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HUMANITIES  
AND SOCIAL  
SCIENCES**  
FOR WESTERN AUSTRALIA

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present. Cambridge University Press is committed to honouring Australian Aboriginal and Torres  
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their rich contribution to society.*

## About the cover



Pictured is the Giant Tingle  
tree (a huge red tingle tree  
that has been hollowed  
out by fire) near Denmark,  
Western Australia.

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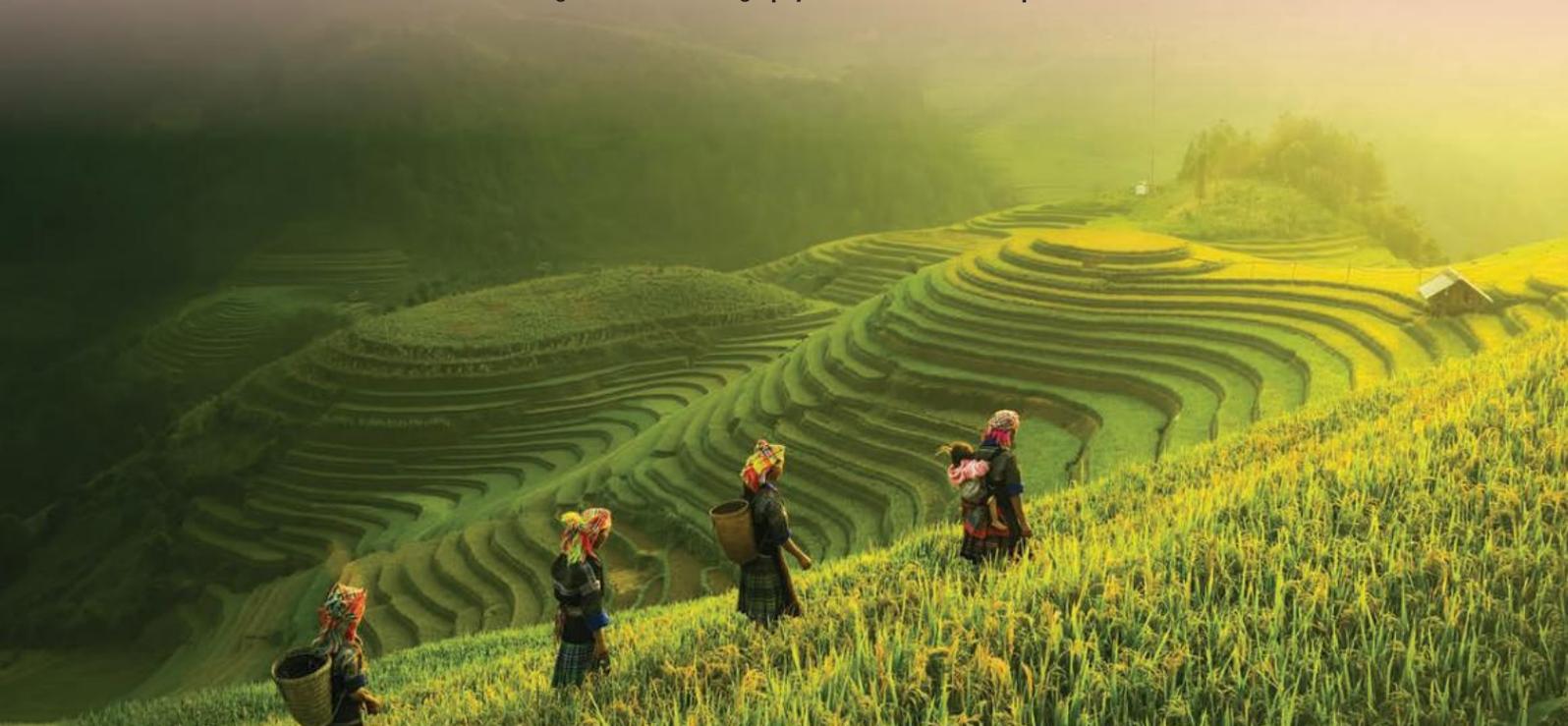
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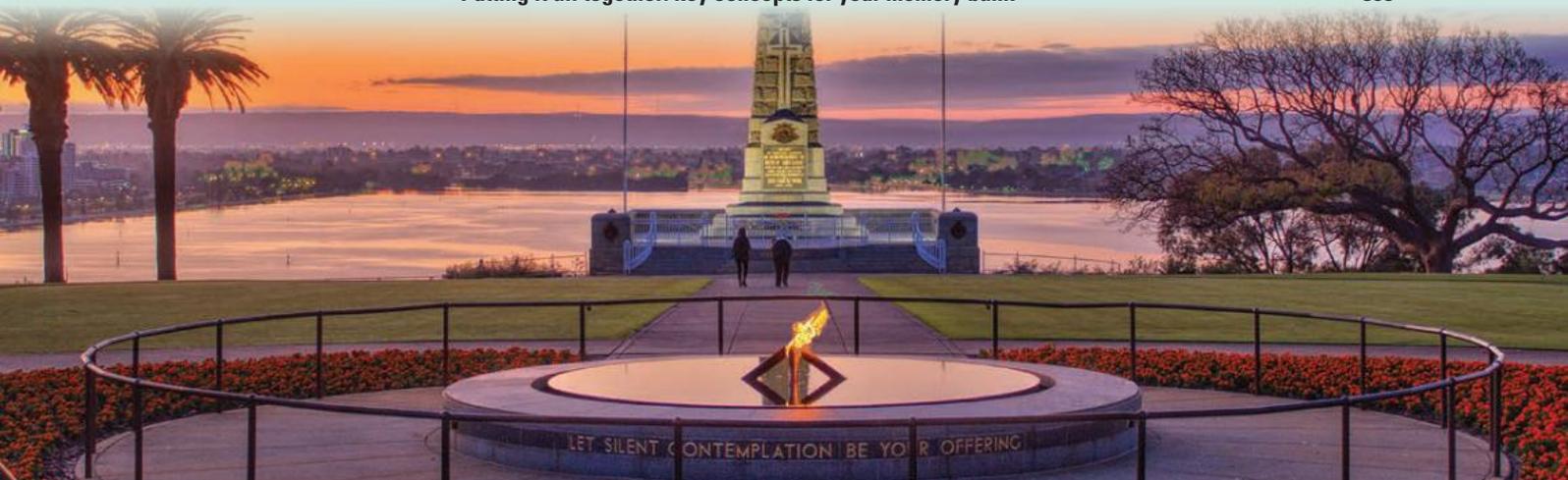
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# About the authors



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*Sally would like to thank her colleagues at CUP for their support and patience, and to her family for their understanding and sense of humour.*



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*Anthony would like to thank his wife, Susannah, for her patience and support during the writing of this book.*



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*Nathan would like to thank his wife Kate and their two children for their support during the writing of this book.*

## About the illustrator



**Jean-Michel Girard** is an illustrator based in Québec City, Canada, who has 30 years' professional experience in 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 long-time history aficionado. His attention to historical detail is extraordinary. Jean-Michel uses digital tools but with traditional drawing methods.

# How to use this resource

This book contains four parts, with each part covering one of the four topic areas: Civics and Citizenship, Economics and Business, Geography, and History.

## Part 4 History

**What is History?**

History is a subject of investigation that allows us to understand the past. It is a discipline that seeks to understand the past by using evidence to answer questions, drawing conclusions and making judgements about the past.

**Introducing historical concepts and skills**

Historians study the past in order to describe and understand the lives of people who lived in the past. They do this by using evidence to answer questions about the past. The evidence they use is called historical sources. These sources can be written or non-written, and can be primary or secondary. They can be used to answer questions about the past, and to make judgements about the past.

**Using historical sources as evidence**

Historians use historical sources as evidence to answer questions about the past. They use these sources to describe and understand the lives of people who lived in the past. They also use these sources to make judgements about the past.

The History topic includes a detailed Historical overview. Each chapter within the depth studies of History also open with timelines of key events.

All chapters have been closely aligned to the Western Australian Curriculum for Humanities and Social Sciences (HASS) for this year level.

## Unit 1 Biomes and food security

**Overview**

In the middle of the twenty-first century, rising temperatures and rising sea levels are expected to have a significant impact on the world's food security. This unit explores the impact of climate change on food security, and the role of biomes in food security.

**Geographical concepts and skills: space environment and interconnection**

This unit focuses on understanding the relationship between biomes and food security. It explores the impact of climate change on food security, and the role of biomes in food security.

**Learning goals**

After completing this unit, you should be able to:

- Describe the different biomes and their characteristics.
- Explain the impact of climate change on food security.
- Describe the role of biomes in food security.

Each part of the book begins with a range of overview spreads introducing you to the subject at hand.

Chapters open with a short **Setting the scene** story to hook you into the new topic, along with a **Making Thinking Visible** activity to get you thinking.

## CHAPTER 4 The business environment: innovation and competitive advantage

**4.1 Setting the scene: good for the planet, good for business**

Businesses are increasingly being asked to do more than just provide products and services. They are also being asked to be socially responsible and to contribute to the community. This chapter explores the business environment, innovation, and competitive advantage.

**MAKING THINKING VISIBLE 4.1**

**Think, puzzle, explain**

3 groups of 3-4 students. Each group is given a different scenario to discuss. They are then asked to explain their thinking to the other groups.

All relevant curriculum key concepts and HASS skills are listed beneath each activity for ease of reference for teachers.

**Chapter overview** pages provide an Introduction, list of Learning goals, and Digital resources available for the chapter. Some chapters also include a list of skills you will develop by working through the topic.

## 6.2 Chapter overview

**6.3 The distribution and characteristics of biomes**

**Learning goals**

After completing this chapter, you should be able to:

- Describe the different biomes and their characteristics.
- Explain the impact of climate change on food security.
- Describe the role of biomes in food security.

**Digital resources**

Use the interactive features to access:

- Interactive Content
- Image galleries on other web resources

Relevant videos can also be viewed on your phone by accessing the QR code in the margin.

A variety of **activities** explore key concepts and enable you to develop HASS skills while engaging with the topic.

**Glossary terms** are bolded in the text, defined on the page and collated in the digital versions of the textbook for easy reference.

The **End of chapter activities** contain a variety of concluding tasks to consolidate and extend your learning.

**Making connections between the HASS topics:** at the end of each topic area, we include a range of activities to help students and teachers make connections between the topics and expand their understanding of HASS concepts.

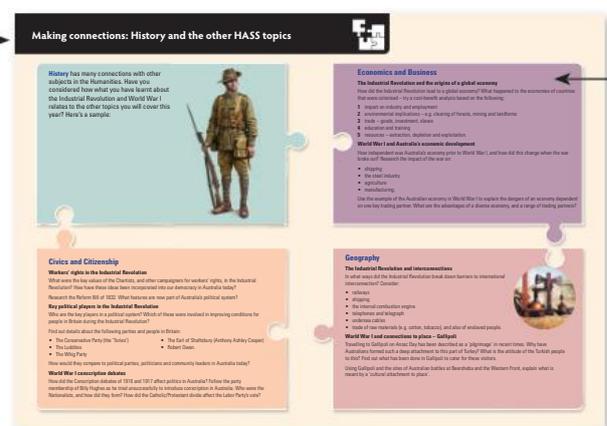
At the end of the book is another activity which brings the four topics together, called **Putting it all together: key concepts for your memory bank**. The authors have chosen certain key concepts per topic area to highlight in each year of the course from the Western Australian Curriculum. This activity brings these concepts together and can be used to consolidate the year's learning in HASS, for revision or as an assessment task.



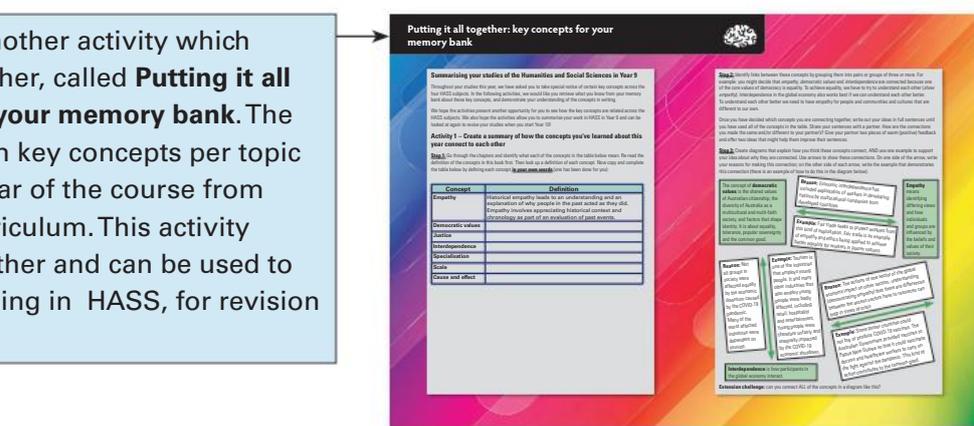
History and Geography chapters also include many **skill-based activities** aligned to the curriculum.



Each chapter section ends with a set of **End of section review questions**, to check recall of the material, as well as the ability to interpret it and create arguments. Throughout the year 9 and 10 books, there are also extension questions for students looking for a challenge.



These activities are different for each topic, so they are useful no matter in which order the topics are learned.

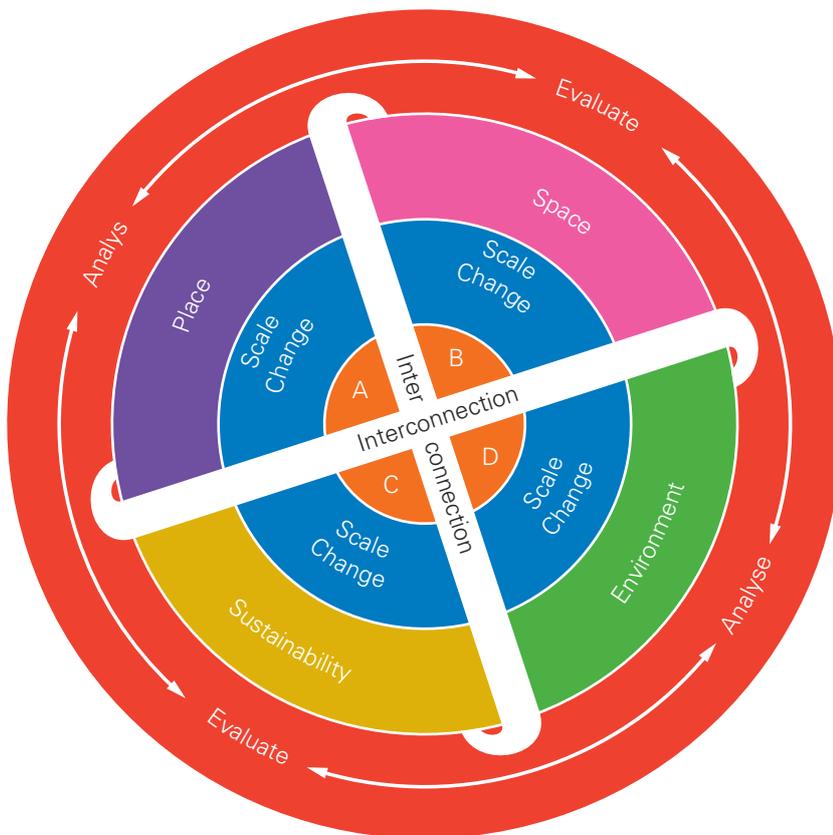


The Interactive Textbook includes a range of additional digital resources, including videos, image galleries, interactive activities, Scorchers quizzes and more.

# Key concepts and HASS skills

The Western Australian Humanities and Social Sciences curriculum lists a range of **HASS skills** applicable across the four subject areas, as well as **Key concepts** per subject.

It is important to realise that, in each subject, the HASS skills and Key concepts should be interrelated. For example, the following diagram demonstrates how the relationship between concepts and skills can work in the study of Geography.



## Legend for innermost circle:

- A = Questioning
- B = Researching
- C = Communicating
- D = Reflecting

The skills of **questioning**, **researching**, **communicating** and **reflecting** are in the centre of the diagram because they are required to understand all Geography concepts.

**Change** and **scale** affect **place**, **space**, **environment** and **sustainability** (and interconnection). The concept of interconnection ties all the other concepts together, while the skills of **evaluation** and **analysis** are the most crucial in Geography.

Please note: further example diagrams of how this relationship works for the other HASS subject areas (Civics and Citizenship, Economics and Business, and History) can be found in the digital versions of this text.

In this series, the Key concepts and HASS skills used are **indicated below each activity** for ease of reference. Each topic also concludes with a **Making connections** activity, which helps you to see links between the topics. The **Putting it all together: key concepts for your memory bank** task at the back of the book is designed to help you integrate the skills and concepts you have learned for each topic.

# Part

# 1



# Civics and Citizenship

## What is Civics and Citizenship?

All Australians are citizens of a democratic country. This provides the opportunity to influence the decisions that impact you. The age that you can drive, your hours and rate of pay at work, the age that you can drink alcohol are all decisions or laws made by governments. Every aspect of your life is affected by laws telling you what you must or cannot do; for example, when driving you must wear a seatbelt and it is illegal to speed.



**Video**  
Unit overview

Civics and Citizenship studies the political and legal systems that make and enforce these laws, and evaluates the effectiveness of these systems. This includes examining Australia's courts system, its structures and rules, and how it is able to solve disputes within Australian society. This subject considers the diverse range of people that are citizens in Australia and how this influences the laws that are made. Most importantly, studying Civics and Citizenship provides the knowledge you need to actively participate in Australian democracy as an individual or in a group; to have a say about the issues you care about; and to actively seek who represents you, through such methods as elections and influencing laws that affect your life.

► **Figure A** The Supreme Court of Western Australia – the highest court in the state



# CHAPTER 1

## Government, democracy and justice



### 1.1 Setting the scene: Clive Palmer's coronavirus court challenge

**Mining tycoon Clive Palmer has lost his High Court challenge against the Western Australian Government's border closure.**

The COVID-19 pandemic has impacted many individual rights and freedoms. Due to the response of governments, some of these rights and freedoms were restricted in order to protect community safety. Western Australia was quick to close its borders to all Australian states, with few exceptions. Clive Palmer believed this emergency law breached the Australian Constitution's right to free interstate trade, commerce and communication.

Individuals are able to challenge laws created by parliaments or actions by governments when they believe they are outside or beyond powers granted in the Australian Constitution. Disputes regarding the Constitution are taken to the High Court. Clive Palmer began his challenge to Western Australia's border closure in the Federal Court, which found in favour of the Western Australian Government, stating the measures were effective in reducing the spread of coronavirus.

Clive Palmer appealed his case to the High Court of Australia. Prime Minister Scott Morrison and the federal government initially supported Palmer's claims, but the other Australian states and territories supported Western Australia and its hard border closure. A majority of the seven justices within the High Court found that the quarantine direction and emergency management laws did not breach the Constitution.



▲ **Figure 1.1** Businessman Clive Palmer challenged the Western Australian Government's COVID-19 border closures. When he lost, Palmer was ordered to pay WA's legal costs for the case, which was estimated to be in the hundreds of thousands of dollars.



◀ **Figure 1.2** WA premier, Mark McGowan, was in favour of the Western Australian border closures for greater protection.



▶ **Figure 1.3** The High Court of Australia in Canberra

## MAKING THINKING VISIBLE 1.1



### Compass points

Reflect on the case described in '1.1 Setting the scene' and the proposition that 'It is important for individuals to have the right to take disputes against their government to the courts'. On your own, or with the person sitting 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 suggestions for moving forward**

What is your current stance or opinion on the proposition?



**Key concepts:** democratic values, justice



**HASS skills:** questioning and researching, analysing



## 1.2 Chapter overview

### Introduction

This chapter examines the features of Australia's political and legal system, in particular the role of political parties and independents, and considers how citizens' political choices are influenced at election time. Australia's court system is also investigated, including its structure and processes for resolving disputes. The chapter will also explore the principles of justice within our legal system that ensure fairness in court decisions.

### Learning goals

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

- What are the key features of the Australian political system and what is the role of political parties and independents in this system?
- How is government formed in Australia?
- What methods do political parties and candidates use to influence voters at election time?
- How is the Western Australian court system structured?
- How do courts resolve disputes and make law through their judgments?
- What are the principles of justice that underlie the Australian legal system?
- What factors can undermine the achievement of justice in the courts?



▲ **Figure 1.4** WA Premier Mark McGowan and wife Sarah voting in the March 2021 state election



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



**Video**  
Five interesting facts about Australia's political system



## 1.3 The key features and role of political parties in Australia's democratic system

### FOCUS QUESTIONS

- What are the key features of the Australian political system?
- What is the role of political parties and independents in this system?

### Key features of Australia's system of government

The power to rule a country is achieved in many ways, including by birth (hereditary), by force (authoritarian) or by popular choice (democratic). Rulers use **institutions**, such as parliament, the public service, police, courts and the army, to exercise power and rule a country. How leaders gain power and the institutions they use to rule are known as a **system of government**. Australia's system of government is called a **liberal democracy**. This means that it is a 'representative democracy', where citizens, the people, vote to elect representatives to make decisions regarding the running of their country on their behalf. If the people are unhappy with their representatives, they can vote them out at an election. Liberal democracies also follow the '**rule of law**', meaning that in exchange for obeying the law, citizens expect laws to be fair and to apply equally to all members of the community.

Australia has multiple systems of government. Australia was set up as a **constitutional monarchy** in 1901 when the Australian Constitution was enforced as an act of the British Parliament. Australia is also a **federal system**, with law-making power and the responsibility for governing shared by a national government, known as the

Commonwealth, and by state and territory governments, such as Western Australia. At both levels, laws are made by a parliament consisting of members elected by voters from different geographic areas (electorates) who make laws on their behalf. The Commonwealth and Western Australian parliaments are **bicameral**, meaning they consist of two chambers or houses: a lower house and an upper house. For a law to pass, it must be supported by a majority (more than half) of members in both houses of parliament. Table 1.1 outlines the features of the Commonwealth and Western Australian parliaments.

In parliament, proposed laws are presented as bills. Members debate them and then vote on them, in each house. If a bill passes (gets a majority of the vote) in both houses, it becomes law. This is why having the most members (seats) in parliament is vital.

**institution** an organisation used by political leaders to gain power or rule a country (e.g. a public service department, police or the courts)

**system of government** how the institutions used to gain power and rule a country are organised. There are many different systems of government, including *democratic* and *authoritarian* governments.

**liberal democracy** a system of government that is a representative democracy and follows the rule of law. Liberal democracies protect individual rights as community members obey laws made by parliaments in exchange for parliaments making laws that protect rights such as religious choice and the right to education.

**rule of law** a concept in which all people, institutions, parliaments and governments are accountable to the law. The laws are applied equally, no matter the status of individuals. No one can be above the law, including the lawmakers.

**constitutional monarchy** a system in which the king's or queen's power is limited, because they act only on the advice of the politicians who form the government in parliament

**federal system** a system of government where power is shared between a central, national government and regional governments which can pass certain types of internal laws in regional assemblies

**bicameral** a parliament with two chambers, usually a lower house and an upper house

## FEATURES OF THE WESTERN AUSTRALIAN AND COMMONWEALTH PARLIAMENTS

	Western Australia	Commonwealth
Level of government	State	Federal
Name of upper house	Legislative Council	Senate
Number of representatives in upper house	36	76
Electoral term	4 years	6 years
Name of lower house	Legislative Assembly	House of Representatives
Number of representatives in lower house	59	151
Electoral term	4 years	3 years
Title of Queen's representative	Governor	Governor-General
Title of leader of government	Premier	Prime Minister
Examples of areas of law-making responsibility	Schools, public transport, police and hospitals	Defence, foreign affairs, tertiary education and Indigenous affairs

▲ **Table 1.1** Key features of the Western Australian and Commonwealth parliaments



▲ **Figure 1.5** The Commonwealth Parliament House, Canberra



▲ **Figure 1.6** The Western Australian Parliament, Havelock Street, West Perth

**government** the leadership of a country (or state) responsible for its day-to-day administration

**absolute majority** a total (of votes or electoral seats) that is greater than half

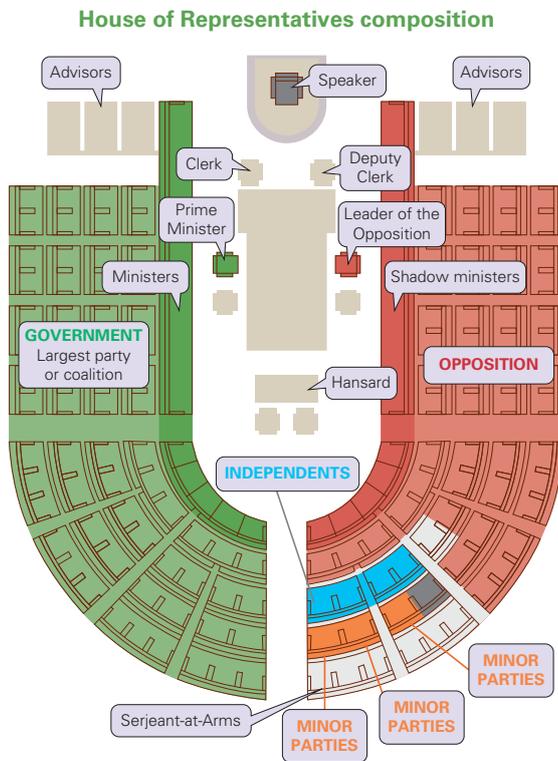
**coalition** an agreement between two or more parties to work together to form government and run the country. The responsibilities of government departments will be split between the parties.

A **government** is responsible for the administration – day-to-day running – of the state or country. The government is led by the Prime Minister (Commonwealth) or Premier (state) and is made up of ministers, who are each responsible for the running of a department of the public service. For instance, there is the Minister for Education

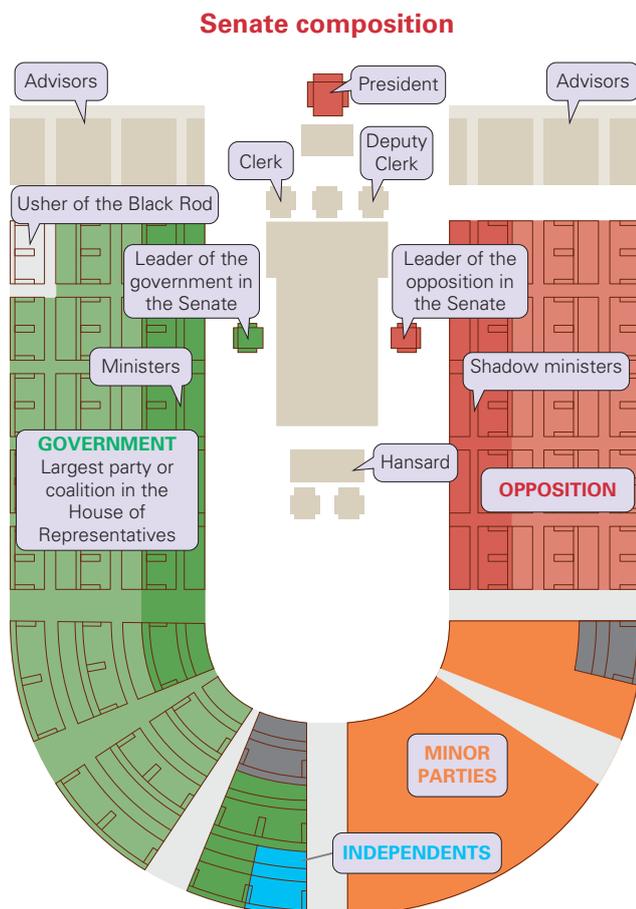
and the Minister for Defence. To form government and to appoint the prime minister/premier and ministers, a political party, or parties, usually achieves an **absolute majority** of seats in the lower house of parliament. This means they have more seats than all the other parties together so they can't be outvoted in debates. A party may form a **coalition** with another party in order to achieve the largest number of seats and so form government. The most common coalition in Australia is between the Liberal Party of Australia and the National Party.

