23 to 4.29). Using the questions in the table below, decide how useful and reliable these sources are to a historian trying to discover whether Shi Huangdi was a good ruler. Complete *one* source as a class and the rest of the sources in pairs or groups. Or, groups could be allocated *one* source each, and then the answers are shared with the class.

Questions	Response for the source
How useful is this source for deciding if Shi Huangdi was a good ruler? What relevant information does it provide?	
In what way is the source not very helpful in answering the inquiry question?	
What are some features about this source that make it trustworthy?	
What are some features about this source that make you doubt its accuracy?	

4 Was Shi Huangdi a good ruler? **Synthesise** evidence from Sources 4.23 to 4.29 to answer this question.

REFLECTING ON YOUR LEARNING 4.2

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How do we know about ancient China and what different perspectives can historians access to learn about China's ancient past?'

2 How could the information and sources in this section contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

4.3 What emerged as the defining characteristics of ancient Chinese religion and social structure?

FOCUS QUESTIONS

- What were the religious beliefs of the ancient Chinese?
- What was the social structure of ancient Chinese society?

Early Chinese religious practices

Religious practices and spiritual beliefs existed in China long before the teachings of Confucius or the arrival of Buddhism from India. Early Chinese societies believed in a **pantheon** of gods with a supreme deity (Shàng Dì) or heaven (Tiān). They believed in the existence of an afterlife, and the tombs they created for their dead reflect the need to honour and provide for their ancestors. Ancestor worship was an important aspect of ancient Chinese religious belief because they thought they could connect with the gods through their deceased ancestors.

Oracle bones

One method of contacting the gods through the ancestors – which was particularly significant during the Shang dynasty – was by using oracle bones. These bones, usually the shoulder blades of oxen or the flat underside of turtle shells, were used in **divination**. Shang diviners (fortune tellers) would ask the spirits of the ancestors to predict future events by inscribing questions on the bones and then using a hot poker to crack them. The cracks would then be interpreted as positive or negative answers to the questions.

pantheon a group of gods
divination the practice of foretelling the future through supernatural means

Context statement for Source 4.30

This oracle bone was made from the flat underside of a turtle's shell, which was a very valuable material in ancient China.

?? What other ancient societies believed in a pantheon of gods and/or buried people in a manner that prepared them for an afterlife?

▲ **Source 4.30** This oracle bone was created during the Shang dynasty.

The diviners were very good record keepers and inscribed the questions, answers and the outcomes of the predictions on the bones. Through these records, modern archaeologists and historians have learned a great deal about what the Shang were interested in and the issues they considered to be important.

Most oracle bones were used by wealthy people and rulers, as only they were able to afford the bones and the services of fortune tellers. The wealthy and rulers asked many types of questions, such as whether family members would recover from illnesses, the likelihood of good crops, and the outcome of wars. Sometimes, the same question was asked many times and the prediction was based on the answer that came up most often.

Crack-marking on *jiashen* [day 21]

Que divined: 'Lady Ho [a consort of Wu Ding] will give birth and it will be good.'

The king read the cracks and said: 'if it be on a *ding* day that she give birth, it will be good. If it be on a *gang* day that she give birth, it will be prolonged auspiciousness [good luck for a long time].'

[Verification]: After thirty-one days, on *jiayin* [day 51], she gave birth. It was not good. It was a girl.

▲ **Source 4.31** An inscription on an oracle bone. (Cited in Patricia Buckley Ebrey, *Chinese Civilization: A Sourcebook*, 1993, p. 4)

RESPONDING TO THE SOURCES — 4.7

1 In small groups, **create** a dramatic re-enactment of the events in Source 4.31. Or create a dramatic re-enactment using another oracle bone question-and-answer scenario.
2 **Explain** how Sources 4.30 and 4.31 corroborate the statement 'oracle bones were used by wealthy people and rulers'.
3 **Identify** and **explain** one piece of information Source 4.31 provides about life in ancient China. In your response, make a statement, provide a quote from the source that is correctly referenced, and explain how the quote answers the question.

MAKING THINKING VISIBLE 4.5

Generate, connect, label

1 **Generate** a list of ideas and thoughts about early ancient Chinese religious practices.
2 **Connect** your ideas by drawing connecting lines between the ideas that have something in common.
3 **Label** each group of ideas with a heading.

Ancient Chinese religion in the Warring States period

The period after the Zhou moved the capital to the east is known as the Spring and Autumn period. It was a time of almost constant conflict, but also a time when philosophy and culture flourished. Two of the key ancient Chinese belief systems, Confucianism and Daoism, emerged at this time.

As the conflict between peoples grew more intense, the period became known as the Warring States period (475–221 BCE). The various Chinese states fought among themselves in a bitter struggle for control that lasted over 200 years.

The Qin were the ultimate victors after they defeated the last two states of Qi and Chu. In 221 BCE, the Qin king (Shi Huangdi) unified China under a new dynasty and declared himself to be the first emperor.

Daoism

Daoism (also spelled 'Taoism') emerged sometime in or before the sixth century BCE in the province we today call Henan. Daoism developed a significant presence in China during the Warring States period. The exact circumstances surrounding the start of Daoism are unclear, although Laozi is usually identified as the first Daoist philosopher.

'Dao' literally means 'the way' but can be interpreted as 'path or road' or 'doctrine'. It refers to the force that shapes all things in heaven and nature. There are still 12 million Daoists today.

Following Daoism is an attempt to be one with the way by avoiding conflict and finding peace. It requires constant adjustment to find balance between the two halves of life: the Yin and the Yang. Daoist religious practices are concerned with honouring ancestors, purifying spaces, and having a reverence or admiration for nature.

▲ **Source 4.32** This plate with the Yin and Yang and trigram symbols is from a Daoist temple in nineteenth-century China.

▲ **Source 4.34** Zhuang Zhou dreaming of being a butterfly. Titled, 'The butterfly dream', this mid-sixteenth century Ming-dynasty silk painting is by a Chinese painter, Lu Zhi.

Once Zhuang Zhou dreamed he was a butterfly, a fluttering butterfly. What fun he had, doing as he pleased! He did not know he was Zhou. Suddenly he woke up and found himself to be Zhou. He did not know whether Zhou had dreamed he was a butterfly, or a butterfly had dreamed he was Zhou. Between Zhou and the butterfly there must be some distinction. This is what is meant by the transformation of things.

▲ **Source 4.33** A written work from Zhuang Zhou

Context statement for Source 4.33

Zhuang Zhou was a Daoist philosopher who became known as Zhuangzi. He lived during the Warring States period. His written work, *Zhuangzi*, is one of the main texts of Daoism and has inspired many beautiful poems and paintings.

The 'transformation of things' refers to a state of mind or way of being where people become open to new ideas, possibilities and ways of seeing things.

RESPONDING TO THE SOURCES — 4.8

1 **Identify** the main values or beliefs of Daoism.

2 **Explain** how Sources 4.32, 4.33 and 4.34 represent a value or belief of Daoism.

Confucianism

Confucianism was an ancient Chinese belief system that emerged during the Zhou era. It is still important in China today. Confucianism is more a philosophy or way of life than a religion. It was based on the teachings of Confucius during the Spring and Autumn period, when Zhou rule was beginning to weaken.

Confucius is believed to have been born around 551 BCE in the city of Qufu. He worked as a government official for the prince of Lu but was not particularly successful in his political career. Confucius travelled widely throughout China explaining his political philosophy to various courts, but eventually returned to Qufu to establish a school. He is credited with having written or compiled several classic Chinese texts, and many of his teachings were recorded in books such as *The Analects* and *The Doctrine of the Mean*. Confucius claimed that his principles were not ones that he had invented, but rather they had been distilled from the wisdom of the ancients.

Many of Confucius' teachings were focused on the creation of a just and moral society. He believed that in order to create this, all relationships must be well regulated. Family loyalty was of utmost importance; in particular, it was vital that children respect and obey their parents. Ancestor worship was an essential part of regulating relationships. Only if family relationships were solid could the state work effectively.
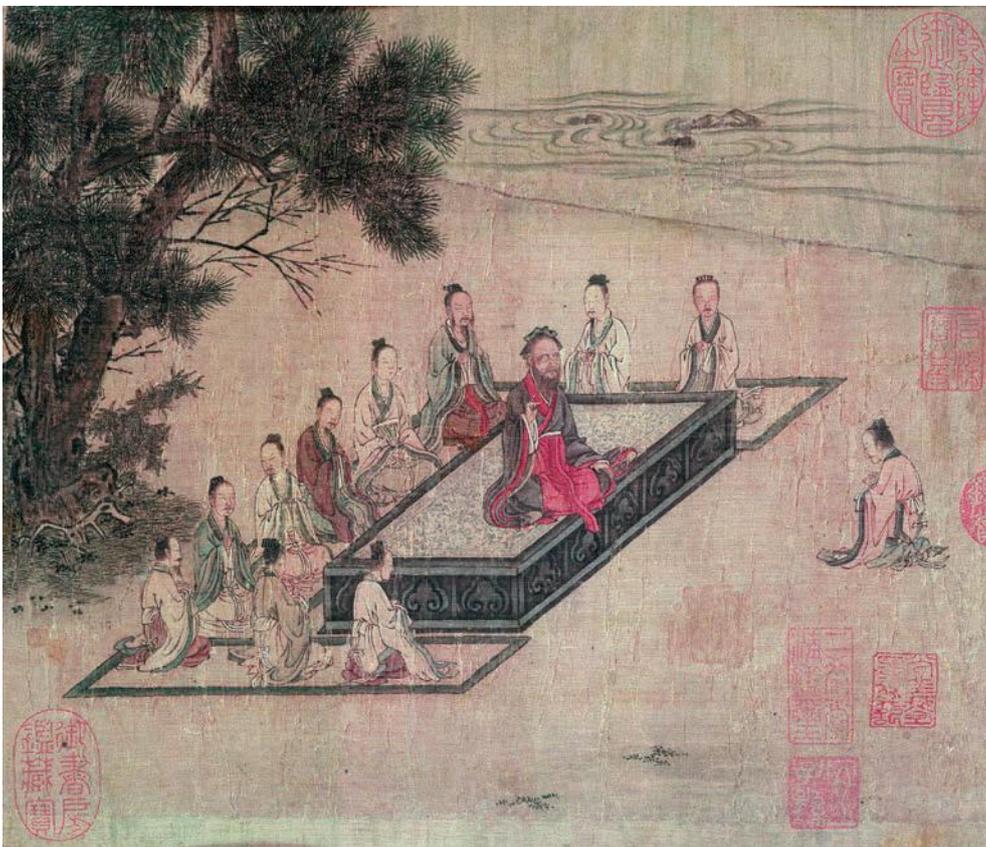
▲ **Source 4.35** A painting of Confucius on silk. This Song-era (960–1279 CE) silk painting shows Confucius teaching students about the importance of being respectful and loyal to their parents. This virtue was known as 'filial piety'.

The duties of universal obligation are five and the **virtues** by what means they are practised are three. The duties are those between **sovereign** and minister, between father and son, between husband and wife, between elder brother and younger, and those belonging to the association of friends. Those five are the duties of universal obligation. Knowledge, **magnanimity** [generosity], and energy, these three, are the virtues universally binding.

▲ **Source 4.36** An extract from the Confucian text, *The Doctrine of the Mean* (c. 500 BCE)

virtues qualities of goodness or moral excellence

sovereign a king or ruler who has total and permanent authority

magnanimity the quality of being highly moral in forgiveness and overlooking insults from others

Context statement for Source 4.36

The Doctrine of the Mean (Zhongyong) is one of the four books of Confucian philosophy. The text was written down by Confucian students and scholars after his death. It provides advice on how to live a just and moral life.

RESPONDING TO THE SOURCES — 4.9

1 **Identify** the main values or beliefs of Confucianism.
2 **Explain** how Sources 4.35 and 4.36 represent a value or belief of Confucianism.

ACTIVITY 4.3

Questions for consideration

Daoism and Confucianism developed in China during a time of constant conflict. **Explain** why these belief systems may have been appealing to the Chinese people at this time.

Buddhism

Buddhism originated in India about 500 years before it arrived in China during the Han dynasty (202–220 CE). A combination of Buddhism and Daoism was adopted by many people in ancient Chinese society, whereby the practitioners continued to pay respect to their ancestors. Buddhism became an official religion during the Sui era and was an important feature of the Tang dynasty.

Mahayana Buddhists believe in spirits, ghosts and gods, and worship the qualities of Buddha and **bodhisattvas**. A Buddha in Mahayana Buddhism is any person who has attained enlightenment by perfecting every virtue and removing all negativities.

Ultimately, Mahayana Buddhists believe that they themselves can become a Buddha through developing qualities to replace harmful ways of thinking and acting. Buddhists believe that everybody is reborn after they die – sometimes as humans but also as animals or insects, or even ghosts or gods. Unfortunately, these rebirths are without end and only result in suffering. The only way to escape continuous rebirth is to attain enlightenment.

Mahayana Buddhism the form of Buddhism that became popular in China

bodhisattvas a follower of Mahayana Buddhism who is able to reach nirvana (a state without suffering) but delays doing so out of compassion for the suffering of others

MAKING THINKING VISIBLE 4.6

Venn diagram

Organise information about Daoism, Confucianism and Buddhism using a Venn diagram to highlight the similarities and unique features of each belief system.
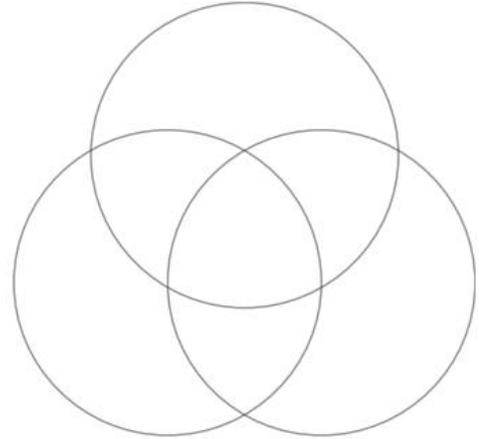
Ancient Chinese social structures

Society in ancient China was separated into four classes, with the emperor at the top of the hierarchy (see Source 4.37). This social structure was described by the philosopher Confucius as the natural organisation of a just and moral society.

The emperor held the 'mandate of heaven', which was the divine right to rule the Chinese people. Heaven (Tiān) chooses who has a right to rule and can take away this right if a ruler behaves in an unacceptable way. The mandate means that if any dynasty or ruler is overthrown by another, the very fact of it being overthrown is proof that the previous ruler had lost the mandate.

Just below the emperor were the Shi. The Shi were the aristocrats and members of the imperial court; the Shi included scholars (who were called 'the literati') and bureaucrats. Next in order of status were the Nong, who were peasants and farmers.

?? Does anything surprise you about the order of the social classes in ancient China? Why or why not?

Confucian social classes

EMPEROR

SHI
Aristocrats and scholars

NONG
Peasants and farmers

GONG
Artisans and craftsmen

SHANG
Merchants and tradesmen
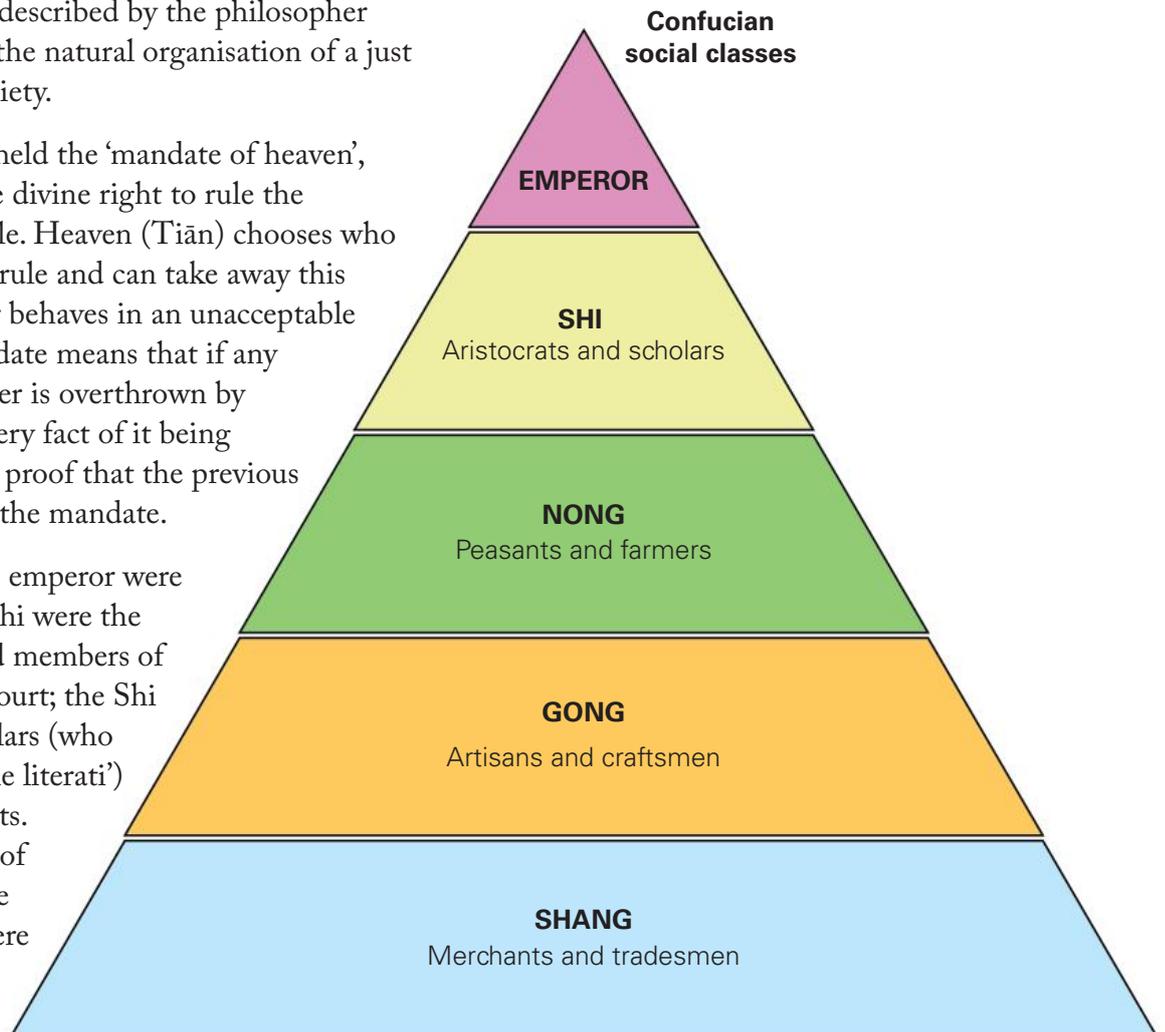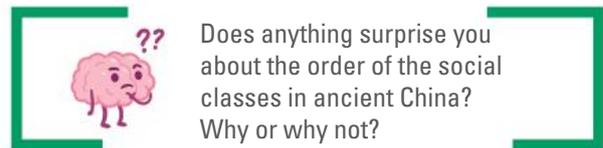
▲ **Source 4.37** The social structure of ancient China

They were the largest group in society. Although they were not wealthy, the Nong were well respected in ancient Chinese society as the producers of food. Under the Nong came the Gong, who were artisans and craftsmen. Beneath them were the Shang, who were merchants and tradesmen. The merchants were lowest in ancient Chinese social ranks because they produced nothing but acted as go-betweens, so their contribution to society was considered to be less significant than either the Nong or the Gong. In practice, many Shang people became much wealthier than their higher-class counterparts.

RESPONDING TO THE SOURCE — 4.10

Examine Source 4.37.

1   What implicit information does Source 4.37 provide about what was valued in ancient China? (Explicit information is what a source directly shows or states; implicit information is what can be reasonably known based on the explicit information.) To answer a question like this, start with the explicit information and then show what can be inferred from this information:

   a   At the highest level in Chinese society was the emperor. This implies that the ancient Chinese highly valued …

   b   The second-highest group in Chinese society was … This implies that …

   c   The third most-important group in Chinese society was … This implies that …

   d   The second least-important group in Chinese society was … This implies that …

   e   The least important group in Chinese society was … This implies that the Chinese did not value …

◀ **Source 4.38** A painting of Emperor Qin Shi Huang, the first emperor of the Qin dynasty

REFLECTING ON YOUR LEARNING 4.3

Reflect on what you have learned in this section:

1   Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What emerged as the defining characteristics of ancient Chinese religion and social structure?'

2   How could the information and sources in this section contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

4.4 Who was a significant individual of ancient China and what did that person achieve?

Fu Hao

Lady Fu Hao was a consort of Wu Ding, the twenty-second king of the Shang dynasty. She is one of the most famous women in ancient Chinese history. Her tomb was discovered by archaeologists in 1976; it is the only Shang tomb found that had not been looted by grave robbers. Historians estimate that she died in around 1200 BCE.

Fu Hao's tomb contained a huge number of grave goods, including 468 bronze objects, 755 jade items, 61 ceramic or pottery objects, over 6000 seashells, and a variety of other items made out of gems, bone and ivory. At least 109 items from the tomb have Fu Hao's name engraved on them, clearly marking this as her final resting place. Less happily, 16 humans and six dogs were also entombed with Fu Hao to join her on her journey into the afterlife. There is evidence that a **shrine** was built on top of the tomb where her relatives could pay respect to her spirit.

shrine a place used for religious rituals

yue a ceremonial axe

However, Fu Hao is not just famous for her tomb; she was a clan leader and landowner whose property lay beyond the area directly controlled by the king. This land gave her wealth and power, but also the duty to pay tribute. Fu Hao spent much of her time at

▲ **Source 4.39** Fu Hao. A modern artist's impression of Fu Hao, holding her ceremonial **yue**.

court performing religious rituals, including sacrifices for ancestors and gods. She had several pregnancies, although it is not clear how many surviving children she had with the king.

Probably the most notable aspect of Fu Hao's life was that she led soldiers into battle on more than one occasion. Women did not commonly go to war but, as the head of a clan, she was responsible for her army. During her lifetime, she participated in every significant **military campaign** and at one stage led a force of 13 000 soldiers into battle, which is the largest army recorded at any time during the Shang era.

Fu Hao was a successful general with many significant victories to her name, including the defeat of the Tu Fang. It was after a long drawn-out campaign against the Ba, however, that Fu Hao became ill and died. Her military service is acknowledged in her grave goods, as many of the bronze items are weapons like axes, knives and arrowheads.

Significance of Fu Hao

To determine if a historical person or event is significant, use the following assessment criteria:

- **Remarkable** – was the person or event remarkable or extraordinary in some way for their time or for later?
- **Remembered** – was the person or event important at some stage within the collective memory of a group or groups? Was something done to remember this person or event?
- **Resounding** – do, or did, people make connections to this person or event well beyond the time of origin?
- **Results** – did the person or event lead to change or consequences in their time or in the future?
- **Revealing** – does the person or event reveal something important about the time period of origin?

> **military campaign** a series of conflicts or battles that are aimed at reaching the same goal

ACTIVITY 4.4

Class activity

As a class, **discuss** this question: Who is a significant Australian or modern-day individual who could be deemed to be significant according to the criteria above?

MAKING THINKING VISIBLE 4.7

Building a response

1 Set up: Write the question: 'Was Fu Hao a significant individual?' on five large pieces of paper. On each piece, add one of the five criteria of significance. Place the sheets of paper on tables around the room.

2 Present: **Explain** the question and the criteria to the class.

3 Process: Think about your reaction to the question and record your ideas and questions. Add to each other's responses with comments and questions. Circulate around the room, reading and adding to the questions and responses.

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4 If you are arranged in groups, each group should stay with one piece of paper for five minutes. Groups can then rotate to another group's paper, silently read what is written there, and add your reactions and questions to the paper.

5 Facilitate: Think about the types of responses you can add to the sheets: connecting ideas, building on ideas, commenting on what others have written, asking others to respond with more detail, etc.

6 Share the thinking: If you have rotated as a group, return to your original starting place to read what others have written on your paper. What are the common issues and reactions? Are there any surprises? How has your thinking developed during the process?

Wu Ding knew of his wife's capabilities and was persuaded, after consulting with Fu Yue, to grant Fu Hao a bronze *yue*, a symbol of empowerment for a military campaign. A diviner, brought in to see whether the omens were favourable, wrote questions on tortoise shells and they were answered in the affirmative. Fu Hao was commissioned to fight. Marching with her troops northward to battle the Tu Fang, she fought at the head of her troops. Off the battlefield, she nursed the wounded and raised morale. The Tu Fang were badly beaten and would never again challenge the Shang's military power.

▲ **Source 4.40** An extract from Barbara Bennett Peterson, *Notable Women of China: Shang Dynasty to the Early Twentieth Century*, 2015

▲ **Source 4.41** A bronze *yue* from the tomb of Fu Hao. In ancient China, a bronze *yue* was a symbol of empowerment.

► **Source 4.42** A jade monkey from the tomb of Fu Hao. This object was probably several hundreds of years old when Fu Hao acquired it. Jade was a symbol of luxury and wealth in ancient China.

▲ **Source 4.43** A dagger axe from the tomb of Fu Hao. A dagger axe was a blade attached to a pole that was used in ancient Chinese warfare.

▶ **Source 4.44** A bronze owl-shaped *zun* from the tomb of Fu Hao.

RESPONDING TO THE SOURCES — 4.11

1   **Identify** one reason why Fu Hao was given a bronze *yue,* according to the text in (Source 4.40).

2   **Describe** three qualities of Fu Hao that can be inferred from Source 4.40.

3   What aspects of life in ancient China does Source 4.40 provide information about?

4   'Fu Hao was wealthy, a warrior and participated in religious rituals.' **Explain** how the contents of Fu Hao's tomb support this statement (see Sources 4.41 to 4.44).

5   Imagine you are promoting a movie about the life of Fu Hao. **Design** a poster or movie trailer to promote your movie. Include a clever title for your movie, images and a blurb that summarises the interesting aspects of her life that will be featured in the movie.

REFLECTING ON YOUR LEARNING 4.4

Reflect on what you have learned in this section:

1   Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'Who was a significant individual of ancient China and what did that person achieve?'

2   How could the information and sources in this section contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

4.5   How did contact and conflict with other societies change ancient China?

FOCUS QUESTION

How did contact and conflict with other societies change ancient China?

Early contact and conflict

People in ancient China had contact with foreigners and outside powers from the time of the Qin dynasty, possibly earlier. From the second century BCE, Chinese diplomats were sent into parts of central Asia, looking for allies against the nomadic tribes who threatened their northern borders. Later, diplomatic relations were established with other nearby societies like the Koreans, Japanese and Vietnamese peoples. Religious ideas, like Buddhism from India, arrived in China during the Han dynasty, while the philosophies of Confucius were passed on to other Asian societies.

When contact with other societies became dangerous or unprofitable – most notably with the nomadic tribes of the northern regions – the ancient Chinese built fortifications to protect their society. The Great Wall of China is not one wall but many sections, which are not all connected.

▲ **Source 4.45** A mural from the tomb of Li Xian. From the Tang era (618–907 CE), this mural shows ambassadors from Korea and the west being received at court in China.

The first sections of the wall were built as early as the seventh century BCE. However, Qin Shi Huangdi was responsible for greatly enlarging and connecting those parts. Many of the dynasties that followed maintained and repaired the wall as well as built new sections. Not only did the Great Wall protect China from intruders and invaders, it also enabled the ancient Chinese to control trade and to impose duties or taxes on goods brought into China from outside.

> The emperor decided that this would be the limit for further expansion and ordered the construction of a lengthy wall to protect his new lands. This wall joined earlier walls built by the Warring States on their northern frontier … [In doing this] the first emperor distinguished in the most visible way China proper … from the outside world, which was to remain beyond Chinese control.

▲ **Source 4.46** An extract from Pines, *The Everlasting Empire: The Political Culture of Ancient China and its Imperial Legacy,* 2012

The Silk Road

People in ancient China first made contact with more distant civilisations, like those in Europe, through trade. The Silk Road was established during the Han dynasty. It was not a single road, but a series of overland tracks that wound from the heart of China through the Middle East and into Europe. Many goods were bought and sold along these trade routes, including olive oil and wine from Italy, cotton and peppercorns from India, ivory from east Africa, and spices from Arabia. Ancient China exported jade and iron, but its most significant product to trade was silk.

▲ **Source 4.47** The Jinshanling section of the Great Wall. This section of the wall was built between 1368–1389 during the Ming dynasty and rebuilt again in the sixteenth century.
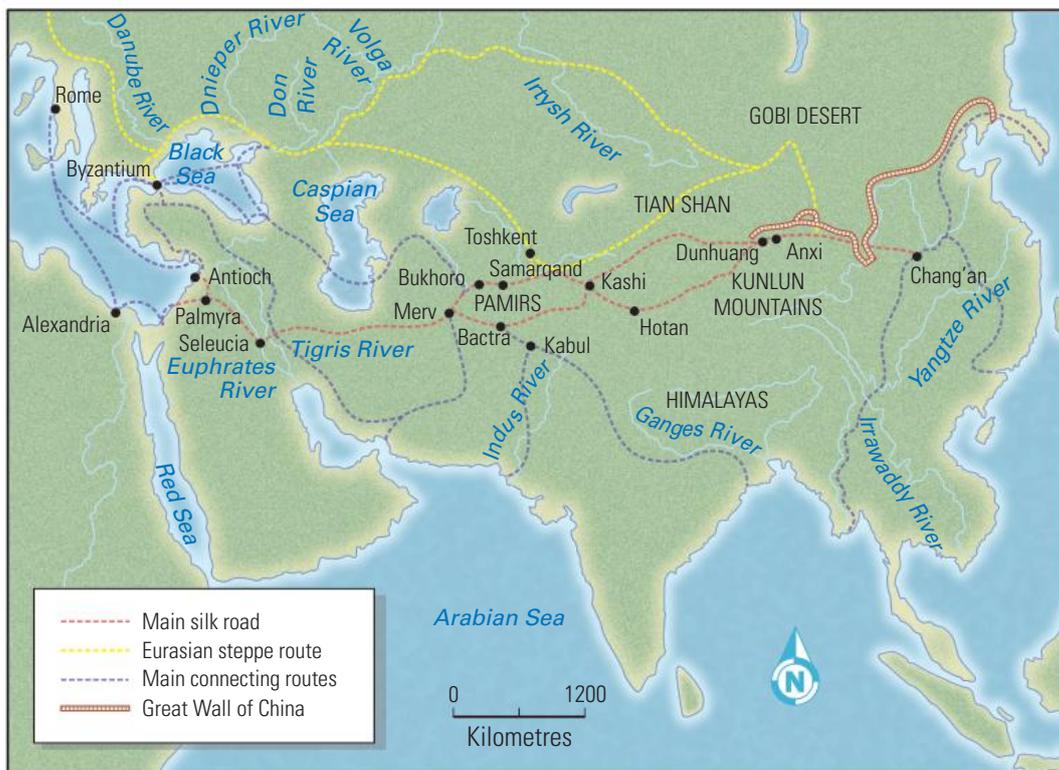
▲ **Source 4.48** This map shows the routes that made up the Silk Road in ancient China.
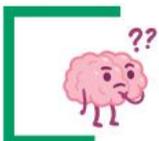
?? There is a saying that 'good fences make good neighbours.' What are the benefits and problems caused by walls and fences? Why have walls been built in more recent times? (Berlin Wall, USA Mexican Border Wall)

▲ **Source 4.49** The French title of this artwork translates to, 'Marco Polo's caravan' (1375).

Context statement for Source 4.49

Source 4.49 is a detail from an illustrated map that shows European merchants travelling along the Silk Road. Marco Polo (1254–1324) was a Venetian explorer known for the book *The Travels of Marco Polo*, which describes his voyage from Europe and experiences in Asia. Whether he actually reached China is contested by historians.

Marco Polo's own account claims he ventured into Mongolia and China. Frances Wood, a historian, argued in her book, *Did Marco Polo Go to China?* (1995) that Marco Polo's account fails to mention the Great Wall of China, the practice of binding women's feet, chopsticks and tea drinking. She believes that if he had really visited China, he would have included this information in his writings. Wood also notes that Chinese documents from this period do not mention Marco Polo and his entourage.

Although neighbouring states look across at each other, And the sounds of roosters and dogs be mutually heard, Unto old age and death, the people do not travel back and forth.

▲ **Source 4.50** A description of scattered Chinese settlements (600–400 BCE) in the *Tao Te Ching*, believed to be written by Laozi

Within the six directions

This is the land of the Emperor

To the west it ranges to the flowing sands

To the south it completely takes in where the doors flow north

To the east it enfolds the eastern sea

To the north, it goes beyond Da Xia.

Wherever human traces reach

There is none who did not declare himself [the Emperor's subject].

▲ **Source 4.51** An inscription from the first emperor, Shi Huangdi (c. 220 BCE)

RESPONDING TO THE SOURCES — 4.12

Explain how Sources 4.50 and 4.51 show a change in the contact ancient China had with other societies. Can you think of why this change may have happened?

RESPONDING TO THE SOURCES — 4.13

Identify three examples of contact that ancient China had with other societies. For each example, provide evidence from a source in this chapter. **Explain** what it says about this example of contact.

REFLECTING ON YOUR LEARNING 4.5

Reflect on what you have learned in this section:

1   Based on the information and sources you have encountered in this section, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'How did contact and conflict with other societies change ancient China?'

2   How could the information and sources in this section contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

▲ **Source 4.52** Another view of the Great Wall of China

4.6   What have been the legacies of ancient China?

FOCUS QUESTION

What have been the legacies of ancient China?

Today the People's Republic of China is the world's most populous country with a population of over 1.4 billion people. It has the second-largest economy in the world and is the world's largest manufacturer.

Politically, China is a one-party state, and it has the world's largest standing army. China covers a land area of 9.6 million km² and is the third-largest country in the world.

British sinologist (scholar of Chinese culture and history), Sir Joseph Needham, proposed that China's most significant global impact has stemmed from four great inventions. They are printing (block-printing emerged in China c. 200 CE), paper-making (c. 105 CE), gunpowder (800 CE) and the compass (200 BCE).

?? A legacy is something of value that has been left to future generations. A legacy is not always an object, wealth, or invention. It can also be artistic, an idea… What are some the legacies of Australia's ancient First Nations Peoples? What would you like your legacy to be?

ACTIVITY 4.5

Class activity

1   As a class, **research** each invention (printing, paper-making, gunpowder and the compass) and the ways each has led to further developments and inventions.

2   In groups, **create** a timeline that shows a sequence in chronological order of the first invention from ancient China, and then examples of innovations and developments of that invention over time. Ensure that you use correct timeline conventions including a title and scale.

MAKING THINKING VISIBLE 4.8

Brainstorm, diagram, describe, display, reflect

1   **Brainstorm**: Make a list of the ways in which each invention (printing, paper-making, gunpowder and the compass) is connected to who you are and the life you are living today.

2   **Diagram**: Use this list to draw a diagram or a picture explaining how ancient China is connected to who you are and the life you are living today.

3   **Describe**: Write a title and a short description to accompany your diagram. (Similar to a short caption that explains a museum exhibit; for example, 'This diagram shows …')

4   **Display**: Display the diagrams and take a gallery walk as a class.

5   **Reflect**: What new ideas do you have about your classmates and your connection to ancient China?

REFLECTING ON YOUR LEARNING 4.6

Reflect on what you have learned in this section:

1 Based on the information and sources you have encountered in this section while doing the activities, either **create** a mind map or write a short response of 5–10 sentences to **summarise** what you have learned and to answer the question: 'What have been the legacies of ancient China?'

2 How could this information contribute to answering your overall inquiry question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Complete the Quiz and the 'Developing your understanding' questions in the Interactive Textbook.

END-OF-CHAPTER REFLECTION

Step one: reflect on your sub-inquiry questions

At the end of each section of this chapter, you were asked to **reflect on** how the information in the section related to the overall inquiry question:

'What were the characteristics of ancient China and how is ancient China still significant today?'

1 For each of the sub-inquiry questions below, write a brief response (approximately two to three sentences) to **reflect on** the sub-inquiry question. Do you feel that you have a good understanding of each section of this chapter?

- Where did the earliest societies develop in ancient China and what geographic features influenced this development?
- How do we know about ancient China and what different perspectives can historians access to learn about China's ancient past?
- What emerged as the defining characteristics of ancient Chinese religion and social structure?
- Who was a significant individual of ancient China and what did that person achieve?
- How did contact and conflict with other societies change ancient China?
- What have been the legacies of ancient China?

(If you prefer a visual approach, you could to do this as a mind map instead.)

Step two: reflect on the key inquiry question

2 Now, based on what you have learned in this chapter, write a short paragraph in response to the question: 'What were the characteristics of ancient China and how is ancient China still significant today?'

Step three: future questions

3 Based on your learning in this chapter, what questions do you have about ancient China?

4 **Reflect on** the questions you or your classmates raised at the beginning of the chapter at the end of the 'Setting the scene' activity. Have you answered most of these questions? Which questions have not been answered?

🏛 End-of-chapter assessment 4

1 Investigation

An investigation assesses students' abilities to identify, select, analyse, organise and draw conclusions about evidence from primary and secondary sources.

Step 1: Select *one* of the following areas to focus your research on:

- Warriors and warfare (training, armour, weapons, fighting techniques, historical battles and wars)
- Daily life (health, government, laws, housing, women's lives)
- Religion (beliefs, rituals, death and burial, gods)
- Another topic with your teacher's approval.

Step 2: Complete some background research on your topic and devise a key inquiry question (see the example in Section 4.1).

Step 3: Devise *three* sub-inquiry questions that will help to answer your key inquiry question.

Step 4: Select *one* primary and *one* secondary source that answer the sub-inquiry questions.

Step 5: Copy the analysis table below into your workbook. Then use it to analyse each source.

Analysis questions	Your response
What is the source? (text type)	
Who published or compiled the source? (origin)	
When was the source written or created? (origin)	
What was happening at the time the source was written or created that is relevant to the inquiry? (context)	
Is the source a primary or secondary source?	
Why might this source have been created? (motive)	
Who might the source have been written or created for? (audience)	
Who is speaking in the source? Provide some information about this person and how they might feel about the focus area of your question. (perspective)	
What evidence does the source provide about the inquiry question? (explicit information)	
From this evidence, what can you say the author's opinion is regarding the inquiry question? (implicit information)	

Step 6: Answer the *three* sub-inquiry questions. Make sure you refer to and acknowledge your sources as evidence in your writing.

Step 7: Include a reference list for your two sources.

Length: 400–600 words

2 Project

A project assesses students' responses to a single task, stimulus, question, situation or scenario. A project gives students authentic opportunities to demonstrate their historical knowledge, understanding and skills.

Scenario

The editor of an ancient history magazine has asked you to write a special feature article about a significant individual from ancient China.

Step 1: Select one of the following individuals (or get confirmation from your teacher if you would like to research another individual):

- Confucius
- Yu the Great
- Wu Zeitan
- Sima Qian
- Cai Lun
- Lady Fu Hao
- Shi Huangdi.

Step 2: Design the front cover of the magazine. Include an image, a headline that highlights why the individual was significant, and *three* interesting bullet points or facts about their life.

Step 3: Create a timeline that accurately displays *five* key events from the life of your individual. Ensure that you follow the conventions of a timeline.

Step 4: Write the article. It must include paragraphs on the following topics: Who was the individual? When and where did they live? What did they achieve? Why were they significant?

Step 5: Include a reference list that shows at least *four* sources of information for your article.

Length: written responses 400–600 words

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Part 2

Geography

What is Geography?

What do you think are the most important challenges facing our world today? Geography is a fascinating subject for anyone who is curious about how the world works. It can improve the lives of people and their environments. Geography involves the study of Earth's *physical environment* and *human activities*, and how these two areas affect each other. Table A shows some of the topics that geographers study.

Figure A shows the devastation caused by a tsunami that hit Indonesia in 2018.

TABLE A Areas of study for geographers

Physical environment	Human activities
• Landforms (such as beaches, volcanoes and mountains) • Bodies of water (such as oceans, seas and lakes) • Climate and weather • Plants and animals	• Land use (such as farms and cities) • Culture, architecture, religion and language • Population growth and decline • The movement of people from one place to another

▲ **Figure A** This photograph shows the resulting damage of the tsunami that hit coastal regions in Java and Sumatra, Indonesia, in 2018.

Geographers studied the area's physical environment and discovered that an unusual natural process had occurred to cause the tsunami shown in Figure A. They found that the eruption of the Anak Krakatau volcano triggered an underwater landslide that then created the tsunami. Also, by studying the human activities in the area, geographers discovered why so many people were affected.

The tsunami in Indonesia struck popular tourist beaches during peak season when hundreds of tourists were there for the Christmas and New Year holiday. Tsunami warning systems had not worked for six years because they had been damaged and vandalised. Furthermore, the warning systems that were in place only activated when an earthquake was detected, not when there was an underwater landslide. Many locals considered an earthquake to be a sign for people to move to higher ground, but they did not have a strong education on how volcanic activity causes tsunamis and the risks involved.

By studying the relationship between humans and the environment, geographers are able to understand why people would risk living in dangerous areas. In the case of Java and Sumatra, where the tsunami hit in Indonesia, the natural environment provides locals with healthy soil to grow crops and the ocean to provide them with seafood. The tropical **climate** and beaches also supply those who live there with a source of income from the tourist industry. The land near volcanoes is often cheaper and many cannot afford to move further away. Often, the locals would not want to move because the area is their home.

> **climate** the long-term trends in the weather conditions of a place such as its average rainfall and temperature

The study of geography finds solutions to important challenges. For example, geographers used sonar surveys to map the sea floor beneath the Anak Krakatau volcano in order to understand how the landslide caused the tsunami.

They also educated people about the warning signs of a tsunami when it is triggered by a volcano.

There is no doubt that geographers can be game-changers and life savers, but to perform their important role, geographers need to rely on geographical concepts and skills.

Introducing geographical concepts and skills

Geographical concepts and skills help to guide the way you question and think about an issue. The seven concepts that are used in the following chapters on geography are: place, space, environment, interconnection, sustainability, scale and change.

Geography is a process of questioning, discovering and communicating what you have learned. This process of inquiry involves the following geographical skills:

> **phenomenon** an occurrence or observable fact
>
> **fieldwork** gathering information and data about a natural or human environment outside the classroom

- Being motivated by an issue or curious about a **phenomenon**
- Asking questions that relate to geographical concepts
- Researching a topic by collecting primary and secondary data (see Table B)

- Analysing information to come up with conclusions and to gain an understanding of a topic
- Evaluating what is being done in response to an issue or phenomenon by seeing if a response is successful
- Presenting information in ways that help people, governments and the media understand an issue
- Suggesting or creating solutions based on the research and evidence.

To give you an example of geographical concepts and the skills in action, a geographer looking at Figure B might ask the following questions:

- How has this volcano changed?
- What is the scale and distribution of this change?
- What interconnections between factors caused the change?
- What impacts have these changes had on the environmental, social and economic sustainability of the region?

You will learn more about geographical concepts and skills in the following chapters. In Chapters 5, 6 and 7 you will study the topic of water. These chapters describe how water connects people and places, how hydrological hazards occur and what their impact is on people, and how water use is managed. Chapter 8 looks at place and liveability. You will learn what makes a place a good area to live, how a person's town

TABLE B Primary and secondary data in Geography

Primary data	Secondary data
Primary data is data that you collect specifically to help you answer an inquiry question. This data is collected during **fieldwork**.	Secondary data is data that was created by someone else for a different reason. However, the information can still help you answer your own question.
Examples: • Photographs • Collecting samples • Interviewing people	Examples: • Published statistics • Satellite imagery • Online interactive maps

▲ **Figure B** These satellite images of the volcano on Anak Krakatau were taken before erupting (left) and after erupting (right). The most obvious change that the eruption had to the region is that a large part of the southern flank of the volcano slid into the ocean, which has changed Anak Krakatau's shape and size.

can impact their life, and how geographers can make places safe, healthy and inspiring environments for people to thrive in.

The work of geographers has been, and will always be, important. In the past, geographers have helped to determine the circumference of the Earth, how and where to grow food, and how to reduce the damage caused by natural disasters. Today, and into the future, the discoveries geographers make will help us overcome modern challenges, such as climate change, the extinction of species and the sustainable use of resources such as water.

Geography is an empowering and forward-thinking subject. It requires an open mind to consider many questions and perspectives. A geographer also has to be sharp enough to understand the information that is collected and to create a future that is better than the present. Who knows where your study of geography will take you? The possibilities are endless!

▼ **Figure C** Anak Krakatau erupting in 2018. The unusual interconnection between this eruption and the following tsunami launched geographers into a new area of research, in the hope that we can stop such tragedies from happening again.

Unit 1

Water in the world

Overview

Water is the most precious resource we have. We use it every day in our homes, as well as to grow food, make energy and products, and move people and goods all over the world. Water is a finite, renewable resource. This means that there is the same amount of water on Earth today as there was when the Earth was formed and, if managed well, it can be re-used forever. In fact, the water you drink today could contain molecules that dinosaurs and cavemen drank well before your time!

Every day there are more people using the water on Earth, but only 2.5 per cent is drinkable. So, how we treat this precious resource has never been so important.

As our use of water increases, we have come up with clever ways to access freshwater. In Perth, 10 per cent of the water flushed down the toilet and sink is recycled into drinking supplies. In Kuwait, almost 100 per cent of drinking water comes from desalination plants that turn saltwater into freshwater.

▲ Video
Unit overview

However, there are also ways that we mistreat or waste water.

Water is part of an interconnected system called 'the water cycle'. This means that the pollutants we put into the soil and sky can contaminate our water, and reduce the amount of clean water that we can use.

In this unit, you will investigate what water means to Australians and peoples around the world. Understanding the connections between water, people and places is an essential part of your study. This unit will help you to interpret your natural environment and the natural processes that shape it. By looking at the way water is used, you will learn how this resource is treated with respect and ways that it is not. You will also look at water in its wildest forms, such as in storms and floods, and learn how people can be prepared to handle hazards of this kind.

Learning goals

After completing this unit, you should be able to answer these questions.

Chapter 5:

- What is an environmental resource?
- How can water be classified as an environmental resource?
- How do people manage water resources?
- What role does water play in connecting environments and places?

◄ **Figure D** This photograph shows some of the filtration processes used to treat wastewater at the Bundamba purified recycled water plant near Brisbane. It is one of three purified recycled water plants connected to the South East Queensland Water Grid. This plant has the capacity to treat wastewater to meet drinking water standards. This water could then be added to Lake Wivenhoe where it would eventually be treated again through conventional treatment processes before reaching people's taps. Climate change and population growth are putting pressure on water supplies in South East Queensland (SEQ), increasing the need for alternative supply options.

Chapter 6:

- How are water resources distributed around the world?
- How do Australia's water resources compare to other countries?
- What is water scarcity and what factors lead to it?
- How is water scarcity managed?
- How is water managed in Australia's Murray–Darling Basin?
- How can desalination, water recycling and efficient irrigation help to manage water scarcity?
- What role does water play in the spiritual, economic and cultural life of people in Australia and around the world?

Chapter 7:

- What are floods?
- Why do floods occur?
- Where do floods occur?
- What are the social, economic and environmental impacts of floods?
- How do people respond to floods to minimise their impacts?

Introducing geographical concepts

In this unit, you will have many opportunities to practise geographical concepts.

The concept of **place** involves the physical location of an area, and the meaning that the location has for individuals, communities and cultures.

Space refers to the spatial distribution of places and their characteristics. We use maps and spatial technology to examine, monitor and compare spatial distributions so that we can assess and manage changes.

Scale refers to how big something is compared to something else. This can be represented on maps using a linear scale, or when considering whether an impact will affect a small area, an entire country or the whole world.

When geographers look at **change**, they investigate the type of changes that have occurred. They also look at when, where and why change has happened.

The **environment** in geography refers to the characteristics of an environment, how an environment supports life, and the connections between an environment and people.

Interconnection involves the links between places and the ways that people influence or are influenced by the characteristics of places.

Sustainability refers to whether a place or environment can maintain its current needs without affecting the ability to meet the needs of future generations.

Geography concepts

Where is it located, what are its geographic characteristics and how is it signifcant to different people?

How are the features distributed and how has the distribution changed over time?

Is it economically, socially and environmentally sustainable?

What type of change has occurred and what are the consequences?

What are the components of this environment and what processes have formed it?

Does it occur at a local, national or global scale?

How is it linked with other places and with other people?

Place

Space

Sustainability

Change

Environment

Scale

Interconnection

Water as an environmental resource

Setting the scene: water is an essential part of human existence

Water is essential to all life on Earth. A person can only survive without it for about three days. Throughout history, people have used water to not only survive, but to thrive. It is needed for drinking and to grow food, and it is a source for transport and to create electricity.

Water is a significant part of Aboriginal and Torres Strait Islander Peoples' cultures in Australia. The power of water is represented throughout the Dreaming. An example of this is the rainbow serpent. The story of the rainbow serpent tells of how a serpent travelled through the land creating river channels, which were then filled with water from the stomachs of frogs. This water transformed the landscape because vegetation began to grow and animals thrived. The rainbow serpent then created mountains and turned some of the animals into humans.

Aboriginal cave paintings sometimes show the rainbow serpent with a crocodile or kangaroo head, or with a crocodile or kangaroo tail. As Figure 5.1 shows, the rainbow serpent had a snake's body, and was decorated with rainbow shapes and designs. The rainbow on the serpent's body meant that it was travelling, and keeping the waterholes full and flowing. The rainbow serpent could also be destructive, and cause storms and floods when it was angry.

sediment a soft substance that is like a wet powder and consists of very small pieces of a solid material that have fallen to the bottom of a liquid

floodplain an area of flat land near a river that is often flooded when the river becomes too full
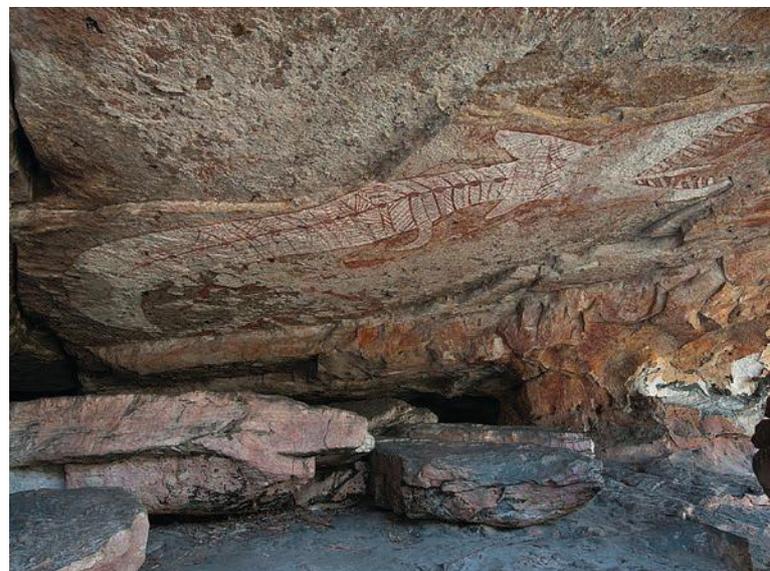
▲ **Figure 5.1** A cave painting of the rainbow serpent in Mount Borradaile, Awunbarna, which is in Arnhem Land in the Northern Territory

Water was also central to civilisation in ancient Egypt. The Nile River flows 6650 kilometres in length from Uganda to the Mediterranean Sea in northern Egypt. The river was the religious, cultural and economic centre of ancient Egyptian life. It would flood annually, leaving fertile **sediment** along its banks. This sediment allowed people to grow enough crops to support themselves. Figures 5.2 and 5.3 show the lush vegetation still growing along the Nile River's banks, and the surrounding **floodplain**. Without the floodplain of fertile land, this area would be part of the desert.

▲ **Figure 5.2** Cultivated fields by the Nile, Minya, Egypt
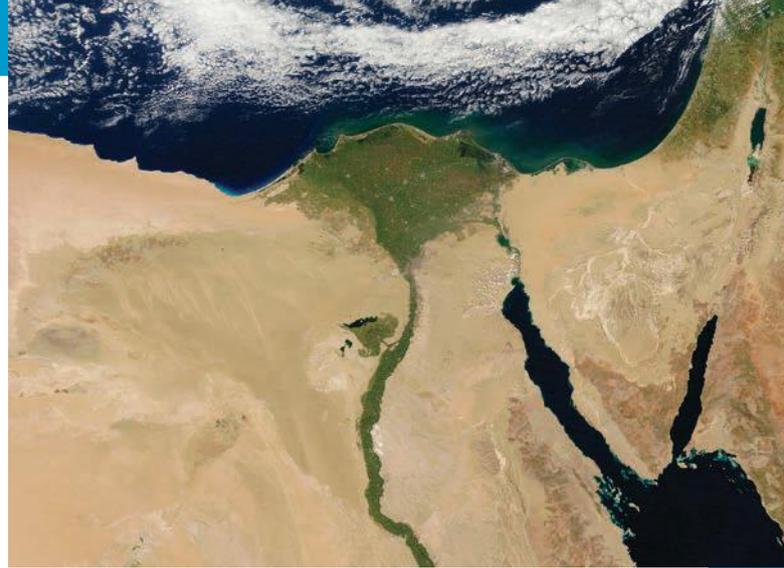
▲ **Figure 5.3** This satellite image shows the lush vegetation of the Nile River surrounded by desert.

As described in Chapter 2, the people of ancient Egypt expressed how much they relied on the Nile River through religious rituals and hymns (songs of praise). They and their priests sang verses like:

Hail to thee, O Nile! Who manifests thyself over this land, and comes to give life to Egypt! Mysterious is thy issuing forth from the darkness, on this day whereon it is celebrated! Watering the orchards created by Re, to cause all the cattle to live, you give the earth to drink, inexhaustible one!

▲ **Figure 5.4** *Hymn to the Nile,* c. 2100 BCE, Ancient History Sourcebook, Fordham University website

The river was so vital to the ancient Egyptians' survival that they invented ways to move water from the river to their crops. Although the *shaduf* shown in Figure 5.5 might be considered primitive by modern standards, the concept of using river water for watering crops within naturally dry regions is a fundamental part of agriculture in many regions of Australia.
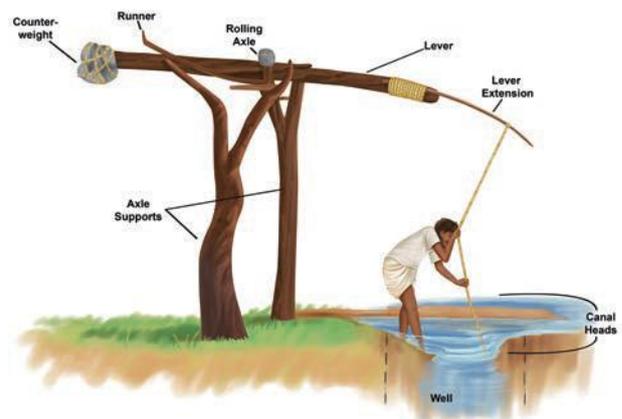
▲ **Figure 5.5** The *shaduf* is a hand-operated device for lifting water. It is still used in some countries to water crops. It moves water from the river, over the bank and into drains that are dug along and through the fields.

MAKING THINKING VISIBLE 5.1

Think, pair, share

Many cultures from the ancient past as well as today have a deep connection with water. Answer the following questions, before sharing your responses with a partner. Then discuss your answers with the rest of the class.

1 **Identify** all the ways you use water in your life. Consider how water is used at home and at school. Also think about the water that might be needed to produce items that you purchase or consume.
2 **Describe** your experiences with water in the landscape. Consider water that is near your home, a place you visit regularly or somewhere you have been to on a holiday.
3 **Explain** how you think water supplies and water in the landscape might change or be impacted on in the future. Consider environmental damage, population growth and changes to the climate.

Chapter overview

Introduction

Water is one of our most important environmental resources. This chapter explores the ways in which water can be classified as a resource and the different types of water resources that are available. It also looks at the different ways water is used in agriculture and our homes. The chapter considers the value of water, and the way it connects people, places and environments in the landscape.

Learning goals

After completing this chapter, you should be able to answer these questions:

- What is an environmental resource?
- How can water be classified as an environmental resource?
- How do people manage water resources?
- What role does water play in connecting environments and places?

▲ **Video**

Five interesting facts about water resources

Geographical skills

After completing this chapter, you should be able to:

- Explain processes that influence the characteristics of places
- Identify, analyse and explain spatial distributions and patterns, as well as identify and explain their implications
- Identify, analyse and explain interconnections within places and between places, and identify and explain changes resulting from these interconnections
- Analyse maps and other geographical data and information, using digital and spatial technologies as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology.

▲ **Figure 5.6** Some of the most spectacular places on Earth were formed by water, including the Marble Caves in Patagonia, Chile.

5.1   Environmental resources

FOCUS QUESTION

What is an environmental resource?

What is an environmental resource?

Resources are used by people to satisfy a need. A need could be something like constructing a building, generating electricity or earning money. **Environmental resources** are those that are found naturally in the Earth's **environment**. They include things like light, wind, heat, water, plants, trees, animals, soil, rocks and minerals.

When we speak about the environment, we are referring to all the features that make up our surroundings and make it possible to live on the Earth. The features of the environment can be divided into four spheres:

- The *atmosphere*, which includes the air we breathe and the sunlight we feel
- The *hydrosphere*, which is all of the water found on Earth, including the oceans, rivers, lakes

- The *lithosphere*, which includes all of the rocks and soil
- The *biosphere*, which is all of the living things on Earth, including plants, animals and people.

Different parts of these four spheres interact with each other. For example, rain that falls from the atmosphere might flow into a river, the hydrosphere. This river might cut through soft soil on a river bank, the lithosphere, and provide a water supply for local animals, the biosphere. The interactions between different parts of the environment are known as **geographical processes**.

environmental resources resources that are from the natural environment such as water and wood

environment the air, water and land of a particular area, which contains people, animals and plants

geographical processes a series of events or actions that change environments, spaces and places

renewable resources resources that can be produced as quickly as they are used

---

ACTIVITY 5.1

Features of the environment

Read about the features that make up an environment and then complete the following.

1 **Create** a diagram showing how the four spheres of the environment interact with each other.
2 **Propose** an example of an environmental resource for each of the four spheres that make up the environment.

Renewable and non-renewable resources

A common way to classify environmental resources is based on whether they are renewable. **Renewable resources** are those that can naturally replenish themselves at a rate that is faster than the rate at which people use them. Table 5.1 on the next page describes three examples of renewable resources.

TABLE 5.1 Examples of renewable resources

Source	Explanation	Collection
Solar energy	Solar energy is used to generate electricity using solar panels. Solar energy is also essential in the growth of plants and trees.	▲ **Figure 5.7** A solar farm between Toowoomba and Dalby, in central Queensland
Wind energy	Wind can be used to generate electricity through wind turbines. The wind spins each turbine like a fan. This then turns a generator, which creates electricity. An average onshore wind turbine can generate enough power to supply 1500 households with electricity.	▲ **Figure 5.8** Wind farm, Albany, Western Australia
Trees	Wood from trees is used for a variety of purposes, such as construction and fencing. Wood is used for producing everything from paper to pianos. The process of cutting down forests is known as deforestation.	▲ **Figure 5.9** Harvesting pine trees in Toolara State Forest in Queensland

harvest to pick and collect crops, or to collect plants, animals or fish to eat

species a group of plants or animals that are classified as having the same characteristics

Some resources are renewable, but if they are used at a rate that is quicker than the rate they renew themselves, then they can eventually run out. For example, if people choose to **harvest** trees from a forest, the trees might grow back naturally or they could be replanted by people. However, depending on the **species** of the tree and the climate, it might take each tree 30 years to grow back to a mature height. This means that if trees are harvested too quickly, the supply can run out faster than it grows back, even though they are a renewable resource.

In geography, we use the concept of **sustainability** to describe whether the use or modification of an environment can continue at the same rate into the future, without leading to negative impacts. In the example just given, sustainable forest management and timber harvesting would involve logging trees at a rate that would allow a forest to **regenerate** to a point where the forest could be logged again. Logging at an unsustainable rate would mean forests are not left to regenerate. Instead, the size of a forest would continue to get smaller and smaller until timber could no longer be harvested because no trees would be left.

Non-renewable resources are those that cannot be replaced once they are used. **Fossil fuels** are a common example. Fossil fuels are produced from buried deposits, which are formed from layers of decayed plants and animals (fossils). Over millions of years, the layers of organic remains have been exposed to intense heat and high pressures. These geographical processes have changed the organic remains into fossil fuels. Fossil fuels include:

- Crude oil
- Coal
- Natural gas.

Crude oil, when extracted, can be refined into oil, grease and petroleum. Technically, new fossil fuels are being created following the same processes that formed them in the first place. However, this does not occur at a time scale that makes them renewable for use. For example, it will take 300 million years for new coal to form from the current dead plant material!

Nuclear energy is another example of a non-renewable resource. The process of creating nuclear energy requires the use of uranium **ore**. An ore is material from which a metal or valuable mineral can be extracted. Uranium ore is mined from rock deposits in different parts of the world, including Australia. Nuclear energy is created by splitting uranium atoms in a process called 'fission'. The splitting of the atoms generates heat to produce steam, which is then used to turn turbine generators that create electricity.

sustainability the wise use of resources so that they are available into the future

regenerate to grow again

non-renewable resources resources existing in limited quantities that cannot be replaced after they have all been used

fossil fuels fuels that were formed underground from plant and animal remains millions of years ago; examples include gas, coal and oil

ore a type of rock or soil that can be mined to obtain metal

▼ **Figure 5.10** Uranium Ranger Mine, Northern Territory, Australia. Australia is the third largest producer of Uranium (behind Kazakhstan and Canada).

Finite and infinite resources

infinite resources resources that are without limits

finite resources resources that have a limit or end

Some renewable resources will never run out. These are known as **infinite resources**. Scientists predict that the Sun will last for another 6.5 billion years. Although this technically is not infinite, this time span is much longer than the amount of time that the Earth has existed, and is therefore considered to be renewable. Resources that have a limited supply, such as non-renewable resources, will eventually run out. Every time they are used, there is less of the resource remaining. These types of resources are known as **finite resources**.

▲ **Figure 5.11** Coal is a non-renewable fossil fuel that is mined in Australia and exported around the world for the production of electricity.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.1

Classification

An important role of a geographer is to **classify** the world around them. This helps them to understand features of the Earth and how the features interact with each other. Geographers **classify** species of plants and animals, as well as different types of rocks, rivers and mountains.

Based on the information here about environmental resources, **classify** the following resources as either renewable or non-renewable. Also classify each resource as either finite or infinite. Write a sentence justifying why you have classified each resource the way that you have.

- Native animals hunted as a food source
- Saltwater from the ocean that is converted into freshwater
- A forest that is used to harvest individual trees and then left to grow back
- A forest where all the trees are harvested so that the land can be turned into a farm.

You may wish to use the table template shown here to help set out your classifications.

Resource	Renewable or non-renewable	Finite or infinite	Justification

DEVELOPING YOUR UNDERSTANDING 5.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the following terms:

a Resource

b Environment

c Geographic process

d Sustainability.

2 **Identify** the four spheres that make up an environment and **explain** in one sentence what is found in each one. Create a Venn diagram to show the overlapping interconnection of the spheres.

3 **Identify** three examples each of a renewable resource and a non-renewable resource.

Interpret

4 **Describe** the difference between a renewable resource and a non-renewable resource. Use examples in your explanation.

5 **Explain** why an environmental resource might run out even if it is a renewable resource.

Argue

6 The logging of all native forests in Australia should stop immediately to protect the environment. Explain whether you agree or disagree with this statement. **Discuss**:

- How forests are classified as an environmental resource
- The sustainability of logging forests
- The positive and negative effects of logging forests
- The consequences of stopping all logging operations in Australia.

▼ **Figure 5.12** Although wood is a renewable resource, supplies can run out if it is not managed sustainably. Here is an aerial view of deforestation in Borneo.

5.2 Water as an environmental resource

FOCUS QUESTION

How can water be classified as an environmental resource?

How much water is there on Earth?

Water is one of the most abundant resources on Earth. In fact, it is estimated that the Earth contains 1260 quintillion litres. That's 1 260 000 000 000 000 000 000 litres! Approximately 97.5 per cent of this water is saltwater. It is found in oceans, which cover 71 per cent of the Earth's surface. This leaves 2.5 per cent as **freshwater**.

freshwater water with less than 0.5 per cent of dissolved salts

glaciers large masses of ice that move slowly; they are frozen rivers of ice that form when snow accumulates and is compacted

ice caps a thick layer of ice that permanently covers an area of land

Freshwater supports all life on land, including people. Though the usage varies depending on location, the average individual in Australia uses 340 litres of water per day. This does not include all the water used to grow crops. On top of this total, additional water is needed for drinking, cooking and washing.

Although freshwater is a small percentage of the total water on Earth, if this 2.5 per cent was readily available then it would be a plentiful supply. However, 79 per cent of all freshwater is frozen in **glaciers** and **ice caps**, such as those covering Greenland and Antarctica (see Figure 5.14). A further 20 per cent is located underground in the groundwater supply. In fact, just over 0.5 per cent of all the freshwater on Earth is available in lakes and rivers.

▲ **Figure 5.13** Oceans cover 71 per cent of the Earth's surface.
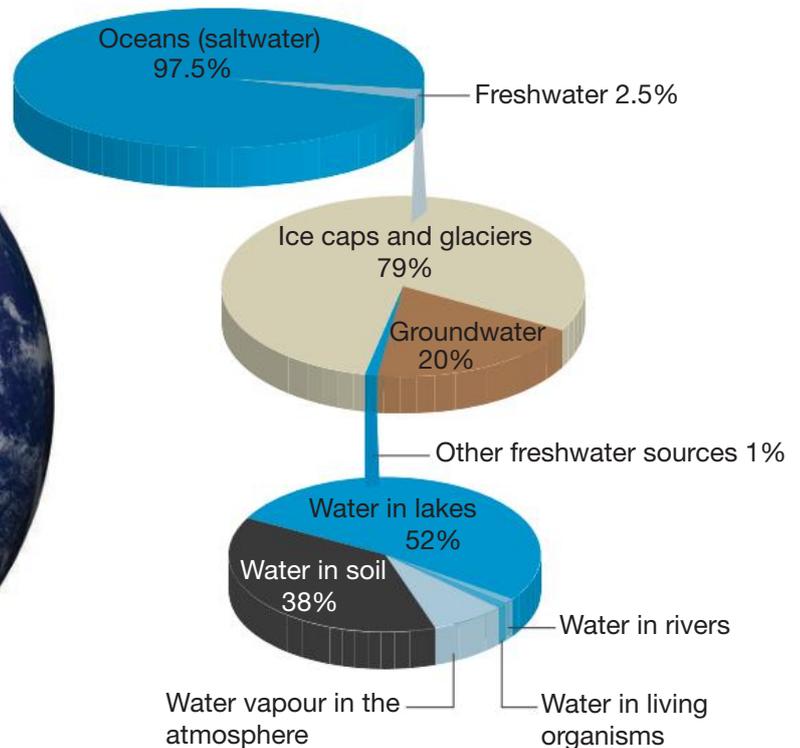
▲ **Figure 5.14** Although the Earth contains a very large amount of water, only a very small percentage is available as freshwater.

The natural water cycle

All of the water on Earth is constantly changing form through the processes involved in the natural water cycle (see Figure 5.15). Due to the warmth of the sun, the surface water in rivers and lakes turns water into water vapour. This process is known as **evaporation**. Similarly, water in plants and trees undergoes **transpiration**. As water cools in the atmosphere, clouds form and the water condenses. From this **condensation**, water droplets and ice crystals form. When clouds grow large enough, the water falls as **precipitation**, such as rain and snowfall. When this falls on the land, some of the water absorbs into the soil and is added to the groundwater supply. This **infiltration** eventually flows underground into rivers, lakes or to the coast. Water that does not infiltrate into the soil flows over the land and into rivers. This is known as **runoff**. This water eventually makes its way into river systems and flows back out into the ocean where the cycle repeats itself.

evaporation the process of a liquid changing to a gas, especially by heating

transpiration the process of losing water through the surface or skin of a body or a plant

condensation the process by which water vapour in the atmosphere cools and changes into liquid water

precipitation water that falls from the clouds towards the ground, especially as rain or snow

infiltration the process by which water is absorbed into the ground

runoff water that is not absorbed by the land and flows from high areas to low areas
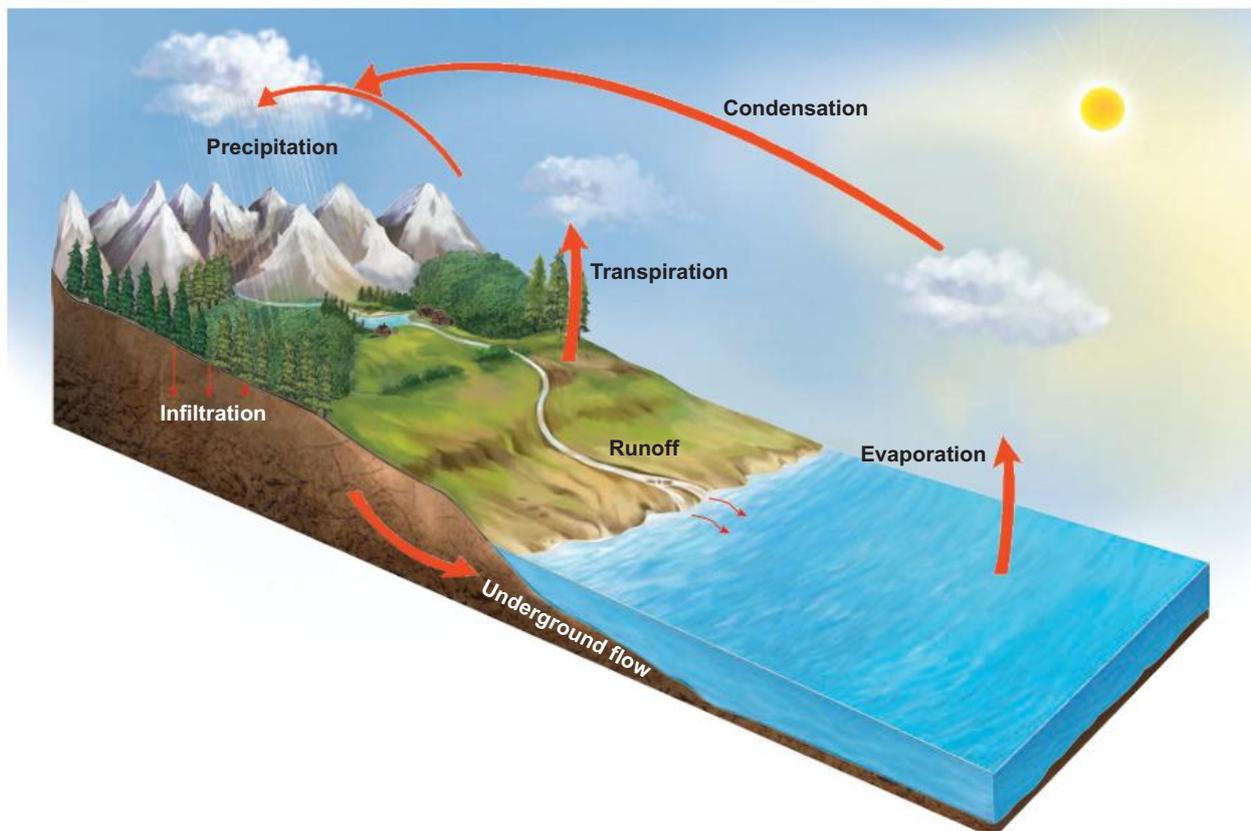
▲ **Figure 5.15** The different processes involved in the natural water cycle

Interesting fact

The Brisbane River **catchment** starts in the Great Dividing Range at the Cooyar and Brisbane ranges. It then winds through the Brisbane valley connecting with its six sub-catchments to **meander** through the City and end at Moreton Bay.

catchment an area acting like a giant bucket, catching all of the water from rainfall, runoff and infiltration

meander the bends and curves of a river or stream

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.2

Drawing a concept map

Concept maps are a type of diagram that are used to show processes. They include terms inside boxes, with arrows linking the boxes to demonstrate the steps of a process.