If an absolute majority cannot be formed by a major party or coalition of political parties, this is called a **hung parliament**. A government can be formed by a party or coalition with less than an absolute majority of seats. This is called a **minority government**, which requires the support of minor parties and/or independent members of parliament to vote with them in debates.

**hung parliament** when no political party or coalition achieves an absolute majority in the lower house of parliament  
**minority government** a government that is formed by less than an absolute majority but the largest party/coalition can only be outvoted in debates if all other parties join up to vote against them



◀ **Figure 1.7** The structure and composition of the Australian Parliament: the House of Representatives



◀ **Figure 1.8** The structure and composition of the Senate of the Australian Parliament. Note that the government represented in this diagram has the majority of seats in the Senate, but a party or coalition does not need to have the majority of members in the Senate to form government; it only needs a majority of members in the House of Representatives. Governments often have a minority of members in the Senate.



◀ **Figure 1.9** Minority Labor Government under former Prime Minister Julia Gillard, who gained the support of the Greens and independents Rob Oakeshott, Tony Windsor and Andrew Wilkie. In the 2010 election, Labor and the Liberal-National Coalition both won 72 seats, leading to a hung parliament. The three independents and one Greens MP gave Labor 76 seats in the 151-seat House of Representatives. From the top left: Treasurer Wayne Swan, Greens Senator Rachel Siewert, Greens Senator Christine Milne, Greens Senator Sarah Hanson-Young and Greens MP Adam Bandt; from the bottom left: Prime Minister Julia Gillard and Leader of the Greens–Senator Bob Brown.

In Australia, citizens do not vote directly for the leader of the government, the prime minister, they vote for parties or independents. Each political party has a leader who is chosen by the political party members. This leader should represent the values and beliefs of the party. To become prime minister, a government must

be formed first, and the leader of the political party or coalition with the majority of seats in the House of Representatives will be appointed prime minister by the Governor-General. A prime minister may change between elections because a political party may hold a vote to change their leader.



▲ **Figure 1.10** Recent Australian Prime Ministers: Julia Gillard (2010–13), Tony Abbott (2013–16), Malcolm Turnbull (2016–18) and Scott Morrison (2018–present, at time of publication)

## Amazing but true...

Did you know that we have a Queen of Australia? Elizabeth II is Queen of the United Kingdom and the other Commonwealth realms, including our nation, and has been on the throne since February 1952. Under the Australian Constitution, the monarch's role is exercised by the Governor-General as the Queen's representative. However, you may be wondering what is the role of a 'Queen's representative' in democratic Australia? The answer is that although the Australian system of government is based on the idea of liberal democracy, it is also a constitutional monarchy. This means that while the Commonwealth and state/territory governments are chosen by the people through elections, the highest political office – the Head of State – is in fact the Queen of Australia. She is represented in Australia by the Governor-General and state Governors. However, the Governor-General and Governor roles are mostly ceremonial. In practice, the executive powers of the Head of State are carried out by the prime minister and state premiers.

## PARTY REPRESENTATION IN THE AUSTRALIAN PARLIAMENT

Political party or independent	House of Representatives seats won		Senate seats won	
	2016	2019	2016	2019
Australian Labor Party	69	68	26	12 (Including Country Labor)
Liberal Party of Australia	45	44	24	15
National Party	10	10		1
The Liberal National Party of Queensland	21	23	5	3
The Greens	1	1	9	6
Centre Alliance		1		
Katter's Australia Party	1	1		
Nick Xenophon Team	1		3	
Independents	2	3		
Pauline Hanson's One Nation Party			4	1
Country Liberals (NT)			1	1
Liberal Democrats			1	
Family First			1	
Jacqui Lambie Network			1	1
Derryn Hinch's Justice Party			1	
TOTAL	150	151	76	40 (Not all senators were up for election)

▲ **Table 1.2** Party representation in the Australian Parliament after the 2016 and 2019 elections

### Key concepts for your memory bank



Australia's political system is democratic, and the concept of **democratic values** relates to the things that people consider to be important about our way of life as a society. It refers to people having decision-making power over their lives. In a representative democracy, citizens vote for representatives to act on their behalf in parliament and make laws. Many of these representatives are from political parties, and those with the most votes in an election are able to form a government. Having the freedom in a democracy to contribute to these decisions on who leads us is a cherished democratic value. Democratic values also include the diversity of Australia as a multicultural and multi-faith society and factors that shape identity. It is about equality, tolerance, popular sovereignty and the common good. *Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*

## Political parties and independents

At election time, citizens in a representative democracy face the difficult decision of who to vote for. Most people vote for the candidate

whose values and beliefs they believe most closely reflect their own. Elected members in parliament tend to form alliances to vote together. Therefore, over time in most democracies, political parties have formed.

### Political parties

Political parties are groups of people with similar views who join together with the aim of having their members elected to parliament with the hope of forming or influencing government. A **party platform** outlines the aims, values and **policies** of a political party, which indicate what the party

would do if elected to government, or what policies it would support.

In Australia there are over 500 registered political parties. The two main political parties are:

- 1 the Australian Labor Party (ALP), which is the oldest party in Australia, and traditionally represents the interests of unions and workers
- 2 the Liberal Party, formed in opposition to the ALP and meant to represent the interests of small businesses and **free enterprise**.

The Liberal Party usually governs in coalition with the National Party, a party formed to represent people living in regional areas. In coalition they are known as the Liberal–National Coalition. These parties and the ALP are described as ‘major parties’, as they aim to form government by having their candidates elected to a majority of seats in the lower house of parliament.

They have significant support from voters. Other parties that lack the broad support to form government are known as ‘minor parties’, and include the Greens and Pauline Hanson’s One Nation. A more recent development in political parties is that of the ‘micro party’. These parties

often have a narrow set of policy ideas and interests and their support is limited. They include parties such as the Animal Justice Party and the Help End Marijuana Prohibition (HEMP) Party.

Standing for election as a candidate of a political party makes electoral success more likely. However, party membership is not compulsory and candidates standing without support of a political party are known as **independents**.

### Independents

Independents are individuals who would like to be elected as a representative of their electorate in parliament but whose ideas and policies do not align with any party, and they choose to run as a candidate on their own. An independent’s role in parliament is the same as those who belong to political parties: they can debate on matters of interest and introduce bills. However, as bills require majority support to pass, independents’ bills are often defeated. This does not mean an independent lacks influence. In the instance of a minority government, independents may hold the **balance of power**. A government may spend time and effort persuading an independent to support a bill to ensure it is passed, and in return may promise to support a policy that the independent favours.

▼ **Figure 1.11** A voter casts their ballot in the 2019 federal election



## END OF SECTION REVIEW 1.3



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Identify a system of government.
- 2 Describe two features of a liberal democratic system of government.
- 3 Compare and contrast the similarities and differences between the Commonwealth parliament and the Western Australian parliament.
- 4 Describe what a political party's purpose is and list the two main political parties in Australia.

#### Interpret

- 5 Explain how government is formed in Australia and how the prime minister is determined, using information from Figure 1.7.
- 6 Explain the difference between a 'major', 'minor' and 'micro' political party.

#### Argue

- 7 Why might a voter choose to vote for a minor or micro party when these often do not win seats in parliament?
- 8 Discuss one argument for and one argument against the statement: 'an independent has limited power to make and change laws in parliament'.

#### Extension

- 1 Do you think the Australian political system is reflective of community beliefs, values and choices? In developing your response, consider how positions of power such as the Queen, Governor-General and Prime Minister are chosen and the variety of parties that are elected to parliament.
- 2 Using the Australian Electoral Commission (AEC) website, choose a registered political party and then conduct research about the political aims and goals of this group, its leader/s, logo and slogan. Explain who you think would vote for this political party and why.



**Key concepts:** democracy, democratic values, the Westminster system, participation



**HASS skills:** questioning and researching, analysing, evaluating



## 1.4 How citizens' political choices are shaped

### FOCUS QUESTION

What methods do political parties and candidates use to influence voters at election time?

#### Personal ideology

How should I vote? This is the question facing voters in a representative democracy at election time, and the choice that you will be faced with in the near future. Shaping this choice are many factors, including a citizen's personal **ideology**, which is their belief in how a country or state is best run. This includes the issues and policy areas they believe are most important and how they balance their

**ideology** a set of beliefs about how a country is best run and its political system organised

**interest/pressure groups** groups of people formed to promote change to the law in a particular area or issue

**media** organisations that publish or broadcast information

**campaign** an organised series of events and advertising with the aim of having voters choose a particular candidate

own self-interest with the needs and welfare of the community as a whole. A person's ideology is shaped by many influences, including their family background and life experiences such as education, work and travel.

#### Interest and pressure groups

At election time many groups in the community actively seek to shape the choices of voters. Political parties, as described earlier in this chapter, seek to have their candidates elected to parliament. **Interest and pressure groups**, such as the students inspired by Greta Thunberg who formed 'School Strike 4 Climate', aim to influence who is elected and their decisions in parliament or government. They do this through methods such as petitions, protests, lobbying and the use of the **media**.

#### Campaigns

Interest groups, pressure groups and political parties will run dedicated **campaigns** that use a variety of methods to sway voters' choices at the polling booth. A campaign allows a candidate, political party or interest group to put forward a message to persuade voters to vote in a particular way. Traditional forms of campaigning

▼ **Figure 1.12** Voting is compulsory in Australia's democracy. Who knows how these people voted at the Cottesloe Civic Centre in the electorate of Curtin on election day on 7 September 2013, but as a result of the election the Coalition Government came into power under Prime Minister Tony Abbott.



and advertising during election time include mail drops, advertising in newspapers, placards and signs in public spaces and appearances at community events. These campaign methods provide opportunities to present information about a political party's perspective on issues and policy it wants to implement if elected and persuade voters to choose its candidates. An interest or pressure group does not usually aim to get specific candidates elected but may try to convince voters which parties they should and should not vote for.



▲ **Figure 1.13** A tweet from WA Premier Mark McGowan showing him meeting with business groups

## Traditional media

Other methods used to influence voters at election time include traditional media such as television and radio. Advertisements, varying in length, will be played at particular times of the day to target viewing or listening audiences. Leaders of the major parties will also engage in televised public debate, where they are asked a number of questions from a debate host or audience members on topics of interest. How the leaders respond to questions and conduct themselves during the debate can influence voters to choose their particular party representative at election time.



▲ **Figure 1.14** Prime Minister Scott Morrison and Bill Shorten, who was the opposition leader at the time, participating in a televised debate in Perth held on Channel 7 during the 2019 federal election campaign

## Opinion polls

Opinion polls are surveys conducted by organisations about the feelings and perceptions of the public on their interest in political issues, the performance of political parties and their leaders, and who they intend to vote for. Media organisations and political parties hire companies to survey voters. Voters are asked a number of questions and the information is used to determine which political party or leader is most preferred. Political parties can modify and change campaign strategies based on the results of these surveys to appeal to a greater number of voters. It is important to note that opinion polls are generated from a small proportion of the community, even if the survey targets a number of different demographics (such as age, gender, location and occupation).

## Social media

An emerging method used by candidates, political parties and interest groups is posting on social media. Accounts are created on platforms such as Facebook, Instagram and Twitter, where posts can be quickly uploaded to thousands of followers to update the public on the activities and locations of candidates. Social media has its advantages, such as its low cost and easy operation, allowing political groups and voters to engage and discuss content. However, it also has its disadvantages. Refer to Case study 1.1 and the 'fake news' article.

## CASE STUDY 1.1



### The pitfalls of social media during an election

In 2019, political parties and the candidates they had selected for election fell prey to a number of problems through social media. Melbourne-based Labor candidate Luke Creasy and Tasmanian Liberal candidate Jessica Whelan were forced to resign their candidacies over Facebook posts made in 2017 and 2012. Luke Creasy made lewd comments and jokes about rape, while Jessica Whelan was criticised for Islamophobic comments. The candidates chose to resign, even after denouncing their past posts and being questioned as to whether they were appropriate potential political representatives if they had previously expressed prejudiced and discriminatory views. Australian MP Angus Taylor suffered an embarrassing mistake on his Facebook page (later these were reported on Twitter) when he was promoting the introduction of new carparks in his electorate: he accidentally used the same account to congratulate himself on his achievement when he clearly meant to go into another account not in his name. He commented on his own post, 'Fantastic. Great move. Well done Angus.' Questionable digital footprints are not the only concern with social media as a campaign platform during election time. Foreign influences (groups from other countries) have increasingly been used to influence voters on social media. These groups can disguise their identities by creating false profiles and post false content as well as 'troll' individuals by making controversial comments to generate conflict and mistrust.

Media outlets such as television, radio and newspapers, as the main source of political information, are traditionally the biggest influences on a citizen's voting choices. However, this influence is diminishing as more and more voters use digital sources to access the news. The fact that these digital sources, particularly social media, aren't as strictly edited as traditional media has led to criticisms of 'fake news' (misleading or false reports or information). Both the 2016 and 2020 US presidential elections and the 2016 and 2019 Australian federal elections featured accusations that 'fake news' affected voters' choices, distorting the results of the elections. In Australia during the 2016 election campaign, Labor was credited with the 'Mediscare' campaign in which it claimed a Liberal government would increase doctor fees. In the 2020 Queensland election, Clive Palmer's United Australia Party claimed Labor would introduce a 'death tax'. Clive Palmer did not provide evidence of his source for this claim.

**fake news** deliberately misleading or false news reports



▲ Figure 1.15 Federal MP Angus Taylor



▲ Figure 1.16 Fake Tweets impersonating former US President Donald Trump.

**Stop and Consider campaign**  
2019 federal election

AEC

For the 2019 federal election, the Australian Electoral Commission ran a public information campaign branded with the tagline 'Stop and Consider'.

The campaign was the first of its kind run by the AEC and encouraged voters to check the source of electoral communication they saw, heard or read to avoid being misled by disinformation.

**Electoral communication - the AEC's role**

There are no provisions in the Commonwealth Electoral Act 1918 relating to truth in electoral communication and, as such, the AEC has no legislative power in this regard.

Australian electoral legislation defines 'electoral matter' and requires any material that falls under the definition to be appropriately authorised. The intent of the legislation is to provide clarity regarding the source of electoral communication. The scope of the AEC's role with regard to electoral communication is therefore firmly centred on the requirement for an appropriate authorisation.

**Electoral disinformation - concerns**

While conscious of the risks to trust regarding truth in electoral communication, the AEC - as the independent body entrusted with conducting federal elections - has a significant interest in the effect of electoral disinformation on the continued trust in the integrity of federal election processes and results.

Electoral disinformation has always existed. However, the growth of digital platforms - particularly social media - and the changing way in which people use these channels means disinformation is now often disseminated easily, to a huge number of people and in an extremely short period.

Evolving campaigning tactics in democracies around the world has seen social media become a much more prominent part of the electoral integrity conversation. In recent Australian federal elections, there has also been an increased awareness among Australians of the potential for electoral interference with coverage of election campaigning tactics increasing.

The Stop and Consider campaign was implemented in response to this growing global concern about threats to electoral integrity.

◀ Figure 1.17 AEC Stop and Consider campaign to combat fake news





## ANALYSIS QUESTIONS

- 1 Define 'fake news'.
- 2 List the advantages and disadvantages of using media such as television and radio for an election campaign.
- 3 Discuss which method of campaigning is more effective: social media or traditional media. Provide evidence to support your ideas.



**Key concepts:** democracy, democratic values, participation



**HASS skills:** analysing, evaluating

## END OF SECTION REVIEW 1.4



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What is an election campaign?
- 2 Describe two methods that a political party or interest group may use in an election campaign to influence voters.
- 3 Outline how opinion polls are used during election campaigns.

#### Interpret

- 4 Explain why 'fake news' is more likely to be found on digital social media rather than traditional media.

#### Argue

- 5 'A debate by political party leaders during the election campaign is the best way to determine who a voter should choose.' Discuss one argument in support of this statement and one argument against this statement.

#### Extension

- 1 Choose an Australian political party, interest group or politician and investigate the social media profiles of this person or group (Facebook, Instagram and Twitter pages). Identify and describe two to three key posts that stand out and explain the target audience, message and purpose of the post and the features or elements that would appeal to voters and influence them to vote for that group or candidate.
- 2 It's party time! Create a political party and hold an election, doing the following steps:
  - Form small groups based on an issue members feel strongly about.
  - Name your political party and outline its party platform.
  - Prepare materials such as posters, pamphlets or Facebook profile page and launch your campaign (present to the class).
  - Hold an election.
  - Reflect on the election result. Did the party with the best platform win? What factors decided the vote?



**Key concepts:** democracy, democratic values, participation



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 1.5 The Australian legal system

### FOCUS QUESTIONS

- How is the Australian court system structured?
- How do courts resolve disputes and make law through their judgments?

**court** an institution for parties to present a case including evidence before an adjudicator who will decide the outcome

**adversarial system** a system in which two parties present a legal case before an impartial adjudicator who will make a decision in favour of one party

**adjudicator** a tribunal, magistrate, judge (alone) or judge and jury who decides the outcome of a legal case presented to them

**criminal law** law that applies to all people in a community where negative actions and behaviour are deemed contrary or against the values of society. They include theft, burglary, and arson. The consequences are given by the courts and include fines, imprisonment or community service.

**civil law** law that applies only to those who seek a remedy. These are disputes between individuals or individuals and organisations. A wrongdoing has been committed against a party and that party seeks compensation or damages from the person accused of the wrongdoing. This is referred to as *tort law*.

Imagine you are walking home from school. On the way home, a dog suddenly appears and runs towards you. The dog seems aggressive and as you start to run, it bites you on the leg. A person runs up to you and apologises for the dog, grabs it by the collar and pulls it off you. You are injured and your leg is bleeding. What happens next?

Firstly, if a dog attacks a person or another animal, it is an offence against the values of society. The applicable law is the *Dog Act 1976* and, in the example above, the owner guilty of the offence could be fined in excess of \$3000.

If you require medical attention or therapy to recover from the injury, who would you expect

to cover the costs? If the owner of the dog simply walked away and refused to provide assistance, how would you react? What could you do?

In Australia, institutions exist that provide forums for society to resolve offences committed by individuals, and for individuals to resolve disputes with others. These institutions are known as the **courts**. Courts in Australia use an **adversarial system** of dispute resolution. Parties (individuals, organisations or authorities) may take a dispute to the court to present their evidence before an

**adjudicator** to make a decision. There are many different types of disputes that can come before a court but the two main types reflect the laws made by parliaments: **criminal law** and **civil law**. The police are generally responsible for investigating crimes and collecting evidence to charge an accused person with a criminal offence. Other government agencies have the power to do this in certain areas, such as environmental protection, taxation and parking. An individual who has been wronged by another, but it is not covered by criminal law can seek a remedy through civil law. These wrongs may include the dog bite example already mentioned, trespass, nuisance, breaching duty of care or breaching a contract. In both civil and criminal cases in Australia, two parties will be given an opportunity to present their case and evidence before an adjudicator, who will make a decision based on the evidence and law.



▲ **Figure 1.18** This labelled photo demonstrates the layout of the Magistrates Court in Western Australia. The JSO is the Judicial support officer, who helps with the administrative tasks in court, such as managing documents and swearing-in witnesses. The CJS Officer is the Community Justice Services Officer, who advises the court of the suitability for community-based sentencing options, and so is not usually present at the trial, but may be present at sentencing.

### The Western Australian court system

#### The Western Australian court hierarchy

In the Western Australian court system, just as there are different cases and laws to be applied in criminal and civil cases, there are also different courts that people may go to.

The Western Australian court system is arranged as a **hierarchy**. A hierarchy usually indicates the most powerful at the top of the hierarchy and the least powerful at the bottom. This is an overly simplistic description of a court hierarchy, as there are a number of reasons why the courts are organised in this way.

The first reason is specialisation. Each court is responsible for particular cases. These cases may be organised according to seriousness, financial amounts claimed or types of cases heard. For example, the High Court hears cases regarding the Australian Constitution. No other court is able to hear cases about this document, so the High Court is a specialist in this area. It is also at the top of the hierarchy and the courts below it must follow its decisions. Another example is the Magistrates Court, which is at the bottom of the hierarchy, and deals with less serious offences that have not caused significant harm to society or individuals.

The seriousness of offences relates to two main categories specified in the Western Australian criminal code (the main criminal law in the state). Serious offences such as robbery are termed **indictable offences**, or crimes in the narrow legal

sense. All other offences are called **simple offences** such as driving without a licence, or not keeping a dog under control. Magistrates Courts deal with simple offences and civil claims less than \$75 000. In contrast, the District Court of WA deals with all but the most serious indictable offences and civil claims more than \$75 000 but less than \$750 000. The Supreme Court of WA will deal with the most serious indictable offences, such as arson and murder, and civil claims more than \$750 000. Each court has its own **jurisdiction** that determines the types of cases that can be heard in that court. Further in the chapter you will learn about the other reasons for the court hierarchy: the right to appeal and precedent.

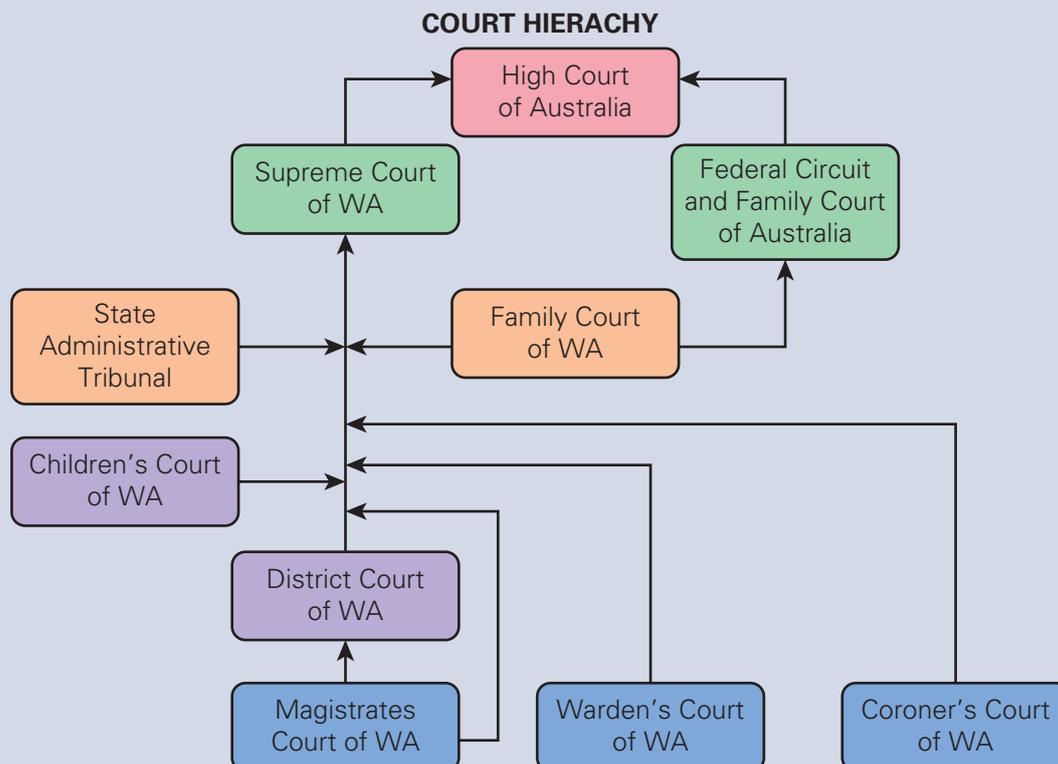
**hierarchy** a system where groups or institutions are ranked according to the authority or power they have

**indictable offences** serious offences defined as crimes in the Western Australian criminal code that must be heard before a judge or a judge and a jury. The punishments are more severe.

**simple offences** (called *summary offences* in some other states) less serious offences (not listed as crimes in the Western Australian criminal code) that can be heard by a magistrate. The punishments given are not as harsh.

**jurisdiction** the authority given to a legal institution to make judgments regarding certain areas of law or in particular locations

## COURT HIERARCHY



▲ **Figure 1.19** The court hierarchy in Western Australia

**liability** legal responsibility

**common law** judge-made law; decisions of cases recorded as reference for future cases

**statute law** laws made by elected parliaments

**precedent** a decision from a previous court case that may be binding or persuasive on other courts in deciding future cases with similar circumstances

**prosecutor** the legal representative (lawyer, barrister) who presents the case against an accused person in a criminal trial on behalf of the state

**defendant** a person who is accused of a criminal offence or a civil wrongdoing against another

**testimonial evidence** oral evidence given by a witness

**magistrate** the impartial adjudicator in a Magistrates Court

**judge** the impartial adjudicator in a District or Supreme Court

**jury** a group of 12 people chosen at random from the electoral roll who listen to evidence and determine if a defendant is guilty or not guilty

## Specialist courts

Western Australia also has other specialist courts, such as the Children's Court, the Coroner's Court and the Family Court of Western Australia. These courts exist to hear particular cases that cannot go to the Magistrates Court, District Court or Supreme Court.

The Children's Court hears cases where the accused is between the ages of 10 and 18 years. In the Australian legal system, children are treated differently to adults under criminal law, including how they are sentenced. The rule of law is not always applied, and the law is not applied equally. A child, if found guilty, will not face imprisonment in an adult jail, but may be sent to a youth detention centre, where they will continue their education.



▲ Figure 1.20 Perth Children's Court

The Coroner's Court has a more investigative role rather than adversarial, and its purpose is to determine the cause of death for individuals when it is unknown. The court is not responsible for determining guilt or **liability**, but it may make recommendations to help prevent similar deaths in the future.

**beyond a reasonable doubt** a standard of proof in a criminal trial in which the adjudicator (magistrate, judge or jury) must have no doubt or there can be no other logical explanation based on the facts and evidence presented in court that the accused committed the crime

**plaintiff** a person who has brought a civil case before the courts against an individual they believe has wronged them

The Family Court of Western Australia specifically handles cases regarding family disputes and issues; these include divorce, child custody and support payments. These matters are separate from criminal and civil law and have additional parties impacted, such as children, and are dealt with by the Family Court due to the sensitive nature of such disputes.

## Common law

The Australian court system is responsible for making **common law**, which is different to **statute law**. Common law is created by courts from all of the decisions made within those courts. These decisions build up over time and are used to assist magistrates and judges to make decisions. To ensure consistency in decision-making according to the law, past decisions are referred to in similar cases to make judgments. These judgments are written down and used by future judges. This is also called **precedent**. When a judge is presented with a new situation and makes a decision that differs from previous judgments, this is called a new precedent. As Australia has a court hierarchy, precedent from higher courts is binding on lower courts. This means lower courts must follow the decisions of higher courts.

## Court processes

In the Australian court system, a party who has been wronged is responsible for bringing a case before the courts. For a criminal offence, a police **prosecutor** or public prosecutor will bring the case before the court on behalf of the crown or state. They will have to gather enough evidence against the accused person, who is known as the **defendant**. The prosecution will present their case before the court using physical or **testimonial evidence**. The defence will have an opportunity to present their evidence or to question the evidence of the prosecution. In a Magistrates Court, a **magistrate** will make a decision as to whether the defendant is guilty or not guilty based on the evidence, and in a District or Supreme Court, a **judge** or **jury** will make a decision based on the evidence. To make a decision, the magistrate, judge or jury must be convinced **beyond a reasonable doubt** that the defendant committed the crime.

In a civil case, an individual who has been wronged must bring the case to court. They are known as the **plaintiff**. The process is similar to a criminal trial. However, unlike a criminal trial, there is often no jury involvement and

the plaintiff must only prove on the **balance of probabilities** that the defendant committed the wrongdoing.

**balance of probabilities** a standard of proof in a civil trial in which the adjudicator (magistrate or judge) must determine based on the facts and evidence which party's case is more likely

## END OF SECTION REVIEW 1.5



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Describe the adversarial system.
- 2 Distinguish between criminal law and civil law, and provide an example of each.
- 3 Identify the highest, most powerful court in the Australian court system.
- 4 For the following criminal offences, determine which court in Western Australia would hear the case:
 

a arson	d murder
b robbery	e not keeping a dog under control.
c driving without a licence	

#### Interpret

- 5 Explain why Australia's court system is organised as a hierarchy.
- 6 Why does Australia have specialist courts such as the Coroner's Court and Family Court of Western Australia?
- 7 Why is there a different standard of proof in criminal and civil trials?

#### Argue

- 8 'Children should not be criminally liable until they are the age of 14.'  
Discuss two arguments that are for the above statement and two arguments that are against the statement.

#### Extension

- 1 Precedent uses past decisions to help determine future judgments in court. Read the following case.  
*An individual cuts through a chain link fence and enters premises by breaking a window. Once charged and found guilty in court, the magistrate sentences the individual to a community service order as it was the first time they had committed a crime.*

What sentence do you think is most likely to be given in the following cases, taking the precedent above into account? Give reasons.

- a Another individual cuts through a chain link fence and enters premises where they are caught and charged.
  - b Another individual aged 12 cuts through a chain link fence and enters premises before being caught and charged.
  - c Another individual watches as someone else cuts through a chain link fence to enter premises before being caught.
  - d Another individual is caught vandalising premises with spray paint.
- 2 Investigate a specialist court in the Western Australian court system. Choose a court from the list below:
 

• Family Court of WA	• Coroner's Court	• Drug Court
• Children's Court	• START Court	• High Court.

Now answer the following questions:

- a What is the jurisdiction of this court (i.e. what cases can it hear)?
- b What are the key roles within that court?
- c What type of sentences or outcomes are decided in this court?
- d Why is this court important within the court hierarchy?



**Key concepts:** justice, participation, rights and responsibilities



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



# 1.6 Principles of justice in the Australian legal system

## FOCUS QUESTION

What are the principles of justice that underlie the Australian legal system?

**principle** an accepted rule that is followed

**justice** equity or fairness in the way in which people are treated. Justice can be applied across social, economic, cultural and political areas in society.

**natural justice/due process** to ensure fairness, a trial must follow strict rules and procedures, including protecting the rights of an accused, witnesses and victims in court

At the beginning of this chapter you read about the ‘rule of law’, which is that the law is considered the governing force within society. Everyone should follow the laws, including the lawmakers, and everyone is treated equally under the law (meaning nobody is

above the law). In the Australian legal system, a number of **principles** are followed to ensure that the outcomes in the courts are just.

## Justice

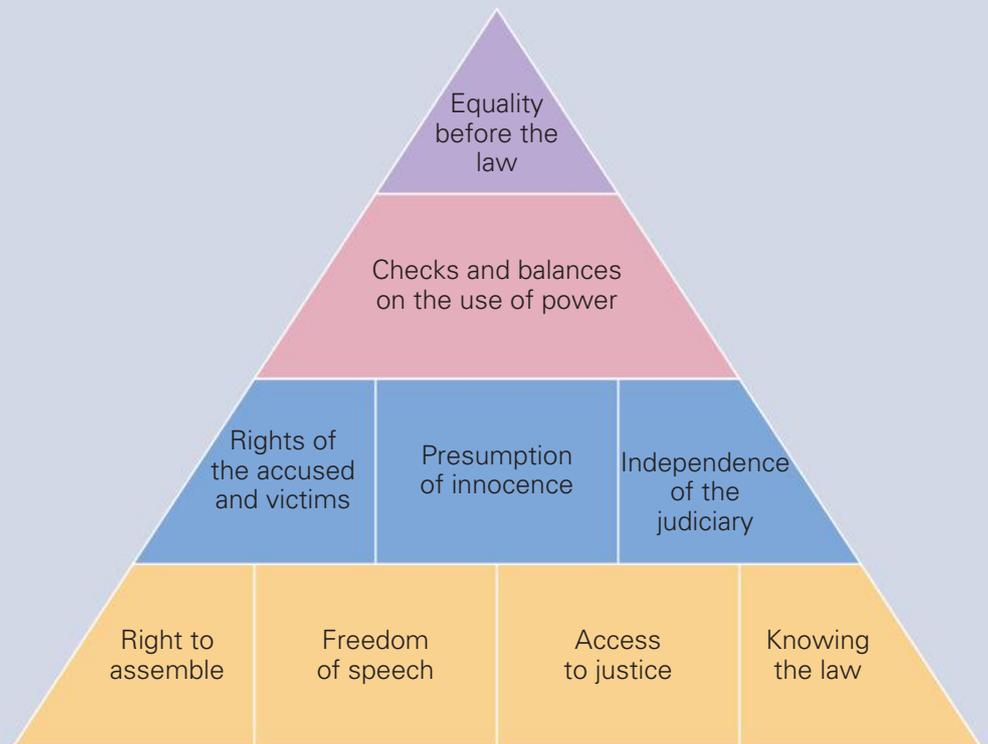
The rule of law is one such principle that helps achieve **justice**. Justice is a concept centred on fairness. In a legal sense, this means that individuals who use or come into contact with the court system must be treated fairly, or equitably, and that they cannot be disadvantaged in any way. The rule of law ensures that no one can be punished unless it is in accordance with the law, and that everyone is treated equally in the courts. This equality includes everyone having their opportunity to go before a court, and every person having the same process and rights when they enter a courtroom. This is called **natural justice** or **due process**.

### Key concepts for your memory bank



**Justice** is an important part of understanding the rule of law and how it is applied. The concept of justice relies on the ideas of equality before the law, the importance of judicial independence and objectivity leading to the law being perceived as fair. In Civics and Citizenship, ‘justice’ can also refer to the legal system and laws of a country, and the fairness with which people are judged and punished under that system. *Pop this concept into your memory bank – at the end of this book is an activity which will test your understanding of this, and other key HASS concepts!*

## THE RULE OF LAW AND ITS FEATURES



▲ **Figure 1.21** Rule of law and its features  
Source: The Rule of Law Society

## Separation of powers

An independent and impartial **judiciary** is a principle of justice that requires the court system to be separate from other government institutions and unbiased in processes and judgments. An **independent** judiciary stems from the principle of **separation of powers** and requires the judiciary to not be influenced by the other branches of government (legislative and executive) in its conduct and decisions.

The judiciary is required to enforce the laws created by parliaments and to determine the outcome of cases without the influence of those parliaments. That means an elected official in parliament should not change the processes and procedures in courts for the benefit of themselves or others or encourage a magistrate or judge to make a particular decision.

## Impartiality

The judiciary is also required to be **impartial**, and this means that the magistrate, judge or jury must have no bias when they are conducting their duties in court. They must have no favour for any party in court or make prior judgments before hearing the evidence. This principle is often represented as Lady Justice (see Figure 1.22). Justice wears a blindfold so she cannot be swayed by the appearance, wealth or gender of those before her. She carries a set of scales that represent the two parties' evidence being weighed up before a judgment can be made. The sword she carries represents the potential punishment that results from judgment, but it is held below the scales as it should only be used after the evidence is weighed.

**judiciary** the branch of government charged with administering the law and judging the validity of laws created by parliament. This is also known as the court or legal system.

**independent** freedom from influence or authority of another

**separation of powers** a concept in which the three branches of government (legislative, executive and judiciary) are separate and independent of each other, with each responsible for their own role, to ensure there is no influence across branches or abuse of power

**impartial** unbiased or unprejudiced. Not giving favour to any party in a court.

▼ **Figure 1.22** Lady Justice is often seen as the symbol of an independent and impartial judiciary.



**judicial review** principle of justice in which a case is tested on its legality and if it was conducted in fair and just matter

**presumption of innocence** a concept in which an accused/defendant cannot be considered guilty until the evidence finds them to be so. They are innocent until proven guilty.

**onus/burden of proof** a legal concept in which a party has the responsibility of presenting evidence to a certain standard to have an accused found guilty. In a common-law system such as in Australia, in most cases this onus falls on the prosecution and plaintiff.

**scrutiny** observation and examination of activities and behaviours to ensure validity

## Right to appeal

The right to appeal is another important principle of justice. This right is protected by the court hierarchy and law. Remember the court hierarchy? Courts are arranged from most to least powerful, enabling specialisation of cases and binding precedent of higher courts on lower courts. The court hierarchy also allows for **judicial review** and the right of appeal. A trial, despite due process, may have been unfair on the defendant. In these circumstances, an accused has the right to have their case reviewed by a higher court. This is called an appeal. A defendant can appeal to a higher court when a principle

of justice has not been followed. This might be where the judiciary or the judge was biased, or the trial process was not followed, such as evidence being withheld from the defence or the law not being applied correctly. An accused person cannot simply have their trial reviewed if they are unhappy with the outcome. If a trial is reviewed and found to be unfair, the accused can seek a re-trial that may provide a different outcome.

## Other legal protections

Other than the principles of justice, individuals have many legal protections within the court system to ensure that justice is achieved. Some have been covered previously in this chapter, such as due process, right of appeal and different standards of proof in criminal and civil trials. An accused person has the right to be trialled without unreasonable delay and also has the right to **presumption of innocence**. This means that an accused is considered innocent until the evidence proves them guilty.

An accused person does not have to prove themselves innocent. This links to the right to silence, where an accused person is not required to speak in court in their own defence. The **onus of proof** is on the prosecution or plaintiff, who must present evidence that can reasonably prove the defendant guilty.

According to Section 80 of the Australian Constitution, if a serious crime is committed (known as an ‘indictable offence’) the accused has the right to a trial by jury. This right stems back to the Magna Carta written in 1215. The Magna Carta is a royal charter of rights that has become the cornerstone of the British legal system, upon which Australia’s legal system is largely modelled.

A jury of ‘one’s peers’ is thought to provide valuable community insight within the legal system as well as fulfil an important duty of all citizens to participate in the good order of society. A jury is not without its limitations and is often considered the part of a trial in which impartiality is hardest to ensure.

An important right that an individual has is an open and transparent courtroom in which the public can view the courtroom and its processes. Cases are often reported on by the media. This ensures that the judiciary is acting fairly because their actions are open to public **scrutiny**. However, some cases are closed to the media and public due to the sensitive nature of proceedings. This includes trials in the Children’s Court and cases in the Family Court of Western Australia.

However, it is important to note that in some cases equal treatment would produce an unfair outcome. In order to achieve justice, some individuals must be treated differently in order to be treated fairly.

An example of this is the provision of an interpreter in court if an individual does not understand the court proceedings due to language barriers. Another example is the provision of legal representation by government agencies such as Legal Aid WA. If an accused is unable to afford a lawyer, they may be able to apply for one through the services of Legal Aid, rather than representing themselves in court where they may not understand the process or system.

## END OF SECTION REVIEW 1.6



### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.



#### Recall

- 1 Identify the three branches of government.
- 2 Define the term 'justice'.
- 3 Identify and describe three rights an individual has in the Western Australian court system.
- 4 Describe the principle of an independent and impartial judiciary.

#### Interpret

- 5 Explain why the right of appeal is essential to the achievement of justice.
- 6 How does an open and transparent court system ensure fairness?

#### Argue

- 7 In non-common law systems, presumption of innocence might not be a principle that is followed. Is the presumption of innocence an essential legal protection to ensure justice and fairness in the Australian court system? Write a paragraph that states your argument or proposition and provide reasons and examples to support your ideas.

#### Extension

- 1 To achieve justice, some individuals must be provided extra services or assistance so the court process is fair. Use the Legal Aid WA website to learn how the organisation works to provide legal assistance to different groups in Western Australia and the different services it provides.



**Key concepts:** justice, participation, rights and responsibilities



**HASS skills:** questioning and researching, analysing, evaluating



## 1.7 Factors influencing the achievement of justice in the Australian legal system

### FOCUS QUESTION

What factors can undermine the achievement of justice in the courts?

Sir William Blackstone is attributed as saying, 'It is better that ten guilty persons escape than one innocent suffer.' A legal professor and practising lawyer, Blackstone made this comment about the fairness of legal systems and that wrongfully convicting an innocent person is far worse than allowing many guilty people to be free. This concept is woven into Australia's legal system through the principles of justice and legal protections given to those who enter the court system. The principles and legal protections aim to ensure individuals are not treated unfairly or endure a sentence or punishment for a crime that they did not commit. If a person is wrongfully convicted and found guilty of a crime they did not commit by way of the principles

of justice not being followed, this is known as a **miscarriage of justice**.

**miscarriage of justice** where a person has been wrongfully convicted and often imprisoned for a crime they did not commit due to problems within the investigation, trial or appeal processes

**remand** a person charged with a crime, awaiting trial who has not been granted bail may be held in a detention facility

**legal representation** a lawyer such as a barrister or solicitor acts on behalf of an accused in court

**stayed** to be held off; in a court system it means a trial is delayed

### Lack of access to resources and delays in court

Individuals are entitled to trial without unreasonable delay and to be able to understand the court processes and proceedings. This means a person should not wait for a long time (particularly if they are held in **remand**) before they have their day in court and, when their day in

court arrives, they should be aware of what is happening during the trial. It would be unfair to continue a trial if an accused does not understand what is happening to them. In the instance of an accused who does not understand or speak English well, or it is a second, third or fourth language to them, they may have difficulty understanding the language used in court and the trial process. To ensure justice is better achieved and there is a fair outcome, an interpreter would be required to assist the individual in translating what is being said in court. A second example may be an individual who is overwhelmed by the court system and trial process and may require a lawyer to speak on their behalf. Lawyers in Australia can be quite expensive and many people cannot afford the costs associated with hiring a lawyer to represent them in court. In Australia, individuals have a limited right to **legal representation**. As we saw in Section 1.6, this means that a person who can't afford a lawyer can apply to government-funded organisations such as Legal Aid WA to have a lawyer represent them in court. If someone is ineligible for legal aid, their case must be **stayed** until they can get adequate representation.

Read through Case studies 1.2 and 1.3 and the text about miscarriages of justice in the Western Australian legal system, then complete the activities that follow at the end of this section of the chapter.

## CASE STUDY 1.2



### Gene Gibson

In February 2010, the body of a young man, Josh Warneke, was found on the side of a road heading into the town of Broome in the Kimberley region of Western Australia. Gene Gibson, a young Aboriginal man, was 18 at the time and became a person of interest to police. He was charged with Josh's murder in 2012. In 2014, Gene pleaded not guilty to murder, but later pleaded guilty to **manslaughter**. He was sentenced to seven years and six months in prison.

A number of factors related to access were breached in the case of Gene Gibson that resulted in him suffering a miscarriage of justice. Gene was from the remote town of Kiwirrkurra and spoke the Pintupi language. When initially interviewed, Gene had no interpreter present and no lawyer. Once a lawyer was obtained, Gene was advised of his right to remain silent and to stop answering questions. The police continued the interview. Any admissions Gene made to police were unable to be used in court. Gene's lawyers appealed his conviction in 2017, based on cognitive impairments that significantly limited Gene's ability to understand the nature and implications of his guilty **plea**, the legal process and advice given to him as well as the case against him. The Court of Appeal found Gene was likely to agree with figures of authority when questioned rather than seek clarification when he did not understand, leading to him accepting police suggestions about his behaviour and actions with regard to Josh's death. On 12 April 2017, the Western Australian Court of Appeal quashed (cancelled) Gene's convictions on the basis he had suffered a miscarriage of justice. Gene was awarded \$1.3 million in **compensation** for his wrongful imprisonment.



▲ **Figure 1.23** Gene Gibson was wrongfully imprisoned for the manslaughter of Josh Warneke in 2014.

**manslaughter** a crime of unintentional death. An individual's actions while not being malicious have led to the death of another.

**plea** in court an accused must enter a guilty or not guilty statement regarding the crime they are charged with that will determine if they go to trial

**compensation** a payment made to an individual when another has wronged them

### Police investigation, manipulation or withholding evidence

A miscarriage of justice can also occur in the police investigation process prior to a trial. Police are tasked with investigating crimes when they occur and collecting both physical and testimonial evidence from crime scenes and witnesses. On occasion, police may rely on **expert witnesses** or **forensic evidence** and testing to charge a person with a crime. All evidence police gather in a criminal trial must be provided to the defendant and their legal team. While a defendant does not have to prove their innocence in court and has the right to remain silent, their lawyers are able to question the evidence presented before the court to test its reliability. Police often have many lines

of inquiry to follow in an investigation and in order to close a case may pursue a suspect and use tools at their disposal to gain admissions or evidence that shows the suspect is likely to have committed the crime. If the police and prosecution do this and do not provide information stating as such, or withhold evidence collected, a miscarriage of justice can occur because the evidence has been obtained in an unfair and unaccountable way.

**expert witness** an individual such as a psychologist or a medical expert who is highly trained in a field or occupation and can provide information in a case regarding technical knowledge

**forensic evidence** evidence gained at a crime scene, such as DNA, fingerprints, bullets and firearms, as well as computers and hard drives, that can establish key facts in a crime and connect suspects or individuals to crime scenes

## CASE STUDY 1.3



### Andrew Mallard

Andrew Mallard was convicted in 1995 of the 1994 murder of jeweller Pamela Lawrence in her Mosman Park jewellery store. He was sentenced to life imprisonment. Colleen Egan, a journalist, took up Mallard's fight to free himself and uncovered some unjust actions by police and prosecutors. Andrew suffered mental health issues and was interviewed at least once after a short stay in Graylands Psychiatric Institute. Mallard in those interviews believed he was assisting police with his theories and drawings of the murder weapon, a wrench. The police subsequently had forensic tests done on a pig's head to determine the accuracy of Mallard's statements. While the pig's head test showed that a wrench could not have been the weapon used, this information was not provided in court and the prosecution continued to state a wrench was the weapon used. Mallard had appealed his conviction, but the judges of the WA Court of Appeal dismissed the defence evidence regarding polygraph tests favouring Andrew, and they dismissed Mallard's mental health issues and claims the police had withheld evidence. Eventually, Mallard was granted special leave to appeal to the High Court of Australia and in 2006 his conviction was quashed. He had spent 12 years in jail. Further evidence in the case was found later: a hand-print at the crime scene that belonged to convicted murderer Simon Rochford, who died shortly after police questioned him regarding Pamela Lawrence's death.



▲ **Figure 1.24** Andrew Mallard (pictured in 2010), who was wrongfully convicted and imprisoned for the murder of Pamela Lawrence

### Bribery and coercion of witnesses

Being caught up in the justice system can be quite overwhelming and witnesses may be influenced or coerced into providing information that is inaccurate and can either falsely accuse an innocent person of a crime or place a guilty person away from a crime scene, providing them

**alibi** a statement that claims an individual was somewhere else when a crime was committed

**bribery** the payment of money or giving advantage or benefits to someone in an official position to influence them to behave or act in a way contrary to their duties

**coercion** the use of force or threats to persuade an individual to do or say something

with an **alibi**. A public official, such as a police officer or judge, may be **bribed** by a suspect or an accused person into altering or withholding evidence or providing a particular outcome in a trial. This information may show that a suspect could not have been at the crime scene or

find them to be not guilty. This is illegal activity and not only causes a miscarriage of justice to occur, but individuals involved can be charged with additional crimes. **Coercion** may be used against witnesses by suspects and police alike to encourage and influence witnesses to make particular statements or admissions about criminal activity. For example, suspects may be told false information during interrogation. This causes a miscarriage of justice to occur as witnesses may not have made statements implicating themselves in a crime if they did not have a reasonable belief that harm, violence or disadvantage would be forced upon them or someone they know, unless they did or said what they were told. This often impacts the most vulnerable in society, such as people with disabilities, Aboriginal and Torres Strait Islander peoples, and young people.

## CASE STUDY 1.4



### Darryl Beamish and John Button

Processes and procedures have not always provided for the protection and rights of suspects and witnesses. Coming into contact with police can be quite intimidating for people, for both guilty and not guilty individuals. In 1961, Darryl Beamish, a 19-year-old deaf man, wrote confessions about the murder of Jillian Brewer and was convicted by a jury to a death sentence. Beamish spent 15 years in jail after his death sentence became a life sentence.





He attempted to appeal his conviction six times, claiming that his confessions had been obtained through intimidation and threats from police.

John Button was convicted of the murder of his girlfriend and fiancé, Rosemary Anderson, based on a confession given to police that Button says was given after he was punched, denied food and water and after police repeatedly rejected his denials, telling him that he would be treated with leniency if he confessed. Gene Gibson also encountered this during his interviews, often deferring to authority, the police, who made suggestions that a not guilty plea would result in a large jail sentence whereas a guilty plea would mean only a small one. Both Beamish and Button were denied access to family during their interrogations. Notorious serial killer Eric Edgar Cooke made confessions as to his guilt in the deaths of Jillian and Rosemary, yet judges said this could not be used as Cooke was an 'unscrupulous liar'. John Button eventually had his conviction overturned in 2002, and Darryl Beamish had his conviction overturned in 2005.



▲ **Figure 1.25** John Button (pictured in 2010) and Darryl Beamish (pictured in 2011 with his arm around his wife), both accused of and imprisoned for crimes committed by Eric Edgar Cooke

## Trial by media

Two rights an individual has in court are the right to a trial by jury and an open and transparent trial process. Often these can have conflicting outcomes for the accused. An open and transparent court system utilises the media to a great extent. High-profile police investigations are reported on by news and media organisations while the investigation is ongoing. Suspects may be subjected to scrutiny by the media and

those that watch or read about the case may be influenced to believe a particular perspective about a case, a suspect or an accused. If any of the public who viewed related media are called to be a juror on a case, they may have developed a bias towards the accused and cannot be impartial. If they cannot be impartial in listening to the evidence they would be breaking the principle of justice, independent and impartial judiciary, and a miscarriage of justice could occur.

## CASE STUDY 1.5

### Lloyd Rayney

In 2007 the body of Corryn Rayney was found in Kings Park in Perth. During the investigation police publicly named Lloyd Rayney, Corryn's estranged husband, as the only suspect under investigation. In 2010, Lloyd, a lawyer, was charged with her murder. As both Corryn and Lloyd were members of the WA court system, they were well known, and so as not to make the case unfair for Lloyd, a judge from the Northern Territory was brought in to hear the case. Rayney's legal team also requested and was granted a judge-only trial due to the nature of media and police reports surrounding the investigation, and they believed any jury selected could not be relied upon to be impartial. Lloyd was found not guilty and the prosecution appeal upheld this decision. Lloyd Rayney has successfully sued the Western Australian police for defamation and the ruin of his reputation based on their actions.



▲ **Figure 1.26** Lloyd Rayney had his case impacted by police and media actions

## END OF SECTION REVIEW 1.7



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Describe the concept of a 'miscarriage of justice'.
- 2 Outline the right to legal representation.
- 3 Distinguish between an expert witness and forensic evidence.
- 4 Describe the concept 'trial by media'.

#### Interpret

- 5 Explain, using an example, how lack of access to resources can create a miscarriage of justice.
- 6 How are bribery and coercion of witnesses different?
- 7 Using an example, explain how the principle of rule of law can be broken by either manipulation or withholding of evidence during an investigation or trial.

#### Argue

- 8 Discuss, using an example from the text, the extent to which the principles of justice can be broken in the Western Australian court system.
- 9 Do some further investigation into one of the cases in which a miscarriage of justice has occurred in Western Australia and find out whether changes were made. Discuss if the WA system has enough adequate protections to ensure justice is achieved.

#### Extension

- 1 Using websites such as 'Law Society of WA' or 'Law Reform Commission', investigate suggested reforms or changes to the Western Australian legal system that would improve just outcomes:
  - a Outline the idea suggested.
  - b Describe the actions required to implement the suggestion.
  - c Explain how it would improve the achievement of justice in Western Australia.



**Key concepts:** justice, participation, rights and responsibilities



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 1.8 Conclusion: why does it matter?

In November 2020, the United States held its presidential election, contested by incumbent Republican President Donald Trump and Democratic candidate Joseph Biden. In the successive weeks, the world watched on in fascination and at times horror as claims of election fraud were made, with refusal to accept official results leading to protestors using force and violence to try to disrupt the official

declaration of results and committing acts of domestic terrorism. While in a democracy it is important that voters have access to information and be politically informed and active, it is just as important that they are media and campaign literate. The widespread access to and use of social media networks allowed both Trump and other media companies and conspiracy groups to present information to the public that was not accurate.

These people took the information at face value and believed its content, which had negative consequences when they acted on it. This is why it is important for voters to critically analyse and evaluate election campaigns and their content; through examination, we can avoid making uninformed political decisions. Social media companies acted after the event and banned Trump.

The incidents that occurred also highlight a number of key issues within political and legal systems and elections. The request by some rioters to be pardoned for their actions shows limited acknowledgement for justice and the concept of accountability for one's actions, and demonstrates a lack of respect for the rule of law. Rule of law is essential to a strong democracy. The treatment of the rioters

at the Capitol building was vastly different to the treatment of Black Lives Matters protestors across America and show the impacts of injustice in a political context.

Would this situation have occurred in Australia? Our system allows citizens a greater choice of political parties and independents to choose their representatives from, which means there is a wider representation of views within the Australian parliament as opposed to the (in practice) almost entirely two-party choice in the United States. Greater representation in parliament can support democracy. However, our system does not allow voters to elect a head of state or the Prime Minister, raising questions about the level of democracy in Australia and whether our inability to fully participate limits the power and influence of people within their political system.



▲ **Figure 1.27** Donald Trump supporters storm the Capitol building in Washington D.C. on 6 January 2021



## 1.9 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Political parties

Research one of the 19 major, minor or micro political parties that stood for election during the 2021 Western Australian election. Find out:

- the date of origin/creation of the party
- its current leader and deputy leader
- its main political purpose
- its policy on key areas like health, education, business
- whether it won any seats in the Legislative Assembly and Legislative Council
- how many first preference votes it received.

#### Investigating the Western Australian trial process

- 1 Research the trial process in a Western Australian court, such as the Supreme Court or District Court, including:
  - the rights of individuals in the court
  - the roles of individuals in the court (including judge, prosecution, defence, bailiff, judge's associate, jury, defendant)
  - the steps in a trial for an indictable offence
  - the rules of evidence that determine what can be presented in a trial
  - how a person can appeal or have their case reviewed.
- 2 Use your research to develop your stance on Western Australia's justice system. Do you think the interaction of principles of justice, legal protections and rules of evidence ensure justice is achieved?
- 3 Prepare a resource informing students about a day in court and their rights (possible resources include letters to a politician or newspaper, a petition, a website or a social media page).

### Analysis



#### Getting young people involved in the electoral system

People aged 18 to 24 years old are enrolled to vote at a rate of approximately 85 per cent. Youth engagement and voting is one of the hardest issues those involved in civic education struggle to achieve. Research the following questions, either through a survey of young people or through online information:

- Why do you think that young people have been reluctant to vote in the past?
- How might we encourage young people to vote and what issues concern them?
- How do young people vote when they are able to?

### Fighting for justice

Julian Assange has said that ‘one of the best ways to achieve justice is to expose injustice’, but many people often think they will not be able to make a difference and would rather accept injustice because they fear the consequences or repercussions of exposing it. In two to three paragraphs, explain why it is important to continue to expose injustice.

## Writing



### Micro parties causing major headaches

In Australia’s political system, the way candidates are selected in the upper house is different to the lower house. The proportional voting system allows smaller micro parties a better chance of being elected because they only require a quota of votes to secure a spot. Micro-party policy is often very limited because these parties run on a very specific platform of only one or two issues.