A concept map can be used to **summarise** the processes within the water cycle and the different forms of water found in the cycle. Copy and complete the concept map here to summarise the water cycle.

Infiltration   Runoff

Groundwater
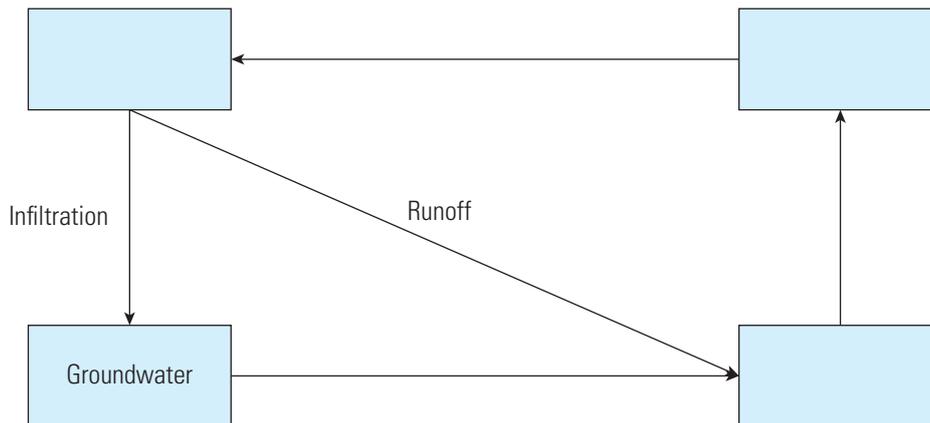
How is water used?

drought an extended period of time without rain that causes water shortages and crop damage

Water is considered an environmental resource because it has a wide variety of uses. These include use in the following areas:

- *Domestic* – used in the home for flushing toilets, showers, cooking and cleaning
- *Agriculture* – used to grow crops and raise animals
- *Industry* – used to manufacture and transport products
- *Environment* – used to maintain the health of natural and human environments
- *Recreation* – used in community swimming pools, and to maintain parks, ovals and golf courses.

What kind of resource is water?

Since water is constantly undergoing different processes in the water cycle, it can be described as a renewable resource.

Many communities around the world rely upon regular rainfall to renew their water supply. This includes large cities such as Brisbane. Although rainfall and river flows are usually regular and therefore renewable, these processes can reduce or stop completely during **drought**. In these cases, water is temporarily non-renewable.

Despite constantly changing between a solid, liquid and gas, the total amount of water on Earth never changes. This means that the overall supply of water is finite. However, in areas such as Cairns, that receive high and regular amounts of rainfall, the resource can certainly seem infinite. In other places, supplies are constantly monitored and the use might need to be restricted if the finite supplies run low.

Available water resources

Available water resources are those that can be accessed relatively easily and cheaply. This includes the water found in rivers, lakes and groundwater.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.3

Describing changes using a line graph

Line graphs are used to show changes over time. The bottom of the graph shows the movement of time and is often divided into years or months. The quantity that is changing is measured along the side of the graph.

Figure 5.16 shows how the level of water stored in the Wivenhoe dam (which has a total storage capacity of 3.132 million megalitres) has changed each month over four different years. The values shown on the left of the graph are how full the Wivenhoe dam was during different years, by indicating the percentage of the dam filled with water. **Examine** the graph and answer the questions that follow.

▲ **Figure 5.16** Monthly averages of the percentage of the Wivenhoe dam capacity filled with water from 2017 to 2020 (**Source**: seqwater)
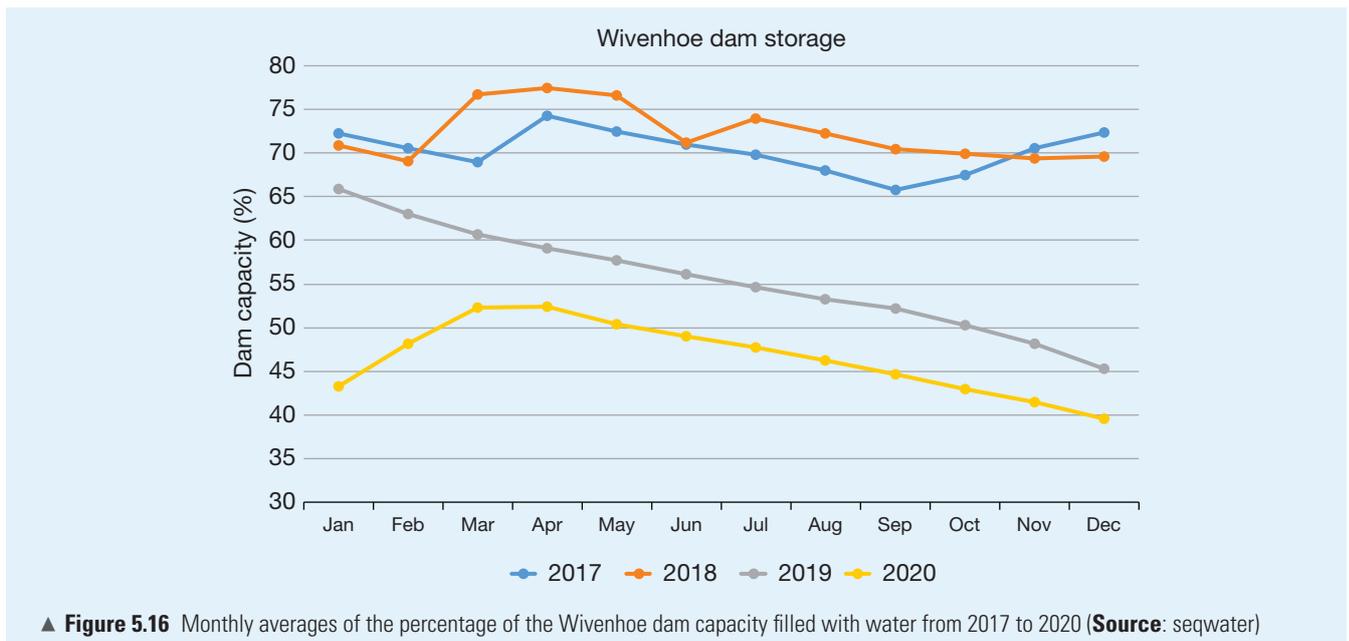
1. **Identify** during which year and month there was the most water in the Wivenhoe dam and **determine** the corresponding approximate percentage capacity.
2. **Identify** during which year and month there was the least water in the Wivenhoe dam and **determine** the corresponding approximate percentage capacity.
3. **Identify** which year had the biggest change in the level of water stored in the Wivenhoe dam. What was the lowest and highest level during that year?
4. **Describe** what you think might have been the cause for the low storage levels in 2020 and what the consequences might be for local residents.
5. **Research** the millennium drought, and write a short summary that includes timelines, weather conditions and impacts.

Surface water

As the name suggests, surface water is water located on the surface of the Earth. This includes rivers, lakes and wetlands, such as swamps. Most major cities are built near a reliable supply of surface water because it is easy and cheap to access and use.

In some cases, surface-water resources are **perennial**, which means that they are permanent. Perennial resources are lakes that always contain water and rivers that

flow all year round, such as the Burdekin River in north-central Queensland. In drier areas, surface-water resources are often **ephemeral**, which means they are semi-permanent. Ephemeral resources dry up during seasons with low rainfall. This is a common occurrence in many **arid** places in Australia, such as the Diamantina River in western Queensland.

perennial something that happens repeatedly or all the time

ephemeral something that happens only for a short time

arid very dry, often without rainfall to support plants

▲ **Figure 5.17** The Burdekin River in north-central Queensland is a perennial river, which means it flows all year.

▲ **Figure 5.18** The Diamantina River in central-west Queensland is an ephemeral river, which means it flows occasionally after flooding rains.
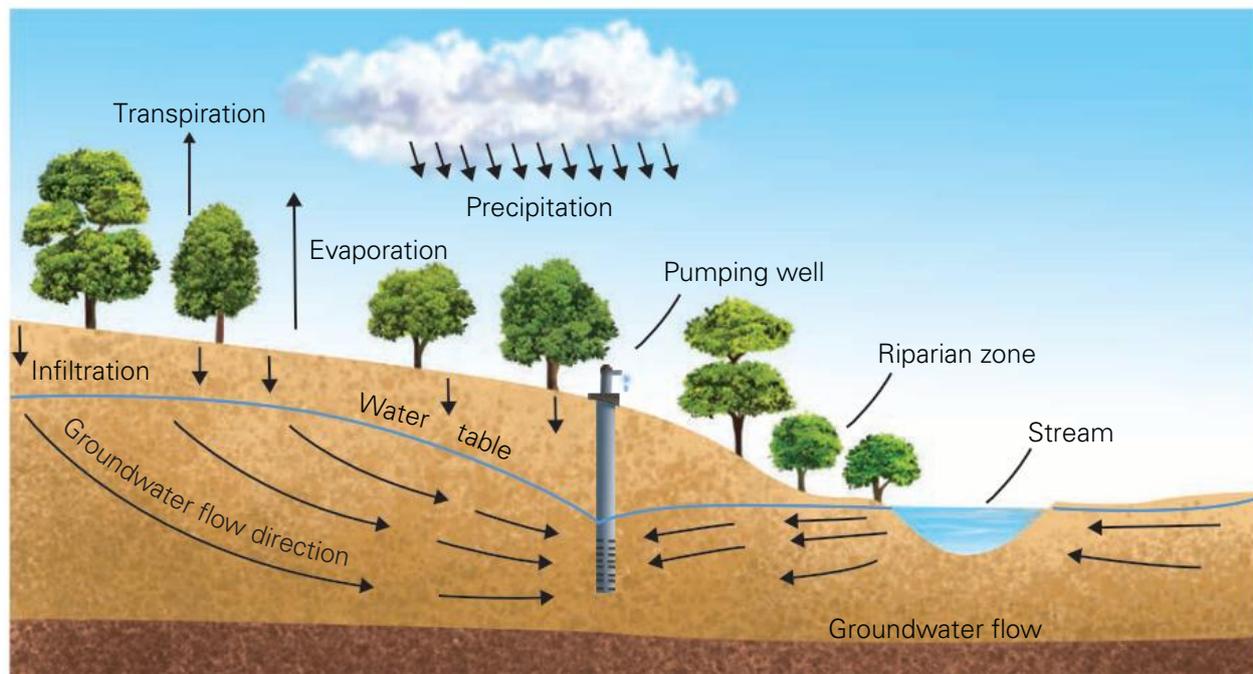
▲ **Figure 5.19** Groundwater comes from rainfall that infiltrates into the soil layer.

Groundwater

porous something that has many small holes so liquid or air can pass through, especially slowly

megalitre a metric unit of capacity equal to a million litres

bores holes drilled into the ground to access underground water resources, also called a well for larger holes

Groundwater is water that is located below the Earth's surface. It comes from rainfall that has infiltrated into the ground, and has been absorbed by soil and **porous** rocks. The boundary between groundwater supplies and the drier soil above it is called the water table.

Australia has a large system of groundwater basins, which stretch under about 60 per cent of the continent. The Great Artesian Basin is the largest of these; it is estimated to hold around 8700 **megalitres** of water. Many people living in dry areas are reliant on groundwater supplies, especially when rainfall is erratic or during extended periods of drought. During these periods, water is pumped to the surface using **bores**. Although groundwater supplies are finite, they are replenished during periods of high rainfall.

Potential water resources

Potential water resources are those that are not as easy to obtain. They include saltwater, ice, water vapour and wastewater. Accessing these resources requires complex and expensive extracting and filtering technologies. As populations grow, many places are forced to use these types of resources to ensure their water supply is renewable.

Saltwater: desalination

Desalination is the process of removing salt and other minerals from water. This can turn water from the ocean or underground sources into water that is safe for human consumption. Given the size of the ocean, water from desalination is a very reliable resource, particularly useful in coastal areas that have low or inconsistent rainfall. However, desalination plants are expensive to build and maintain. The cost to build a single plant in Australia is more than $1 billion dollars and this does not include the ongoing maintenance costs on the equipment. Desalination plants also require a very large amount of energy to run. Despite the costs, desalination plants have been built in Melbourne, Sydney, Adelaide, Perth and the Gold Coast.

SEAWATER INTAKE
1 Seawater is drawn from the ocean through specially designed intake structures. Seawater is drawn at very low speeds – even small fish will be able to swim against the intake current – and a protective grille will ensure that larger marine life can't swim into the structure. Long tunnels will protect the marine environment, including the beaches and dunes.

FILTRATION
2 Pre-treatment filters remove solids such as sand and sediment.

REVERSE OSMOSIS
3 Filtered seawater passes through two stages of reverse osmosis, where it is pushed through ultra-fine membranes under high pressure. Freshwater will pass through, leaving seawater concentrate behind.

REMINERALISATION
4 Desalinated water is remineralised to meet Australian Drinking Water Guidelines and state health requirements.

STORAGE
5 Drinking water is stored before it is distributed into water networks, where it may be blended with water from existing catchments.

WATER OUTLET
6 Seawater concentrate is safely returned to the ocean through diffuser structures. Ocean currents dilute the concentrate within seconds.

▲ **Figure 5.20** The process involved in desalination to create drinkable water

Interesting fact

Desalination is an ancient technology! The ancient Romans used early forms of desalination to ensure that their soldiers did not get dehydrated when they were in areas without a consistent supply of freshwater. The ancient Romans used clay filters to trap salt, which allowed their soldiers to keep on the move when they were away from freshwater sources.

Wastewater: water recycling

Water recycling involves re-using treated wastewater, such as **sewage**. Recycled water can be used to water crops on farms, flush toilets and replenish groundwater supplies. If wastewater is treated thoroughly, it can even be used for drinking. Water that is suitable for drinking is called **potable** water.

sewage waste matter such as human urine or solid waste

potable water that is clean and safe to drink

filtered the process of removing solids and impurities from water

purified the process of removing dirty or harmful substances from water

The process of water recycling involves transporting water to a wastewater treatment plant, where it is **filtered** and **purified**. In California's Orange County, there is a plant that recycles sewage to make it potable and then returns it to the groundwater supply. It recycles enough water to supply the needs of 850 000 people.

While the use of recycled water is not yet widespread in Australia, wastewater in Brisbane, Queensland, is recycled and returned to the Wivenhoe Dam. It is then processed to be safe for drinking. There are three wastewater recycling plants in Brisbane and Ipswich that contribute to the city's water storages. Although many people may find the idea of drinking recycled sewage difficult to swallow, there have not yet been any cases of human health problems associated with the consumption of recycled water.

— Interesting fact —

Colour terms are often used to help define different types of water resources. *Blue water* is water found in rivers, lakes and dams. *Green water* is water that is stored in the soil and used by plants during their growth. *Grey water* is wastewater that comes from household uses, such as baths, sinks, washing machines and dishwashers. It is not safe to drink but can be re-used to water the garden. *Black water* is sewage and wastewater that contains everything that we flush down the toilet.

ACTIVITY 5.2

Positives and negatives

Create a table that summarises the positives and negatives of surface water, groundwater, saltwater and recycled water as water resources. Consider the environmental and economic impacts of using these resources. Use your table of positives and negatives to **justify** your response to the following question:

Why would a wastewater recycling plant be helpful in the large and growing county city of Toowoomba?

▼ **Figure 5.21** Wivenhoe dam outside of Brisbane

DEVELOPING YOUR UNDERSTANDING 5.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the following terms:

- Freshwater
- Evaporation
- Transpiration
- Condensation
- Precipitation
- Infiltration

- Runoff
- Perennial
- Ephemeral
- Arid
- Desalination
- Potable.

2 **Identify** how much of the total water on Earth is freshwater.

▲ **Figure 5.22** Above is the Briksdal glacier, one of the 50 arms of the Jostedalsbreen glacier in Norway, the largest glacier in continental Europe.

3 **Identify** the six processes that water undergoes within the water cycle.

Interpret

4 **Explain** why water can be described as both a renewable and a finite resource.

5 **Describe** the difference between available and potential water resources.

Argue

6 **Discuss** whether you think Australia should increase its investment in recycled water so that all major cities recycle their wastewater as part of their potable water supply. Consider if it would be beneficial, whether there are viable alternatives and if you think people would be happy to consume recycled water.

5.3   Using and managing water resources

FOCUS QUESTION

How do people use and manage water resources?

Water use around the world

Approximately 110 000 **cubic kilometres** (km³) of rain falls on land each year and a further 398 000 km³ falls over the ocean. To get a sense of scale, this amount of water is the equivalent of 44 billion Olympic-sized swimming pools! This is an enormous amount of water, which is why it is measured in cubic kilometres rather than litres.

cubic kilometres a cubic kilometre is equal to a volume of 1000 × 1000 × 1000 metres; a cubic kilometre is also equal to a teralitre, which is exactly one trillion litres

flora the plants of a particular region

fauna the animals of a particular region

water withdrawals the total amount of water withdrawn from a surface water or groundwater source

Around 61 per cent of rainfall on land evaporates or transpires. This leaves 39 per cent, 43 000 km³, to fill rivers, lakes and groundwater. Some of this water is left in the environment to support local **flora** and **fauna**, and some is taken out by people to use as resources. This is known as **water withdrawals**.
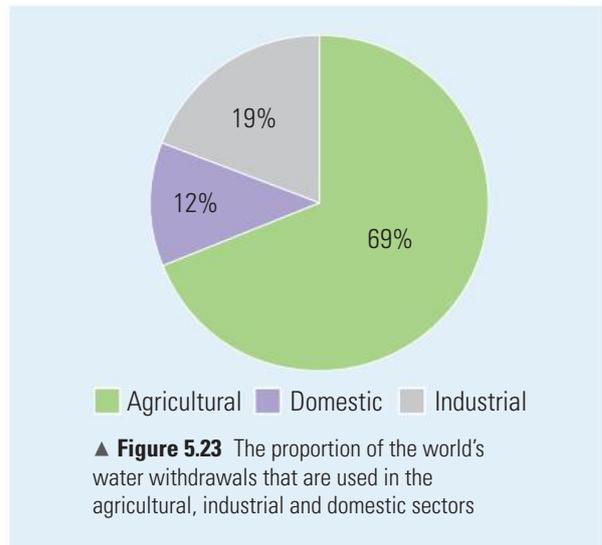
▲ **Figure 5.23** The proportion of the world's water withdrawals that are used in the agricultural, industrial and domestic sectors

Figure 5.23 shows the proportion of the water withdrawals that is used for agricultural, domestic and industrial uses when averaged across the entire world. While agriculture dominates the global use of water resources, Figure 5.24 shows that these proportions vary significantly in different continents.
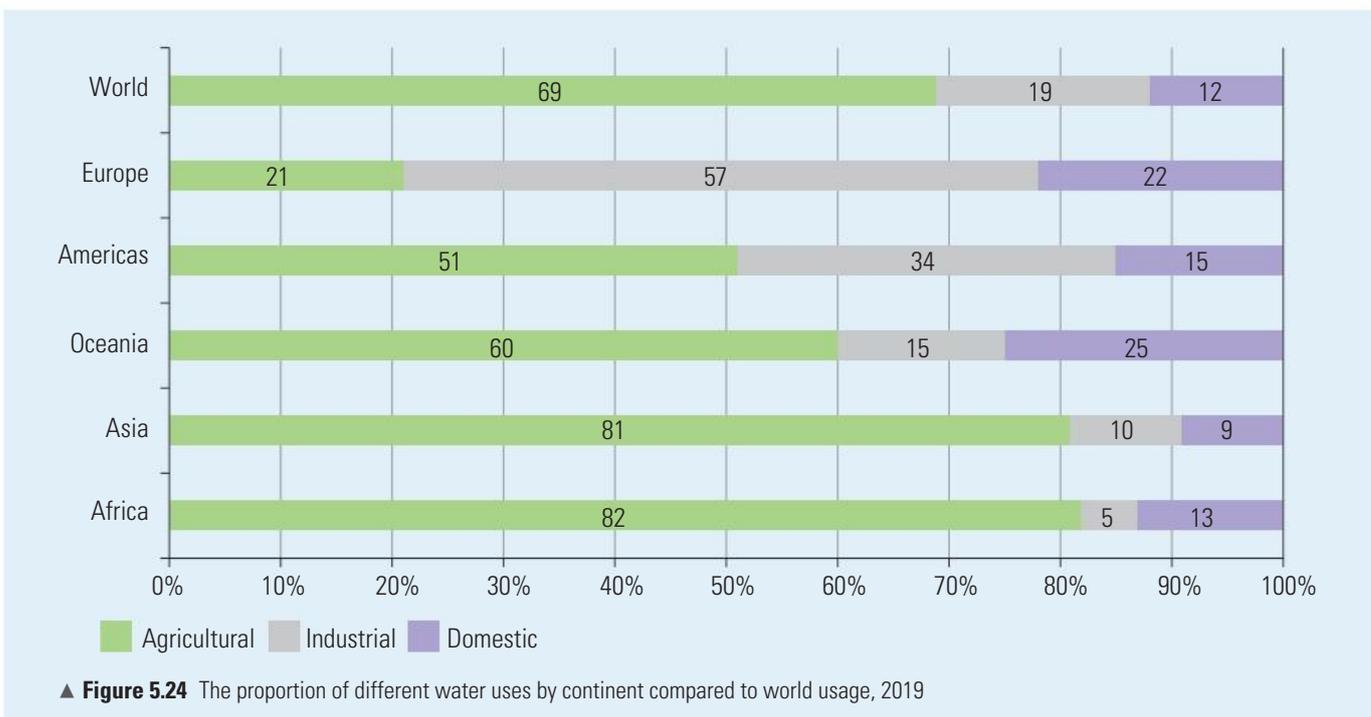
▲ **Figure 5.24** The proportion of different water uses by continent compared to world usage, 2019

The amount of water used within a country varies considerably. Table 5.2 shows the 10 countries that use the most amount of water each year. According to this data, India and China use far more water than any other country. This is not surprising since these are the two most **populous** countries in the world. Table 5.3 shows the 10 countries that use the most amount of water each day per capita. Per capita means per person. In this case, it refers to the average amount of water that each person uses in these countries every year. It is important to note that this is not only the amount that each person uses in their homes. The figure also takes into account all of the water used for agriculture (to supply the food we eat) and other industries (to supply products that we use).

populous a place that has a lot of people living in it

TABLE 5.2 The 10 countries that use the most water every year. Countries with more people use more water.

Country	Total yearly water used (km³)
India	761
China	598
United States	444
Indonesia	223
Pakistan	184
Iran	93
Mexico	87
Philippines	85
Vietnam	82
Japan	81

Source: Worldometer website, 2019

TABLE 5.3 The 10 countries that use the most water per capita each year

Country	Yearly water used per capita (m³)
United States	1206.80
Canada	883.50
Belgium	883.49
Turkey	746.80
Mexico	704.00
Australia	703.12
Spain	670.30
Japan	623.90
Korea	517.40
China	439.70

Source: Statista website, 2019

ACTIVITY 5.3

Using information from figures and tables

Read the information about water use around the world and answer the following questions.

1 Using Figure 5.24, **identify** which continent uses the highest proportion of water for agriculture. **Identify** which continent uses the lowest proportion for agriculture.

2 **Explain** the reason for the differences between countries in the use of water for agriculture. **Consider** the climate, level of wealth, and history of the places involved.

3 Refer to Table 5.2. **Suggest** why you think India, China and the United States use so much water each year compared to other countries.

4 Refer to Table 5.3. **Explain** where many of the countries that use high amounts of water per capita are located.

5 **Explain** why you think the people in the regions identified in Question 4 use so much water.

6 Based on the differences you see in the lists in Tables 5.2 and 5.3, **explain** why it is important to always compare places based on per capita use, rather than just the total amounts that are used.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.4

Factors causing a phenomenon

In geography, factors are the causes or reasons why something occurs. Geographers are interested in factors because they can help us to understand why something occurs and to try and predict what might happen in the future.

Factors are often ranked in order of their importance. This helps to determine the primary cause of a change and enables managers to allocate funds or develop strategies to tackle a change that causes a problem.

An example of this approach is bushfire management in Australia. Experts determine the factors that lead to bushfires, the spread of fire and the level of vulnerability for different communities. Governments use this information to determine the best course of action in reducing uncontrolled bushfires.

Figure 5.24, and Tables 5.2 and 5.3 present a variety of information about the use of water resources around the world. Look at this information and then answer the following questions.

1 Choose one of these sources of information as the focus of this activity.
2 **Identify** at least three reasons why you think there might be variation between the places listed.
3 Rank these factors in order of importance.
4 Write a short paragraph **justifying** the reasons for your ranking.
5 **Compare** your answer with a classmate.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.5

Drawing a bar graph

Bar graphs are a simple way to display and compare quantities. They allow us to see which values are greatest and how much variation there is between quantities. All graphs must show the date of the data, and a key/legend.

The information in Tables 5.2 and 5.3 came from Worldometer and Statista. Look online for these websites (you can search for 'water and Worldometer' or 'water and Statista') and gather the data for all the countries in a region of your choice. For example, all of the countries in South America or Europe.

Yearly water use in (insert region and year)

1 Have a look at the range of values. What are the largest and smallest values? This will help you to determine how high your graph axes have to go.
2 **Create** a set of axes and label them. Your countries will go on the horizontal axis and the amount of water they use will go on the vertical axis.
3 Divide your vertical axis into even amounts. These should start from below your lowest value and go to above your highest value.
4 Add the names of your countries to the horizontal axis.
5 Draw your bars ensuring they are an even width and have a gap between them.
6 Add a title and legend to your graph.
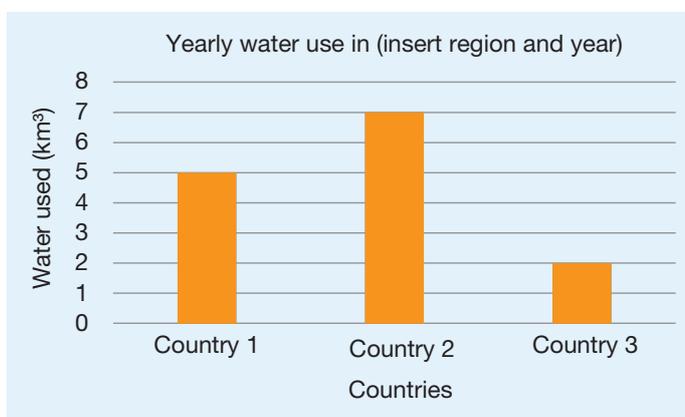
Agricultural water use

In most parts of the world, agriculture uses the most water resources. This is because water is used to grow all of the fruits, vegetables and grains that we eat. Water is also used to grow the food that is fed to animals, such as cows and sheep, and to domestic pets. Table 5.4 shows the amount of litres needed to grow one kilogram of a variety of different foods. Based on this information, it is clear that the food we choose to consume has a very large impact on the amount of water resources that are needed.

TABLE 5.4   The amount of water needed to grow one kilogram of different types of food

Food (1 kg)	Water use (litres)
Bread	1 608
Chocolate	17 196
Beef	15 415
Chicken	4 325
Rice	2 497
Apples	822
Cheese	3 178
Potatoes	287

▲ **Figure 5.25** This photograph shows a very labour-intensive form of irrigation in Vietnam.

Irrigation

Irrigation is defined as the artificial application of water to land for the purpose of agricultural production. In other words, irrigation refers to the watering of crops on a farm. The water used for irrigation is taken from surface water resources, such as rivers, lakes and reservoirs, and groundwater supplies. The benefits of irrigation include the ability to:

irrigation the practice of supplying land with water so that crops and plants will grow

pasture grass or similar plants suitable for animals, such as cows and sheep, to eat

infertile land or soil that is not good enough for plants or crops to grow well there

- Grow a higher quality and greater quantity of crops and **pasture**
- Choose when and how much water crops are given to maximise growth
- Grow crops even during periods with low or no rainfall
- Use land for agriculture that would have otherwise been too dry or **infertile**
- Stimulate local economies by providing jobs in labour; agricultural science; and the processing, packaging and transporting of products.

There are several different types of irrigation. Some of these are presented in Table 5.5.

TABLE 5.5   Three of the main types of irrigation

Irrigation type	Description
Furrow	A series of small, shallow channels to guide water down a slope across a paddock
Sprinklers	Sprinkler systems that spray water over the land; some are fixed in position while others are mounted on wheels or a trailer to move across the landscape
Drip	Tubes placed above or below the soil's surface, which have holes that frequently drip small amounts of water onto the soil

availability how easily people can access a service or facility

rural an area in the countryside that is not part of a large town or city

habitat the natural environment where an animal or plant usually lives

The choice of irrigation types for farmers will depend on the amount of water available, the amount of water needed, the soil type, the types of crops grown, the shape of the landscape and the local climate. The choice of which irrigation type to use also varies considerably across the world because of the **availability** of technology and money to purchase equipment.

Although irrigated farmland covers less than 1 per cent of Australia, it produces 30 per cent of all of our agricultural products. Irrigated farmland also uses 90 per cent of the total amount of water resources used by agriculture. There are 40 000 farmers who use irrigation and many more employed in related industries. Altogether this contributes to around $10 billion of the Australian economy each year.

Australia's irrigation industry is highly regulated. Farmers are issued with irrigation licences and are allocated an amount of water that they are able to extract from surface and groundwater supplies. This regulation aims to ensure that irrigation is sustainable.

Impacts of irrigation

Despite the numerous benefits of irrigation and its regulation, there are several negative impacts associated with it. Allocating water resources is a balance between agricultural, domestic and environmental needs. If too much water is extracted for irrigation, less is available for **rural** towns and their domestic needs. Extracting water from river systems can also prevent rivers from supplying water to wetlands, which can lead to the loss of vegetation and damage vital **habitats**.

▼ **Figure 5.26** Irrigation can allow crops to be grown in places that would otherwise be barren, like what is shown here in Sudan.

Shortly after clearing and irrigation
Evaporation and the seeping of irrigation concentrates saline groundwater at the surface of the soil.

Some time after clearing and irrigation
What would have been protective plant cover is destroyed by the accumulation of salt at the surface of the soil. This leaves the land open to erosion.

Before clearing
The system is balanced and most of rainwater is used in the spot where it falls.

▲ **Figure 5.27** Excessive irrigation, together with land clearing, can contribute to salinity in the soil.

Another common impact of irrigation is salinity. **Salinity** refers to an increase in the amount of salt that is in soil. Since salt is toxic to most plants, this can kill local vegetation. As shown in Figure 5.27, in a forested area, tree roots soak up groundwater supplies, keeping them at a low level. Removing trees and irrigating the land causes the groundwater level to rise. As water rises, it passes through soil and rock, which is a process known as **percolation**. As it does this, salt that is present in lower levels is dissolved in the water and transported to the surface. This increases the amount of salt in the layer of **topsoil** where crops are grown. As the vegetation dies, the topsoil becomes exposed to **erosion** from wind and rainfall, leading to a loss of topsoil. This process in irrigation can turn a thriving farm or forest into a barren wasteland.

Domestic water use

Domestic water use refers to the ways in which we use water in and around our homes. This includes drinking, cooking, flushing toilets, showering and watering the garden. Table 5.6 lists some of the common domestic uses of water and the amount of water each activity consumes.

salinity the amount of salt contained in something

percolation the process of a liquid moving slowly through a substance that has very small holes in it

topsoil the soil that forms the top layer of ground where plants grow

erosion a process that gradually wears away and removes rock, soil and sediment by wind or water

TABLE 5.6 A list of common domestic water uses and the amount of water they consume

Domestic water use	Water consumed (litres)
Toilet flush	12
Bath	100
Shower (10 minutes)	200
Dishwasher load	50
Washing machine load	150
Brushing teeth with tap running	5
Drinking, cooking and cleaning per day	10
Hand basin per use	5
Garden sprinkler per hour	1000
Car washing with hose	200
Hosing driveway	100

Source: Riverina Water County Council website, 2019

efficiency to use resources in the best way to avoid waste

stormwater excessive water runoff from rain and snow after a storm

The amount of water used for domestic purposes per person varies significantly across the world. As shown in Figure 5.28, Australia uses more domestic water per person than anywhere else in the world. This is likely to be because Australia is also the driest inhabited continent. Other factors that determine the amount of domestic water use include the **efficiency** of appliances, such as washing machines and shower heads. Also, whether alternative supplies of water, such as rainwater, **stormwater** and wastewater, are recycled affects the amount of domestic water that is used.

ACTIVITY 5.4

Reading information from maps

Refer to Figure 5.28 and answer the questions that follow.

Domestic water use:
- Less than 40 m^3/person
- 40–91 m^3/person
- 91–159 m^3/person
- 159–281 m^3/person
- 281–487 m^3/person
- No data
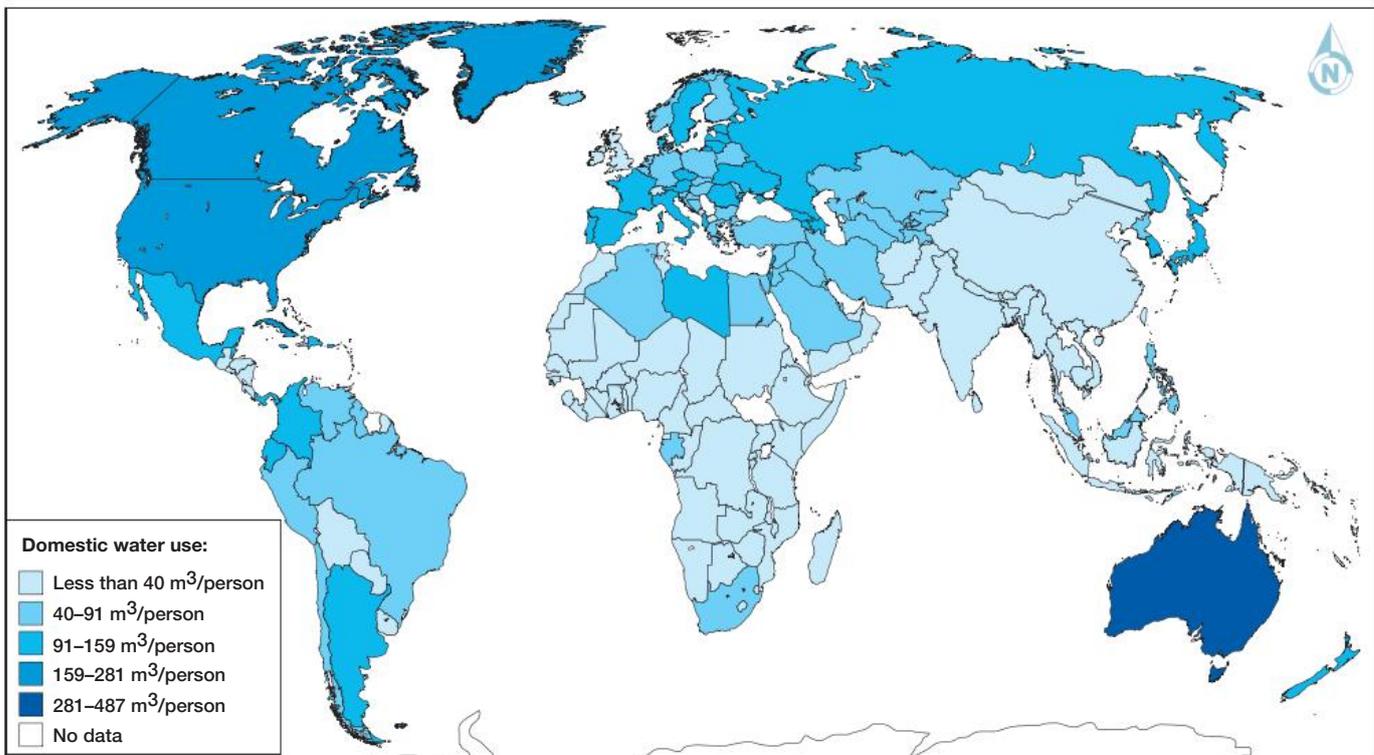
▲ **Figure 5.28**   The amount of domestic water use per person across the world by year (this is shown in cubic metres per person), 2019

1   Besides Australia, **identify** which region of the world uses the most amount of water for domestic purposes each year.
2   **Identify** which region uses the least amount of water.
3   Suggest a reason for your answers to Questions 1 and 2. **Consider** the region's access to technology, wealth and lifestyles.