Evaluate whether micro parties add to the democratic process by providing alternative choices and new issues for voters to consider, or whether they disrupt the democratic process because they only appeal to a small group of people and, if elected to the upper house, may become the balance of power in the government.



### Create

#### Opinion polling

Imagine you work for a polling company. You have been hired to gather data about community concerns and issues so that a political party can use the information to develop party policy. Identify five issues to survey voters about. From the issues you have identified, create 15 questions that utilise a Likert scale, like below:

For example: Do you think taxes should be increased?

**Strongly agree**      **Agree**      **Neutral**      **Disagree**      **Strongly disagree**

Survey 10–20 people and prepare a report for your political party that identifies how people feel about issues of concern in the community.

#### Podcast

With a partner, develop and record a podcast that either analyses a recent election and its results or discusses a controversial political issue. With your partner, outline the different points of view about this issue and the stakeholders involved or the party policies and campaign that helped or hindered their election performance. Present your point of view about the issue or election.



**Key concepts:** democracy, democratic values, participation, rights and responsibilities, justice



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# Making connections: Civics and Citizenship and the other HASS topics

**Civics and Citizenship** has many connections with other subjects in the Humanities. Have you considered how what you have learnt about the government, political parties and justice relates to the other topics you will cover this year? Here's a sample:



## Economics and Business

### Globalisation, social media and the rise of fake news

You will study the concept of globalisation and its causes, such as improvements in technology, that have allowed greater communication across national borders. Consider how globalisation and social media have also influenced the increased distribution of questionable material and fake news and the effect this has on voters. Choose one of the issues below and consider:

- 1 How this information is distributed/or restricted.
- 2 What influence it has or could have had on voters and elections:
  - Chinese censoring of international social media such as Facebook and Twitter
  - Russian interference in the 2016 US election
  - banning of social media during the 2021 Ugandan election
  - blocking of social media and the internet in Myanmar during the 2021 coup
  - China and its influence on Australian political parties
  - President Donald Trump and Twitter during the 2020 election campaign and election fraud.





**Additional content available:**  
Extra Making connections activities  
for Geography, History, and  
Economics and Business

## Geography

### Juukan Gorge and Rio Tinto and the government

In 2020 Rio Tinto destroyed two rock shelters at Juukan Gorge caves as part of its mining operation in the Pilbara, Western Australia. The rock shelters were 46 000 years old and of great significance to Aboriginal peoples. Rio Tinto claimed this had been approved by the state government. However, many people protested its action.

Consider:

- 1 What does Rio Tinto do that changes the natural environment? What impact does this have on plant, animal and cultural life?
- 2 Could the traditional owners of the land take Rio Tinto to court over this destruction?

### Murray-Darling Basin Authority – government plans to fix biomes

The Murray-Darling Basin covers 14 per cent of Australia, is home to two million people, and the area produces up to 40 per cent of Australia's agricultural produce. The Murray-Darling Basin Authority (MDBA) was implemented by the former Liberal Howard government to handle the ever-increasing environmental issues developing because of human use in the area.



Find out

- 1 what environmental impacts human use has had in the Murray-Darling Basin
- 2 the aims of the MDBA
- 3 how successive governments have handled the MDBA
- 4 the processes and procedures implemented by the MDBA to protect agriculture in the region, reverse the damage and conserve water and the environment in the area.

## History

### The Industrial Revolution, imperialism and the use of convicts

During your study of the Industrial Revolution, you will have learned about the search for more resources across the world and how many countries colonised other countries to set up new communities. The British Empire colonised Australia with the help of convicts.

Find out

- why the British Government chose to use convicts and not hire workers. Were convicts the right choice to build a whole new colony? Consider their skills and abilities.
- how transportation of convicts might break principles of justice today
- whether particular groups were unfairly targeted for crimes or more at risk of committing crimes
- how would the sentences for crimes in Victorian times compare to sentences today? Why have they changed?



# Part

# 2



# Economics and Business

## What is Economics and Business?

Have you ever wondered where all the goods you or your family buy come from? Are more goods purchased from overseas manufacturers or from Australian manufacturers? How does buying these items satisfy your wants and needs? Is more, better? Do you use a credit card or cash to make your purchases? Do you think about the consequences of your purchases on the community, the environment and the economy? If you do, who should be responsible for making sure that producers are acting in a way which is best for everyone?

Economics and Business, at its simplest, is a study of how people and different groups make decisions. Economics and Business looks at the ways individuals and other groups in the community, such as government and businesses, make decisions about how limited resources will be used to satisfy our needs and wants. What will we buy? What will businesses make or produce? What goods will the government provide? These decisions about what we want and need are limitless, but the resources used to make these products are limited. The decisions made by individuals, government and businesses are interrelated, and decisions made by any one of these can impact on the others.

# Unit 1

## Australia and the global economy

### Overview

In this unit you will focus on economic decision-making at individual, business and national levels, and you will look at the various forces shaping these decisions. These decisions will impact on the health of both the Australian and global economies, as well as the wellbeing of our society and environment today and into the future. This unit will help you appreciate how interruptions to global interconnections, such as during the COVID-19 pandemic, can impact people both at home and overseas. You will learn about how you can manage your finances, including through saving and investing, and about the risks and rewards associated with how you use your money. This should mean you will have a better understanding of your role in the economy, and how current decisions and actions can impact on your future. You will become well informed and critical decision-makers who can

contribute to a prosperous but sustainable future, both nationally and globally.

### Learning goals

After completing this unit, you should be able to answer these questions:

- How do the key participants within the economy interconnect?
- How does Australia trade with the rest of the world?
- What factors connect different economies?
- What is the impact of global economic change?
- What role do transnational corporations have on our lives?
- Why do we save and invest?
- What is the relationship between risk and reward?



**Video**  
Unit overview



▲ **Figure A** Hundreds of people queue outside an Australian Government welfare centre, Centrelink, in Melbourne on 23 March 2020, as jobless Australians flooded unemployment offices around the country after Prime Minister Scott Morrison warned the coronavirus pandemic would cause an economic crisis akin to the Great Depression.

# CHAPTER 2

## Going global



### 2.1 Setting the scene: when global connections stop

Globalisation – the increasing interconnection between nations and people through the development of technology, travel and communication – accelerated rapidly over the last 50 years. Fast and cheap air travel and internet connectivity have meant that an Australian could, if they wanted to, wake up to an alarm from a US-designed, Chinese-made smartphone, eat a breakfast of French pastries and Indian-grown coffee, and get into their Korean-made vehicle, fuelled by Saudi Arabian petrol, on their way to work at a Swedish-owned furniture store. In December of 2019, however, a novel coronavirus, COVID-19, was identified in the Chinese city of Wuhan and challenged many of our usual global connections.

The virus caused, among other symptoms, respiratory failure and fevers. Soon, cases began appearing in Italy, Iran and the United States. One of the first global **interconnections** to be affected was international travel. Borders were closed to all but returning citizens, flights were cancelled and holidays abandoned. The impact on the travel and tourism industries was catastrophic. At the same time, large gatherings were banned. Sport, music and other events were cancelled, affecting the livelihoods of performers and others within these industries. Millions were left without employment and the Australian economy suffered, along with many others around the world.

**interconnection** a state in which two or more people or groups are mutually connected to each other, often in a variety of ways

It is interesting that many people stop to reflect on how interconnected our world has become only when something such as a pandemic forces these connections apart. Suddenly issues such as where medical protective equipment is produced became hugely important. The ways many Australians have benefited through links with the wider world may

be changed forever. It is also worth reflecting on the fact that the reason the virus spread so fast was due to the rapid, cheap and accessible air travel people took for granted. This duality is why globalisation is such an important and debated issue.

The trade-off between health and the economy has been approached very differently by many states and countries. In Western Australia, for example, Premier Mark McGowan received widespread praise for the ‘hard border’ policy that effectively banned all movement into the state. Cases here have been some of the lowest in the world as a result. In contrast, Sweden chose to adopt a herd immunity strategy, keeping most of its economy open in the hope that people would contract the virus and recover. Thousands of people died, but over time the nation did not experience multiple waves of illness like many other countries.

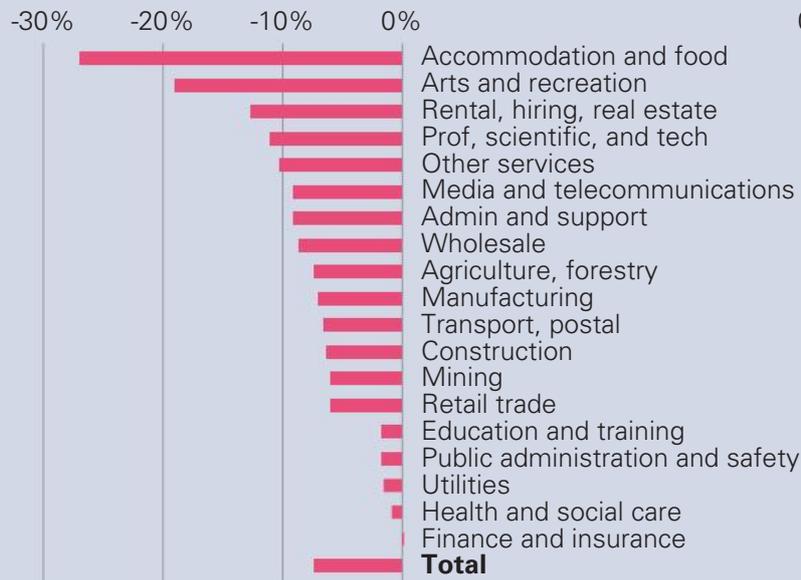
These decisions go to the very heart of what economics is about. Simply put, economics is about choices, and the consequences of making them. All decisions have both costs and benefits, many of which are not always predictable. It remains to be seen what lasting impact the choices made now will have on our globally interconnected world.



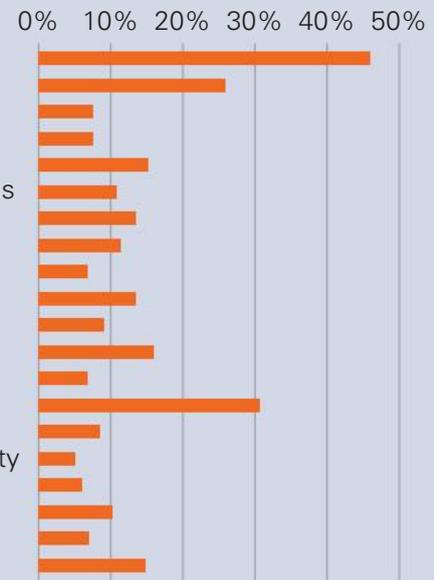
▲ **Figure 2.1** Canning Highway in Perth on 1 February 2021

## INDUSTRIES HARDEST HIT BY COVID-19 ARE MORE LIKELY TO EMPLOY YOUNG PEOPLE

Proportion of jobs lost  
(14 March to 2 May 2020)



Youth as a share of  
all employees (2019)



**Note:** 'Youth' refers to employees aged 16–24.

▲ **Figure 2.2** The COVID-19 pandemic changed people's way of life in ways most Australians had never before experienced including job losses, particularly for young people.

**Source:** Grattan Institute analysis of ABS weekly payroll jobs and wages (19 May 2020 release) and ABS Characteristics of Employment (2019).

## MAKING THINKING VISIBLE 2.1



### Think, decide, evaluate

In groups of three to four students, share ideas and questions in response to the following prompts.

#### What do you know about this topic?

- Write a list of the ways in which the COVID-19 pandemic has directly impacted your life. Try to consider social and economic impacts.

#### What would you do in this situation?

- If you were a national or state leader, how would you attempt to balance containing the virus by restricting people's movement and keeping the economy open?

#### What are the costs and benefits of decisions?

- Create a set of costs and benefits of both the herd immunity strategy and the hard border strategy of pandemic response.



▲ **Figure 2.3** A social distancing sign that appeared in Sydney in late 2020



**Key concepts:** specialisation and trade, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating, communicating and reflecting



## 2.2 Chapter overview

### Introduction

Going global looks at how Australia engages with the rest of the world. We look at the nature and importance of trade to the individual and the economy and the composition and direction of Australia's trade.

In this chapter we also focus on economic decision-making on a national level and the various forces shaping these decisions. This includes taking into

account domestic issues, the Asia–Pacific region and the global economy. We examine why and how participants in the global economy are dependent on each other, including the activities of transnational corporations in the supply chain, and the impact of global events on the Australian economy. By looking at Australia's geographical position and wealth within the broader global community, we can get a better understanding of how Australians are globally connected.

### Learning goals

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

- How do the key participants within the economy interconnect?
- How does Australia trade with other nations and what is its place within Asia and the global economy?
- How has Australia's interdependence with other economies changed over time?
- What is the outlook for Australia's global interconnections as a result of COVID-19?
- What are transnational corporations and how do they influence the world?



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries, and other extra materials.



#### Video

Australia's economy: Five interesting facts





## 2.3 The role of the key participants in the Australian economy

### FOCUS QUESTION

What are the key sectors of the economy and how do they interact?

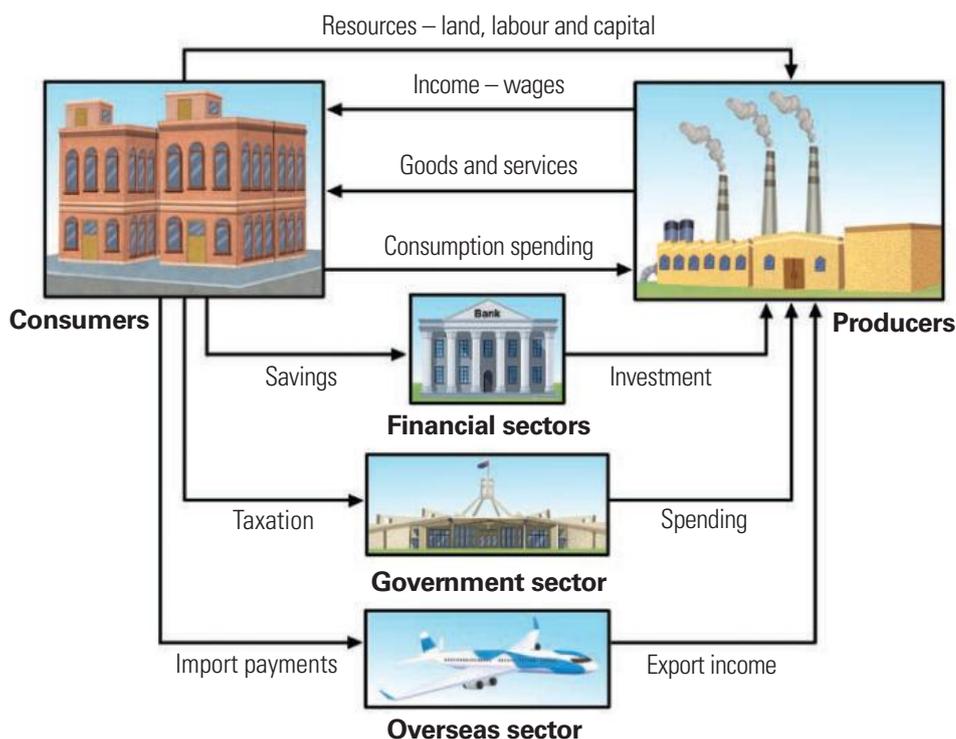
Australia, like most developed nations, operates an open, **mixed market economy**. This means that while consumers and producers are free to interact in many circumstances, both the Australian Government and the overseas sector are important participants in the economy. In fact, in 2019 the Australian Government spent \$549.6 billion, or just over a quarter of the total money spent in the economy that year. Much of this money goes towards providing essential services and infrastructure to help maintain and improve Australia's standard of living.

The structure of the economy can be represented with a diagram known as the five-sector circular flow model. This diagram illustrates the interconnection between various participants in the economy and can also be used to show the effect of changes to flows of money from one sector to another.

The key participants in the economy are:

- Households and consumers:** individuals like you and households like yours, who purchase goods and services in the economy and provide labour to businesses. They have a dual role in the economy. On one side, they are **consumers**, who demand goods and services; and on the other, they own the means of production (labour) through which the goods and services are produced. In other words, households and individuals work to earn an income, which they use to consume Australian- and overseas-made products. Not all income is used to purchase goods and services, however. Some of it is saved, and a portion is withheld by the government as tax.

**mixed market economy** an economy that has elements of private business and government to provide goods and services  
**consumer** a person who buys goods or services for their own use



▲ **Figure 2.4** Five-sector circular flow model



▲ **Figure 2.5** Households and consumers are key participants in the economy

- **Businesses and producers:** organisations that sell goods and services with the goal to make money or profit. Firms use factors of production (land, labour and capital) to produce goods and services, creating value and wealth. They demand labour from households and individuals in return for a salary or wages. They also offer goods and services to households, other firms or the government. Businesses often borrow from financial institutions such as banks, which allows them to start up or expand. Australian businesses interact with the overseas sector by selling goods and services produced here to residents of overseas countries.
- **Governments:** provide most of the rules as to how the other participants in the economy should interact. They offer goods and services (mostly public goods and services like roads or national security) yet also demand goods from firms, and labour from households and individuals. The government taxes individuals and businesses based on their income and revenue.

The government can place limits on or prohibit the consumption of certain goods, such as single-use plastic bags. The government can also put tariffs on imports or provide subsidies

for production of certain goods and services. The government also has the ability to redistribute wealth through social

**exports** goods and services sold to another country

**imports** goods or services bought from another country

services, such as welfare payments, and via the creation of large-scale infrastructure, such as roads and hospitals.

- **The financial sector:** a vital part of the Australian economy and includes organisations such as banks, credit unions and other lenders. Consumers use this sector as a means to retain some of their income in savings, while the lenders use this money to provide loans to households and businesses. Interest rates represent the cost of borrowing money – lenders will charge a percentage of a loan in interest, in return for the risk associated with lending the money and to make a profit, while savers earn interest in return for depositing their money with the financial organisation.



▼ **Figure 2.6** Australia's 'big four' banks are worth a combined \$360 billion

It is a two-way relationship. Lenders rely on savers to provide money for them to in turn lend out to businesses and households.

- **The overseas sector:** this will be the central focus of this chapter. Australia is considered a medium-sized economy by global standards and relies on trade with other economies in order to maintain and improve the standard of living of its residents. Australia produces many goods and services, some of which are bought by residents of other countries. These are known as **exports** and provide revenue to Australia. Many goods and services which are produced overseas are also bought by Australians as **imports**. These cost money but add value to people's lives. These other countries with which Australia trades are known as the overseas sector.

## ACTIVITY 2.1



### Expansions and contractions

This activity works best if you use balloons.

Consider the Australian economy to be like an inflated balloon. As money enters the economy through government spending, investment from financial institutions or selling exports, the economy expands. As money leaves the economy through taxation, savings or import spending, the economy contracts. Using a partially inflated balloon, demonstrate by inflating or deflating what would happen to the economy in the following scenarios:

- 1 The government cuts income tax rates.
- 2 Banks offer cheaper loans to businesses.
- 3 Australia sells more iron ore to China.
- 4 The government increases the goods and services tax (GST).
- 5 Banks offer higher interest rates on savings.
- 6 People lose trust in banks to protect their money.



**Key concepts:** making choices, specialisation and trade, interdependence



**HASS skills:** analysing, communicating and reflecting

## END OF SECTION REVIEW 2.3



### 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 type of economy Australia has.
- 2 Describe the main participants in the Australian economy.
- 3 Explain the difference between imports and exports.

#### Interpret

- 4 Write a paragraph explaining how the five-sector circular flow diagram works.
- 5 Describe the relationship between consumers and producers.

#### Argue

- 6 What is more important to Australia's economy – imports or exports? Justify your answer.
- 7 Should the government spend more money to help grow the economy? Why, or why not?

#### Extension

- 1 Explain, with reference to the circular flow model, the impact on the economy of the following situations:
  - a The price of iron ore (a key export) increases
  - b Consumers' income rises by 5 per cent
  - c The government increases the company tax rate by 5 per cent



**Key concepts:** making choices, specialisation and trade, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating, communicating and reflecting



## 2.4 Australia's place within Asia and the global economy

### FOCUS QUESTION

Why do countries trade?

Countries have traded for centuries, and **trade routes** have developed since ancient times to move goods from places of production (such as factories) to places of commerce (such as markets). Commodities that were only available in some locations were so desired that fortunes were made and lost on the delivery of these traded goods. Trade routes developed and became vital, not only for the movement of goods and services, but also for the spread of technology, culture, wealth and knowledge.

**trade route** a route, often covering a long distance, used by people buying and selling goods

**free trade** international buying and selling of goods, without limits on the amount of goods that one country can sell to another, and without special taxes on the goods bought from a foreign country

**globalisation** the increasing interconnection between nations and people through the development of trade, technology, travel and communication

**specialisation** where countries tend to produce certain goods that they are best at producing and then trade them with other countries

Today, trade continues to be critically important, with many countries relying on it as a major factor in raising living standards, providing employment and higher incomes, and enabling consumers to enjoy a greater variety of goods and services.

International trade is the buying and selling of goods and services across international borders.

Countries sell goods and services produced domestically to buyers overseas – these are called exports. Countries also

buy goods and services from countries overseas to use domestically – these are called imports.

International trade has created a rapid improvement in living standards around the world as **free trade** and **globalisation** have opened up markets for goods and services that 20 or 30 years ago were not available.

Consumers and households now have access to a vast range of products from overseas, including cars, clothes, cosmetics, electronics and food. The range of goods and services is so wide that no one country could, or indeed should, manufacture and provide all these products. As we will see, some countries have a natural advantage in producing certain goods and services and tend to **specialise** in the production of a few things, while importing the goods and services that they are not so good at producing.

Therefore, the importance of trade cannot be underestimated. Consumers want greater choice of goods and services at lower costs while businesses want to import raw materials at cheaper prices to reduce their costs of production to be more competitive in markets. Governments place importance on trade because it can improve the profits of Australian industries and provide jobs and income for all Australians. This in turn can assist in improving living standards.

One of Australia's productive advantages is valuable natural resources such as iron ore, which is exported to other countries where it is used to produce steel. Often this steel is then used in the manufacturing of final goods such as cars, which Australia imports.

▼ **Figure 2.7** From Australia to the world



### Amazing but true...

Australia is the world's largest exporter of iron ore. Western Australia accounts for about 98 per cent of Australia's Economic Demonstrated Resources (EDR) of iron ore, which is currently around 28 billion tonnes.

This two-way trade is beneficial to all participants in the trading relationship.

Some examples of countries and regions that have specialised exports include:

- New Zealand – dairy, eggs, honey and meat
- Canada – mineral fuels, oil, vehicles and machinery
- Japan – vehicles, machinery, electrical goods
- European Union – machinery, vehicles, pharmaceuticals
- Indonesia – coal briquettes and palm oil.



▲ **Figure 2.8** A honey bee collecting nectar from a blossom in a garden in Lincoln, New Zealand. Manuka honey is a major export from New Zealand.

### Amazing but true...

Australian agriculture feeds 60 million people around the world each year.

Without trade these countries would not benefit as much from their specialisation within their own country, so they export these goods to earn more income. Consumers also like to have freedom of choice and may demand products from overseas if that product is preferred, even if the product is also locally manufactured. Countries that cannot produce these goods will import them, because they do not have the natural resources or are not able to produce the goods as cheaply or as well.



▲ **Figure 2.9** Cars from Japan

## Key concepts for your memory bank



**Specialisation** by both workers and businesses leads to increased production and provides for the most efficient use of resources. The exchange of goods and services between countries (trade) results in increased interdependence between the sectors in, and between, economies. *Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*

## ACTIVITY 2.2



### Global trade connections

In pairs, research one of the below pairs of countries and respond to the questions that follow:

- Brazil and Japan
- Switzerland and Greece
- Bangladesh and Kenya.

For both countries you have chosen:

- 1 list their top three exports and imports
- 2 comment on any similarities or differences between the two countries
- 3 suggest two reasons why these countries export these particular goods or services.



**Key concepts:** making choices, specialisation and trade, interdependence, economic performance and living standards  
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**HASS skills:** questioning and researching, analysing, communicating and reflecting

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**comparative advantage** an advantage a country has over another country because it can produce a particular type of product more efficiently

**labour-intensive production** industries and methods that need a substantial number of workers and time

Countries that have these areas of specialisation benefit from this trade because other countries are not as good at producing these goods. This is described in economics as **comparative advantage**. This means that compared to other countries, they have

an advantage in being able to produce goods more efficiently and therefore at a lower cost. This lower

cost enables them to compete more aggressively and cheaply in the world market, thus earning more money from their specialised products or services.

As an example, India has very low labour costs compared to other countries such as Australia, which gives India an advantage in **labour-intensive production** (e.g. call centres, clothing manufacture). Therefore, it would be efficient and beneficial for India to export these services to other countries.



▲ **Figure 2.10** The availability of goods, products and services can be overwhelming.

## END OF SECTION REVIEW 2.4

### Recall

- 1 Describe the origins of trade.
- 2 List three benefits of global trade.
- 3 Why do countries specialise in producing certain goods and services?

### Interpret

- 4 Why does Australia specialise in producing resources such as iron ore?
- 5 Why do you think New Zealand specialises in dairy products?

### Argue

- 6 What do you think would happen if Australia decided to stop trading with other countries and produce everything domestically?
- 7 Do you think Australians should buy products produced in Australia? What are the benefits and costs of doing so?

### Extension

- 1 Create a poster to promote Australia as a trading partner to an overseas country. Make sure to include Australia's key exports and imports and reasons why other nations would benefit from trade.



**Key concepts:** making choices, specialisation and trade, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating, communicating and reflecting



## 2.5 Australia as a trading nation

### FOCUS QUESTION

How has Australia's interdependence with other economies changed over time?

According to the Department of Foreign Affairs and Trade (DFAT), one in five jobs in Australia relies on exports in mining and farming. Australia has abundant natural resources and is a leader in the global mining industry, exporting many natural resources, including bauxite, iron and zinc ore, nickel and gold. The strength of its mining industry has seen Australia become one of the world leaders in the development and manufacture of mining equipment. However, Australia has

recognised its dependence on mining for export and therefore is continuing to grow and become competitive in the world market for other key exports, such as education and tourism.

Australia as a nation supports free trade and subsequently has entered many free trade agreements. These agreements are seen to strengthen ties between nations globally, improve investment in Australia and improve economic growth and employment opportunities in Australia.

### Australia's major trading partners

**Top 5 export markets:** China, Japan, Republic of Korea (South Korea), United States, United Kingdom

**Top 5 export AUD\$M:** Iron ores and concentrates (102 864), Coal (54 620), Natural gas (47 525), Education-related travel services (39 661), and Gold (24 394)

Total value of imports: A\$475.2 billion.

▲ **Figure 2.11** Australia's top export markets

Source: DFAT website, 'Australia's trade in goods and services 2019–20'

### ACTIVITY 2.3



#### Interactive quiz

Visit DFAT's 'Trade through Time' website and complete the online quiz.



**Key concepts:** specialisation and trade, interdependence



**HASS skills:** questioning and researching, analysing

▼ **Figure 2.12** Australian imported coal being sampled in a Chinese port in 2010



## Key concepts for your memory bank



**Interdependence** refers to the connections between the different sectors (or groups) in an economy, and how the actions of one sector impact on the other sectors in an economy.

*Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*

## Trade in the Asia–Pacific

Traditionally, Australia carried out most of its trade with Britain and the USA. Over the past decades, however, and with the opening up of new markets in our region, Australia has expanded its trade to include many Asian nations, including Japan, China, Taiwan and South Korea. Given its geographical position in the world, the emphasis of Australia's trade has shifted from the United Kingdom at Federation (1901) to the Asia–Pacific region in the 2000s.