The south-east Queensland water grid

The Queensland Government responded to the severe drought of 2004–07 by building a water grid (which is made up of 535 kilometres of pipelines!) to connect all the major water sources within south-east Queensland (SEQ). Dams, desalination plants and wastewater recycling plants are now connected. This water grid can create and move water to places experiencing low rainfall during drought, thus ensuring there is a constant, adequate water supply for the majority of the 3.8 million residents in the SEQ region.

```
                                        ┌──────────────────────────────────────┐
                                        │              12 dams                  │
                                        └──────────────────────────────────────┘
                                        ┌──────────────────────────────────────┐
                                        │  36 conventional water treatment plants│
                                        └──────────────────────────────────────┘
                                        ┌──────────────────────────────────────┐
                                        │   3 advanced water treatment plants    │
                                        └──────────────────────────────────────┘
        ┌─────────────────┐             ┌──────────────────────────────────────┐
        │  SEQ water grid │─────────────│          1 desalination plant          │
        └─────────────────┘             └──────────────────────────────────────┘
                                        ┌──────────────────────────────────────┐
                                        │        28 bulk water reservoirs         │
                                        └──────────────────────────────────────┘
                                        ┌──────────────────────────────────────┐
                                        │           22 pump stations             │
                                        └──────────────────────────────────────┘
                                        ┌──────────────────────────────────────┐
                                        │  around 600 km of bulk water supply     │
                                        │              pipelines                  │
                                        └──────────────────────────────────────┘
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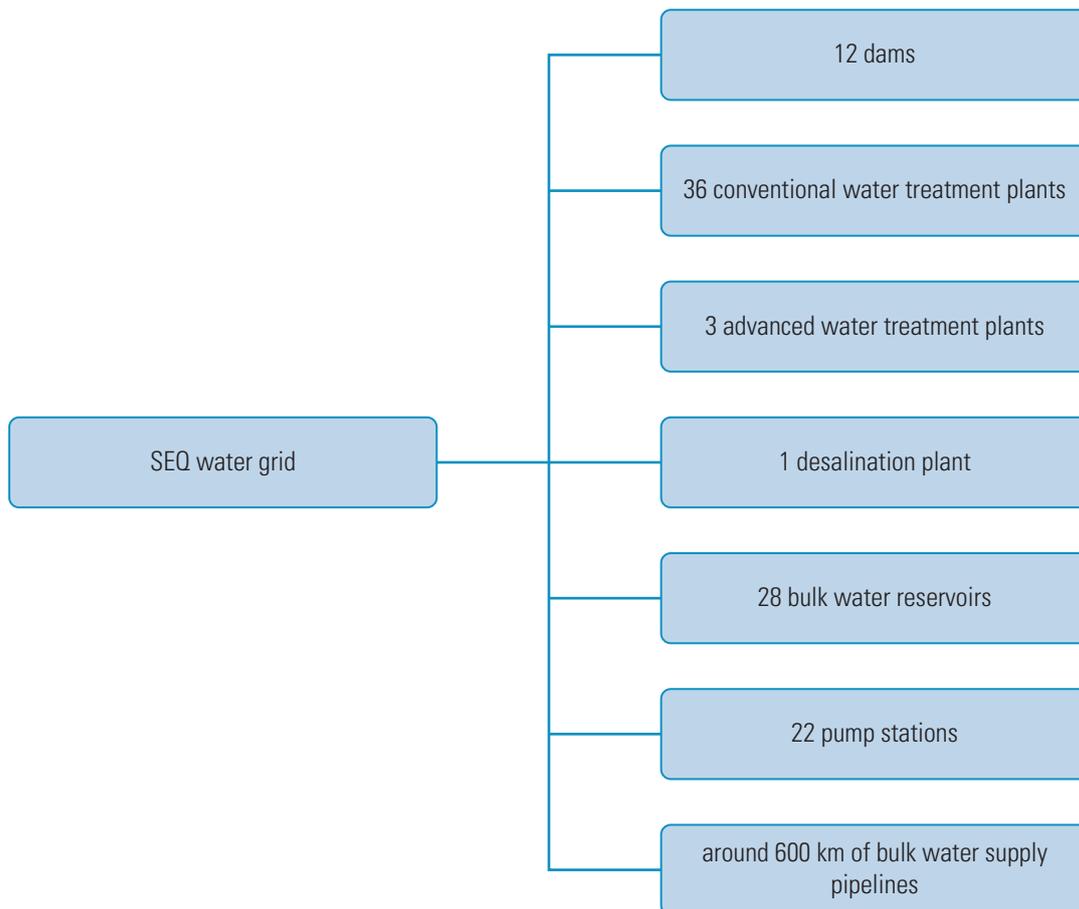
▲ **Figure 5.29** What is the south-east Queensland water grid?

SEQ Water Wise program

" Everyone and
every drop counts "

https://www.seqwater.com.au/

As the number of residents rapidly grows in SEQ, people are encouraged to apply as many water-saving measures as possible to save water by lowering their consumption.

MAKING THINKING VISIBLE 5.2

Think, pair, share

How much water do you use? Observe Table 5.7 and then take the seqwater.com.au 'Home water efficiency Audit' to find out.

Think about your family water use and evaluate how much water your family uses per person in a week. Have a look at one of the water bills for your household. What is your family average water use per person? Is it close to your estimation?

Share your estimation with a partner, and then **discuss** it with the rest of the class.

TABLE 5.7   What does 150 litres of water use look like?

88 litres One load of washing with a ★★★ WELS rating	**36 litres** One four-minute shower
9 litres Three half-flushes	**7 litres** One load of dishes with a ★★★ WELS rating
4 litres Approximately half a bucket to water house plants, clean pets etc.	**3 litres** One litre per hand wash
2 litres Drinking water	**1 litre** Two brushes/shaves

Managing water supplies

To ensure there is enough water to meet agricultural, domestic and industrial needs, water resources require management. This involves the use of technology to access available and potential sources, as well as the construction of reservoirs and dams to store large quantities of water. Bulk water in Queensland is planned and managed by the Department of Regional Development, Manufacturing and Water. Water infrastructure and delivery is provided by SEQ water, Sun Water and the Gladstone and Mt Isa water board. (See Chapter 6 for more on SEQ water grid.)

Reservoirs and dams

Reservoirs are large natural or **artificial** lakes that are used to store a large quantity of water. In order to store water, the flow of rivers is stopped using a dam. Dams are barriers that prevent the flow of water downstream through the use of a wall. Dams have gates that can be opened to allow excess water to be released. By controlling the flow of rivers, dams can also be used to stop floods and to generate **hydroelectricity**.

The largest dam in Queensland is the Burdekin Dam, which has a total storage capacity of 1860 **gigalitres** (1.068 cubic kilometres). This is tiny compared to the Kariba Dam between Zambia and Zimbabwe, which can store 185 cubic kilometres!

Despite their usefulness, dams lead to a number of environmental consequences. They alter the natural flow of rivers and streams, and that impacts on river ecosystems. Fish that need to migrate up and downstream to feed and breed are unable to cross barriers. This has led to the extinction of many species. Altering a river's natural flow can also affect water temperature and water quality. This impacts on food networks, and the growth and reproduction of a variety of plants and animals.

artificial made by people, often as a copy of something natural

hydroelectricity electricity produced by the force of fast-moving water such as rivers or waterfalls

gigalitres a gigalitre is exactly one billion litres

▼ **Figure 5.30** The Kariba Dam in Zambia is 128 metres tall and 579 metres long.

While dams can prevent downstream cities and towns from flooding, they also stop natural flood events, which are an essential process that helps to maintain the health of floodplains, forests and wetlands. Dams also stop small particles known as sediment from flowing downstream, which is needed to maintain downstream habitats.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 5.6

Annotating a photo

An annotated photograph is a photograph that has been labelled with names and descriptions. This can be done by hand or digitally. Geographers use annotated photos to demonstrate their observations from photos taken out in the field. They use annotated photographs to demonstrate specific features, processes or impacts. **Create** your own annotated photograph by following these steps:

1 Find a photograph of a dam using Google Images or use the photograph below of the Hinze Dam, Gold Coast.

2 Print your photograph or copy it into a graphics editing program.

3 Add lines leading to specific features of the photograph that you wish to describe. Do not use arrows to label features because arrows indicate movement.

4 Add key words and short descriptions to demonstrate the features and purposes of a dam, as well as some of their environmental consequences.

5 Add a title and source to your annotated photograph.

Description using key words

Title

Description using key words

Description using key words

Description using key words

Description using key words

Description using key words
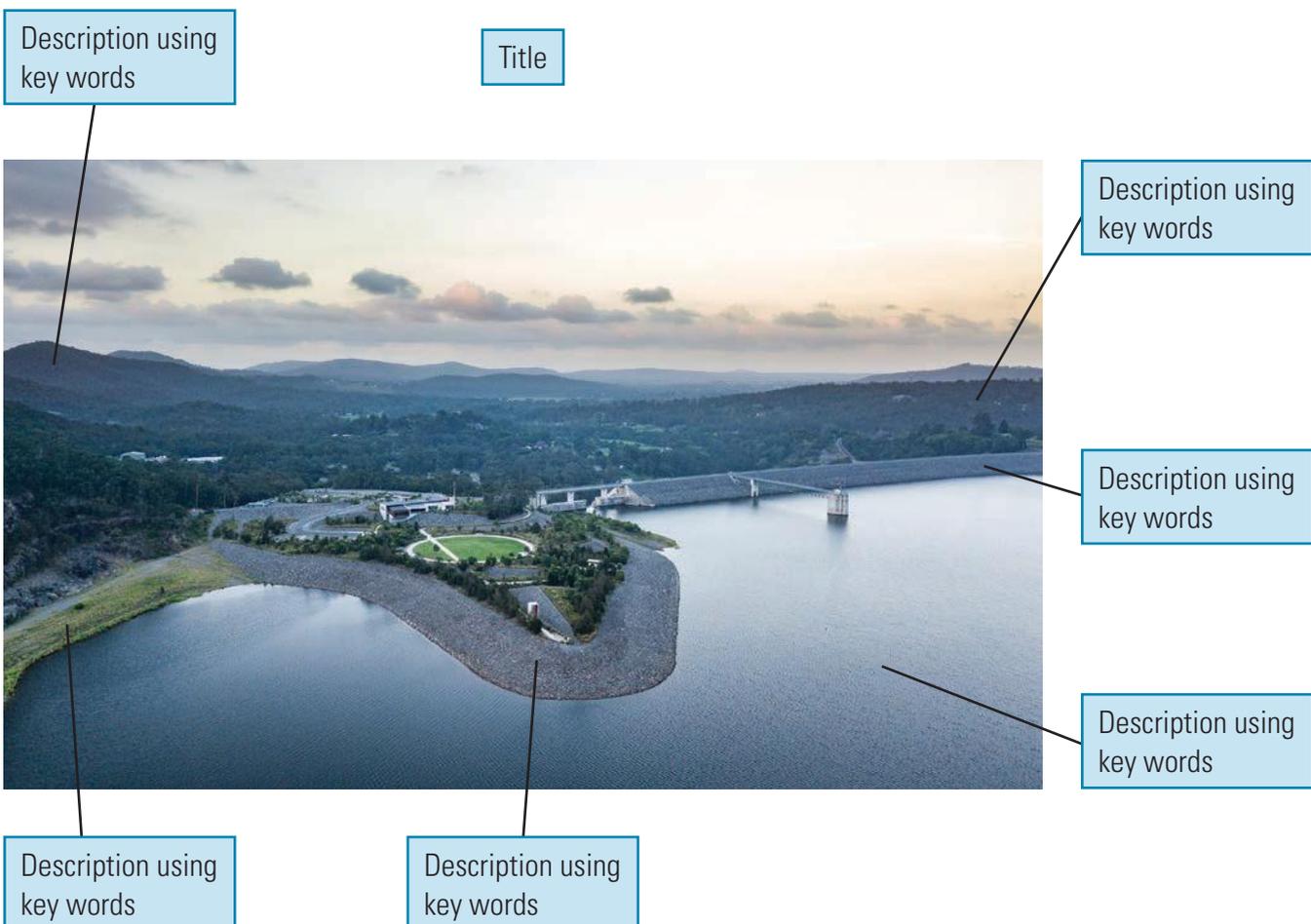
DEVELOPING YOUR UNDERSTANDING 5.3

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the following terms:

- Withdrawals
- Agriculture
- Per capita
- Factors
- Infertile
- Irrigation
- Salinity
- Reservoir
- Dam.

2 **Identify** how much of the rainfall that reaches the Earth flows into rivers and groundwater each year.

3 **Identify** the proportion of the water in rivers and groundwater that is used for agriculture.

4 **Explain** the difference between agricultural and domestic water use. Provide examples in your explanation.

Interpret

5 **Explain** why countries where people use the most amount of water per capita are not necessarily the same countries that use the largest amount of water in total.

6 **Describe** how using too much water for irrigation can lead to salinity.

7 **Identify** and **describe** the way water is used in your school and suggest three ways that water could be used more sustainably.

Argue

8 Due to their environmental impacts, the construction of dams is often controversial. **Explain** and **discuss** in a paragraph the reasons why dams are constructed and their negative impacts. Based on this information, **justify**, using researched evidence, whether you think Australia should construct more dams rather than using alternative water resources. You can refer to Figure 5.30, your research and also the positives and negative table you created in Activity 5.2 in your answer.
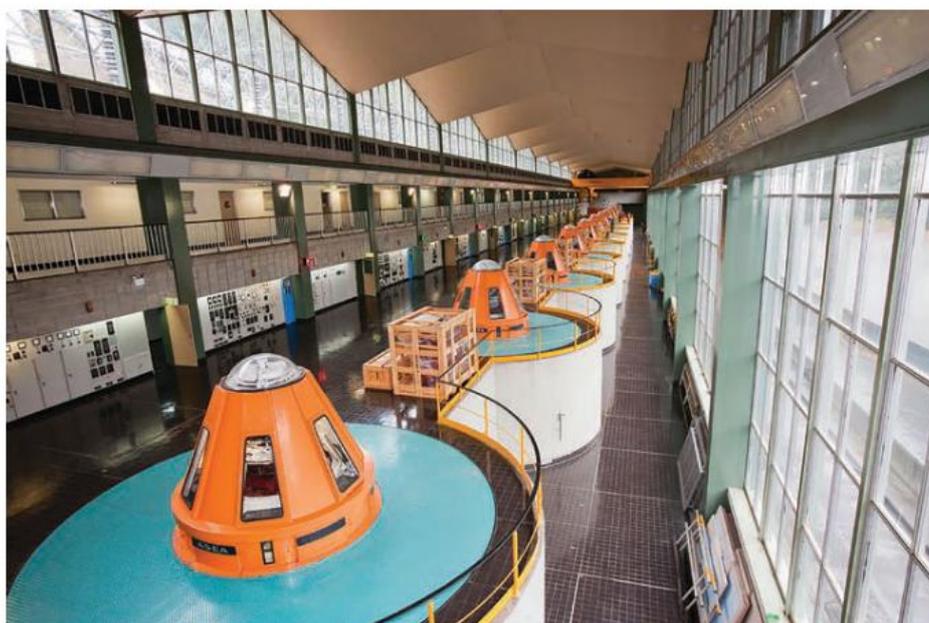
▲ **Figure 5.31** Regulating the flow of rivers can be used to generate electricity. The Snowy Mountains Hydro Scheme has 10 turbine generators and each one can generate enough electricity to power 95 000 homes.

5.4   Water as an interconnection

FOCUS QUESTION

What role does water play in connecting environments and places?

In geography, **interconnection** refers to the links and relationships between objects and places. People often play an important role in these links as human activities often impact and change natural processes. As water transforms through the water cycle, it plays a significant role in connecting places and changing an area's characteristics.

interconnection the relationship between places and people, and the ways in which they influence each other

The flow of rivers downstream provides important links between places. These connections vary in scale from small urban creeks to rivers that flow across several countries. For example, the Condamine River begins at Mt Superbus in the Great Dividing Range, flowing west through south-east Queensland and the Darling Downs, and connects to the Darling River. It then becomes part of Australia's longest river system (total length of 3672 kilometers), flowing through the three states of Queensland, New South Wales and Victoria, where it eventually connects with the Murray to become the Murray–Darling Basin. In contrast, the Mekong River is one of the largest rivers in the world and flows 4350 kilometres through China, Myanmar, Thailand, Laos, Cambodia and Vietnam.

Trade and transport

In larger river systems, rivers have been, and still are, a major source of transport and vehicle for trade. In 1853, paddle steamers became a form of inland transport and trade along the Murray River. While the common cargo was once bales of wool, today these paddle steamers carry tourists up and down the river in places like Mildura and Echuca. The Mississippi River is the second largest river in the world and is a significant part of trade in the United States. The barges there transport items like petroleum, iron, steel, grain, paper and wood to various ports.

Interesting fact

The Port of South Louisiana ships 500 million tonnes of goods each year!

▼ **Figure 5.32** Famous Murray River paddle steamers, such as the PS *Emmylou*, operate as a tourist attraction in Echuca, which is on the border between Victoria and New South Wales.

▼ **Figure 5.33** Oil tankers and barges are essential to the local economy in the Mississippi basin.
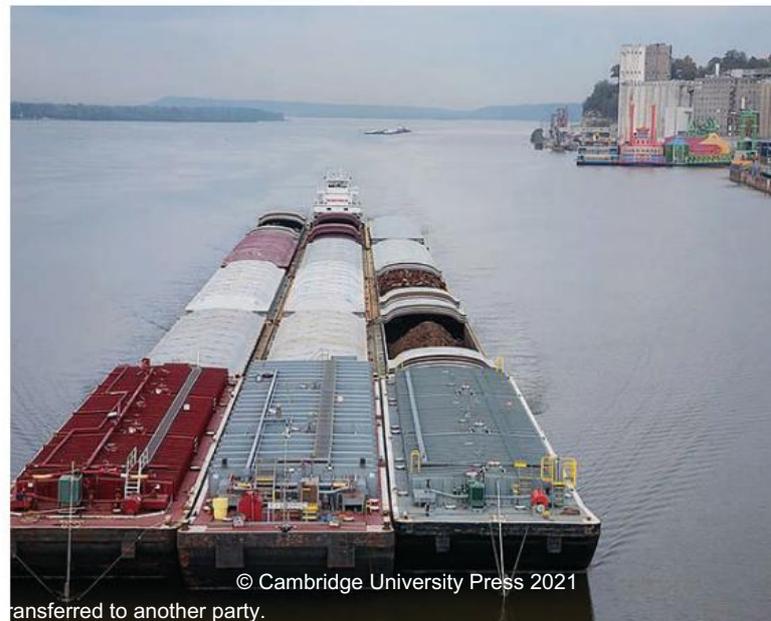
Water moving through environments

Water can take many forms as it flows through different environments. In Bhutan, the water source for many villages comes from glaciers located tens or even hundreds of kilometres away. Glaciers are frozen rivers of ice that form when snow accumulates and is compacted. This usually occurs in mountainous regions. When ice from Bhutan's glaciers melts, water flows into rivers and downstream to villages. People then use this water for agriculture, which is the main industry in Bhutan.

The amount of water available for people living in downstream regions of a river system depends on the amount extracted from the upstream users. If users upstream withdraw too much water, the quantity of downstream supplies is reduced. Furthermore, if pollution is added to a river upstream, it can damage the quality of downstream supplies. Pollution in this context includes industrial waste from factories or mining operations, and fertilisers and pesticides from farm use, which gets washed into waterways when it rains.

▲ **Figure 5.34** Northern Bhutan is dominated by tall mountains and glaciers that make up part of the Himalayas.

▲ **Figure 5.35** Ice from Bhutan's melting glaciers flows into rivers.

▲ **Figure 5.36** Water from Bhutan's rivers supplies the villages with water to use for agriculture.

In the case of the Mekong River, the **exploitation** of water resources in upstream countries, such as China and Laos, is causing havoc for Cambodia. Cambodia is heavily reliant on the Mekong River for agriculture, as it provides 85 per cent of the agricultural water supply. The fishing industry, which makes up 12 per cent of Cambodia's economy, also relies on a healthy river flow to support 500 local species of fish.

exploitation the use of something in order to get an advantage from it

tributaries rivers or streams that flow into a larger river or a lake

nutrients any substance that plants or animals need in order to live and grow

However, since the 1990s, the river and its **tributaries** have been dammed throughout South-East Asia, largely for the generation of hydropower. These dams have blocked the movement of fish, reduced the amount of **nutrients** in the water, and have made water levels downstream irregular and unnatural. Furthermore, in cases where these dams have collapsed, downstream communities have been flooded. Villagers in Cambodia that rely on the Mekong River are losing their livelihoods and are being forced to change their lifestyles due to the actions of people hundreds of kilometres away.

▲ **Figure 5.37** Cambodia's fishing industry is in crisis as water levels in the Mekong River have hit record lows.

▲ **Figure 5.38** In 2018, thousands of villagers in Cambodia were left stranded when a collapsed dam in Laos sent floodwaters hundreds of kilometres downstream.

The urban water cycle

urban relating to towns and cities

The development of **urban** environments involves the change of a natural environment to one that is artificial. This typically involves the removal of trees and other vegetation, as well as the construction of houses, buildings, roads and footpaths.

Although this development is necessary to house a growing population, it can completely transform the way water moves through an environment. In these human environments, rather than following the natural water cycle (see Figure 5.15), water follows the urban water cycle (see Figure 5.39).
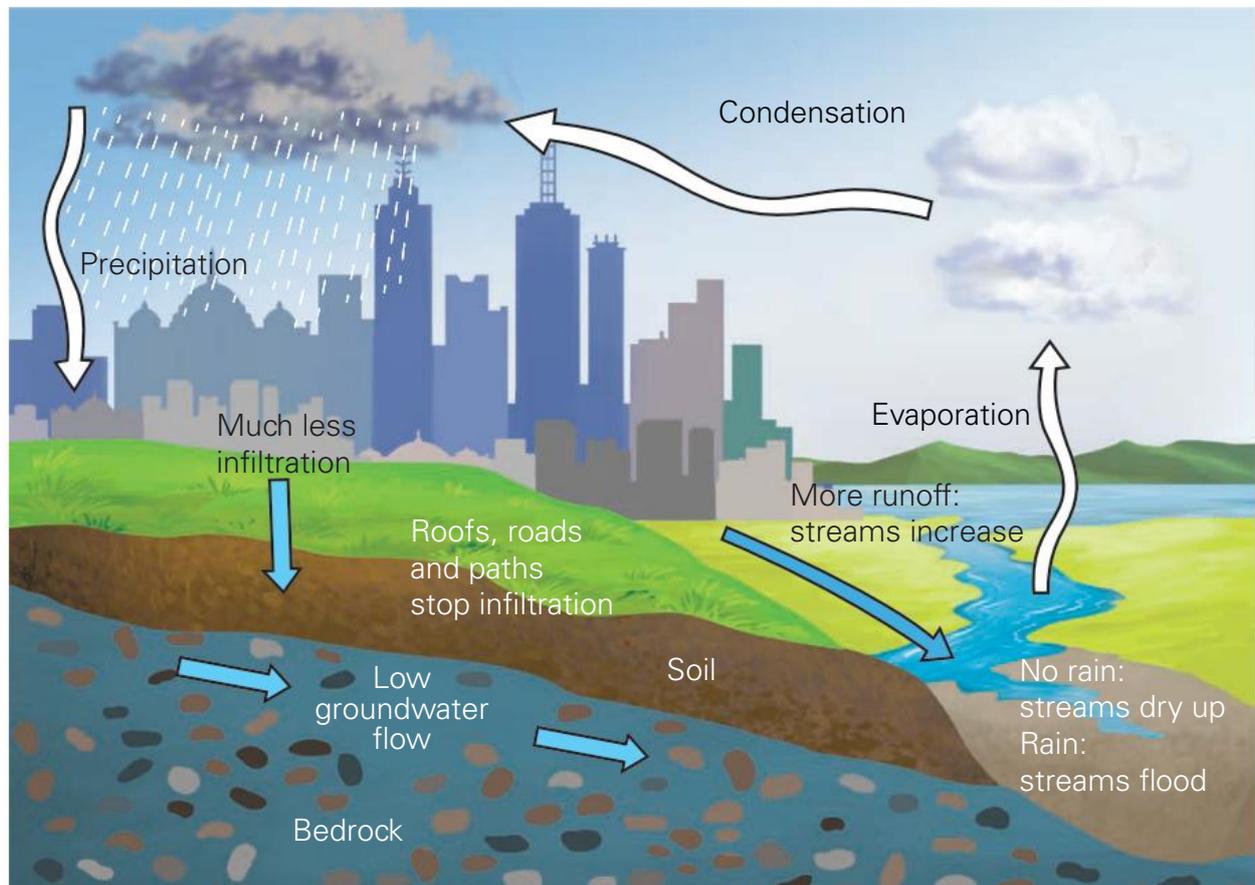
▲ **Figure 5.39** The urban water cycle has the same processes as the natural water cycle. However, there is much less infiltration to groundwater due to the nonporous coverings of roads and paths, which create more runoff.

In the natural water cycle, water infiltrates the soil and maintains groundwater supplies. In urban areas, there is far less exposed soil. The landscape in an urban environment is dominated by **hard surfaces**. These are surfaces like concrete where no water can penetrate. Therefore, much less water infiltrates into the soil and groundwater in an urban environment, and far more flows as runoff. The runoff can lead to increases in flooding and in the amount of pollutants entering local rivers.

hard surfaces human-made surfaces, such as concrete, which cover the natural ground and limit the amount of water that can infiltrate the soil to become groundwater

ACTIVITY 5.5

The natural water cycle versus the urban water cycle

Compare Figures 5.15 and 5.39, then answer the following questions.

1 **Explain** the major differences between the movement of water in the natural and urban water cycles.

2 **Describe** the impacts that these differences will have on the local environment in an urban area.

3 One way to reduce the impact of urban development on local waterways is to construct raingardens. Visit the Brisbane City Council website and search for raingarden to learn about the benefits of using raingardens to treat stormwater. **Investigate** whether or not a raingarden would be suitable to construct outside your home or school.

▲ **Figure 5.40** Stormwater runoff is directed into raingardens like this one so that water can filter into the ground rather than flooding local creeks.

DEVELOPING YOUR UNDERSTANDING 5.4

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Identify** and **describe** two examples of how water is or has been used for trade and transport.

2 **Describe** the way in which water connects villagers to the glaciers in Bhutan.

3 **Explain** some ways in which water use in the upstream countries of the Mekong River has impacted villagers in Cambodia.

Interpret

4 **Explain** what interconnection means and provide at least two examples.

5 **Describe** how urban development changes the water cycle and how this can impact on water resources.

Argue

6 **Investigate** and **discuss** the ways in which water creates an interconnection between places, environments and people. In your discussion, refer to examples provided throughout the chapter or find your own.

End-of-chapter assessment 5

1   Making thinking visible

Circle of viewpoints

Turning wastewater into potable water is seen by some as a necessity and by others as an absolute last resort. **Consider** a situation where the Queensland Government decided to start recycling Brisbane's wastewater into the city drinking water supply. Choose a perspective from the following list:

- The premier of Queensland
- A government authority, such as SEQ Water
- The owner of a Brisbane business that needs a large water supply
- A local resident.

Use the following sentence stems to **explore** this topic.

I am thinking of turning wastewater into potable water from the point of view of …

I think turning wastewater into potable water is …

A question I have from this viewpoint is …

2   Research tasks

Choose one of the examples provided in this chapter to study water as an environmental resource more thoroughly. **Develop** a research question, and research additional detail and statistics to answer the question. Then, present your findings in a report.

Some ideas are given here:

- Is solar, wind, fossil fuel or nuclear energy a sustainable option for the future of energy production?
- What are the impacts of salinity in Australia? Find out how much of Australia is affected, the main causes of the problem and the ways that Australians are trying to reduce the impacts.
- To what extent are dams in Australia or elsewhere in the world impacting the environment, people and local economies?
- What are some of the specific impacts of the management of the Mekong River in downstream communities? Is this likely to change in the future? How could the river system be managed more sustainably?

3   Extended-response question

Claim: *Water resources are renewable yet finite. Sustainable management of this environmental resource is needed to ensure that people, the environment and the economy are not negatively impacted.*

Discuss whether you agree with this statement. In your response, refer to the types of water resources in specific places, the impacts associated with water supplies and the ways that water is managed in the area.

4 Problem-solving task

As the global population continues to grow, domestic water use places an increased pressure on water supplies. Either research a modern technology that reduces domestic water use or design your own. **Discuss** how this technology works and how it could be incorporated into existing houses in Australia.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

▲ **Figure 5.41** A dam built in Laos in 2019 reduced the flow of the Mekong River in downstream regions, which impacted the lives of local villagers and destroyed the river's diverse ecosystems.

CHAPTER 6

Water scarcity and management

Setting the scene: a human-made disaster leaves a city without water

> *Chennai is gaining notoriety as the disaster capital of the world – floods one year, cyclone the next and drought the year after.*
>
> Nityanand Jayaraman, BBC

With a population of over nine million people, Chennai is the sixth-largest city in India. This bustling city is also one of India's most visited tourist destinations and a centre for many technological industries. However, in 2019, Chennai ran out of water, which led to a range of disastrous social and economic consequences.

wetlands an environment featuring plants that grow in water and land that is either permanently or seasonally marshy or covered with water

Between 1980 and 2010, Chennai experienced rapid growth. Almost 400 square kilometres of buildings were constructed in areas that were once **wetlands**.

This completely changed the flow of water throughout the location, because less water was able to infiltrate into the groundwater supplies. Meanwhile, the population had grown considerably, which increased demand for the groundwater resources.

▼ **Figure 6.1** Chennai is located on the south-east coast of India.

▲ **Figure 6.2** This graph shows the average monthly rainfall in Chennai.
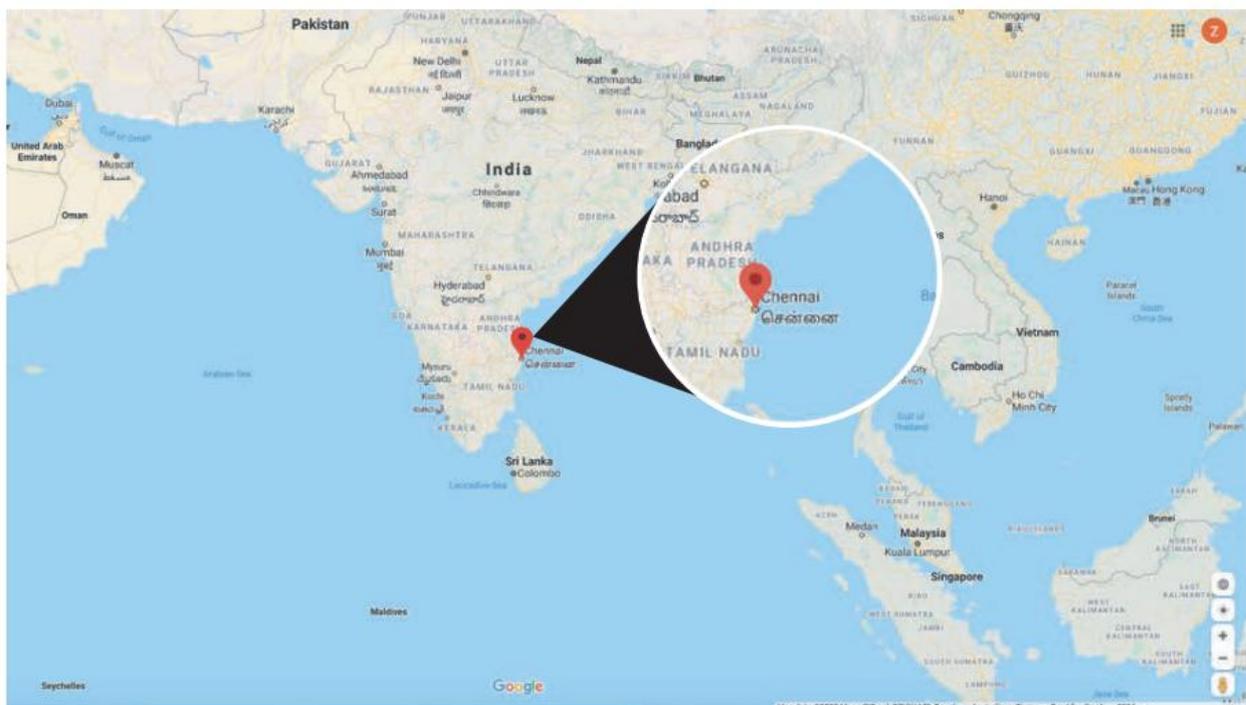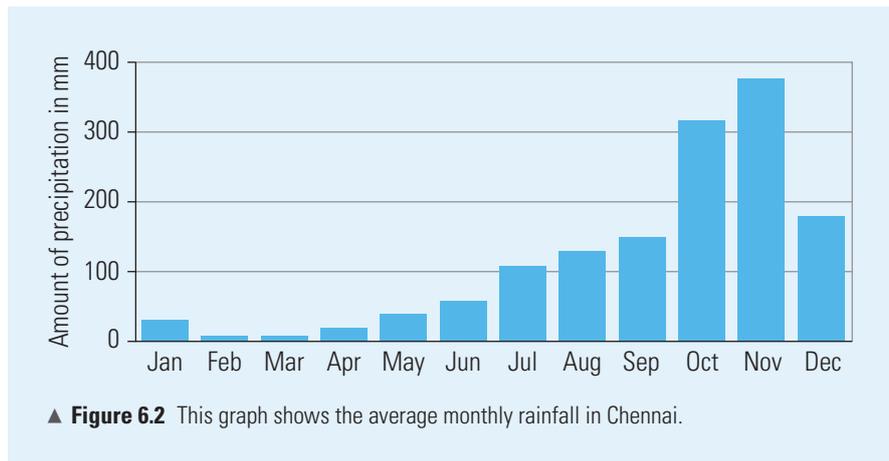
Unchecked growth in construction, and pollution from various industries and coal power stations, led to the **degradation** of many of the remaining wetlands and rivers. Some of these areas were even turned into rubbish tips. This meant that many surface-water supplies were no longer useable in Chennai. On top of this, Chennai relies on heavy rainfall during the **monsoon** season in October and November (see Figure 6.2). This rainfall is unpredictable and is so heavy in some years that the city experiences severe flooding. However, in other years, such as 2018 and 2019, rain does not come.

In June 2019, after extended periods of low rainfall, soaring temperatures and poor water management, there was a water crisis in Chennai. Chennai reached 'day zero' and ran out of water. The city's four main reservoirs were empty. Millions of residents were forced to wait in line at public pumps for hours to access enough water to get through each day. People in Chennai struggled to maintain basic levels of hygiene as they were unable to wash their clothes, dishes or themselves. Restaurants, businesses and schools were forced to close, and hospitals had to reduce their staff and turn patients away. Many people had no other choice but to leave their homes and seek refuge in nearby cities. Throughout the city there was a feeling of helplessness as people waited for rain to come.

degradation the reduction in the quality and health of a natural environment due to natural processes or human activities

monsoon the seasonal changes in atmospheric wind circulation and precipitation

▲ **Figure 6.3** Puzhal Reservoir is one of the four major reservoirs in Chennai. This satellite imagery from NASA shows that it dried up completely between May 2018 (left) and June 2019 (right).

◀ **Figure 6.4** This young girl was one of many citizens of Chennai who recognised the need for sustainable water management rather than just a temporary solution.

As a temporary solution to Chennai's water crisis, the Indian Government used trucks to bring thousands of water tankers into the city. In addition, the government organised a train to bring 2.5 million litres of water each day from the Kaveri River, which is 216 kilometres away from Chennai. However, these supplies were only enough for roughly half of the population. While the wealthy were able to pay extraordinary prices for water from private tankers, the poor living in slums were less fortunate.

Heavy rainfall in late 2019 filled 30 per cent of the reservoirs and ended Chennai's water crisis. However, Chennai is still extremely vulnerable to future water shortages.

To ensure this water-shortage disaster is not repeated, various experts have recommended that Chennai do the following:

- Increase the amount of rainwater that is harvested from the roofs of buildings
- Construct a pipeline that allows it to access water from nearby areas

- Restore and conserve its rivers, lakes and wetlands
- Build multiple desalination and wastewater treatment plants.

Overall, people in Chennai will need to ensure that their water use and its management is sustainable to prevent future disasters. Further, the current rate of urban growth needs to be slowed and water extraction from groundwater has to be reduced to ensure water supplies are maintained. On a national scale, India needs to ensure it manages its water resources sustainably throughout the entire country. Twenty-one cities, including Bangalore, Hyderabad and Delhi, are all facing similar risks of running out of groundwater over the next few years. This means that 600 million people throughout the country are likely to face water scarcity in the future. India is not alone in its struggles with water management, with similar issues in water shortage facing Morocco, Iraq, Spain and South Africa.

MAKING THINKING VISIBLE 6.1

Headlines

Write a newspaper headline summarising the water crisis in Chennai. Which aspect of this case study is the most important?

Chapter overview

Introduction

As the global population continues to grow, there is an increasing demand for water resources. In many places, water scarcity is a serious issue that can potentially lead to disastrous consequences. Each situation is unique and requires a range of management strategies to ensure water use is sustainable. This chapter explores the issue of water scarcity and provides several examples on how water scarcity is managed. It also looks at the way different people in different cultures are linked to water and the significance of water within these societies.

Learning goals

After completing this chapter, you should be able to answer these questions:

- How are water resources distributed around the world?
- How do Australia's water resources compare to other countries?
- What is water scarcity and what factors lead to it?
- How is water scarcity managed?
- How is water managed in Australia's Murray–Darling Basin?
- How can desalination, water recycling and efficient irrigation help to manage water scarcity?
- What role does water play in the spiritual, economic and cultural life of people in Australia and around the world?
- Explain the ways in which water is managed in south-east Queenland.

Geographical skills

After completing this chapter, you should have practised the following geographical skills:

- Explain processes that influence the characteristics of places
- Identify, analyse and explain spatial distributions and patterns, as well as identify and explain their implications
- Identify, analyse and explain interconnections within places and between places, and identify and explain changes resulting from these interconnections
- Collect and record relevant geographical data and information from useful primary and secondary sources, using ethical protocols
- Identify and represent data and information in different forms, including constructing appropriate maps at different scales that conform to cartographic conventions, using digital and spatial technologies as appropriate
- Analyse maps and other geographical data and information, using digital and spatial technologies as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology.

▲ **Video**
Five interesting facts about water management

6.1   Water resources around the world

FOCUS QUESTIONS

- How are water resources distributed around the world?
- How do Australia's water resources compare to other countries?

The driest place on earth is the McMurdo Dry Valleys in Antarctica. This region has not had any precipitation for nearly two million years. The Atacama Desert in Peru and Chile is also extremely dry. Some parts of this desert average less than one millimetre of rain each year. In contrast, the wettest place on Earth is Māwsynrām in north-eastern India. The village receives an average of 11 871 mm of rain each year. To put this in perspective, the average annual rainfall in Brisbane is 1016 mm. These differences in rainfall, as well the physical features of a landscape and the ways in which water is managed, lead to a wide variation in the types and quantity of water resources around the world.

The global distribution of water resources

Water resources include all forms of water that can be used by people. This includes surface-water supplies (such as wetlands, rivers, lakes and reservoirs), groundwater supplies and water that melts from glaciers. Figure 6.5 shows the amount of freshwater resources.

North America
349 million people
7892 km^3

Europe
740 million people
2902 km^3

Asia
4260 million people
13 508 km^3

South America
599 million people
12 030 km^3

Africa
1072 million people
4050 km^3

Australia and Oceania
37 million people
2400 km^3

Atlantic Ocean

Pacific Ocean

Pacific Ocean

Indian Ocean

Spheres are proportional to the volume of water by continent
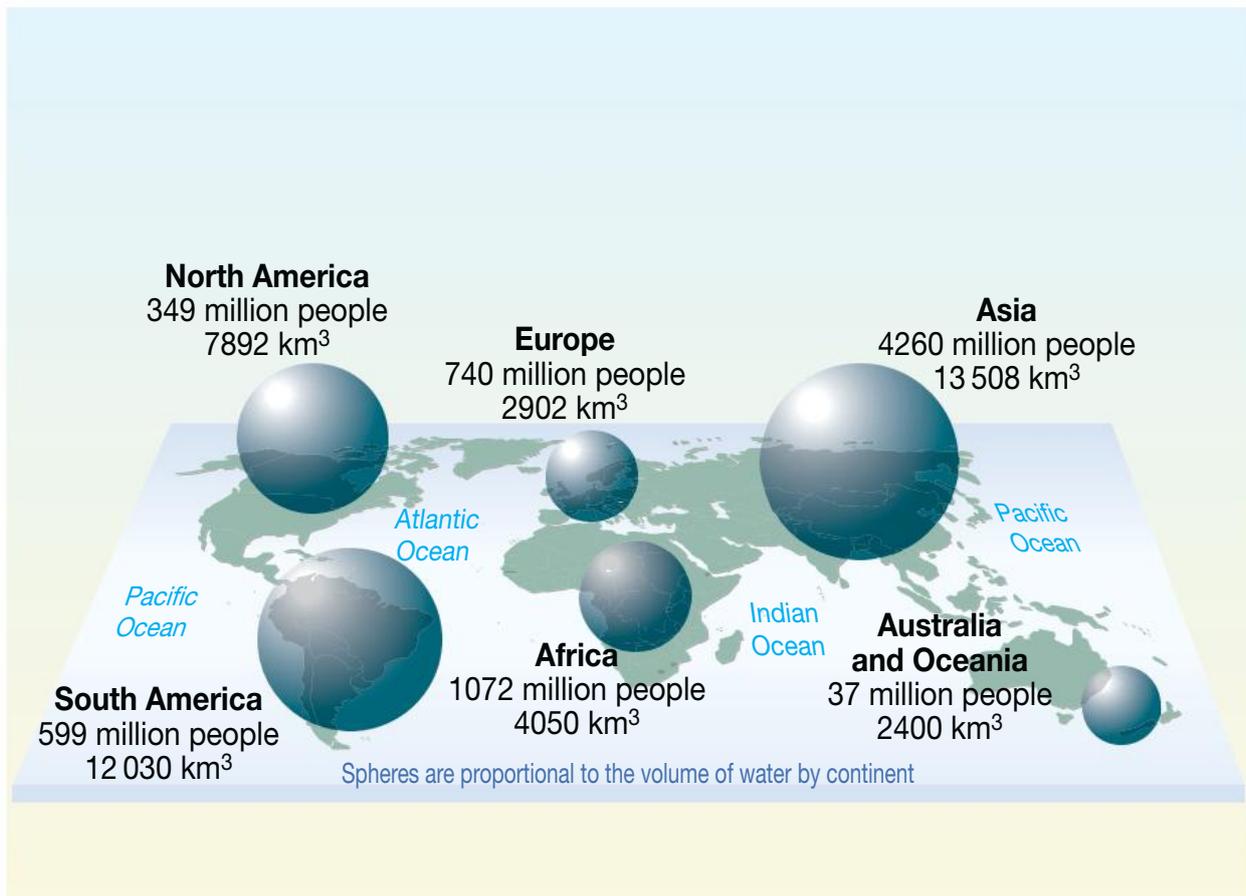
▲ **Figure 6.5** Freshwater resources available in each continent, showing the annual average volume.
Source: Philippe Rekacewicz, Delphine Digout, UNEP/GRID-Arendal

Approximately 10 per cent of the Earth's land is covered in glaciers and **ice sheets**. Around 96 per cent of this frozen water is located in the **polar regions**, especially in Antarctica. Besides ice, the second largest water resource is groundwater. All continents have a large supply, but there are variations within these regions. Although surface water resources are easy to access, they are in far shorter supply, especially in Australia.

Table 6.1 shows the total amount of renewable freshwater that is added to surface and groundwater supplies each year. It is called renewable because it renews (i.e. adds) to existing supplies.

The amount of renewable freshwater added each year is largely based on the amount of precipitation that falls in a region.

ice sheet a thick layer of ice covering a large area of land for a long period of time

polar regions areas near the north and south poles

TABLE 6.1 The amount of freshwater added to different regions each year

Region	Renewable freshwater resources (km³/year)
South America	12 724
North America	6077
Eastern Europe	4448
Sub-Saharan Africa	3884
East Asia	3410
Western and Central Europe	2129
South Asia	1935
Oceania*	902
Central America and the Caribbean	735
Middle East	484
Central Asia	242
North Africa	47
World	42 810

* Australasia, Melanesia, Micronesia and Polynesia

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 6.1

Representing data on a thematic map

Geographers use maps to represent information spatially. This can highlight trends and reveal connections between the physical and human environments. Thematic maps are used to represent a specific theme or subject area, such as the amount of water available in different regions.

1 Using the data in Table 6.1 and a blank map of the world, **create** a thematic map showing the amount of renewable freshwater supplies added to different world regions each year. Represent the data using different sized circles, like those shown in Figure 6.5. This presentation will require you to add a legend to your map to show what values the different circles represent.

2 Ensure that your map contains all of the BOLTSS mapping conventions:

- Border
- Orientation
- Legend
- Title
- Source
- Scale.

3 Use your map to **describe** the world distribution of renewable freshwater resources.

Precipitation

One of the main factors determining the availability of water resources in a location is the amount of precipitation that it receives. As we learned in Chapter 5, precipitation refers to any form of water that falls from the clouds due to gravity and lands on the Earth's surface. This includes rain, snow, hail and **sleet**. As shown in Figure 6.6, precipitation varies significantly across the globe.

sleet rain that also contains some ice

Precipitation recharges rivers, lakes, reservoirs and groundwater. Some of the surface water evaporates, so the amount of water recharged is precipitation minus evaporation. As long as the amount of water used by the population of a region each year is less than the amount of water recharged, water resources will remain stable. This means that the water use is sustainable. If the amount of water withdrawn is greater than the amount of water recharged, then supplies of water will decrease.

| No data | 0 mm | 250 mm | 750 mm | 1,250 mm | 1,750 mm | 2,250 mm | 3,000 mm |
| | 100 mm | 500 mm | 1,000 mm | 1,500 mm | 2,000 mm | 2,500 mm | 3,500 mm |
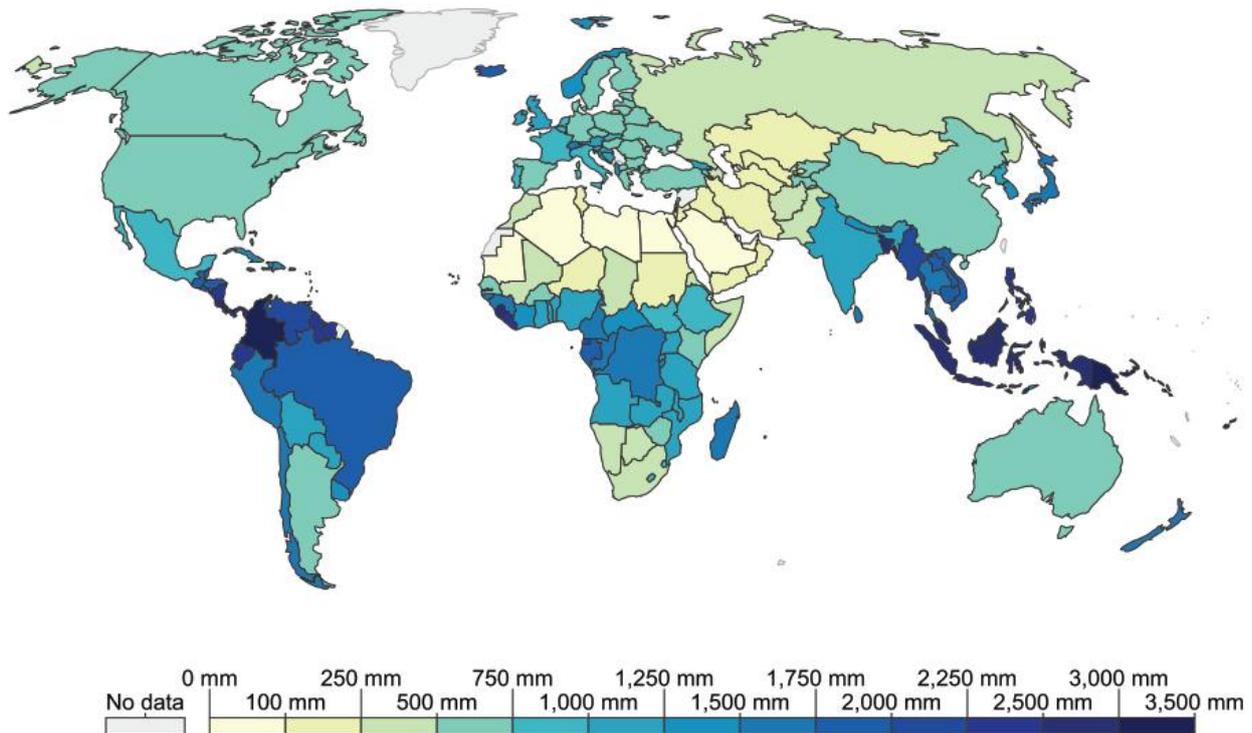
▲ **Figure 6.6** Precipitation in millimetres per year in 2014. You can also look this up online on the World in Data site or create another, updated map by using the National Geographic MapMaker tool.
Source: The World Bank

▼ **Figure 6.7** A severe summer storm approaching the small town of Boonah in south-east Queensland

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 6.2

Using a Geographic Information System

A Geographic Information System (GIS) is a form of spatial technology used to gather, manage and **analyse** spatial information. This data is organised in layers using an interactive map. National Geographic MapMaker is an example of a GIS where different layers can be added to a global map. Data types include temperature, elevation, population density and precipitation.

Search for 'Precipitation and Rainfall – NatGeo Mapmaker Interactive' in your favorite search engine, then do the following tasks and answer the questions.

1 Access the National Geographic's Global Precipitation interactive map, on which a layer displaying the annual global precipitation over the Earth's land surfaces has already been added.

2 Click on 'Legend' to see what the different colours represent.

    a **Identify** three locations that receive above 1500 mm of rainfall each year.

    b **Identify** three locations that receive less than 200 mm of rainfall each year.

    c Most of South America receives more than 1000 mm of rainfall each year. **Assess** if South America adds much freshwater to its water supplies each year.

    d The Middle East does not add much freshwater to its supplies each year. **Identify** if this region receives a high level of precipitation.

    e Based on your answers to parts c and d, **consider** what you can conclude about the importance of precipitation in recharging water supplies.

River systems

Another factor relating to the water resources is the presence and size of rivers. Many major cities are built near rivers as they provide a reliable water source. In the past, rivers were heavily relied on for transport and as a food supply. The damming of rivers enables water to be stored in reservoirs so that it can be used for irrigation.

▼ **Figure 6.8** The Amazon River in Brazil is the largest river basin in the world.

drainage basin an area of land where precipitation collects and drains into a central point such as a river channel

aquifer the part of a groundwater basin that is accessed by a well, borehole or spring

The size of rivers is linked to precipitation. When precipitation falls, it collects and drains into streams that flow downhill into larger streams, which eventually become a large river channel. The area of land that collects rainfall is known as a **drainage basin**. The largest river drainage basins are the Amazon, Congo, Nile, Rio de la Plata and Mississippi. The Amazon Basin alone covers over 7 million square kilometres! In contrast, many countries in desert or arid areas have no permanent rivers at all. These countries include Saudi Arabia, Bahrain and Kuwait.

Groundwater

Just like rivers and other forms of surface water, access to groundwater resources varies significantly around the world.

Figure 6.9 shows the distribution of these resources. The places in the map that are coloured in blue are those that have an abundant supply of groundwater. The water in these major basins is relatively easy and cheap to access. The part of the basin where it is accessed is called an **aquifer**. Groundwater supplies shown in green in the map are considered complex. The groundwater in these areas is difficult to access as water supplies might be separated by layers of rock or might contain a mixture of both salt and freshwater. The areas in yellow in the map have shallow supplies and only a small quantity of water.

Shallow groundwater basin   Complex groundwater basin   Major groundwater basin
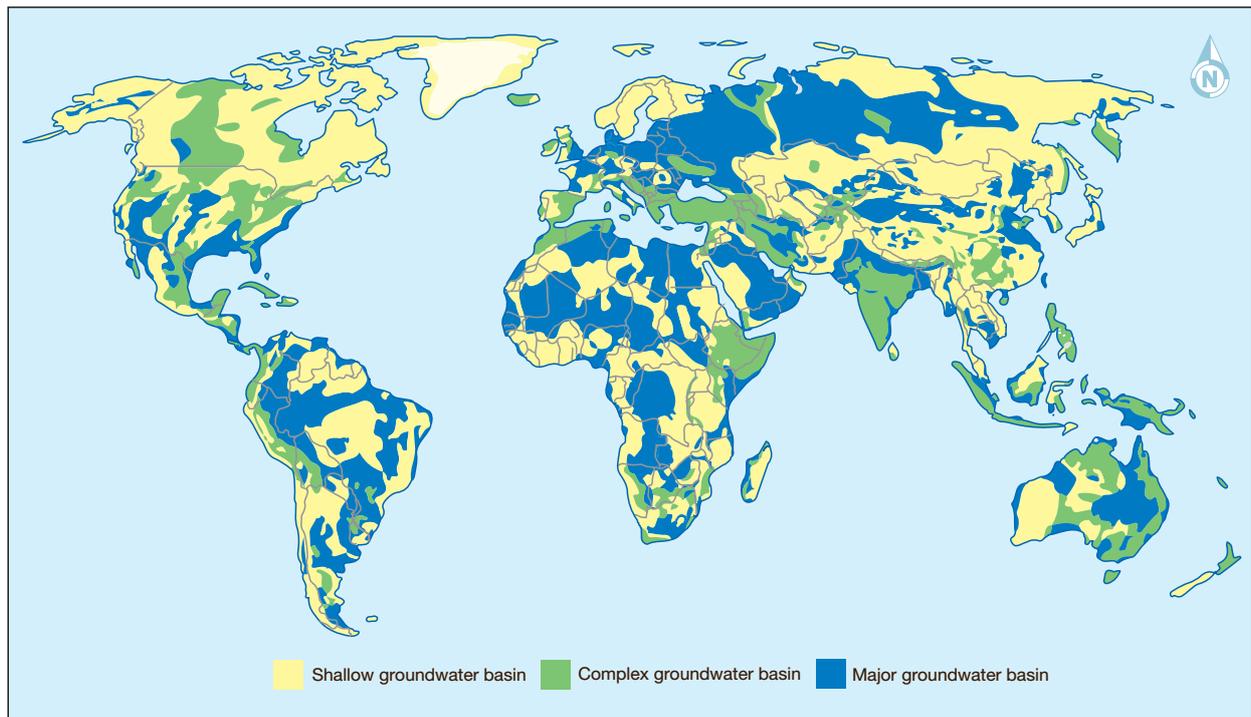
▲ **Figure 6.9** This map shows the global distribution of groundwater resources

ACTIVITY 6.1

Groundwater resources

Refer to Figure 6.9 and an atlas or Google Maps, and then answer the following questions.

1 **Estimate** the percentages of each type of groundwater resource in Australia.
2 **Compare** your answer in Question 1 to the United States.
3 Saudi Arabia is the largest country in the world that does not have any permanent rivers. **Identify** if it contains any major groundwater basins.

Water resources in Australia

I love a sunburnt country,
a land of sweeping plains,
of ragged mountain ranges,
of droughts and flooding rains.

My Country – Dorothea Mackellar

The excerpt from Dorothea Mackellar's poem *My Country* sums up Australia's water resources perfectly. It is a land of contrast; Australia's climate is prone to extended periods of low rainfall and to floods. While some areas have a very high average rainfall, others are classified as deserts. As such, the availability of surface water varies considerably.

Australia is the second-driest continent on Earth after Antarctica. Although the average annual rainfall in Australia is 417 mm, Figure 6.10 shows that this number varies significantly across Australia. Coastal areas generally receive the most rainfall, whereas rainfall decreases towards the centre.

Australia has a large system of groundwater basins stretching under about 60 per cent of the continent (see Figure 6.11). Australia's Great Artesian Basin is the largest and deepest groundwater basin in the world. It covers 1.7 million square kilometres across Queensland and into the surrounding states and territories. The Great Artesian Basin is estimated to hold around 8700 million megalitres of water.

Australians are reliant on groundwater extracted from basins in arid areas where rainfall is erratic and drought conditions are more common. Hundreds of **water bores** are used to pump water out of the ground for use in agriculture and industry, as well as for domestic purposes.

water bore a hole drilled through levels of the ground for the purpose of accessing the groundwater below for use on the surface

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 6.3

Describing the spatial association between different features

Describing the spatial association between features on different maps is an important part of understanding the relationship between them. It involves looking at different maps of the same scale and analysing how similar or different their spatial distributions are. In other words, are the features arranged in the same way? A spatial association can be described as strong if the two maps have a very similar distribution or arrangement. A spatial association is moderate if the distribution matches in some regions but not others. And a spatial association is weak if the two maps do not appear to have much of a relationship.

1 Refer to Figures 6.10 and 6.12 (the rainfall, groundwater and population distribution maps have been placed on the next two pages so they can be viewed side by side), and answer the following.

   a **Identify** if the relationship is a strong, moderate or weak association between average rainfall and population density.

   b **Identify** examples of places from the maps to support your answer.

   c **Identify** and **explain** any exceptions to this relationship.

   d **Explain** the relationship you see between rainfall and population.

2 Refer to Figures 6.11 and 6.12, and answer the following.

   a **Identify** if there is a clear relationship between groundwater supplies and population density.

   b **Explain** your answer.
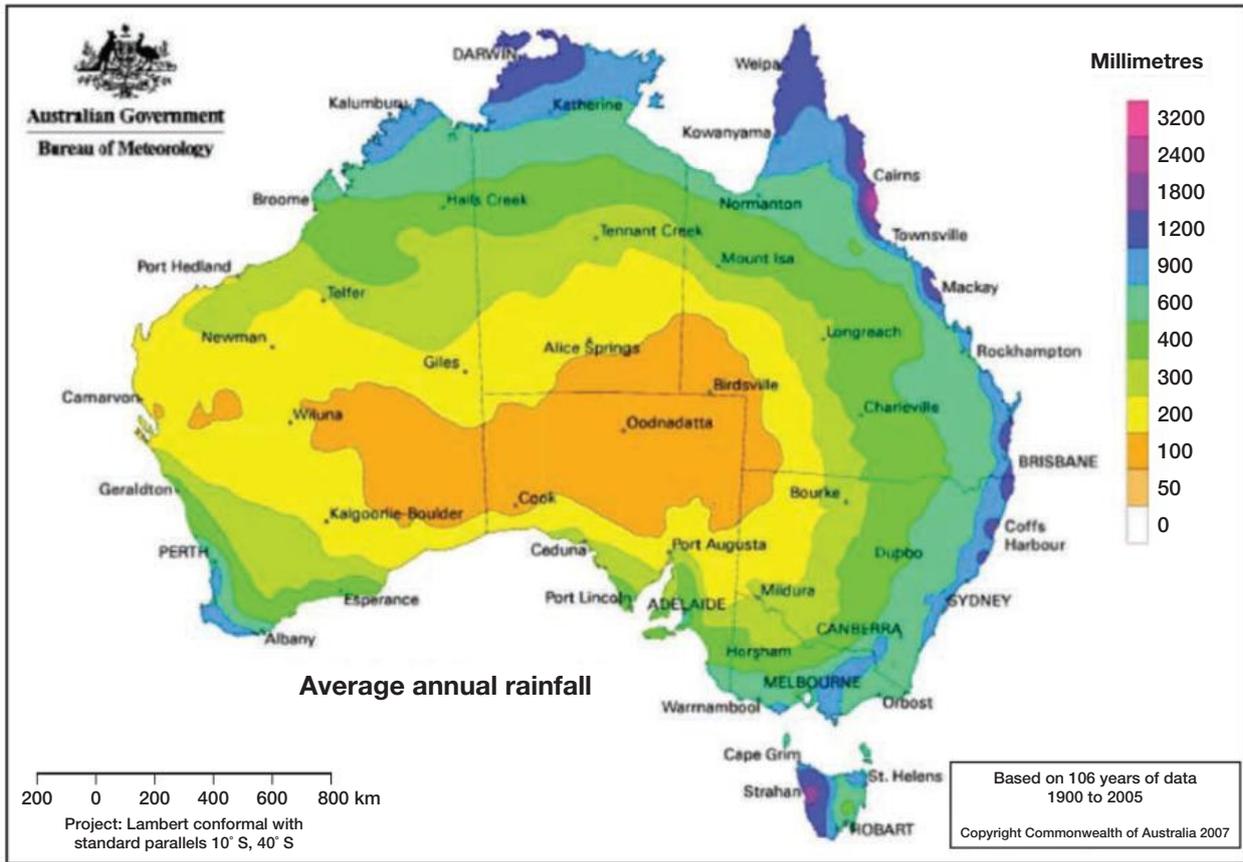
▲ **Figure 6.10** The spatial distribution of average annual rainfall over 106 years in Australia
Source: Australian Government, the Bureau of Meteorology
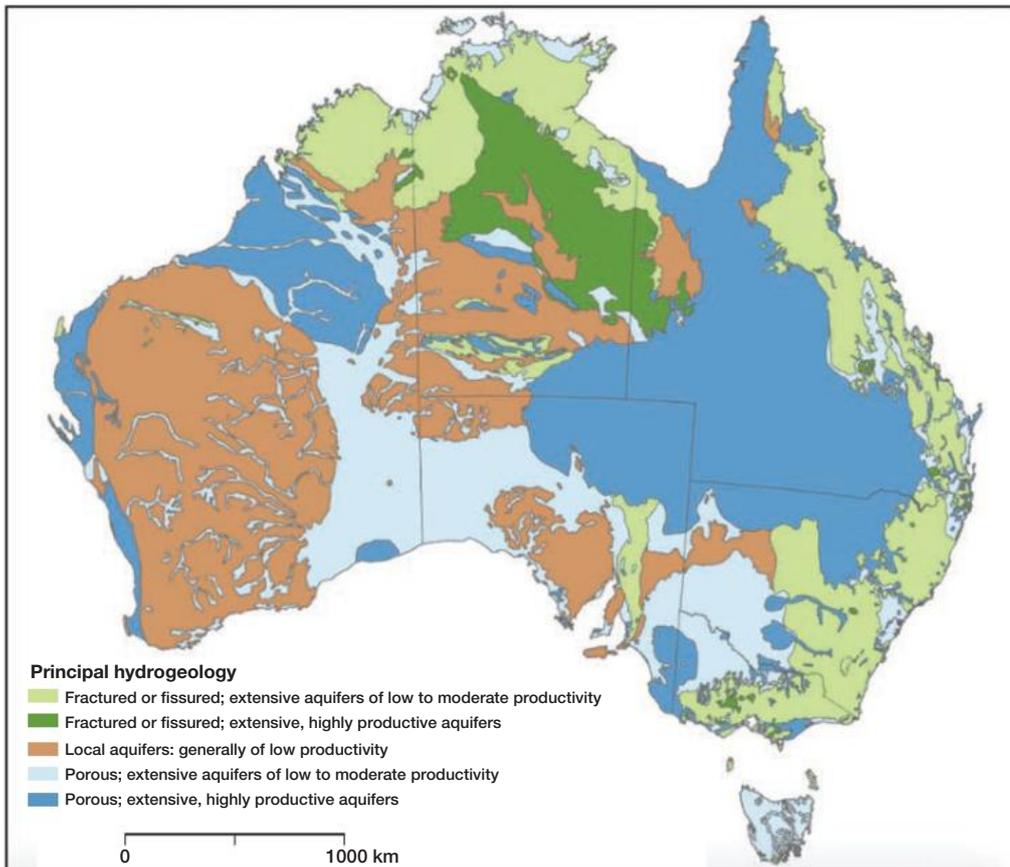
▲ **Figure 6.11** The spatial distribution of Australia's groundwater supplies. The aquifers in dark blue and dark green are the largest and highest quality supplies, 2021.
Source: Bureau of Meteorology Groundwater Insight
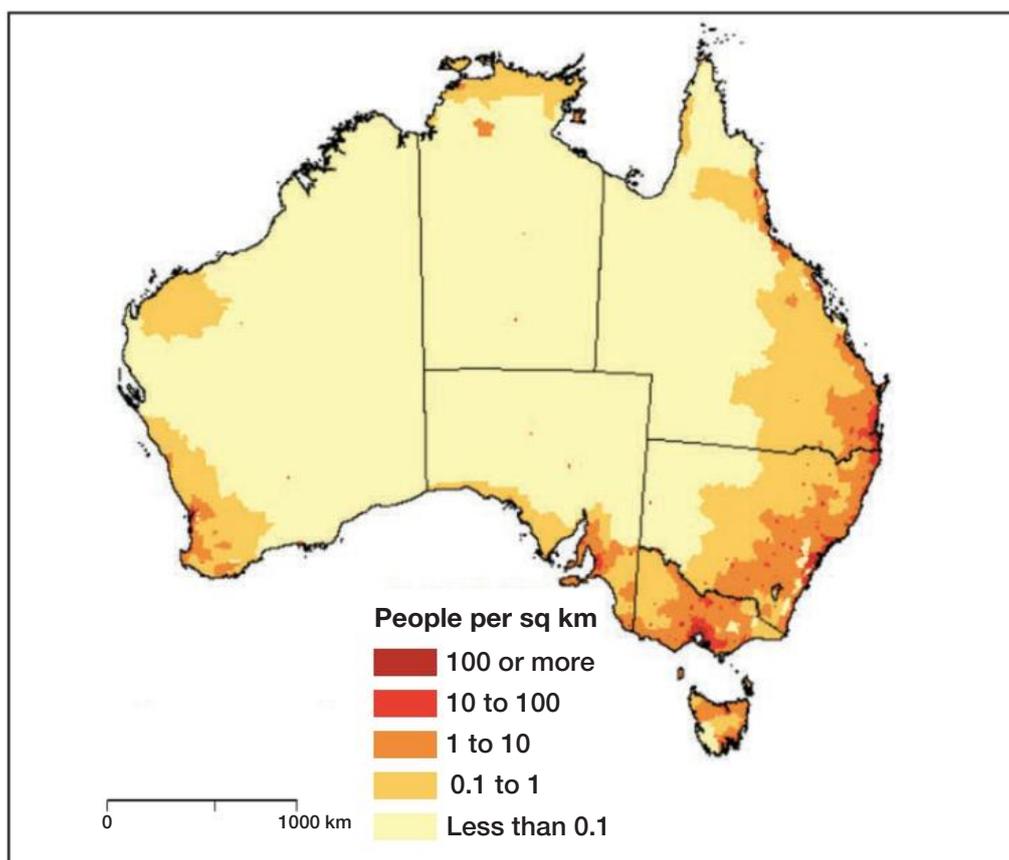
▲ **Figure 6.12** The spatial distribution of Australia's population, projection for 2021

DEVELOPING YOUR UNDERSTANDING 6.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Identify** the three main types of freshwater resources from the largest supply to the smallest.
2 **Identify** where most of the Earth's freshwater is located.
3 **Describe** and **explain** what a GIS is.

Interpret

4 **Explain** how water is a renewable commodity.
5 **Explain** why groundwater is such a significant water resource for Australians.
6 **Describe** how rainfall varies spatially across Australia. In your answer, refer to specific regions and places.

Argue

7 **Discuss** whether there is a spatial relationship between rainfall, groundwater and population in Australia.

6.2 Water scarcity

FOCUS QUESTIONS

- What is water scarcity and what factors lead to it?
- How is water scarcity managed?

The story of Chennai's water crisis presented at the start of this chapter is just one example of water scarcity facing people in many places around the world. Booming populations, lack of rainfall, unchecked urban development and unsustainable water use are all factors that contribute to these kinds of disasters. However, if we look closely at the factors that cause water scarcity, we can find ways to manage and reduce the impacts of water shortages.

water scarcity a lack of freshwater resources to meet the demands of water usage within a region

infrastructure the physical structures and facilities needed within a community such as roads, buildings and pipelines

What is water scarcity?

Water scarcity is when there is a lack of freshwater resources to meet the demands of water usage within a region. This occurs when the amount of water needed for agricultural, industrial and domestic uses is greater than the amount of water available. When the amount of water naturally replenishing supplies is insufficient to meet demands, this is known as 'physical water scarcity'. In some cases, although there is enough water available, the **infrastructure** needed to access it does not exist as it is too expensive to build. This is known as economic water scarcity.

Water scarcity affects people on every continent. Over 1.2 billion people lack access to clean drinking water and 2.8 billion people experience water scarcity for at least one month each year. As shown in Figure 6.13, countries in the Middle East and North Africa are facing the highest levels of water scarcity.

▲ **Figure 6.13** The 17 countries labelled in this map are facing water scarcity and are at risk of having ongoing water crises, 2021.
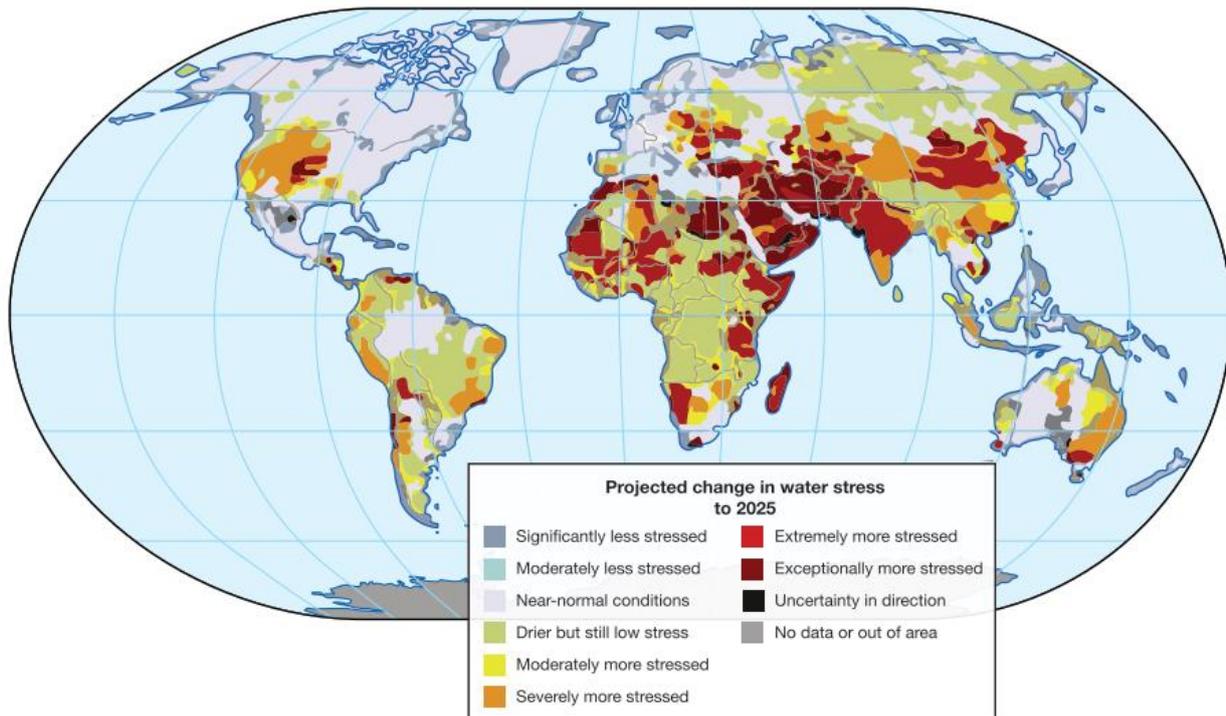
▲ **Figure 6.14** The levels of water stress in 2025, as predicted by the National Intelligence Council
Source: National Intelligence Council

If current trends continue, water scarcity is likely to become an increasing problem. According to the National Intelligence Council in the United States, two-thirds of the world's population may face water shortages by 2025. As shown in Figure 6.14, the problem is expected to get worse for many of the regions that are already at risk.

ACTIVITY 6.2

Future water scarcity

Refer to Figure 6.14, then answer the following questions.

1 **Identify** three countries or regions that are likely to face higher levels of water scarcity by 2025.
2 **Explain** what factors you think will be responsible for these increases in water scarcity.

Causes of water scarcity

There are several factors that lead to water scarcity. Physical scarcity factors may arise from a reduction in supply or an increase in demand:

- Decrease in rainfall, due to climate change or locally due to deforestation, which leads to a reduction in water-replenishing supplies
- Diversion of rivers, e.g for hydroelectricity or irrigation, or other changes to use may decrease supply
- Reduction in usable supply due to increased salinity or pollution
- Increase in population, industrial or agricultural use, which leads to an increase in demand for water

Economic scarcity factors include:

- Poverty, which stops countries from being able to purchase or construct water-management infrastructure (such as desalination or water-recycling plants)
- Urban development that spreads out onto wetlands and pollutes waterways without increased supply infrastructure
- Mismanagement, inefficiency and corruption preventing the building of sufficient infrastructure
- War and conflict, which destroys water management infrastructure and contaminates surface water supplies.

Figure 6.15 shows a change in the amount of renewable freshwater resources per capita in selected countries since the 1960s. Over this period, the populations of these countries have also increased (see Figure 6.16). This means that the amount of water available has to be shared between more people, which gives each person a smaller share.
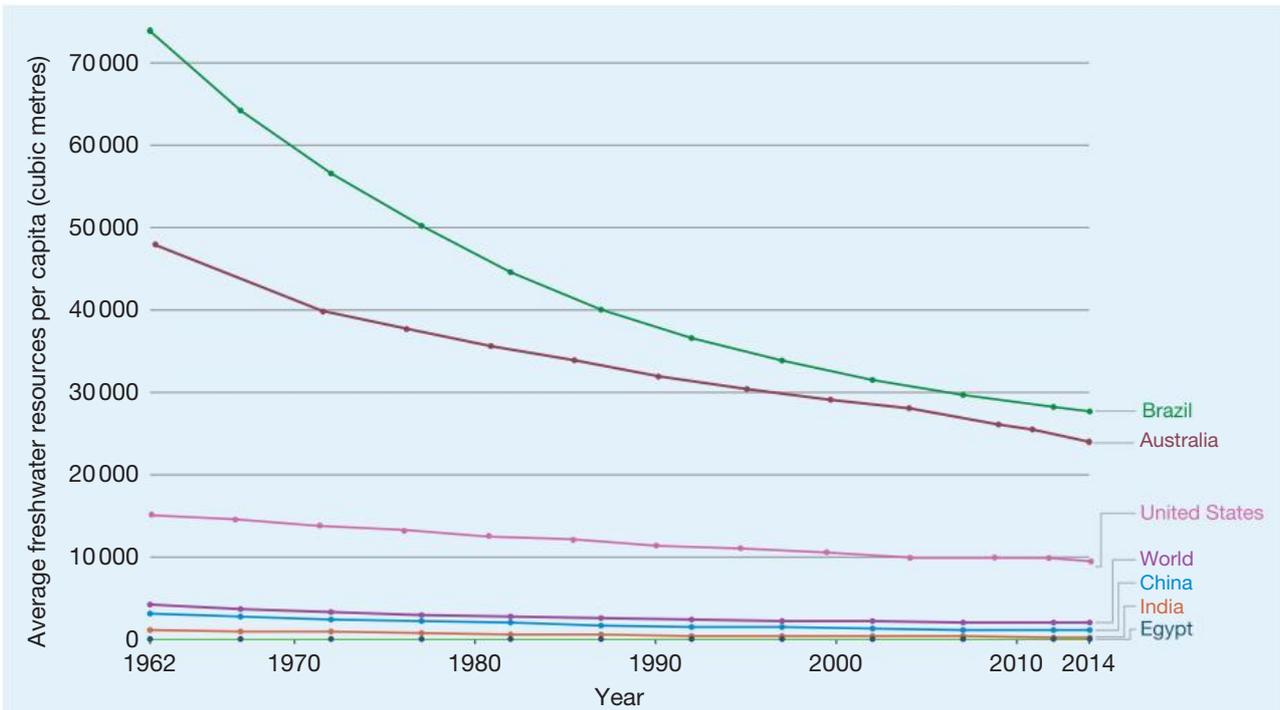
▲ **Figure 6.15** The change in the amount of average freshwater per capita for selected countries and the world from 1962 to 2014

Source: Our World in Data and World Bank
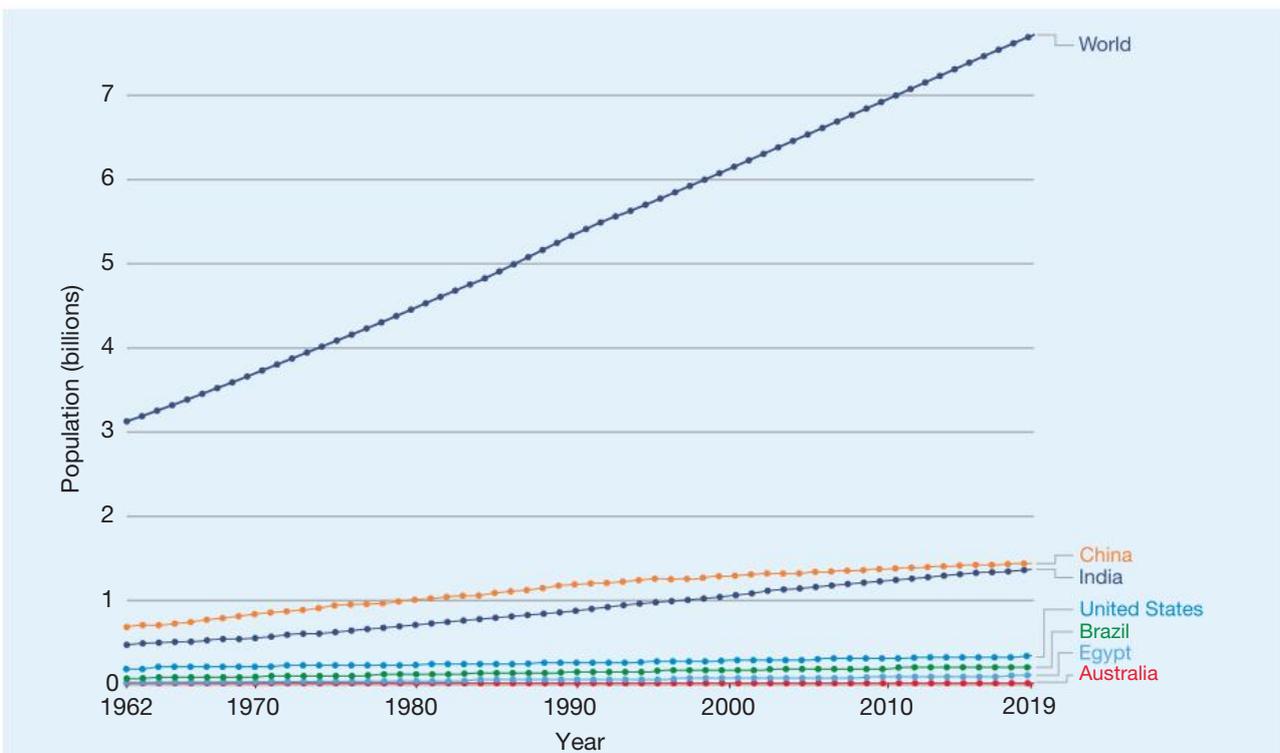
▲ **Figure 6.16** The change in the population of selected countries and the world from 1962 to 2019

Source: Our World in Data and Gapminder: HYDE & UN Population Division (2019)

ACTIVITY 6.3

Factors that lead to water scarcity

Read the information about factors that cause water scarcity, then answer the following questions.

1 Rank the factors leading to water scarcity from the most significant to the least significant. Write a paragraph **justifying** your ranking and compare your choices with a classmate.

2 Refer to Figures 6.15 and 6.16.

a **Identify** the countries that have had a significant decrease in the amount of water available per capita since 1962.

b **Identify** the countries that have had a significant increase in their population since 1962.

c **Compare** your answers for parts a and b. Explain whether population growth alone appears to have a large or small impact on water resources per capita.

d **Infer** why population growth does not always have a significant impact on water resources per capita.

Impacts of water scarcity

There are several serious problems associated with water scarcity such as reduced food production, reduced hygiene, loss of jobs, water crises, economic issues and environmental damage.

Drought

When there are extended periods of low rainfall, there is often a shortage of water. This means that there is not enough water to meet the needs of people or the environment. This includes domestic supplies for people living in cities and agricultural supplies for farmers living in rural areas. The period is called a **drought**.

Australia has experienced several severe droughts throughout its modern history. These include the Federation Drought (1895–1903), the World War II drought (1937–1947) and the Millennium Drought (1997–2009). A recent drought began in 2017 and affected large parts of the country. It contributed to the dry conditions that fuelled disastrous bushfires during the 2019–20 season and left many towns without water. In January 2020, Stanthorpe in southern Queensland had to truck in water daily to supply its 5000 residents. Local residents had to shower in plastic tubs, then use that water to flush the toilet and wash clothes.

For people living in drought-affected regions, water scarcity is not just about having quicker showers or not being able to water the garden. Instead, water shortages in these regions can mean the destruction of the environment and the local **agricultural industry**. This leads to the loss of jobs and a severe drop in the local economy. Crops fail during a drought and farmers are usually forced to sell or **cull** livestock as

drought an extended period of time without rain that causes water shortages and crop damage

agricultural industry the business involved in cultivating plants and livestock

cull the selective slaughter of animals to reduce their population

▲ **Figure 6.17** Fourteen trucks transported 1.3 million litres of water to Stanthorpe from Connolly Dam in Warwick during 2020.

▲ **Figure 6.18**   A Double truck carting bales of hay to drought-affected farmers in St George, Queensland. The feed is usually grown locally, but due to drought farmers have needed to purchase feed from elsewhere at $1000 per day to keep their stock alive.

they do not have enough feed to keep them alive. Farmers are often left feeling helpless, which can lead to depression and other mental-health issues. The summer of 2020–21 saw a **La Niña** climate pattern bring much needed rain to central and coastal parts of Queensland, New South Wales and Victoria.

Water crises

A **water crisis** is worsening water scarcity when urgent action is needed to prevent supplies running out. In a water crisis the health and welfare of people and livestock may be in danger, or close to it.

La Niña the weather pattern caused by warmer ocean waters that brings higher rainfall to Australia when it occurs infrequently over a number of years. This usually means flooding

water crisis extreme water scarcity requiring urgent action

projections estimated forecasts based on current trends

El Niño the opposing weather pattern to La Niña; brings long dry weather to Australia and is caused by cooling ocean temperatures. This usually means drought

Between 2017 and 2018, Cape Town in South Africa faced a severe water crisis. Water-storage levels had been declining steadily since 2015, and were sitting at between 15 and 30 per cent of the dams' total capacity. The drought was attributed to an **El Niño** weather pattern combined

▲ **Figure 6.19**   A flock of sheep try to graze on what is left of dry grass during the 2019 drought in Maryborough, Queensland.

with climate change. **Projections** showed that Cape Town was heading towards 'day zero', which is when all water for domestic use is shut down and residents instead have to queue for daily water rations.

To stop day zero from happening in Cape Town, strict water restrictions were put in place. This forced the residents to limit their use of water to just 50 litres per day. The national government also diverted water that was normally used for agriculture and instead allocated it to urban supplies. Education campaigns helped people to understand the potential impacts of the water crisis. Water maps were also used to show people how much water they used compared to their neighbours. The reductions in usage, combined with heavy rains in the middle of 2018, meant that day zero was avoided in Cape Town.

ACTIVITY 6.4

Cape Town's recent water crises

Refer to the graph in Figure 6.20, then answer the questions that follow.

▲ **Figure 6.20** Variation in Cape Town's water storage supply between July 2013 and January 2019 measured in gigalitres (one gigalitre is a million litres)
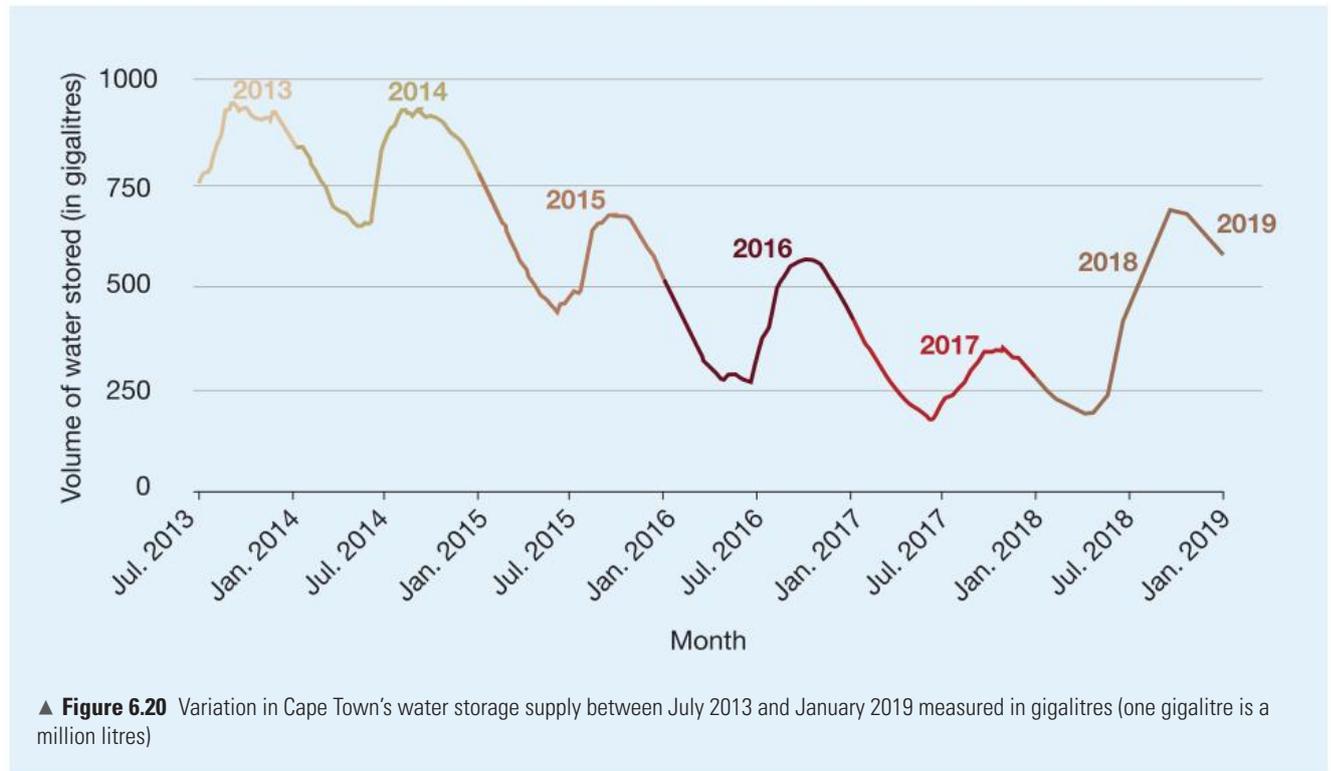
1 **Describe** the overall trend in water supply over the time period shown.
2 **Explain** what you think is the cause for peaks (maximums) and troughs (minimums) that regularly occur at a similar time each year.
3 **Investigate** Cape Town's current water storage level. Is it at a safe level? How does it **compare** to the level in Brisbane or in your local city or town?

Environmental impacts

As well as affecting people, water scarcity can lead to a variety of negative environmental impacts. When water is scarce and needed to support a growing population, more is withdrawn from natural sources and less remains to support the natural environment. This can affect environments containing rivers, lakes and wetlands. The amount of water in these environments is reduced and many of the natural processes that are needed to maintain the health of local ecosystems, like floods, are not able to occur.

During 2019, the Macquarie Marshes in the western region of New South Wales suffered environmental damage due to long-term drought conditions. This wetland is one of the largest remaining wetland systems in Australia. The area is an essential habitat for mammals, birds, fish and **invertebrates**. However, the Macquarie River, which transports water to the wetland, ran dry for the first time in over 50 years. Combined with

invertebrates animals that do not have backbones

the region's lack of rainfall, this turned the wetland's lush, green environment into a dry and dusty wasteland. A reason for this change was that any water that was available had to be given to towns such as Warren, Cobar and Nyngan. Although this event led to the loss of many species, wetlands are adaptable to extreme weather events and so the Macquarie Marshes will flourish again after water returned to the region in late 2020.

Water scarcity management

Although water scarcity is often caused by factors that are beyond the control of people, such as extended dry periods, in many cases the impacts can be managed and reduced.

Some management strategies that will be explored in the following sections include:

* Redistributing water supplies from a nearby area temporarily
* Reallocating water from different sectors, such as agriculture, to be used for domestic purposes
* Accessing water from alternative supplies using methods such as desalination and water recycling
* Reducing water consumption by educating the public, implementing water restrictions and using technology, such as water-efficient appliances and shower heads
* Providing financial aid to poor and vulnerable communities.

▲ **Figure 6.21** The Macquarie Marshes are a series of wetlands along the Macquarie River and a significant habitat for a range of species.

▲ **Figure 6.22** Several years of drought conditions have turned the Macquarie Marshes into a dust bowl in 2019 before water returned a year later.

Managing water scarcity in south-east Queensland

Drought is a common and natural phenomenon that has been part of Australia's climate for thousands of years. However, between 1997 and 2009, Australians experienced the most severe drought in over 200 years. This was called the Millennium Drought. As can be seen in Figure 6.23, this drought impacted the heavily populated areas of south-east Queensland (SEQ), southern New South Wales and Victoria. The food-growing areas in these states were severely impacted and the Murray–Darling Basin all but dried up. All Australia's capital cities, except Darwin,

were impacted by the drought and heavy restrictions on the use of water were imposed.

All states and capital cities implemented water-saving restrictions and looked for ways to deal with the situation and to prepare for future drought. The Queensland Government successfully connected major SEQ water storages and created alternative water supplies through desalination and wastewater recycling plants. The aim of these measures was to drought-proof the highly populated and growing SEQ region. This water-management plan was conceived and built in 2007–08 during the drought and is called the SEQ water grid. It is the only one of its kind
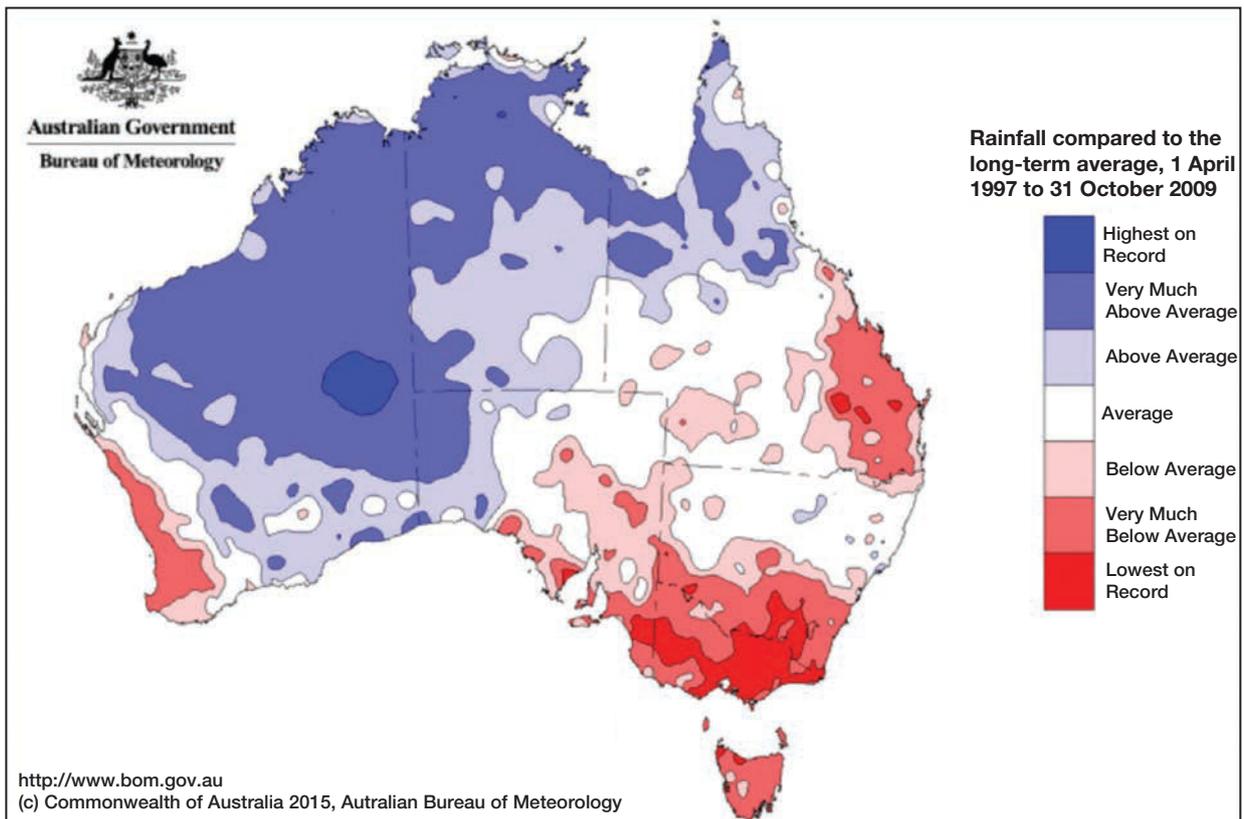
▲ Figure 6.23 Areas of below and above average rainfall during the Millennium Drought 1997–2009

in Australia and has succeeded in drought-proofing most of SEQ since 2008 by moving potable water from high-capacity water storages to those with low water levels in high population areas.

SEQ Water is the biggest manager of bulk water in Australia. Geographically, it manages the movement and supply of water, from the New South Wales border in the south to Gympie in the north, and from to Toowoomba in the west to the coastal cities in the east. SEQ Water ensures that approximately 3.8 million people in SEQ have continued access to safe drinking water. It also coordinates 10 council regions and two local water-management companies to connect the water supply network throughout SEQ (see Figure 6.24).
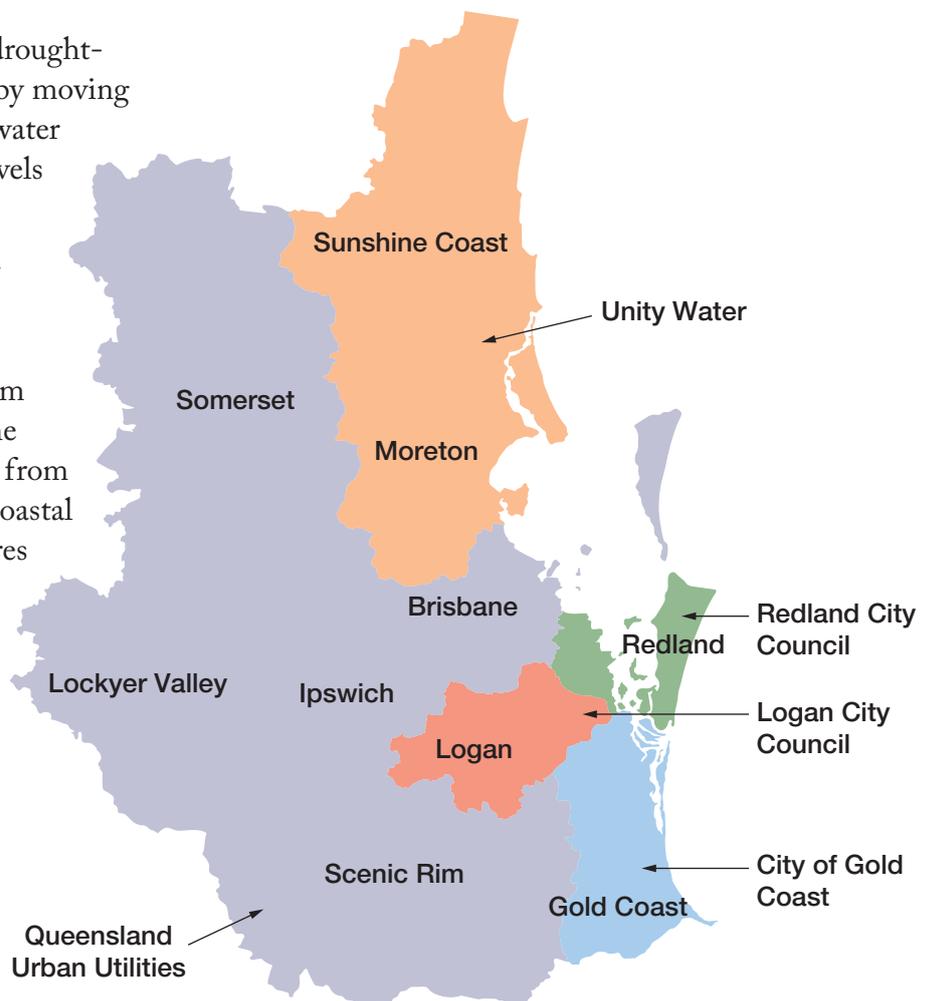
▲ Figure 6.24 The water management areas of south-east Queensland managed or coordinated by SEQ Water
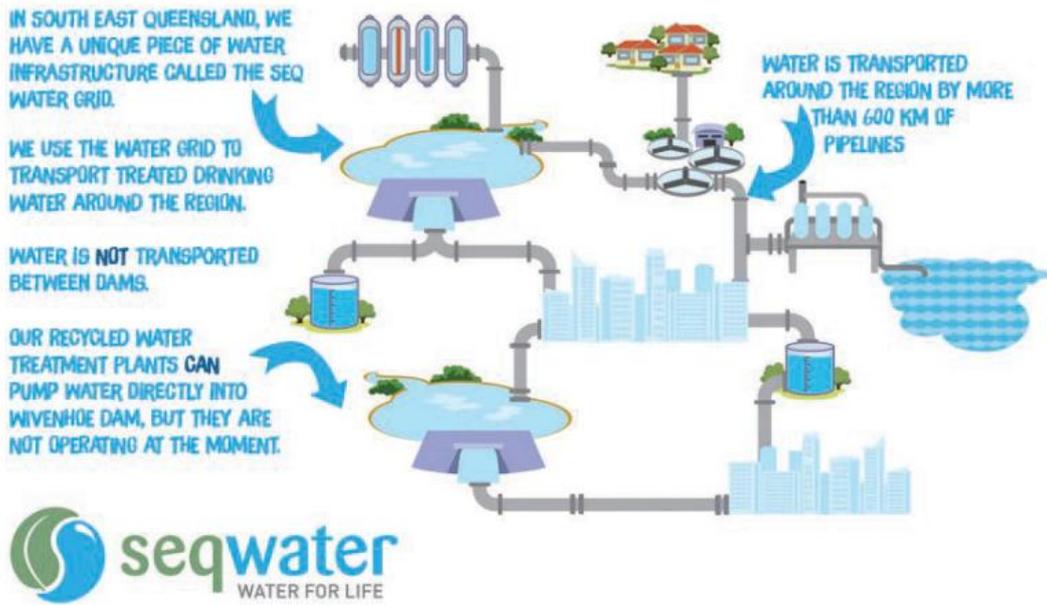
▲ **Figure 6.25** The SEQ water grid explained
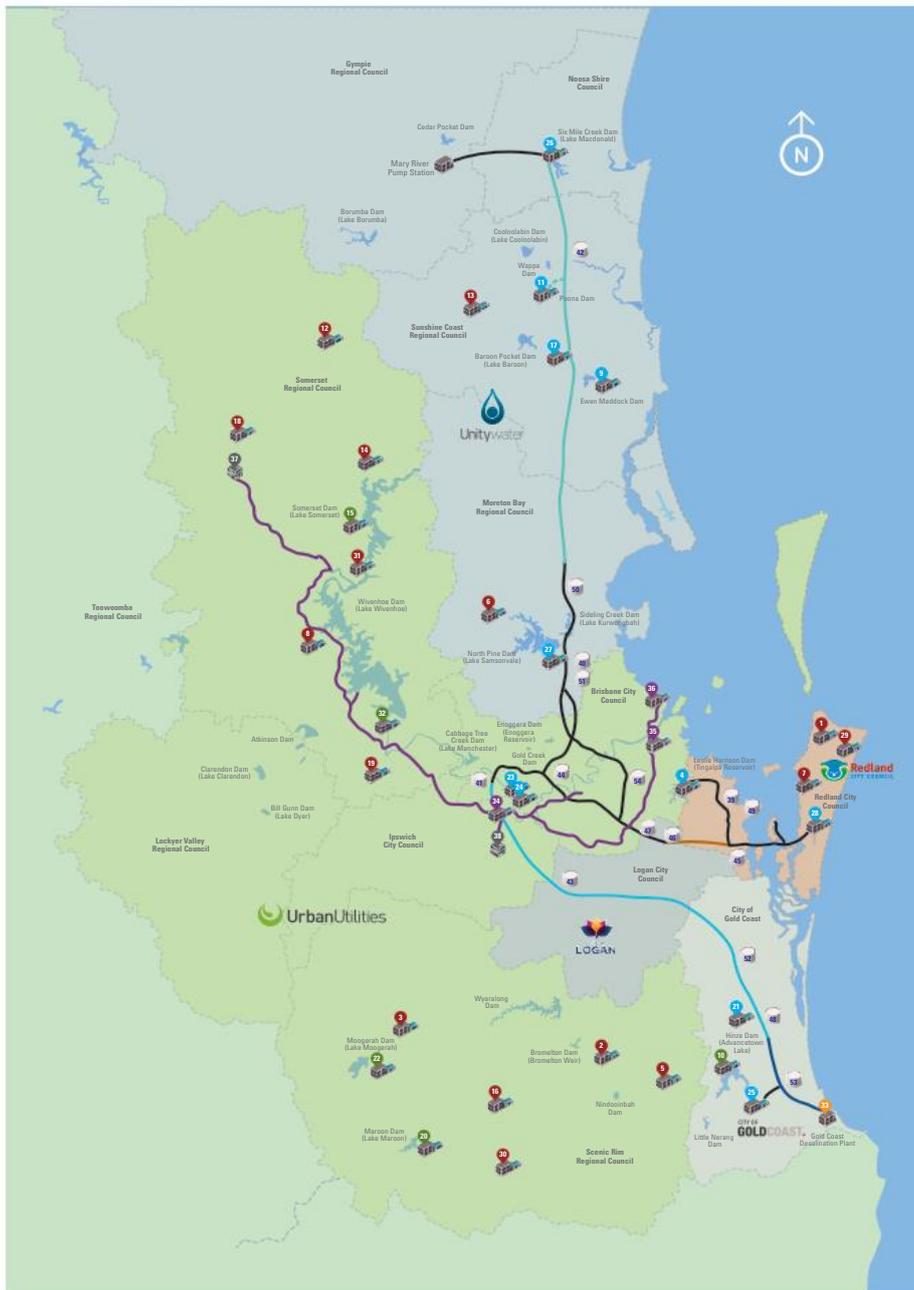
▲ **Figure 6.26** 2019 proposed pipeline connection to Warwick and Stanthorpe

DEVELOPING YOUR UNDERSTANDING 6.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 Explain the following terms:
    a Water scarcity
    b Physical water scarcity
    c Economic water scarcity
    d Drought.

2 Identify the three types of water supply used in the SEQ water grid.

3 Identify the impacts of a drought.

Interpret

4 Describe and **explain** one factor that leads to water scarcity.

5 Explain how water scarcity can impact both the natural environment and people in rural and urban areas. You can use the information in Figure 6.23 to help you with your response.

6 Describe and **explain** the reasons for building the SEQ water grid.

Argue

7 Sustainable water use and management needs to be made a priority in order to avoid water crises in the future. Do you agree with this statement? Use the information and case studies provided in this chapter to **argue** your perspective.

▲ **Figure 6.27** Hot and dry conditions during a drought can lead to dust storms and a lack of food available for livestock. When there isn't enough pasture for sheep, farmers must buy expensive feed to keep their flocks alive.

6.3   Water scarcity in Australia: the Murray–Darling Basin

FOCUS QUESTION

How is water managed in Australia's Murray–Darling Basin?

The Murray–Darling Basin is Australia's largest river system. It stretches across four states and is where nearly 40 per cent of Australia's food is produced.

catchment area an area acting like a giant bucket, catching all of the water from rainfall, runoff and infiltration

A lot of the food and fibre produced here is also exported, which contributes $22 billion to the Australian economy. The picturesque rivers and lakes within the region make it a popular location for tourism. Tourists spend a total of $8 billion within the basin each year. The management of the water within the Murray–Darling Basin requires a balance between industrial, domestic and environmental uses. This is a complex task, especially during times of drought.

Geographic characteristics

The Murray–Darling Basin has a total **catchment area** of 1 060 000 square kilometres. This makes it the twentieth largest river system in the world. The Murray–Darling Basin covers 14 per cent of Australia's total surface area. This includes the Australian Capital Territory, three-quarters of New South Wales, half of Victoria, and parts of Queensland and South Australia. The three main rivers within the system are: the Murray River, Darling River and the Murrumbidgee River.

More than 2.6 million Australians live within the Murray–Darling Basin and over 3 million people access its water resources. The number of people who use the Murray–Darling Basin's water resources grows each year.

▲ **Figure 6.28**   The Murray–Darling Basin spans four states and one territory, and contains several large rivers.

▲ **Figure 6.29** The basin supports a range of diverse environments such as the red gum forests in the Murray Valley National Park.

There are also 120 species of waterbird and 46 native fish species that rely on the diverse habitats provided in the basin's rivers, wetlands and floodplains. In total, there are 30 000 wetlands within the Murray–Darling Basin and 16 of these are internationally significant. This is because they are representative, rare or unique, and provide habitat for **migratory birds** from places like China and Japan.

Impacts of water scarcity

The competing demand for a limited water supply within the Murray–Darling Basin means that water scarcity is a major issue. Shortages in water lead to a range of economic, environmental and social impacts in the region.

migratory birds birds that travel seasonally for breeding and feeding

▼ **Figure 6.30** During times of drought, reservoirs such as Lake Hume contained by the Hume Dam near Albury, New South Wales, can reach low capacities and even dry out completely. The Hume Dam is one of the largest dams in Australia and an important catchment of winter and spring rainfall.

Economic impacts

Agriculture is the main form of industry within the Murray–Darling Basin. Although the basin covers 14 per cent of Australia's surface area, it contains 20 per cent of Australia's agricultural land. Within the Murray–Darling Basin, there are over 50 000 farms and 9000 agriculture businesses.

Agriculture using irrigation is more common in the Murray–Darling Basin than elsewhere in Australia. In fact, two-thirds of the total amount of irrigated land in Australia is in this area, even though less than 2 per cent of the total amount of agricultural land is irrigated. The basin relies on large water withdrawals and contributes to a total of 70 per cent of all of Australia's agricultural water use. Cotton and pasture use half of this water, while other common crops include rice and grapes. The region also provides

▼ **Figure 6.31**   The management strategies used within the Murray–Darling Basin Plan (you can also magnify this image in the digital versions of this book)

Water management in the Murray–Darling Basin

Water is managed through local water plans and water resources plans

Usage is managed through sustainable diversion limits and within a compliance framework

Water quality is monitored at sites along the river system

Water quality can be affected by salinity, blue green algae, low oxygen, nutrients, turbidity and high temperatures

Dams, barrages and weirs regulate water flows and facilitate delivery of water to communities, irrigators and the environment

Water can be traded between users, within set limits

Water infrastructure is developed to ensure water flows where it is needed

Water is vital to Aboriginal culture, spirituality, identity and wellbeing

Water is allocated to the environment to protect vital ecosystems

Managing groundwater is important to preserve and improve water quality

30 per cent of Australia's total dairy production. The money generated from irrigation contributes significantly to the region. For every $1000 that is earned from irrigation, an additional $3500 is generated in local towns and related industries.

Unfortunately, drought is a common occurrence within the Murray–Darling Basin. Farmers are allocated a certain amount of water that they are allowed to withdraw each year from rivers and groundwater supplies. However, water levels regularly run low. In extreme cases, rivers completely dry up. This means that, in some cases, the allocation given to farmers is reduced and, in extreme cases, some farmers are not allocated any water. This leads to the failure of crops. Many farmers have to sell or cull livestock as they do not have enough feed to keep their animals alive. Not only does this lead to a loss of revenue for farmers, it has a flow-on effect to the economy of the local towns and communities.

Environmental impacts

The Murray–Darling Basin has a range of diverse environments containing many unique habitats. The plants and animals within these environments have adapted to natural conditions. There is a balance between all the natural processes within these environments. Many of the rivers and lakes only contain water during floods, and the environments are adapted to seasonal wet and dry periods.

While the regulation of rivers using dams and **weirs** is essential in providing a water source for irrigation, they do not allow rivers to flow naturally. Dams and weirs significantly alter the **flow regime** of rivers. During drier times, rivers do not have adequate water. During wetter times, when flooding normally occurs to recharge wetlands and floodplains, water is held back and stored in dams. These changes significantly damage the environment that relies upon these natural conditions.

In early 2019, a heat wave combined with low river flows from an ongoing drought led to an **algae bloom** of blue-green algae in the Darling River near Menindee. Blue-green algae is toxic to humans and animals if it is consumed. As blue-green algae dies and decomposes, it sucks oxygen out of the water, affecting the water's quality. This particular bloom led to the death of up to a million Murray cod and perch, which was an ecological disaster.