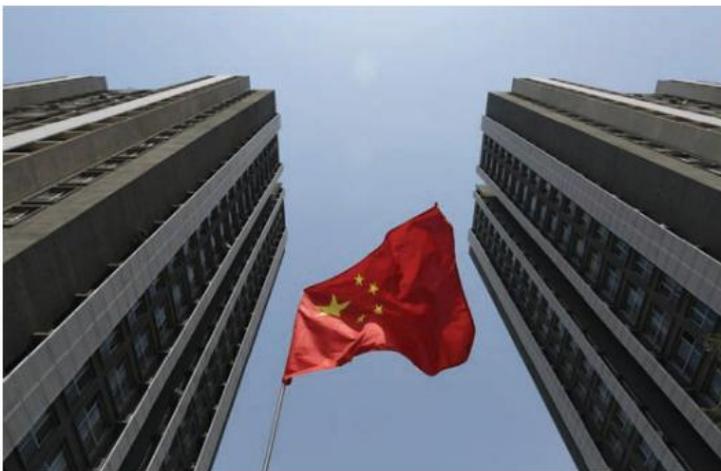
the way to becoming both the largest producer and consumer of goods and services in the world.

Therefore, Australia's trade with countries in the Asia–Pacific region is more important than ever. It is so important that three out of its five major trading partners are located in the Asia–Pacific region. Much of Australia's export growth has been built on its abundant resources, and this growth has only increased with the huge demand for raw materials such as iron ore driven by the rapidly growing economies of Asia.

### Amazing but true...

The Chinese economy has been growing on average at an amazing 9.2 per cent per year since 1989 and is set to overtake the United States as the world's largest economy by the late 2020s to early 2030s.

Asia is an important trade partner, not only because Australia is located in the Asia–Pacific region, but also because Asia exerts enormous influence globally and is one of the most populous regions in the world. It is home to two-thirds of the world's population and is well on



▲ **Figure 2.13** Australia's economic growth over the past 20 years is largely a result of the emergence of China as a major world economic power.

## CASE STUDY 2.1



### Resources connecting WA to the world: Prelude FLNG

Prelude FLNG is a floating liquefied natural gas (LNG) project located approximately 475 km north-north east of Broome in Western Australia. The facility is 488 metres long and 74 metres wide, making it the largest offshore floating vessel ever built, and it is projected to produce 3.6 million tonnes per year of LNG. The vessel is operated by Royal Dutch Shell, a multinational corporation. Demonstrating the way Western Australia's resources connect with the wider world, the facility was constructed in South Korea, will supply natural gas to most of Asia and create jobs for people in countries such as the Philippines.

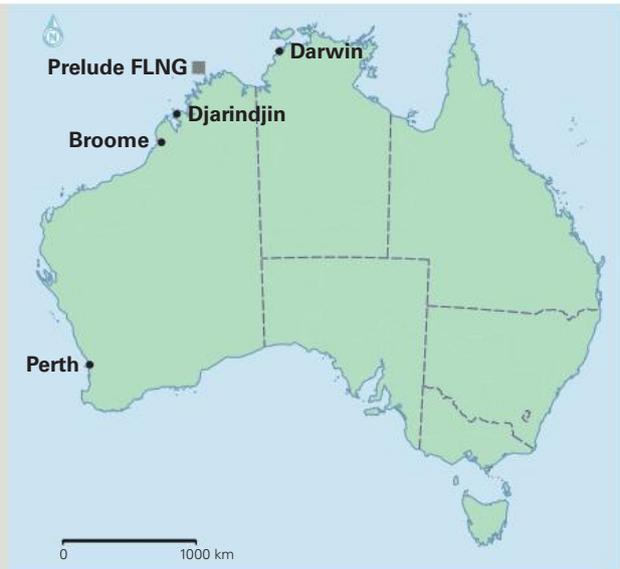
A team of 120 people work on board Prelude during operations. The project is also supported by teams and contractors across Perth, Darwin and the Kimberley – providing long-term steady Australian jobs both directly and indirectly. This project increases Western Australia's exports, providing incomes for many people and families. In addition, a partnership with WA TAFE is providing training opportunities for young people across a range of technical skills.





Major resources projects of this type are critical to the Western Australian economy, and connect us to the world through trade, immigration, flows of investment and education.

► **Figure 2.14** The location of Prelude FLNG off the Western Australian coast



## ANALYSIS QUESTIONS

- 1 What is Prelude FLNG?
- 2 Explain how Prelude FLNG connects Western Australia to trade partners in the Asia–Pacific region.



**Key concepts:** specialisation and trade, interdependence



**HASS skills:** analysing, communicating and reflecting

## Free trade

Free trade occurs when there are no restrictions on trade. Many countries impose trade restrictions such as **tariffs** or **quotas** on certain imports to protect their own industries. The government imposes tariffs (a form of tax) on an imported good to make it more expensive and less desirable compared with the cheaper, domestic version. Imposing a quota means only a limited number of these goods can be imported, which also makes the imported goods more expensive relative to what can be purchased locally. These restrictions can benefit local producers but tend to cause an overall loss to the economy as consumers end up paying more for goods and services.

Free trade and free trade agreements (FTAs) are designed to reduce the barriers (such as tariffs

and quotas) between two or more countries, and therefore allow citizens of countries to obtain goods and services at a lower price. FTAs exist between many countries. They can be bilateral (between two countries) or multilateral (between three or more countries).

Australia has entered into 11 FTAs, including:

- AUSFTA (US–Australia Free Trade Agreement)
- ChAFTA (China–Australia Free Trade Agreement)
- SAFTA (Singapore–Australia Free Trade Agreement).

**tariff** a charge or list of charges either for services or on goods entering a country

**quota** a fixed, limited amount or number that is officially allowed

### Amazing but true...

Free trade brings prices down. Because it allows countries to specialise in what they do best, it makes imports cheaper. This translates into people spending less on their purchases.

### Amazing but true...

Less tariffs means greater trade. Over the past 20 years, an average tariff reduction of 15 per cent helped to quadruple trade worldwide! That has not only helped to boost local economies but also to increase global standards for health, security and the environment, which in turn increase average life expectancy.



▲ **Figure 2.15** Free trade agreements are made between countries all over the world.

## Disadvantages of free trade

While the advantages of free trade are immense, it is important to also recognise that free trade comes at a price.

Free trade can lead to misuse of natural resources. Because Australia is rich in naturally occurring resources such as iron ore, many see Australia as a quarry for the world's steel. Do we rely too heavily on extraction of natural resources at the expense of developing other export industries in Australia? Are our environmental controls strong enough to protect the environment from the impact of mining?

The extraction of natural resources from the ground can lead to environmental degradation and economic exploitation both in Australia

and other countries. Some developing countries need **investment** in mining in their countries, so sometimes have lower environmental standards to

**investment** the act of putting money, effort and time into something to make a profit or get an advantage, or the money, effort and time used to do this

entice multinational corporations to invest in their country. These natural resources (such as oil, rare minerals, gas) are used in production

processes, but many people are unaware of the negative impacts these mines can have on their local communities. These impacts include, but are not limited to, displacement of people from their homes and land, water pollution, soil erosion and air pollution. These impacts are among the worst effects of the mining industry.

The negative impacts of increased international trade can also be seen in the increase in transport of goods and services around the world. This is especially the case with shipping, as close to 90 per cent of the world's trade is carried out by sea. Much of the oil and gas we use is imported by ship. The food we eat and goods we consume are not always produced or sourced locally but shipped from various locations around the world. More than 5000 container ships are moving around the world at any one time. Shipping accidents are relatively rare, but they do happen and can have disastrous effects.



▲ **Figure 2.16** Pollution from production processes

## Amazing but true...

Over 90 per cent of Australia's iron ore and metallurgical coal production is exported and had a combined value of nearly \$160 billion in 2019.

◀ **Figure 2.17** Forest destruction caused by mining gold deposits in Venezuela, South America. Soil is blasted with powerful jets of water, causing chemical pollution which has a major impact on the rain forest.



## ACTIVITY 2.4

### Research task

Go online to search for the article 'Christmas Island oil spill: time to value natural treasures, not just trade' on *The Conversation* website. Read the article and answer the questions below.

- 1 Outline why David Attenborough described Christmas Island as one of the greatest wildlife spectacles on Earth. In your answer describe three marine species found around Christmas Island and Flying Fish Cove.
- 2 The Panamanian Carrier MV *Tycoon* crashed at Flying Fish Cove. What pollutants spilled from the ship and what impact did this have on the unique marine life?
- 3 The MV *Tycoon* is not the only shipping accident described in the article. Outline two other accidents.
- 4 Describe two ways that people can achieve the dual goals of delivering wealth from oceans and conserving marine natural heritage.



▲ **Figure 2.18** A coconut crab on a beach on Christmas Island



**Key concepts:** making choices, specialisation and trade, interdependence



**HASS skills:** analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 2.5

### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 List five of Australia's major exports.
- 2 Which countries does Australia trade most with?
- 3 Explain the difference between a tariff and a quota.
- 4 According to DFAT, how many jobs in Australia rely on exports in mining and farming?

#### Interpret

- 5 Why do you think that Australia's trade has shifted from Britain and the USA to Asia?
- 6 Explain why Australia chooses to set up free trade agreements (FTAs).
- 7 What are some possible disadvantages of free trade?

#### Argue

- 8 Is it a good thing that Australia's trade relies so much on resources and mining? What are some of the downsides of this?
- 9 Should the entire world set up a global free trade agreement? Research the arguments for and against this idea and present your own opinion.

#### Extension

- 1 The Trans-Pacific Partnership (TPP) was a proposed free trade agreement that was to involve Australia and many other Pacific countries, including the USA. Former US President Donald Trump withdrew from the agreement, which impacted Australia greatly. Research this agreement and answer the following questions:
  - a What was the purpose of the TPP?
  - b What benefits would it have provided to Australia's economy?
  - c Why did President Trump withdraw from the agreement?
  - d What happened after the USA withdrew?



**Key concepts:** making choices, specialisation and trade, interdependence, economic performance and living standards  
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**HASS skills:** analysing, evaluating, communicating and reflecting  
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## 2.6 Why and how participants in the global economy are dependent on each other

### FOCUS QUESTION

What factors connect economies around the world?

### Global supply chains and multinational corporations (MNCs)

Consider a smartphone. The engineers who designed it are probably based in San Francisco, while many of the raw materials are sourced from

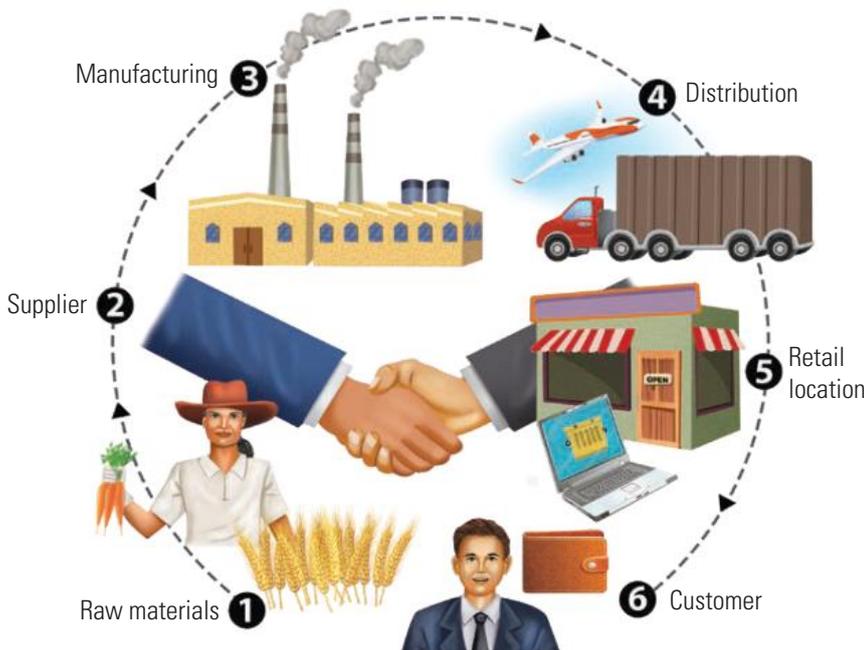
countries such as Zambia or Congo in Central Africa. Most of the production happens in factories in China, and the final product is shipped to almost every country you can imagine. The way this happens is known as a global **supply chain**.

**supply chain** the system of people and things involved in getting a product from the place where it is made to the person who buys it

**multinational corporation (MNC)** a large corporation headquartered in one country that produces or sells goods or services in multiple countries

Supply chains are the system of people and processes involved in the production of goods and services. They begin at the extraction of raw materials, and involve transportation and manufacturing, as well as sale to the customer at the retail stage.

▼ **Figure 2.19** Supply chains include sourcing raw materials, production in factories, transportation, orders from retailers and sales in shops all over the world



Supply chains can be complex, involving thousands of individual people or organisations. They also require effective communication and collaboration across these complex chains, to avoid breakdowns in the system. Many businesses rely on others from all over the world in order to provide a product to their customer.

Large **multinational corporations (MNCs)** make use of global supply chains. They have supply chains that span across national borders. They have offices and factories in different countries around the world to facilitate the purchase, production and distribution of goods and services that those MNCs then sell on the international market.

IKEA is an example of an MNC. Headquartered in the Netherlands, the furniture and homeware company operated 445 stores worldwide in 2020. The raw materials used to produce the furniture sold at IKEA come from all over the world, are shipped to manufacturing locations in South-East Asia and delivered in flat packs to stores in Australia for sale. The company attempts to eliminate inefficiencies by using recycled materials, buying at large scale and having

customers assemble the products at home. This ensures costs are kept low and consumers pay less.

▼ **Figure 2.20** IKEA is one of the largest multinational corporations in the world.



## MAKING THINKING VISIBLE 2.2



### Think, pair, share

Think about each stage represented in the supply chain diagram in Figure 2.19. Take a few minutes to identify and think about what happens at each stage and find a partner to talk about each stage. Do you identify similar activities and processes?



**Key concepts:** scarcity, specialisation and trade, interdependence



**HASS skills:** analysing, communicating and reflecting

Trade ultimately can allow for greater choice for consumers because trade increases the variety and availability of goods and services that can be imported. These are the products and services that cannot be produced efficiently by the domestic market. It is important to remember that we do not only import goods and services because they are cheaper, but also because they are unique and have **brand value**. Brand value means that consumers are willing to pay more for a certain brand because of the reputation of the manufacturer and the perceived prestige of ownership. We import

**brand value** the financial value of having customers who will pay more for a particular brand

Maserati from Italy, Chanel from France, Adidas and Nike from the USA, to name but a few.



▲ **Figure 2.21** Some of the best-known brands are up in lights.

## ACTIVITY 2.5



Draw up a table similar to the one below and think about the brands and products you like from overseas. Write a list of your favourite brands in the first column. In the second column (country of origin) write the name of the country where this brand comes from, and in the third column, write why you like this brand. Share and discuss with a partner.

Product/brand	Country of origin	Why do you value this brand?



**Key concepts:** making choices, specialisation and trade



**HASS skills:** analysing, evaluating, communicating and reflecting

## Fair trade

**Fair trade** is about helping consumers make informed choices about where their purchases come from and who made them. In very complex global supply chains and with increasingly cheap prices, fair trade is about

**fair trade** a way of buying and selling products that makes certain that the people who produce the goods receive a fair price

ensuring the products we buy are made by people who receive a fair wage and who work in safe conditions where child labour is forbidden.

Fairtrade Australia New Zealand is an organisation that advocates for reasonable wages, safe working conditions and good environmental standards. Fairtrade Australia New Zealand certifies certain products, including coffee, chocolate, tea and cotton, to inform the consumer who ultimately purchases the goods that not only are they enjoying a product from overseas, but they are also supporting gender equality, eradication of child labour, strong environmental standards and safe working conditions.



▲ **Figure 2.22** Commonly labelled Fairtrade products include coffee and chocolate.

## END OF SECTION REVIEW 2.6

### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.

#### Recall

- 1 Define the following terms:
  - a comparative advantage
  - b supply chain
  - c free trade
  - d fair trade.
- 2 Explain what a multinational corporation is.
- 3 Create a list of five everyday products that you use or enjoy that come from overseas. In a Word document or your notebook, create a supply chain diagram for these products to outline where each stage in the production process takes place.
- 4 How many jobs in Australia rely on exports in mining and farming, according to DFAT?





### Interpret

**5** Why do you think consumers are increasing their demand for fair trade products?

### Argue

**6** 'IKEA attempts to eliminate inefficiencies by using recycled materials, buying at large scale and having customers assemble the products at home. This ensures costs are kept low and consumers pay less.' Present a counterargument to this. For example, some consumers may enjoy assembling the products at home but others may not. IKEA does offer assembly for an additional price. Does this then eliminate their value for money? What impact might the IKEA sales model have on local furniture businesses?

### Extension

Go online to find the article 'Shipping in the Great Barrier Reef: the miners' highway' on *The Conversation* website. Read the article and answer the questions below.

- 1** According to the traffic report, why do you think the GBR is referred to as the miner's highway? How many ships are estimated to travel through the GBR by 2032?
- 2** Outline how increasing global interconnections are contributing to the destruction of the GBR.
- 3** Identify the three main types of incidents that occur due to shipping in the GBR.
- 4** Research and write a report on the MV *Shen Neng* / environmental accident that occurred on the Great Barrier Reef in April 2010.



**Key concepts:** scarcity, making choices, specialisation and trade, interdependence



**HASS skills:** analysing, evaluating, communicating and reflecting



## 2.7 Conclusion: why does it matter?

Trade is essential for Australia's prosperity. Imports increase our standard of living by providing high-quality, affordable goods and services for consumers while exports create jobs and income for millions of people.

Understanding why countries trade, as well as having knowledge about Australia's composition and direction of trade, will enable you to not only participate in the economy but also take advantage of the opportunities trade provides individuals and businesses.

Being able to identify the processes that go into producing the things you buy also makes you a more responsible consumer and helps improve the lives of people throughout the global supply chain.



## 2.8 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research task

##### DFAT

Go to the Department of Foreign Affairs and Trade website and select the Trade and investment tab. Then choose the Fact sheets for countries and regions, underneath Trade and investment data, information and publications. From the list of fact sheets, choose a country you are interested in learning about and create a presentation based on the trade and economy between Australia and that country.

Your presentation should include:

- Where that country is located in the world
- Three key facts about that country
- The major goods and services exported from Australia to that country
- The major goods and services imported by Australia from the country
- The country's principal export destinations
- The country's principal import sources.

### Analysis



#### Palm oil

Examples of environmental destruction and habitat loss due to production and trade include the production of palm oil. Palm oil production in Indonesia and Malaysia has led to the destruction of rainforests and tropical forest. Palm oil is an edible extract from the fruit of palm oil trees that is used in food production, cosmetics and other industries for biofuel and animal feed. The producers of palm oil cut down trees in rainforests, destroying the biodiversity and habitat for many natural species such as orang-utans.

The deforestation is a significant contributor to climate change, loss of biodiversity and putting more species on the endangered species list.

Go to the World Wildlife Fund website and answer the following questions:

- 1 What is palm oil and why is it considered to be so destructive?
- 2 Why does palm oil matter to the global community?
- 3 What are the three key impacts of palm oil production?
- 4 What are three ways you can help the palm oil situation?



▲ **Figure 2.23** This aerial photo taken, in 2007, depicts recently felled forest areas in the North Sumatra province, Indonesia. The Sumatran rainforest is protected, but unauthorised clearing still occurs, which diminishes the habitat of tigers, elephants, orangutan and rhinoceros that roam these mountains. This photo shows palm oil plantation areas expanding into rainforest.

## Writing



Write a letter to Australia's Federal Minister for Trade, Tourism and Investment, the government minister responsible for Australia's trading relationship with the world. In your letter, explain what you think is good about Australia's trade arrangements and what could and should be improved. Make sure to use persuasive language and letter-writing conventions.



**Key concepts:** scarcity, making choices, specialisation and trade, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# CHAPTER 3

## Money matters



### 3.1 Setting the scene: the power of super

Since the Australian Government made employer superannuation contributions compulsory in 1992, the long-term benefit to the economy and to individuals has been measured in trillions of dollars.

Saving for retirement is hard. Most people find it difficult to budget the right amount of their income to ensure they have enough to maintain their standard of living once they stop working. This is especially true for young people or those on low incomes. Another challenge is deciding what to do with the money to make sure it appreciates in value over time. Superannuation funds make this process much easier for people. These funds also create a pool of money which can be used to invest in the economy.

In 1992, the *Superannuation Guarantee Act* made it compulsory for employers to pay a percentage of all worker's income into a special account called a superannuation account. The percentage increased over time and in 2021 it was at 10 per cent of the total amount someone earns. This means that if you are earning \$70 000 per year, your employer will pay an extra \$7000 into this account, on top of your normal earnings. It will rise by 0.5 per cent per year until it reaches 12 per cent by 2025. The World Bank endorses Australia's system as the world's best practice for the provision of retirement income.

The benefits of this to individuals are numerous. It creates a pool of money which can be accessed upon retirement and allows people to satisfy their needs and wants when they stop working. It also removes the burden of saving from individuals and eliminates a lot of the temptation to spend the money on other things. Finally, the money is

usually invested by trained financial experts and earns interest over time, creating more wealth for everyday Australians.

There are also substantial advantages in a wider context. By 2020, the pooled value of funds under management had soared to \$3 trillion, one of the largest in the world, and 1.5 times Australia's gross domestic product (GDP). This vast sum of money is not sitting doing nothing. It is used to fund infrastructure projects, business opportunities and research. This creates jobs, grows the economy and has established Australia as a major player in world investment. Young people today will continue to benefit from this scheme long into the future.



▲ **Figure 3.1** Superannuation funds are like a savings account that provide extra financial support during retirement.



▲ **Figure 3.2** Super is often referred to as a 'nest egg' – what do you think this means?

## MAKING THINKING VISIBLE 3.1



### Think, puzzle, evaluate

In groups of three to four students, share ideas and questions in response to the following prompts.

What do you know about this topic?

- Write a list of things you know about how superannuation works.

What questions do you have?

- Create a list of questions that you have about how superannuation works in Australia.

Who are the winners and losers from this?

- Create a list of costs and benefits of compulsory superannuation in Australia.



**Key concepts:** making choices, allocation and markets, economic performance and living standards



**HASS skills:** questioning and researching, evaluating



## 3.2 Chapter overview

Regardless of whether you are 15 years old or 50 years old, money matters. When we have money, we can use it to buy things we need or like. We can also invest to make more money. But with every investment, regardless of the type, you must weigh up the risk and rewards. Economic decisions are based on the concept of scarcity. Because money is scarce, decisions about what to do with it involve costs and benefits. Understanding the relationship between risk and reward underpins your money decisions and is key to developing a strong personal investment philosophy. Whether investing overseas or domestically, or in Bitcoin, shares or property, understanding your risk profile can help you to protect your money and make money matter.



### Learning goals

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

- What is the purpose of money?
- What is the role of banks, credit unions and building societies?
- What are some different types of saving and investment?
- What are good debts and bad debts?
- What are the risks and rewards of investing?
- What are scams?
- What are some of the risks and rewards of the Australian and global financial landscape?



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries, and other extra materials.



**Video**  
Money: Five interesting facts



## 3.3 What is money?

### FOCUS QUESTION

What is the purpose of money?

### Money

**Money** is a means of exchange. It is also a store of value and a measure of wealth. As you discovered in the previous chapter, the economy can be represented by a circular flow diagram: money flows through the economy as households and businesses produce and consume.

Businesses sell goods and services to earn money and make a profit, while workers provide labour in exchange for money known as a salary or wages. But money itself has no value. It is only worth the paper it is printed on and as secured by the country that issues the money. Globally, various countries have different values for money bearing unique names. **Fiat money** is a term used to describe money declared by a government to be legal tender. This money is standardised from one country to another via exchange rates to ease foreign trade.

Money is referred to by many different names, such as wages, salary, sales, expenses, revenues,

rent, income, profit, price of goods and services, wealth, and spending and savings. These money terms are central to our economy and its operation and understanding them is important to your financial literacy.

Interestingly, physical notes and coins account for only a small proportion of the money in the world. According to *Business Insider*, there is currently about US\$5 trillion of cash and coins in the world. This amount of money increases to an excess of US\$80 trillion when other 'accessible' money in bank accounts is included. This amount further increases when bitcoins and other **cryptocurrencies** are included. The total amount of money under such classification could be as high as one quadrillion US dollars.

**money** coins or notes that are used to buy things, or an amount of these that a person has  
**fiat money** legal tender whose value is backed by the government that issued it  
**cryptocurrency** a digital currency produced by a public network, rather than any government, that uses cryptography to make sure payments are sent and received safely; e.g. Bitcoin

▼ **Figure 3.3** Some of the different currencies (monies) around the world



## Amazing but true...

Mary Reiby, who appears on the Australian \$20 note, was a convict sentenced to seven years transportation when she was 13 years old for stealing a horse. She was a pioneer businesswoman with interests in shipping and property.



▲ **Figure 3.4** Mary Reiby on the Australian \$20 note

## Banks, credit unions and building societies

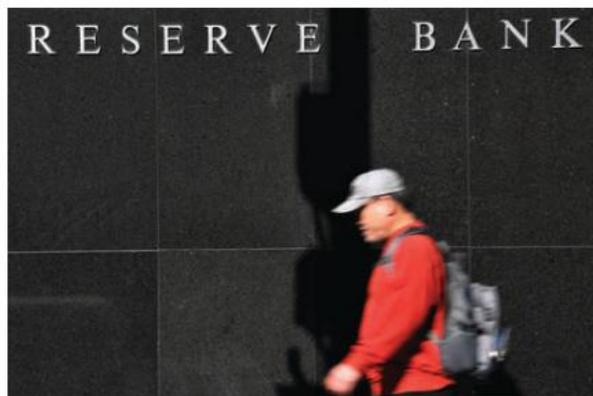
Most of our money is held by banks like the ANZ, Westpac, CBA and NAB, as well as in credit unions and building societies. The key difference between the banks and credit unions and building societies is that profits from building societies and credit unions are reinvested

**shareholder** a person who owns shares in a company and therefore gets part of the company's profits and the right to vote on how the company is controlled

for the benefit of the members, whereas banks' profits are only for the benefit of their **shareholders**.

We use banks and credit unions or building societies because we do not necessarily spend all the money that comes our way as soon as we receive it. Many people choose to save money and

do this by depositing their money in banks and credit unions, technically known as authorised deposit-taking institutions (ADIs). These institutions use the money deposited by savers to provide loans to households and businesses, in exchange for interest payments.



▲ **Figure 3.5** The Reserve Bank of Australia manages the amount of physical cash that circulates.

## END OF SECTION REVIEW 3.3

### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 What are three essential features of money?
- 2 What is the difference between banks, credit unions and building societies?

#### Interpret

- 3 Money is referred to by many different names, such as 'wages' and 'salary'. Define these two terms and discuss the merits of each.

#### Argue

- 4 Discuss the advantages/disadvantages of banking with credit unions/building societies and banks. Make an argument as to which one you would prefer to deposit your money into.



**Key concepts:** scarcity, making choices, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating, communicating and reflecting



## 3.4 Why and how people manage financial risks and rewards in the current Australian and global financial landscape

### FOCUS QUESTION

What is the difference between saving and investing?

### Savings and investment: types of investment

**Saving** and investing are often used interchangeably, but there is a difference.

Saving is setting aside money you don't spend now for emergencies or for a future purchase. Many people save for a holiday, and students might save for a car. When you save money and deposit it into a bank, the bank will pay you **interest** based on the amount of money in your account. This interest is money the bank pays you so that it can use your money to fund loans to other people.