weir a small dam or barrier stopping the flow of a river

flow regime the seasonal changes to the flow of rivers

algae or algal bloom the rapid increase or growth in the amount of algae within water

Salt interception schemes help mitigate salinity

Monitoring and evaluation are carried out on annual and five-yearly cycles

Water is managed in partnership by the Australian Government, New South Wales, Queensland, South Australia, Victoria and the Australian Capital Territory

Basin governments and communities adjust their approach in response to new information and local knowledge

Planning and forecasting prepare for the future

Managing water

Water scarcity, competing demands and the size of the Murray–Darling Basin makes managing the water from this resource incredibly difficult. The Murray–Darling Basin Plan coordinates the management of water between the four states and one territory to ensure a sustainable and balanced outcome for all.

Murray–Darling Basin Plan

The Murray–Darling Basin Plan was established in 2012. It is a coordinated approach to manage the basin's water resources between all four states, the ACT and the Australian Government. Its three main aims are to ensure that the Murray–Darling Basin has:

- Vibrant communities that have a stable water supply to meet their domestic uses
- Productive industries such as agriculture that can provide jobs and help local communities to thrive
- Healthy and diverse environments that support a range of plants and animals.

ACTIVITY 6.5

Murray–Darling Basin agricultural water use

Refer to Figure 6.32, then answer the following questions.

▲ **Figure 6.32 a** The volume of irrigation water applied and **b** the land area irrigated in the Murray–Darling Basin between 2013 and 2018
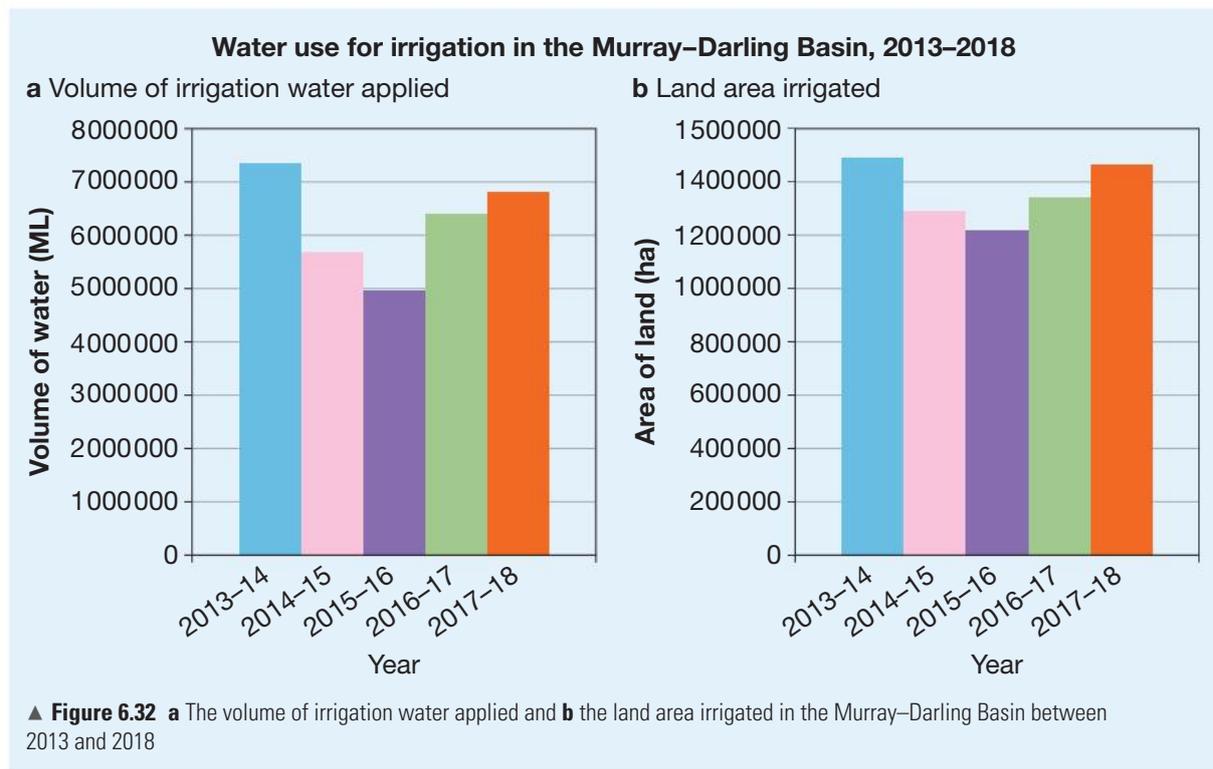
1 **Describe** how the area of land irrigated within the Murray–Darling Basin has changed between 2013 and 2018.
2 **Identify** and **describe** a significant change to the volume of water used for irrigation from 2013 to 2018.
3 **Infer** a reason for the changes or lack of changes you identified in Questions 1 and 2.

ACTIVITY 6.6

Impacts of water scarcity in the Murray–Darling Basin

Create a table to summarise the impacts of water scarcity in the Murray–Darling Basin. Include the name of each impact, its classification (environmental, social or economic) and a brief description.

To ensure all of these demands are met in all parts of the basin, the plan sets limits on the amount of surface water and groundwater that can be withdrawn. These limits are adjusted based on rainfall conditions. The limit allows more water to be allocated for **environmental flows**. Environmental flows refers to water that is allowed to flow through the system naturally to support the environment. Although less water is allocated for irrigation, updated infrastructure uses water more efficiently, which reduces the impact on the agricultural industry.

environmental flows the amount of water required to sustain natural freshwater environments

DEVELOPING YOUR UNDERSTANDING 6.3

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the following terms:
   a Catchment area
   b Flow regime
   c Environmental flows
   d Blue-green algal bloom.

2 **Describe** and **explain** the geographic characteristics of the Murray–Darling Basin.

3 **Explain** two ways in which water scarcity can impact the Murray–Darling Basin.

Interpret

4 **Discuss** why agriculture is such a significant part of the Murray–Darling Basin and why water scarcity can have such a large impact on this industry.

5 **Explain** why allowing water to flow through the Murray–Darling Basin naturally is important for the environment.

6 Consider the strategies represented in Figure 6.31. **Explain** which of these strategies you think will be the most and least effective in managing water and overcoming water scarcity.

Argue

7 **Discuss** why a coordinated approach to water management, such as the Murray–Darling Basin Plan, is needed to ensure economic, social and environmental sustainability in the Murray–Darling Basin.

6.4   Water resources in Israel: a nation of extreme water scarcity

FOCUS QUESTION

How can desalination, water recycling and efficient irrigation help to manage water scarcity?

> *Today, nearly 90 per cent of our waste water is recycled … That's around four times higher than any other country in the world. It is a remarkable achievement and this benefits not only Israel. Israeli companies are helping save water around the world, from Africa to California to India.*
>
> Gilad Erdan, Israeli Minister of Strategic Affairs and Public Diplomacy, 2017

temperate a climate that has four distinct seasons: summer, autumn, winter and spring

Israel is a small country located in the Middle East at the eastern end of the Mediterranean Sea. Over 60 per cent of the country is classified as a desert. Much of the rest of the land is arid, but the climate in some northern regions is classified as **temperate**. Rainfall occurs predominantly in the winter months, with some regions receiving over 1000 mm per year. However, towards the south, some areas in Israel get as little as 25 mm.

▲ **Figure 6.33** Israel is located in the Middle East.

▲ **Figure 6.34** Israel has a diverse climate. Some regions in the north receive reasonable levels of rainfall (top photograph). Other regions in the south receive very little (bottom photograph). This can make it challenging for Israel to manage its water for agriculture and domestic uses.
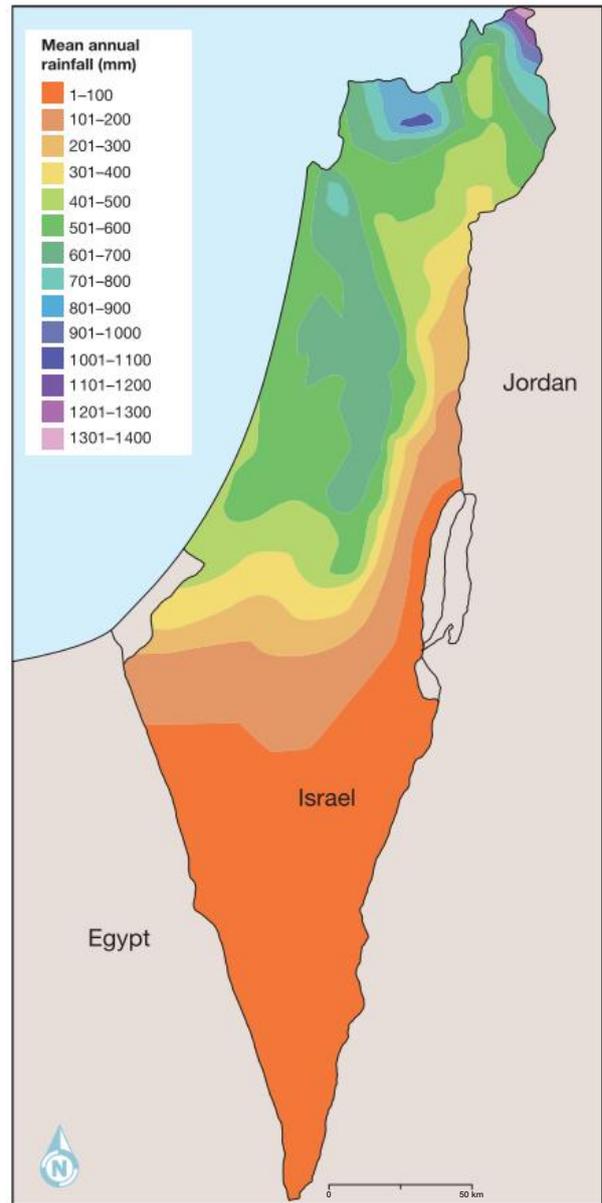
▲ **Figure 6.35** The average annual rainfall of Israel varies considerably between the north and south of the country.
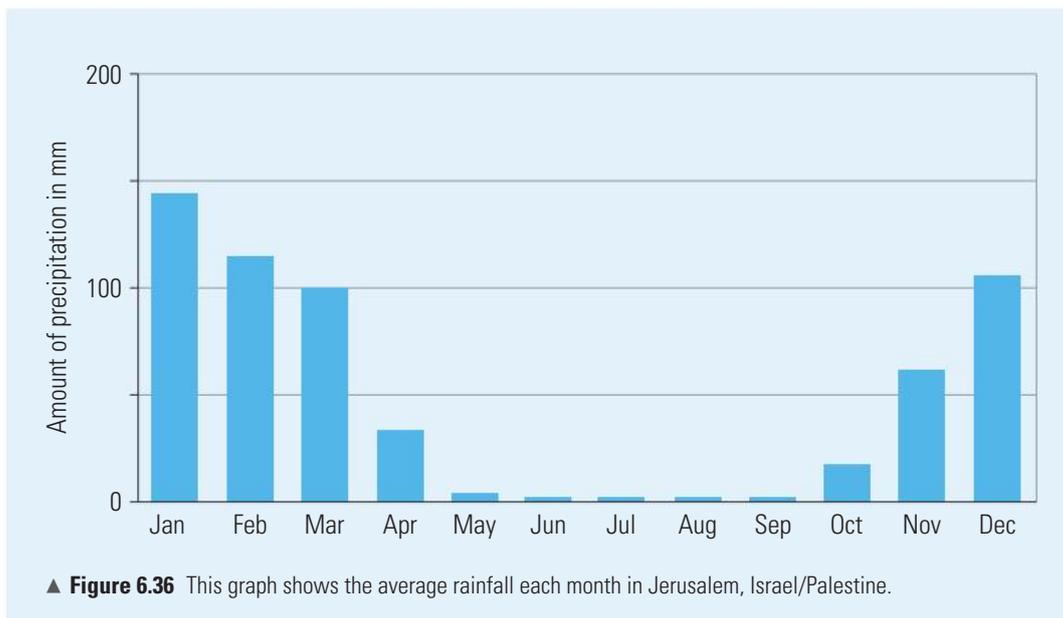
▲ **Figure 6.36** This graph shows the average rainfall each month in Jerusalem, Israel/Palestine.

The water challenge

During the late twentieth century and early twenty-first century, Israel's population grew rapidly from 4 million in 1980 to nearly 9 million in 2019. Over this time, the average rainfall each year decreased and it is expected to drop by a further 15 to 25 per cent by the end of the century. A growing population together with a reduction in rainfall means that less water is available for each person in Israel. While this ordinarily would be a recipe for extreme water scarcity, careful management and technological innovation have meant that Israel has been able to maintain a sustainable water supply for the population.
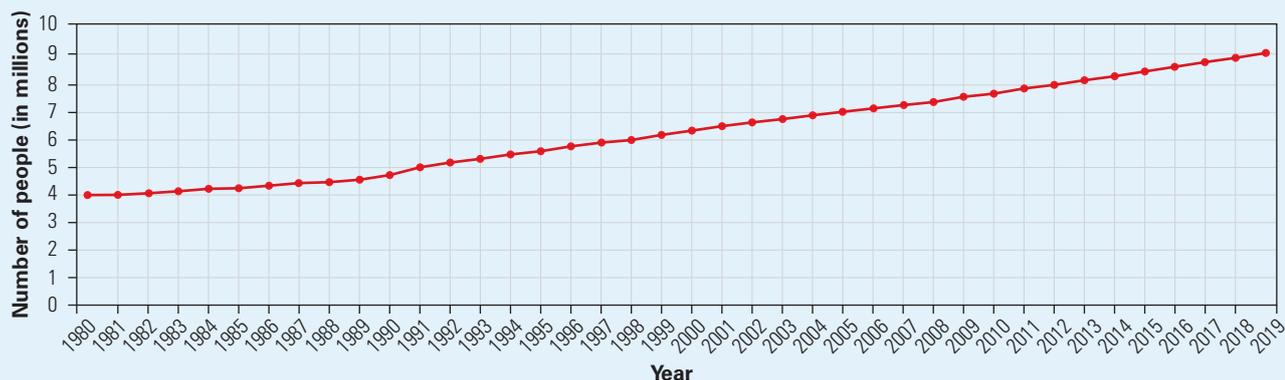
▲ **Figure 6.37** The population growth of Israel between 1980 and 2019

ACTIVITY 6.7

Rainfall and population growth in Israel

Look at the data in Figures 6.35, 6.36 and 6.37, then answer the following questions.

1 Refer to Figure 6.35.
   a **Explain** which colour covers the largest area and how much yearly rainfall does this region receive.
   b **Describe** how the average annual rainfall varies across Israel. Refer to specific regions and the amounts of rainfall using the legend.
2 Refer to Figure 6.36.
   a **Describe** how the monthly rainfall in Jerusalem varies across the year.
   b Find a rainfall graph for your local area. **Compare** it to the rainfall in Israel.
3 Refer to Figure 6.37.
   a **Describe** how Israel's population has grown between 1980 and 2019. Refer to specific years and population totals.
   b **Infer** and **explain** how population growth might contribute to water scarcity and other management issues.

Managing water scarcity

Israel has implemented a number of strategies to manage its water resources. A critical step was an education campaign aimed at teaching Israel's population about water scarcity, and the ways in which water can be conserved in and around the home. 'Israel is drying' was a commercial

▲ **Figure 6.38**   Drip irrigation pipes in a flower bed in Israel. Drip irrigation is one way to conserve water. It has the potential to save water by allowing water to drip slowly to the roots of plants directly.

featuring celebrities showing their skin drying out to resemble a parched landscape. The education campaign is estimated to have reduced domestic water use by 18 per cent.

Israel also improved its water infrastructure (such as leaking pipes) to reduce its domestic water loss by 9 per cent. The country further reduced household water use by making dual-flush toilets and efficient shower heads mandatory.

Water used for agriculture in Israel became far more efficient due to the development of drip irrigation. This technique uses less water than more intensive forms of irrigation such as sprinkler systems.

However, the greatest achievement in Israel's water management has been increasing its water supply through water recycling and desalination. This has meant that Israel has a stable water resource that is no longer reliant on rainfall.

Wastewater recycling

Israel has become a world leader in the recycling of wastewater. It went from recycling just 5 per cent of its wastewater in 1985 to 85 per cent in 2015. Sewage water is treated at several water-recycling plants and suppled in reservoirs to be used for agriculture. Because this water resource does not vary based on rainfall, farmers can rely on a similar supply each year.

Excess recycled water is used to increase river flows such as the water flow in the Jordan River. Experts hope that these flows will help to increase the health of the river environments and surrounding landscapes, restoring these areas to how they were before they were damaged by water withdrawals.

▼ **Figure 6.39**   There are more than 240 reservoirs collecting runoff water and holding treated sewage water in Israel. They are used to supply water for agriculture and to farm fish.

Desalination

Israel has five desalination plants that treat water from the Mediterranean Sea. All of them are among the largest in the world. The Sorek (Soreq) desalination plant is the biggest and treats 600 000 cubic metres of water each day. This is enough to supply water for 1.5 million people, which is roughly one-fifth of Israel's total population. Thirty smaller desalination plants in Israel treat **brackish** groundwater. Altogether, the desalination plants provide 650 million cubic metres of potable water each year. This is roughly 35 per cent of Israel's water supply.

brackish water that is slightly salty

Despite Israel's success with desalination, there are drawbacks to using desalination plants. For example:

- They are expensive, the Sorek plant cost about US$400 million to complete in 2013.
- Desalination plants require a lot of energy to run and consume a total of 3 per cent of Israel's total electricity supply
- Desalination plants are owned by private companies and there are concerns that they might raise prices, which will make water less affordable
- Once freshwater has been extracted from saltwater, very salty water is released back into the Mediterranean Sea, which environmentalists are concerned might cause damage to the local sea life.

▼ **Figure 6.40** A water desalination plant on the sea near the northern Israeli town of Hadera, providing clean, potable water for over 1 million people in Israel

Percentage of wastewater that is recycled in selected countries

▲ **Figure 6.41** Israel is the world leader in wastewater recycling.

▲ **Figure 6.42** The location of Israel's five main desalination plants and their production capacities, in million cubic metres (MCM) per year
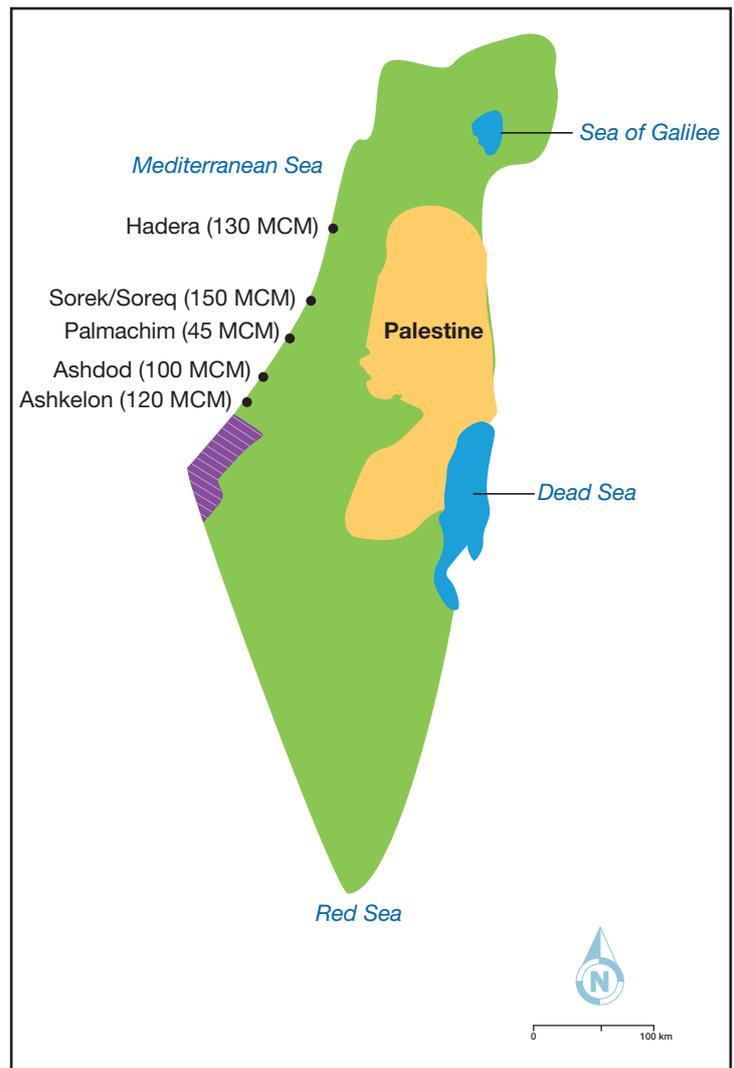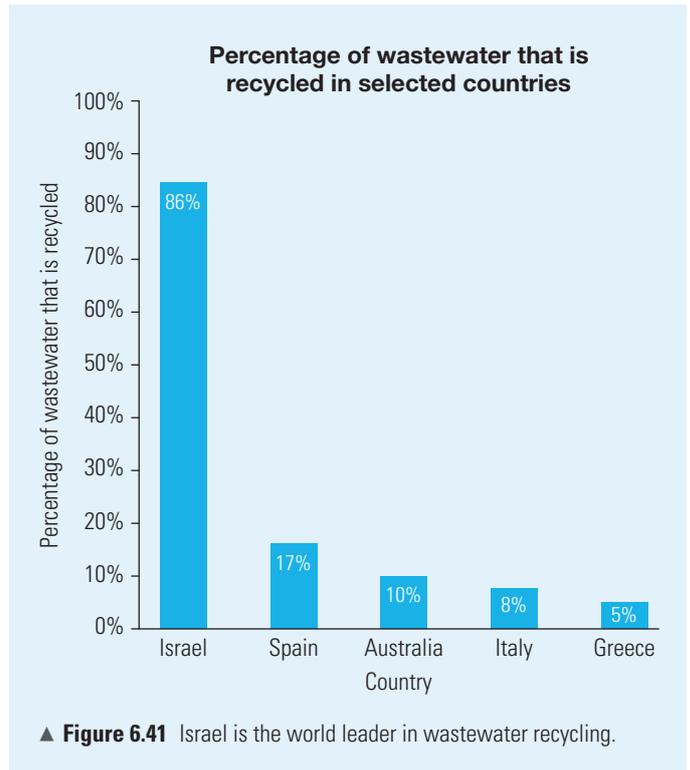
DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 6.4

Stacked line graphs

Stacked or compound-line graphs are made up of several line graphs stacked on top of each other. The top line of the graph shows the total or overall quantity, and the thickness of each colour in the graph shows the proportion that each segment makes of the total. As with a normal line graph, the change in the total and the change in these proportions can be analysed.

In Figure 6.43, the top line of the graph shows how the total water consumption in Israel is changing over time. Changes in the thickness of each colour show how much water comes from each of the different water resources. For example, in 2010, approximately 1200 MCM/yr came from natural potable water, 300 MCM/yr came from desalinated seawater, 200 MCM/yr came from brackish water and 400 MCM/yr came from recycled effluent water or wastewater.

Answer the questions below using the information from Figure 6.43.

▲ **Figure 6.43**   This graph shows the amount of water consumed in Israel and the proportion of where it comes from, each year from 1960 to 2015, with projections thereafter. Consumption is measured in million cubic metres (MCM) per year.
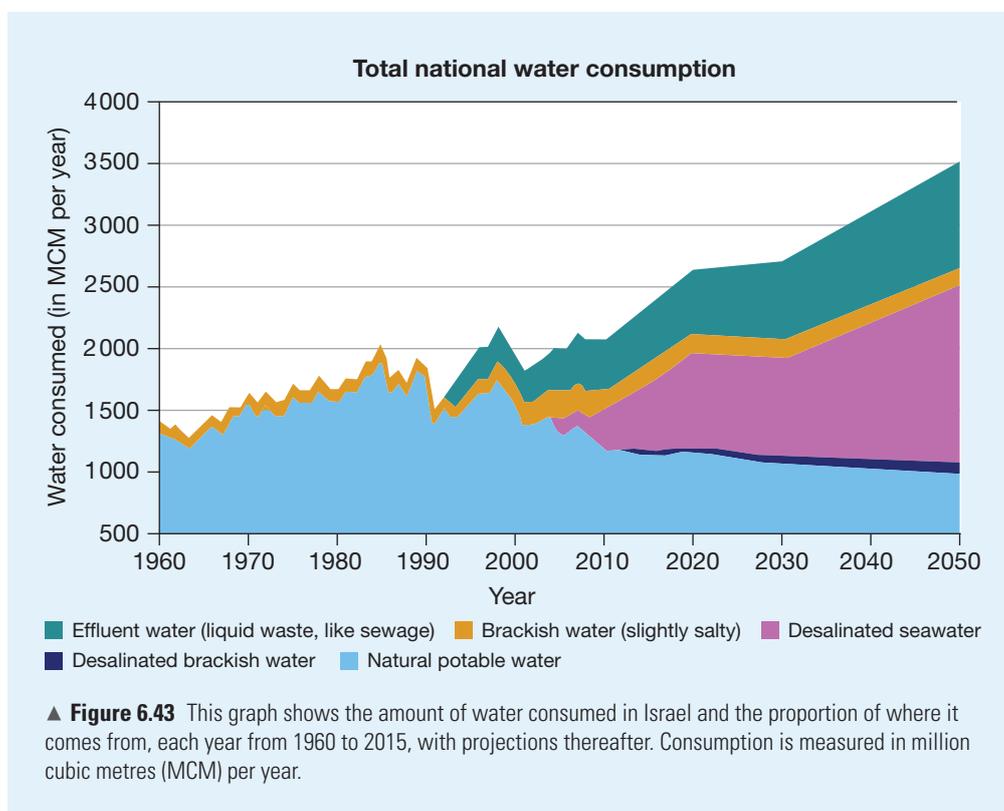
1 Describe how the total water consumption in Israel changed between 1960 and 2015.

2 Describe how water consumption is expected to change from 2015 to 2050.

3 Infer and **explain** a reason for the changes you have described in Questions 1 and 2.

4 Based on the information in the graph, **identify** in roughly what year Israel started recycling its wastewater and desalinating seawater.

5 Explain how the amounts used of each type of water resource have changed over time and how this is expected to change in the future.

6 Infer and **explain** a benefit that will come from the predicted reduction in the use of natural potable water.

Drip irrigation

In traditional forms of irrigation, farmland is flooded with water or sprayed with large sprinkler systems. A large amount of water is wasted as it evaporates or runs off the land. The water may not seep into the soil sufficiently or it may infiltrate too rapidly for plant roots to absorb it. Drip irrigation involves the slow dripping of water directly onto the plant's **root zone**. The result is a higher **crop yield** and a higher quality product. Israel's shift towards drip irrigation has decreased the amount of water needed for agriculture by 30 per cent.

root zone the area of soil surrounding the roots of a plant

crop yield the size of a harvested crop per unit area

The future

Even though Israel managed to use desalination and water recycling to secure a reliable water supply, its challenge is not over. Israel's population is still growing at a very rapid rate and is expected to double by 2050. Meanwhile, rainfall is still far lower than average. Sustainable management and continued technological innovations will be needed to ensure that Israel's water resources can support its population and industries. However, the lessons Israel has learned in managing its water supply have important consequences. Many of the innovations Israel has made, such as drip irrigation, are being implemented across the world in countries like India, Kenya and the United States.

Interesting fact

Drip irrigation was invented in Israel in the twentieth century. The idea began in 1930 when a young water engineer, Simcha Blass, noticed a row of trees on a farm. One tree was twice as tall as the others. He noticed a water pipe had leaked and was regularly dripping water onto the tree's root zone. Blass patented his idea in 1959 and created the first drip-irrigation company in 1964.

DEVELOPING YOUR UNDERSTANDING 6.4

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Identify** two reasons why Israel has to manage its water resources carefully.
2 **Identify** and describe three ways that Israel has managed to reduce its water scarcity.
3 **Identify** how much of Israel's wastewater is recycled.

Interpret

4 **Describe** how recycling water can benefit both society and the natural environment.
5 **Explain** why education was an essential part of Israel's water management.

Argue

6 **Compare** and **contrast** Australia's water management to Israel's.
   a **Explain** how Australians could adopt innovations from Israel that might help us to deal with our own water scarcity more effectively.
   b **Describe** and **explain** the possible negative consequences of adopting these ideas.

6.5   The significance of water for different peoples

FOCUS QUESTION

What role does water play in the spiritual, economic and cultural life of peoples in Australia and around the world?

Water is and always has been essential to all aspects of life. In fact, recent evidence from NASA suggests that liquid is likely to exist on Mars, which could be a hint of current or previous signs of life! Not only does water sustain life, but it is also a significant part of diverse ancient and modern-day cultures around the world. Water is culturally and spiritually important to many societies, including ancient civilisations.

Ancient beliefs and cultures

Since ancient times, water has been a significant part of cultures around the world. Many cultures made water an important part of their religious rituals and beliefs.

▲ **Figure 6.44**   The ruins of the Temple of Poseidon, believed to date back to the fifth century BCE, at Cape Sounion in Greece. This is one of many temples dedicated to the ancient Greek god Poseidon, god of water and the sea.

The ancient Egyptians called the Nile River the 'father of life'. They believed that the god Khnum controlled the flow of the Nile and sent the floods each year. To keep this god happy and ensure the Nile River continued to flow, the ancient Egyptians built shrines and temples honouring Khnum. They also threw food and statues into the Nile River as offerings to the god.

Ancient Greeks had a similar connection with water through their god, Poseidon, who was the god of the sea and water, as well as earthquakes, storms and horses. The ancient Greeks relied heavily on the sea for trading and transport between the mainland and the Greek islands. There are ancient temples dedicated to the worship of Poseidon in Greece.

Archaeological evidence shows that First Nations Peoples lived along the river banks in places all throughout Australia. They managed these waterways to ensure they could use the fish and plant life to feed themselves.

The connection between Aboriginal Peoples and water was recognised in 2019 when the Budj Bim cultural landscape was added to the World Heritage Site list. This site in western Victoria is a **fish management** system containing weirs, channels and holding ponds to trap fish. The system supplied the ancient Gunditjmara people with a reliable food source to consume and trade.

fish management a system of sustainably controlling the harvesting of larger fish and other aquatic organisms, with minimum disruption to natural breeding, and allowing smaller individuals to escape and grow

▲ **Figure 6.45** Young First Nation boy, Quentin, is jubilant after catching a crab, speared with the traditional two pronged fish spear, at Dippirri beach, Arnhem Land, Northern Territory.

To learn more about Aboriginal and Torres Strait Islander Peoples as the First Australians, see Chapter 1.

Beliefs and cultures today

Hindus believe that large rivers are sacred and provide a connection with the gods. The Ganges River is one of the most significant rivers in Asia. It is over 2500 kilometres long and flows through some of the most populated places in India and Bangladesh. Four hundred million people rely on it for drinking, bathing and irrigation.

The Ganges River is sacred for Hindus as it is considered to be a form of the goddess Ganga. Many Hindus believe that if you bathe in the Ganges River you will be cleansed of your impurities and negative actions. Millions of people make pilgrimages to the Ganges River to bathe in its waters. Many people also scatter the ashes of their deceased loved ones on holy rivers like the Ganges River. Hundreds of Hindu festivals and celebrations are held on the banks of the river each year.

Interesting fact

Although the Ganges River is believed to be sacred and spiritually pure. However, the very high population along its course threatens its water quality.

Water has been and still is a significant part of the culture of First Nations Peoples. Water is a symbol of life and has been a central part of First Nations lifestyles for tens of thousands of years.

> *Water is the life for us all … If that water go away, everything will die. That's the power of water. He connect with the land.*
>
> John 'Dudu' Nangkiriyn, Bidyadanga, Western Australia

In modern Australia, First Nations Peoples living in remote communities in the Northern Territory see water management as a high priority. Due to a lack of permanent rivers in desert areas, many of these communities rely heavily on accessing bore water from groundwater supplies. The people in these remote communities are forced to compete with mining, livestock and urban areas to access their share of a limited water supply.

ACTIVITY 6.8

First Nations Peoples history

Research the history of a large river or coastal region in your local area. Write a paragraph to **summarise**:

- Who the traditional owners of the land are
- The history of what the area was used for
- Current links with Australia's First Nations Peoples.

Aesthetic and recreational value

Many people might not have a deep spiritual connection to water, but it is still a significant part of their culture. For example, water

activities are enormously popular in Australia and around the world. These activities include water-based sports such as swimming and waterskiing, and hobbies such as fishing.

The beauty of coastal and river environments, alongside the recreational opportunities that water provides, means that places near water are popular choices for holidays. Water also plays a big part in increasing the prices in real estate. Waterfront properties in capital cities or in places that have easy access to the beach, such as the Gold Coast, usually have higher prices than properties that are inland.

Interesting fact

A study in 2015 found that 13 per cent of Australians, which is a total of 2.7 million people, live in a house that has a swimming pool. Those of us who have a swimming pool, or regularly go swimming in one, know how fantastic they are for relaxing, exercising and spending time with friends or family. Australia is well known for its swimming athletes, many of whom have won Olympic medals. Ian Thorpe and Leisel Jones have won nine Olympic gold medals each.

FIELDWORK 6.1

Exploring the significance of a local water resource

Fieldwork is an essential part of studying geography. It enables you to investigate many of the concepts studied in the classroom by collecting data out in the real world. In this investigation, your aim is to explore a water resource close to your school or home, and determine the ways it is used and its significance for the surrounding region.

First, choose a local resource and develop a plan for a fieldwork investigation. Ideas include:

- Any river or creek near your home or school. For example, the Brisbane River, Nerang River, Burdekin River, Condamine River or any other river in Queensland that you choose.
- A smaller urban or rural river that is in your area or one that you might visit.
- A lake that might be near you or that you may have had a holiday near.
- An example of water management such as a local, regional or even state water management strategy, such as parts of the SEQ water grid.
- A water reservoir or dam near you.

Use the following structure to plan your investigation and present your results.

Title and introduction

Introduce your study by providing some context. This should include the location of your chosen water resource and what aspects you will be investigating.

Aim

Write an aim for your fieldwork that is achievable based on the data that you intend to collect.

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Research question

Write a research question that you intend to answer using the data that you collect. Examples include:

- What are the different ways this resource is used by people?
- What role does this resource play in the local water supply and the surrounding environment?
- How is this resource managed?

Hypothesis

Write a clear and concise hypothesis. This is a testable statement that provides a testable prediction prior to collecting the primary data. It should relate to the research question.

Examples include:

- This resource is used for recreation by the local community
- This resource is used for irrigation and supports vegetation and wildlife in the local environment

Primary data collection

Consider the types of primary data that you will need to test your hypothesis and answer your research question. Examples include:

- Observations, annotated photos and field sketches showing the interconnection with the surrounding landscape
- Water-quality samples
- Analysis of the quality and species of vegetation surrounding water bodies
- Interviews and surveys of local residents about how they use the resource
- An interview with a group that manages the water supply such as SEQ Water, a catchment management authority or a local community group.

Secondary data collection

Use a range of secondary sources to supplement your primary data. Examples include:

- Satellite images and elevation data gathered using Google Earth
- Previous studies and management information from the websites of management groups and government authorities.
- Tabled data relating to rainfall, water flows and water use and storage capacity.
- Data that can be turned into graphs.
- Data on any additional water production or collection that is part of your chosen body of water.

Presenting and analysing your data

Your investigation must be presented as a report. You must use a title page, contents page, and organise your information using page numbers, headings and sub-headings. Your report must use in-text referencing throughout the body of the report to acknowledge where you got your information from as you use it. This must then become a bibliography at the very end of the report, to show the details of your information collection. Your report must also be illustrated throughout using pictures, maps, tables and graphs, each one with a caption to briefly explain what is being shown. You should have a conclusion and evaluation followed by your bibliography.

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Conclusion and evaluation

Summarise your findings and evaluate the success of the field trip. What were the positives and negatives of your data collection? What could be done differently next time? What additional data could be collected to extend this investigation?

References

Always ensure you keep a record of any sources used and present these in a bibliography.

DEVELOPING YOUR UNDERSTANDING 6.5

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Describe** an example of an ancient civilisation having a spiritual or cultural link with water.
2 **Explain** what Hindus believe will happen to people who bathe in the Ganges River.

▲ **Figure 6.46** Devotees immerse themselves in the Ganges River at Varanasi as part of a religious festival. Each year cities like Varanasi are inundated by pilgrims who want access to the Ganges River.

Interpret

3 **Identify**, **describe** and **explain** how First Nations Peoples managed water resources to suit their needs.

Argue

4 The history of water management by First Nations Peoples is valuable and should be a primary concern when managing water resources. **Discuss** whether you agree with this statement. Refer to specific examples to **justify** your opinion.

End-of-chapter assessment 6

1 Making thinking visible

Circle of viewpoints

Managing water within the Murray–Darling Basin is one of the greatest resource-management challenges in Australia. Choose one of the following perspectives:

- A farmer who withdraws water to irrigate crops
- A local resident in a farming town such as Goulburn or Renmark
- An environmentalist concerned with the health of wetlands and river environments.

Complete the following statements regarding the way you think water within the Murray–Darling Basin should be managed, from your chosen viewpoint:

I am thinking of water within the Murray–Darling Basin from the point of view of …

I think water within the Murray–Darling Basin …

A question I have from this viewpoint is …

2 Research tasks

Choose one of the examples provided throughout this chapter and prepare a case study. This will require in-depth research about a topic and specific location. Two ideas are given here.

- An evaluation of the success of the Murray–Darling Basin Plan by comparing different regions such as Finley and Mildura.
- The recent water scarcity situation for Chennai or another location in India.

Develop a research question based on your topic and present your results in a written report or an oral or audio-visual presentation.

3 Extended-response question

Claim: *Water scarcity is caused by a range of factors and leads to a variety of consequences for different places. Ensuring economic, social and environmental sustainability in these water-scarce regions requires unique management responses.*

Discuss this statement in the context of one or more case studies presented within this chapter.

4 Problem-solving task

Consider the water crises in Chennai and Cape Town. **Discuss** whether the water-management strategies used in the Murray–Darling Basin or in Israel could have been applied in these situations. What factors might determine the success of these responses in these places?

▲ **Figure 6.47** Residents in Cape Town queuing to refill water bottles in January 2018. During this time, residents were limited to the maximum daily water usage of around 50 litres a day per person, which is about the equivalent of a two-minute shower.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

CHAPTER 7

Hydrological hazards: floods

Setting the scene: the Queensland floods of 2019

During 2019, Queensland experienced some of the worst flooding in Australia's history. The floods wrecked homes and infrastructure, threatened the safety of locals and cost hundreds of millions of dollars in damages. Flood warnings were issued for six of Queensland's major rivers. The flooding of Queensland's longest river, the Flinders River, was estimated to have been the worst in over 50 years, with the river spreading as wide as 60 kilometres across its **floodplain**.
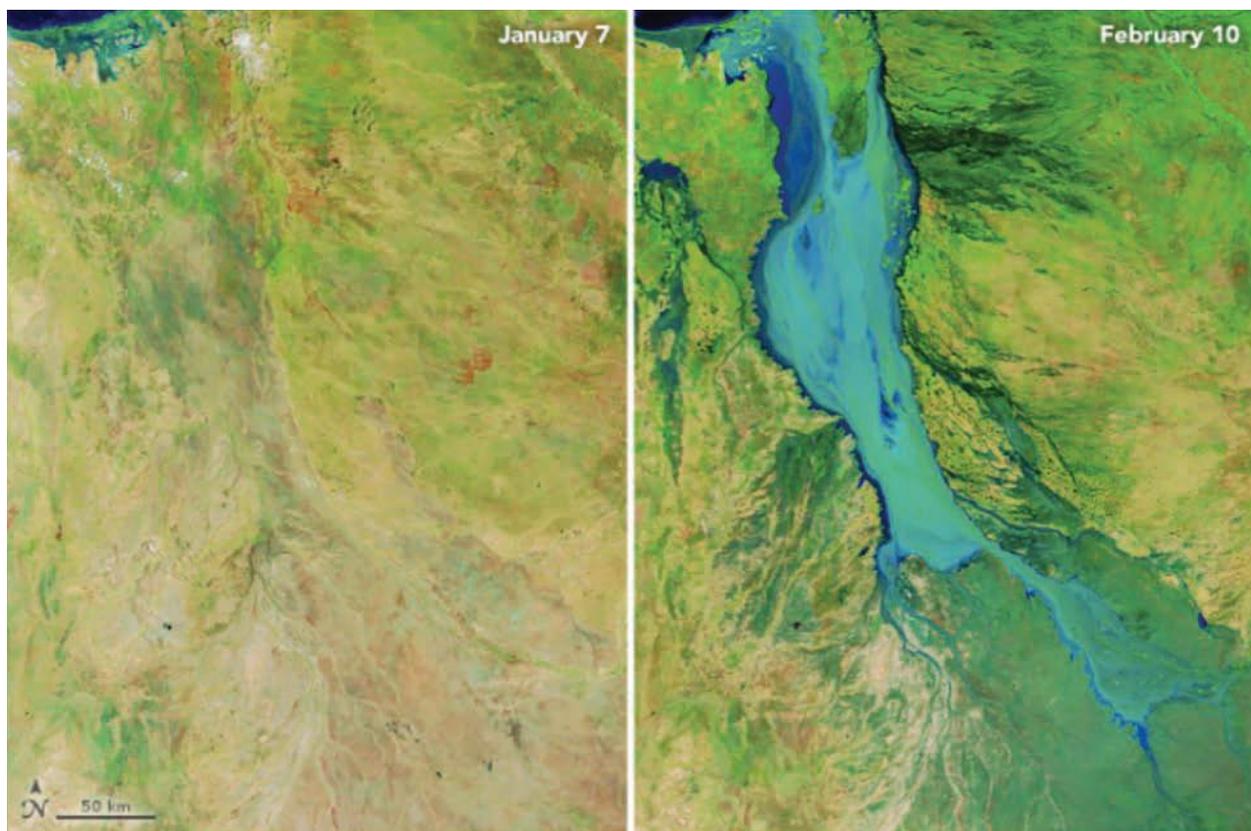
▲ **Figure 7.1** These are satellite images of the Flinders River in 2019. The image on the left was taken before the flooding in January 2019. The image on the right shows the flooding in February 2019.

floodplain an area of flat land near a river that is often flooded when the river becomes too full

megalitre a metric unit of capacity equal to a million litres

After more than 1.4 metres of rain fell on Townsville over eight days, the Ross River Dam was at 247 per cent of its capacity. To prevent the dam from collapsing under the weight of the water, the Queensland Government had to release water downstream. Nearly 2 **megalitres** of water was released from the dam every second. This led to the flooding of more than 3000 homes across 20 suburbs. More than a thousand people were evacuated.

The flooding overwhelmed emergency services, with people having to wait to be rescued from the floodwaters. According to an ABC News report, the Populin family, who lived in a suburb of Townsville, ended up with 16 families sheltering in their house overnight. The family were lucky enough to have a generator so that they could keep their electricity running during the flooding. One of their neighbours had a small boat that he used to ferry people to safety in the Populins' house. Another of their neighbours used a kayak to get his family safely to the house. Overall, almost 60 people waited at the Populins for several hours until the army was able to take them safely to an evacuation centre. Animals were not so lucky; an estimated 500 000 cattle died in the floodwaters.

Floods such as these are a regular occurrence in Australia and they cause millions of dollars

▲ **Figure 7.2** Flood in Townsville, 2019

in damage almost every year. This flood caused $885 million damage. Although the state and federal governments prepare for floods, limiting the impact of floods on people and the environment is challenging because of their unpredictable nature.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.1

Analysing satellite imagery

Satellite images, such as the ones shown in Figure 7.1, are photographs taken from space using satellites. If you have ever looked at your house or school on Google Earth, then you have used satellite imagery. Satellite images are very useful to geographers because they show large-scale changes to the landscape. This means that these images can be used to analyse events such as floods.

Satellite images often show a north arrow so that we know which way they are oriented. They also include a linear scale. A linear scale enables us to compare distances on the image with distances in the real world. In Figure 7.1, the length of the line in the bottom-left of the first image represents a distance of 50 kilometres.

Refer to Figure 7.1 and then answer the following questions.

1 **Describe** what you think the colours in the images represent. (You may wish to create a legend to support your answer.)
2 Use the scale in Figure 7.1 to **determine** the approximate length of the Flinders River in the image.
3 Use the scale again to **determine** how wide the floodwaters spread.
4 **Explain** the impact that the floodwater seemed to have on the surrounding **vegetation**.
5 **Explain** why some people choose to live near rivers despite the risk of flooding.

vegetation the plants found in an area such as trees, shrubs and grasses

▲ **Figure 7.3** The first satellite image shows the normal footprint of the Ross River as it flows through Townsville. The second image shows the extent of the 2019 flooding at its peak.

MAKING THINKING VISIBLE 7.1

Explanation game

1 **Examine** the two satellite images in Figure 7.3 and **describe** what you can see in the images.

2 **Identify** something interesting about these images and write a sentence using the sentence starter: 'I notice that …'.

3 Once you have written your sentence, ask yourself 'Why is it that way?' or 'Why did it happen that way?' Then write a paragraph to **explain** what has happened and why.

Chapter overview

Introduction

Hydrological hazards are dangerous weather events involving water. They include having too much water, such as in the case of heavy storms leading to floods and landslides, and not having enough water, such as a lack of rain leading to a **drought**. Hydrological hazards are driven by atmospheric conditions such as wind, humidity, temperature and rainfall.

Hydrological hazards have an enormous impact on people, places and the environment. Some places are extremely vulnerable because of their **climate** and location. In many parts of Australia, people regularly deal with the danger and consequences of this type of hazard.

This chapter focuses on floods as an example of a hydrological hazard. It covers the causes of floods, different types of floods, the various ways that floods impact people and places, and the strategies that are put in place to reduce flooding and its impacts.

drought an extended period of time without rain that causes water shortages and crop damage

climate the long-term trends in the weather conditions of a place such as its average rainfall and temperature

Learning goals

After completing this chapter, you should be able to answer these questions:

- What are floods?
- Why do floods occur?
- Where do floods occur?
- What are the social, economic and environmental impacts of floods?
- How do people respond to floods to minimise their impacts?

Geographical skills

After completing this chapter, you should be able to:

- Explain processes that influence the characteristics of places
- Identify, analyse and explain spatial distributions and patterns, as well as identify and explain their implications
- Identify, analyse and explain interconnections within places and between places, and identify and explain changes resulting from these interconnections
- Select and represent data and information in different forms, including constructing appropriate maps at different scales that conform to cartographic conventions, using digital and spatial technologies as appropriate
- Analyse maps and other geographical data and information, using digital and spatial technologies as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology.

▲ **Video**
Five interesting facts about floods

▲ **Figure 7.4** November 2019, Italy declared a state of emergency for flood-hit Venice, as the UNESCO World Heritage site suffered millions of euros worth of damage.

7.1   Floods: a natural process or a natural disaster?

FOCUS QUESTIONS

- What are floods?
- Why do floods occur?
- Where do floods occur?

What are floods?

A flood is when water **submerges** land that is normally dry. Floods can last anywhere from a few hours to several months and can affect small individual places, entire towns or many kilometres of land. They occur in a variety of places, such as near rivers and dams, in the valleys between mountains and in coastal regions. Floods are a naturally occurring part of the water cycle (see Figure 7.5 illustrating the water cycle) and are essential in maintaining the health of many environments. However, when floods meet civilisation, they can wreak havoc and be very costly.

submerge to cause something to be under water
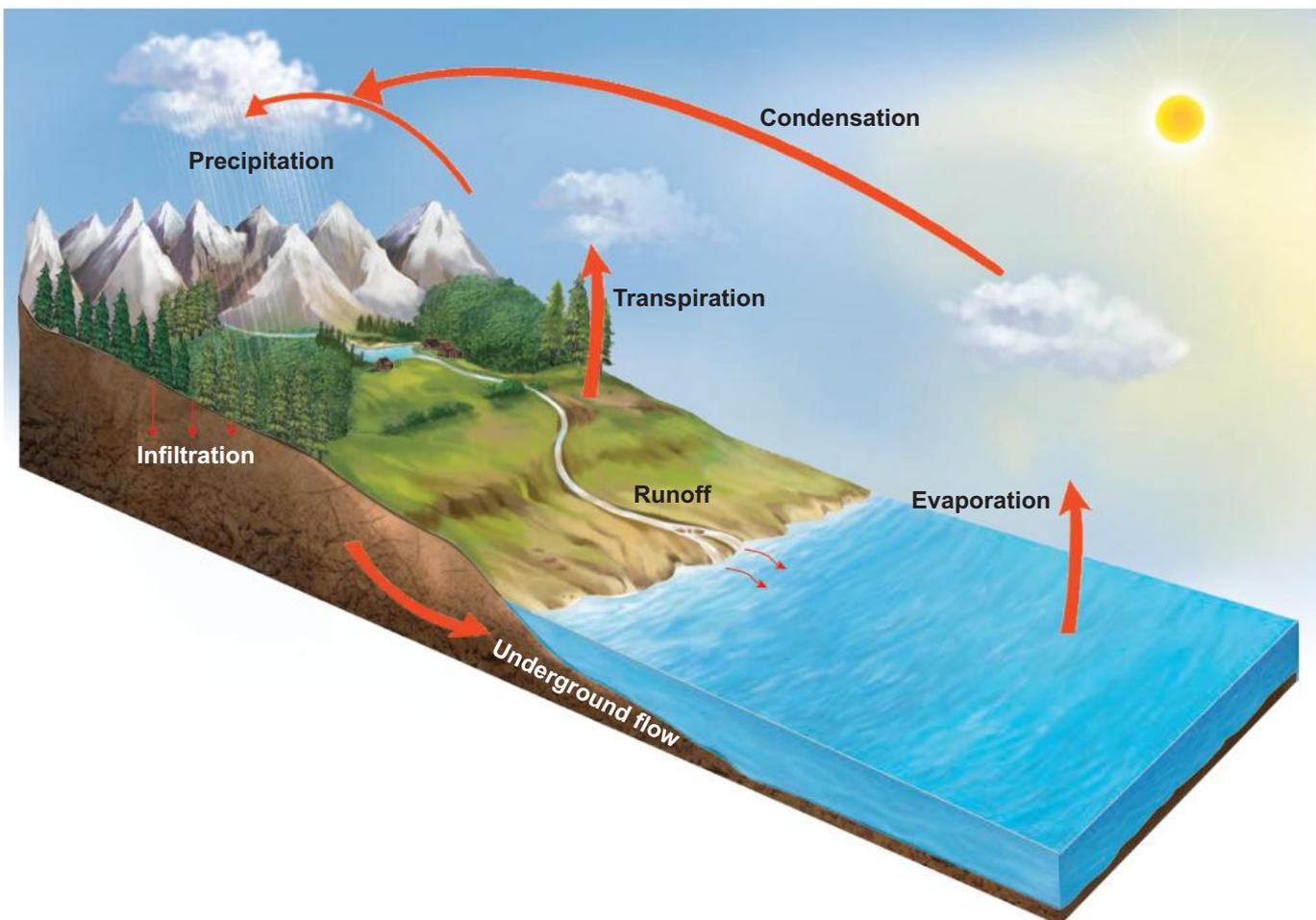
▲ **Figure 7.5** The different processes involved in the natural water cycle

Normal conditions

Flood conditions

Floodplain

Floodplain

Older river channel and floodplain sediments
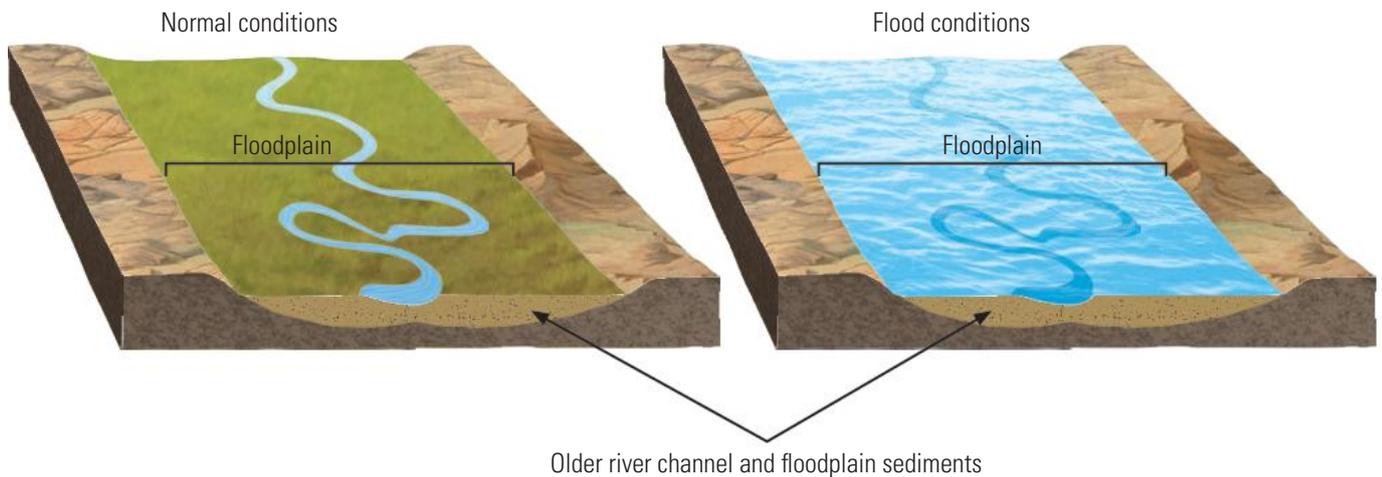
▲ **Figure 7.6** A natural part of any river is the floodplain. It is always quite flat and will naturally flood when the river is too full. This creates very fertile soils, which are exceptional for growing crops. Many cities have grown up around rivers, Brisbane and the Gold Coast are two of Queensland's most well known.

Why do floods occur?

When rain falls, some of the water **infiltrates** or seeps into the soil, some of it **evaporates**, and some of it flows into rivers and creeks (referred to as **runoff**). During large rainfall events, such as large storms, soil can become **saturated**, meaning that it can no longer absorb any more water. This causes more water to run into river systems. Eventually, the rivers become so full that the water flows out over the floodplain.

The Balonne River is a continuation of the Condamine River in south-west Queensland, and therefore part of the Murray–Darling Basin. It passes through the towns of St George and Dirranbandi and then into New South Wales. Figure 7.8 on the following page shows the Balonne River in

flood and the positive impact it has on groundwater both locally and for the wider area.

Coastal flooding

Coastal areas are particularly vulnerable to flooding. Floods occur when large amounts of sea water are pushed ashore, sometimes several kilometres inland from the coast. Flooding in coastal areas happens because of a **storm surge**, **high tide** or **tsunami**. Storm surges occur as a result of large storms, for example those caused by a **tropical cyclone**. High winds push water up against the coast as a cyclone approaches, causing a temporary rise in the sea level. This can be particularly disastrous if it occurs during a high tide. (See Figure 7.7 illustrating storm surge flooding.)

infiltrate to seep into the ground so that water is absorbed by the soil

evaporate to cause a liquid to change to a gas, especially by heating

runoff water that is not absorbed by the land and flows from high areas to low areas

saturate to reach a point where soil cannot absorb any more water

storm surge a rise in sea levels due to the wind and other atmospheric elements of a storm

high tide the time when the sea or a river reaches its highest level and comes furthest up the beach or the bank

tsunami a high wave that forms out at sea due to a disturbance underground such as an earthquake

tropical cyclone a rapidly rotating storm system with strong winds and thunderstorms

storm tide

storm surge

Normal high tide

High tide
Mean sea level
Low tide

High tide
Mean sea level
Low tide

Normal high tide

Cyclone storm surge
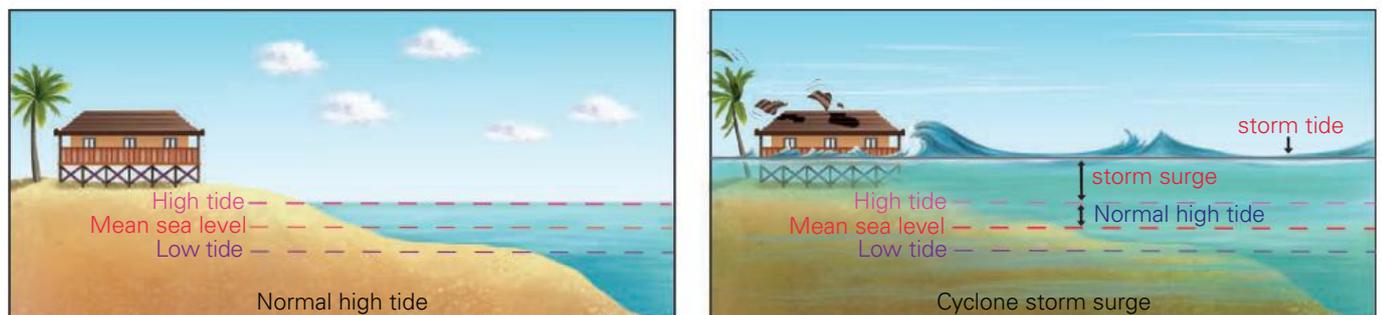
▲ **Figure 7.7** A storm surge leads to a temporary increase in the height of the sea level. This illustration shows the sea level in a coastal area before a storm surge (left) and during the surge (right).
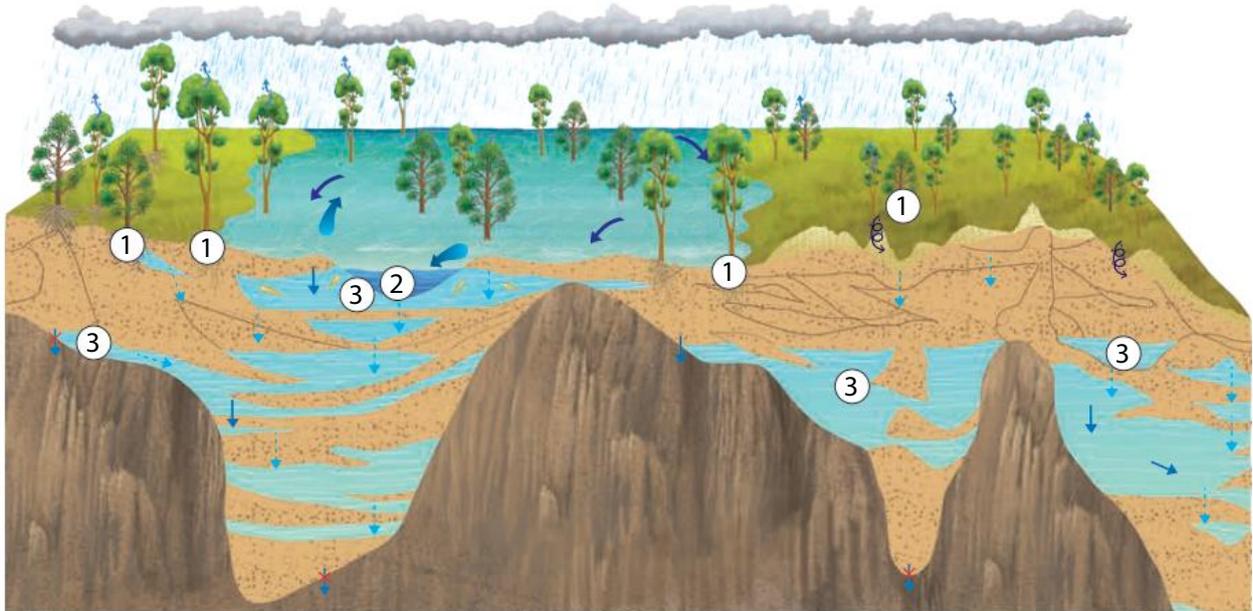
Geology legend

Alluvia
Unconsolidated sand and clay

Low permeability rock

Soil

Goundwater hydrology legend

Alluvia (saturated)

← Direction of groundwater movement

Alluvia (unsaturated)

←---- Groundwater leakage

Low permeability rock (unsaturated)

←✗ Negligible goundwater movement

Infiltration and percolation
Rain infiltrates through the soil to
recharge the aquifer below

Direction of surface water movement in the channel

Direction of surface water movement outside of a channel

Flora legend

Casuarina spp.

Eucalyptus spp.

Evapotranspiration
Process whereby plants draw water up through
their roots and move it out through their leaf pores

Fauna legend

Stygofauna
Aquatic fauna that live in groundwater

Groundwater dependent ecosystem legend

1 Terrestrial GDEs
Regional ecosystems and riverine wetlands may depend
on the subsurface presence of groundwater within the
capillary zone for some or all of their water requirements.

2 Surface expression GDEs
Lucustrine wetlands,
palustrine wetlands and
riverine water bodies may
depend on the surface
expression of groundwater
for some or all of their water
requirements.

3 Subterranean GDEs
Aquifer and cave subterranean wetlands may depend on
the subterranean presence or expression of groundwater
for some or all of their water requirements.

▲ **Figure 7.8** The Balonne River alluvial floodplain

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.2

Explaining concepts

It is important to **understand** the difference between these three definitions as it will have an impact on what we do individually and as a community to prepare.

Natural event – is any natural phenomenon that can occur to impact the land, air, water or biosphere environments. For example, earthquake, cyclone, flooding, drought or bushfire.

Natural hazard – is any natural event that has the *potential* to cause damage to people and property. Man-made hazards, or technological hazards, such as oil and chemical spills into the environment, are not considered natural hazards.

Natural disaster – is any natural hazard that directly impacts/destroys people and property.

Activity

Identify the correct definition for each of these scenarios.

1 In 2010, the capital city of Haiti, Port-au-Prince, in Haiti was almost destroyed by an earthquake. Hundreds of thousands of people were killed and most major buildings collapsed.

2 In 1992–3, Cyclone Nina crossed the Queensland coast on the Cape York Peninsula. In Australia, Cyclone Nina caused very little damage to property, and no one was injured. This was due to the cyclone passing over a vegetated area that was sparsely populated. It did, however, cause extensive damage to the Solomon Islands.

▲ **Figure 7.9** The devastating effects of the 2010 Haitian earthquake

3 The K'gari-Fraser Island bushfires of 2020 had the potential to destroy both the resident and tourist infrastructure on the sand island, which is on the World Heritage List. The fires burned for months. When they were finally extinguished, almost half the island's vegetation had been destroyed but there was no loss of life or property. With the knowledge that it will regenerate in time, tourists are returning to enjoy the island.

4 In 2006, a dust storm in the Simpson Desert, which is one of the driest deserts in Australia, situated around the borders of Queensland, the Northern Territory and New South Wales, had no impact on people or property.

Hazard management and mitigation

There are a couple of reasons we need to know and understand these terms. First, we as individuals need to learn about how hazards may impact us in the areas we live, so we can prepare our houses and properties. Second, so that all levels of government can manage and prepare the potential hazard areas and be ready to respond to local people's needs if the hazard becomes a disaster.

ACTIVITY 7.1

Creating a flow chart

A flow chart is used to show the sequential order of steps in a process. This is done by using boxes and arrows to show the next following step. Flow charts can be **created** by hand or by using a computer program. Here is an example of a flow chart showing the water cycle. This chart uses arrows and words to show the process of how water moves and changes in our world.

Create a flow chart that explains the processes that form a flood. Use some of the key words and diagrams from the text and include linking words to show the connection between these process ideas.
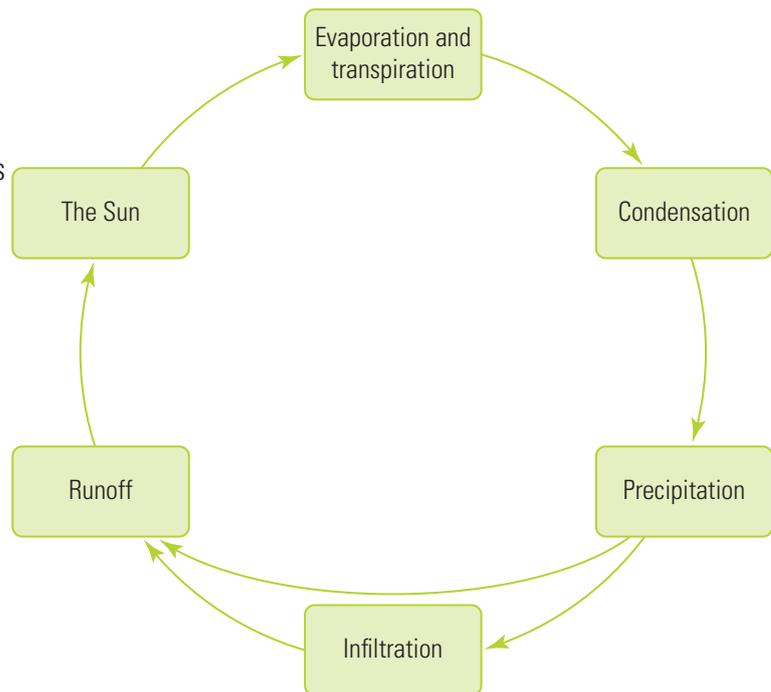
High rainfall leading to flooding

The beginning of this chapter outlined the devastation of the 2019 Queensland floods. Figure 7.10 shows the amount of rainfall that fell in Queensland during this period. Figure 7.11 shows the amount of rainfall that fell during this period compared to the normal February average. In some places, the rainfall was 400 per cent more than the average, which is five times the usual amount.
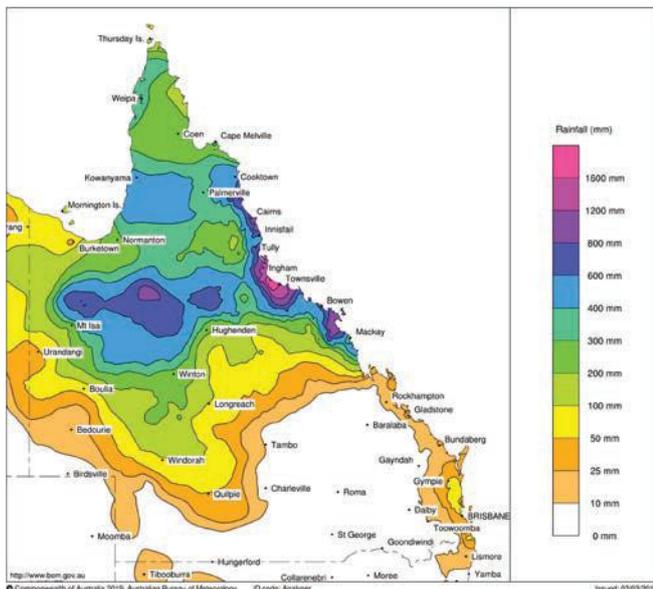
▲ **Figure 7.10** The amount of rainfall that fell in Queensland from 26 January to 9 February 2019 (please see the digital versions to zoom in on this figure)
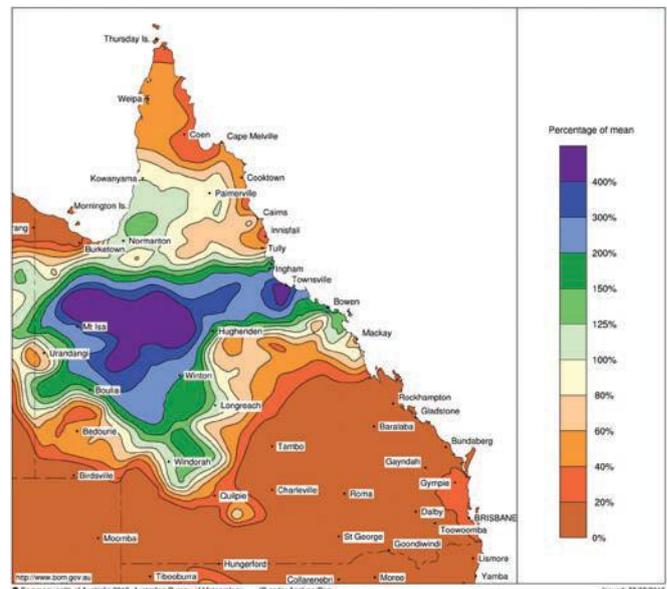
▲ **Figure 7.11** The amount of rainfall from 1 to 19 February 2019, compared to Queensland's February average (please see the digital versions to zoom in on this figure)

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.3

Describing space

Geographers use maps to analyse the distribution of phenomena in space. This is not referring to outer space, but 'spatial distribution', which is how things are arranged. Geographers analyse spatial distributions and look for patterns so that they can understand how or why things occur.

Refer to Figure 7.10 and answer the following questions.

1 **Identify** which part of Queensland received the most amount of rainfall from 26 January to 9 February 2019. How much rain fell during this period?

2 **Identify** three places that received more than 800 millimetres of rainfall.

3 **Identify** which parts of Queensland received the least amount of rainfall.

4 Write a structured paragraph that **explains** the pattern of rainfall shown. Include a description of the regions that received the most and least amount of rain, as well as the location of these regions. You can use compass directions, and words such as 'coastal' and 'inland' to help you with this.

Interesting fact

Tropical cyclones are known as 'hurricanes' in the United States and 'typhoons' in Asia.
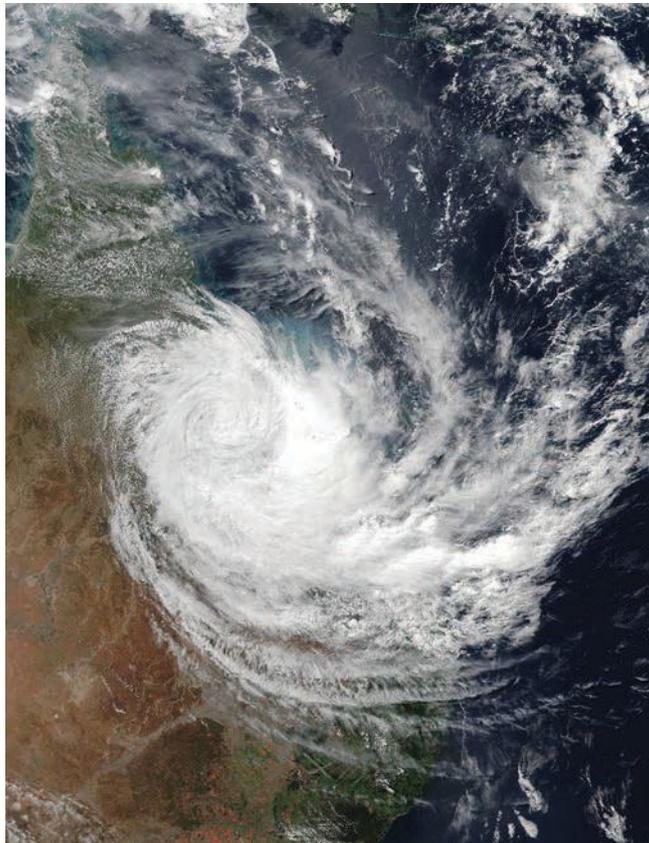
▲ **Figure 7.12** This satellite image shows Severe Tropical Cyclone Debbie over Queensland in 2017. This caused extensive flooding throughout the state.
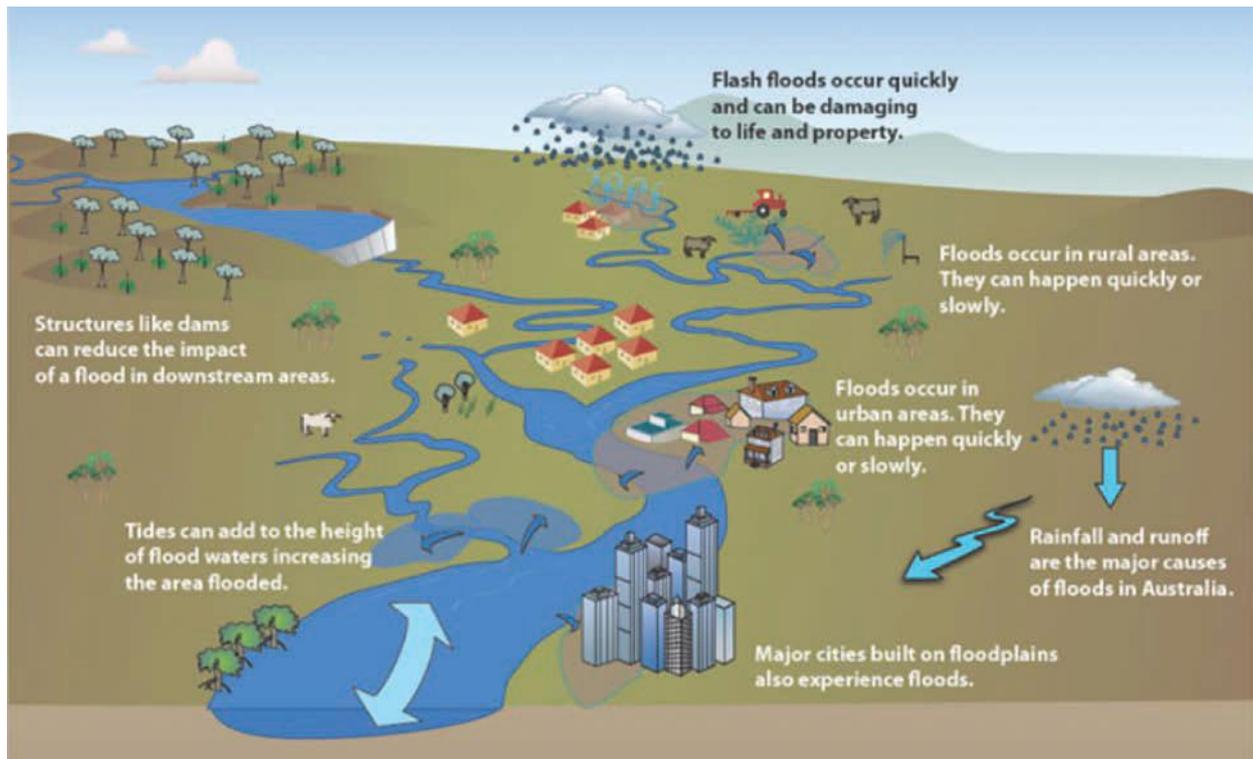
▲ **Figure 7.13** The characteristics of floods

Different types of floods

There are three main types of floods: flash floods, slow-onset floods and quick-onset floods. Floods vary because of the **meteorological event** that caused them and where the flood is located, such as near the coast, inland or close to mountain ranges. As Figure 7.13 shows, floods can occur because of modifications to the land, such as building cities on floodplains. While building dams can slow the flow of rivers and reduce the risk of flooding, if a dam fails it can be a major cause of downstream flooding.

meteorological event an event relating to changes in the weather such as fog, rain, storms and cyclones

thunderstorm a storm that produces thunder and lightning and usually heavy rainfall or hail

Flash floods

Flash flooding is caused by a large amount of rain falling over a short period of time. This is usually due to large **thunderstorms** that lead to heavy rainfall. Flash floods are the most rapid type of flood, typically occurring within six hours of an intense rainfall event.

This means that flash floods pose the greatest threat to life as there is little time to warn people or for them to evacuate.

Many places are vulnerable to flash flooding because they are built on floodplains. This includes a large number of Australian cities and towns such as Brisbane.

▲ **Figure 7.14** Flash flooding in Toowoomba Central Business District (CBD) in January 2011. Called an 'inland tsunami', flash flooding on the top of the Toowoomba range, it took 33 lives as it flooded the Locker Valley below.

Urban areas are vulnerable because they are covered with hard surfaces such as roads, footpaths and roofs. This means that during high rainfall events, water cannot infiltrate or seep into the soil and the water is instead washed into drains. When these drainage systems fill, flash flooding occurs.

urban areas built-up environments such as cities or large towns

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.4

Reading a climate graph

Climate graphs are used to represent the mean (average) temperature and rainfall of a location throughout the year. The graphs can be used to compare the climates of different places, and extreme weather events to long-term averages.

The information on the climate graph in Figure 7.15 is organised monthly. The red and blue lines represent the average maximum and minimum temperatures (°C) each month. These values can be read from the vertical axis on the left. Rainfall is shown in millimetres (mm), which is represented as blue bars. These values can be read using the vertical axis on the right.

▲ **Figure 7.15** Climate graph of Townsville
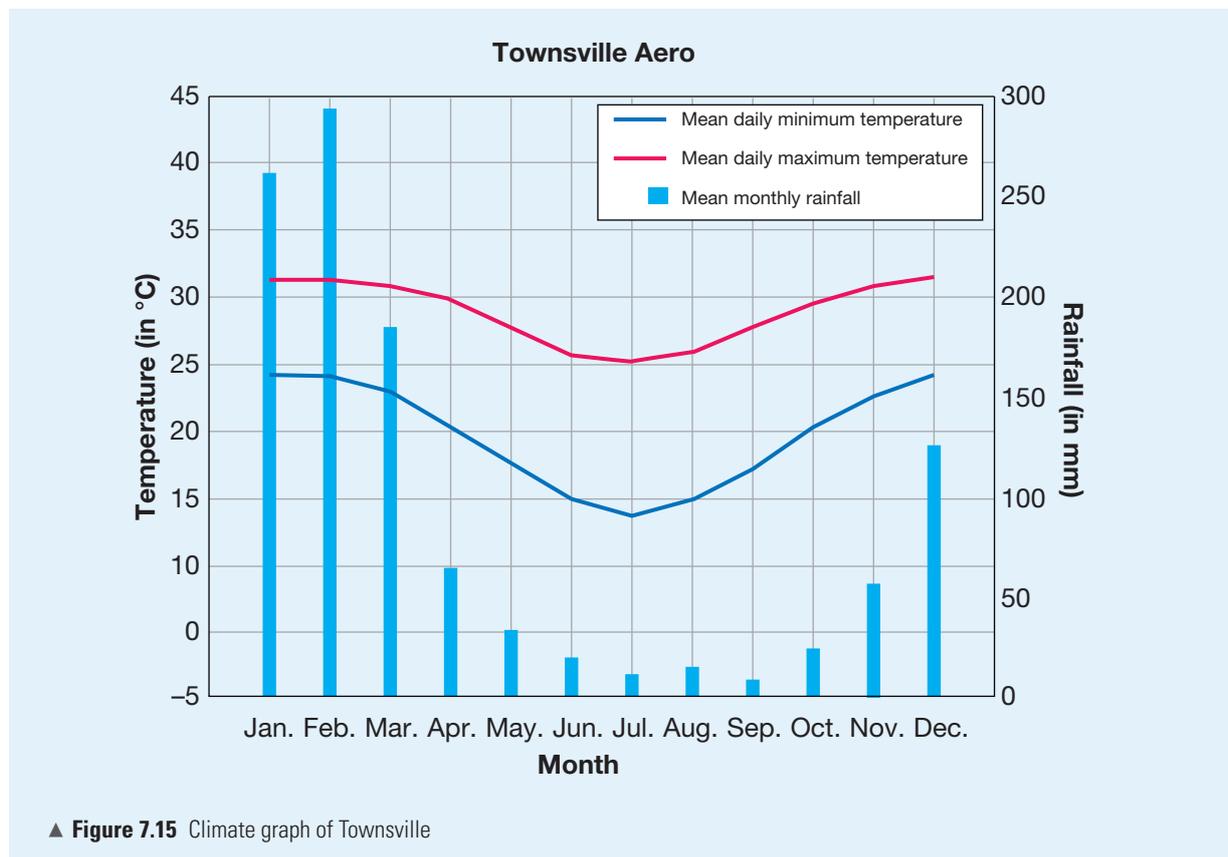
1 Use the graph in Figure 7.15 to answer the following questions about Townsville.

  a Identify which are the hottest months and what are the highest mean temperatures.

  b Identify which is the coldest month and what is the lowest mean temperature.

  c Identify which month has the highest average rainfall and how many millimetres it receives.

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2 The table here outlines the amount of rainfall that fell during the first eight days in February in 2019. Use this table to **analyse** the questions.

Date	Rainfall (mm)
February 1	216
February 2	121
February 3	153
February 4	173
February 5	43
February 6	108
February 7	17
February 8	122

    a What was the total amount of rainfall for the first eight days of February 2019?

    b How much greater was this than the February average?

3 Search online to find a climate graph for another place in Australia. Write a paragraph **comparing** the climate in Townsville to the climate in this place. In your discussion, refer to specific climate data such as monthly rainfall, total rainfall and average temperatures throughout the year.

Slow-onset floods

Slow-onset floods occur when water slowly builds up over several days or weeks. When there is a large amount of rainfall spreading slowly across the flat land, the ground becomes saturated. This means that infiltration can no longer occur. Therefore, a large amount of runoff flows into rivers and creeks. When river channels can no longer contain this extra water, the water overflows the banks and floodwaters spread across the floodplain, inundating the land.

Slow-onset floods typically occur in rural areas and can last weeks or months. There may not have been any rain in those flooded areas. With clear blue skies and flood waters all around, many people become isolated for weeks and months on their properties.

▼ **Figure 7.16** Slow-onset flooding in St George Queensland outback

Residents are given plenty of warning, allowing them to prepare and evacuate. This means slow-onset floods are less dangerous to human lives than other types of floods. However, they have a huge economic cost because of the destruction to infrastructure. Slow-onset floods can cause damage to towns, roads, railway lines, bridges and agricultural land, and livestock can die.

Quick-onset floods

Quick-onset floods tend to occur more frequently in steep mountainous areas of high rainfall, where rivers flow quickly. They can be caused by high rainfall events or snowmelt. Quick-onset floods also occur in coastal areas where rivers have the largest volume of water flowing in them, or where there is the risk of tropical cyclones. These types of floods only last for a short period of time and the land is typically submerged for a few days.

▲ **Figure 7.17** Quick-onset flooding in the Brisbane CBD during the January 2012 floods. The capital city CBD had to be evacuated and was closed for over a week as flood water subsided and the clean-up began.

However, quick-onset floods are very dangerous as they occur with little warning and the floodwaters often move rapidly. People can be caught unprepared.

ACTIVITY 7.2

Summarising the main features of floods

Describe and **explain** the features of the three main types of floods in a table. You may wish to use the following template as a guide.

	Flash flood	Quick-onset flood	Slow-onset flood
Description			
Cause			
Impacts			
Example			

Where do floods occur?

The locations where floods occur can be explained by the causes of a flood. High rainfall is the most common cause of flooding and so areas that experience high rainfall or events such as tropical cyclones are likely to experience flooding. The shape of the landscape can also determine flooding as the physical features of the land control where water flows. **Low-lying areas** are particularly vulnerable because water flows downhill to reach these places.

A less obvious reason why some areas are vulnerable to floods is because of poverty. While many wealthy areas can build structures and infrastructure to prevent flooding, many poorer regions, particularly those with a high **population density**, do not have this luxury.

low-lying area an area that has a very low elevation and is close to sea level, usually located near the coast

population density a standard measurement of people per square kilometre, which can be calculated at different scales (suburbs, cities, countries, regions)

Flooding in Bangladesh

Bangladesh is an example of a country that is very vulnerable to flooding. It experiences major floods most years because Bangladesh:

monsoon the seasonal changes in atmospheric wind circulation and precipitation

elevation height above sea level – altitude

- Is located where the three largest rivers in Asia, the Ganges River, Brahmaputra River and Meghna River, meet in the Ganges Delta
- Has a very low elevation, with most of its land mass located less than 10 metres above sea level (see Figure 7.18)
- Has a subtropical climate, which means it experiences a **monsoon** season with very high rainfall from June to October each year
- Has a very high population density and is a relatively poor country, which means that floods have a major impact.
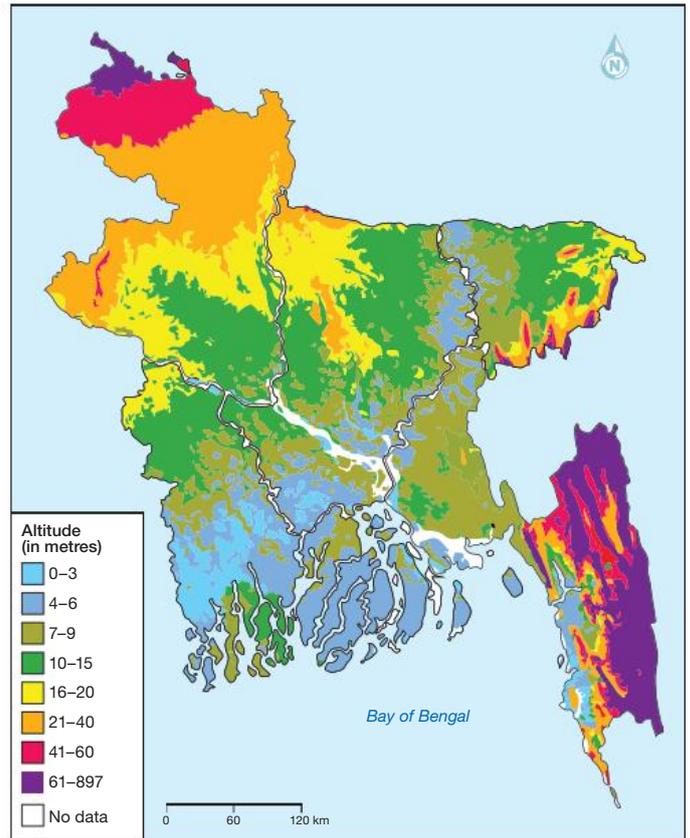
▲ **Figure 7.18** An **elevation** map of Bangladesh
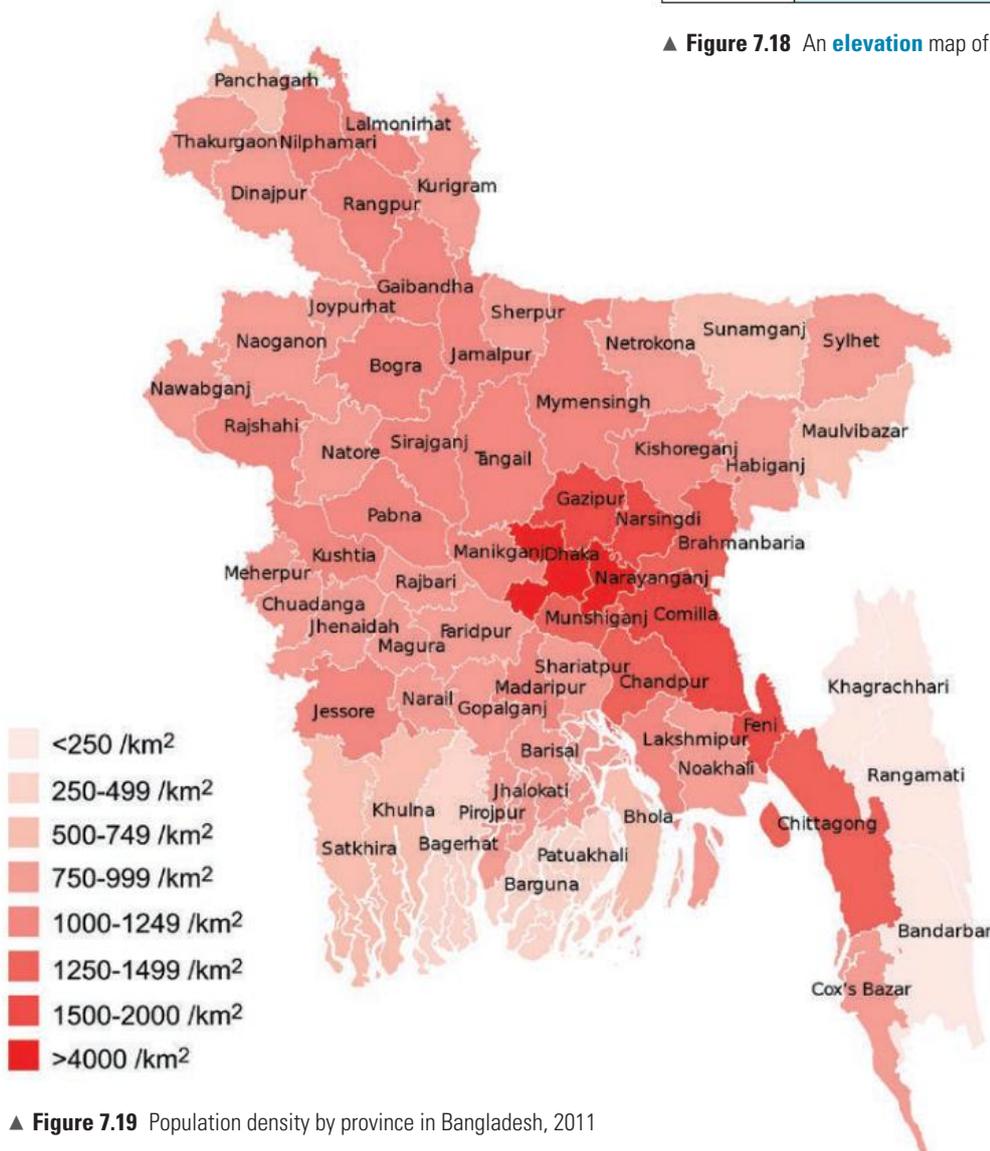
▲ **Figure 7.19** Population density by province in Bangladesh, 2011

ACTIVITY 7.3

Interpreting data

Look at the elevation map in Figure 7.18 and answer the following questions.

1 **Estimate** how much of Bangladesh is located at an altitude of less than 10 metres.

2 **Describe** where the lowest and highest parts of Bangladesh are located.

3 Use an atlas or Google Maps to explore the region north of Bangladesh. What major landform is located here?

Looking at Figure 7.19 of the population distribution of Bangladesh, answer the following questions.

4 **Identify** the two provinces with the highest population density.

5 **Identify** the provinces with the next highest density.

6 In a structured paragraph, **analyse** the two maps to **describe** and **explain** the relationship between these two maps. You will need to use province names and densities as well as altitude to help you explain. Use the notes on page 288 and do some online research to find out why people live in these flood-prone places of Bangladesh.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.5

Describing the characteristics of a place

When geographers refer to a place, they are referring to:

- Location
- Geographic characteristics
- The sense of place and the connections that people have with it.

Location can be described in two ways. *Absolute location* refers to a place's exact location. This might be its latitude and longitude or a street address. *Relative location* is the distance and direction that a place is from somewhere else. For example, Rockhampton is approximately 617 kilometres north of Brisbane.

Geographic characteristics are the features of a place. These can be divided into *natural* and *human* characteristics. The geographic characteristics of Bangladesh listed earlier are its major landforms, elevation, climate (natural characteristics) and population density (human characteristics).

The sense of place is harder to define. It refers to what the place is like, why it is significant and the connections that people have with it. Different people have different connections to a place based on their age, gender and interests.

Now that you know these characteristics of a place, complete the following research task.

1 Use Google Earth or an atlas to find a major city in Bangladesh.

2 **Describe** the absolute location of your chosen city by stating where it is located within Bangladesh or its latitude and longitude.

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3 **Describe** the relative location of your chosen city by describing how far and in what direction it is from Dhaka, Bangladesh's capital.

4 **Research** your chosen city online and list some of its geographic characteristics. This might include population, elevation and any major rivers or other landforms located in or around the city.

5 Repeat this activity using a location that is significant to you. You might choose a place where you ride your bike or somewhere you have been on a holiday. Use the three characteristics of place to **describe** this area to a classmate.

DEVELOPING YOUR UNDERSTANDING 7.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the following terms:

- Flood
- Floodplain
- Infiltration
- Evaporation
- Runoff

- Saturated
- Tropical cyclone
- Low-lying area
- Elevation
- Natural Hazard.

2 **Identify** three of the impacts of the 2019 Queensland floods.

3 **Explain** the difference between a flash flood, a slow-onset flood and a quick-onset flood.

4 **Explain** what a storm surge is and why it can cause flooding.

5 **Explain** the difference between a natural event and a natural hazard and give an example.

Interpret

6 **State** whether each of the following is an example of a flash flood, slow-onset flood or a quick-onset flood.

a A tropical cyclone brings very heavy rainfall to a coastal town over a 24-hour period. Local rivers immediately begin to overflow onto the floodplain.

b A thunderstorm causes heavy rainfall from 4.00 pm until 7.00 pm, which leads to rapid flooding of a suburb of the Gold Coast.

c Consistent rainfall over a three-day period in one of Queensland's inland rural areas causes rivers to slowly rise and flood over several kilometres.

7 **Describe** the characteristics of a place that might make it vulnerable to flooding.

Argue

8 High rainfall is the only reason why floods occur. **Discuss** whether you agree with this statement. Provide an explanation and examples to **justify** your opinion.

9 **Discuss** whether you think people should be allowed to live in places that are vulnerable to flooding. Consider the attractions in living in those areas and the drawbacks.

7.2   Reducing the impacts of floods

FOCUS QUESTIONS

• What are the social, economic and environmental impacts of floods?
• How do people respond to floods to minimise their impacts?

What are the impacts of floods?

In geography, an impact refers to a change or an effect of an event. This includes the consequences of the change or effect. Geographers often classify impacts into three categories:

• *Environmental impacts*, which are to do with both the natural and human environments
• *Social impacts*, which are to do with people including their wellbeing or safety
• *Economic impacts*, which are to do with money including income or costs.

When we think of the impacts of an event, most people tend to consider negative effects. However, it is important to remember that impacts within these categories can also be positive.

Environmental impacts

Floods are a natural and essential process in maintaining the health of many environments. They have a very important role as an interconnection or link between river channels and floodplains. By flowing over land, floodwaters recharge groundwater systems. They also replenish wetlands and forests with water, sediment and nutrients. Floods lead some species of fish to breed or migrate. Many of these benefits to the environment also benefit farmers as floods can make land more fertile for growing crops or pasture.

The Barmah–Millewa Forest, located in Victoria and NSW (shown in Figure 7.20) is the largest river red gum forest in Australia. The place is a vital habitat for thousands of waterbirds.

▲ **Figure 7.20** Floods are essential in maintaining the health of wetlands such as the Barmah–Millewa Forest, Victoria and NSW. In September 2010, thousands of River Red Gums finally received the long-awaited flood water.

▲ **Figure 7.21** 2020 central Vietnam floods. Debris left behind after flooding can clog waterways and provide a place for bacteria to breed.

Flooding in 2010–11 ended a drought in the area that lasted almost a decade. The floods revitalised the wetland and forest areas, and ensured the survival of local species.

Although floods play an important part in maintaining the environment, they can also damage an area, particularly environments that have been modified by people. During a flood, **sediment** from floodplains is collected by floodwater. This can contain pollutants, such as harmful chemicals from houses, farms and factories, and **heavy metals**. The pollutants are washed into rivers and become part of the water system. This can contaminate food supplies, especially fish. Debris can be washed downstream and cause blockages or wash away important plant life in and around the river or stream. Rotting carcasses of livestock killed in the floods can degrade the water's quality.

sediment a soft substance that is like a wet powder and consists of very small pieces of a solid material that have fallen to the bottom of a liquid

heavy metals dense metals such as iron and lead

displacement moving something or someone from its original place to somewhere else

Social impacts

The destruction that often comes with floods can have a large impact on people. This impact increases significantly if floods occur in areas that are highly populated. Floodwaters can threaten the physical safety of people, especially during flash or quick-onset floods. There is also an increased risk of people contracting waterborne diseases and other infections during a flood as well as immediately after. More than 1850 people have died since 1900 as a result of floods in Australia.

During floods people may be forced to evacuate their homes, farms and businesses, and schools can be closed for long periods of time. Building structures are often damaged or destroyed, which leads to the **displacement** of people for extended periods. Floods also damage the physical infrastructure that people rely on for utilities such as sewerage, electricity and water. As a result, there can be disruptions to power and clean water supplies.

An impact of any natural disaster, sometimes forgotten, is the psychological effect the event has on local people. Figure 7.22 presents some first-hand accounts from those affected by the 2019 Queensland floods.

I was just aghast at the pace of the water … When it started to hit about two metres high, the debris was hitting posts under the house. The noise was deafening at some points and it got scary. I saw the rescue helicopter and I thought I could be in that soon.

Roger Goodwin – Townsville resident whose home was damaged in the floods.

It's like inland seas; there're waves in the middle of it in some parts … Flying down there you can see a lot of dead cattle; there's a few survivors. There are a lot of places that are reporting 100 per cent [losses] … and big numbers too, not just a couple of hundred [cattle].

Robert Chaplain – farmer near Cloncurry