If interest rates fall, savings accounts earn less money, which will cause people to look for other investments, such as shares or property. Low interest rates, however, will encourage more people to borrow from ADIs as it becomes cheaper to take out loans. Interest rates in Australia have fallen to the lowest levels in history as a result of high unemployment and low spending by households, partly due to the COVID-19 recession. Economists hope that this will cause people to spend more on large items, such as cars and appliances, and help the economy to recover.

Investing is buying an asset with the expectation that your investment will make money for you. The goal of investing is to make money, so it is natural to pursue investments that offer the greatest **returns**. Often the return can be via capital improvement or via an income stream from the investment. A capital improvement means that the value of the asset has increased, such as buying a house which goes up in value, while an income stream refers to the money

that can be made from renting out the house to a tenant.

Many people choose to invest in property, as traditionally it sees capital improvement. The average price of a house in Perth increased from \$185 000 in 2000 to over \$500 000 in 2020.

### Amazing but true...

Only around 15 per cent of 18–24-year-olds own shares!

### Investing in shares

When you choose to invest and buy shares, you are choosing to own a piece of a company which entitles you to potential profit on your investment. There can be **capital appreciation** (or capital gains), which means an increase in the value of the share (e.g. \$1 to \$1.25), and dividends, which are regular income from shares. A **dividend** is a portion of a company's profit that it decides to pay out to shareholders, in return for their investment. These are two ways to make a profit on investments, but it is important to remember not all shares will appreciate in value and not all companies will pay a dividend. A company may not pay a dividend at all if it has failed to make a profit or has chosen to reinvest profit back into the business.

**savings** the money saved, especially in a bank or other financial institution

**interest** a cost against borrowing funds and the profit that accrues to those who deposit funds in a savings account

**return** to receive a particular amount of profit

**capital appreciation** an increase in the price or value of assets such as shares or property

**dividend** a part of the profit of a company that is paid to the people who own shares in it



▲ **Figure 3.6** Traditional piggy-bank savings have never gone out of fashion.

**central bank** a bank that provides services to a national government, puts the official financial plans of that government into operation and controls the amount of money in the economy

**decentralised** describes organisations or their activities that are not controlled from one central place but happen in many different places

**cryptocurrency exchange** a place where digital currencies are bought and sold

**stock exchange** a place where shares in companies are bought and sold, or the organisation of people whose job is to do this buying or selling

## Cryptocurrencies

Cryptocurrencies are digital currencies that use encryption techniques for security. These digital currencies are not issued by any **central bank**, rather cryptocurrencies exist in digital form. Cryptocurrencies are transferred between peers and transactions are recorded on a digital public ledger called a blockchain. All transactions are encrypted using cryptography, hence the name cryptocurrency.

The idea behind a cryptocurrency is it is **decentralised**, meaning it is controlled by users and computer algorithms rather than a central bank. Cryptocurrencies are traded through online **cryptocurrency exchanges**, which operate in a similar manner to **stock exchanges**.

There are many cryptocurrencies, including the well-known Bitcoin (BTC), as well as Ether (ETH), Ripple (XRP) and Litecoin (LTC).



▲ **Figure 3.7** Bitcoin is a famous example of a cryptocurrency.

## Amazing but true...

A Hungarian programmer made the first Bitcoin transaction in 2010 when he purchased two pizzas, paying 10 000 BTC. In May 2021, the value of that transaction was approximately A\$750 million. They were some pretty expensive pizzas!

### MAKING THINKING VISIBLE 3.2



#### Think, pair, share

What are some problems with cryptocurrency? Could cryptocurrency ever be a fiat currency?

Take a few minutes to think about the advantages and disadvantages of cryptocurrency and then find a partner with whom you can share and discuss your thoughts.



**Key concepts:** scarcity, making choices



**HASS skills:** analysing, evaluating

### END OF SECTION REVIEW 3.4



#### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What is the difference between saving and investing?
- 2 What are shares and why do people buy them?
- 3 What is cryptocurrency?

#### Interpret

- 4 When investing in shares, explain the difference between these ways of making money:
 

a capital gain	b dividend.
----------------	-------------
- 5 Explain the relationship between investment and interest rates.
- 6 Create a list that outlines the risks and potential returns on each type of investment, and rank them from 1–4 in terms of their potential as an investment:
 

a savings account	c shares
b property	d cryptocurrency.

#### Argue

- 7 Discuss the advantages/disadvantages of capital improvement or an income stream as a return on your investment.

#### Extension

- 1 Research the annual *Forbes* magazine's Midas List. Prepare a short report on the purpose of the list and describe the rise of female investors each year.



**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, communicating and reflecting



## 3.5 The ways consumers can protect themselves from risks: debt and credit

### FOCUS QUESTION

What is good debt and what is bad debt?

### Debt

**Debt** refers to an amount of money borrowed by one party from another under the condition that it is to be paid back at a later date, usually with interest. Debt can come in many different forms, each with their specific costs and benefits. Borrowing is not necessarily a bad thing, as it allows you to achieve some goals such as buying a car, new clothes or household items, which can increase your living standards. But it is important to remember that with all loans and credit come fees, charges and interest which can make borrowing very expensive.

**Mortgages** are typically large sums of money borrowed to purchase an asset such as property. These have the benefit of incurring relatively low rates of interest but

**debt** an amount of money borrowed by one party from another, to be paid back at a later date

**mortgages** a large sum of money borrowed from a financial institution, such as a bank, and used to purchase an asset

**credit** a method of paying for goods or services at a later time, usually paying interest as well as the original money

**credit limit** the largest amount of money that a bank allows someone to spend using a credit card

are paid back over many years and a large deposit is needed to apply for one. Mortgages are often considered as good debt if they are used to generate either capital gains or cash flow, for example when buying a rental property. Most people will not be able to save enough money to

buy a house outright, so borrowing the money and paying it back over several years allows more people to own property to either live in or generate an income stream.

### Credit

**Credit** is money you borrow from a financial institution, like a bank or credit union, to spend the way you want. You need to repay this debt to the credit provider, usually with extra costs on top of the amount you borrowed. These extra costs can be in the form of annual fees, but most institutions also charge very high rates of interest for the convenience of using the banks' money with immediate accessibility.

According to the Australian Securities and Investments Commission (ASIC) Moneysmart website, there are a number of types of credit you can choose from, but the important aspect to consider is that they all have pitfalls.

### Credit cards

A credit card allows you to borrow money from a credit provider to buy something without using your cash or savings. You have a limited amount of money you can borrow (known as your **credit limit**) and you must pay back that amount by a set date. Ideally, you would pay off the whole balance on the due date, but if you do not, you will be charged interest on the balance owing. On a low-rate card this can be between 8 and 15 per cent for new balances, but can get as high as 20 per cent on existing balances. The interest charged is also dependent on the

## Amazing but true...

If you were to borrow \$500 000 at a standard interest rate in 2020 of 2.5 per cent per year, you would pay the money back at around \$600 per week. You could buy a property and rent it out for around the same amount, using the rental income to pay off the mortgage. Over time, you could begin to keep some of this income to spend on your own needs and wants.

type of transaction, such as a purchase versus a cash advance. Even if you pay the balance and any interest off at the end of each month, there will also be an annual fee for the privilege and convenience of the card.

### Store cards

Store cards are credit cards associated with particular department stores or large retail outlets. These cards are very similar to credit cards but also work on store loyalty to offer special discounts when you use the store card that you would not get using a regular credit card. Like credit cards, they have high levels of interest payable on balances, annual fees and due dates for balances to be paid.

### Personal loans

Personal loans are usually obtained through a bank and generally will have a lower rate of interest compared with a credit card or store card. These loans are used for lump sum payments, such as for a car or renovations, when a person does not have adequate savings to cover the whole price of the purchase. The personal loans are usually for a set period of time (fixed term), such as five years, and you will be required to make monthly repayments until the loan is paid off within the term of the loan. Many loans of this type charge customers a fee for paying off the balance early, meaning the loan provider earns more interest.

### Amazing but true...

There are 10 000 credit transactions worldwide every second!



▲ **Figure 3.8** Credit cards have many pros and cons.

### Interest-free deals: buy now, pay later

Many stores offer purchase terms to encourage consumers to buy goods and take them home before fully paying for them.

This does not mean they are cost-free; like other forms of loans, such as credit cards, there are still fees and charges. The catch with interest-free purchase periods is that if you do not pay off the amount within the set period, then very high interest will be charged on any outstanding balance. There are many retailers and service providers who offer buy-now, pay-later services, including Afterpay and zipPay.



▲ **Figure 3.9** Furniture stores often offer interest-free deals.

### Payday loans

Payday loans are very expensive and are a trap for many consumers. These payday loans are generally for \$2000 or less, but you have a very limited amount of time to repay the loan. The interest rates on payday loans are very high. Many loanees who fail to pay these loans back within the set period find their debt increases very quickly. Some customers end up paying back many times the amount they initially borrowed, causing them to go into a spiral of debt that is difficult to control.

▼ **Figure 3.10** Where can I get money?



## Good debt versus bad debt

Many people may argue that there is no such thing as good debt. But often borrowing money is the only way people can afford to purchase large items such as a house or a car. This type of loan can be considered justifiable as opposed to careless and frequent spending on other types of high-cost credit, such as credit cards and store cards. So, when considering whether debt is good or bad, it is important to look at the reason behind the borrowing.

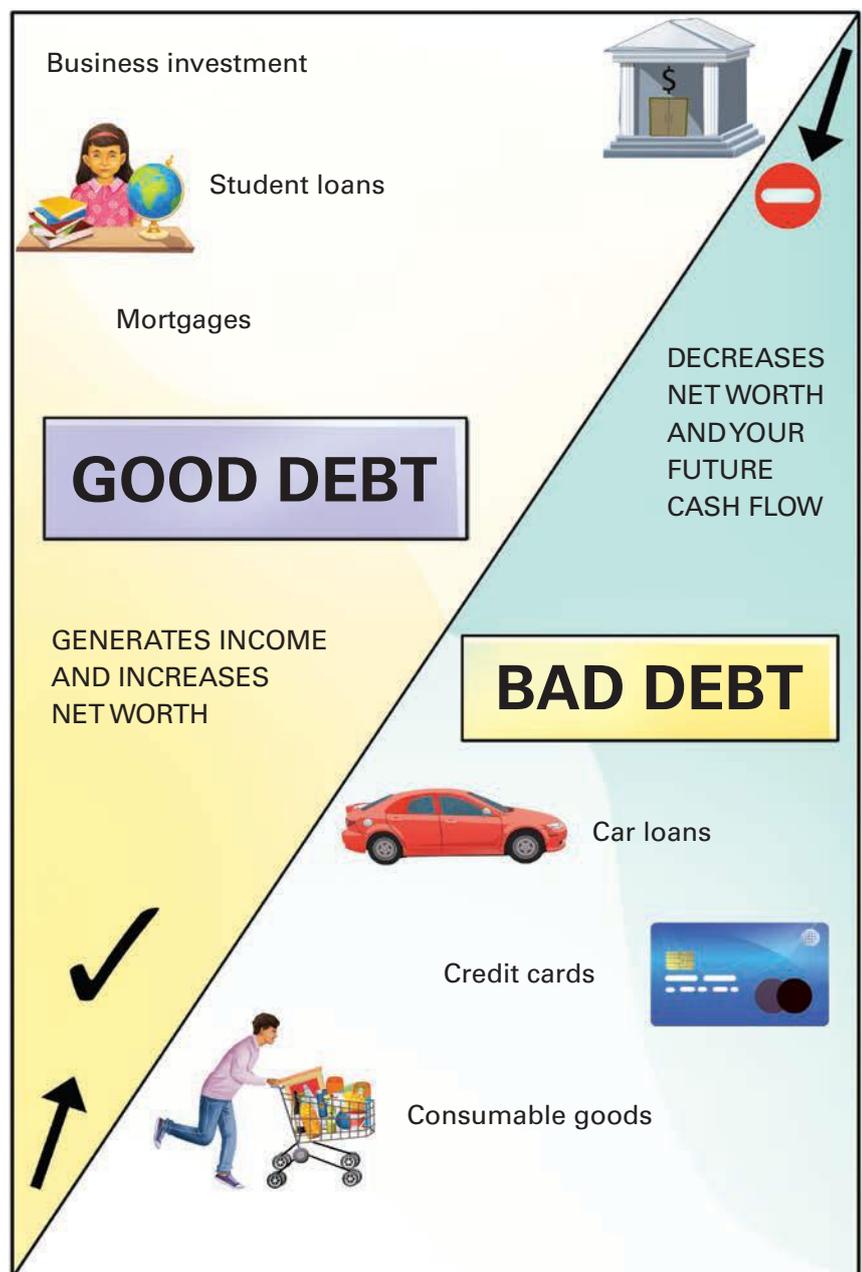
### Good debt

Good debt could be considered for big items that people would not normally be able to afford without taking out a loan of some kind. If the debt is to purchase an asset, particularly one which you hope will increase in value or generate an income, then it is likely to be good debt. As mentioned earlier, a home would come into this category. Other reasons why people borrow is for an education and for small business ownership. In all these circumstances it is possible to see a return on the investment in either an increase in the value of your home, an opportunity to gain a better and higher-paying job through education or to go into business with the hope of making an income and earning a profit. While these all look very likely to maximise the value of the loan, it is also important to realise that, under certain circumstances, house prices can fall, jobs cannot be found and many small businesses fail.

### Bad debt

While good debt has the potential to increase a person's wealth, bad debt is considered bad because purchases are a result of **discretionary spending**, which is usually for goods and services to fulfil a short-term want. Some people would argue that buying

a new car is taking on bad debt. This is because the new car value depreciates very quickly, and it is very unlikely you will make a financial gain on a new car when you sell it five years later with 100 000 km on the odometer. Clothes and consumables also only fill a short-term need or want and if you use credit to purchase these goods and services, and do not pay this debt off quickly, you will end up paying a lot more for the jeans you thought you would wear everyday but only wear once or twice. Most financial advisors would recommend saving up to buy these types of items or buying cheaper varieties that are within your budget.



▲ Figure 3.11 The difference between good and bad debt is its impact on net worth.

**discretionary spending** money spent by consumers on things other than necessary purchases such as food, clothes and fuel

## MAKING THINKING VISIBLE 3.3



### I used to think, but now I think...

Do you think there is good debt and bad debt? Do you agree that there are different kinds of debt?

Have your thoughts changed on the topic of debt?

Find a partner to discuss what you used to think about debt, and what you now understand.

 **Key concepts:** making choices, economic performance and living standards

 **HASS skills:** evaluating, communicating and reflecting

### Risk vs return: investing – is it too good to be true?

The risk-return trade-off states that the potential return (gain) improves with an increase in **risk** (what you might lose). In effect, this means that if you have a chance of getting a large return on your investment then you will also need to accept a higher risk of loss. Nearly every investment carries some risk. Shares and property both have the potential to increase and decrease in value,

proving that there is no such thing as a 'sure investment'.

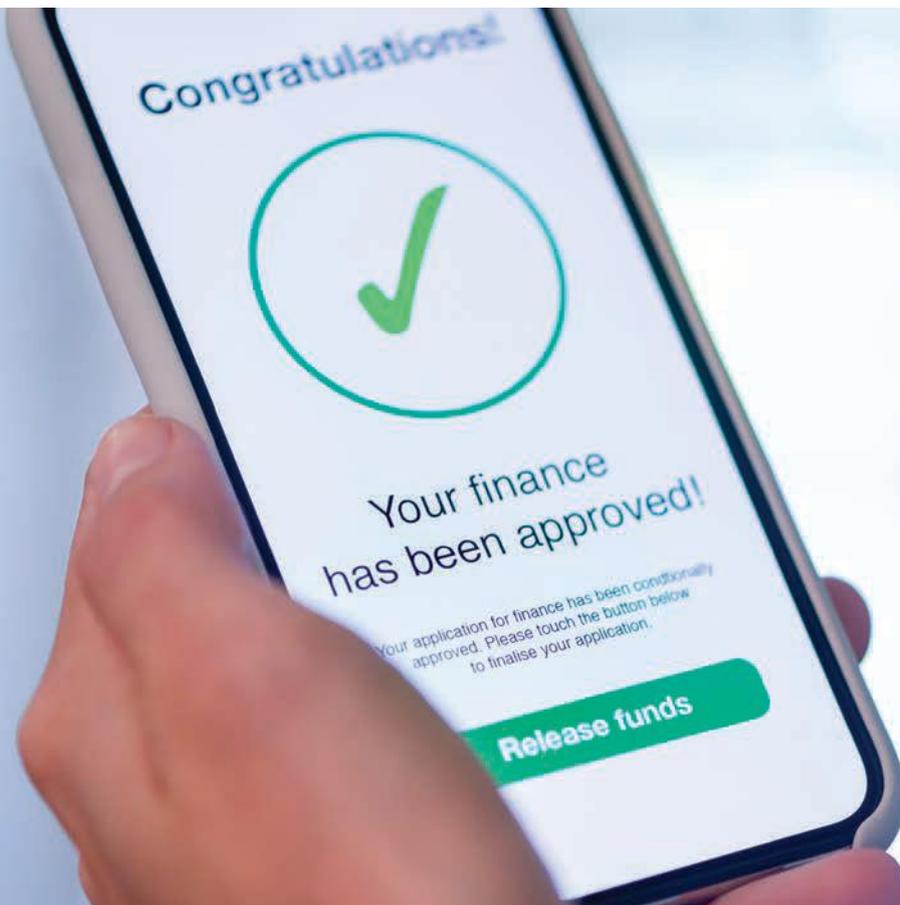
**risk** the possibility of something bad happening; in business, the risks and the rewards can be high

### What is risk?

Risk relates to the choices you make about how you invest. Risk is also uncertain. Any investment has the potential to affect your financial welfare. The level of risk you are willing to take on in an investment must also be seen in terms of how much money you are willing to lose. Some investments will be riskier than others.

▼ **Figure 3.12** Wages come in, and from that wage we have to pay expenses. Sometimes we may go into debt.





▲ **Figure 3.13** Balancing potential risks and rewards is an essential part of making smart financial choices.

## Managing risk

There is risk in every investment. As the economy is dynamic, returns on investment can change over time. For example, during the COVID-19 pandemic the value of shares in some companies, such as those involved with live entertainment, fell dramatically. Share prices in companies producing home office equipment, however, increased rapidly. This change would not have been easily predicted in late 2019 but was well in effect by early 2020.

There are investment strategies that can be used to manage or reduce the exposure to risk. These can include portfolio diversification. This means that you invest across different asset classes to increase the probability that while some of your investments might fail, others might provide a small return. The important aspect of diversification is variety. For example, when investing in the share market, it is important to invest in shares across several sectors to prevent 'having all your eggs in one basket'. This means

**scam** an illegal plan for making money, especially one that involves tricking people

**fraud** the crime of getting money by deceiving people (e.g. credit card fraud)

that if one sector of the economy does not give positive returns (e.g. oil and gas), other sectors might provide a return (e.g. banks and finance). You can also reduce risk through investing in a number of different asset classes. This would mean investing in real estate and in the share market, as well as keeping some cash in term deposits (savings accounts).

## Scams

A **scam** is a dishonest scheme or **fraud**. Other words to describe scams are swindle or hustle. Scams can take many forms. Consumers must be aware of the potential for transactions to be dishonest, and that people may try and swindle them out of their money.

You can be scammed by someone in Australia, but you can also be scammed by people overseas. There are many different types of scams. Scamwatch is run by the Australian Consumer and Competition Commission (ACCC). The ACCC's role is to inform the public about emerging trends and techniques used by scammers to steal a person's identity and take money from them.

Most people believe they would be able to identify a scam when they come across one, but the financial losses to scammers across a variety of types of scams would suggest otherwise.

Scamwatch identifies many types of scams, including personal identity scams, online shopping scams, fake charity scams and love- and romance-based scams.

Investment scams cost consumers the most money. As mentioned earlier, there is no such thing as an investment with a 100 per cent chance of a return. Scammers will generally promise that

for a small fee you can make a lot of money. They often gain victims' trust by paying out once, and then ask for a large deposit that is then lost to the scam.

In Western Australia in 2019, there were 17 387 claims to Scamwatch for a total loss of \$13 308 657, with the most common forms of scam being via phone and email. If you are suspicious about an offer you receive, you should take the time to check other sources to make sure it is legitimate. No company will ask for your bank details or personal information via email or over the phone.

### Amazing but true...

In 2020, \$176 million dollars was lost through scams in Australia.

▼ **Figure 3.14** Online scams are a downside to the convenience of using the internet to make purchases and other financial transactions.



## END OF SECTION REVIEW 3.5



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What is the difference between good debt and bad debt?
- 2 What is risk and how does it apply to investing?
- 3 Define what a scam is.

#### Interpret

- 4 Discuss what good debt is and why people may argue that there is no such thing as a good debt.
- 5 Store cards can offer special discounts and exclusive shopper events. What may be the drawbacks of using store cards?
- 6 During the COVID-19 pandemic the value of shares in some companies, such as those involved with live entertainment, fell dramatically. Share prices in companies producing home office equipment, however, increased rapidly. Discuss some reasons why this occurred.

#### Argue

- 7 Debt refers to an amount of money borrowed by one party from another under the condition that it is to be paid back at a later date, usually with interest. Outline the reasons why they pay back the money with interest. Propose reasons why they shouldn't have to pay back the money with interest.

#### Extension

- 1 Create an informative list of 'do's and don'ts' for young people about debt. Your list should include things such as risk, investment options and credit.



**Key concepts:** scarcity, making choices, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating, communicating and reflecting



## 3.6 Conclusion: why does it matter?

Regardless of whether you earn a high income or not, understanding how money works and the various mechanisms governing finance is a critical skill for success in life. Being able to identify a good investment from a poor one and knowing the risks and potential rewards of different

opportunities will enable you to control your finances and grow your wealth as you get older. Reducing the amount of bad debt that you incur and being confident when taking on good debt can ensure that you are in a position of comfort when the time comes to stop working for an income.



## 3.7 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research task

- 1 Visit the Scamwatch website. Choose one type of scam and create a presentation informing your teacher and classmates about:
  - a how the scam works and how much money has been lost in this type of scam
  - b warning signs – what to look for when you might be scammed
  - c how to protect yourself – how to prevent being scammed.
- 2 Create a poster outlining the different types of scams. Your poster should inform your audience about how to protect themselves against scams and some special tips on what to look out for.

### Analysis



Visit the ASX website and choose a company with which you are familiar. Find out the following information for this company and record your findings:

- 1 What is the current share price for the company?
- 2 What was the share price for the company at this time last year?
- 3 If you had bought \$1000 of shares in the company a year ago, how much would your investment be worth today?
- 4 Does the company pay a dividend? If so, how much does it pay and how often?
- 5 What is your recommendation to someone about whether to invest in this company? Provide reasons for your answer.

### Writing



#### Investment portfolio

- 1 Imagine that you have been able to save \$100 000. Write up a plan of how you will invest this money in order to earn the best return on your investment. You will need to use the internet to help you. You should consider:
  - a interest rates on savings accounts and mortgages
  - b rates of return on buying shares
  - c the value of property and rental returns.

*Remember that a diversified investment plan is better than putting all your money into just one type of investment.*



**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# CHAPTER 4

## The business environment: innovation and competitive advantage



### 4.1 Setting the scene: good for the planet, good for business

Innovation and entrepreneurship are all about responding to and understanding consumers. A major trend in recent years is businesses engaging in socially or environmentally responsible activities to attract customers. One Western Australian organisation has embraced this trend and is making a difference through product innovation. South Beach Boardies is a Fremantle-based company that takes plastic bottles and recycles them into stylish swimwear. You can see examples of the resulting swimwear on their website.

The plastic is melted, turned into fibres and spun, cut and sewn into the clothing. This process takes 53 per cent less energy than regular polyester and also reduces plastic pollution. The company also makes an effort to work with ethical, socially responsible manufacturers who provide safe working conditions, training and fair pay.



▲ **Figure 4.1** Turning plastic waste into clothing is an example of innovation in business.

Customers respond positively to this type of business innovation, and increasingly are prepared to pay for products that are produced ethically and are environmentally responsible. This form of innovation can create an advantage for businesses in the market, allowing them to increase their sales and expand their operations.

## MAKING THINKING VISIBLE 4.1



### Think, puzzle, explore

In groups of three to four students, share ideas and questions in response to the following prompts.

What do you know about this topic?

- Write a list of *things you know about innovation*. Do you know of any other Western Australian/Australian innovations?

What questions do you have?

- *Create a list of questions* you have about innovation and how it can be used in business today.

What does this topic make you want to explore?

- *Create a list of topics about innovation* that you would like to explore further after reading this story.



**Key concepts:** making choices, interdependence, specialisation and trade



**HASS skills:** questioning and researching, analysing



▲ **Figure 4.2** Bottloop raincoats at the 'Fantastic Plastic' exhibition, which focussed on innovative recycling and reuse of polymer materials, at the New Tretyakov Gallery in Moscow, Russia in 2019



## 4.2 Chapter overview

### Introduction

In this chapter you will investigate the importance of innovation. How do businesses create and maintain a competitive advantage? How do businesses interact with the rest of the world? Being innovative and staying in business means you need to maintain an advantage over your competitors. Marketing, and setting business goals and objectives, are the best way to business success.

### Learning goals

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

- What are the ways businesses innovate?
- How is innovation changing with technology?
- How do businesses become and remain competitive?
- What is marketing and how does it lead to business success?



▲ **Figure 4.3** A light-bulb moment can be the spark that ignites a great business idea.



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



#### Video

Business innovation: Five interesting facts



## 4.3 The nature of innovation

### FOCUS QUESTION

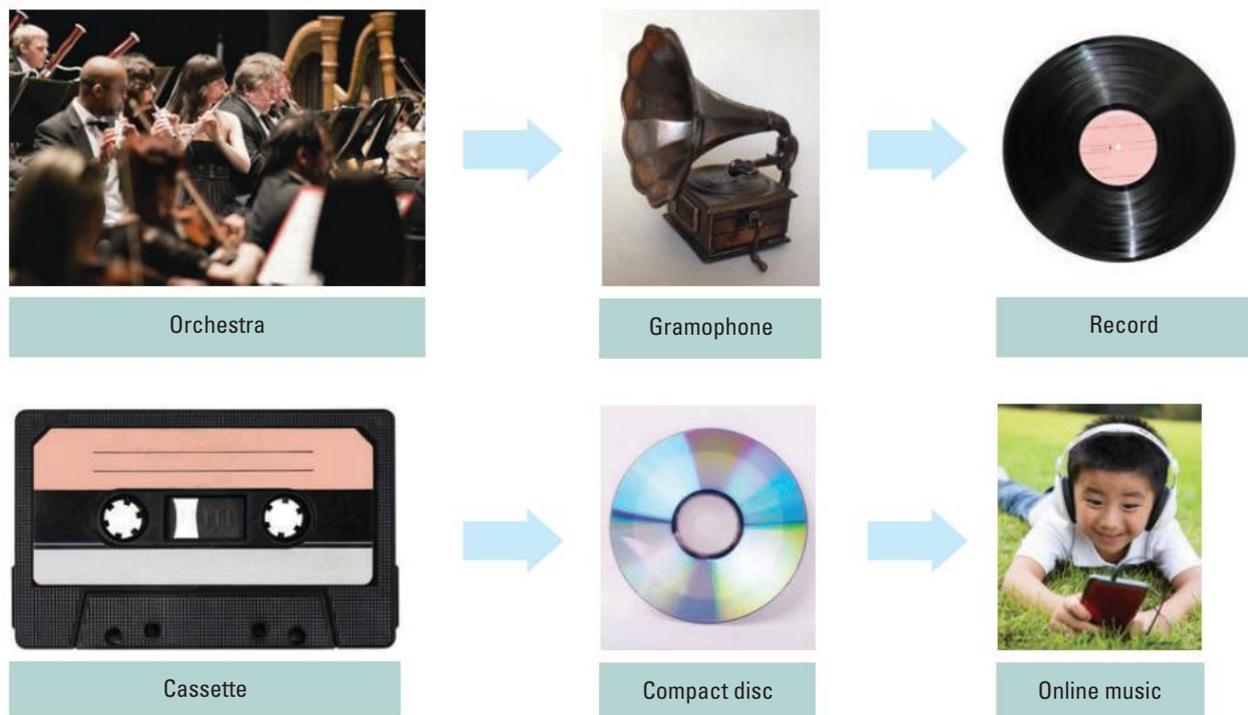
Why do businesses need to innovate?