North Queensland's unprecedented, catastrophic and ongoing flooding event has seen people evacuated, homes and businesses damaged, roads, schools and childcare centres closed. Sadly … people have also lost their lives. While the flood waters recede, people are returning to their homes and the true extent of the damage is realised.

Anastacia Palaszczuk – Premier of Queensland

▲ **Figure 7.22** These first-hand accounts describe some of the impact of the Queensland floods in 2019.

Interesting fact

The impacts of floods in Queensland are often felt around Australia. Extensive damage to banana crops often causes banana prices to soar. In extreme cases, supermarkets can run out of supplies.

▲ **Figure 7.23** In early 2011, banana prices soared to $12 per kilogram after Cyclone Yasi destoyed banana plantations such as this one in Tully, Queensland.

Economic impacts

Floods are the most expensive disasters we experience in Australia. On average, they cost Australia $377 million each year. Between 1967 and 2017, experts estimated that flooding in Australia cost around $42.6 billion dollars; the disastrous floods that occurred in 2010–11 in Queensland are estimated to have cost $14.1 billion. Figure 7.25 shows that, although this cost is significant, even more costly floods than this occur around the world.

Most of the economic impact of floods happens in the aftermath when local and state governments clean up the destruction and repair or rebuild infrastructure. Flooding can damage or wash away roads, bridges, buildings and railway lines. Floods also have a huge impact on agricultural output as they wash away crops and kill large numbers of livestock.

▼ **Figure 7.24** A Townsville resident cleaning up their home in February 2019

▲ **Figure 7.25** This graph shows the economic impact of the 10 most significant floods from 1900 to 2016. The costs are shown by the billion in US dollars.
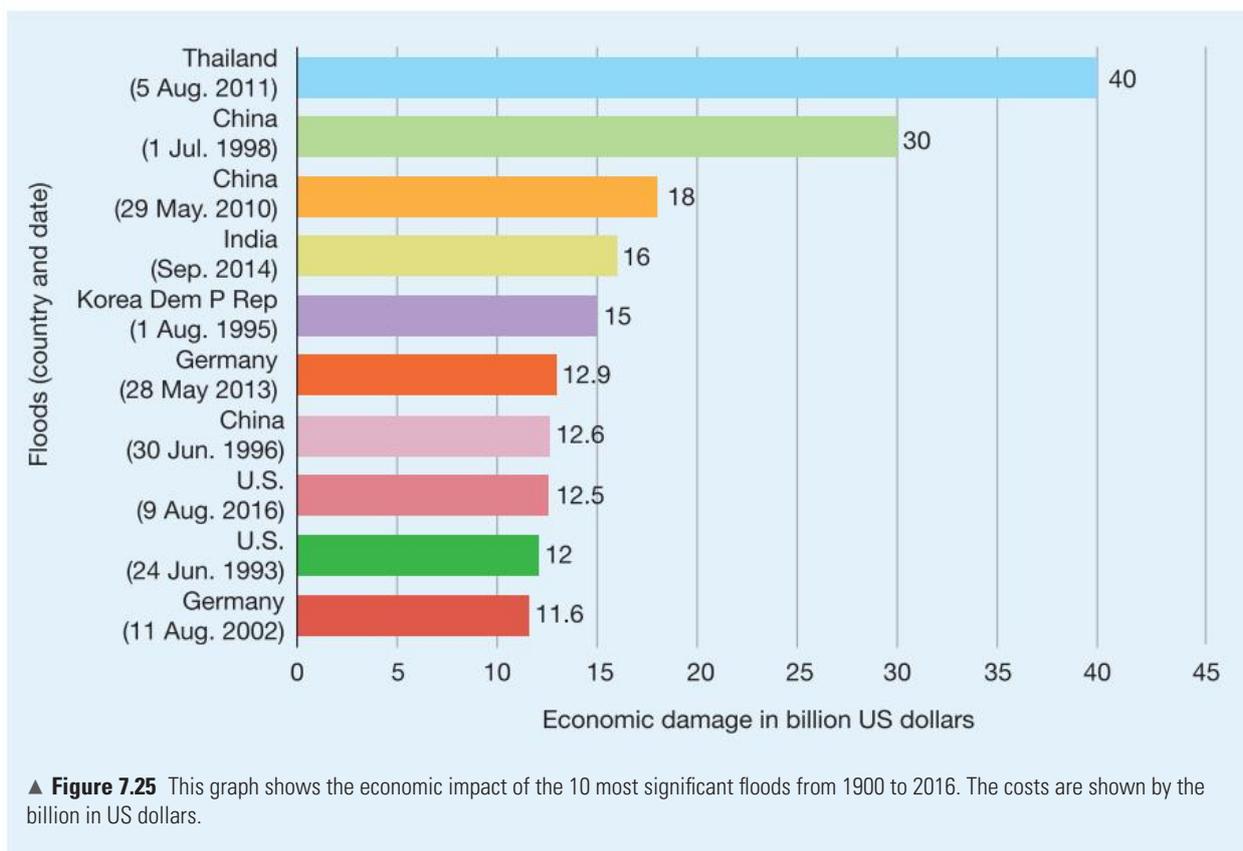
DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.6

Observational scale

As well as being categorised as environmental, social or economic, impacts can be categorised based on scale.

Scale refers to the level at which something is examined. In geography, observational scale refers to the relative size of an area being investigated.

Common scales that are used are outlined here:

- *Local scale:* affecting a single place
- *Regional scale:* affecting an entire area such as a suburb, town or state
- *National scale:* affecting an entire country
- *International scale:* affecting multiple countries
- *Global scale:* affecting a significant proportion of the world.

For example, a severe flood might occur in a region (regional scale) which affects an entire country (national scale) or might even require financial assistance from other countries (international scale).

Another common way of categorising impacts is by considering the temporal or time scale. This refers to impacts that are short-term or long-term. For example, floods might cause a short-term impact on the safety of people, but a long-term impact on a local economy.

Now that you know more about scale, please complete the following questions that explore the impacts that floods have socially and economically, as well as on the environment.

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1 **Compare** the economic and social impacts of floods.

   a **Research** online to make a list of the deadliest floods in human history.

   b **Use** the list you have made to **create** a new list of floods that have occurred since 1900.

   c Using a blank map of the world, pinpoint the location of these floods. **Use** different-sized symbols or colours to represent the amount of deaths from each flood.

   d **Compare** the location of these floods with the information in Figure 7.25.

   e **Discuss** whether the locations of the deadliest floods match those that had the largest economic cost.

   f **Suggest** a reason for your answer to part e.

2 Using the information provided and researching online if necessary, **summarise** the different impacts of floods in a table. List the observational scale and the temporal scale (temporal = time) of the impact. Also, provide an example where possible. You may wish to use the template here as a guide for your work.

Category	Description	Observational scale	Temporal scale	Example
Environmental impact				
Social impact				
Economic impact				

How do people minimise the impact of floods?

People who live in flood-prone areas use several responses to reduce the impacts of floods. Some of these strategies are *preventative*, which means that they aim to reduce the likelihood of a flood. Others are *adaptive*, which means that they try to reduce the impact of floods when they occur. Four common types of responses are presented in Table 7.1.

TABLE 7.1 There are different ways that people can respond to the risk of flood and to flood events.

Management response	Description	Example
Alterations to building designs	In areas that flood regularly, houses are often built on stilts so that they are not damaged by floodwaters. Another construction method used to prevent flood damage involves making buildings watertight by sealing any gaps so that floodwaters cannot get inside them. In some places governments have made laws that no houses or building can be built in flood-prone areas.	Stilt houses in Belém, along the Amazon River, Brazil

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Management response	Description	Example
Dams, dykes and levees	Dams are built in the upper sections of rivers to contain water and control the amount of liquid flowing downstream. Dykes and levees are long structures built alongside rivers to help contain floodwaters and prevent water from flowing behind them. Spillways control the release of water from dams and levees. The Bonnet Carré Spillway in Louisiana, United States, diverts floodwater from the Mississippi River so that it flows out to the Gulf of Mexico rather than towards New Orleans.	Floodwater from the Mississippi River at Bonnet Carré Spillway
Computer modelling and forecasting	Meteorologists can track the possible development of rain cells and storms to predict how much rain will fall over an area several days in advance. They also use satellite images and radar to track storms to help predict the likelihood of a flood. Data for these services is managed in geographic information systems. FloodCheck Queensland is an example that provides information about flood heights and risk assessments.	Computer modelling and forecasting helps people to better manage the impacts of floods.
Evacuation	As with most hazards, the safest way to avoid danger is to evacuate. This is often done with the help of emergency services. Unfortunately, if the scale of the flood is too large or the flood rises too rapidly then this might not always be possible. In July 2020, 1.3 million people were ordered to evacuate their homes when a series of floods, followed by landslides, hit the southern Japanese island of Kyushu.	Evacuation coordinated by fire brigades and the Japan Self-Defense Forces during the July 2020 Kyushu floods
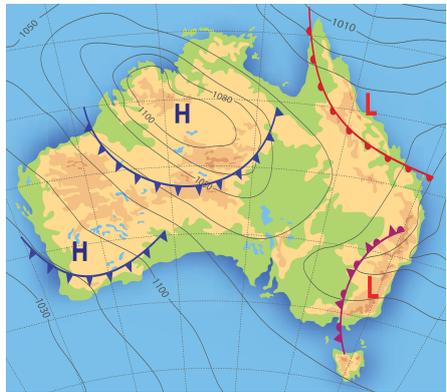
meteorologist a person who studies the atmosphere, especially the weather, and makes predictions for weather forecasts

Many of the responses outlined in Table 7.1 are linked. For example, places that build houses on stilts might also construct dykes and levees for added protection. **Meteorologists** use modelling and forecasting data to determine whether a dam or levee will be able to contain floodwaters. Meteorologists also inform emergency services of the need to evacuate. Unfortunately, despite these responses, extreme and unexpected events such as flash floods are still largely unpredictable. Also, while evacuation can keep people safe, it does not protect valuable infrastructure from being destroyed.

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 7.7

Using a geographic information system

As you learned in Chapter 6, a geographic information system (GIS) is a form of spatial technology used to gather, manage and analyse spatial information such as hydrology data. This can include river and flood water heights, elevation data and the location of previous flood events. Geographers use this data to better understand how floods work, to model future flood events and to analyse which areas are most vulnerable.

Brisbane City Council's flood-awareness map is a GIS that can be used to explore the likelihood of a flood occurring in the suburbs of Brisbane. Search for the flood awareness map on the Brisbane City Council's website and launch the Interactive Flood Awareness Maps. You can zoom into the CBD of Brisbane.

1   **Identify** the name of the river running through Brisbane.

2   Click on the 'high likelihood' button.

    a   Determine the chance of a highly likely flood occurring in any year.

    b   Describe where floodwater is likely to travel in a flood. Will it affect houses?

3   **Select** one of the historic floods. **Identify** when and why this flood happened, and **describe** how and where the floodwaters spread.

4   On the flood awareness map page on the Brisbane City council's website, click on the link to access the guide for residents to help prepare for flooding in Brisbane. List the three preparations that you think are the most important. **Justify** why you think these preparations are more important than others.

CASE STUDY 7.1

The 2018 floods in Japan

In July 2018, areas of western Japan were hit by their worst flooding in more than 35 years. In some places, up to 583 millimetres of rain fell in a 24-hour period. This led to significant flash flooding, with floodwaters reaching as high as five metres.

Floodwaters caused landslides, inundated homes and other buildings, and destroyed or damaged key infrastructure, such as railway lines, roads and power lines.

The economic cost of this flood was estimated to be up to A$21 billion, while the social impact included the confirmed death of 225 people.

When Japan's meteorological agency released a warning of historic rainfalls, the government responded by urging more than 8 million people to evacuate their homes. Around 54 000 firefighters, rescue workers and members of the Japan Self-Defence Forces (JSDF) were deployed to rescue people left stranded by floodwaters. Many worked from helicopters or used boats to ferry trapped people to evacuation centres that were set up by local governments, often in school gyms.

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The Japanese government set up a special group, known as a task force, that was dedicated to helping people recover from the flood. The government also allocated US$24 million to get immediate necessities, such as food and fresh water, to towns that were cut off by floodwaters and mud. It took up to 10 days in some areas for the government to return water and electricity to areas that were hardest hit. During this time, people had limited access to drinking water. In the city of Hiroshima, the water allocation per person was rationed to only 12 litres a day, which is not enough for showering and meeting other sanitary needs.

Rescue workers and volunteers cleared mud from towns and roads for several days. The temperatures during this period reached 30 degrees Celsius and people were without power, often in crowded emergency accommodation and with limited access to amenities. The Japanese Government promised hundreds of millions of US dollars in aid to areas hit hardest by the flooding, including five-year, interest-free loans to help businesses to reopen. International aid was also provided by several countries. They offered money to assist with clean-up costs, and sent food, medicines and teams of specially trained doctors and nurses to the regions hit by the floods.

▲ **Figure 7.26** This landslide in Hiroshima prefecture was triggered by the 2018 flooding in western Japan. The landslide covered the railway lines and brought down powerlines.

▲ **Figure 7.27** A gymnasium used as an evacuation centre during the July 2018 floods in Japan

Analysis questions

1 Use Case study 7.1 to **identify** the social and economic impacts of the hydrological disaster in western Japan in 2018.

2 **Summarise** the main ways that people responded to this flood emergency. Include both short-term and long-term responses.

3 Based on the information provided, do you think the overall response was effective? **Propose** reasons for your answer.

Interesting fact

The eastern side of Japan is also vulnerable to floods. Tokyo is a city built on a floodplain; more than 1.5 million people live below the sea level there. To protect against floods, the Japanese Government built the Metropolitan Area Outer Underground Discharge Channel, which is 50 metres beneath the city. This channel is the largest underground flood water diversion facility in the world and is designed to fill up with floodwater to stop it from flowing into the city. It cost US$3 billion to construct and took 13 years to complete.

▲ **Figure 7.28** Tokyo's Metropolitan Area Outer Underground Discharge Channel

DEVELOPING YOUR UNDERSTANDING 7.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** in what way floods can have a positive impact.
2 Provide an example of a flood's impact on an area, either local, regional, national or international.
3 **Explain** how spillways prevent flooding.

Interpret

4 **Discuss** why you think floods are the costliest disasters in Australia.
5 **Explain** why you think school gyms were chosen as evacuation points in the 2018 floods in Japan.
6 During the 2018 floods in Japan, up to 583 millimetres of rain fell in a 24-hour period. Research the average monthly or annual rainfall in your local area and **compare** it to Japan's 2018 rainfall event.

Argue

7 Refer to the four responses outlined in Table 7.1. Rank these four responses from most effective to the least effective in terms of reducing the negative impacts of floods. **Justify** your reasoning.
8 Wealth is a major factor in the ability of a country to respond to flooding. Do you agree with this statement? **Justify** your answer by referring to examples presented within this chapter.

End-of-chapter assessment 7

1 Making thinking visible

I used to think that flooding …
Now I think that flooding …

This exercise in visible thinking asks you to track the difference between what you knew about flooding before starting this chapter, and what new understandings you have acquired since reading the chapter.

Using the stem sentences here, write a paragraph explaining what you previously knew about the topic. Then write another paragraph explaining what you now understand about the topic.

1A I used to think that flooding was caused by …

1B Now I understand that flooding can be caused by …

2A I used to think that flooding only had negative impacts because …

2B Now I understand that flooding can have positive impacts because …

3A I used to think that flooding was dangerous because …

3B Now I understand that flooding is also dangerous because …

2 Research task

Choose a major flood that has occurred somewhere outside of Australia. Undertake research to prepare a case study report that includes the following:

- The location and geographic characteristics of your chosen place
- The cause of flooding
- The economic, social and environmental impacts over short-term and long-term periods
- A summary of responses that either aimed to prevent the flooding or reduce the flood's destruction
- An evaluation of effectiveness of these responses.

Conduct research to find out which places in the world are most prone to severe flooding. **Create** a map that shows where this flooding occurs and where it is most severe.

3 Extended-response questions

Claim 1: *Preventative responses are far more effective than adaptive responses in reducing the impacts of flooding.*

Discuss whether you agree or disagree with this statement using information presented in this chapter.

Claim 2: *People in more economically developed countries, such as Japan or Australia, and in less economically developed countries, such as Bangladesh or Cambodia, are affected differently by flooding.*

Discuss whether you agree or disagree with this statement by using information presented in this chapter.

4   Problem-solving task

Design a type of construction that will help to prevent flooding or a style of building that would reduce the impact of flooding. Draw a labelled diagram demonstrating and explaining your design.

5   Visible-thinking routine

You will be creating a concept map to track your understanding of floods. First, write the topic 'Floods' in the centre of your page. Then follow the steps: generate, sort, connect and elaborate.

- **Generate** a list of key ideas based on what has been covered in this unit.
- **Sort** your ideas according to how central they are to the topic of flooding. Place central ideas near the centre where your title 'Floods' is and write less important ideas towards the outside of the page.
- **Connect** your ideas by drawing connecting lines between ideas that have something in common. Write a short sentence under each line explaining how the ideas are connected.
- **Elaborate** on each idea by adding a few dot points to describe the concept or give more information about it.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

▲ **Figure 7.29** Evacuation during the Jakarta flash floods, in January 2020

Place and liveability

Overview

The places we call home look and feel different to each of us. Factors such as our location, income, and our connections to the community and the natural environment all play a role in how we experience our neighbourhoods, towns, cities and suburbs. To live well in a place, we need access to basic necessities. We also need to be able to enjoy the culture, entertainment and recreational activities that make a place feel safe and fun. So, liveability not only means surviving in a place but thriving there, too.

Places are always changing. Figures A, B and C show the changes that have occurred in Brisbane from the 1890s to nowadays, while Figure D illustrates one of the changes brought about by the COVID-19 crisis.

Technology is evolving quickly and technological advancements have an impact on places and liveability. Soon, streets could be dominated by driverless cars, while farms may be perched on city rooftops.

▲ **Video**
Unit overview

How you feel about a place can also change as your needs alter over time. For instance, growing up in a rural region might be great when you are young as you can enjoy the open space and freedom. However, later you may decide to move to a city to go to university.

In this geography unit, you will investigate what places mean to Australians and people around the world, as well as what services and facilities make a place liveable. This will help you to recognise key characteristics of our built environments, and understand the human activities and beliefs that have helped to shape them. You will also learn to see places from the perspectives of different groups of people. Understanding the characteristics of built environments and others' perspectives can help you be more connected to your own environment and community. You may even want a career as a town planner or an architect!

▼ **Figure A** Queen Street, Brisbane, in the 1890s

▼ **Figure B** View of Brisbane in the 1930s. What changes can you detect between these first two images?

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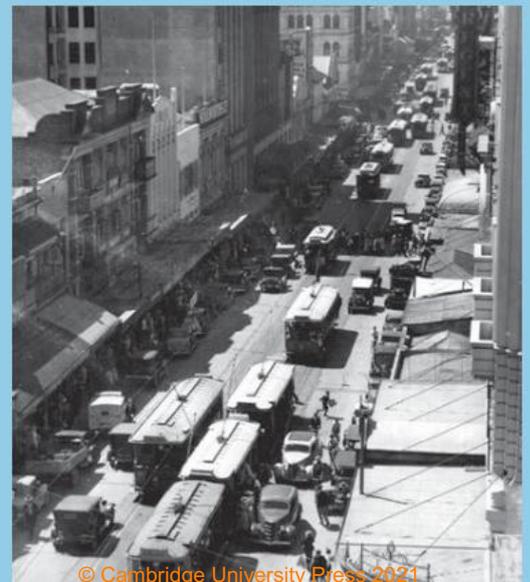
▲ **Figure C** Brisbane's skyline, 2015

▲ **Figure D** Queen Street mall, without the usual hustle and bustle, on March 2020, after the first death from COVID-19 in Queensland

Learning goals

After completing this unit, you should be able to do the following.

- **Explain** place and liveability.
- **Describe** factors that influence where people live and what they think of their place.
- **Identify** how we measure the liveability of a place.
- **Predict** how the distribution of facilities and services affects the liveability of places.
- **Infer** how community and social connectedness affect the liveability of places.
- **Interpret** how people improved the liveability of places in Europe and Australia.

Introducing geographical concepts

In this unit, you will have many opportunities to practise geographical concepts.

The concept of **place** involves the physical location of an area, and the meaning that the location has for individuals, communities and cultures.

Space refers to the spatial distribution of places and their characteristics. We use maps and spatial technology to examine, monitor and compare spatial distributions so that we can assess and manage changes.

When geographers look at **change**, they investigate the type of changes that have occurred. They also look at when, where and why change has happened.

The **environment** in geography refers to the characteristics of an environment, how an environment supports life, and the connections between an environment and people.

Interconnection involves the links between places and the ways that people influence or are influenced by the characteristics of places.

Geography concepts

Where is it located, what are its geographic characteristics and how is it signifcant to different people?

How are the features distributed and how has the distribution changed over time?

Is it economically, socially and environmentally sustainable?

What type of change has occurred and what are the consequences?

Place

Space

Sustainability

Change

Environment

Scale

Interconnection

What are the components of this environment and what processes have formed it?

Does it occur at a local, national or global scale?

How is it linked with other places and with other people?

CHAPTER 8

Place and liveability

Setting the scene: urban planning and the distribution of streets in Melbourne

Melbourne often ranks as one of the world's most liveable cities. But what is it about Victoria's state capital that makes it so popular for residents and visitors alike? Have you ever wondered how Melbourne was first designed? Or how the city keeps evolving to meet its people's changing needs?

infrastructure the physical structures and facilities needed within a community such as roads, buildings and pipelines

central business district (CBD) the centre of business in a town or city

pedestrian a person who is walking rather than travelling in a vehicle

urban planning the process of planning the layout and infrastructure of a place

sustainability the wise use of resources so that they are available into the future

accessibility resources or services are available and affordable for all people to use

Melbourne's rating as a highly liveable city is due to its stability, education, health care, **infrastructure** and employment. Melbourne's **central business district (CBD)** is an important part of its infrastructure. The CBD's grid system makes the city easy to navigate and the wide streets are perfect for Melbourne's iconic tram system. **Pedestrian** access is ensured in Melbourne because of the city's laneways and little streets. All these features are not accidental; they exist because of **urban planning**.

Urban planners shape the world we live in because they design our cities and plan our infrastructure. However, over time, urban planning designs have changed. A grid system was a common design feature a couple of centuries ago. The use of a grid for urban design was popular from the seventeenth to nineteenth centuries when new cities were forming. Since the 1900s, urban planners have created designs for cities to accommodate cars. Now, modern designs focus on **sustainability** and **accessibility**. Figure 8.1 shows the evolution of street design in the twentieth century.

Grid (c. 1900)	Fragmented Parallel (c. 1950)	Warped Parallel (c. 1960)	Loops and Lollipops (c. 1970)	Lollipops on a Stick (c. 1980)

▲ **Figure 8.1** Types of street patterns in urban planning during the twentieth century

Melbourne's CBD is referred to as the 'Hoddle grid system'. Its designer, Robert Hoddle, created the first town plan for Melbourne in 1837. The area Hoddle created is bordered by Spencer Street, La Trobe Street, Spring Street and Flinders Street. At that time, Melbourne had a small population of only a few hundred people. Today, Melbourne's CBD is a major economic and cultural hub for nearly five million people.
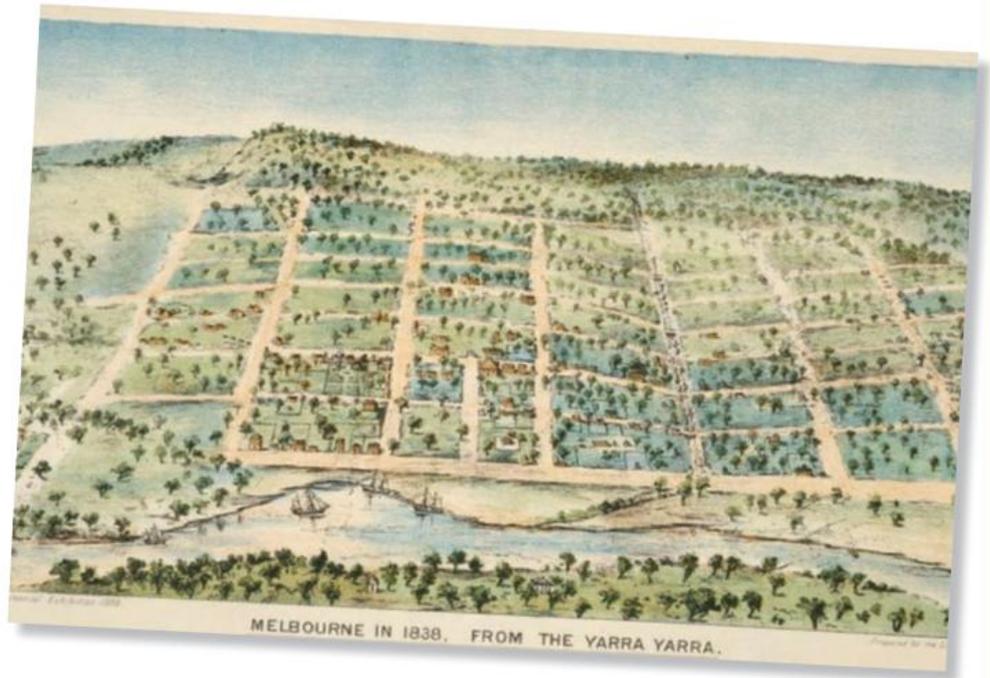
▲ **Figure 8.2** Illustration of Melbourne as it looked in 1838

The grid system was a standard feature of urban planning practice in the 1800s. But the design of the Hoddle grid is slightly different to a traditional grid system because it has traditional square blocks with wide streets. It also includes narrow or little streets to provide rear accessways for long narrow buildings. Figure 8.3 shows the original design for Melbourne.

Over time, the names of various streets have changed to reflect the values of the area. For example, Stephen Street was once known for its criminal activity but was renamed Exhibition Street because of the 1880 International Exhibition that was held in Melbourne. Another name change was Yarra Bank Road, which became Batman Avenue in 1913 to honour John Batman's role in the founding of Melbourne.

▲ **Figure 8.3** The original design for Melbourne, which shows the Hoddle grid

While the layout of Melbourne's CBD has not changed, the use of the space and the sense of **sense of place** has evolved. Transport has continued to improve and serve the growing population, and streets have become more accessible for pedestrians. The value and meaning of various places in the CBD have also changed over time.

Federation Square, which was established in 2002 and is located next to the Hoddle grid, was granted a **heritage status** in 2019 by the Heritage Council of Victoria. Its design and construction initially divided many Melbournians. The cost of Federation Square's construction was above original estimates, and some thought its design was an eyesore and inconsistent with nearby buildings. However, Federation Square has since become a major public gathering space and has developed social significance for Melbournians.

The Bourke Street Mall is also an important pedestrian space in Melbourne's CBD. Vehicle traffic was banned in 1978 between Elizabeth Street and Swanston Street so that the space could be only used by pedestrians and trams. Many of Melbourne's arcades connect to this section of Bourke Street.

There has been a recent move to reclaim more of Melbourne's CBD for pedestrians and public transport. This urban plan is meant to improve safety and **amenity** in the city. It also reflects the current trends in other liveable cities around the world.
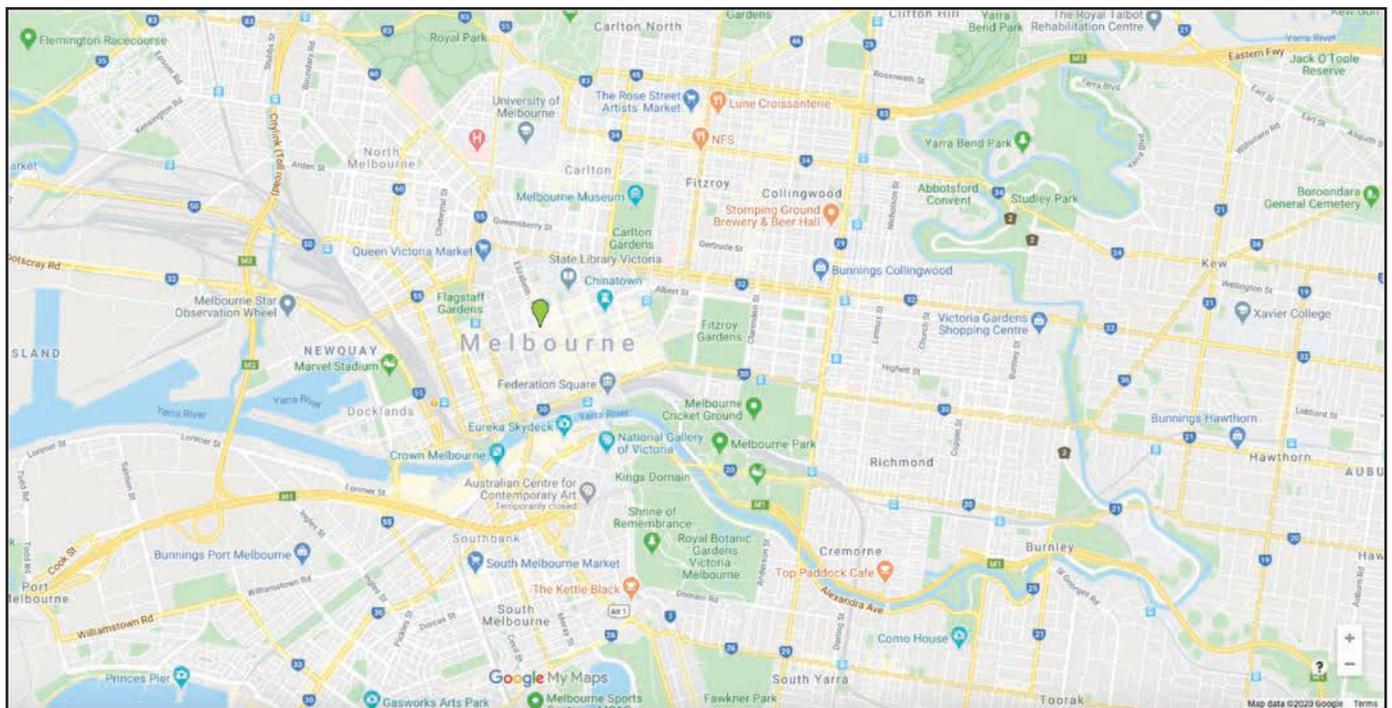
▲ **Figure 8.4** Melbourne's CBD

MAKING THINKING VISIBLE 8.1

Identify, describe, consider

Copy the following table.

	Identify the things you see, observe or notice in this image.	**Describe** the liveability and sense of place in this image.	**Consider** whether you connect with the space. Why or why not, provide a reason or two.
Figure 8.5			
Figure 8.6			
Figure 8.7			

With a partner, use Figures 8.5, 8.6 and 8.7, which show different places in Melbourne, to complete the table.

▲ **Figure 8.5** Federation Square

▲ **Figure 8.6** Flinders Street railway station. The crossing in front of the station is the busiest pedestrian crossing in Melbourne.
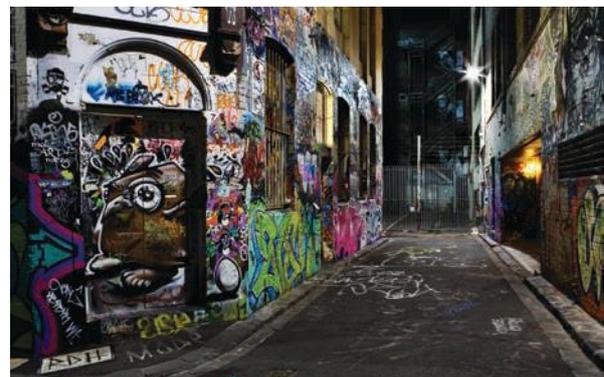
▲ **Figure 8.7** Graffiti in one of Melbourne's city laneways

Chapter overview

Introduction

In this chapter, you will explore the concepts of liveability and sustainability in different parts of the world. You will complete various fieldwork activities and conduct research to find out about a range of developments throughout the world, including Melbourne and Brisbane. You will work through a range of activities and case studies to build your skills and to encourage you to think like a geographer.

Learning goals

After completing this chapter, you should be able to do the following:

- Decribe liveability.
- Identify factors affecting liveability.
- Propose what liveability means to you.
- Recognise how we measure liveability.
- Understand what makes one place more liveable than another.
- Interpret how access to services and facilities affects the liveability of a place.
- Propose how environmental quality affects the liveability of a place.
- Interpret how the feeling of social connectedness affects the liveability of a place.
- Interpret how the feeling of a community identity affects the the liveability of a place.
- Explain how liveability can be improved.

Geographic skills

After completing this chapter, you should be able to:

- Create and conduct a survey.
- Identify the strengths and weaknesses of quantitative and qualitative data.
- Interpret a topographic map.
- Develop a mind map
- Design questions

You will also have the opportunity to learn how to use Survey123 for ArcGIS.

◄ **Figure 8.8** Melbourne, Sydney and Adelaide have been, for the past years, in the top 10 of the most liveable cities in the world according to the Global Liveability Survey.

▲ **Video**

Five interesting facts about liveability

8.1 Why do people live where they do?

FOCUS QUESTIONS

- What is liveability?
- What factors affect liveability?
- What does liveability mean to you?

This concept of liveability focuses on why people live where they do. The reasons a person lives in an area or moves to a different area are often based on their perceptions about the liveability of a place.

Where would you rather live?

People live in different areas for a variety of reasons. Some people move for employment and education opportunities, some people move seeking safety and security, and some people stay in an area because of their connection to it.

ACTIVITY 8.1

Features of liveability

Examine the places shown in Figures 8.9 to 8.18 and use Google Street View to explore the areas further. Then, answer the questions that follow.

▲ **Figure 8.9** Bibury, England

▲ **Figure 8.10** Kinshasa, Democratic Republic of the Congo

▲ **Figure 8.11** Buenos Aires, Argentina

▲ **Figure 8.12** Zagreb, Croatia

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▲ **Figure 8.13** Québec, Canada

▲ **Figure 8.14** Tel Aviv, Israel

▲ **Figure 8.15** Abu Dhabi, United Arab Emirates

▲ **Figure 8.16** Hoi An, Vietnam

▲ **Figure 8.17** Whitsunday Islands, Queensland, Australia

▲ **Figure 8.18** Guangzhou, China

1   **Identify** the features that affect the liveability of each area shown. **Consider** both the positive and negative features of living in each place.

2   **Consider** which place/s you could see yourself living in.

liveability the qualities of a place that enable a person to live there with a good standard of living. To work out whether a place has a high or low level of liveability, we consider the quality of economic, environmental and social living conditions in that place

What is liveability?

Liveability is a measure of the living conditions of a certain place. To measure whether a place has a high or low level of livability, we look at the quality of economic, environmental and social living conditions in that place. The features of a place are often perceived differently because they depend on a person's

background, age and culture. This **perception** of a space means that different people value diverse features and experience those features in unique ways. Their perception is what creates a sense of place. In other words, your experiences in a space and the meaning you attach to it make up your 'sense of place'.

The concept of space

In geography, the term **space** refers to a physical area. This includes all the area's objects or physical features. Spaces often relate to a point of latitude and longitude, and vary in their **scale**. They can be small, like a room, or large like a city, country or region. How each physical feature is distributed in a space is an important consideration because it contributes to how that space is used. For example, a city or town that is spread out with limited public transport will usually have high use of private vehicles.

perception the way something is viewed or understood

space how different places, and the features within places, are distributed

scale the size of an area and how it is viewed in relation to another area

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ACTIVITY 8.2

Ranking task

Use the content you have read so far to answer the following questions.

1 With a partner, brainstorm features that make a place liveable.

2 Choose five factors that you consider to be the most important and **create** a concept map like the one shown here. For each factor, you should also provide a reason why you think it is significant.

3 Share your mind-map work with the class and **explain** why you think each factor you chose is important.
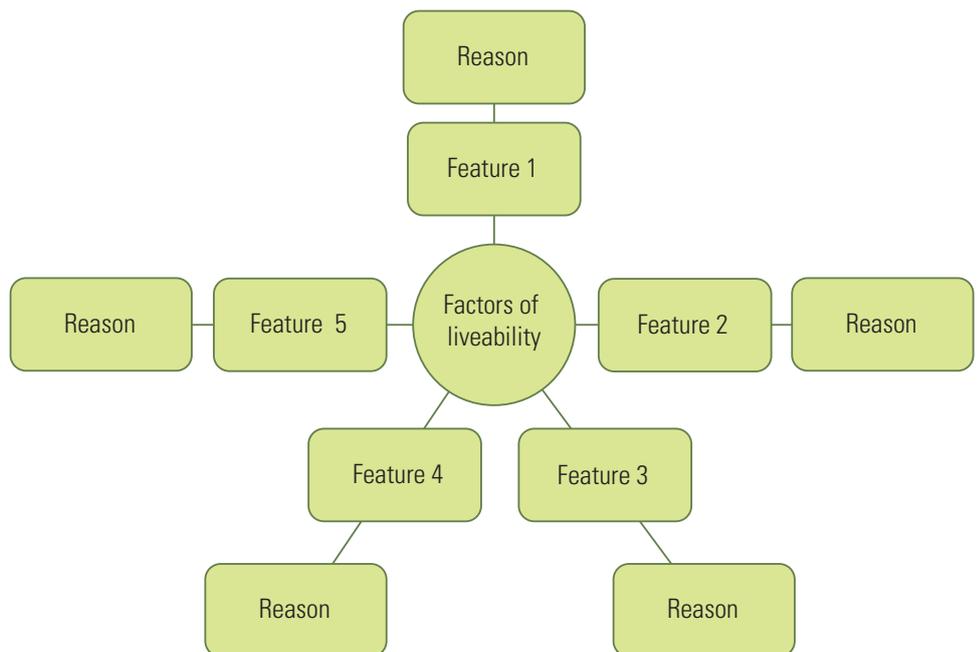
Why do people live where they do?

The choices people make about where they live are often based on push factors and pull factors. A **push factor** is a reason that causes a person to leave an area, such as unemployment, poverty, lack of access to services and limited opportunities for education. A **pull factor** is a reason a person moves to or is drawn to an area. These are positive motivations that will benefit the person who is moving to a place, such as better job opportunities, accessible services, education and living conditions.

push factor a reason people move away from an area

pull factor a reason people move in to an area

Forced migration is a push factor. In times of conflict, many people are forced to leave their homes for fear of their safety and security. These people do not have a choice about where they live and they simply have to go somewhere so they can be safe. According to the United Nations High Commissioner for Refugees, approximately 70.7 million people around the world were forced to leave their homes due to violent conflict in 2019.

CASE STUDY 8.1

Understanding different perceptions of place

Simon is a refugee who came to Australia from Syria to escape the war. Read what Simon says about Australia, then answer the questions that follow.

I have a lot of precious memories from Syria, especially from my first year at university, which was wonderful and eye opening. I was following my passion in environmental science in Damascus and my life was going well. But that year, the war broke out. At first, my family was anxious, but we were still hopeful that nothing would change for us. However, in the second year, the situation started to escalate quite rapidly and brutally. Soon, there were car explosions and mortar shelling on a daily basis, as well as electricity blackouts, water scarcity and food shortages.

I was desperate to flee, but my parents were reluctant for me to travel alone or illegally. So, I started applying to universities around the world and I was actually accepted to many of them. Unfortunately, I was constantly rejected in my applications for a student visa. In this time, my family started moving backward and forward from Syria to Lebanon. For years we had to flee from Syria when things got too dangerous and leave Lebanon when our money ran out. It was a stressful time, as we lived very close to the terrorist line in Syria.

Finally, we were approved to come to Australia as refugees. We were very fortunate to have an aunt here, and if it wasn't for that we might never have been given the visas that would change our lives forever. When we landed in this new place and they said, 'Welcome to Australia', that was just an incredible moment that no words can describe. But the closest word I can use was that of relief.

Source: Simon, 'I have a lot of precious memories of Syria', New Humans of Australia website, 14 July 2018

▲ **Figure 8.19** Simon
Source: New Humans of Australia website

Analysis questions

1 **Create** a list of the push factors that forced Simon to leave his home.
2 **Create** a list of the pull factors that brought Simon to Australia.
3 **Compare** the liveability of Simon's homeland Syria to his new home of Australia. What are the benefits of this new home for Simon and his family? (It might help to think about the access to services and new opportunities.)

ACTIVITY 8.3

Class discussion

As a class, **reflect on** the possible push and pull factors for an 18-year-old finishing school in Dalby, who is thinking about moving to a major centre like Toowoomba or Brisbane. **Create** a two-column table with push and pull factors.

ACTIVITY 8.4

Analysing spatial patterns

In this activity, you will explore the concepts of space and **change**.

Go to the BBC's website and search for 'Syria from space: Three cities in darkness and light'. You will see three sets of satellite images that show the impact of the Syrian war over time in the country's major cities. Spend some time looking at these images and then answer the following questions.

change the ways in which something is different to the past

1 **Describe** the changes you see for Damascus over time.
2 **Infer** reasons why you think different regions lost their lights. When do you think this happened?
3 **Describe** what you notice.
4 **Identify** the impacts of what you see for the people who live in these cities in terms of their safety, health, connectedness and access to services.
5 **Compare** the two daytime, aerial images of Raqqa in 2012 and 2017. What do you notice?

CASE STUDY 8.2

A comparison between Brisbane and Vienna

Read the information provided to you about Brisbane and Vienna, and then answer the questions that follow.

Brisbane

Brisbane is the capital city of Queensland. It is located on Australia's east coast and is in the lands of the Turrbal (Jagera) people. The metropolitan area of Brisbane has 2.5 million residents.

The city is built on the floodplains of the Brisbane River, 14 kilometres from Moreton Bay. This has meant that Brisbane has experienced many flooding events, including major weather events in 1974 and

▲ **Figure 8.20** Brisbane is located on Australia's east coast.

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2011. The city has a humid, subtropical climate and has regular storms over the summer months. It is a hub for business and education in Queensland.

Transport

Public transport in Brisbane consists of trains, buses and ferries. As the city is expected to grow, the public transport system is planned to grow with it. This growth will include a rail network that crosses the Brisbane River and a high-frequency bus-transit system. These rail and bus networks will link together to provide the city with stronger options in public transport.

▲ **Figure 8.21** Brisbane River flows through Brisbane.

▲ **Figure 8.22** A typical Brisbane bus

▲ **Figure 8.23** Ferries are part of Brisbane's network of public transport.

Housing

Homes in Brisbane are more affordable than those in Sydney and Melbourne. This is an economic factor that helps to make Brisbane liveable. Many people have moved from Sydney and Melbourne to Brisbane because of this economic pull factor. High-rise apartment buildings are increasingly common in the suburbs close to the CBD. Suburbs further away from the CBD tend to have low-density houses and townhouses. Queenslander-style homes in Brisbane are common. These homes are timber with a corrugated iron roof. They are high set, meaning they have elevated foundations, to allow for ventilation and typically have a surrounding veranda. The Queenslanders were designed and built specifically for Brisbane's subtropical climate.

▲ **Figure 8.24** Traditional Queenslander houses are built raised from the ground to counteract flooding and encourage a cooling airflow.

Lifestyle

The people of Brisbane embrace an outdoor and active lifestyle. The city is located within an hour's drive of both the Gold Coast and the Sunshine Coast. These are frequent weekend destinations for

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people who live in Brisbane. Brisbane's suburbs have high levels of access to services such as schools and health care. Crime rates are relatively low and the city is generally considered to be safe.

Vienna

Vienna is often listed as one of the world's most liveable cities. It is the capital of Austria and has a population of 1.9 million people (2.6 million within the metropolitan area). The city is located on the banks of the Danube River. The city has an oceanic climate with warm summers and cold, dry winters. The bubonic plague (Black Death) struck in 1679, killing one-third of the city's population. The city was also deeply affected by the world wars. Vienna was bombed 52 times and 20 per cent of the buildings were destroyed during World War II. This long history has shaped a unique city.

▲ **Figure 8.25** Surfers Paradise beach, on Queensland's Gold Coast, is a frequent weekend destination.
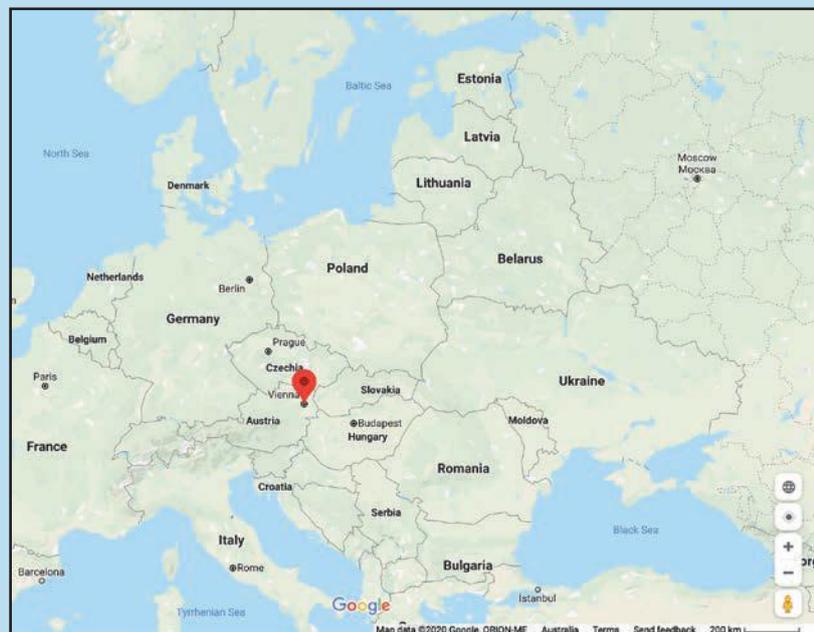
▲ **Figure 8.26** Vienna is in Austria.

Design

The centre of Vienna is on the World Heritage List. For this reason, there are no high-rise buildings within the area. The buildings in the historic city centre have a wide variety of historic design features. The centre includes castles, gardens and monuments.

▲ **Figure 8.27** Schönbrunn Palace is Vienna's best-known tourist attraction.

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Economy and education

Vienna is one the wealthiest regions within the European Union. The city is Austria's main centre for tertiary education; it has many universities and professional colleges. The Viennese value education and their city has been home to some of the great thinkers of history, such as the founder of psychoanalysis – Sigmund Freud.

▲ **Figure 8.28** Vienna University is one of the oldest universities in Europe.

Transport

Vienna has four main forms of public transport. There is a subway (U-Bahn), a local train system (S-Bahn), a tram system and a bus network. The public transport system in Vienna is extensive and frequent. It is also less expensive than other major cities in Europe. A yearly public transport ticket costs only one Euro per day. These low costs and the high levels of service that accompany them enhance the city's liveability.

▲ **Figure 8.29** Trams are seen here on Vienna's majestic boulevard, the Ringstrasse, with the Burgtheater in the background.

Lifestyle and culture

Vienna has a long and proud history of art and culture. Some of the most celebrated composers and musicians come from Vienna, including Mozart and Beethoven. The city is home to many theatres and opera houses. Vienna is also home to many sporting teams who compete nationally and internationally.

The long history, cultural pride and relaxed atmosphere of Vienna make it one of the most liveable cities in the world.

Analysis questions

1 **Create** a Venn diagram so that you can see the similarities and differences between Brisbane and Vienna. You can use the information in this case study and your own online research.

▲ **Figure 8.30** Vienna State Opera, seen from Albertinaplatz

2 **Analyse** which features of liveability there are in Vienna that could be used to improve the liveability in Brisbane.

What is a Venn diagram?

A Venn diagram is a great way to show similarities and differences between concepts. It usually has two or three circles that overlap each other. In the overlapping area, the similarities appear. In the separate areas, the differences are shown.
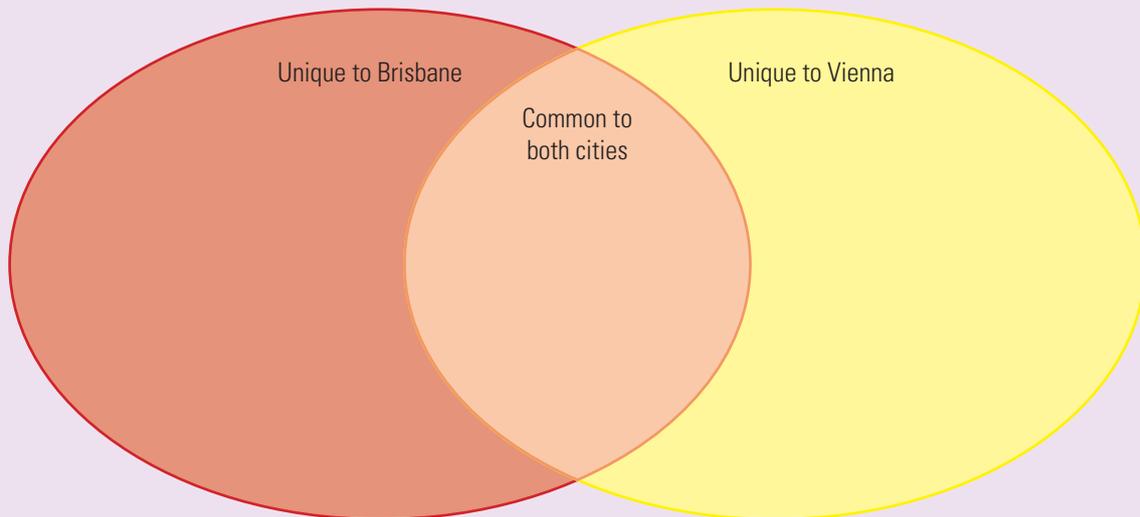
ACTIVITY 8.5

Mapping my local area

1 Using Google Earth, **create** an annotated map of your local area. Mark points of interest and features of liveability in the area.

2 **Describe** the distribution of your area's features. (Where are these features located? What does the space look like?)

FIELDWORK 8.1

Conducting a survey of the local neighbourhood

Fieldwork in geography consists of practical activities that are done away from your classroom at school. It can involve a range of activities including: observing, questioning, planning, collecting, recording, evaluating, representing, analysing, concluding, communicating, reflecting and responding.

In this fieldwork task, you will visit your neighbourhood and answer some questions. These questions will form a class survey about the local neighbourhood. The learning experience here is to construct a five-question survey. The following will assist you in understanding the different methods of gathering data for fieldwork.

Survey applications like Survey Monkey and Survey123 have made it possible to collect large data sets easily and accurately.

quantitative data numbers or counts

qualitative data non-numerical, observed or collected through interviews, surveys, etc.

These applications also transform the data into helpful graphs, rankings or word clouds. These surveys are often emailed out to participants or completed face to face using devices.

These types of surveys provide extensive qualitative data for fieldwork projects. Here are the steps to take.

1. As a class, **discuss** and **describe** the type of data (**quantitative** and/or **qualitative**) you wish to gather.
2. **Create** different types of questions. Designing short informative questions is important. Try not to ask questions that will result in a yes or no answer.

You could, for instance, create a simple multiple-choice question, a Likert scale question by making a statement and asking participants to rank their opinion or you could ask participants to rate a place and the app will average out responses providing an overall score.

▲ **Figure 8.31** An example of a multiple-choice question

> **Moorooka is a great suburb to live in.**
>
> ○————○————○————○————○
> Strongly   Disagree   Neutral   Agree   Strongly agree
> disagree
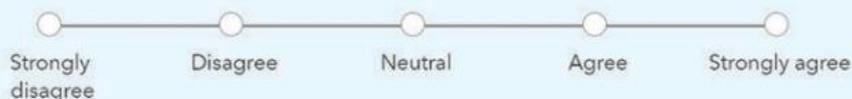
▲ **Figure 8.32** An example of a Likert scale question

> **How would you rate the liveability of Moorooka.**
> 1 = Poor
> 5 = Excellent
>
> ☆ ☆ ☆ ☆ ☆

▲ **Figure 8.33** An example of a 'rank your opinion' question

3 Complete the survey form, based on the suburb you live in.
4 **Compare** your completed survey with people in your class who live in the same area as you.
5 **Organise** your survey results for your suburb and identify the top five features of liveability in your area.
6 In a small group, **create** a poster that advertises these features of liveability for your local area.

ACTIVITY 8.6

Research and mapping task

Identify a place anywhere in the world you could picture yourself living. Research this location, and identify some social, environmental and economic features of the area's liveability.

1 Using Google Earth, create a tour of this place. You should include at least eight stops. For each stop, ensure that you have an image and include a 50-word description.
2 Share your tour with a small group.

DEVELOPING YOUR UNDERSTANDING 8.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** how push factors work. Provide three examples.
2 **Explain** how pull factors work. Provide three examples.
3 **Describe** the concept of space.
4 **Identify** key historical events that have had an impact on Vienna.

Interpret

5 **Reflect** on how someone's perception or experience influences their sense of place.
6 **Evaluate** why safety and security are important features of liveability.

Argue

7 **Identify** the factors that affect the liveability of your local area. Explain why these factors make or do not make your local area liveable.

8.2   Measures to evaluate a place's liveability

FOCUS QUESTION

How do we measure liveability?

Several organisations conduct research on the liveability of cities throughout the world. Each year, these organisations rank cities based on set criteria. Some of the measures relate to physical infrastructure and features like transport, while other measures are more subjective and relate to people's perceptions such as whether an area is safe. Geographers and urban planners use the data to evaluate the features of a place that enhance or degrade its liveability. This evaluation is then used in their planning decisions so that they can make changes to other towns and cities to improve the liveability of them.

tangible things that you can physically see and touch

intangible something that exists but you cannot see or touch

How is liveability judged?

Judgements about a place's liveability are based on perceptions. A person's perception comes from their personal experiences, background and values.

Different people value different features of a space and are drawn to those features based on their preferences and values. This attraction to a feature is a pull factor. For example, young adults may be drawn to the bright lights and buzz of the city, and therefore choose to live and work there. They can then easily access the features of the city they like. Other age groups or families may value more space. They might choose to live further away from the city so that they can access more open areas, such as parks, bush walks and other natural features. While these people's daily travel to their jobs may be longer, they have the space and the lifestyle that they value. People judge the liveability of a place based on **tangible** factors like infrastructure and services, as well as **intangible** factors like safety and culture.

How is liveability measured?

Environmental, social and economic factors influence the liveability of a place. Liveability, or quality of life, is often measured by factors like access to fresh water, food, housing, transport, health care, education, and a safe and stable environment.

Mercer, one of several organisations that measures liveability, uses the following criteria to measure liveability in the Mercer Quality of Living Survey:

- Stable and reliable government, legal and law-enforcement services
- Economic and business environment
- Availability and quality of medical services, health and hygiene (including sewerage, waste disposal and levels of air pollution)
- Education
- Public services and transportation (including electricity, water, public transportation and traffic congestion)
- Recreation, such as restaurants, theatres, cinemas, sports and leisure
- Consumer goods, such as the availability of food and a range of other items

▼ **Figure 8.34** Calgary, Canada, has frequently been ranked as North America's most liveable city.

▲ **Figure 8.35** Copenhagen, Denmark, ranked number 9 in the 2019 Global Liveability Ranking.

- Housing, including rental housing, household appliances, furniture and maintenance services
- Natural environment, including climate and records of natural disasters.

Mercer's twenty-first annual Quality of Living Survey in 2019 used this criteria to rank 231 cities. The cities in Europe, Oceania and North America generally ranked high.

Cities were separately ranked according to personal safety, which included crime levels, law enforcement, personal freedom and media freedom. Australian cities all ranked within the top 50 for personal safety. Cities that ranked at the lowest in this area are in parts of the world that have ongoing violent conflict, such as Syria and Iraq.

Another organisation that studies liveability around the world is the Economic Intelligence Unit (EIU).

Every year, the EIU ranks 140 cities around the world. They measure over 30 different factors about each city, such as how good the education and health care are, how clean the water is, and if there is a lot of crime. Each city is then given a score out of 100, with a score of 1 being completely horrible to live in and 100 considered as being as good as it gets.

According to the EIU, the most liveable city in 2019 was Vienna, in Austria. Vienna received a score of 99.1, while Damascus in Syria was the lowest scoring city, with a score of just 30.7. Australia had three cities inside the top 10, including Melbourne (2nd, with 98.4), Sydney (3rd) and Adelaide (10th). The 2021 Global Liveability Ranking has been shifted by the coronavirus pandemic and Auckland, New Zealand, has been named the world's most liveable city, while Adelaide (3rd), was named the most liveable city in Australia, before Perth (6th), Melbourne (9th), and Brisbane (10th).

ACTIVITY 8.7

Research task

Do some online research to find the most recent reports from Mercer and the EIU on liveability. Then, follow these steps.

1 **Select** a liveability report.
2 **Select** two environmental, economic and social measures used in the index.
3 **Compare** a city in the top five with a city from the bottom five of your chosen index. Use the criteria that you selected in step two to make your comparison.
4 **Create** a presentation of your findings.

Interesting fact

After enduring Australia's longest COVID-19 lockdown in 2020, Melbourne dropped from 2nd to 9th in the 2021 Global Liveability Ranking while Sydney, despite enjoying more relaxed restrictions, dropped from 3rd to 11th. It is interesting to note that in 2021, 6 out of the top 10 most liveable cities in the world are in New Zealand and Australia. The fact that, owing to tight border controls, residents of these 2 counties were able to live relatively normal lives, compared to the rest of the world, is one of the reasons advanced to explain this result.
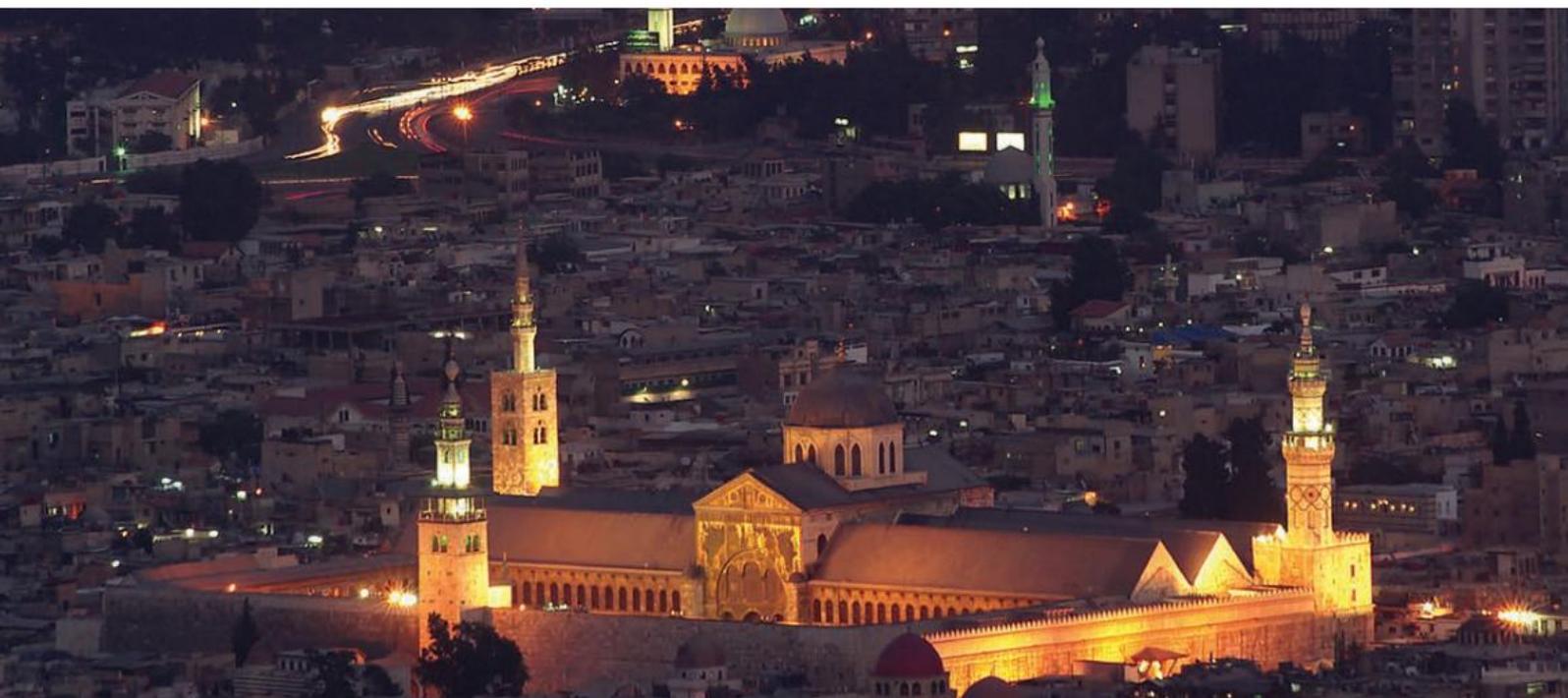
▲ **Figure 8.36** Damascus is Syria's capital and largest city. The civil war threatens the safety of those who live there, as well as their access to essential services.

DEVELOPING YOUR UNDERSTANDING 8.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Identify** the highest and lowest ranking cities in the world in 2019 according to EIU.

2 Write the definition of a tangible liveability factor and an intangible liveability factor. Give one example of each.

3 **Identify** how many of Australia's cities ranked in the world's top 10 in 2021.

4 **Consider** why geographers and urban planners use data to evaluate the features of a place.

Interpret

5 **Identify** how the coronavirus pandemic affected Australia's most liveable cities in 2021.

6 **Identify** why Damascus is one of the world's least liveable cities.

Argue

7 **Propose** what we can learn from looking at the liveability of cities from around the world.

8.3   Facilities and services, and environmental quality

FOCUS QUESTIONS

- How does access to services and facilities affect the liveability of a place?
- How does environmental quality affect the liveability of a place?

Access to facilities and services affects the liveability of a place. Adequate access needs to be available and affordable, and facilities and services need to be environmentally, socially and economically sustainable. This is so future generations can continue to live in the area. The quality of the environment also affects the liveability of a place.

Accessible facilities and services

Sustainable access to facilities and services enhances the liveability of an area for its residents. The availability and **affordability** of services and facilities acts as a pull factor by attracting more people to a place. This attraction leads to population growth.

Over time, Victoria's population has grown, partially due to its pull factors. However, a lack of accessibility to services in rural and remote areas has often led to **rural-urban migration**. This means that people move from rural areas to live in cities.

To sustain regional centres, state governments are giving more power to local governments to run local services. This makes it easier for people in rural areas to access the services that they need, so that they don't feel the need to move to cities.

affordability the ability to afford a service or attendance of a facility; for example, going to the doctors

rural-urban migration when people move from rural areas to urban areas, usually for better opportunities such as employment and education

ACTIVITY 8.8

Representing data in a line graph

Simple line graphs provide an effective way to show change over time. The graph here is an example of a line graph showing the population change over time for Australia.

Population of Australia

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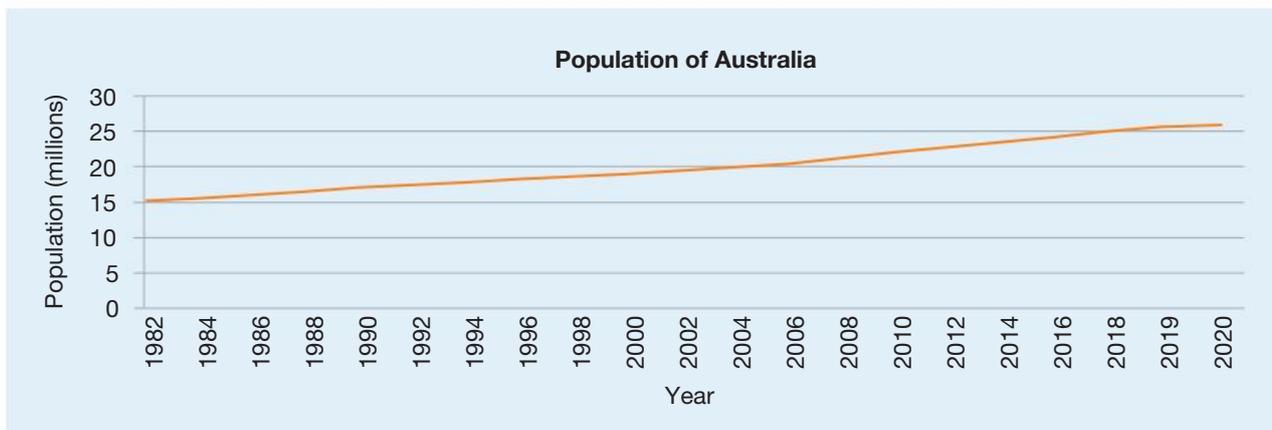
Create a line graph that shows Victoria's population growth from 1982 to 2020, using the data in Table 8.1.

TABLE 8.1 Estimated resident population in Victoria from 1982 to 2020	
Year	**Estimated resident population (millions)**
1982	3.90
1984	4.10
1986	4.20
1988	4.30
1990	4.40
1992	4.50
1994	4.50
1996	4.50
1998	4.60
2000	4.70
2002	4.80
2004	4.90
2006	5.06
2008	5.26
2010	5.46
2012	5.65
2014	5.89
2016	6.17
2018	6.46
2019	6.28
2020	6.49

Instructions

To **construct** a line graph, follow these steps:

1 Draw a horizontal line. On the far left of the line, draw a vertical line upwards. The horizontal axis is called the 'x-axis'. The vertical axis is called the 'y-axis'. The point where the x-axis and y-axis intersect is called 'the origin'.

2 Mark in 21 points along the horizontal axis and 13 points along the vertical axis. These points should be equal in scale. Leave the first point (the origin) blank.

3 Below the horizontal x-axis, write in the progression of years from the beginning of your data set to the finish. Refer to Table 8.1 for the information you need.

4 To the left of the vertical y-axis, write zero at the origin and then work your way up each of the 13 points by 0.5 until you reach 6.5. This is enough to cover your smallest and largest values.

5 Neatly label each axis and give the graph a title.

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6 Plot each value on the graph by creating a dot where the population data meets the year. For example, where the data on the left meets 3.9, measure across to where this lines up with 1982 and mark the spot with a small dot.

7 When all the data has been marked on the graph, join the points with a continuous hand-drawn curve.

8 Now stand back and **examine** your line graph. What does it tell you about population growth in Victoria?

9 Adapt the process you've just used to represent the estimated resident population of Queensland from 2000 to 2020 using the data in Table 8.2.

TABLE 8.2 Estimated resident population in Queensland from 2000 to 2020

Year	Estimated resident population (millions)
2000	3.6
2005	4.0
2010	4.5
2015	4.8
2016	4.9
2017	4.9
2018	5.0
2019	5.1
2020	5.1

Classifying settlements

Settlements are usually classified as either *rural* or *urban*. Rural settlements are found in the countryside and have fewer than 10 000 residents. They are often spread out. This geographic distance and low population often makes it difficult for governments and businesses to provide services and facilities. Urban settlements have more than 10 000 residents and are often more compact. There is usually better access to services and infrastructure in urban areas.

What settlements need

For a settlement to function effectively, residents need access to services like clean, fresh water. Water is vital to a settlement, which is why so many cities are located close to major rivers. As modern cities grow, the people that live in them need access to a variety of services and infrastructure. This includes **sanitation**, housing, adequate and affordable food, employment, and health care. Residents also need to feel connected. Transport plays a vital role in connecting people and places. Public transport gives people the ability to go to different places and access services, which is especially important for those who do not have access to private vehicles.

Urban sprawl

As more and more people move to cities, **urban sprawl** often occurs. This is where a city starts to spread outwards. The outskirts of cities usually have low-density housing. These areas of lower-density buildings often have design features that encourage car dependency and limits access for those without vehicles.

sanitation the system for taking dirty water and other waste products away from buildings to keep places clean and protect people's health

urban sprawl the gradual spread of cities into previously rural areas due to population growth

ACTIVITY 8.9

Spatial data interpretation activity

This activity explores the concept of urban sprawl and the growth of cities, as well as urbanisation.

1 **Review** the maps and **identify** the changes that have occurred in some of the world's megacities by searching for 'The age of megacities ArcGIS' and clicking on the link.

2 Select one location and **explain** how the distribution of the city has changed over time.

3 **Examine** the growing urbanisation in Africa by searching for 'Urban Africa ArcGIS' and clicking on the link.

4 Select one location and **explain** how the urbanisation of that location has changed over time.

Population density

Population density refers to the number of people per square kilometre. This can be calculated for a small space, a city, a country or a region. Population density is one of the most important aspects of urban planning. Urban planners use information about a population to make decisions on future services and infrastructure. Population density determines the types of dwellings that can be constructed in an area and the services that are provided. If density is low, then services are sparse and less efficient. If density is too high, an area can become overcrowded and uncomfortable. A well-planned urban area usually has a mixture of housing, commercial and industrial uses.

High-population densities are a major feature of a megacity. A **megacity** is a city with a population of 10 million people or more. Megacities often have major social and economic pull factors, such as housing, education and employment. These factors have led to rural-urban migration, which is also a phenomenon known as urbanisation. Currently, more than half of the world's population lives in an urban area. This urbanisation can sometimes lead to improvised settlements, known as slums. Services can become difficult to deliver in these areas and so living standards are often poor.

population density a standard measurement of people per square kilometre, which can be calculated at different scales (suburbs, cities, countries, regions)

megacity a city with 10 million or more residents

ACTIVITY 8.10

Comparing images

Compare Figures 8.37 to 8.40 and choose which images are good examples of:

a High-density living

b Low-density living

c A slum

d A mega-city.

Some pictures may fit into more than one category.

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▲ **Figure 8.37** Shanghai, China

▲ **Figure 8.38** New York City, the United States

▲ **Figure 8.39** Rio de Janeiro's Rocinha is the largest shanty town in South America.

▲ **Figure 8.40** Estaing, France

ACTIVITY 8.11

Calculating population density and interpreting data

The population density of an area is calculated by dividing the total population by the total land area. Use the equation here to calculate the population densities for the countries provided in Table 8.3. Copy and complete the table with your calculations. Then, answer the questions that follow.

$$Population\ density = \frac{Total\ population}{Area\ in\ square\ kilometres}$$

TABLE 8.3 Population and land area of selected countries

Country	Population	Land area	Population density
Spain	46 723 749	499 564	
Brazil	209 469 333	8 358 140	
India	1 352 617 328	2 973 190	
Bangladesh	161 356 039	130 170	
Australia	24 992 369	7 692 020	
United Arab Emirates	9 630 959	71 020	
Mexico	126 190 788	1 943 950	
Iran	81 800 269	1 628 760	
United Kingdom	66 488 991	241 930	

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1 **Identify** the country with the highest population density.

2 **Compare** Australia's population density to other countries listed here. **Explain** why Australia's population density is so low.

3 **Calculate** the population density of your classroom by using the following steps.

  a Measure the dimensions of your classroom using a tape measure and determine the number of square metres of the room. (For example, if a room is 6 metres wide and 6 metres long, it is 36 square metres.)

  b Count the number of people in the class.

  c Divide the number of people by the size of the classroom to get the classroom population density.

CASE STUDY 8.3

Mumbai's population density

Read the information about Mumbai provided to you and then answer the questions that follow.

Mumbai is a city of extremes. It is ranked as the twelfth richest city in the world and there is a large billionaire population. At the other extreme, however, more than half of the city's population lives in improvised settlements (slums) that lack clean air and water, as well as basic electricity and transport.

Mumbai has the largest slum population in the world. This has created a unique economy. The wealthy own prosperous businesses and live in high-rise apartments, but the poor are often craftspeople and artisans, who live in one-story buildings that are poorly maintained and built closely together. This means that adequate services are difficult to provide to those living in these slum areas and they have a lower standard of living.

interconnection the relationship between places and people, and the ways in which they influence each other

▲ **Figure 8.41** An aerial view of Mumbai and the Dharavi slums seen from a plane

▲ **Figure 8.42** A street view of the Dharavi slums

Analysis questions

1 **Explain** what you notice about the population density.

2 **Interpret** how the slums and CBD are **interconnected**.

  a **Consider** the sustainability and liveability of living in a Mumbai slum.

  b **Judge** the sustainability and liveability of living in a Mumbai slum.

  c **Reflect** on the sustainability and liveability of living in a Mumbai slum.

Urban modes of transport

To enhance the liveability of an area, accessibility to other locations, services and facilities is vital. Accessibility is often best provided through roads and public transport. Sometimes the cost of a car can be unaffordable and, at other times, people make the choice not to have a car. Some social groups, such as migrants, international students, the elderly and younger people, rely heavily on public transport to feel connected and to move around. To ensure sustainability and **equity**, large settlements need to provide public transport options, such as buses, trains, ferries and trams.

Trams are an iconic feature of Melbourne. Some cities in Australia have recently begun introducing or reintroducing the use of trams or similar transportation. For example, Brisbane stopped its tram service in 1969 to much public outcry, but a new rapid transit system is planned to open in 2023. The Gold Coast introduced a new light-rail system to service the city in 2014. And Sydney halted its use of trams in 1961, but as of 2019, the city has reintroduced them by using the old tram network. These enhancements of the public transport infrastructure demonstrate change over time.

equity all people have equal access to resources that meet their basic needs

▲ **Figure 8.43** The TransLink network in Brisbane has more than 400 bus routes.

▲ **Figure 8.44** A tram moves along George Street towards Randwick in Sydney on 14 December 2019. Restoring trams to Sydney has been a controversial project with the projected costs in late 2019 estimated to be A$2.9 billion.

ACTIVITY 8.12

Recognising spatial patterns

The following two images show us what percentage of workers use public transport to get to work in Melbourne's CBD, as well as where they travel from. The first image is from 2006 and the second is from 2016. Study the images and answer the questions that follow.

Public transport mode share of journeys to work, 2006

Public transport mode share of journeys to work, 2016
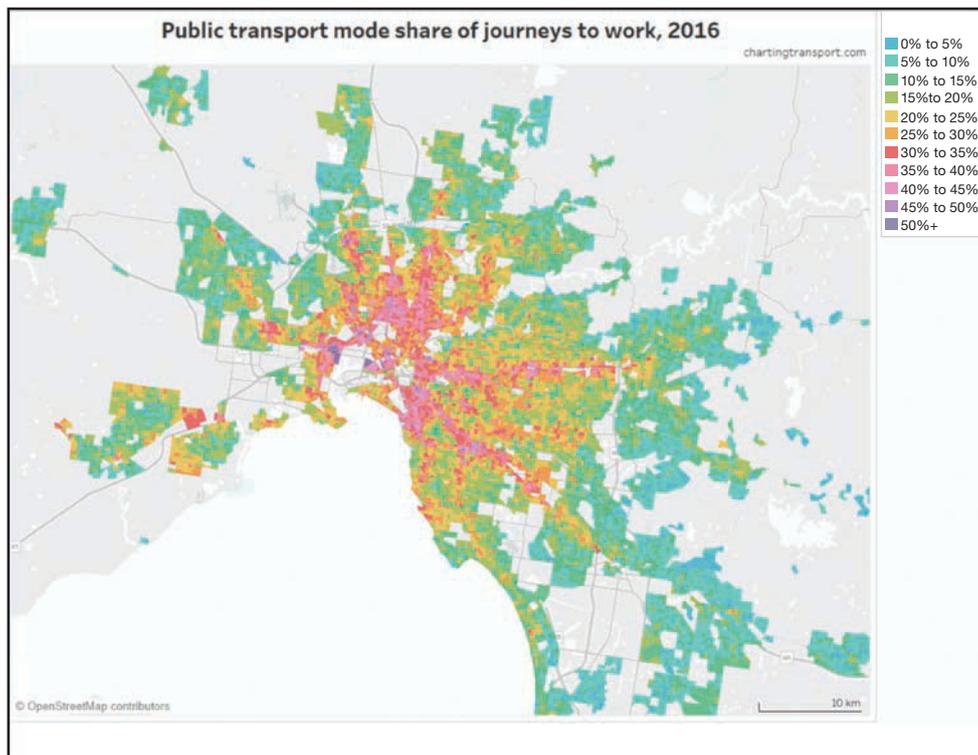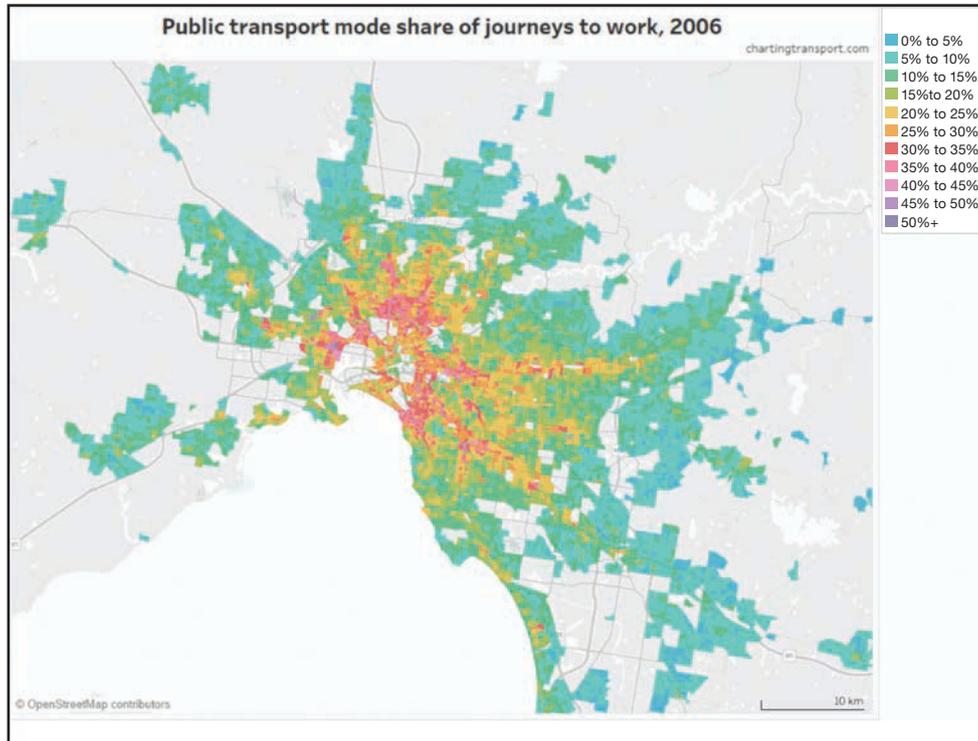
1 **Identify** two changes that you can see in the pattern of public transport use.
2 **Consider** what these changes show us about public transport use over time.

Rural health care and education

Large-scale services are sometimes difficult to provide to rural communities because these areas are often geographically spread out and the populations are small. However, advancements in technology have improved the effectiveness of providing services to rural areas. For example, health-care providers are improving health care in these locations through technology. Increasingly, doctors are consulting with patients in rural and regional areas through electronic communications. Some rural and regional hospitals are also using nurses and other health-care professionals to consult with patients rather than doctors. For more critical cases, transport and accommodation is provided at a very low cost to rural and regional residents so that they can access the treatment services in larger urban areas.

Rural areas have also seen improvements in accessing educational services. Because of digital technology, students who live in rural and regional areas now can access distance education. Previously, students accessed lessons via radio communication. But, as technology improved, students are increasingly able to access their lessons online and interact with their teachers using live streaming. Students are also better able to share their work with their teacher and collaborate online with other students.

CASE STUDY 8.4

Vanuatu

Read the information about sanitation in Vanuatu and then answer the questions that follow.

Sometimes, international groups help developing countries increase their liveability. For example, the United Nations, World Health Organization and international aid agencies are working to improve the sanitation in rural and regional areas in less economically developed countries.

In the Ambae Island communities of Vanuatu, a project has been set up to help community-based businesses produce and sell sanitation products. The businesses create products like toilets and hand basins to sell to people in the community. Not only is this improving the sanitation and health of local communities on Ambae Island, it is also creating jobs and economic growth. In turn, this is leading to the improved liveability of the people who live on Ambae Island because they have increased access to sanitation.

Analysis questions

1 **Identify** some of the organisations that are helping people on Ambae Island increase their standard of living.

2 Determine how these organisations are assisting Vanuatu. **Explain** the effects of this help by using information from the case study.

▲ **Figure 8.45** Port Orly on the island of Espiritu Santo in Vanuatu

Quality of the environment

Water and air quality are essential factors in determining the liveability of a place. Access to clean water and air improves the health of a population as well as the natural environment. Water and air pollution can severely impact the health of residents.

Many cities are built close to river systems to take advantage of the resources of the natural environment. This proximity to a river system means that there is consistent access to fresh flowing water for the population. The river is also useful for transportation to ship people and goods.

Sustainable environments

Designing a place to maximise the use of renewable resources is important. If this is done, the sustainability and liveability of a place increases.

The energy and structures used in cities tend to attract and produce heat. This generation in heat is known as a heat island. To reduce the effects of heat islands, major cities in Germany have introduced green roofs. A green roof involves partially or completely covering a roof with vegetation. A green roof creates insulation, provides habitats for local species, absorbs carbon dioxide and helps to cool air temperatures. In 2014, Germany had 86 million square metres of rooftop vegetation. The use of green roofs

← **Chapter 6 describes the importance of a community having access to clean, fresh water.**

in Germany has been so successful that they are now being used in designs in other parts of the world.

In Santander, Spain, smart technology is already making the city more efficient: rubbish bins send alerts when they are ready to be emptied and streetlights automatically dim when no one is on the street.

Air pollution has become a larger problem as cities become more busy. This has severe impacts on people's health, causing more premature deaths than smoking cigarettes. In Oslo, the capital of Norway, many initiatives are reducing air pollution. 'CityTrees', which are park benches covered in a living wall of moss, absorb pollution. One CityTree cleans the air more effectively than 275 real trees. Oslo has also added 1000 charging stations to encourage electric vehicle use, and their buses are powered by biogas, which is produced from city sewage.

In this topic, we have examined some of the ways that environmental quality, as well as access to services and facilities, affect the liveability of a place.

In the next activity, we will use a topographic map to examine the distribution of human features (such as services and facilities) and natural features (such as vegetation) in a town.

We can then use this information to think about how the distribution of characteristics in a space can influence the liveability of a place and consider how liveable this town would be for the local residents.

▼ **Figure 8.46** An example of urban agriculture in Montreal, Canada, where the rooftop is being used to grow vegetables

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 8.1

Reading and interpreting topographic maps

In this activity, you will practise the geographic skill of reading a topographic map, as well as look closely at the interconnection of man-made and natural environments. Look at the topographic map for the Victorian town of Anglesea on the Great Ocean Road (on pp. 334–5) and answer the queries that follow. You can also go to the digital versions of the book to zoom in more on the image.

You can also refer to the 'Guide to using topographic maps' in the Interactive Textbook

Topographic maps use contour lines to show the shape of the Earth's surface. Contour lines allow us to know the heights of mountains, the ocean's depths and how steep an area is, just by reading a map. Contour lines are often represented on a map by thin brown lines that join points of equal elevation. Some of the lines have a number written on them. These numbers represent the metres (or feet) above or below a certain point (usually sea level). The closer the contour lines on a map, the steeper the terrain. This is because the elevation is changing a lot in a short distance. The contour interval is what we call the difference in elevation from one contour line to the next. Because not all contour lines have the elevation written on them, we can use the contour interval to work out the elevation of the unnumbered lines.

Topographic maps also have grid lines. These grid lines can help us locate and explain where different features of the map are found.

We can find larger features, such as the township of Anglesea, by finding its area reference (AR). An AR is made up of four numbers. The first two numbers are called eastings. These numbers run along the top and bottom of the map. The numbers increase in an easterly direction along the map. The following two numbers are called northings. We find these numbers along the side of the map. These numbers increase in a northerly direction along the map. To find the AR of Anglesea, we first look to the easting number to the left of the township. In this case the number is 54. We then find the northing number directly below the township. This makes up our second two-digit number, 45. The AR for Anglesea is therefore 5445.

To find smaller features, we need to be more specific and use grid references (GR). A GR has six numbers. The first three numbers of a GR identify the easting, and the following three identify the northing. The first two numbers of the easting and northing are easy to determine as they are the same as the AR. For instance, the AR of Anglesea's ambulance is 5444.

To determine the numbers of a GR, imagine that each AR square has 10 equally spaced horizontal lines and 10 vertical lines running through it. Each imaginary line is numbered 1 to 10. If you want to pinpoint something in an AR, you use the imaginary numbers of the horizontal and vertical lines to indicate where the feature is. For example, the ambulance at AR 5444 is about two imaginary lines across and nine upwards, which means its GR is 542449. Notice that the GR is the third and last number.

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> Symbols are often used on maps to represent the features of a map. These symbols are found in the *legend*. They often try to look similar to the feature that they are trying to represent. For example, can you find the symbol for a lake in the legend? Can you find a lake on the topographic map? What is the AR or GR of this lake?

1 **Identify** one natural characteristic located at AR 4842

2 **Identify** the type of community facility located at AR 5344.

3 **Identify** the natural characteristics located at:
   a GR 470434
   b GR 543428
   c GR 518448

4 **Identify** the human characteristics located at:
   a GR 474383
   b GR 455492
   c GR 556463

5 **Select** one of the natural and one of the human characteristics that you identified above and explain how each of these might improve or reduce the liveability of Anglesea.

6 a Using the scale on the map, **determine** roughly how large the town of Anglesea is.
   b The population of Anglesea is approximately 2500 people. **Predict** if Anglesea is likely to be a high- or low-density place.

7 **Reflect** on the assumptions you could make about the liveability of this town, based on the services and infrastructure this region has to offer. **Identify** some of the benefits and drawbacks of living here.

8 Use the contour lines in and surrounding Anglesea to read the topography. **Determine** the topography of the region.

9 What is the elevation of the highest point that you can find in this region?

10 **Identify** one benefit and one drawback of living in a place with this type of topography.

11 The closer the contour lines on a map, the steeper the terrain. **Explain** why this is the case.

Built-up area.........................

Freeway, route marker, highway, bridge..

Secondary road: sealed, unsealed.............

Vehicular track: 2WD, 4WD.........................

Walking track or bicycle track.....................

Private access, proposed road......................

Great Dividing Track.........................

Road Restrictions.........................

(MVO) (SSC) (SHWL)
MVO Management Vehicles Only
SSC Subject to Seasonal Closure
SHWL Subject to Height or Weight Limits
RPC Roads Permanently Closed
RU Road Unmaintained
DWO Dry Weather Only

Gate or Cattlegrid, levee bank.....................

Embankment, cutting.........................

Railway, tramway.........................

Railway station, railway siding.....................

Raiwlway/tramway: disused, dismantled......   Disused   Dismantled

Railway bridge, railway tunnel.....................

FEATURES

Building, post office, church, public hall.................

School, police station, fire station, ambulance......

SES, hospital.........................

Neighbourhood safer place, emergency marker..

Pipeline, disappearing underground.................   Gas Water

Power transmission line.........................   Transmission line

Trigonometric station, spot elevation.................   83   34

Landmark area: quarry.........................

Landmark object: tank or well, tanks to scale.......   Silo   Oil

Mine, helipad.........................

VEGETATION

Landmark area, recreation area..........................

Tree cover: scattered or medium, and dense.......

Plantation.........................

Orchard or vineyard.........................

RELIEF

Contours, rocky outcrop, hill shading.....................

Depression contours.........................

Cliff.........................

Sand.........................

Sand dunes.........................

HYDROGRAPHY

River, creek, crossing, adit.........................   Drain

Aqueduct, channel, drain.........................

Lake: perennial, intermittent.........................

Dam or weir, dam carrying road.........................

Falls, rapids.........................   Falls   Rapids

Rapids in large river.........................

Lock.........................   Lock

Waterholes, swimming pool.........................

Water well or water point, spring.........................

Land subject to inundation.........................

Swamp or marsh.........................

Shoreline with mud or sand flats, mangroves.........

Rock: bare or awash, rocky ledge or reef.........................

Exposed wreck, lighthouse.........................

Breakwater, pier or jetty, boat ramp.......

ADMINISTRATION

Navigation beacon, wharf.........................

Parks under National Parks Act.........................

Crown land, restricted area.........................

Local Government Area boundary.........................   MELTON SHIRE

State boundary.........................

1:50 000 double format index.........................

»

»

▲ **Figure 8.47** A topographic map of Anglesea (legend on previous page)

DEVELOPING YOUR UNDERSTANDING 8.3

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** urban sprawl. How have urban planners tried to reduce this?
2 **Describe** population density. Why is it important?
3 **Analyse** how health care and education are becoming more accessible to people living in rural areas.
4 **Describe** sustainability.

Interpret

5 **Infer** how green roofs reduce the effect of heat islands.
6 Mumbai is the Indian city with the most 'high net worth individuals' (HNWIs). A HNWI is a person who has assets over $US1 million. Refer to Figure 8.48, which shows the neighbourhoods in Mumbai with a high concentration of HNWIs, then answer the following.

   a **Describe** the distribution of HNWI concentration in Mumbai. To answer this, make sure that you identify which neighbourhoods have high and low concentrations of HNWIs and **describe** where these are located.

   b Based on the map, **propose** why many millionaires choose to live where they do in Mumbai.

   c **Select** one of the wealthy neighbourhoods and research what makes this neighbourhood appealing to millionaires.
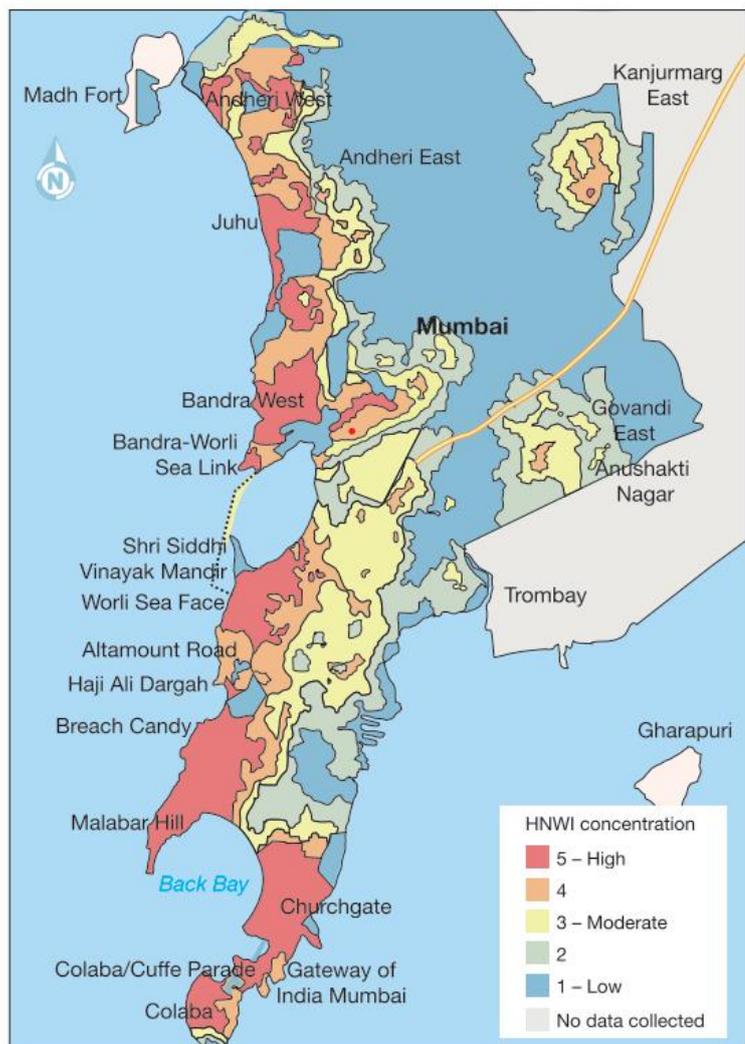
▲ **Figure 8.48** Concentration of HNWIs in Mumbai

Argue

7 Environmental sustainability needs to be considered by urban planners. **Analyse** this statement and **identify** reasons for this point of view.

8.4   Social connection and community identity

FOCUS QUESTION

How does social connection to a community improve wellbeing and health?

Connection enhances our sense of belonging to a community and can influence our sense of place. Social connection and community identity are important concepts because they contribute to the liveability of a place.

Social connection and community identity

Social connection is the experience or feeling of closeness to others. People feel connected when they are loved, valued and cared for within their community. Connected people have interpersonal relationships and work to maintain them.

Social connection is extremely important to our health and wellbeing. For this reason, it is important for communities to have opportunities to connect with each other. Social connections then form a community identity. A person's community identity is based on their experiences of their local community and their sense of belonging. Community identity is often created because of a physical location, but communities are increasingly formed online through social media.

ACTIVITY 8.13

Research task

This activity explores the benefits of social connection and having a community identity.

1   Here is a list of benefits that result from social connection and having a community identity. **Distinguish** each benefit as either economic, social or environmental.

   • Businesses giving back to the community (for example, a business giving free coffees to homeless people or a business supporting the local football team)
   • Loneliness is combated
   • Community gardens are created
   • Mental health is improved
   • Safety in the community is increased because people keep an eye out for each other
   • An economy is shared through online marketplaces and physical markets
   • Resources, such as a local toy library, are shared
   • People work together to improve the local environment
   • Businesses are supported by the people in the community.

2   **Create** a mind map and brainstorm some other benefits that result from social connection and community identity. Use the template shown to help you with your ideas.
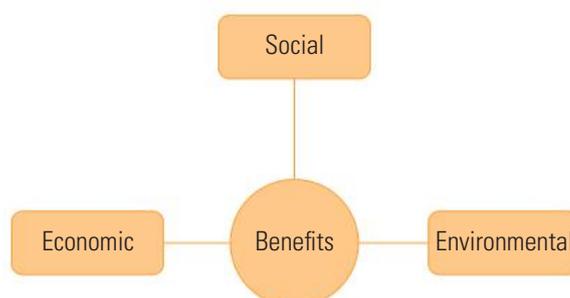
Safety and security

Safety affects our sense of place and our connection to the local community. Some places lack safety, which forces people to leave the area. For example, Syria has this push factor because the country has experienced significant conflict since 2011. The conflict has led to the loss of lives, homes, infrastructure, services and facilities. Half the population in Syria has been **displaced** since the conflict began and significant cultural places have been destroyed. These losses and lack of safety have shattered the community spirit.

displace force someone to move from their home, usually because of war, natural disaster or persecution

In other areas, violence against women makes it difficult for women to fully participate in their communities. The violence has forced them to take additional precautions for their safety.

Racial and cultural intolerance also affects the sense of safety and community. To improve the feeling of connection and safety it is important to promote cultural understanding. In Australia, there are many people from diverse backgrounds. Celebrating the cultural richness that Australia has, increases our sense of social connection, community and safety.

Safety is vital for the development of a community's liveability. Urban planners can improve the safety and security of public spaces through their designs. The measures urban planners use are known as passive measures. Passive measures deter and disrupt threats to security and make it easier to monitor the safety of a public space. They include monitoring locations through CCTV, using street lighting and safety mirrors, and ensuring the presence of others (such as using outdoor seating at restaurants). Having people fill the streets at night in a safe way allows people to keep an eye on activity (this is called passive surveillance) and stops others from engaging in illegal behaviour.

More direct or active security measures prevent antisocial behaviour and physical threats. An example of this is safety bollards.

Disconnection from communities

Some members of our communities feel disconnected because they cannot physically access their local area. This leads to social isolation. Areas that have good physical connections improve the social connections of members of the community. Physical access can be improved through public transport for those without access to cars,

▲ **Figure 8.49** CCTV monitoring is widely used to ensure public safety.

▲ **Figure 8.50** Accessible and inclusive public transport improves the mobility of all inhabitants.

and ramps enable physical access for those with a disability in the community. Social connections can also be created through the work of organisations that work with marginalised people. Connections enhance the liveability and wellbeing of all.

Improving connections

Community groups and activities give people opportunities to find like-minded people and improve their connections to others. There are groups and activities available for people from all walks of life. Traditionally, these types of connections have occurred through organised clubs, such as sporting teams. However, today there is a wider variety of ways available for people to create connections in their communities and find people who have similar interests to them.

Events like pub choirs enable adults to socialise and enjoy singing in a large choir. 'No lights, no lycra' are dance classes that allow people to dance in a darkened room like no one is watching. 'Men's sheds' enable men to bond with other men over a shared interest in physical work and crafts. Groups like these help people to increase their confidence, as well as to create, connect and share with others in their local communities.

ACTIVITY 8.14

Research and creative tasks

This activity invites you to think about ways to create connections to others in your community. Think about what you have read about community identity and social connection, then follow these steps.

1 Research online the community events and groups that exist in your local area. **Identify** activities that build community identity. Provide an example (such as SPARK Ipswich, or the Redcliffe KiteFest).
2 **Consider** the information you find to **create** an event for young people that aims to expand on their social connections.
3 **Create** a poster or social-media campaign to advertise your event.

DEVELOPING YOUR UNDERSTANDING 8.4

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Describe** social connection.
2 **Consider** how community is formed. Provide an example of what this might look like.
3 **Identify** an example of a passive measure for increasing public security.
4 **Identify** an example of an active security measure for safety in a public place.

Interpret

5 **Evaluate** why it is important for people to feel a social connection to their community.
6 **Determine** how people connect with their community.

Argue

7 **Distinguish** how important you think online communities are in providing a social connection and identity. Justify your answer.

8.5 Strategies used to enhance liveability

FOCUS QUESTION

How can the liveability of a place be increased?

Sustainability and interconnections are increasingly important features of liveability. Urban planners are developing innovative ways to improve the liveability of local areas. This section contains case studies of innovations that show what types of factors enhance the liveability of a place.

CASE STUDY 8.5

Enhancing liveability for young people in Victorian rural areas

Read the information here and then answer the questions that follow.

According to the Youth Affairs Council of Victoria, 22 per cent of Victoria's young people aged from 12 to 25 live in rural and regional areas. Their experiences of liveability are very different to young people who live in urban areas. Access to services can be limited for youths in rural locations. There can be privacy issues because the young people may know their doctor or nurse personally. They do not have access to the variety of education options and career opportunities that the youths in urban areas have. This can mean that young people from rural locations feel forced to leave their town to pursue the careers and opportunities they want.

Analysis questions

Visit the Youth Affairs Council of Victoria's website and look for the rural and regional section. Then, answer the following questions.

1 **Identify** an issue related to liveability for young people in rural and regional Victoria. (For example, an issue on education, mental health or political participation). Read through the information provided on the website and find further information from other sources about the issue.

2 **Design** an advertising or awareness-raising campaign for young people in rural and regional areas about the issue you have identified. Make sure you answer the following questions:

   a What is the issue?

   b Why is it an issue?

   c What can be done about it?

   d What message would you like to send in your campaign?

   e How would you communicate your message (print advertising, radio, social media)?

3 **Create** a presentation that explains your campaign.

ACTIVITY 8.15

Class discussion

Around 35 per cent of Queensland youth live in rural and regional areas. Visit the Youth Affairs Network Queensland's (YANQ) website and other support networks for Queensland youth. As a class, **reflect on** whether the issues you have identified in Case study 8.5 are likely to also be issues for young people living in rural Queensland.

CASE STUDY 8.6

Pontevedra

Read the information about Pontevedra and then complete the questions that follow.

▲ **Figure 8.51** The city of Pontevedra

Pontevedra is a city in the north-west of Spain in a province known as Galicia. The city has a long history, stretching back to the Roman Empire. During the medieval period, Pontevedra became an important trading hub in the region. The city boasted a large and secure seaport. During the sixteenth century, sediment from the river began to build up along the harbour, making it unusable for large ships. When this industry declined, so did the population. In 1833, Pontevedra became the capital of its province. This revived the city, which currently has a population of approximately 83 000 people.

The city banned all non-essential motor vehicles in its medieval centre in 1999. Pontevedra is known as one of the most pedestrianised cities in Spain and has won international awards. The city has a plan called the Metrominuto. The Metrominuto is a map that marks the distances between key locations in the city and the pedestrian travel-time between them. This pedestrian-friendly environment follows the examples of Bruges, Copenhagen and Amsterdam. The Metrominuto, combined with the vehicle ban in the centre of the city, has drastically improved the **walkability** of the city.

Before the ban in 1999, the city centre was in decline because there was crime and antisocial behaviour, pollution and traffic. However, since the vehicle ban, the city centre has been revived. Crime has declined, and air and noise pollution are no longer a problem. Businesses within the area have benefited from more pedestrians and it is a more friendly environment. Therefore, the vehicle ban has improved liveability in the city.

▲ **Figure 8.52** Pontevedra is in Spain.

▲ **Figure 8.53** The old town of Pontevedra has many narrow streets.

walkability a measure of how easy it is for a pedestrian to walk around

»

Analysis questions

Use Google Earth or Google Maps to conduct a virtual field trip around Pontevedra. Then, answer the following questions.

1 Open Google Earth or Google Maps and search for the following location: Ponte do Burgo. Use Street View to **explore** the area around this intersection and create a field sketch of the bridge from Avenue de Buenos Aires.

commercial building a building that is used for business activities

residential building a building that is used for private activities

2 Search for Praza Ourense, Pontevedra, and use Street View to **explore** the area. Describe the types of built features that are in the location. Are there mostly **commercial buildings** or **residential buildings**, or a mix of the two? Are the buildings high, medium or low density? What social, economic and environmental features are there?

DEVELOPING GEOGRAPHICAL CONCEPTS AND SKILLS 8.2

Creating a field sketch

To **construct** a field sketch, follow these steps.

1 Study the scene or photograph you want to draw and select the features to be sketched. It may be helpful to use a viewing frame.

2 Using a soft pencil (it makes it easier to erase mistakes), draw a frame the same shape as the scene you wish to sketch on a blank piece of paper.

3 Divide the scene you wish to sketch into three parts: the foreground, middle distance and background, as shown.

4 Sketch in the main features or lines of the scene. This may include the horizon and other prominent landform features.

5 Mark in other prominent features or lines, such as roads, railway lines, rivers or powerlines. These will provide reference points for the addition of detailed features.

| Background |
| Middle distance |
| Foreground |

6 Add detail if appropriate. Details may include buildings, trees and fences.

7 Use shading and colour to highlight the key features of your field sketch. Avoid making your sketch too cluttered.

8 Label the main features shown in your sketch.

9 Give your field sketch a heading and note the date of the observation.

10 Highlight your frame with a black felt-tipped pen.

Urban consolidation and renewal

urban consolidation keeping residential development and population growth restricted to the urban areas that already exist

To improve sustainability and reduce urban sprawl, many cities are turning to **urban consolidation**. Urban consolidation is the idea that residential development and population growth is restricted to the urban areas that already exist. This means that urban areas are not expanded into rural locations and other areas. The currently existing urban areas are often known as brownfield sites. They are located within existing urban areas and have usually had another land use. Urban consolidation involves a process of redeveloping this land and improving its liveability through connectedness and better services.

ACTIVITY 8.16

Research tasks

Griffith University, a public research university in South East Queensland, with 5 physical campuses (Gold Coast, Logan, Mount Gravatt, Nathan and South Bank), revealed in its 2020-2025 strategic plan that it will close its Mount Gravatt campus, reinvigorate its Nathan campus and will `position itself more strongly in the Brisbane CBD with an ambitious building project'.

Since September 2020, Griffith University has been in negotiations with the Queensland government over its plans for a new inner city high-rise campus.

Do some online research to answer the following questions.

1 **Identify** the exact proposed location of the new campus in Brisbane CBD and the estimated cost of this new high-rise campus project.
2 **Identify** the timeline for Griffith University to move out of its Mount Gravatt campus and how many students are currently hosted in that campus.
3 **Explain** why new facilities will be constructed at the Nathan campus in the coming years.
4 Griffith University also has plans for a new building in the Gold Coast Health and Knowledge Precinct. **Identify** the name and purpose of that building.

In 2019, 32 hectares surrounding Roma Street, in Brisbane CBD, were declared a Priority Development Area by the State Government.
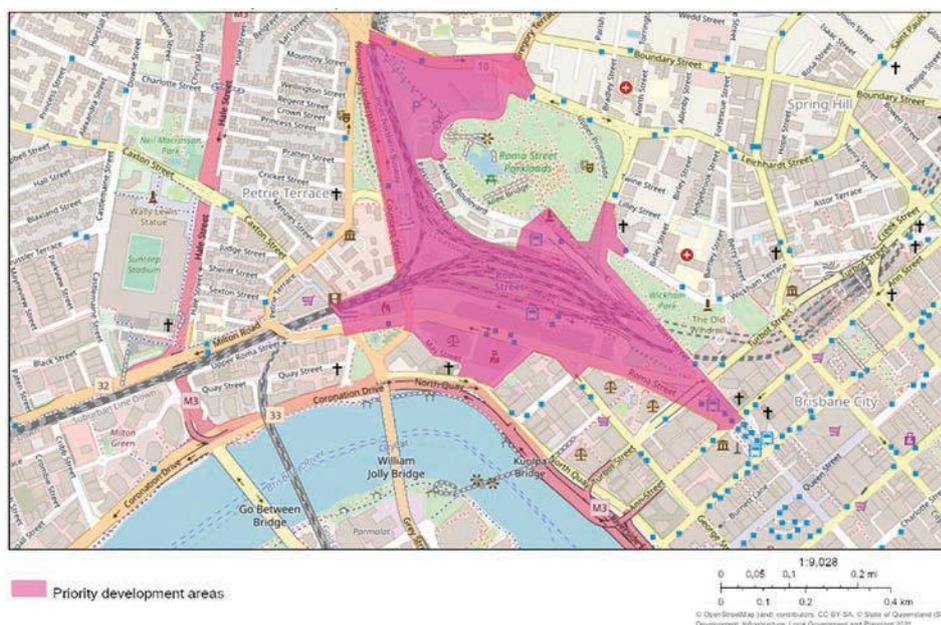
◄ **Figure 8.54** Priority Development Areas around Roma Street Parklands. Source: The National Map, © State of Queensland (Department of Infrastructure, Local Government and Planning).

5 **Explain** what a Priority Development Area is.
6 **Identify** who requested the Roma Street precinct to be declared a Priority Development Area and why.
7 **Research** the Roma Street precinct renewal strategy developed by the Brisbane City Council and **identify** the five strategies to facilitate growth, revitalisation and investment.
8 **Select** one of the five strategies from the previous question, and **identify** one sub-strategy that will participate to the precinct renewal.
9 The Roma Street precinct is part of Brisbane's knowledge corridor. **Explain** what Brisbane's knowledge corridor is.
10 **Identify** three major development projects currently under construction in Brisbane.

DEVELOPING YOUR UNDERSTANDING 8.5

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Describe** what it means to be pedestrian-friendly.
2 **Identify** the percentage of Victorian youths and young Queenslanders who live in rural and regional areas.
3 **Describe** urban consolidation.
4 **List** some innovative ideas that you are aware of in which urban planners have improved the liveability of local areas.

Interpret

5 **Determine** the reasons you think crime decreased when vehicles were banned in Pontevedra.
6 Use the internet to **explain** what a brownfield site is. **Identify** if there are any located near where you live or somewhere else in Queensland.

Argue

7 Pontevedra banned all non-essential motor vehicles in 1999. **Identify** three reasons as to whether or not you think this would work in a city near where you live. **Justify** your argument.

End-of-chapter assessment 8

1 Making thinking visible

I used to think that place and liveability meant …
Now I think that place and liveability means ….

This exercise in visible thinking asks you to connect, extend and challenge the knowledge you had prior to reading this chapter with what you have learned.

How does what you know about place and liveability *connect* to what you have learned in this chapter?

Which new ideas in the chapter *extend* or push your thinking in new directions?

What concepts in the chapter *challenge* or confuse what you used to think about place and liveability? Do you have any questions about what you have learned?

▲ **Figure 8.55** Extreme poverty and extreme wealth live side by side in Mumbai.

2 Research task

A tale of two cities: Masdar and Melbourne

Visit the Interactive Textbook to access a detailed research task that **compares** two different places and their approaches to enhancing liveability.

3 Problem-solving task

Create a liveable community

A new community is being developed. It is your task to plan this new community using the knowledge you have gained from this chapter.

Search for 'If the World Was Only 100 People' on YouTube and watch the video to understand the characteristics of the community you are creating.

With a partner or a group, **design** a community that will accommodate these people. What you create should consider the following key concepts:

- Liveability
- Accessibility
- Walkability
- Sustainability
- Community
- Place
- Social connection
- Safety.

You should ensure that you include infrastructure that supports health care, schools, roads, recreation, open spaces and anything else you think is essential for liveability.

After you have designed your liveable area, **create** an aerial view of the place on an A3 paper and label the key features.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Interesting fact

The Environmental Systems Research Institute (ESRI) is an interactive mapping platform and provides one of the most accessible geographic information systems opportunities for schools. Its Living Atlas website provides an app (World Imagery Wayback) which provides teachers and students with an opportunity to browse archived satellite imagery from anywhere in the world between 2014 and the present.

Use this app to observe how an area of interest has changed since 2014. A familiar beach, your school, your suburb, etc.

Part 3

Economics and Business

What is Economics and Business?

If you have shopped in a supermarket, you will know that there are many different goods available to shoppers. Do you ever wonder where the goods come from? Are the products locally produced or do they come from overseas? Do you know how demand influences the price of a product? Or how demand ensures that the supply of a good is always met?

The study of Economics and Business is important because it helps us to develop an understanding of market forces. This understanding influences our decisions as consumers. Understanding the market enables us to see how producers meet our needs

and wants. It also means that we can understand how consumers decide what they will purchase.

The relationship between consumers and producers depends on the laws of demand and supply. Since the Earth's resources are finite, producers need to use resources efficiently. This is so waste is minimised and the future is safeguarded.

Planning is an essential activity for a successful business. Similarly, setting long-term and short-term goals is necessary. Do you know how to set goals? Do you know what a priority is? Goals and priorities can

take time to identify and establish, but with careful planning, you can set priorities to successfully achieve your objectives.

Generating an income is essential if a consumer wants to satisfy their needs and wants. Most Australians earn their income by joining the workforce. Therefore, it is important to understand what work is and what motivates people to work (beyond earning an income). Australian workplaces are changing, and there are now many different ways to earn money.

▲ **Figure A** Supermarkets contain hundreds of products that thousands of businesses worked together to produce and provide. How many businesses and people do you think would be involved in a supermarket supplying vegetables to a consumer?

► **Figure B** Knowledge about economics and business helps us to plan for the future.

Unit 1

Economic relationships, influences and choices

Overview

Economics and business are a part of our everyday lives. The choices we make regarding how we use resources directly shape and influence Australia's economy. In this unit, you will learn about the role of consumers and producers in the Australian market and how choices are made based on satisfying individual needs and wants. This unit also explores the importance of financial planning in decision-making. Finally, you will examine how the world of work in Australia is evolving at an increasingly fast pace. You will have the chance to make predictions based on future workplace changes.

▲ **Video**
Unit overview

Learning goals

After completing Unit 1, you should be able to answer these questions:

- Who are consumers and producers in the Australian market?
- Why is there a relationship between consumers and producers?
- How do consumers and producers interact and influence markets?
- What are financial goals and objectives?
- How do consumers and businesses manage their finances?
- Why is financial planning for the future important?
- What is work, and why do people enter the workforce?
- How is work changing?
- What is income, and where does it come from?
- What are some key characteristics of entrepreneurs?
- What is entrepreneurial behaviour?

◄ **Figure C** Economics and business are a part of our everyday lives.

CHAPTER 9

Economic influences and future planning

Setting the scene: panic-buying in Queensland

In the early months of the COVID-19 global pandemic, panic-buying emerged as a significant trend in Queensland supermarkets. From toilet paper to pasta, Queenslanders rushed to supermarkets across the state to buy their household staples, sharing photos on social media of empty shelves. Instagram stories showed angry shoppers fighting over items. The #panicbuying hashtag generated 46.9 million views worldwide on social media.

In response to the trend, supermarkets pleaded with customers to be responsible with their purchases, only buying what they immediately needed and leaving some products for others. Shoppers did not listen to this request for calm. As a result of panic-buying, supermarkets introduced buying limits on certain products in an attempt to slow down the depletion of supermarket shelves and to allow more customers access to staple items. Australian manufacturers, responding to the higher demands, increased their production to meet the needs of the market.

◄ **Figure 9.1** Panic-buying during COVID-19. Australian supermarkets introduced buying limits on some products in response to panic-buying.

ACTIVITY 9.1

Panic-buying

After reading 'Setting the scene' above, answer the following questions:

1 **Identify** which item was in highest demand during the panic-buying period of COVID-19. Suggest reasons why you think this was the case.
2 **Generate** a list of 10 other items that might be in high demand by panic-buyers during a pandemic.
3 **Investigate** whether the panic-buyers were prepared to pay more for their items during the COVID-19 pandemic. **Propose** why this may or may not be the case.
4 **Explain** why some items were not affected by panic-buying and give three examples.

Chapter overview

Introduction

As a consumer, you make choices every day about which goods and services you purchase. Any number of criteria influence your decisions. These may include the cost of a product, the quality, its features, how readily available it is to you, and the benefits of the purchase. Think about the last item you purchased – where did you buy it? How much did you pay for it? Why did you choose that item instead of another? You (or maybe, for now, your parents) control these choices.

Similarly, the producers of goods and services make a series of choices. For example, what types of products and services will they produce? What price will they set? How will they make their items different from their competitors to make sure they stand out to you, the consumer? These too are economic choices.

Understanding these forces – including how consumers and producers interact and influence each other – is an essential part of understanding economics. Additionally, learning about market forces such as supply, demand and scarcity will ensure that you, as a consumer, will be able to increase the number of choices you can make.

Learning goals

After completing this chapter, you should be able to answer the following questions:

- Who are consumers and producers in the Australian market?
- Why is there a relationship between consumers and producers?
- How do consumers and producers interact and influence markets?
- What are financial objectives for consumers and businesses?
- How do consumers and businesses manage their finances?
- Why is financial planning for the future important?

▲ **Figure 9.2** We're all part of Australia's economic landscape.

9.1 Consumers and producers: the fundamentals of economics

FOCUS QUESTION

Who are consumers and producers in the Australian market?

Consumers

A **consumer** is a person who buys goods and services for their personal use. In Australia, most people are consumers every single day. From purchasing a pair of shoes in a retail store to buying a coffee at your local cafe to turning on your lights in your home – every time you make a purchase or make use of a good or service, you become a consumer. By deciding what to buy (making a choice), you are playing an essential role in the Australian economy.

Goods and services

A **good** is a physical, tangible item that can be seen and touched, for example, a book or a piece of fruit. Alternatively, a **service** is something that cannot be seen or touched (intangible) and is generally an action that is performed either on you or for you – for example, attending a gym class or going to a physiotherapist for treatment. Goods, services and ideas are often collectively referred to as **products**.

Many Australian businesses produce both goods and services for consumers to buy. For example, at a car dealership, you can purchase a car, and the same dealership will often have a service department that repairs vehicles. At a hairdressing salon, you can not only get a haircut, but you can often buy shampoos and conditioners to use at home. One south-east Queensland car dealership has taken this to the next level and now has a barbershop inside the dealership so you can get a haircut while looking for a car!

consumer a person who buys goods and/or services for their own use

good a physical, tangible item for sale

service generally an action that is performed either on you or for you

product a good, service or idea made to be sold

▼ **Figure 9.3** An example of a consumer, producer and supplier. A shopper is buying seafood. In this case, the woman/shopper is the consumer, the fishery that harvested the prawns is the producer, and the seafood-store vendor is the supplier.

Producers

producer a person or business that provides goods

For you, as a consumer, to play your essential part in the economy, there must be products for you to buy. Creating products and services for consumers to buy is the role of the producers in an economy. A **producer** is a person or business that produces and sells products to consumers. For example, a bakery creates baked goods to sell to consumers.

Interesting fact

At 30 June 2020, there were 2 422 404 actively trading businesses in the Australian economy!

Direct and indirect distribution

It is essential to understand that producers may not always sell their products directly to consumers (this is called direct distribution). Instead, they may sell their goods and services to a wholesaler (a person or company that buys products in bulk to sell on to other businesses) or to a retailer (who buys in smaller quantities to sell to consumers). This process is known as indirect distribution because the consumer does not receive the item directly from the producer.

Producer		Consumer	
Producer	Retailer	Consumer	
Producer	Wholesaler	Retailer	Consumer

▲ **Figure 9.4** Direct and indirect distribution. This diagram shows different distribution methods and the roles different people or businesses play in the distribution chain.

DEVELOPING YOUR UNDERSTANDING 9.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 In your own words, **explain** the roles of a consumer and a producer in the Australian economy.

2 **Explain** the difference between and a good and a service, providing three examples of each.

3 **Generate** a list of five different producers in your local area. Share these with your classmates.

Interpret

4 Australian businesses often combine goods and services for sale. **Determine** two examples of companies you have purchased from and explain how they do this successfully.

► **Figure 9.5** JB Hi-Fi is a popular Australian retailer.

9.2 The relationship between consumers and producers

FOCUS QUESTION

Why is there a relationship between consumers and producers?

There is a clear relationship between consumers and producers. The connection is the actual good or service (also known as the product) that is purchased. Producers exist to create goods or services for consumers to buy, and consumers buy products from producers to satisfy their needs and wants.

Without consumers, producers would have no buyers for their products and would not make a profit. Without producers, consumers would have nothing to buy. They need each other to fulfil their goals.

identifies the full range of requirements for a human being, starting from the most basic physiological needs (such as food, sleep and water), moving to a sense of belonging, all the way to self-fulfilment. These needs are chronological – meaning that humans cannot step up to the next level of the hierarchy until they meet their requirements at the current level.

When creating products, producers use Maslow's Hierarchy of Needs to understand the motivations of consumers. When producers understand consumers' motivations and meet their needs, they ensure that they are creating products that consumers are more likely to buy.

resources a source of supply used to produce goods and services that meet human needs and wants

need something essential for survival

Maslow's Hierarchy of Needs the full range of needs for a human being, starting from the most basic physiological needs all the way to self-fulfilment

▲ **Figure 9.6** The relationship between consumers and producers. Consumers and producers need each other to fulfil their goals.

We all have unlimited needs and wants, and limited resources to satisfy these. The economic term **resources** means a source of supply. What most consumers have available to them as resources are their money, time and skills.

Needs and wants

A **need** is something essential for consumers to have to survive – for example, food, clothing and shelter. However, needs go beyond these necessary items. A useful way of exploring higher-level needs is to examine **Maslow's Hierarchy of Needs**. This hierarchy

▲ **Figure 9.7** Maslow's Hierarchy of Needs. This hierarchy identifies the full range of requirements for a human being.

want something that is not necessary but desirable

relative scarcity an assumption that many of Earth's resources are limited, while consumers have unlimited wants and needs

financial planning the range of strategies that you put in place to manage your finances to achieve your objectives/goals

demand the consumer's desire to purchase goods and services and pay the price for these

supply total amount of goods or services that are available to a consumer

A **want**, however, is something that is not essential for a consumer's survival, but is something they would like to have. For example, if a physiological need is clothing, a want may be designer clothing. As human beings, we can have any number of desires. Often, as soon as one want is satisfied, another immediately replaces it – meaning that our wants are unlimited.

By understanding the difference between needs and wants, a consumer can make more effective choices with their limited resources.

Scarcity

Another critical economic fact to understand is that the Earth has finite (limited) resources.

Although we, as consumers, would love to have an unlimited supply of resources, this is not the reality. In economics, this assumption is called **relative scarcity**.

From time to time, there may be a conflict between how many products a consumer can buy once they consider the scarcity of their resources. An example of this is when you have a limited amount of money to spend at your local shopping centre but have a long list of items you would like to buy!

When a conflict occurs, consumers can prioritise purchases that satisfy their needs and use the remaining funds to buy the items they want. They can also recognise that some **financial planning** may need to be put in place to satisfy their desires. In the same way, a producer supplies the products they know there is a **demand** for in the market and ensures there is a sufficient **supply** to the market.

ACTIVITY 9.2

Needs and wants

1 Individually, **identify** three of your needs and three of your wants.

2 Share your list with a partner or a small group. **Explain** why you have classified the items on your list as a need or want.

CASE STUDY 9.1

Water shortage in Queensland

In January 2020, Stanthorpe in Queensland experienced a severe water shortage due to an extreme and ongoing drought. The population of the town relied on having water trucked in from Connolly Dam, which is 63 kilometres away from Stanthorpe. During that time, restrictions meant that residents could only use 80 litres of water per person per day.

▲ **Figure 9.8** A tanker carrying drinking water. In 2020, Stanthorpe residents relied on having their water trucked in from Connolly Dam.

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Owners of businesses that relied on water had a choice: either reduce their water usage and lower their production or purchase water, which would lead to increased costs for the business.

Some businesses that rely heavily on water (such as the food and beverage industries) face the most obvious challenges when there is a water shortage. However, as virtually all businesses need water to do anything, water shortages are an issue that no business should ignore.

▲ **Figure 9.9** The effects of an ongoing drought-induced water shortage. This photograph shows an orchardist with his ripped-out citrus trees, near Stanthorpe, in August 2019.

Analysis questions

Divide the class into six groups. Each group is to represent one of the following business owners in drought-stricken Stanthorpe:

- A winemaker
- A sheep farmer
- A plant nursery owner

- A laundromat owner
- A concreter
- The owner of a hotel with a pool.

1   In your group, **investigate** the issues the business might experience due to the water shortage.

2   **Propose** solutions to the business's water-related problems (for example, what are the choices that could be made to protect the business?).

3   **Present** your group's findings to the rest of the class. Answer questions from the other groups.

4   As a class, **reflect on** the choices that consumers might need to make about their needs and wants in this situation.

DEVELOPING YOUR UNDERSTANDING 9.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1   **Identify** the five levels of Maslow's Hierarchy of Needs, and for each level **describe** three examples.

2   **Describe** an item that is both a need and a want. Justify your reasoning.

Interpret

3   **Explain** why it is essential for producers to have an understanding of Maslow's Hierarchy of Needs.

4   Read the following sentence: 'The fact is that many of Earth's resources are limited'. **Identify** as many of Earth's scarce resources as you can.

5   **Explain** your understanding of the economic terms 'demand' and 'supply'.

9.3 Influencing the market

FOCUS QUESTION

How do consumers and producers interact and influence markets?

We have explored several economic concepts and can now recognise the role of the consumer and the producer in the Australian economy and how they are connected. These two forces work together every day, interacting and influencing the market for products in Australia. This interaction is called the market system.

market economy an economic system in which the pricing of goods and services is determined by the interactions of buyers and sellers

equilibrium price where supply and demand are balanced

The market system

The term **market economy** describes how the demand and supply of resources determine the price of a product in the market.

A close examination of the market system reveals that it is the consumers who control how much they will pay for a product. In the same way, producers control how many products to make and what price to charge for them.

The consumer continually adjusts how much they are willing to pay, and the producer changes how many products they make and what they charge for their items. These forces work against each other over a period, with consumers and producers making adjustments continuously, until an **equilibrium price** emerges – where both demand and supply are equal.

Consumers – demand
Control how much they are prepared to pay for a product

Product

Producers – supply
Control how many products are produced
What price to set the product

▲ **Figure 9.10** In a market economy, the demand and supply of a product determine the price of that product in the market.

The market system (shown in Figure 9.10) is a pure-market system and operates without any government intervention. When a government intervenes in the economy, the system is called a **mixed-market economy**. The Australian economy is a mixed-market economy

mixed-market economy when a government intervenes in the economy

as governments provide a wide range of services that a market may not offer without this intervention. For example, the Australian Government provides Australians with access to roads, health care, education and defence. Globally, there are mixed-market economies, other than Australia, each with different levels of government intervention.

▲ **Figure 9.11** Governments provide services that may not be otherwise supplied. During times of crisis, governments may need to provide financial support to individuals, households and businesses. For example, in 2020 during the COVID-19 pandemic, the Australian Government provided large sums of money to support job seekers and businesses.

▲ **Figure 9.12** During the COVID-19 pandemic, an increased number of consumers were willing to buy reusable cloth masks.

Demand and supply

Earlier in this chapter, we introduced the economic concepts of demand and supply. Demand is the consumer's desire to purchase products and pay the price for these products. The **law of demand** states that when you consider only the consumer's willingness to buy goods and services when the price of a product increases, the quantity that consumers will demand that product decreases. For example, the higher the cost of a car, the fewer people have the resources to purchase the vehicle, so the demand decreases.

However, other factors influence demand for a product other than the price. Some of these other factors include the consumer's tastes and preferences and the cost of a competitor's products. No matter the factor, the demand for a product is closely linked to the consumers in an economy – they directly control demand.

Conversely, producers control the supply of goods and services. Supply is the total amount of goods or services that are available to a consumer. The **law of supply** states that as the price of a good or service increases, the quantity of products that the producer will offer increases as well. An example of this is if your employer asks you to work for time-and-a-half instead of your average hourly rate, you will be more likely to work!

Another way to look at this is if, for example, consumers are willing to pay more for a custom skateboard, the skateboard manufacturer will be more likely to make more. The producers in our economy directly control how many products are available for a consumer to purchase. Consumers will adjust the amount they are willing to pay for products based on the amount that is available to buy.

Consumers and producers have a closely connected relationship, which influences the supply and demand in markets, and the allocation of resources.

law of demand the quantity purchased varies inversely with price

law of supply an increase in price results in an increase in quantity supplied

▲ **Video**
Five interesting facts about resource allocation

The equilibrium price

The forces of demand and supply work together over time to reach what is called an equilibrium price. Producers will adjust their prices until they settle on an amount where all their products are sold and there are no customers wanting to buy when there are no products left. The price reaches equilibrium when demand and supply are equal.

shortage higher demand than supply for a product

surplus higher supply than demand for a product

When there is a higher demand for a product, and there is not enough supply, this is called a **shortage** – just like during the panic-buying in Queensland in early 2020. Where there is a higher supply than demand for a product, this is called a **surplus.** Producers try to minimise surplus where possible, because an excess amount of products may lead to wastage. Consider food items in particular – where there is a surplus, the food goes beyond its use-by date and should be discarded.

Interesting fact

Food waste is costing most Australian households around $2200 to $3800 every year. In Brisbane, residents throw away approximately 80 000 tonnes of food waste each year.

▲ **Figure 9.13** Wasting or throwing away food is both an economic and environmental concern.

CASE STUDY 9.2

Uber's dynamic pricing

The Uber rideshare app utilises **dynamic pricing** to calculate the cost of each ride. Uber drivers can enter and exit the market whenever they wish, and as such, supply can vary significantly. Uber takes into account several factors that cause an increase in demand for trips. For example, the time of day, day of the week and environmental factors such as the location of the ride, the weather and what events are occurring in the area. During these times, the price of the trip is adjusted in real-time, to increase the fare. This higher fare encourages drivers to get on the road and accept ride requests. The dynamic pricing continues to adjust in real-time until there are enough drivers to meet demand.

dynamic pricing (also known as price surging) a pricing strategy in which flexible prices for services or products are set by businesses, based on the market demands at the time

| Demand for rides increase (special event, bad weather etc.) | → | Prices go up | → | Users either pay more or wait for the prices to go down |

▲ **Figure 9.14** This diagram shows how dynamic pricing works, using Uber as an example.

MAKING THINKING VISIBLE 9.1

Connect, extend, challenge

1 Identify how the information in the Uber case study is connected to what you already know about demand and supply.

2 Communicate new ideas you had that extended your thinking in a different direction.

3 Explain what is still challenging you on the topic of dynamic pricing. What questions do you have?

Find a partner in the class and share your thinking on these topics.

DEVELOPING YOUR UNDERSTANDING 9.3

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Interpret

1 Australia is a mixed-market economy.

   a Explain your understanding of the term 'mixed-market economy'.

   b Conduct some research to find out which other countries have mixed-market economies. List five of these countries.

   c Using your research, **explain** why governments choose to intervene in the economy.

Argue

2 Describe a scenario you have observed where there has been a shortage of supply. Investigate why this shortage occurred and how the producer responded to this shortage.

3 In your own words, **describe** the laws of demand and supply, using an example.

▼ **Figure 9.15** The United States, United Kingdom, France and Iceland are all examples of countries with a mixed-market economy.
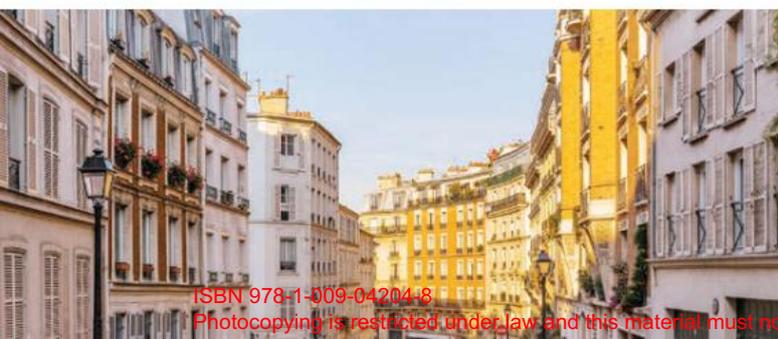
9.4　The importance of financial planning for consumers and businesses

FOCUS QUESTION

What are financial objectives for consumers and businesses?

Spending money is easy. However, using money thoughtfully to reach your life goals takes careful planning. Regardless of the stage of life you are in, financial planning will help you achieve your short-term and long-term goals.

CASE STUDY 9.3

Blooms By Ella

Blooms By Ella is a floristry business based in Brisbane that is operated by Ella Lyons. Ella realised in Year 10 that she had a passion for floristry and floral design and decided to enrol in a Certificate III in Floristry while studying for her Queensland Certificate of Education. During her studies at an external floristry school, Ella learned essential floristry techniques, including the creative skills of visual display and design. A dedicated student, she quickly mastered the technical skills needed to work in the floristry industry.