Heraclitus, an ancient Greek philosopher, has been quoted as saying ‘change is the only constant in life’. This is especially true in business. Companies with a great idea need to continue to improve, adapt and change, and respond to new technologies, customer demand and competition. This is why innovation is so important.

**Innovation** usually refers to the creation of a new product or a variation on an existing product

that improves it (such as colour, design, features). Innovation includes new ideas and creative thoughts. The sources of innovation can be new knowledge, new markets, economic change or technological change, as demonstrated in the flowchart of music innovation over the centuries shown in Figure 4.4.

**innovation** the creation of new products, services or processes, or the improvement of existing ones



▲ **Figure 4.4** Innovation has dramatically changed the way people consume music over time.

Innovation means recognising and taking advantage of market opportunities. A successful business is able to see opportunities others have failed to recognise. The source of most business opportunities is change.

As society’s needs and wants change, so too do the types of goods and services people want to purchase.

We can think about change in the following ways:

- changes in fashion (flared jeans, high-waisted jeans)
- changes in lifestyle (health, fitness and lifestyle)
- changes in demographics (the changing population – age, culture)
- changes in technology (communication, robots, resource use).

Businesses want/need to keep track of these changes to make sure they are continually innovative, and updating their goods and services to meet the needs of the changing market. Successful businesses recognise changes in consumer demand and take advantage of these changes.

This could be through:

- increasing demand for certain products (i.e. organic products)
- decreasing demand for certain products (i.e. plastic bags)
- increasing demand for fair trade and socially responsible business practices.

## MAKING THINKING VISIBLE 4.2



### One-minute conversations

We all think about change in our own way. How has your community or personal experience changed in terms of fashion, lifestyle demographics or technology over the past 10 years?

Move around your classroom and spend one minute talking to a partner about each of these key areas of change. After a minute, change topic and partner. Make a list of similarities and differences to share in a class discussion.



**Key concepts:** making choices, interdependence



**HASS skills:** analysing, communicating and reflecting

## Global markets

Recognising what is offered in overseas markets shows a level of innovation. What is available

**franchise** a right to sell a company's products in a particular area using the company's name

overseas that is not available in Australia? Would Australian consumers like it? Looking overseas at other markets can reveal

innovation and ideas that have not yet reached Australia. This is evident in a successful **franchise**. Franchises often start overseas and spread to the Australian market because someone saw a business opportunity. Oporto, Krispy Kreme, The Coffee Club and Subway are good examples.

This can also happen in reverse. Innovation in Australia can be taken overseas to build successful businesses. Examples of these types of businesses include Aēsop and Carman's Kitchen muesli brand.



▲ **Figure 4.6** An Aēsop seasonal kit on display in a store in Los Angeles in America. This Australian beauty brand was established in 1987 and is known for their high-end products that use botanical ingredients and are paraben-free.



▲ **Figure 4.5** How many different coffee franchises can you name?

## Research and development (R&D)

Research and development (R&D) is work directed towards the innovation, introduction and improvement of products and processes to assist innovation and business concept development. The government often supports ideas in areas of research and development because R&D can identify and establish new products and innovative technologies. Furthermore, R&D can add value to an existing product, by providing environmentally friendly options for a cleaning product, for example, or changing packaging to use biodegradable materials.

Technological development can also be seen through the growth of the internet and research into gaps in the market. The internet, coupled with the hand-held devices capable of mobile internet access, has supported innovation and enabled the formation and development of many new business ideas, including Airbnb, Uber and drone technology.



▲ **Figure 4.7** Could this be a future parcel delivery?

## MAKING THINKING VISIBLE 4.3



### Franchise frenzy

Choose a well-known franchise which operates in your local area. Research this organisation and find out the country of origin, number of franchises and staff worldwide as well as the costs and benefits to buy a franchise in this business. Use this information to create a pamphlet for prospective franchise owners.



**Key concepts:** making choices, specialisation and trade, interdependence



**HASS skills:** analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 4.3



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 Why do businesses need to innovate?
- 2 How do global markets influence business innovation?
- 3 What is a franchise?
- 4 What does the term 'research and development' mean?

#### Interpret

- 5 Discuss why government often supports ideas in areas of R&D.
- 6 Propose why people investing in franchises may feel relatively confident of success.

#### Argue

- 7 Explain how R&D can assist with technological development in the business environment. What is the downside of R&D?

#### Extension

- 1 There are four main forms of innovation in business. These are:
  - incremental innovation
  - architectural innovation
  - disruptive innovation
  - radical innovation.

Research the definitions for each of these key terms and list an example of a product or business for each.



**Key concepts:** scarcity, making choices, specialisation and trade, interdependence



**HASS skills:** analysing, evaluating, communicating and reflecting



## 4.4 How businesses seek to create and maintain a competitive advantage in the market

### FOCUS QUESTION

How do businesses develop and maintain an advantage over their competitors?

A competitive advantage is the unique ability of a firm to utilise its resources effectively, managing to improve customer value and position itself ahead of the competition. It means it has an advantage over its competitors. Businesses can create a competitive advantage in many ways, including creating a cost advantage, differentiating and establishing an identifiable brand.

### Amazing but true...

There are more than two million businesses actively trading in Australia right now, with an estimated 2400 opening each week.

### Lower cost product

Many businesses choose to reduce their costs in order to attract customers through lower prices. This can be done in many ways. Large organisations such as Bunnings are able to charge customers low prices due to a concept known as **economies of scale**. Because they can buy stock in very large quantities and therefore pay suppliers the lowest possible price, they are able to pass these savings onto their customers.

Other businesses use technology and automation to produce their product for less. This can be

**economies of scale** cost advantages gained by companies from increasing production and lowering costs. This happens because costs are spread over a larger number of goods.

**outsourcing** when a business pays an outside supplier to provide goods and services

seen in the consumer electronics industry where companies such as Samsung and Panasonic are able to produce items at very low cost by using robotic manufacturing. The average price of a

flat-screen TV has fallen from around \$6.60 per square inch in 2007 to under \$1.80 per square inch in 2017. This is mostly due to the technology used in building these products.

Other businesses cut down on costs by **outsourcing** labour to countries that pay workers a lower rate. The average hourly pay for factory workers in Australia is around \$26.50 per hour, while workers earn on average \$5.00 per hour in Indonesia and \$2.00 per hour in India. A business can reduce its overall cost of production significantly by moving its manufacturing to these countries.



▲ **Figure 4.8** Robots assemble Volkswagen Golf models on an automated production line at Volkswagen's headquarters and main manufacturing plant in Wolfsburg.

### Differentiation

All businesses aim to establish themselves as offering a product that is different from their competition. The most important factor in differentiation is the features of the product itself; however, elements such as packaging, delivery and service can be effective differences between businesses. Many customers will become extremely loyal to a business on the strength of these factors, and can become brand ambassadors promoting the product to others.

Consider the restaurant industry. Despite the fact that all businesses in this industry are fundamentally providing the same basic product (i.e. food), there are innumerable varieties of restaurant existing within the market. Some differentiate by offering convenience, others exceptional quality. There are also restaurants that specialise in unusual dining experiences, such as Dining in the Dark, where customers eat the entire meal without being able to see anything.

Other restaurants attempt to convince customers that their food is healthier or is sourced from local ingredients. Restaurateurs must have a clear vision about how they will create a competitive advantage through their food, layout and service, or face losing customers to their competitors.



▲ **Figure 4.9** Plant-based meat alternatives, such as Beyond Meat, are providing a differentiation strategy for many restaurants, which is a trend that is projected to continue.

## MAKING THINKING VISIBLE 4.4



### What's the difference?

Using one of the following industries, come up with a list of all the ways businesses create a differentiation advantage over their competitors. Compare your list with a partner. See who can come up with the most differences.

- cars
- mobile phones
- footwear
- breakfast cereal.



**Key concepts:** making choices



**HASS skills:** analysing, evaluating

## Brand recognition

Many companies use logos and slogans to give them a competitive advantage over their competition and to make their brand more recognisable. A logo is a symbol, name or trademark of a company. Logos are used by companies because they represent a concise image of the company. A picture, as they say, can tell a thousand words. People generally find it easier to remember a simple image over words alone. Advantages of a logo are that it has potential to reach a large audience, is easier to remember, can be a faster and simpler way to communicate, can grab a person's attention and can bypass language differences.

To gain a competitive advantage, in addition to a logo, a business may also use a slogan. A slogan is a simple and catchy phrase accompanying a logo or brand that encapsulates a product's appeal and makes it more desirable than that of its competitor. It can become an important component of its identification. A slogan can also be called a catch line or tag line.

A slogan usually has the attributes of being memorable, very concise and appealing to the audience. These attributes are necessary in a slogan, as it is only a short phrase or a short song. Slogans need to be concise in delivering the business's message and appeal to the audience the business is trying to reach.



▲ **Figure 4.10** A famous business slogan on a storefront

## END OF SECTION REVIEW 4.4



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What does it mean to have a competitive advantage?
- 2 How do businesses create a cost advantage?
- 3 What are three ways businesses can differentiate?
- 4 What is the difference between a logo and a slogan?
- 5 What are three key elements for a successful slogan or logo?

#### Interpret

- 6 Discuss some reasons why Dining in the Dark would appeal to customers.
- 7 Provide a suggestion other than outsourcing as to how a business could reduce its costs in order to attract customers through lower prices.

#### Argue

- 8 How important are logos and slogans to gaining a competitive advantage? Discuss the benefits of each of the points below. If you could choose only one to use to promote your business, in your opinion which is the most important?
  - a a logo
  - b a slogan
  - c a jingle (advertising song).

#### Extension

- 1 Choose a well-known business or product and conduct research into how it creates a competitive advantage. Imagine that you have been hired to provide a recommendation to this business about its competitive advantage. Outline three things that it is currently doing well and suggest two things that it could change or improve in order to stay competitive. Present your recommendations in the form of a PowerPoint-style presentation.



**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 4.5 Marketing for competitive advantage

### FOCUS QUESTION

How do businesses plan a marketing strategy?

Marketing can be defined as any activity designed to plan, price, promote and distribute goods and services. Marketing is vital to a business. However, a new invention or innovation does not guarantee customers will buy it. Customers need to be made aware of a product's existence, regardless of how 'record breaking', 'new and improved' or 'revolutionary' it may be. Businesses make few sales if they do not market their products successfully, eventually ending in failure. They must actively create a competitive advantage.

Before a business can start advertising its brand and/or products, it must identify its target market. A target market is the group of customers to which the business intends to sell its products. Target market selection is important, enabling the business to direct its marketing strategies to that group of customers, rather than the whole market. This allows the business to better satisfy the wants and needs of the targeted group and make marketing more relevant to the customers' needs.

### Market segmentation

Businesses not only have a target market but also divide the total market into market segments. This allows a business to direct its marketing towards meeting the needs of a particular part of the total market. As part of recognising and knowing its target market, a business will also divide the consumer market according to four key traits or commonalities:

- 1 **Demographic:** age, gender, occupation, education, religion, family size, ethnicity
- 2 **Geographic:** urban, suburban, rural, climate
- 3 **Psychographic:** lifestyle, socioeconomic group, motives, personality, consumer trends
- 4 **Behavioural:** regular user, first-time user, brand loyalty, benefits sought.

### Marketing strategy – the 4Ps

To reach a business's target market and improve market share and its competitive advantage, a business must consider the 4Ps of marketing strategy:

- 1 Product
- 2 Price
- 3 Promotion
- 4 Place.



▲ **Figure 4.11** Marketing is a complex blend of activities.

### Product

A product is a good or service that can be offered in an exchange for the purpose of satisfying a need or want. Products may be either tangible (goods) or intangible (services).

When considering their products, businesses must decide on factors such as:

- design
- name
- quality
- warranty and guarantee
- packaging
- labelling
- exclusive features
- benefits.

## Price

Price refers to the amount of money a customer is prepared to offer in exchange for a product. A price set too high could mean lost sales, unless superior customer service is provided. A price set too low may give customers the impression of an inferior product. Consumers associate low prices with poor quality. In any market, businesses will attempt to gain some control over the price by differentiating their products. This can give them a further competitive advantage and allows the business to have more power over the price. For example, clothes and shoes with designer labels (Vans, Levi, Nike, Adidas) can set higher prices for their garments than clothing sold under the Target or Kmart brand labels.

## Promotion

Promotion is the method used by the business to inform, persuade and remind customers about its products. Promotion attempts to attract new customers by heightening awareness of a product, increase brand loyalty by reinforcing the image of a product, encourage existing customers to purchase more of a product, and provide information so customers can make informed decisions. Advertising mediums are the means by



▲ **Figure 4.12** In a crowded market, it is important that your brand stands out!

which promotion can be successful and include the internet through websites and social media, television, newspapers, magazines and radio.

## Place

Place in this context means from where the business will distribute the good or service. The business needs to consider how it gets its product/service to the market. Therefore, a decision needs to be made as to how the business will operate. Will it be a physical bricks-and-mortar store, an online store or both? Location is where a business decides to operate and sell its product. Factors affecting choice of location include visibility, cost and proximity.

Proximity is very important for service businesses. These businesses need to be within the vicinity of a shopping centre or in a shopping strip. Proximity to competitors must also be considered because this could be an issue for retailers and service providers. Establishing a new business in a shopping centre that already has one or more similar businesses may be risky because they already have a customer base, and it may be difficult for the new business to attract customers. Being the first to establish a particular type of business in a shopping precinct is likely to increase the chances of success, but will still have challenges.

Types of business location include:

- shopping centres – e.g. Carousel, Innaloo, Garden City (suburban areas, outside of main cities)
- retail shopping strips – e.g. Hay St Mall, Murray St, Brookfield Place (urban areas, in main cities)
- online presence – websites that are open 24/7, global market
- home-based businesses – operate from home, no rental costs.

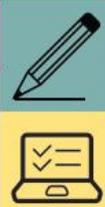
## END OF SECTION REVIEW 4.5

### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.

### Recall

- 1 Define the term 'marketing'.
- 2 What is market segmentation? Identify the four main market segments.





### Interpret

- 3** Who are the target markets for the following:
- a** Boost
  - b** Hermès
  - c** Toyworld
  - d** Bunnings
  - e** Harley-Davidson?
- 4** Can you guess the target market of these Coca-Cola beverages and explain why each would be the target market?
- a** Mother
  - b** Diet Coke
  - c** Deep Springs Natural Mineral Water
  - d** Nestea Iced Tea
  - e** Mount Franklin
  - f** Powerade.
- 5** What are some of the challenges you could face, as a new business, with different types of business locations, such as:
- a** shopping centres
  - b** retail shopping strips
  - c** online
  - d** home-based business.

### Argue

- 6** There are 4Ps in marketing: product, price, promotion and place. After product, suggest an order of importance for price, promotion and place. Which of these three is the most important? Give your reasons.



**Key concepts:** making choices, interdependence, specialisation and trade



**HASS skills:** analysing, evaluating, communicating and reflecting



## 4.6 Conclusion: why does it matter?

Business innovation and creating a competitive advantage are essential for successful organisations. Whether you are working for a company or running your own business, understanding how to think about these concepts will be essential to your success in the workplace. As a consumer, you are also constantly targeted by businesses that want you to choose their products over the competition. Understanding the marketing and promotion techniques they use will help you to become a more informed consumer and to make buying choices that truly provide you with the most benefit.



## 4.7 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Analysis



Visit <https://cambridge.edu.au/redirect/9598> to read the article 'We know innovation is key – but there's little agreement on exactly what it is' from *The Conversation* website. Read the article and answer the following questions:

- 1 How many jobs in the next decade will need STEM skills, according to the National Innovation Agenda?
- 2 Describe how young people view innovation, according to the research in the article. What might be the problem with this perception?
- 3 How do employers view innovation?
- 4 Explain how the difference between your answers to Questions 2 and 3 could be a concern for innovation in Australia.
- 5 What is experiential learning and how can it help with future innovation?
- 6 Summarise the article by outlining the main idea in no more than 50 words.

### Writing



#### New business presentation

You are to develop a new business idea to present to your teacher and class. The teacher and your class mates are potential investors who will be willing to provide capital (money and expertise) to you and your business to establish your business in the market.

In your presentation, you must refer to the following:

- 1 Business statement
  - a What is your business idea?
  - b What are the objectives of your business?
  - c Why will you be successful? Include an analysis of your competitors – how will your business steal some of their market share?
- 2 Logo and slogan
  - a You must design a unique logo and slogan for your business. Your logo will be the face of your business and be used to attract customers. It will also appear on your promotional material. Your slogan needs to be 'catchy' in order to make your business recognisable.
  - b This will need to be drawn by hand or developed using computer software programs. No copying or amending of current logos/images/slogans will be permitted.

- 3 Product**
- What product or service will your business be selling?
  - Why have you chosen to sell this? (Have you identified a gap in the market? Have you taken advantage of global markets? Is there a change in customer needs/wants? Have you researched and developed an existing product?)
  - What are the features/characteristics of your product?
  - How is your product unique? What is its point of difference in the market?
  - Include a design of your product. This will need to be drawn by hand or using computer software programs. No copying or amending of current images/products will be permitted.
- 4 Target market**
- You are to outline the product's target market and provide reasoning to support your decision.
  - Who will you be targeting? Consider factors such as demographics, geographic, psychographic and behavioural.
  - How will you attract that target market? Link to promotion – your advertising must be targeting your intended customers, store ambience (lighting, design, smell, sound, look and vibe).
- 5 Price**
- How much will you charge for your product?
  - Which pricing strategy will you adopt?
  - Why have you chosen this pricing strategy?
- 6 Promotion**
- Create two of the following forms of promotion for your business/product:
 

<ol style="list-style-type: none"> <li>billboard mock-up</li> <li>a radio advertisement</li> <li>a jingle</li> </ol>	<ol style="list-style-type: none"> <li>a 30–60-second TV commercial</li> <li>a web page mock-up</li> <li>a social media account.</li> </ol>
--	---
- 7 Place**
- Where will your business be located?
  - Will you have a physical store, an online store or both?
  - How will your product be distributed? Will it be only available for purchase from your store? Or will you allow it to be sold in other retailers/outlets?

## Inquiry



### Presentation – ‘The Pitch’

You are to put together a 5–10-minute presentation about your business that you have developed for your writing activity. This presentation is aimed at your teacher and the class.

Focus on the reasons why you think your business will be successful. Your presentation should be supported by visual aids (e.g. a PowerPoint presentation, iMovie video or a website) and be creatively and professionally presented. Remember, you are pitching your business for the opportunity to gain very important funding. This could be the difference between your business's success and failure.



**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# CHAPTER 5

## Work and work futures



### 5.1 Setting the scene: Perth's changing work environment

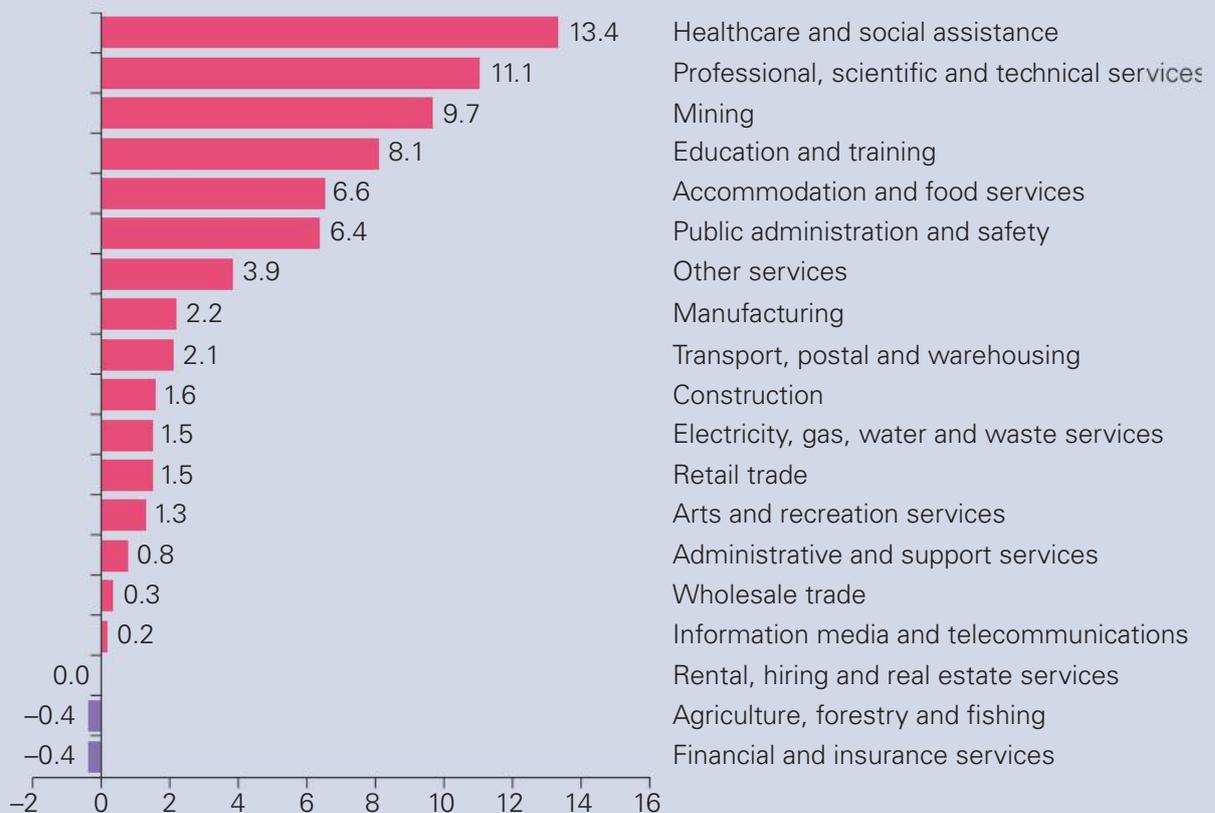
The future of work is, in many ways, already upon us. According to a report by the Committee for Perth and University of Western Australia (UWA), the adoption and fusion of new technologies, including artificial intelligence (AI), is changing work, the workforce and the workplace in Australia.

This type of workforce transformation is not new, yet it is expected to accelerate over the coming decade. This will alter the types of industries people work in, the nature of the jobs people perform and the skills needed to perform these jobs. It is also expected to lead to some job types becoming unnecessary and some skills not

being demanded anymore. In Perth, this trend is expected to impact the mining and resources industries as technologies such as self-driving trucks become more widely used.

This creates both benefits and challenges. A positive trend is the increasing safety for workers.

#### JOB GROWTH PROJECTIONS IN GREATER PERTH



Projected employment growth ('000) – five years to May 2024

▲ **Figure 5.1** Most of the industries expecting jobs growth are in the services sector.



▲ **Figure 5.2** Working remotely is one practice that has become far more common and is likely to continue as a more popular mode of working past the pandemic.

Technology reduces the risk of harm to people in many industries, and also contributes to higher worker productivity. One downside, however, is a potential mismatch between the skills that are available and the industries that need them. As illustrated in Figure 5.1, health care, social assistance and professional services are all expected to see large increases in employment growth in the next five years. Ensuring there are enough skilled people who can fill these roles is a major challenge for Western Australia's political and business leaders.

COVID-19 has been referred to in the report as a 'future of work accelerator', as businesses feeling the impact of the economic downturn search for ways to reduce their costs through automation and technology. In addition, the trend of people working remotely or from home due to health restrictions is set to continue long after the pandemic is over. This includes rapid adoption of communication technologies and cloud computing, a result of increased use of video conferencing services, online shopping, online education and delivery services. This will bring more opportunities to evolve the nature of work in the twenty-first century.

## MAKING THINKING VISIBLE 5.1



### Think, puzzle, explore

In groups of three to four students, share ideas and questions in response to the following prompts.

What do you know about this topic?

- Write a list of things you know about how work is changing. Have you experienced a change in the way you or someone you know works?

What questions do you have?

- Create a list of questions you have about the changing world of work.

What does this topic make you want to explore?

- Create a list of topics about work futures that you would like to explore further after reading this story.



**Key concepts:** scarcity, making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing

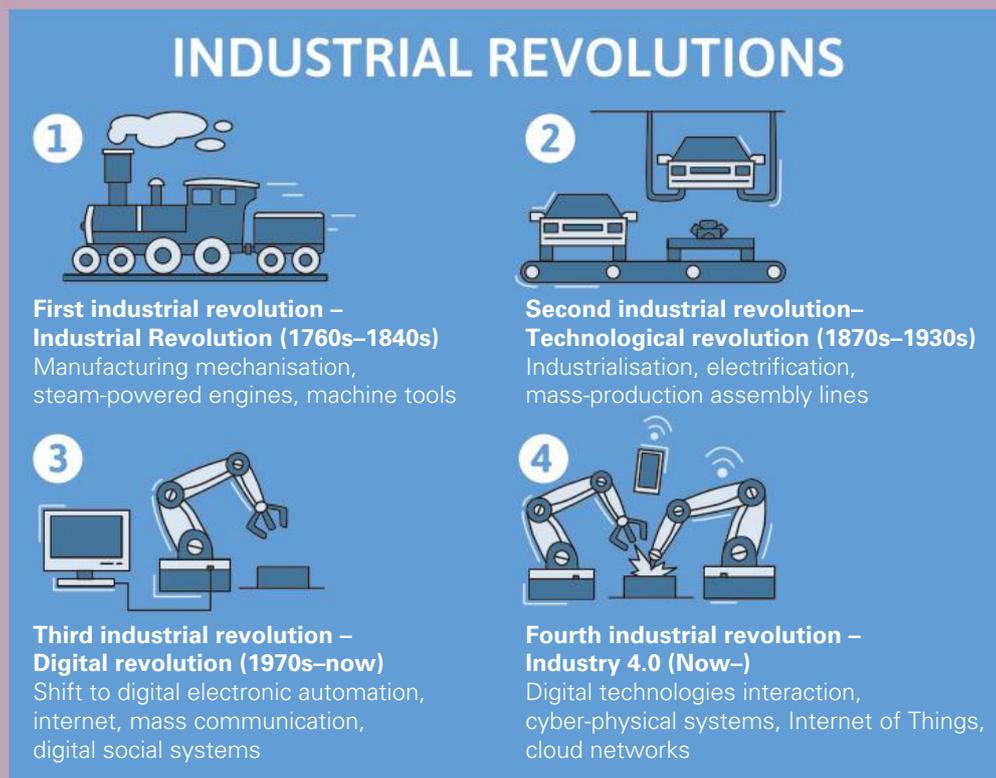


## 5.2 Chapter overview

### Introduction

#### The Fourth Industrial Revolution

Many people believe there has only been one industrial revolution, but they would be wrong to think that! The first industrial revolution around the early 1800s used steam power for production, the second industrial revolution around the late 1800s and early 1900s used electric power, and the third industrial revolution around the 1960s and 1970s is about the use of technology and electronics to automate production. We are now in the fourth industrial revolution. The fourth is seen to be an extension of the third, and involves a fusion of technologies, differing to the third by the velocity and scope of change. The speed of the current change is exponential rather than linear and is impacting on every work type in almost every industry in every economy. The fourth revolution is epitomised by high-use personal technology – billions of people are connected by mobile devices that have unprecedented processing and storage power. This power allows for more technological breakthroughs in areas such as artificial intelligence, robotics, the Internet of Things and nanotechnology.