Wanting to do something with her growing talent, Ella decided to start her own small business with the help of her family. Balancing school studies with her start-up business took a lot of organisation — there were many days that orders arrived from Facebook and Instagram just as she was going to school!

In her senior year of school, Ella quickly learned the financial planning skills needed to get her business started. She also learned how to price her goods and services to determine a break-even point. Ella is passionate about making her business successful and is developing her financial skills to ensure that Blooms By Ella is going to be profitable and sustainable in the long term.

▲ **Figure 9.16** Blooms by Ella. This is a floristry business operated by Ella Lyons, who started the business while still at school.

▶ **Figure 9.17** Ella is the owner-operator of the florist, Blooms by Ella.

Analysis questions

1   **Investigate** the types of planning Ella Lyons needed to undertake when starting her business. **Explain** your understanding of the term 'planning', using an example.

2   Ella needed to calculate a break-even point so that she could complete her financial planning effectively. **Research** and then explain what a break-even point describes. **Predict** how this break-even point contributes to how Ella prices her floral arrangements.

3   Using a T-chart, **reflect on** the strengths of and challenges faced by Blooms By Ella.

4   List a range of people or services that Ella could call upon for financial planning assistance if she needed it. **Consider** those who are already known and those who are unknown to her.

Financial objectives and goals

Have you heard the phrase 'failure to plan means planning to fail'? An essential part of planning for the future for both businesses and consumers (individuals) is creating financial objectives and goals. Individuals and businesses are alike in that they both need to manage their finances and plan financially for the future. They must set a range of financial goals and objectives to manage money effectively to ensure that they meet their needs and wants.

Objectives

An **objective** is a result that a business aims to achieve within a time frame. The objectives of individuals may vary from person to person, depending on their access to money and products. Often their intentions may be to have enough money to make a future purchase or have enough money to fund their retirement.

Financial objectives for businesses generally fall into one of these five categories:

- Profitability
- Liquidity
- Solvency
- Growth
- Efficiency.

objective a result an individual or a business plans to achieve within a time frame

financial objectives a financial result an individual or a business plans to achieve within a time frame

▼ **Figure 9.18** Keeping on top of bills and accounts can be overwhelming. This is why financial literacy is so important as it enables you to keep financial records and make basic plans to keep yourself comfortably within a budget.

Profitability	Liquidity	Solvency	Growth	Efficiency
Striving to make a profit	Having enough money in the short term to meet expenses	Having a long-term focus on financial stability	Being able to fund plans for future expansion	Using resources (such as finances) without waste
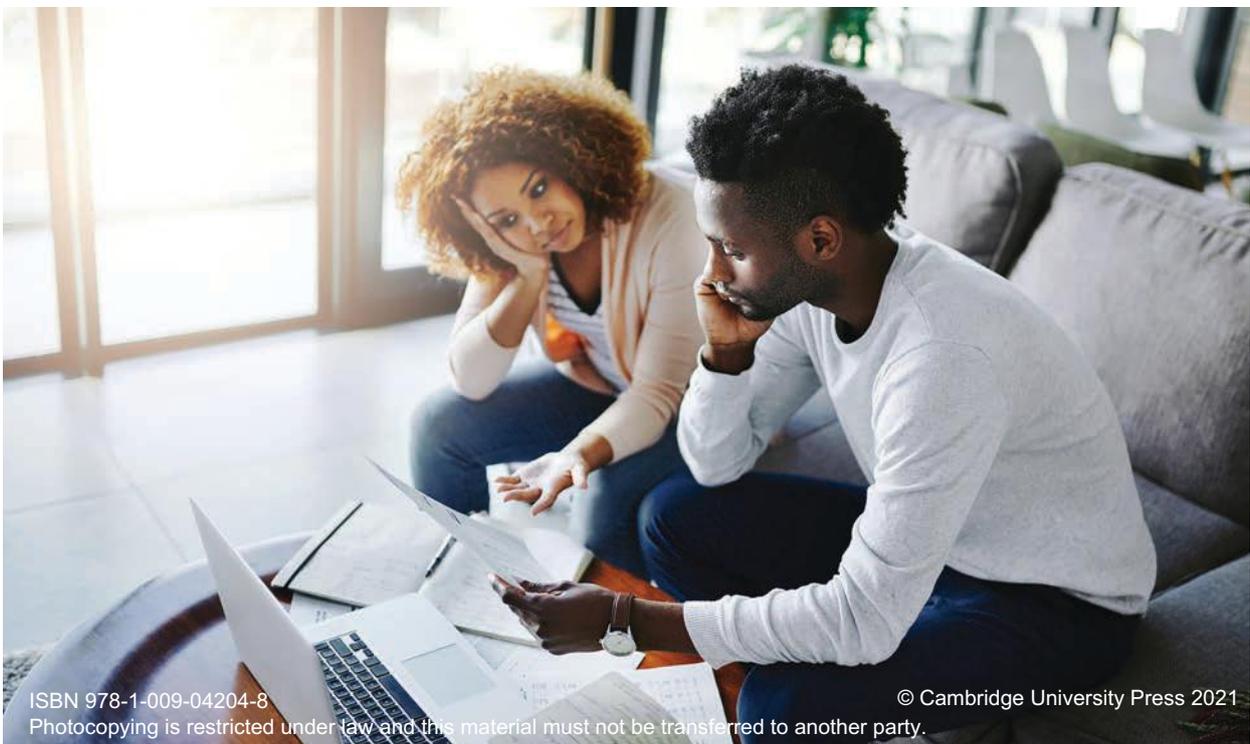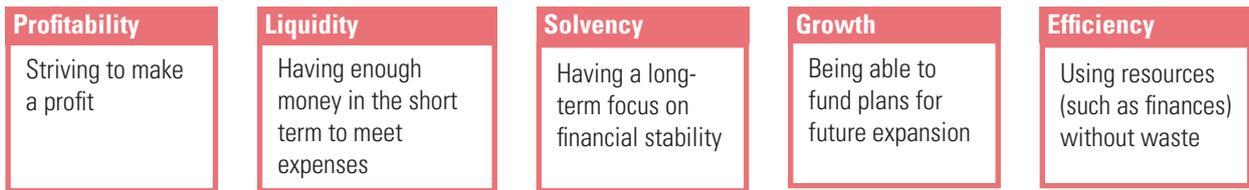
▲ **Figure 9.19** This diagram shows the financial objectives for businesses.

Goals

goal an aim or purpose

From objectives, goals emerge. A **goal** is an aim or purpose to achieve a specific result. Goals can often be broad and unfocused, so it can be helpful to create SMARTT goals. These are short statements that are specific, measurable, attainable, relevant, timely and tangible.

Specific

- What, exactly do you want to achieve?
  - Who is involved in this goal?

Measurable

- What is your crtieria for measuring your progress towards this goal?
  - How will you know if you have met your goal?

Attainable

- Is this goal able to be reached?
  - Is this a realistic goal?

Relevant

- Is this goal directly related to something you are trying to achieve?
  - How will this goal benefit you in the future?

Timely

- What is your time frame for achieving this goal?
- Is the time frame you are setting realistic and achievable?

Tangible

- What will achieving your goal look like? Feel like? Sound like?
- Goals that have a tangible end result are often more likely to be fulfilled.

▲ **Figure 9.20** SMARTT goals. These are specific, measurable, attainable, relevant, timely and tangible goals.

An example of a SMARTT goal is: 'in the next six months, I will save $900 to buy a laptop'. An example of a SMARTT goal for a business is: 'we will reduce customer complaints by 25 per cent in the next three months' or 'we will only print what is necessary and reduce our paper wastage by 90 per cent in 2022'.

Financial goals for individuals are SMARTT goals with a specific focus on saving money and reducing spending. Most people's short-term financial goals are to have enough money to spend on their needs and wants in the next week or month.

Short-term financial goals are goals that can be achieved in the next week, month or within the next six months. **Long-term financial goals** are different because they take a more extended period to complete, usually more than a year and often many years! It is essential to have a mix of short-term and long-term goals so that you can create some quick wins for yourself and celebrate your effective financial planning.

Both individuals and businesses must identify their objectives and create SMARTT goals when completing their financial planning. When combined, objectives and SMARTT goals create a clear plan. Once a person or business has a clear purpose, they can then start to plan, begin to save and create opportunities to save money for when they do decide to make a purchase.

financial goals SMARTT goals to assist in saving money and reducing spending

short-term financial goals can be achieved in less than one year

long-term financial goals generally achieved over a long period

▲ **Figure 9.21** Saving for a big purchase is a very rewarding experience.

ACTIVITY 9.3

Short-term and long-term financial goals

1 **Identify** two of your short-term financial objectives, and two of your long-term financial goals.
2 **Develop** a paragraph to **compare** short-term and long-term financial goals (you can use a Venn diagram to help you).

DEVELOPING YOUR UNDERSTANDING 9.4

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** your understanding of financial objectives.
2 **Explain** how objectives and goals assist in financial planning.
3 **Select** a local business (or your school canteen) and **propose** a financial objective for the business. Then, **generate** two SMARTT goals that will help the business achieve this objective.

Interpret

4 As a class or in small groups, brainstorm a future purchase that you would like to make for your classroom. Then answer the following questions individually.

   a **Create** a list of all the costs associated with this purchase and all the benefits that this purchase would give. **Decide** whether to go ahead with this purchase.
   b **Develop** a paragraph to justify your reasoning to send to the principal of your school.

9.5 Managing finances and financial planning

FOCUS QUESTIONS

- How do consumers and businesses manage their finances?
- Why is financial planning for the future important?

Managing finances

As you now know, individuals and businesses have a broad range of financial objectives and SMARTT goals. What is common to both individuals and businesses are the strategies each uses to manage their finances to meet these goals. They are very similar no matter what the environment.

The strategies individuals and businesses use to manage finances and meet financial goals are:

- Increase savings
- Find opportunities to reduce spending
- Create budgets
- Check statements.
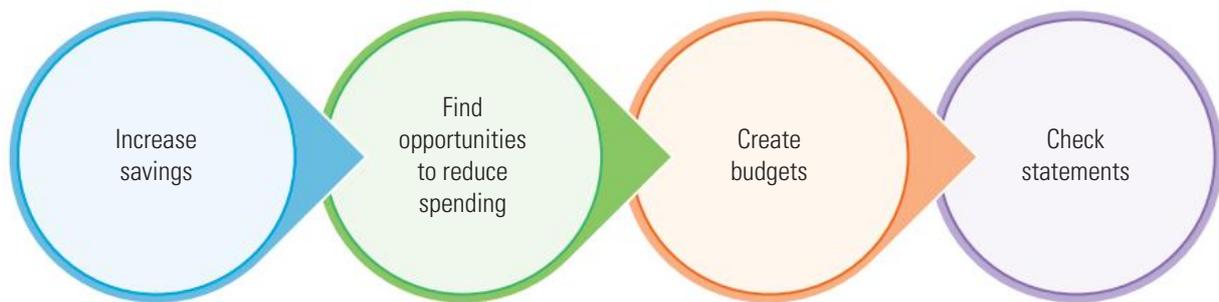
▲ **Figure 9.22** Strategies to manage finances and meet goals. These strategies are used by individuals and businesses to meet their financial objectives and SMARTT goals.

Increase savings

All financial goals require money! Unless you receive one huge lump sum, it is highly likely that you will need to save for a financial goal over a period of time. **Savings** are what is left over after you subtract your expenses from your income. It is the same for businesses – most financial goals (for example, buying new equipment or expanding the company) need to be saved for by setting aside small amounts at a set time each week, fortnight or month.

savings the remainder of your income once expenses have been subtracted

Money that you are setting aside or saving explicitly for a future goal is usually placed in a designated savings account so that it is separate from your regular transaction account. Most banks offer a higher interest rate for these savings accounts to encourage you to increase your savings and make larger deposits. You can set up a bank account that does not allow you to withdraw savings easily – it might take a day or two to get access to your savings, which gives you time to re-evaluate if a purchase is a need or a want.

Some apps round up each purchase that you make to the nearest dollar and deposit this money into a separate savings account for you or invest it on your behalf. Using a rounding app can also be an effective way of saving small amounts of money in the short term, leading to long-term savings.

▲ **Figure 9.23** Start saving! It is wise to start saving money for your goals from as young an age as possible.

Find opportunities to reduce spending

An easy way to keep focused on finances for both individuals and businesses is to identify opportunities to reduce spending.

Only purchase necessary items

One way to reduce spending is to not purchase unnecessary items. Often when presented with the opportunity to buy something, you will make a purchase without stopping to think if the item is needed. When this happens, you might purchase something before checking what you already have available – this leads to double-ups or having items that remain unused or unopened. If you are buying only the necessary items, you will naturally save money.

Borrow, rent or buy second-hand

Another way to reduce spending is to evaluate if you actually need to own the item, or if you could borrow or rent the item for a short period instead. By doing this, you are making use of the **circular economy**. The circular economy aims to reduce waste and share resources between consumers. As you have explored previously, the Earth has finite resources. By borrowing, renting or even purchasing a second-hand item, you are not only reducing the use of resources, but you are also saving money as often renting, borrowing or buying a second-hand item are cheaper options than buying a new item. For example, for businesses, renting a piece of

equipment instead of purchasing a new one can reduce spending.

Shop around

Once a decision is made to buy an item, and you have determined that the purchase is necessary and that a brand-new item is essential, a straightforward way to reduce spending is to compare prices between sellers. Often, products retail in more than one location, so both consumers and businesses should complete some research and purchase the item for the lowest price.

Create budgets

Another common way to manage finances is to create a budget. A **budget** is a tool that helps you plan by recording your income and your expected expenses over a period. Although budgets are usually presented in a spreadsheet or in accounting software, some individuals write their budgets on a piece of paper at home. Most businesses also use budgeting to help with financial planning – although their income and expenses will often be on a much larger scale than those of an individual. Despite this, the process is the same.

circular economy an economic system aimed at eliminating waste and the continual use of resources

budget a financial plan listing expected expenses and income during a particular period

A budget allows you to see in one place all your expected spending, and also reveal if you will have any money left over after meeting your expenses for your wants. Anything remaining is then savings.

MAKING THINKING VISIBLE 9.2

Compass points

Lachlan receives a monthly allowance from his parents and is trying to save enough money to buy a surfboard. However, each time he receives money, Lachlan puts it in his wallet and, by the end of the month, ends up having spent everything. Unhappy with his lack of self-control, Lachlan seeks advice from his father, whose reply is the following:

'The best way to avoid spending money is by hiding it. Out of sight, out of mind. From now on, each month, I'll put half of your allowance into a piggy bank and hide it from you, this will make it easier for you to save for your goal.'

Reflect on Lachlan's story and the proposition that 'having an everyday transaction account and a separate savings account makes it easier to not spend the money you've been meaning to save'.

On your own or with the person next to you, answer the following questions:

1 E = excited

What excites you about this proposition? What's the upside?

2 W = worrisome

What do you find worrisome about this proposition?

3 N = need to know

What else do you need to know or find out about this proposition? What additional information would help you to evaluate things?

4 S = stance or suggestion for moving forward

What is your current stance or opinion on the proposition?

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statement a record of the amounts of money paid into and taken out of a bank account during a particular period of time

A budget is created for a set period, and during the period it has been designed for, you would track your actual spending and compare it to what you predicted each expense to cost.

Budgeting is a valuable financial planning tool as it focuses both on the future, but also the present, giving you a clear understanding of whether you are on track to fulfil your goals and meet your expenses.

An example of a simple budget is provided in Table 9.1.

Check statements

Checking your bank statements and receipts carefully is good practice when setting financial goals. Most people find this a monotonous task – but being aware of your income and expenditure gives you greater power over your finances. A **statement** is a printed record of the balance of a bank account. It is itemised to show each transaction paid into and out of the account.

Banks periodically send out statements for bank accounts. Many Australians are paid their wages or salaries electronically and will tap-and-go to pay for purchases. So, money is now often a virtual concept with fewer people paying for their purchases with cash. In fact, since 2016, card payments have overtaken cash payments in Australia. Because of this, tracking trends in spending patterns is difficult. By checking your bank statements, you can see if you are spending money in one place more often than you realised.

TABLE 9.1 An example of a simple budget

	January	February	March
Income			
Pay from casual job	$550	$300	$300
Expenses			
Phone bill	$50	$50	$50
Entertainment	$100	$100	$100
Clothing	$50	$50	$50
Income less expenses (savings)	$350	$100	$100
Balance of savings account	$350	$450	$550

There are many apps that can analyse your purchases and group them into categories of spending to help you.

By checking your receipts, you can also check that you are being charged the correct amount for your purchases. Many banks offer apps that itemise your spending into categories (for example, groceries, pharmacy, etc.) based on where you are using your bank cards. Seeing your expenses itemised is often an effective way of tracking your spending.

MAKING THINKING VISIBLE 9.3

Think, pair, share

Visit the Moneysmart website (https://cambridge.edu.au/redirect/9486) and **explore** the different types of personal savings accounts. Note the features and benefits of each type of account.

Think about which savings account would be the most suitable for you. Take a few minutes to **identify** the features that are the most important to you. Find a partner to talk about your choices. Do you favour similar features?

Interesting fact

Australia is the largest user of contactless payments in the world. As of March 2020, Australians were making 800 million tap-and-go transactions per month!

Financial planning

Financial planning is the range of strategies that you put in place to manage your finances to achieve your objectives and goals. In this chapter, we have explored what is meant by financial objectives and goals. We have investigated how these are created, including examples for both individuals and businesses. We have also reviewed a range of strategies, from increasing your savings to creating a detailed budget.

▲ **Figure 9.24** Using tap-and-go to make payments is as common around the world as it is in Australia.

Financial planning is essential to the success of you achieving your goals. Once you have a plan in place, you are more likely to achieve your goals. Further than this, financial planning allows individuals and businesses the opportunity to:

- **Make purchases more mindfully** – keeping needs and wants at the core of each decision ensures financial stability in the future
- **Lower financial risk** – financial planning ensures you are not overextending yourself because you are aware of your spending, have a budget and check your bank statements. Financial planning helps you to not make purchases you cannot afford

and reduces the risk of you going into debt; unpaid debts may lead to future issues if you need to apply for a loan
- **Be prepared for the future** – financial planning is always future-focused; if you have clear plans in place, you will be prepared for anything that comes up in the future and will also have contingencies in place for emergencies.

Allows you to make purchases more mindfully

Lowers your financial risk

Makes you prepared for the future

▲ **Figure 9.25** Financial planning is essential to you achieving your goals.

MAKING THINKING VISIBLE 9.4

Think, pair, share

Think about your financial goals for the next three years. Take a few minutes to **identify** three SMARTT goals that are important to you. Discuss your choices with a partner. Do you have similar goals?

DEVELOPING YOUR UNDERSTANDING 9.5

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** why it is good practice to have a savings account that is separate from your transaction account.
2 **Identify** the benefits of financial planning.
3 **Explain** the benefits of regularly checking your bank statements.
4 **Create** a list of the strategies, presented in this section, that businesses use to manage their finances.

Interpret

5 **Select** one of these strategies and **explain** three of its benefits.

Argue

6 Using an example, **explain** the benefits of making use of the circular economy instead of making a new purchase.

End-of-chapter assessment 9

1 Short-answer questions

1. **Explain** the roles of the consumer and the producer in the Australian economy.
2. **Explain**, giving two examples, why most Australians are consumers.
3. **Compare** goods and services.
4. **Describe** a producer in your local area. Clearly explain what is produced.
5. **Explain** the relationship between a producer and a consumer.
6. **Compare** needs and wants.
7. **Order** the steps of Maslow's Hierarchy of Needs.
8. **Describe** a situation where relative scarcity may cause conflict for a consumer.
9. **Recall** the market system. Describe how this works in Australia.
10. **Define** the law of supply and provide an example of the law of supply in action.
11. **Explain** to a high school student why financial planning is essential for their future.
12. **Compare** financial objectives and goals.
13. **Explain** the financial goals (or a business) of solvency and growth.
14. **Describe** SMARTT goals and give one example.
15. **Provide** an account of two ways that businesses manage their finances.

2 Extended-response questions

1. Using your school canteen, observe and record items that have the highest and lowest sales. **Produce** a short survey to **analyse** how changing the price of an item may affect its supply and demand. Then, create a brief presentation to your class **explaining** how market forces affect one product in the canteen. **Propose** two recommendations to the canteen based on your analysis.
2. A friend has come to you and stated that they do not have time for financial planning. Using what you have learned in this chapter, write an email to your friend **explaining** why financial planning is essential. **Propose** at least two strategies to your friend to help them start their financial plan.
3. Go to the Moneysmart website (https://cambridge.edu.au/redirect/9487) and **create** a budget for yourself for the next year. Ensure that you **identify** long-term and short-term SMARTT goals.

3 Classroom activity

As a class, watch the documentary *2040* (this documentary can be found online).

> The *2040* journey began with award-winning director Damon Gameau (*That Sugar Film*). Motivated by concerns about the planet his four-year-old daughter would inherit, Damon embarked on a global journey to meet innovators leading the way to a better future. In *2040*, Damon speaks to change-makers in the areas of economics, technology, civil society, agriculture, education and sustainability.

▲ **Source:** https://cambridge.edu.au/redirect/9488

Create a mind map of the concepts that this documentary covers. As you watch, relate facts you have learned in this chapter to the ideas explored in the documentary.

After you have finished, reflect on your experience. In groups, create a PMI (positive, minus, interesting) and share these with your classmates.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

CHAPTER 10

Workplace evolution

Setting the scene: entering a new world of working remotely

When your great-grandparents started working, it is likely that 'going to work' was both a thing that they did and also a place where they went. Work was something completed somewhere other than at home. For example, in an office or at a shop or in a factory.

However, work occurring outside the house wasn't always the case. In fact, some of the most impoverished workers were those who had the 'luxury' of working from home. Figure 10.1 shows some of these workers, women and children, doing needlework at home in their tenement apartment.

Today, the idea of working from home is seen as a luxury. Workers can avoid the traffic or time of the commute and can dress comfortably. One large insurance company has even incorporated their telecommuting employees into their television ads.

In the future, will the benefits of leaving home to work outweigh the negatives? In 100 years, will employees talk about the luxury of 'going to' work?

▲ **Figure 10.1** Women and children doing needlework at home in their tenement apartment

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MAKING THINKING VISIBLE 10.1

Think, pair, share

1. List some of the positives of working from home.
2. List some of the negatives of working from home.
3. Would you prefer to work from home or work in an office or other designated workplace? **Justify** your answer.
4. If you were an employer, where would you prefer your workers to be working? **Justify** your answer. Talk about your choice with a partner. Do you have the same opinion?

Chapter overview

Introduction

Generating an income is crucial if a consumer wants to satisfy any of their needs, let alone their wants. Income is derived from a variety of sources, and consumers' motivation to work is varied and dependent on several factors.

One of the ways that consumers can produce income is by coming up with new ideas and becoming producers themselves. All innovative products are the result of entrepreneurial vision and a lot of hard work. By looking at successful entrepreneurs and the skills they have in common, you can identify skills in yourself that you might like to work on. Maybe you will come up with an idea that might be the next big thing.

Learning goals

After completing this chapter, you should be able to answer the following questions:

- What is work, and why do people enter the workforce?
- How is work changing?
- What is income, and where does it come from?
- What are some key characteristics of entrepreneurs?
- What is entrepreneurial behaviour?

▲ **Figure 10.2** An entrepreneurial spirit can only benefit you as you move into the workforce.

10.1 Entering the world of work

FOCUS QUESTIONS

- What types of work exist? What is work, and why do people enter the workforce?
- How is work changing?
- What is income, and where does it come from?

casual work no guaranteed hours of work and no entitlement to sick leave or holiday leave

entitlements other forms of benefits that go along with income – these benefits might include leave (such as sick leave, holiday leave or study leave)

career a job or series of jobs, generally with increasing responsibilities and pay

full-time a job that has a maximum number of hours (usually around 40 hours per week) – employees who work more than this may be entitled to overtime (extra pay at a higher rate) or accrue time off

salary a yearly figure that an employee earns; salaries are generally divided and paid weekly, fortnightly or monthly

part-time working less than the full-time hours of 40 hours per week

Almost everyone you meet has had a job at some point in their life. On a fundamental level, people work to earn money so that they can survive, but many people also seek employment because they enjoy the work they do and take pride from a job well done. We can even think about how working and earning an income fulfil different levels of Maslow's Hierarchy of Needs (described in Chapter 9). For example, on a fundamental level, working provides money, which helps to meet physical needs. Still, if someone loves their job, then it might also help to fulfil their higher needs as well, all the way up to self-actualisation.

Stages of the working life

Most people start their working lives in their teenage years. Usually, during this time, people work 'casually' around their school or university hours. **Casual work** might be after school or on the weekend. This type of work refers to a system of pay where the worker is paid only for the hours they work. They do not receive **entitlements** like holiday leave or sick leave, and therefore they are paid more per hour to compensate for this.

Once people leave school or perhaps graduate from university, they may look at pursuing a career. A **career** is typically a series of jobs that build upon each other. A job may be **full-time** with a **salary** attached to it. Full-time work refers to the number of hours per week that a person may work; usually, around 40 hours per week is the maximum. If an employee works more than this, they may be entitled to overtime. When someone is employed full-time, they usually receive a salary. This is a large figure for one year of work, which is divided by 52, 26 or 12, and then paid to the worker in weekly, fortnightly or monthly instalments. Full-time workers also receive leave, which means they can take holidays (usually four weeks per year) or have paid time off when they are sick (usually 10 days per year).

During their career, people might elect to change how much they work, perhaps to enable them to return to university to retrain, or to care for children or grandchildren. This may mean that a worker moves from full-time work to **part-time** work. 'Part-time' means that a worker is employed for a percentage of what would usually be a full-time roster. They also receive the same percentage of sick leave and holiday leave. For example, a retail worker who works four days a week is working 0.8 of a full-time job; therefore, they are paid 80 per cent of the salary of a full-time worker and receive 3.2 weeks of holiday leave and eight days of sick leave.

At the end of their working life, many Australians hope to retire. In some occupations, people must retire at a certain age, but many people can continue working as long as they are happy and able to.

During the different phases of their working life, people obtain their income from different sources. The most common forms of income are outlined in Table 10.1.

TABLE 10.1 Most common forms of income

Type of income	Explanation
Wage	A wage is a weekly or fortnightly payment that a worker receives for the work they have done in the preceding week or fortnight. For casual workers, their wage could be different each week.
Salary	A salary is a yearly figure that is paid to the worker in even weekly or fortnightly instalments (these weekly amounts can be called a wage).
Government entitlements	Some people are unable to work or have difficulty finding work. They may receive money from the government to help support them. These entitlements have names like Austudy, JobKeeper, JobSeeker, the pension, etc.
Return on investments	Many Australians have shares in companies or have money saved in banks or have invested by buying a property that they rent out. All of these things might generate income.
Royalties	Some creative people (such as authors and musicians) are paid for work they have published via royalties when people buy their work or use it.
Superannuation	In Australia, a portion of every employee's income is deposited into a separate savings account. This money is to help support them when they retire and is called superannuation. The government mandates that all Australians must have a superannuation account, and employers must contribute a specified percentage of an employee's salary to this account.
Commission	In some jobs, workers earn money based on the sales they make. Sales-based pay might mean payment at a lower hourly rate, but in return, a more considerable amount if higher sales are generated.

Volunteer work

Some people choose to work despite not earning any income in return. These people are called volunteers. Some of these people do this work on top of their main income-providing job, while others volunteer full-time. In many cases, the work of volunteers greatly benefits the community. For example, the work of the volunteers in the Rural Fire Service, the Australian Volunteer Coast Guard, the State Emergency Service and lifeguards.

Interesting fact

▲ **Figure 10.3** Volunteer firefighters in rural Queensland in 2019. Volunteer firefighters receive no payment for their work.

According to the ABS Census, in 2016, 18.8 per cent of Queensland's population was doing volunteer work.

◄ **Figure 10.4** A volunteer takes care of a young fruitbat. This volunteer works for the organisation, Bat Conservation and Rescue Queensland Inc.

MAKING THINKING VISIBLE 10.2

Compass points

Reflect on the proposition that 'in our society, an individual's prestige is often linked to the type of work they do'. On your own or with the person next to you, answer the following questions.

1 **E = excited**

   What excites you about this proposition? What's the upside?

2 **W = worrisome**

   What do you find worrisome about this proposition?

3 **N = need to know**

   What else do you need to know or need to find out about this proposition? What additional information would help you to evaluate things?

4 **S = stance or suggestion for moving forward**

   What is your current stance or opinion on the proposition?

ACTIVITY 10.1

Classroom activity

Divide the class into three groups. Allocate the three questions below to the three groups; that is, one question per group.

1 What are your three main reasons for working?
2 How has your work changed due to the COVID-19 pandemic?
3 Where does your income come from?

Each group is to **conduct** a small survey of friends and family members, recording their answers to the group's question.

Next, the groups are to present the results of their surveys to the class. As a class, **reflect on** the results of the three surveys.

ACTIVITY 10.2

How do you earn your money?

Examine Figure 10.5. Match each person to the appropriate description of how they earn their money.

Real estate agent

Author

Coffee shop owner

Construction worker

The amount of money I make is based on the number of my books that are sold. Every six months, my publisher sends me a cheque with my share of the sales.

I work for a large company that pays me a set amount each week for the 40 hours that I work.

I get paid a portion of the amount of each house sale.

Each quarter, I pay myself based on the earnings of my business.

▲ **Figure 10.5** There are many different ways of earning money.

Some people combine different forms of income. This is a way to increase their savings, or to supplement their earnings. Here are some examples:

I'm a retail worker. I work 25 hours per week at a local fashion store. I'm also an artist and have my paintings displayed at a local gallery. When a painting sells, I get paid a percentage of the sale price.

I'm a uni student. I get money from the government but I supplement it by working two shifts a week at a café, which pays me a casual wage.

I retired last year. Every fortnight, I receive rental income from properties that I own and income from my superannuation. I do not qualify for the government's age pension.

▲ **Figure 10.6** These are examples of combining incomes from different sources.

DEVELOPING YOUR UNDERSTANDING 10.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 Identify three reasons people work.

2 Explain the differences between part-time work and casual work.

Interpret

3 Research and list three examples of volunteer work a teenager could do in your local area (you might look into sporting organisations, non-profit organisations, nature groups, etc.).

4 Reflect on whether what a person earns is more important than the work they do. **Develop** a paragraph to share your thoughts.

10.2 Being entrepreneurial

FOCUS QUESTIONS

- What are some key characteristics of entrepreneurs?
- What is entrepreneurial behaviour?

Entrepreneurs

All businesses need to watch the world around them, their competitors and their customers and make sure that they are ready to offer something new and different. Some people in the world are very good at riding this wave and staying ahead of what is going to be the next big thing. These people are **entrepreneurs**. An entrepreneur is someone who founds a business and takes on all of the risk associated with that business.

Entrepreneurs are involved with their businesses from the beginning, and they put considerable time and resources into ensuring that the business succeeds. Some essential qualities that many entrepreneurs share include:

- Curiosity and audacity
- Efficiency and good time-management skills
- Excellent communication skills
- Perseverance and resilience
- Focus and lateral thinking.

entrepreneur a person, commonly seen as an innovator, who creates a new business, taking on the risks and enjoying most of the benefits of that business

We can look around us and see many people we might consider to be successful entrepreneurs – people who began with very little and built massive business empires. However, you don't have to be the next Bill Gates or J. K. Rowling to be a successful entrepreneur.

Interesting fact

There are more than 445 000 small businesses (with less than 20 employees) in Queensland and more than 2 065 523 in the whole country. Small businesses represent 97 per cent of businesses in Australia.

CASE STUDY 10.1

Starting your own business

Ally McErlean became a hairdresser because she was always interested in doing people's hair. This career fitted in well with having children and moving to different parts of Queensland with her husband, who was a police officer. Eventually, they settled in Brisbane, and for a while, she worked for a large salon.

▲ **Figure 10.7** Ally McErlean. Ally has opened her own salon.

In 2014, Ally resigned to take some time for herself, but soon, her clients were calling her wanting to know where they could come and get their hair done, so she decided to open a salon. Starting in a small shop in Ferny Hills, the business grew in leaps and bounds. The salon moved from its original store to a bigger tenancy, and has taken over the store beside it.

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When asked why she decided to open her business, Ally says, 'I was sick of making money for everyone else, I wanted to do that for myself. I was also looking for more flexibility. To be able to take holidays when I wanted, not when I was allowed. Having my salon also meant that I could experiment with my ideas and implement them.' The business must be doing the right things because clients continue to flock to it. Also, in 2019, Ally's business won the 'best hairdresser in Brisbane' competition run by *The Courier-Mail*.

Ally credits the success of the business with the great organisational culture that she has built as well as the business being in a good location. Beyond this, she says, 'Be prepared to work hard, especially in the beginning. We don't open on Sundays, but I still come down to the salon on Sundays to finish up paperwork, or clean or check stock levels. This is part of being in charge.' The other important part of being able to take advantage of entrepreneurial ideas is having the right finance and getting financial advice. 'If we hadn't got advice and I hadn't managed the money well, we wouldn't have been able to take advantage of the two expansion opportunities.'

Analysis questions

1 **Identify** the advantages that Ally mentioned about running her own business. Why do you think these might not be available if you work for someone else?
2 **Propose** what the negatives might be about running your own business.
3 Ally identifies financial advice as being important. Brainstorm other types of advice that might also be important. **Discuss** your ideas with a partner.

ACTIVITY 10.3

Entrepreneurs

1 **Research** online some of the characteristics of the world's most successful entrepreneurs.
2 **Reflect on** the characteristics you might already share with successful entrepreneurs or might want to develop.

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for profit a business that operates to make a profit (money) for the owners or shareholders of the business

not-for-profit a business that returns profit back to the organisation to continue its work; not-for-profit businesses may derive their income from grants or donations

social enterprise an organisation that is driven by a public or community cause; social enterprises measure their success on the positive impact they make on society (and not on how much money they make)

Not all entrepreneurs start with the goal of making a lot of money; in fact, some people with entrepreneurial talent work inside businesses. These people use their entrepreneurial skills as 'intrapreneurs'. This means that they help the organisation they work for to achieve its goals in different and innovative ways.

Some entrepreneurs set out to solve problems in society. Not all companies operate **for profit**. Some businesses operate as **not-for-profit**; others operate as **social enterprises** with specific social objectives as their primary purpose. The profits of not-for-profit businesses and social enterprises are reinvested back into the business. An entrepreneur, in this case, might look at how they can use the money being made in the business to solve a problem in society.

CASE STUDY 10.2

Nice Coffee Co.

In 2019, while still a university student on the Gold Coast, Jim Chapman decided to start Nice Coffee Co.

Jim had worked in Kenya with his parents and had witnessed the living conditions of children in Kibera, Africa's largest slum. He had spent time at Kibera's St John's School and saw how hard it was for the students to learn. The classrooms were dark and leaked and many of the children had empty stomachs. Jim wanted to do something to help, but simply asking people for money didn't seem sustainable.

▲ **Figure 10.8** Nice Coffee is a social enterprise that was started by Jim Chapman.

Then, after returning to Australia, during his business lectures at university, he decided he would start a social enterprise: a business that would help the St John's School from the earnings that it created. Jim says, 'I'm a big believer that business can play a huge role in solving some of our greatest challenges that we face as a society. Combining business with "doing good" allows everyday people to make a difference by making small changes to their habits (such as where they buy their coffee).'

When asked about his best advice for someone starting a new business, Jim says, 'My best advice is to "just do it!" There are too many great ideas out there that are never developed because people are afraid of failing. Your first business is never going to be perfect but use it as a platform to learn and grow as an individual. In terms of launching your idea, my advice is to build an elementary version (without spending too much money), then test it with friends and family to get critical feedback before launching.'

▲ **Figure 10.9** Children at the St John's School in Kibera. Kibera is Africa's largest slum.

Analysis questions

1 **Explain** the difference between a not-for-profit business and a social enterprise.

2 Jim cites the Thankyou social enterprise as one of his inspirations in starting his business. **Research** what Thankyou makes and what inspired its founders.

3 Take a few minutes to think about whether a social enterprise is different from a profit-based business that donates money to good causes. **Discuss** your opinion with a partner.

Successful entrepreneurs are generally very good at finding needs and niches, and with thinking outside the box. For example, if you learned that 52.8 per cent of the Australian population aged 15 years and over consumed alcohol in any given week in 2017–18, you might wonder how to tackle this issue of alcohol consumption. If you are an entrepreneurial type of person, you might even create a business to address this issue.

CASE STUDY 10.3

Sobah, a place of sobriety

Clinton Schultz is a registered psychologist and a member of Indigenous Allied Health Australia. In 2017, he founded a social enterprise (Sobah) to raise awareness of the problems of alcohol use in Australian society. Sobah is Australia's first non-alcoholic craft beer company.

In 2014, while working in the areas of suicide prevention and drug and alcohol rehabilitation, Clinton decided to stop drinking and was confronted with the stigma of socialising sober.

In addition, he quickly noticed that the non-alcoholic beers available in Australia were mostly imports from Germany and Belgium and that they were quite bland. Seeing a gap in the market, he endeavoured to provide an alternative and began experimenting with different recipes that used native Australian ingredients such as finger lime, pepperberry and lemon aspen. By the end of 2017, Clinton and his wife, Lozen, commercially launched Sobah.

▲ **Figure 10.10** Clinton and Lozen Schultz. Clinton and Lozen are the founders and owners of Sobah.

▶ **Figure 10.11** Sobah's products. These current brews feature Jason Passfield's art on the cans.

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Analysis questions

1 **Explain** the primary social objective of Sobah.
2 **Research** and list three social initiatives that Sobah is promoting.

MAKING THINKING VISIBLE 10.3

Compass points

Reflect on the proposition that 'the COVID-19 pandemic has impacted a huge number of businesses, especially small businesses, and has made more apparent than ever the importance of supporting local, independent businesses'.

On your own or with the person next to you, answer the following questions.

1 **E = excited**

   What excites you about this proposition? What's the upside?

2 **W = worrisome**

   What do you find worrisome about this proposition?

3 **N = need to know**

   What else do you need to know or to find out about this proposition? What additional information would help you to evaluate things?

4 **S = stance or suggestion for moving forward**

   What is your current stance or opinion on the proposition?

ACTIVITY 10.4

Employment in Australia

TABLE 10.2 The percentage of employees in small businesses in Australia and in all sizes of businesses in Australia and in Queensland, by industry division, for the period 2016–17 (data source: ABS Census 2016)

	Small businesses in Australia	All businesses in Australia	All businesses in Queensland
Agriculture, forestry and fishing	7.91%	4.46%	5.23%
Mining	0.29%	1.44%	1.85%
Manufacturing	5.39%	7.63%	7.56%
Electricity, gas, water and waste services	0.27%	0.96%	1.09%
Construction	15.90%	9.80%	10.46%

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	Small businesses in Australia	All businesses in Australia	All businesses in Queensland
Wholesale trade	3.88%	5.03%	3.99%
Retail trade	9.08%	11.95%	11.74%
Accommodation and food services	9.71%	9.26%	9.51%
Transport, postal and warehousing	5.35%	5.39%	5.51%
Information media and telecommunications	0.84%	1.57%	0.90%
Rental, hiring and real estate services	6.48%	3.73%	3.85%
Professional, scientific and technical services	11.33%	9.47%	8.13%
Administrative and support services	5.54%	8.10%	7.70%
Public administration and safety (private)	0.38%	0.72%	0.71%
Education and training (private)	1.95%	3.84%	3.90%
Health care and social assistance (private)	7.09%	10.34%	10.98%
Arts and recreation services	1.68%	1.89%	1.85%
Other services	6.92%	4.45%	5.04%
Total selected industries	**100.00%**	**100.00%**	**100.00%**

1 **Identify** the three industry divisions in which the highest percentage of people is employed in:

   a Small businesses in Australia

   b All businesses in Australia

   c All businesses in Queensland.

2 **Compare** and contrast these figures.

DEVELOPING YOUR UNDERSTANDING 10.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Identify** three successful entrepreneurs.

2 **Research** one entrepreneur. **Identify** and list five interesting facts about the business they founded.

3 **Identify** four essential skills that have helped to make this entrepreneur successful.

Interpret

4 **Research** the entrepreneur, Perina Drummond. **Identify** two social issues she is aiming to address with the business she has founded.

End-of-chapter assessment 10

1 Short-answer questions

1 **Explain** three key reasons that people have for entering the workforce.
2 **Explain** two types of ways that workers earn an income.
3 **Describe** factors that might lead to a worker deciding to start their own business.
4 **Create** a cost–benefit chart that explains some of the benefits and problems of owning your own business.
5 **Recall** the skills that entrepreneurs have and explain two of these that you think are particularly important.
6 **Explain** why combining different types of income might be a good idea for a worker.
7 **Propose** what harm might come from having multiple jobs at the same time.
8 **Describe** the difference between an entrepreneur and an intrapreneur.
9 **Identify** a problem in your school and create an 'intrapreneurial' solution for it.
10 **Create** a plus–minus chart that outlines the pluses and minuses of working from home.

2 Extended-response questions

1 **Identify** a problem in the world that you feel passionate about. **Create** a pitch to present to your class. **Explain** what the problem is and **identify** a social enterprise that you could create that would help to address this problem.
2 Find out more about an entrepreneur of your choice. Look at the skills that were important in helping them to be successful. **Create** a PowerPoint presentation that explains who they are, what their business is about, what skills they have, and what lessons you have learned from them.
3 Visit the Job Outlook website (https://cambridge.edu.au/redirect/9489) and take the career quiz. Once you have found out what jobs you might be suited to, **create** an A4 page that explains:
   a What the job is that you are most interested in
   b What qualifications you need to work in this job
   c How much it pays
   d Why you think it sounds like an exciting field.

3 Classroom activity

As you, as a class, have researched different careers, present these at a virtual jobs fair in your class. At the end of the presentation, **reflect on** three other exciting jobs, writing down your responses.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Part 4

Civics and Citizenship

What is Civics and Citizenship?

Australia is a democracy built on centuries of understanding of how to organise and manage citizens and their interactions. In our modern society, our government and courts develop rules and laws to help citizens understand how they should act, and what they should not do. Laws, rules and regulations help to keep citizens safe and provide order, so that when someone breeches the law, there are consequences.

Civics and Citizenship examines how the Australian Constitution sets up the framework through which our government operates and via which laws are enacted. It also provides a way for citizens to participate in our democracy.

One important element of a civilised society is the use of the courts to hold individuals accountable when they act in ways that are contrary to the expectations of society. Fundamental to the operation of our court system is the idea that all people are equal in the eyes of the law.

While Australia is considered to be a predominantly secular society, Australians have always had significant links to spirituality. These links include the beliefs of Aboriginal and Torres Strait Islander Peoples about how the land of Australia was formed, the religious beliefs the British settlers brought with them, and the diverse multifaith beliefs of more recent arrivals.

Government and democracy

Overview

When the First Fleet arrived in Australia in 1788, the people aboard brought with them ideas about how society should be organised and managed – these ideas were drawn from their British heritage. As the individual colonies were established (these are now Australia's states and territories), they set up their own system of government, and established courts to adjudicate breeches of the rules – just like in Britain. Eventually, it was recognised that the colonies acting separately and seeking guidance from Britain was not an efficient or effective way of governing, and so the leaders of the colonies sought approval to federate.

Once the British Government approved the federation of Australia's separate colonies, the writing of the Australian Constitution began. The final version of the Constitution came into effect on 1 January 1901, but it is not a static document. Changes have been made in the intervening time to recognise society's changing beliefs.

In the same way, the laws created by our parliaments (both state and federal) are not static. They have changed to reflect our changing ideas of what is right, acceptable and important.

Some of these ideas come from our religious beliefs or spiritual convictions. While many parts of Australian life can be considered to be **secular** (that is, not connected with spiritual matters) there are many areas that are still linked to the religious beliefs that were an important part of life for previous generations.

Learning goals

By the end of Unit 1, you should be able to answer these questions:

- What is the Australian Constitution?
- Why is the separation of powers important in Australia?
- How does the division of powers divide law-making between the states and the Commonwealth?
- What principles are important to the legal system in Australia?
- What are the key legal entitlements of Australians under the law?
- How can we see evidence of Australia's Christian heritage in our society today?
- How are the beliefs of Aboriginal and Torres Strait Islander Peoples demonstrated in Australian society?
- What other religions are important in Australian society?
- What roles do religious organisations play in society?
- What is a secular nation?

secular not connected with spiritual or religious matters

▲ **Video**
Unit overview

CHAPTER 11

Government and democracy

Setting the scene: the Magna Carta

The origin of Australian democracy dates back to a very important document, the Magna Carta. The Magna Carta (or 'Great Charter') was written in 1215 in England. It set out the terms under which the Barons wished to be ruled by King John. This was the first step taken by the people of England to remove supreme power from the monarch and set the terms for how they wished to be ruled. Over the next 500 years, other documents like this gradually reduced the power of the Crown, ending with the current Westminster system that Australia has adopted.

▲ **Figure 11.1** The Magna Carta. One of the copies of this important document is housed in Salisbury Cathedral in England.

▲ **Figure 11.2** The Magna Carta was written in the thirteenth century. This photograph shows one of the few copies of the original Magna Carta, in Parliament House in Canberra.

In Australia, we are lucky to have a copy of the Magna Carta at Parliament House in Canberra. This copy of the original document dates from 1297 and is the only copy in the Southern Hemisphere and one of only four copies in the world.

The Magna Carta set out important restraints on the use of power by the monarch, and it guided the elaboration of constitutions and laws of several countries, including Australia. In our modern world, the restraints on the use of power by the parliament fixed by the Australian Constitution are a legacy of this iconic document.

MAKING THINKING VISIBLE 11.1

Connect, extend, challenge

1 **Explore** how the information presented in this 'Setting the scene' is connected to what you already knew about the Magna Carta.

2 **Identify** new ideas that you had that extended your thinking in a new direction.

3 **Explain** what is still challenging to you on the topic of constitutions and laws. What questions do you now have?

Find a partner in the class and share your thinking on these topics.

Chapter overview

Overview

Australia is a country built around the concept of constitutional monarchy. But what is a constitution? What is a monarchy? How are laws made and decided upon? In this chapter, you will explore what it means to be a citizen, along with how the Australian Government is elected and how our legal system protects your rights.

On 1 January 1901, the separate self-governing colonies of New South Wales, Queensland, Victoria and Tasmania federated (joined) to become the nation of Australia. Before each of the colonies agreed to work together, each had established its own rules and regulations including taxation and funding arrangements, and made their laws through their parliaments.

After Federation (the name for the joining of the different colonies), the colonies became known as states. In the lead-up to Federation, the colonies each had input into a document that established the rules to determine how Australia would be run. This document is called the *Commonwealth of Australia Constitution Act 1900*. This is now key to helping determine what laws can be made in Australia and how much power our parliament has.

Learning goals

After completing this unit, you should be able to answer the following questions:

- What is the Australian Constitution?
- Why is the separation of powers important in Australia?
- How does the division of powers divide law-making between the states and the Commonwealth?
- How does the Australian legal system work?
- What are the key legal entitlements of Australians under the law?
- What is a secular nation?
- How can we see evidence of Australia's Christian heritage in our society today?
- What other religions have come to be important in Australia?
- How are the Aboriginal and Torres Strait Islander Peoples' beliefs demonstrated in Australian society?

▲ **Video**

Five interesting facts about Australia's government

▲ **Figure 11.3** Parliament House in Canberra. Parliament House is the meeting place of Australia's federal government.

11.1 Government and democracy

FOCUS QUESTIONS

- What is the Australian Constitution?
- Why is the separation of powers important in Australia?
- How does the separation of powers divide law-making between the states and the Commonwealth?

The Australian Constitution

When the British settlers first arrived in Australia each settlement was governed by a Governor. Orders were sent from Great Britain about the best way to run each of the separate colonies. Over time, the colonies established their unique legal system and began to make laws. Eventually, it was decided that it would be easier if the colonies worked together, and a process called **Federation** began.

Some of the key political leaders in Australia at the time met together and constructed what became the **Constitution** of Australia. This Constitution became law on 1 January 1901. The Constitution sets out the ground rules for how our federal parliament works, and is the basis of all laws passed in Australia. In a **democracy**, such as Australia, a constitution also details some of the rights and responsibilities of its citizens – for instance, the right and duty to vote or the freedom of religion.

Federation the union of partially self-governed states under a common central government

constitution a written document that outlines the principles and laws that govern a nation

democracy government by the people, either directly or through elected representatives

make laws make new laws or change existing laws

interpret the law determine the intended meaning of the laws

administer the law enforce and oversee laws

▲ **Figure 11.4** The *Commonwealth of Australia Constitution Act 1900*. This is one of the original copies for the public record.

The separation of powers

One of the key ways that power is controlled in Australia is by the writing of laws. These are the rules that govern how our society is run. The writers of the Australian Constitution felt that it was important that no one section of society have all the power, and therefore they divided this power between three distinct branches of the government, in order to protect the people and guard against government injustice and tyranny.

Parliament (or the legislature) received the power to **make laws**. The judiciary (or the judges) received the power to **interpret the law**. Finally, the executive, made up of the Prime Minister, the Cabinet, the Crown (represented by the Governor-General) and their administrative support staff, received the power to **administer the law**.

Chapter 1 of the Australian Constitution explains the powers of the parliament,

Chapter 2 the powers of the executive and Chapter 3 the powers of the judiciary. The three elements of power, when split in this way, are referred to as **separation of powers**.
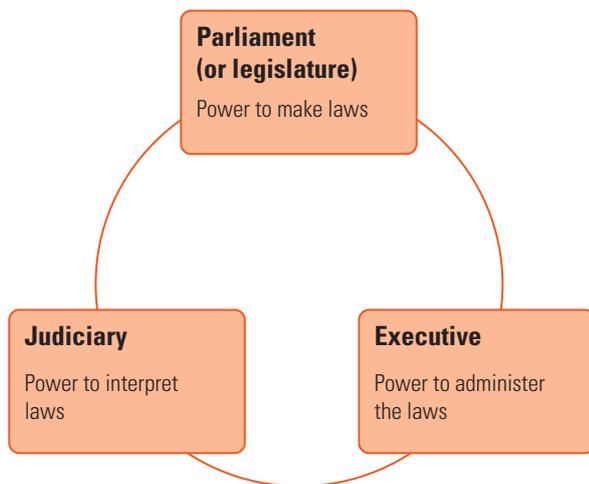
▲ **Figure 11.5** The separation of powers. The power to make laws is split between the legislature, the judiciary and the executive.

The separation of powers is a key element of a democratic and responsible government. It ensures that no one element of the government has too much power.

The Australian Parliament

The Australian Parliament is modelled on the system that is used in Great Britain. It is a **bicameral** parliament, which means that Parliament House consists of two sections called chambers (houses). These chambers are an upper house called the Senate and a lower house called the House of Representatives. The Crown (represented by the Governor-General) is the third element of the Australian Parliament.

The House of Representatives

The House of Representatives is made up of representatives elected by each **electorate** in Australia. The suburb or area you live in has a Member of Parliament, an 'MP', who represents your local area in Canberra. There are currently 151 MPs. The work of MPs in parliament is divided between spending time in Canberra representing the views of their electorate by voting on bills (the name for new laws) and helping their electorate by asking questions during debate and **question time**.

separation of powers the distribution of power between parliament, the judiciary and the executive

bicameral a parliament consisting of two chambers

electorate a defined area within a state or territory that is represented by a member of a political party

question time occurs when members of the parliament ask questions of the ministers. This usually occurs daily when parliament is sitting

▼ **Figure 11.6** A session of Australia's Parliament in Canberra. This photograph shows the House of Representatives.

ACTIVITY 11.2

Government (77)

Coalition
- ■ Liberal (61)
- ■ National (16)

Opposition (68)
- ■ Labor (68)

Crossbench (6)
- ■ Greens (1)
- ■ KAP (1)
- ■ Centre Alliance (1)
- ■ Independent (3)
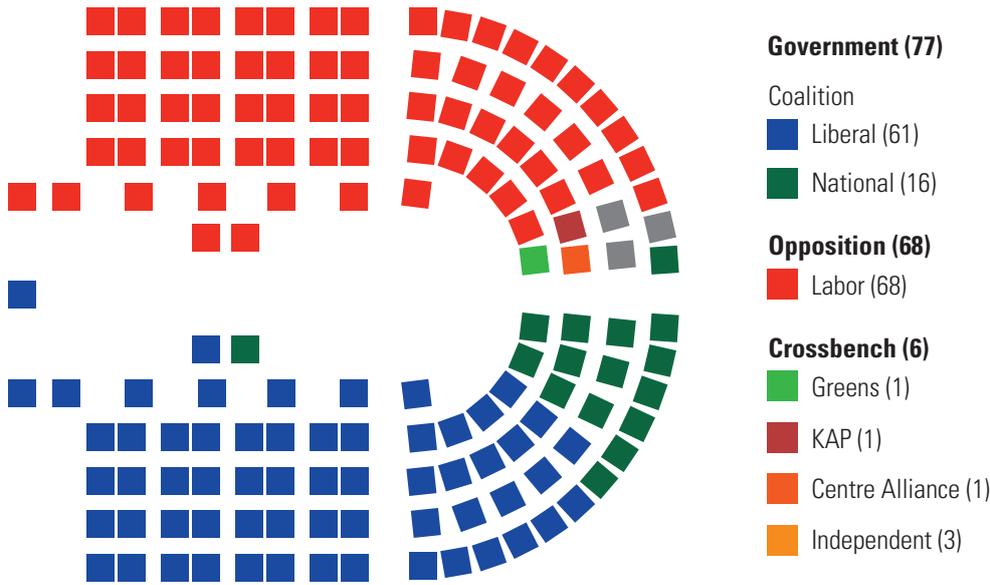
▲ **Figure 11.7** The House of Representatives. This diagram shows the composition of the House of Representatives after the 2019 election.

At the time of writing, the current Australian Parliament was the forty-sixth Australian Parliament (2019 elections). The Australian Constitution specifies that the term of members of the House of Representatives is a maximum of three years from the date of the first sitting of the House, thus the next federal elections are to be held in 2022 or earlier.

1 **Investigate** the composition of the current House of Representatives.
2 **Identify** the Prime Minister and their party.
3 **Identify** the leader of the opposition and their party.

The Senate

The Senate is the upper house. In Australia, it is sometimes called the 'states' house' as for each state and mainland territory, the senators are voted in, independently of size or population, by the electors of the state or territory. There are 12 senators for each of the six states, two senators for the Northern Territory and two for the Australian Capital Territory.

Senators normally serve fixed six-year terms. At most federal elections, in addition to the entire House of Representatives, 40 of the 76 senators (that is half of the 72 senators from the six states and all four of the senators from the territories) face re-election. The government has a Senate majority when it has at least 39 seats to get laws passed.

Government:
- ■ Liberal: 31 seats
- ■ National: 5 seats

Opposition:
- ■ Labor: 26 seats

Crossbench:
- ■ Greens: 9 seats
- ■ Centre Alliance: 2 seats
- ■ Jacqui Lambie: 1 seat
- ■ One Nation: 2 seats
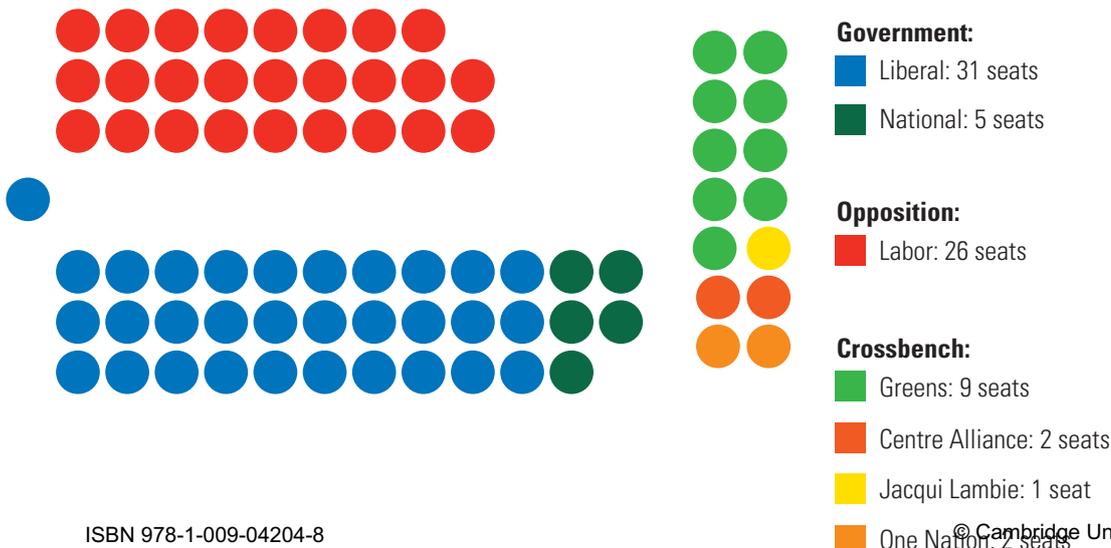
◄ **Figure 11.8**
The Senate. This diagram shows the composition of the Australian Senate in February 2020, after the 2019 federal election.

ACTIVITY 11.3

1 **Research** the 12 current senators for Queensland.
2 **Identify** the six senators that should be up for re-election in the next federal election.
3 **Investigate** whether the current government has a Senate majority.

Parliamentarians (and parliament) broadly have four main tasks once elected:

legislation a law that has been passed by government

- Representing voters in their electorate
- Passing **legislation**
- Forming government
- If not in the government: monitoring the activities of the government (scrutinising the government).

MAKING THINKING VISIBLE 11.2

The explanation game

MPs are elected on the basis of population: the more populous a state, the more members it should have. Table 11.1 displays, for each state and territory, the number of MPs and senators as well as the percentage of the total Australian population each of them represents, in 2020.

TABLE 11.1 The population and number of MPs and senators, by state and territory, in 2020

State or territory	Ratio of the population	Number of MPs	Number of senators
New South Wales	31.8%	47	12
Victoria	26.1%	38	12
Queensland	20.1%	30	12
Western Australia	10.4%	16	12
South Australia	6.9%	10	12
Tasmania	2.1%	5	12
ACT	1.7%	3	2
Northern Territory	1.0%	2	2

Refer to what you have just read and Table 11.1 to answer the following questions.

1 **Consider** what you notice about the number of MPs and number of senators for each state and territory.
2 **Explain** why it is this way.

The government

The parliament is 'all the seats' in parliament, while the **government** is the party (or coalition of parties) with the most seats in parliament and the 'opposition' is the second largest party (or coalition of parties) in parliament. Once an **election** has been held, the Governor-General invites the leader of this elected parliament to form government. The leader is then called the Prime Minister.

The Prime Minister will then select a Cabinet. Cabinet is made up of **ministers** who have special responsibilities to oversee and make laws in areas like health, defence, education or trade. Ministers also have special responsibilities for proposing **bills** in their areas of responsibility; eventually, these bills might become laws, provided that parliament agrees that they are appropriate.

government a subsection of parliament made up of those members who represent the political party that has the most seats in the parliament

election a local, state or national ballot cast by citizens who vote for a person from a political party

minister politician holding a ministry, a government department managing a specific sector of public administration, such as foreign affairs, environment, Indigenous Australians, etc.

bills item of legislation that has not become law

The House of Representatives and the Senate both have a responsibility to govern in a way that is representative and responsible. Representative government is generally understood to be a government that is elected by eligible electors regularly. In Australia, it is compulsory for all citizens over the age of 18 to vote; these are eligible electors. Elections are held approximately every three years.

Responsible government has two different meanings. In the Australian system it refers to the system where the Cabinet (ministers, etc.) are drawn from the parliament. In writing laws, the Cabinet must maintain the confidence of the broader parliament; in other words, they must be reasonably sure that they can have their legislation pass. Additionally, responsible government refers to the way that parliament is held accountable by the people. This means that parliamentary sittings are open to the public to come and watch, and that written information about sittings is published so that citizens can monitor the proceedings. There are also cameras present in the chamber and the proceedings are broadcast live.

In the houses of parliament, members of parliament can also ask each other questions, and there are ways that the government can be investigated ('a commission of inquiry') should there be suspicion of wrongdoing. This means that the government is not above the law. Finally, a responsible government is kept in check by its representativeness; that is, if voters do not feel the government is being responsible, at the next election they have an opportunity to choose another person to represent them.

ACTIVITY 11.4

1. Explore the Parliament of Australia website (https://cambridge.edu.au/redirect/9491) and **create** a T-chart that differentiates between the Senate and the House of Representatives.

2. Locate the House of Representatives Seating Plan – use this to **identify** where your local representative sits when they are representing you in Canberra.

The executive

The executive is made up of the Governor-General, the Prime Minister and the Cabinet ministers. The role of the executive is to administer the laws passed by the parliament. The size of this responsibility means that the executive requires additional assistance to execute its role. Therefore, some of the powers of the executive are delegated to the Australian Federal Police, the armed services, and to public servants such as Treasury officials who are in charge of overseeing how Australia is run.

The judiciary

Once a law is made, it is up to the courts how that law is interpreted. Judges, therefore, play an important role in the separation of powers, as they take laws written by parliament and interpret their meaning in our courts.

MAKING THINKING VISIBLE 11.3

Compass points

Jack and Olivia are two siblings whose parents made the following rule: 'No swearing under this roof. If you do swear, you have to put a dollar in the swear jar on the kitchen countertop'.

During the summer holidays, two of their cousins, Joshua and Lily, visited them.

While playing badminton in the garden, Lily told Jack that he was a 'bloody cheater'. To which Jack replied that Lily had to put a dollar in the jar.

An argument ensued, as Lily said 'bloody' was not even a swear word, and Joshua pointed out that in addition, they were not even 'under the roof' so the rule did not apply in that case.

Reflect on the story you've just read and the proposition that 'Laws do not always have a simple and a straightforward meaning. Sometimes, there is some ambiguity in the wording and laws have to be interpreted.'

On your own or with the person next to you, **consider** the following:

1 **E = excited.** What excites you about this proposition? What's the upside?
2 **W = worrisome.** What do you find worrisome about this proposition?
3 **N = need to know.** What else do you need to know or find out about this proposition? What additional information would help you to evaluate things?
4 **S = stance or suggestion for moving forward.** What is your current stance or opinion on the proposition?

In Australia there is no true separation of powers, because the executive and the legislative arms have overlap in the Prime Minister and the Cabinet, who have a role both in administering the law, and also creating law.

Division of powers

One of the negotiation points for the writers of the Australian Constitution was how to protect the laws and the rights of the colonies that existed before Federation. The Constitution, therefore, has limits on the powers of the Commonwealth, with power being divided between the federal government and state governments (the original colonies). Section 51 of the Constitution sets out the legislative powers that were granted to the federal government on Federation. This includes areas such as defence, taxation, currency and immigration.
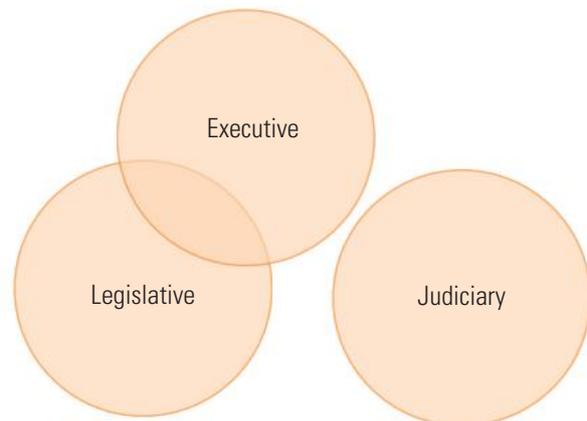
▲ **Figure 11.9** The separation of powers. There is not a complete separation of powers in Australia.

The powers of the federal and state governments are divided in three ways:

- **Exclusive powers**: powers that may only be used by the Commonwealth Parliament – for example, defence and immigration

- **Concurrent powers**: areas in which both state and federal parliaments may legislate – for examples, health and education
- **Residual powers**: areas where only the states may legislate – for example, state criminal law and urban planning.

In the concurrent area, there is the chance that both state and federal laws may be passed that have conflicting aims. The writers of the Constitution had thought of this, and section 109 of the Constitution sets out what happens when there are 'inconsistencies' between state and federal law. In such cases, the federal law will be the one that applies.

Around Australia, many state governments have seen the wisdom in further delegating some of their powers, allowing the creation of local government authorities. Local governments are usually referred to as councils in Queensland. They have responsibility for the low-level organisation in the cities and towns across Australia.

TABLE 11.2 The powers of the federal, state and local governments

Government	Law-making powers	Examples
Federal government	Responsible for laws that relate to the whole of Australia	Ships coming to Australia must declare their contents, pay import duties, and also crew may face quarantine and immigration clearance before coming ashore
State government	Responsible for laws that relate to the whole of the state	The state government is responsible for deciding what kind of licence is needed to skipper a boat in Queensland waters
Local government	Responsible for laws that relate to the local city council area	A local council is responsible for ensuring that not too many dinghies are parked on the beach in a local area

ACTIVITY 11.5

1 **Identify** the website for your local council.
2 **Explain** three different things that the council is responsible for.
3 **Identify** a problem in society that you feel strongly about (for example, air-conditioning in school classrooms, a barking neighbourhood dog, or a congested major road). **Determine** which level of government is responsible for solving this problem.
4 **Construct** a letter to the most appropriate representative explaining the problem, and how you think it could be solved.

Changing the Australian Constitution

The writers of the Australian Constitution understood that all laws, even the most well thought out laws, will need to be changed from time to time. When they wrote the Constitution, they built into it a legal process to help with the changing of the Constitutional laws. Section 128 of the Constitution outlines the process through which the change might occur. It includes several steps:

- Both houses of parliament must agree to the change.

- Voters must vote in a referendum where the question is phrased as a closed question, with only a 'yes' or 'no' response.
  - Both cases are also published in advance so that voters understand what they are voting about.
- To pass, the referendum must get a double majority of voters, which is a majority of voters in a majority of states.

In Australia, it has been notoriously difficult to change the Constitution. In the 19 referendums held since 1901, only 8 of the 44 proposed changes to the constitution were passed. One of the most famous successful referendums was held in 1967, which saw the repeal of section 127 and part of section 51 to enable Aboriginal and Torres Strait Islander Peoples to be counted as part of the census and allow the federal government to make laws relating to First Nations Peoples. The most recent referendum was held in 1999 and included two questions, one relating to whether Australia should become a republic, the other related to changing the preamble of

▲ **Figure 11.10** An Australian referendum. A 'How to vote' card for the referendum on whether Australia should become a republic that was held in 1999.

the Constitution. Neither question was carried. Part of the reason for this is the concept of the double majority. This was included so that the voices of states with smaller populations (e.g. Tasmania) would not get lost simply because of a change that would help Victoria or New South Wales (with bigger populations).

DEVELOPING YOUR UNDERSTANDING 11.1

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** why you think that the separation of power is a key element of democracy.
2 **Identify** which arm of government is responsible for making laws in Australia.

Interpret

3 **Identify** your local members at the local, state and federal level. Research how long they have represented your electorate and what changes they have implemented to improve your local area.
4 **Explain** the process of changing the Australian Constitution.
5 **Create** a mind map or write a short paragraph which outlines the role of the legislature, executive and judiciary.

Argue

6 **Explain** why it is difficult for referendums to gain a double majority of voters.
7 **Research** one referendum that Australia has put to voters. Describe the issue that was being voted on and the outcome of the vote. Suggest why Australians voted for or against this change.

11.2 Laws and citizens

FOCUS QUESTIONS

- How does the Australian legal system work?
- What are the key legal entitlements of Australians under the law?

The legal system in Australia is also based on the English system and includes elements that go back to an ancient English document called the Magna Carta, which we encountered at the beginning of this chapter. These include ideas such as the right to trial by a jury of your peers and the independence of the judiciary. Modern democracy is built around an idea that came from the Magna Carta called the 'rule of law'. This can be seen as part of a responsible system of government. The key principle of the rule of law idea is that all members of society are equal before the law.

It is based on key understandings outlined in Figure 11.11.
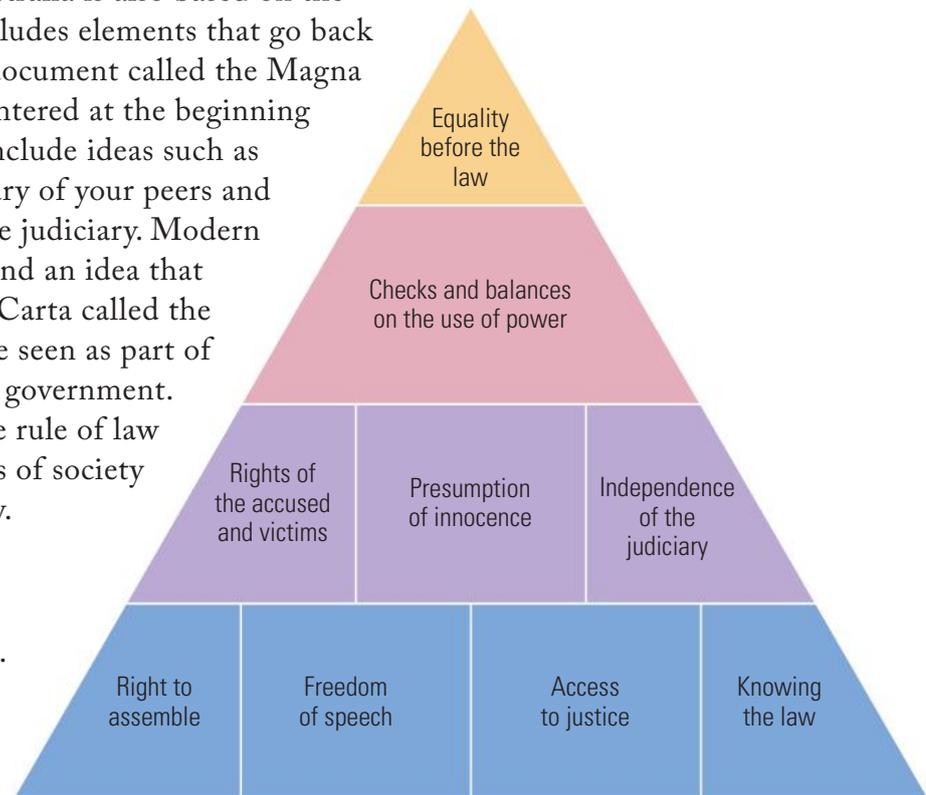
▲ **Figure 11.11** This pyramid shows the key rights and concepts of the rule of law.

The pyramid contains, from top to bottom:
- Equality before the law
- Checks and balances on the use of power
- Rights of the accused and victims | Presumption of innocence | Independence of the judiciary
- Right to assemble | Freedom of speech | Access to justice | Knowing the law

defendant a person or company who has been accused of committing a crime

conviction a formal decision that someone is guilty of an offence

prosecution the person or company who commences legal proceedings against another party

There are other important elements of the rule of law that can be found both in the Australian Constitution and also in our legislation. One of these is the right to trial by jury. This comes from section 80 of the Constitution. This right does not always apply, however. Civil cases do not usually involve a jury, and low-level criminal cases heard in Magistrates' Courts, which make up around 90 per cent of all cases, do not have a jury either.

Despite this, there are several other rights that those accused of a crime have.

First, **defendants** have a right to the presumption of innocence. This means that before **conviction** they should be treated as if they have not committed the crime. It is also important to understand that a defendant (someone accused of a crime) is not responsible for proving that they didn't do what they have been accused of. Instead, it is the duty of the **prosecution** (represented by the State) to prove the facts of the case and to satisfy the judge – or in some cases, the jury – that the defendant did what is being claimed. This means that the prosecution bears the burden of proof: it is up to them to prove what they are alleging to have occurred.

Beyond this, the **judge** ensures that the trial is run fairly. This means that both sides have an opportunity to present and examine evidence and to argue their case before the judge or jury.

The prosecution will always be represented by lawyers (either solicitors or barristers); however, this is not always the case for the defence. While defendants have a right to have legal representation, this can be expensive, as legal work is a very specialised field, and some defendants may not be able to afford to have someone represent them. To help with this, governments fund a service in Queensland called Legal Aid.

Defendants must qualify for Legal Aid, and certain tests are put in place to make sure that those most in need are the ones that are helped.

Beyond the defence and the prosecution, other citizens may be involved in cases. **Witnesses** may be called to present evidence about the facts of the case. In serious cases, some citizens may be called to be **jurors**. Twelve jurors make up the jury, which decides the guilt or innocence of a person charged in a serious criminal matter (such as murder or manslaughter).

judge an officer of the court who decides on cases in court

witness a person who sees an event take place

juror a member of a jury

DEVELOPING YOUR UNDERSTANDING 11.2

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** the meaning of rule of law, providing examples to illustrate your understanding.

Interpret

2 **Identify** the elements of the rule of law pyramid that you think are most important and justify your reasoning.

3 **Describe** what rights a person accused of a crime has in Australia.

▼ **Figure 11.12** Inside a courtroom in Queensland. Criminal courtroom, Queen Elizabeth II Courts of Law, 415 George Street, Brisbane. Image courtesy of Supreme Court Library Queensland.
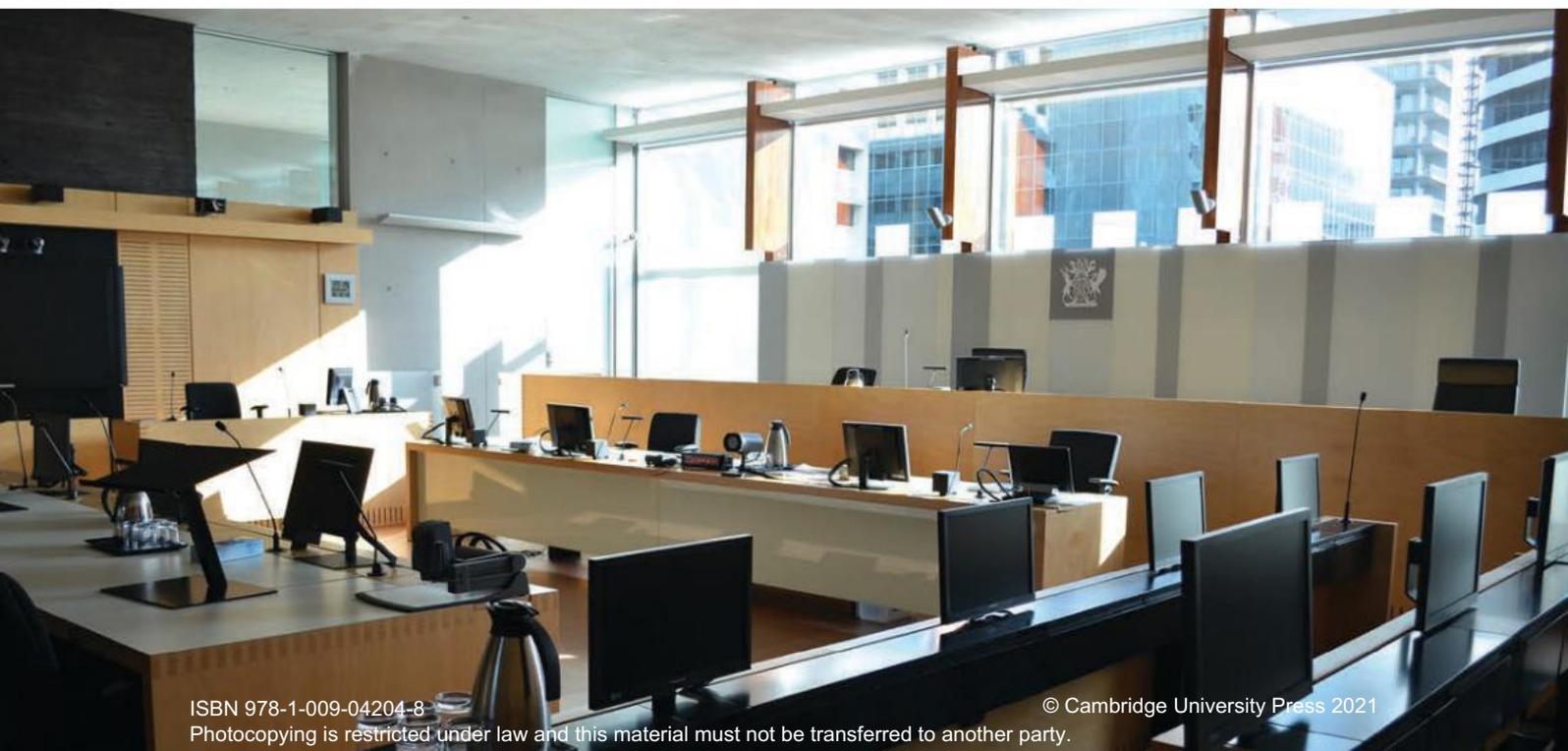
11.3 Citizenship, diversity and identity

FOCUS QUESTIONS

- What is a secular nation?
- How can we see evidence of Australia's Christian heritage in our society today?
- What other religions have come to be important in Australia?
- How are the Aboriginal and Torres Strait Islander Peoples' beliefs demonstrated in Australian society?

Spiritual beliefs in Australia

When the first white Europeans arrived in Australia, they brought with them the belief system that was most predominant in England at the time. Given that the settlement was established as a prison, the rehabilitation of a convict's belief system was seen as being very important. Therefore, on 3 February 1788, a little over a week after the arrival of the First Fleet at Botany Bay, the first Anglican Church service was held under a large tree. You can see the spot where the service was held today on the corner of Bligh and Hunter Streets down near Circular Quay in Sydney, where the Richard Johnson obelisk was erected in 1925, to commemorate this event.

To the glory of God and in commemoration of the first Christian service held in Australia February 3rd 1788 Rev Richard Johnson B A the Chaplain being the preacher.

▲ **Figure 11.13** Inscription on the southern plaque of the Richard Johnson obelisk in Sydney. The first church service was held on this spot in 1788. What does the existence of this monument, and this inscription makes you wonder?

Before the arrival of the First Fleet, First Nations Peoples had also practised their own spiritual beliefs. In Australia, at settlement, there were many different groups of Aboriginal and Torres Strait Islander Peoples who had unique ideas about their spirituality, and beliefs. Despite this, all groups generally

▼ **Figure 11.14** An Aboriginal rock painting. This rock painting is in Cathedral Cave in Carnarvon National Park, Queensland.
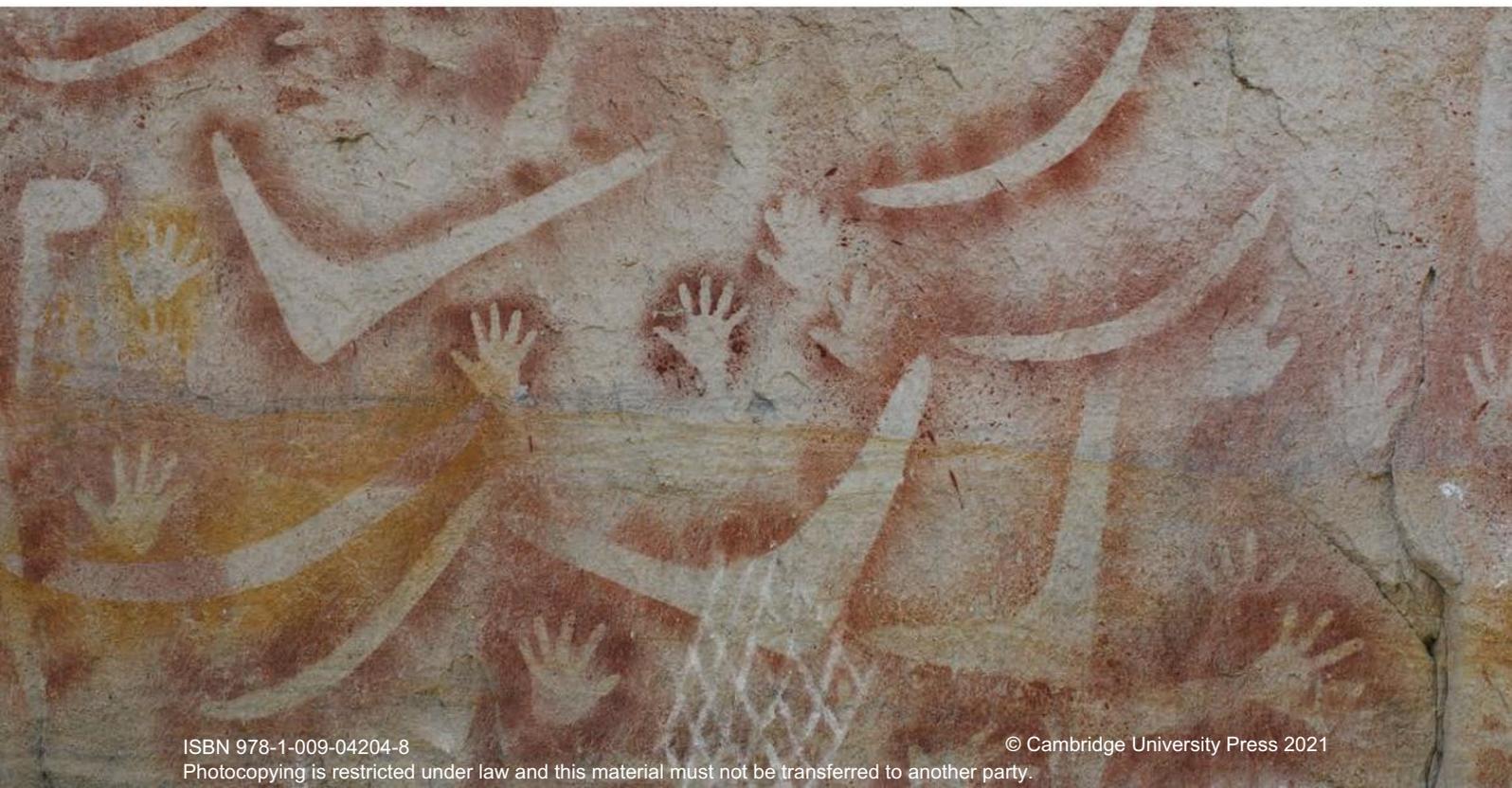
recognise the significant relationship between people and Country. The creation story of First Nations Peoples is told by the Dreaming, which links people to each other and Country and gives meaning to the ceremonies held in Aboriginal culture. It is important to note that different Aboriginal Peoples and cultures have different Dreamings with their own name in the local language.

Torres Strait Islanders have a different understanding of their creation and spirituality. The Tagai is a series of stories that focus on the stars and connect Torres Strait Islanders to the sea and their way of life. The Tagai gives order to the world.

When European settlers began to interact with Aboriginal and Torres Strait Islander Peoples, the Europeans wished to convert the First Nations Peoples to Christianity. As part of their teaching, Europeans provided education, food, housing and health care on missions. First Nation Peoples who were relocated to missions, after being forcibly removed from their traditional lands, were denied access to their sacred sites and hunting grounds. Between 1910 and 1970, as part of the policy of Assimilation, tens of thousands of First Nations children (the **stolen generations**) were forcefully separated from their families, forbidden to speak their traditional languages and were forced to adopt a 'white culture', seen as superior.

Most of these children were sent to missions or institutions, where neglect and abuse were common. Moreover, forcing First Nations children to reject their heritage led to a disconnection from their cultures, and an inability, later on, to pass their culture on to their own children. Today, in some areas, Indigenous Australians have strong Christian beliefs. In the Torres Strait each year, the arrival of the first missionaries is marked via the ceremony of 'The Coming of the Light'.

> **stolen generations** the generations of First Nations children who were forcibly removed from their families, as part of the policy of assimilation, under the misguided assumption that they were rescued, and not stolen

CASE STUDY 11.1

Closure of Uluru

The natural landmark of Uluru is a sacred site for the local Anangu People, who live in Central Australia. According to their beliefs, Uluru was formed during the Dreaming and is recognised by the Anangu as being incredibly special and important as a resting place of the ancient spirits of the area.

Uluru is also an important centre for tourism in the area, with visitors identifying climbing the rock as an important reason for visiting. This is despite the act being recognised as being culturally insensitive, with signs explaining this installed at the base of the climb.

▲ **Figure 11.15** Aboriginal Elders at Uluru. This photograph was taken on 27 October 2019, the day climbing Uluru was permanently banned.

From 26 October 2019, the climb was officially closed, approximately 34 years after the Anangu people were given legal title to the rock and the surrounding land. Today, if you visit the rock and attempt to climb it there are penalties for these actions.

» Analysis questions

1 Using the information in this case study, and additional research, **explore** at least two reasons why the climb at Uluru was closed.

2 **Investigate** the other tourist opportunities available at Uluru that respect and support First Nations Peoples.

▲ **Figure 11.16** The Central Australian Aboriginal Women's Choir. This choir performed at celebrations marking the permanent closure of Uluru to climbers.

Diversity of spiritual beliefs in Australia

As more and more people arrived in Australia, they brought with them an increasingly diverse array of beliefs. Australia is no longer simply a Christian nation, as new arrivals introduced ideas from many different faiths. In recent years, though, more people identify as not having a religion.

Christianity continues to be the largest faith group in Australia. Because it was the belief system of the colonising Europeans there are many examples of Christian belief in our society. For example, several major public holidays in Australia celebrate Christian festivals, and witnesses in legal trials are asked to swear an oath on the Bible (although people who believe in other religions can choose not to do this). Also, parliamentary sittings start with an Acknowledgement of Country and the reading of the Lord's Prayer.
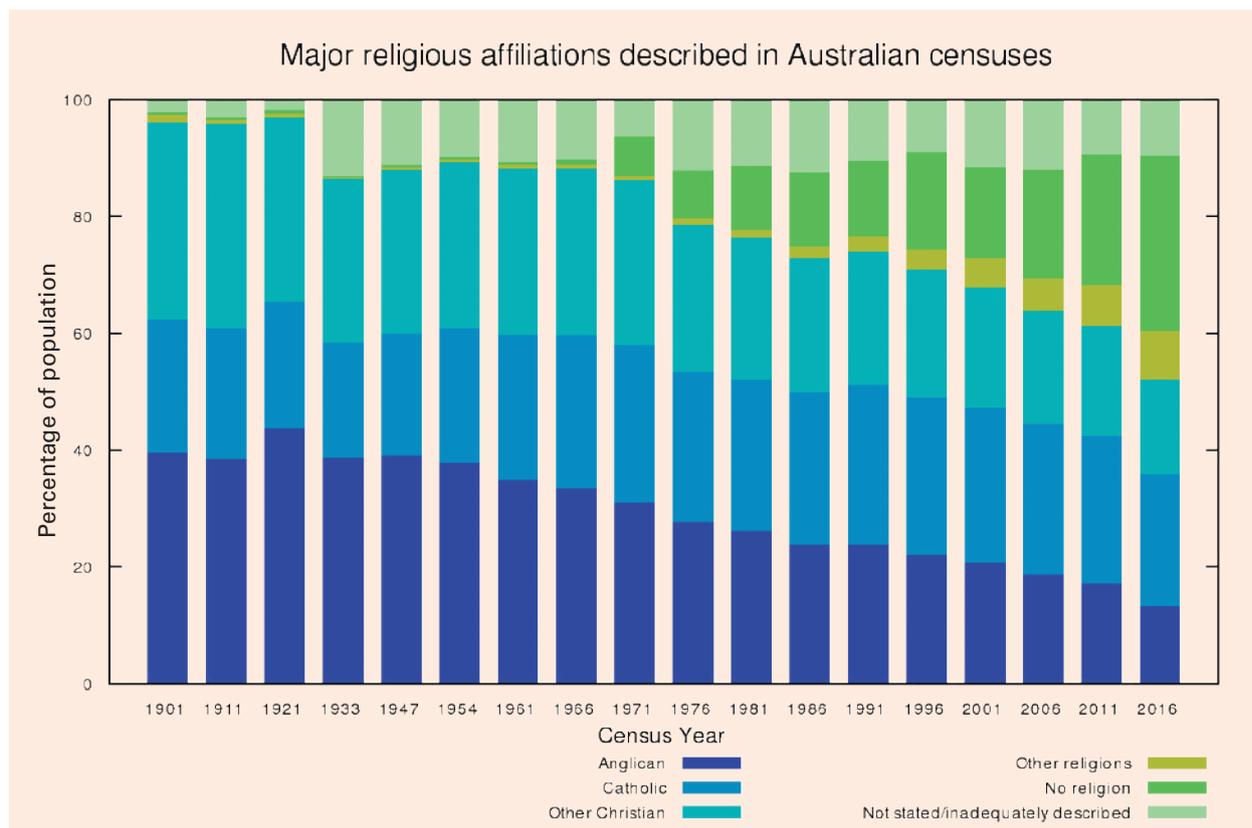
▲ **Figure 11.17** Australians' religious affiliations. This data is from the 2016 census.

▲ **Figure 11.18** Spiritual beliefs in Australia. This graph shows the major religious affiliations in Australia, by census year.

Religious affiliation	Percentage
Catholic	22.6
Anglican	13.6
Other Christian	16.3
Islam	2.6
Buddhism	2.4
Hinduism	1.9
Sikhism	0.5
Judaism	0.4
Other religion	0.4
No religion	30.1
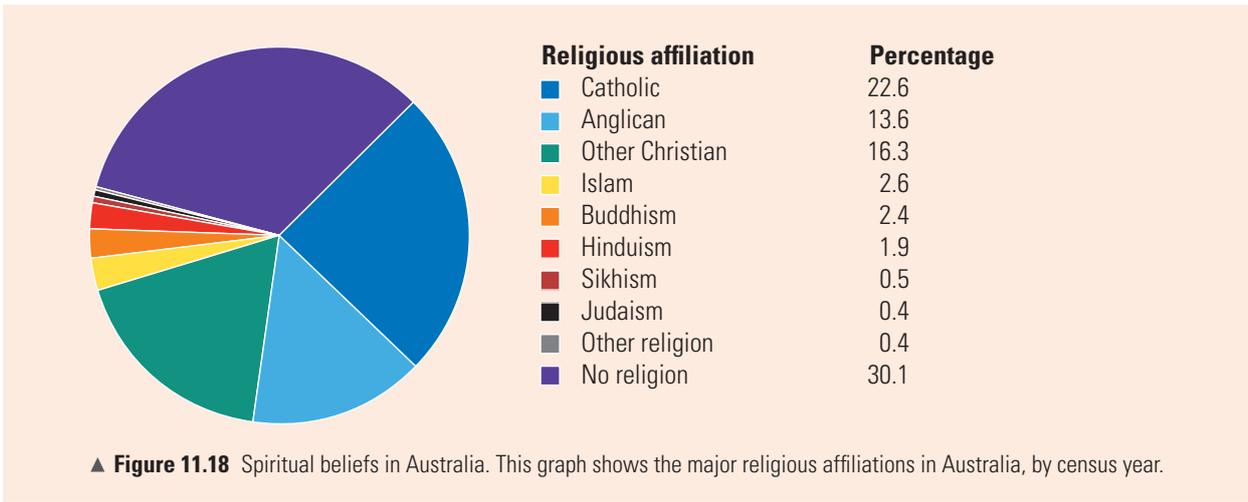
ACTIVITY 11.6

1 Using the 'think, pair, share' strategy, as a class **summarise** your current knowledge of the religions listed in the above graphic.

2 Choose one of the religions and prepare a table that **compares** the following.

Religion	Number of believers	History	Gods	Central belief	Afterlife	Practices	Text

3 As a class, prepare a group **compare** and **contrast** table. There may be other religions from your discussions you would like to add!

Despite the many examples of Christian belief in our society, Australia is generally considered to be a secular nation. This understanding comes from section 116 of the Australian Constitution, which prevents the Australian Government from making laws for establishing any national religion or imposing any religious observance.

'Secular' means that governments in Australia, in general, do not have any connection with religious or spiritual matters.

Religious organisations also play a significant role in other sections of Australian life. Religious organisations run schools, aged care facilities, hospitals and assist those who have lost their jobs or are homeless. In doing these things, organisations help to support their community, and also help to support others who may eventually decide to join the religion later.
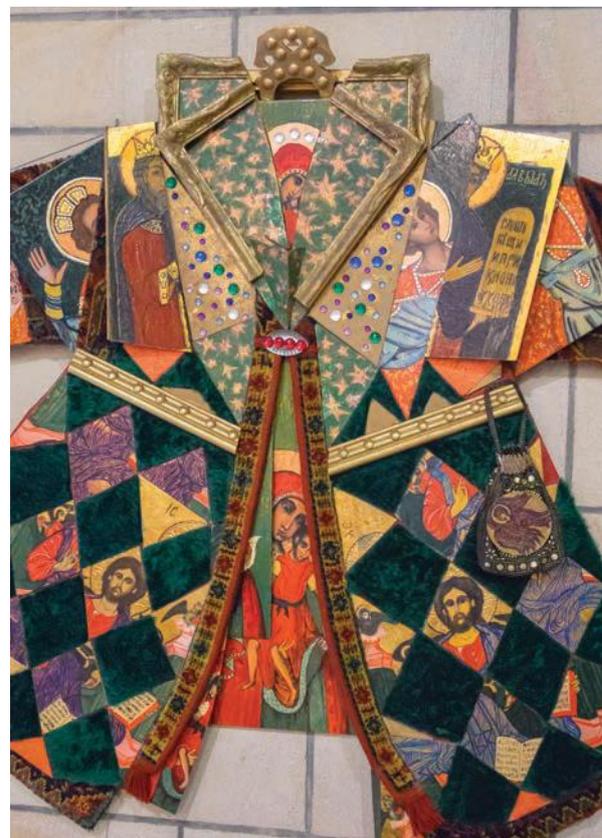
▲ **Figure 11.19** Christianity is the largest faith in Australia. This photograph shows Christian religious art inside the Anglican Church of St John's Cathedral in Brisbane.

CASE STUDY 11.2

The first school teacher

The first school teacher in Australia was an Anglican minister, and initially, he taught the convicts of the colony to read and write. As free settlers began to arrive, the Anglican and Catholic Churches set up the first schools to educate primary-aged children. Eventually, the government started to open schools too, and the school system that we recognise today was established. In modern Australia, approximately 30 per cent of all schools are affiliated with religious organisations. These include the Islamic School Association of Australia, Catholic Education, Christian Schools Association and Anglican Schools Commission.

▲ **Figure 11.20** What type of school is your school?

Analysis questions

1 **Investigate** the range of schools available to students in your local area. How many schools are public schools (run by the government)? How many are private schools? Are any of the private schools also religious?

2 **Explain** how religious schools are different to public schools.

3 **Infer** why parents might choose to send their children to one type of school over another.

DEVELOPING YOUR UNDERSTANDING 11.3

Review questions

Complete the Quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

Recall

1 **Explain** what is the Lord's Prayer.

Interpret

2 **Discuss** if you think that the Lord's Prayer belongs at the start of parliament.

Argue

3 If it was replaced with something else, **propose** what it might be replaced with.

⚖️ End-of-chapter assessment 11

1 Short-answer questions

1. **Describe** the states and territories that make up Australia's Federation.
2. **Explain** the meaning of 'bicameral' and briefly **describe** the function of the House of Representatives and the Senate.
3. **Explain** who makes laws in Australia.
4. **Explain** the term 'election'.
5. **Describe** the characteristics of a representative democracy.
6. **Explain** the role of the legislature, executive and judiciary.
7. **Explain** the meaning of the rule of law.
8. Choose two religious affiliations and **compare** and **contrast** how identification with these religious affiliations has changed over time in Australia.
9. **Explain** why many practices in Australia are based on Christianity.
10. **Explain** the difference between public, religious and private schools in Australia.

2 Extended-response questions

Search for information about the 1999 referendum and then answer the following questions.

1. **Identify** the two questions put to Australian voters in the 1999 referendum.
2. **Identify** the percentage of the population that was in favour of changing the Australian Constitution.
3. **Explain** why you think Australians voted against this change.
4. **Propose** a change you would put to a referendum if you were able to. **Explain** why.

3 Classroom activity

The following is a whole-class activity called 'class election'.

1. Split into groups of four or five.
2. Each group is to establish its own political party. This will entail:
   a. Deciding what your party stands for and the values it views as important
   b. Creating a short, two-minute presentation to present to the class.
3. Make a simple ballot sheet for the class to use in its election.
4. Each student votes on their preferred party (other than their own).
5. Tally up the votes to establish which is the winning political party.
6. **Discuss** why the winning party was chosen.

Digital resources

Visit the Interactive Textbook or Online Teaching Suite to access:

- General Capability Project
- Interactive chapter quiz
- Interactive Scorcher quiz
- Videos, image galleries and other extra materials.

Glossary

History

abundance   a great quantity of something

amphora   a container generally used in ancient Rome to hold wine or oil

analyse   consider in detail for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences

anthropologists   scientists engaged in the study of humankind, both from past and present societies

aquaculture   the raising of water animals such as fish for food, or the growing of plants in water for food

archaeologist   a person who researches human history and prehistory using scientific methods to discover the origins and developments of human societies

artefact   an object that is made by a person, such as a tool or a decoration; it is usually of historical interest

astronomy   the study of natural objects outside the Earth's atmosphere such as planets, moons, stars, galaxies and comets

auxiliaries   non-citizen troops recruited from non-Roman tribes

barbarian   someone from another place who spoke a different language; for ancient Romans, a barbarian was any person who was not part of the Roman Empire

bas-relief   a method of sculpture where stone is cut from around a shape, giving the shape the appearance of projecting out from the stone

benefactor   someone who provides another person or group with money or other help to support them

bodhisattvas   a follower of Mahayana Buddhism who is able to reach nirvana (a state without suffering) but delays doing so out of compassion for the suffering of others

bora   a location where sacred rituals are held by First Nations Peoples

canal   man-made waterway

canopic jars   jars for preserving the internal organs of the deceased, as part of the process of mummification; different jars were made for different organs

cause and effect   the reasons for events and the consequences of these events

celestial   a celestial, or astronomical object, is a natural thing existing outside the Earth's atmosphere

chariot   a wheeled carriage drawn by one or more horses – chariots were used for sporting purposes and to carry soldiers to war

chronology   the method of arranging events in the order in which they occurred, from earliest to latest

citizen   male person in ancient Rome who was recognised as having the rights of citizenship. The children of Roman citizens automatically became citizens. Women were not considered to be citizens. Citizenship could be granted to ex-slaves who had been freed or to foreign non-citizens as a reward for service

climate   the general weather conditions usually found in a specific place

co-regent   two rulers who rule a kingdom jointly

colonisation   the process of invasion, settlement and establishing control over

consort   a wife or companion of a ruler

constellation   a group of stars that appear to form a recognisable pattern in the night sky

consuls   the political leaders of ancient Rome, elected each year by the citizens

continuity and change   the reasons why things have changed or stayed the same

corroborate   to confirm an idea or conclusion by providing new evidence that supports earlier evidence

Country   a living entity that people are custodians for

custodial relationship   First Nations Peoples are known as the traditional owners or custodians of the land in Australia

deep time   the long period of time before the arrival of Europeans on the Australian continent, stretching back as far as we now know, to at least 60 000 BCE

Dreaming stories   stories connected to specific Country, to specific places and/or to specific things in a place

divination   the practice of foretelling the future through supernatural means

dolia   (singular: dolium) large rounded earthenware jars with a wide mouth

dynasty   a succession of rulers from the same family; in ancient Egypt and China, some dynasties included rulers that were not related to the ruling family. The 3000 years of ancient Egyptian civilisation are traditionally divided into approximately 30 to 32 dynasties

einkorn   a cereal grain, considered to be the oldest wheat

Elders   knowledge custodians, responsible for passing the traditional knowledge on to the right people in the right context at the right time

embalmer   a priest (or someone else) in ancient times who treated human remains with spices and other materials to help preserve the remains and stop them decaying

embankments   ridges of earth or stone walls used to hold back water

evaluate   examining and judging the merit or significance of something

excavate   to carefully dig up or reveal something in the ground

fish traps   the ways fish are captured in sea, rivers, creeks and streams. Sometimes fish traps are pools of shallow water against artificially built walls or fences. In other locations, traps might be woven nets or baskets placed in weir and pond systems

fish weir   a way of channelling fish into fish traps by using a fence or wall built into the water of a river, creek or stream; the fence allows the water to freely flow through it

fledgling   something that is new or young and without much experience

forager   a person or animal that goes from place to place in search of things that they can eat or use

forensic   relating to scientific methods of investigating history or crime, and may involve as scientific tests of human remains

found   when something new is created by a people – generally a city or place

fresco   a style of painting where the paint is applied directly onto the plaster that covers a wall while the plaster is still wet

frieze   a space on the side or front of an ancient Roman building, which often featured some form of sculptural decoration

fuller   a laundry worker in ancient Rome

gladiator   a man trained to fight with other men in the Roman arena for the entertainment of Roman audiences

hierarchy   organised structure in order of rank or status by factors such as wealth or social group

hieratic   a simplified version of the hieroglyphic script intended for everyday use

hieroglyphs   pictures or symbols that represent words or concepts

hypothesis   a theory based on facts, or a suggested answer to a question, to be proved or disproved

hunter-gatherers   members of a society that live by hunting and collecting wild food, rather than by farming

intermediary   one who comes between. The pharaoh was the intermediary, or link, between the gods and humans on earth

inundation   the yearly flooding of the Nile River

irrigation   the practice of supplying land with water so that crops and plants will grow

Italian peninsula   the region now covered by the country of Italy, from the Alps in the north, to the central Mediterranean Sea in the south

kinship   a system in First Nations cultures that establish a person's relationships and responsibilities to others, the land, its resources, and the universe

knowledge stories   an expression of a rich, complex and spiritual way of seeing the world. Each group of Aboriginal and Torres Strait Islander Peoples has its own body of traditional knowledge and its own belief system

land bridge   a connection between two land masses that allowed humans and animals to cross to new areas

Latium   the region of central Italy where the city of Rome was located

legionary   a soldier in a Roman legion, which was a section of the Roman army

levee   earth embankments built along riverbanks to prevent flooding

linguistic   related to language or the study of language

Lower Egypt   the northern region of Egypt around the Nile Delta. The major city in this region was Memphis. The land here was flat, fertile and closer to sea level (thus the label of 'Lower' Egypt)

luminescence dating   a method of determining how long ago mineral grains were last exposed to sunlight or heat

lunette   a crescent-shaped chain of dunes bordering a lake bed or valley in arid or semi-arid locations

ma'at   the ancient Egyptian concept of truth, balance, justice and order – Ma'at is the god of divine balance

magnanimity   the quality of being highly moral in forgiveness and overlooking insults from others

Mahayana Buddhism   the form of Buddhism that became popular in China

manumission   the act of releasing a person from slavery; this appears to have been more common in ancient Rome than in other ancient societies of the time

matron   a freeborn, respectable woman in ancient Rome

mausoleum   a very large and expensive grand tomb

megafauna   large animals over 40 kilograms, such as the elephant, rhinoceros and extinct diprotodon

military campaign   a series of conflicts or battles that are aimed at reaching the same goal

mosaic   a decorative pattern or image made from pieces of coloured stone, glass or ceramic

mosaic pattern   a combination of diverse pieces of land as in grass and adjoining forest

mummification   a method of preserving a corpse by removing the internal organs and drying out the body

natives   a colonial word for First Nations Peoples of Australia, which is no longer used as it has derogatory meanings

navigate   sail or travel over a stretch of land or water, especially carefully or with difficulty

Neolithic period   an era of change when people who used stone tools moved away from hunting and gathering to settle in an area to farm animals and crops

New Kingdom   the term used to group the pharaohs of the 18th to 20th dynasties. The capital of Egypt at this time was at Thebes and the chief god was Amun-Re. Egypt expanded its empire widely during the New Kingdom and the chariot was introduced. Pharaohs were generally buried in the Valley of the Kings. Notable pharaohs of this period were Amenhotep III, Hatshepsut, Thutmose III, Akhenaten, Tutankhamun and Ramses II

Nile River   the main river running through Egypt

nomadic   people without a fixed home

odium   intense hatred or dislike

Old Kingdom   the term used to group the pharaohs of the 4th to 6th dynasties. The capital of Egypt at this time was at Memphis and the chief god was Re (also spelled Ra). The Great Pyramids at Giza were constructed during this time

oral history   the recording of past events in a spoken form including through song, story or dance

pantheon   a group of gods

papyrus   a plant that was common in the Nile Delta; ancient Egyptians had many uses for papyrus, including as an early form of paper

pasturage   area covered with grass or plants suitable for the grazing of livestock

patriarchal   a system of society or government controlled by men

patrician   any member of a group of citizen families who formed the ruling class of the early Roman Empire, the patricians owned land and held political power

perspective   different views of the past

pestilential   occupied by widespread, troublesome or harmful plants or animals

pharaoh   a term used today to describe the kings of Egypt. It derives from the ancient Greek *per aa*, meaning 'the one who lives in a great house'. The rulers of ancient Egypt from the Old Kingdom onwards were called kings, with the title of pharaoh not appearing until sometime in the New Kingdom. The term 'pharaoh' has become virtually interchangeable today with the title of 'king' and will generally be the preferred term used throughout this chapter

plebean   commoner, free Roman citizen who was not a patrician

Pleistocene Epoch   a long period of geological time that includes the last glacial period, where temperatures were cooler and sea levels lower

polytheistic   worship of more than one god

primary source   a source of information about the past created in the time being studied

province   territories or regions outside of Rome that were controlled by Rome as they were part of the empire

radiocarbon dating   a method of calculating the age of less than 50 000 years old organic materials, like hair, bones, wood etc. by measuring the amount of a particular type of carbon (carbon-14) in them; also known as carbon-14 dating

reconciliation   bringing together Aboriginal and Torres Strait Islander Peoples and other Australians to create good relationships

regent   a person who exercises power in a kingdom if the expected king or queen is too young

relinquish   voluntarily give up something

republic   the political system in Rome from c. 509 BCE to c. 27 BCE, where citizens were protected by the law and had the power to elect their political leaders

sack   to invade and destroy a city

Sahul   an ancient continent that once existed; it was made up of modern mainland Australia, Tasmania, the Torres Strait Islands, New Guinea, and parts of Indonesia

secondary source   a source of information about the past created after the time being studied

Senate   a powerful political body in ancient Rome, consisting of hundreds of nobles (senators) who had previously served in government – the consuls were expected to follow the advice given by the Senate on important decisions

shaduf   hand-operated device for lifting water from rivers, used in ancient Egypt from 2000 BCE to irrigate the land

shell midden   a large mound of seashells piled up as a result of being thrown away after humans consumed the shellfish within the shells

shrine   a place used for religious rituals

silt   rich, fine soil carried in the waters of a river

smelting   process of heating rocks and sediment to extract metals

sovereign   a king or ruler who has total and permanent authority

stratigraphy   the archaeological term that refers to interpreting and analysing the way different layers of earth (or strata) represent the relationship between events and time periods

subsistence   the state of existing by having just enough resources like food and water to stay alive

surplus   an amount left over when needs are met

survey   in archaeology, a survey is a type of physical investigation where an archaeologist carefully collects information about past human activities in a location

synthesise   combine different parts or elements (information, ideas, components) into a new whole, in order to create new understanding

terra nullius   land belonging to no one

timeline   a graphical representation of the passing of time usually arranged by periods and on which important events are marked in chronological order

tribune   one of 10 plebs elected each year to lead the Council of the Plebs – the tribunes were expected to act in the best interests of the plebs

unification   the process of combining things or people

Upper Egypt   the southern region of Egypt, stretching along the Nile Valley from Memphis in the north to Aswan in the south. The major city in Upper Egypt was Thebes

usurper   one who tries to take power illegally or through force

virtues   qualities of goodness or moral excellence

vizier   the most important adviser and helper of the pharaoh

Welcome to Country   a ceremony by which an Indigenous Elder introduces a person to, and grants permission to go onto, Country

well-field system   system under which areas of land were divided into nine sections. Eight of these sections were farmed individually by different peasant families, while one was farmed collectively for the lord who owned the land

Yangtze River   Western mis-naming of the whole river, which is Chang Jiang (long river) while the eastern section (from Nanjing onwards) is locally known as the 'Yangtze' or 'Yangzi' River

yue   a ceremonial axe

Geography

accessibility   resources or services are available and affordable for all people to use

affordability   the ability to afford a service or attendance of a facility; for example, going to the doctors

agricultural industry   the business involved in cultivating plants and livestock

algae or algal bloom   the rapid increase or growth in the amount of algae within water

amenity   a feature that is desirable, useful or aesthetically pleasing

aquifer   the part of a groundwater basin that is accessed by a well, borehole or spring

arid   very dry, often without rainfall to support plants

artificial   made by people, often as a copy of something natural

availability   how easily people can access a service or facility

biodiversity   variety of plant and animal life

bores   holes drilled into the ground to access underground water resources, also called a well for larger holes

brackish   water that is slightly salty

catchment area   an area acting like a giant bucket, catching all of the water from rainfall, runoff and infiltration

central business district (CBD)   the centre of business in a town or city

change   the ways in which something is different to the past

climate   the long-term trends in the weather conditions of a place such as its average rainfall and temperature

commercial building   a building that is used for business activities

condensation   the process by which water vapour in the atmosphere cools and changes into liquid water

crop yield   the size of a harvested crop per unit area

cubic kilometres   a cubic kilometre is equal to a volume of 1000 × 1000 × 1000 metres; a cubic kilometre is also equal to a teralitre, which is exactly one trillion litres

cull   the selective slaughter of animals to reduce their population

degradation   the reduction in the quality and health of a natural environment due to natural processes or human activities

displace   force someone to move from their home, usually because of war, natural disaster or persecution

displacement   moving something or someone from its original place to somewhere else

drainage basin   an area of land where precipitation collects and drains into a central point such as a river channel

drought   an extended period of time without rain that causes water shortages and crop damage

efficiency   to use resources in the best way to avoid waste

El Niño   the opposing weather pattern to La Niña; brings long dry weather to Australia and is caused by cooling ocean temperatures. This usually means drought

elevation   height above sea level – altitude

environment   the air, water and land of a particular area, which contains people, animals and plants

environmental flows   the amount of water required to sustain freshwater environments

environmental resources   resources that are from the natural environment such as water and wood

ephemeral   something that happens only for a short time

equity   all people have equal access to resources that meet their basic needs

erosion   a process that gradually wears away and removes rock, soil and sediment by wind or water

evaporation   the process of a liquid changing to a gas, especially by heating

exploitation   the use of something in order to get an advantage from it

fauna   the animals of a particular region

fieldwork   gathering information and data about a natural or human environment outside the classroom

filtered   the process of removing solids and impurities from water

finite resources   resources that have a limit or end

fish management   a system of sustainably controlling the harvesting of large fish and other aquatic organisms, with minimum disruption to natural breeding, and allowing smaller individuals to escape and grow

floodplain   an area of flat land near a river that is often flooded when the river becomes too full

flora   the plants of a particular region

flow regime   the seasonal changes to the flow of rivers

fossil fuels   fuels that were formed underground from plant and animal remains millions of years ago; examples include gas, coal and oil

freshwater   water with less than 0.5 per cent of dissolved salts

geographical processes   a series of events or actions that change environments, spaces and places

gigalitres   a gigalitre is exactly one billion litres

glaciers   large masses of ice that move slowly; they are frozen rivers of ice that form when snow accumulates and is compacted

groundwater   water located below the Earth's surface from rainfall that has infiltrated and been absorbed by soil and porous rocks

habitat   the natural environment where an animal or plant usually lives

hard surfaces   human-made surfaces, such as concrete, which cover the natural ground and limit the amount of water that can infiltrate the soil to become groundwater

harvest   to pick and collect crops, or to collect plants, animals or fish to eat

heavy metals   dense metals such as iron and lead

heritage status   a status given to a building or area to protect it from future development and preserve its past

high tide   the time when the sea or a river reaches its highest level and comes furthest up the beach or the bank

hydroelectricity   electricity produced by the force of fast-moving water such as rivers or waterfalls

ice caps   a thick layer of ice that permanently covers an area of land

ice sheet   a thick layer of ice covering a large area of land for a long period of time

infertile   land or soil that is not good enough for plants or crops to grow well there

infiltrate   to seep into the ground so that water is absorbed by the soil

infiltration   the process by which water is absorbed into the ground

infinite resources   resources that are without limits

infrastructure   the physical structures and facilities needed within a community such as roads, buildings and pipelines

intangible   something that exists but you cannot see or touch

interconnection   the relationship between places and people, and the ways in which they influence each other

invertebrates   animals that do not have backbones

irrigation   the practice of supplying land with water so that crops and plants will grow

La Niña   the weather pattern caused by warmer ocean waters that brings higher rainfall to Australia when it occurs infrequently over a number of years. This usually means flooding

liveability   the qualities of a place that enable a person to live there with a good standard of living. To work out whether a place has a high or low level of liveability, we consider the quality of economic, environmental and social living conditions in that place

low-lying area   an area that has a very low elevation and is close to sea level, usually located near the coast

meander   the bends and curves of a river or stream

megacity   a city with 10 million or more residents

megalitre   a metric unit of capacity equal to a million litres

meteorological event   an event relating to changes in the weather such as fog, rain, storms and cyclones

meteorologist   a person who studies the atmosphere, especially the weather, and makes predictions for weather forecasts

migratory birds   birds that travel seasonally for breeding and feeding

monsoon   the seasonal changes in atmospheric wind circulation and precipitation

non-renewable resources   resources existing in limited quantities that cannot be replaced after they have all been used

nutrients   any substance that plants or animals need in order to live and grow

ore   a type of rock or soil that can be mined to obtain metal

pasture   grass or similar plants suitable for animals, such as cows and sheep, to eat

pedestrian   a person who is walking rather than travelling in a vehicle

perception   the way something is viewed or understood

percolation   the process of a liquid moving slowly through a substance that has very small holes in it

perennial   something that happens repeatedly or all the time

phenomenon   an occurrence or observable fact

polar regions   areas near the north and south poles

population density   a standard measurement of people per square kilometre, which can be calculated at different scales (suburbs, cities, countries, regions)

populous   a place that has a lot of people living in it

porous   something that has many small holes so liquid or air can pass through, especially slowly

potable   water that is clean and safe to drink

precipitation   water that falls from the clouds towards the ground, especially as rain or snow

projections   estimated forecasts based on current trends

pull factor   a reason people move in to an area

purified   the process of removing dirty or harmful substances from water

push factor   a reason people move away from an area

qualitative data   non-numerical, observed or collected through interviews, surveys, etc.

quantitative data   numbers or counts

regenerate   to grow again

renewable resources   resources that can be produced as quickly as they are used

residential building   a building that is used for private activities

root zone   the area of soil surrounding the roots of a plant

runoff   water that is not absorbed by the land and flows from high areas to low areas

rural   an area in the countryside that is not part of a large town or city

rural-urban migration   when people move from rural areas to urban areas, usually for better opportunities such as employment and education

salinity   the amount of salt contained in something

sanitation   the system for taking dirty water and other waste products away from buildings to keep places clean and protect people's health

saturate   to reach a point where soil cannot absorb any more water

scale   the size of an area and how it is viewed in relation to another area

sediment   a soft substance that is like a wet powder and consists of very small pieces of a solid material that have fallen to the bottom of a liquid

sense of place   the meaning that a person or group attaches to a specific area or space

sewage   waste matter such as human urine or solid waste

sleet   rain that also contains some ice

space   how different places, and the features within places, are distributed

species   a group of plants or animals that are classified as having the same characteristics

storm surge   a rise in sea levels due to wind and other atmospheric elements of a storm

stormwater   excessive water runoff from rain and snow after a storm

submerge   to cause something to be under water

sustainability   the wise use of resources so that they are available into the future

tangible   things that you can physically see and touch

temperate   a climate that has four distinct seasons: summer, autumn, winter and spring

thunderstorm   a storm that produces thunder and lightning and usually heavy rainfall or hail

topsoil   the soil that forms the top layer of ground where plants grow

transpiration   the process of losing water through the surface or skin of a body or a plant

tributaries   rivers or streams that flow into a larger river or a lake

tropical cyclone   a rapidly rotating storm system with strong winds and thunderstorms

tsunami   a high wave that forms out at sea due to a disturbance underground such as an earthquake

urban   relating to towns and cities

urban areas   built-up environments such as cities or large towns

urban consolidation   keeping residential development and population growth restricted to the urban areas that already exist

urban planning   the process of planning the layout and infrastructure of a place

urban sprawl   the gradual spread of cities into previously rural areas due to population growth

vegetation   the plants found in an area such as trees, shrubs and grasses

walkability   a measure of how easy it is for a pedestrian to walk around

walkable   an area that can be accessed by walking

water bore   a hole drilled through levels of the ground for the purpose of accessing the groundwater below for use on the surface

water crisis   extreme water scarcity requiring urgent action

water scarcity   a lack of freshwater resources to meet the demands of water usage within a region

water withdrawals   the total amount of water withdrawn from a surface water or groundwater source

weir   a small dam or barrier stopping the flow of a river

wetlands   an environment featuring plants that grow in water and land that is either permanently or seasonally marshy or covered with water

Economics and Business

budget   a financial plan listing expected expenses and income during a particular period

career   a job or series of jobs, generally with increasing responsibilities and pay

casual work   no guaranteed hours of work and no entitlement to sick leave or holiday leave

circular economy   an economic system aimed at eliminating waste and the continual use of resources

consumer   a person who buys goods and/or services for their own use

demand   the consumer's desire to purchase goods and services and pay the price for these

dynamic pricing   (also known as price surging) a pricing strategy in which flexible prices for services or products are set by businesses, based on the market demands at the time

entitlements   other forms of benefits that go along with income – these benefits might include leave (such as sick leave, holiday leave or study leave)

entrepreneur   a person, commonly seen as an innovator, who creates a new business, taking on the risks and enjoying most of the benefits of that business

equilibrium price   where supply and demand are balanced

financial goals   SMARTT goals to assist in saving money and reducing spending

financial objectives   a financial result an individual or a business plans to achieve within a time frame

financial planning   the range of strategies that you put in place to manage your finances to achieve your objectives/goals

for profit   a business that operates to make a profit (money) for the owners or shareholders of the business

full-time   a job that has a maximum number of hours (usually around 40 hours per week) – employees who work more than this may be entitled to overtime (extra pay at a higher rate) or accrue time off

goal   an aim or purpose

good   a physical, tangible item for sale

law of demand   the quantity purchased varies inversely with price

law of supply   an increase in price results in an increase in quantity supplied

long-term financial goals   generally achieved over a long period

market economy   an economic system in which the pricing of goods and services is determined by the interactions of buyers and sellers

Maslow's Hierarchy of Needs   the full range of needs for a human being, starting from the most basic physiological needs all the way to self-fulfilment

mixed-market economy   when a government intervenes in the economy

need   something essential for survival

not-for-profit   a business that returns profit back to the organisation to continue its work; not-for-profit businesses may derive their income from grants or donations

objective   a result an individual or a business plans to achieve within a time frame

part-time   working less than the full-time hours of 40 hours per week

producer   a person or business that provides goods

product   a good, service or idea made to be sold

relative scarcity   an assumption that many of Earth's resources are limited, while consumers have unlimited wants and needs

resources   a source of supply used to produce goods and services that meet human needs and wants

salary   a yearly figure that an employee earns; salaries are generally divided and paid weekly, fortnightly or monthly

savings   the remainder of your income once expenses have been subtracted

service   generally an action that is performed either on you or for you

short-term financial goals   can be achieved in less than one year

shortage   higher demand than supply for a product

social enterprise   an organisation that is driven by a public or community cause; social enterprises measure their success on the positive impact they make on society (and not on how much money they make)

statement   a record of the amounts of money paid into and taken out of a bank account during a particular period of time

supply   total amount of goods or services that are available to a consumer

surplus   higher supply than demand for a product

want   something that is not necessary but desirable

Civics and Citizenship

administer the law   enforce and oversee laws

bicameral   a parliament consisting of two chambers

bills   item of legislation that has not become law

constitution   a written document that outlines the principles and laws that govern a nation

conviction   a formal decision that someone is guilty of an offence

defendant   a person or company who has been accused of committing a crime

democracy   government by the people, either directly or through elected representatives

election   a local, state or national ballot cast by citizens who vote for a person from a political party

electorate   a defined area within a state or territory that is represented by a member of a political party

Federation   the union of partially self-governed states under a common central government

government   a subsection of parliament made up of those members who represent the political party that has the most seats in the parliament

interpret the law   determine the intended meaning of the laws

judge   an officer of the court who decides on cases in court

juror   a member of a jury

legislation   a law that has been passed by government

make laws   make new laws or change existing laws

minister   politician holding a ministry, a government department managing a specific sector of public administration, such as foreign affairs, environment, Indigenous Australians, etc.

prosecution   the person or company who commences legal proceedings against another party

question time   occurs when members of the parliament ask questions of the ministers. This usually occurs daily when parliament is sitting

secular   not connected with spiritual or religious matters

separation of powers   the distribution of power between parliament, the judiciary and the executive

stolen generations   the generations of First Nations children who were forcibly removed from their families, as part of the policy of assimilation, under the misguided assumption that they were rescued, and not stolen

witness   a person who sees an event take place

Acknowledgements

Cognitive verbs glossary

Knowledge utilisation

Conduct   direct an action or course

Create   produce or evolve from your own thought or imagination; reorganise or put elements together into a new pattern or structure or to form a coherent or functional whole

Decide   examine alternatives to choose an option; reach a resolution as a result of consideration

Determine   demonstrates understanding of knowledge using varying levels of skills; establish, conclude or ascertain after consideration, observation, investigation or calculation; decide or come to a resolution

Evaluate   make an appraisal by weighing up or assessing strengths, implications and limitations; make judgments about ideas, works, solutions or methods in relation to selected criteria; examine and determine the merit, value or significance of something, based on criteria

Generate   produce; create; bring into existence

Investigate   carry out an examination or formal inquiry in order to establish or obtain facts and reach new conclusions; search, inquire into, interpret and draw conclusions about data and information

Justify   give reasons or evidence to support an answer, response or conclusion; show or prove how an argument, statement or conclusion is right or reasonable

Predict   give an expected result of an upcoming action or event; suggest what may happen based on available information

Propose   put forward a point of view (or an idea, an argument or a suggestion), for consideration or action

Research   study in detail, especially in order to discover new information or reach a new understanding

Synthesise   combine different parts or elements (such as information, ideas or components) into a whole, in order to create new understanding

Analysis

Analyse   consider in detail, for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences

Apply   use or employ in a particular situation

Compare   estimate, measure or note how things are similar or dissimilar

Consider   think deliberately or carefully about something, typically before making a decision; take something into account when making a judgment; view attentively or scrutinise; reflect on

Distinguish   recognise as distinct or different; note points of difference between; discriminate; discern; make clear a difference/s between two or more concepts or items

Examine   determine the nature or condition of something

Generalise   to make a statement that relates to many people, things, or conditions, based on limited facts

Infer   reach a conclusion on the basis of evidence or reasoning

Interpret   explain the meaning of information or actions

Judge   form an opinion or conclusion about; apply both procedural and deliberative operations to make a determination

Reflect on   think about deeply and carefully

Suggest   communicate or show an idea to consider

Comprehension

Communicate   convey knowledge and/or understandings to others; make known; transmit

Describe   give an account of characteristics or features

Explain   provide additional information that demonstrates understanding of reasoning and/or application

Illustrate   show the meaning or truth of something more clearly, especially by giving examples

Organise   arrange, order; form as or into a whole consisting of interdependent or coordinated parts, especially for harmonious or united action

Represent   use words, images, symbols or signs to convey meaning

Sequence   place in a continuous or connected series; arrange in a particular order

Retrieval

Demonstrate   prove or make clear by argument, reasoning or evidence, illustrating with practical example; show by example; give a practical exhibition

Identify   establish or indicate who or what someone or something is

Recognise   identify or recall particular features of information from knowledge; identify that an item, characteristic or quality exists; perceive as existing or true; be aware of or acknowledge

Select   make a choice between options

Use   operate or put into effect; apply knowledge or rules to put theory into practice