▲ **Figure 5.3** Industries are constantly evolving and becoming more efficient.

### Learning goals

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

- How is the work environment changing in contemporary Australia?
- What are the implications for current and future work?



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



#### Video

Five interesting facts about the Fourth Industrial Revolution



## 5.3 The way the work environment is changing in contemporary Australia

### FOCUS QUESTION

How is the work environment changing in Australia?

### The fourth industrial revolution

The fourth industrial revolution is the environment in which technologies and trends such as the **Internet of Things (IoT)**, **robotics**, **nanotechnology**, **virtual reality (VR)** and **artificial intelligence (AI)** are changing the way we live and work. The fourth industrial revolution is seen as a point in time that will reshape the future of work. More than half of the students entering schools today will likely one day work in jobs that do not currently exist. Office jobs, along with manufacturing and production jobs, will also decline, but with these declines come opportunities. Jobs with a STEM (science, technology, engineering and mathematics) focus on computer functions will continue to increase. The central driver for the future of work is technology.

According to the World Economic Forum (Weforum), technology is a key factor in how we currently make, manage and deliver services. Future places of work might not be open-plan offices, but interconnected workspaces. These workplaces will, if not already, be underpinned by virtual conferencing, complete and constant connection and portability.

As already shown by the growth in businesses that have embraced and incorporated technology, such as Airbnb and Uber, personally owned assets, from cars to spare bedrooms, can expand entrepreneurship and provide new money-making streams.

Equipping the future workforce for this constantly evolving working environment requires us to embrace this technology and change our ways of thinking to help make our world a better place.

Embracing the technological needs of the future workplace in the 2020s means providing incentives for students to embrace some STEM

and computer-based subjects to ensure they stay at the cutting edge of technological advancement. The speed at which this technology moves means reinventing the ways schools and students view their work future, and encouraging them to continually reassess and provide for the training needs of the future throughout their schooling life.

We must ensure that through school and tertiary institutions, we educate the future workforce appropriately to ensure current and future generations are not left behind in the global digital skills race.

▼ **Figure 5.4** Technology is increasingly changing the way people work.



#### Internet of Things (IoT)

objects with computing devices in them that are able to connect to each other and exchange data using the internet

**robotics** the science of making and using robots

**virtual reality (VR)** a set of images and sounds, produced by a computer, that seem to represent a place or a situation in which a person can take part

#### artificial intelligence (AI)

the study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognise pictures, solve problems and learn

**nanotechnology** an area of science that deals with developing and producing extremely small tools and machines by controlling the arrangement of separate atoms

## ACTIVITY 5.1



### Check your understanding

- 1 What is the fourth industrial revolution?
- 2 Explain the following terms:
 

a artificial intelligence	c robotics
b Internet of Things	d virtual reality
- 3 What are the key things students should do to prepare themselves for the future of work? Explain why these things are important for a future in the workforce.
- 4 Do you think future generations will be left behind, or could they pick up skills easily if nothing changes in schools?



**Key concepts:** scarcity, making choices, interdependence, economic performance and living standards



**HASS skills:** analysing, evaluating

## From jobs to super jobs

The use of technology in the form of artificial intelligence, robotics, deep learning and the Internet of Things has meant that many jobs have been redesigned in a number of industries and opened up opportunities in many other areas. The jobs of tomorrow are likely to be powered by new technology and driven by use and manipulation of

data. But these jobs still require ‘human’ skills such as communication, problem solving, creativity and design. As technology takes over the repetitious tasks, jobs of the future may well evolve into *super jobs* – jobs that require those irreplaceable human traits of creativity and communication, but also incorporate cutting-edge technology to meet the demands of the future.



▲ **Figure 5.5** The use of machines is likely to increase in future work.

Many predictions have said that AI and robotics will do away with traditional jobs because the market for these technologies is growing rapidly. Does this mean that many jobs will be made redundant? There are arguments that automation, through removal of routine work, makes jobs more human, making the role and contribution by people more important and meaningful. The value of AI and automation lies not in the ability to replace human labour with machines, but in rebuilding the workforce to incorporate new

knowledge and new skills. As machines replace humans in doing routine or manual work, jobs are evolving to require new combinations of human skills and capability.

These new super jobs bring together technical skills, including technology operations and data analysis, with more ‘human’ skills in areas of communication, service and collaboration. Super jobs will not only change the nature of job skills but also the nature of work.

## MAKING THINKING VISIBLE 5.2



### Think, pair, share

What kind of job do you want in the future? Does it involve an aspect of artificial intelligence or robotics? Take a few minutes to think about your future and find a partner to discuss these ideas about a future job with each other.



**Key concepts:** making choices, interdependence



**HASS skills:** communicating and reflecting

According to the ABC article ‘Artificial intelligence and automation are coming, so what will we all do for work?’, the answer to this question is that future workers need to be flexible and have an ability and willingness to learn new things. The article explains that AI scientists and experts in the future of work describe a work future in which there are fewer full-time, traditional jobs requiring one skill set, fewer routine administrative tasks, fewer repetitive manual tasks and more jobs working for and with machines. From chief executives to cleaners, they argue that everyone will do their job differently working with machines over the next 20 years.

Given that future workers are predicted to change their careers multiple times within their lifetime, the experts argue that a broad, basic education with a strong STEM focus will be required to provide the core skills and flexibility that people will need to have success in the future job market.

According to research done for Foundation for Young Australians (FYA), it is predicted that school leavers will have 17 jobs and five careers over their lifetime.



▲ **Figure 5.6** Work in the future is expected to be more creative and collaborative.

The FYA research says that it is important not to focus on one specific job or career, but rather students should aim to develop a skill set that is transferrable, including financial and digital literacy, collaboration, project management and the ability to critically assess and analyse information.



▲ **Figure 5.7** Potential areas that could have more AI influences include nursing (left), aged care (centre) and childcare (right)

## ACTIVITY 5.2



### Check your understanding

- 1 What is meant by 'traditional jobs'?
- 2 Explain what you understand by the term 'super jobs'.
- 3 According to the ABC article 'Artificial intelligence and automation are coming, so what will we all do for work?', how do future of work experts and AI scientists describe the future of work?
- 4 What does STEM stand for? What kinds of subjects come under STEM? Why do you think these subjects are important?
- 5 How many careers and jobs does the FYA anticipate workers of the future will have? Why do you think FYA comes to this conclusion?



**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** analysing, communicating and reflecting

### Say hello to your robot partner

According to Deloitte Consulting, future work will fall into one of three categories:

- **Category One:** people who work **for** machines, such as drivers, online store pickers and some health professionals who are working to a schedule.
- **Category Two:** people who work **with** machines, such as surgeons using machines to help with diagnosis.
- **Category Three:** people who work **on** machines, such as programmers and designers.

As mentioned earlier, the qualities of empathy and creativity are now considered valuable human skills. These skills, yet to be replicated in the domain of technology, are skills that can be leveraged for income. Humans, unlike robots, are social and emotional beings, so the jobs that require lots of emotional intelligence will be those most likely to continue to be demanded into the future. This includes nursing,

psychology, childcare and education. These fields all involve human interactions with other people and therefore cannot be easily replaced by robots. These jobs belong to the 'caring economy', a sector of the economy where machines do not perform well but most people perform brilliantly. Growth in employment in the 'caring economy' is strong, with high demand for people in areas such as aged care, health care, childcare and education. However, compared to other sectors of the economy, the caring sector is not well paid.

Nonetheless, it is important to remember the future is ours, and the possibilities that lie beyond school and the society we develop depend on the values we place on the 'caring economy'. We need to recognise the value in education and aged care and pay workers accordingly. Remember, while artificial intelligence, technology and robotics are a large part of the future, computers are not imaginative or creative and certainly cannot express empathy, kindness, love or care.

## ACTIVITY 5.3



### Check your understanding

- 1 Identify and explain two human skills mentioned.
- 2 What are some of the traditional jobs that require interpersonal skills?
- 3 Outline the three future categories of work as described by Deloitte Consulting. Which category of job would you like to work in, and why?
- 4 Explain why it is important to value 'caring' jobs such as nursing, aged care and psychology.



**Key concepts:** making choices, economic performance and living standards



**HASS skills:** evaluating, communicating and reflecting

## The future of jobs

The future of jobs lies in a number of areas that are currently being developed through making use of technology such as AI and robotics. In the fourth industrial revolution, the skills and ability to work in these areas



▲ **Figure 5.8** Robotic engineer

### Robotics

According to BuiltIn.com, a tech company located in offices around the world, robotics is the intersection of science, engineering and technology that produces machines, called robots, that substitute for (or replicate) human actions.

Robots have always been a part of our pop culture, as illustrated in films like *Blade Runner* and *Star Wars*. These robots have many overly exaggerated human characteristics which give them a personality. However, this is not a realistic expectation of what robotics means for the workplace of the future. While some real-life robots have human-like features, including voice, they do not possess a natural intelligence nor an ability to think. Nonetheless, they do have an enormous capacity to problem solve.

Robotics can be useful in a variety of workplaces, from completing repetitious work on assembly lines to teaching Russian students Japanese. The examples of artificial intelligence in the field of robotics are plentiful and the development of skills in this area has led to successful innovation in the development of new goods and services using AI and robotics. Examples of robotics can be as broad as virtual offices or home assistants to financial robo-advisors. These robo-advisors use AI and **algorithms** to scan share market data and make predictions on the best-performing shares or portfolios.

are paramount. To be able to work across a number of areas is even more desirable. Some examples of work areas that are becoming more popular now, and are predicted to continue to become more popular in the future, include robotics and social media.



▲ **Figure 5.9** Social media influencer

### Social media

You have most likely heard of social media influencers. This industry has boomed, and many young people are using the power of social media and technology to create new opportunities to earn an income.

According to the Influencer Marketing Hub, a social media influencer is an individual who has the power to influence the purchase decisions of others in certain markets. Social media influencers can be celebrities, industry experts or well-known bloggers. It is the size of their following on social media platforms, as well as their engagement with their audience, that determines their success and ability to make money from this kind of venture.

Through technology, social media influencers have created a new industry and make money through product promotion and sponsored media posts in which the influencer is paid by a business to promote their products. Influencers can also make money by becoming product ambassadors on their social media accounts. In these circumstances, many of the influencers will have an agreement with the brand developer to promote their brand on their social media posts. In return, the influencer receives free products or payments for each promotion they create on their social media account.

**algorithms** a set of mathematical instructions or rules that, especially if given to a computer, will help to calculate an answer to a problem

These social media influencers have embraced the new technology and social media platforms, and use these to reach out to a possible market of more than a billion active users worldwide, across platforms like Instagram, Twitter, Facebook and Snapchat. Social media influencers have identified a niche market incorporating technology where they can personalise and cultivate worthwhile experiences for users and capitalise on word of mouth.

## END OF SECTION REVIEW 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 Robotics are used in many workplaces. Identify two jobs that make use of robotics.
- 2 Name three movies that have robots as their main focus. How were the robots depicted in each movie?

#### Interpret

- 3 List some reasons why a social media influencer can sway opinion.
- 4 How do social media influencers make money from what they do? Who pays them and why?

#### Argue

- 5 Many people argue that social media influencers do not have real market power and are just freeloaders. They should get a real job. Do you agree with this statement?

#### Extension

- 1 Investigate the growth of robots in the workplace by holding a debate within your class arguing for or against the statement: 'Robots and artificial intelligence will make most humans jobless in 50 years'.



**Key concepts:** making choices, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 5.4 Conclusion: why does it matter?

As a young person in the 2020s, you are on the edge of a world of work that is fundamentally changing. Many of the jobs that you will do throughout your life have not even been invented yet, and most of those that exist today will not be the same in a few years. Technology and automation are transforming work and careers,

and understanding this process is essential to ensuring you are placed to stay competitive in this dynamic future. Developing general skills in creativity, interpersonal communication and STEM will be the best way to make sure you have the tools to succeed in whatever job the future holds for you.



## 5.5 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research project

The future of work beyond 2020 will be driven by technology, artificial intelligence and robotics.

Using the information from this chapter, you are to develop your own 'virtual' job. This could be either in the world of robotics, as a social media influencer or something else.

Your new business idea in your future job would need to have the following details:

- 1 Name and logo for the new technology or idea that uses technology.
- 2 A brief description of the market.
- 3 Product or service description, including the functions or information provided by the technology.
- 4 How people will access and use the technology.
- 5 Benefits of the technology – how will it make life better, easier, faster, cheaper?
- 6 How and why your technology idea is better than those currently on the market or how your technology has built on products already available.
- 7 Why you see yourself working in this area in the future.

### Analysis



Go online to the ABC website and search for the interactive resource 'Could a robot do your job?' Use this resource to find out if the job you want in the future is likely to be replaced by automation technology.

Navigate the website and answer the following questions:

- 1 How likely is your chosen job to be automated?
- 2 What are the elements of the job that can be automated?
- 3 What are the elements of the job that are not so easily automated?
- 4 What are some jobs that are at very low risk of automation? Why?
- 5 What are some jobs that are at very high risk of automation? Why?



#### Writing

Create an advertisement for a 'future job' that you think will exist in 20 years' time. Make sure to list the following things in your advertisement:

- a brief outline of what the job is
- key responsibilities and tasks within the job
- education, skills and abilities required to do the job
- the working environment in this position.



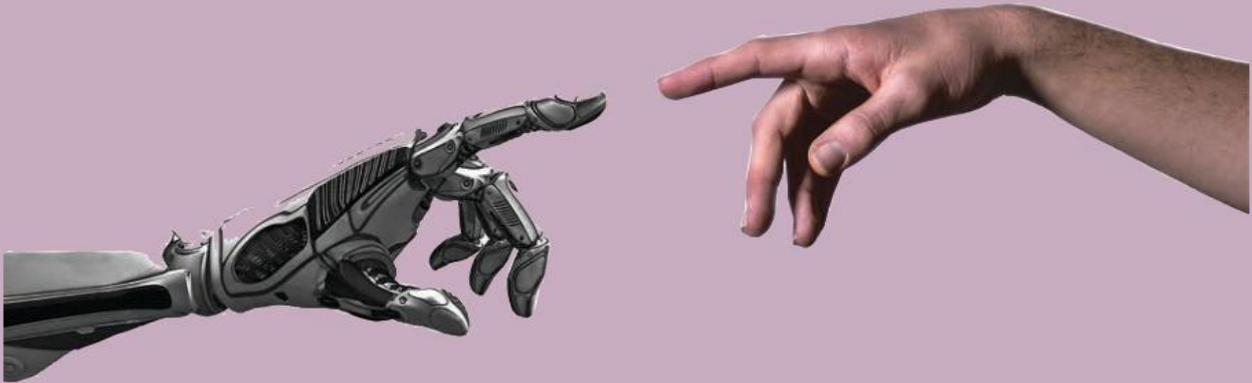
**Key concepts:** making choices, interdependence, economic performance and living standards



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# Making connections: Economics and Business and the other HASS topics

**Economics and Business** has many connections with other subjects in the Humanities. Have you considered how what you have learnt about trade, finance and innovation relates to the other topics you will cover this year? Here's a sample:



## Civics and Citizenship

### Political parties and the economy

Each political party in Australia has a different view of how the economy should operate. Research the economic policies of each of the following political parties and compare and contrast their ideas:

- Australian Labor Party
- Liberal Party
- National Party
- The Greens.

### Innovation and the law

Businesses must follow the law when they innovate and develop new products. Find out what laws apply to business innovation and explain why they are important.





## Geography

### Specialisation by biome

Countries specialise in producing goods and services that they have a comparative advantage in making. This often depends on the biomes that exist in that country. Choose a country and investigate the way it uses a particular biome to produce a good or service. For example, New Zealand uses its alpine biome to attract international tourists.

### Innovation in food production

There are many innovative solutions to food insecurity around the world. Many of these come from businesses that invest in technology or processes. They can increase the amount of food that can be produced but sometimes come with downsides. Find out the costs and benefits of these innovations:

- greenhousing
- genetic modification
- fertilisers and pesticides
- urban farming.



## History

### The Industrial Revolution and the rise of banking and finance

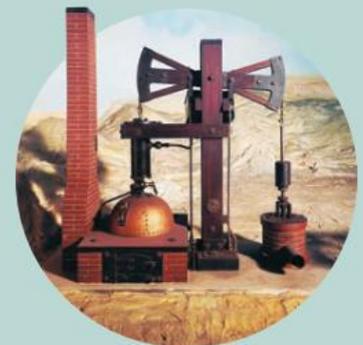
Many of the world's major financial institutions have their origins in the Industrial Revolution. Banks and lenders realised there were vast profits to be made by providing funds to businesses that emerged during this time. Research the growth of this industry from the 1700s until today and create an annotated timeline to present your findings. You should include:

- a Who established the first industrial banks?
- b What was the role of banking in the Industrial Revolution?
- c Which countries and companies were most influential at this time?
- d How has the banking and finance industry changed since the Industrial Revolution?

### Wartime propaganda as marketing

There are a lot of similarities between wartime propaganda as was used during World War I and modern marketing strategies. Compare and contrast a piece of propaganda from your period of study (poster, newspaper article or radio broadcast) with a modern advertisement campaign. You should consider, among other strategies, language use, symbols, colour and message.

Present your findings in the form of a Venn diagram and compare your work with others in your class.



# Part

# 3



# Geography

## What is Geography?

Geography combines the study of the physical features of Earth and the relationships people have with both natural and human environments. For example, geographers might study the shape of a landscape, the type of vegetation it contains, the habitat that this vegetation provides, and the climate and soil types that helped this vegetation to grow. Equally, geographers might study the changes that humans make to landscapes, such as clearing a forest for agricultural production and the positive and negative impacts that follow.

Asking questions about the world is an essential part of any geographical study. Why are some parts of Earth covered in tropical rainforests while others are covered in rocky mountains? Why is rice a staple food source in some regions instead of bread? Why are some countries facing overpopulation

while others are trying to increase birth rates? How do local-scale actions lead to global-scale impacts? Studying Geography will provide you with the skills and knowledge needed to answer these questions, while helping you to gain a greater appreciation for the natural and human world.

## Introducing geographical concepts and skills: *geographical thinking and using data and information*

Throughout the Geography section, you will learn to interpret and analyse a range of data, including maps, graphs, statistics and satellite imagery.

Geographers collect, analyse and present data in order to answer questions and draw conclusions. This data often has a spatial component in the form of a map, a geotagged photo or a digital interactive map known as a geographic information system (GIS). Geographical data is used to compare different environments, determine why environments change, assess the impacts of these changes and evaluate how changes are managed.

Geographers collect their own primary data on a local scale by undertaking fieldwork. Techniques used to gather this data include drawing field sketches, taking photographs, surveying local residents and mapping geographic characteristics. Secondary data is also used, which includes field data collected by others, historical accounts, data gathered remotely by satellites (see the images in Figures A and B) and data collected on a larger scale, such as in a national census.

Geographic concepts are used to help direct a geographer's thinking. The seven concepts used in the following chapters are place, space, environment, interconnection, sustainability, scale and change. Using the images in Figures A and B, a geographer might investigate how the characteristics of this place have changed, measure the scale and distribution of these changes, consider the interconnections between the factors that have led to the change and address the impacts that these changes might have on the environmental, social and economic sustainability of the region.

These concepts will be expanded upon throughout the following chapters as you compare natural environments around the world, explore the impacts of food production, investigate how technological developments have helped connect people around the world, and consider ways that people's choices and actions can have global consequences.

▼ These satellite images taken in 1985 (left) and 2016 (right) show environmental change in Rondônia, Brazil, as tropical rainforest is cleared for agriculture.



▲ **Figure A** Satellite image of Rondônia, Brazil, 1985



▲ **Figure B** Satellite image of Rondônia, Brazil, 2016

# Unit 1

## Biomes and food security

### Overview

By the middle of the twenty-first century, eating insects could become widely accepted as an alternative to eating meat. Meanwhile, cultured meat grown in a lab from cow stem cells could replace traditional beef production. These are all types of potentially devastating effects of climate change. A relatively small consequence, but still significant to many of us, is that climate change could drastically reduce cocoa production and lead to a worldwide chocolate shortage!

In this unit, you will investigate biomes based on their geographic characteristics and spatial distribution. This will help you to understand the types of foods and fibres produced within these environments, and the subsequent social, economic and environmental consequences. By evaluating various management strategies, you will explore ways in which future food production seeks a balance between sustainability and global food security.

### Learning goals

After completing this unit, you should be able to answer these questions:

- What are biomes and how do their characteristics vary?
- What is the spatial distribution of biomes on a global scale?
- What factors influence crop yields within Australia and across the world?
- In what ways does the production of food and fibres affect the environment?
- What are the challenges associated with achieving global food security?
- What land and resource management strategies are being used to try to achieve food security on a range of scales?



Video  
Unit overview

### Geographical concepts and skills: *space, environment and interconnection*

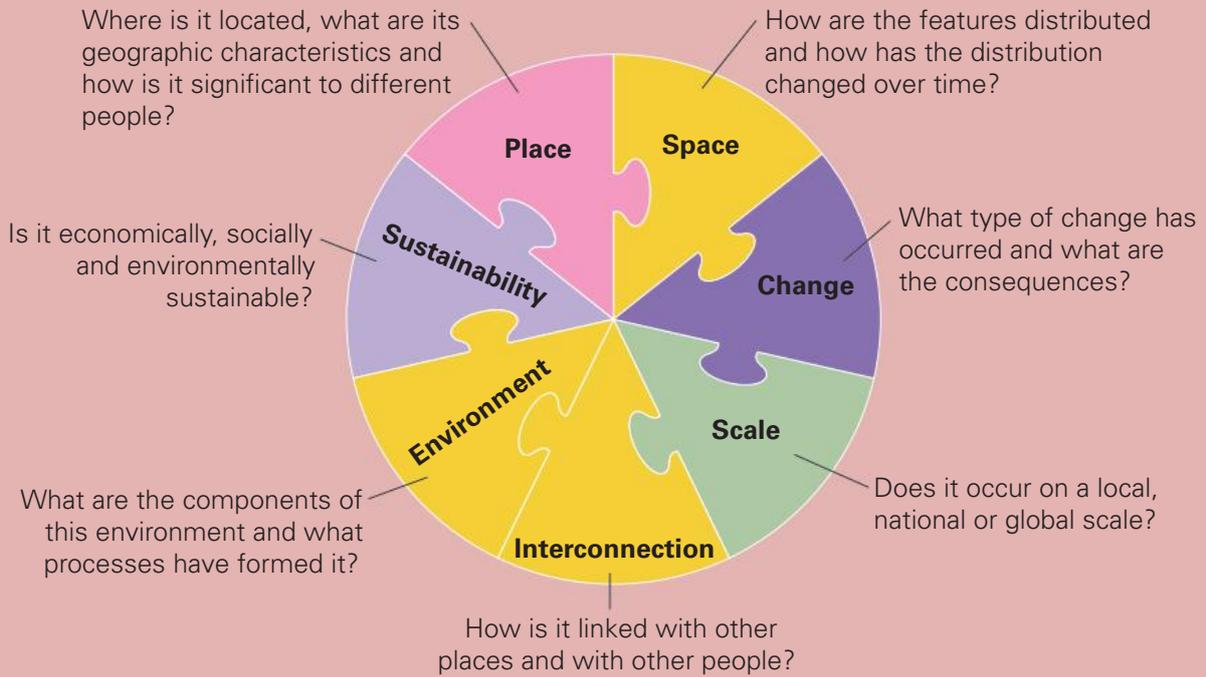
This unit focuses on developing your understanding of **space, environment and interconnection**. In Geography, the concept of **environment** includes the characteristics of an environment, the processes that occur within an environment, the ways in which environments support life, and the interrelationships between people and environments. **Space** refers to the spatial distribution of places and the characteristics within these places. Geographers use maps and various forms of spatial technology to examine, monitor and compare spatial distributions in order to assess and manage environmental impacts.

**Interconnection** involves the links between places and the influences that people have on the characteristics of places. For example, the location of a biome might influence its climate while the interaction between living and non-living components of a biome might determine its characteristics. People are interconnected with these environments in the way that they modify and manage them. For example, deforestation of tropical rainforests in Indonesia is making way for oil palm plantations (see Figure C). Indonesian palm oil is used in products that are manufactured and consumed throughout the world. Therefore, there is an interconnection between people and Indonesia's tropical rainforest on a local and global scale.

*Please note at the time of writing, the global COVID-19 pandemic was unfolding, and having a major effect on the world. The long-term consequences were still unknown at the time of publication.*

# Geographical concepts

Although this unit has a specific focus on **space**, **environment** and **interconnection**, these concepts are part of a group of seven interrelated key ideas that help us to think geographically.



▲ **Figure C** Workers harvest palm fruit from palm oil plantations. While this provides benefits to the local economy, it is having a devastating impact on tropical rainforest biomes in places like Indonesia and Malaysia.

# CHAPTER 6

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

## Biomes and food security



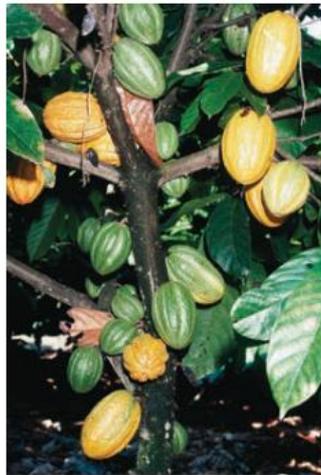
### 6.1 Setting the scene: the Amazon rainforest – a biome on fire

**biodiversity** the variety of plant and animal life found in a place

The Amazon rainforest is one of the most **biodiverse** places on Earth. Its rivers are home to pink river dolphins, piranhas and the carnivorous bladderwort plant. Deep in the forest, anacondas, jaguars, sloths, toucans and the cacao plant (the source of chocolate) flourish. One in 10 species of animals in the world today lives in the Amazon rainforest, and many Amazonian plant and animal species are still unknown to us. In August and September 2019, the world watched in horror as 2500 fires raged through the rainforest.



▲ **Figure 6.1** The pink river dolphin, or boto, is one of five dolphin species that live in the Amazon River.



▲ **Figure 6.2** The cacao tree's seeds are used to make chocolate.



▲ **Figure 6.3** This is a three-toed sloth. Its toes are actually claws, which are an adaptation that helps it live in trees.

**biome** a large naturally formed community of plants and animals found in a place

**adaptation** the process of change where an organism becomes better suited to its environment

**tributary** a small river that feeds its water into a bigger river

**natural characteristics** the natural qualities of a place

As seen in Figure 6.4, the Amazon rainforest is located in the northern region of the South American continent. It is classified as a tropical rainforest **biome**. Biomes are communities of plants and animals that have naturally **adapted** to a region. The strong biodiversity in this biome is due to its climate of warm temperatures and high rainfall, and the extraordinary network of 1100 **tributaries** that transport water through the region. These **natural characteristics** not only support wildlife and vegetation within the rainforest, but they also support humans. The Amazon provides people with food, rainfall, oxygen, materials and medicine.

The 2500 fires that burned in the Amazon rainforest in 2019 were, like most fires in this region, started by people. While fires have been lit before, the humid climate of the biome has often ensured that they do not get out of control. So, what caused such a disaster to occur this time?

Using a geographic lens, we can piece together a variety of factors that interconnected (linked together or influenced each other) to create the perfect conditions for this disaster. In Geography, factors are the circumstances that contribute to or cause something to occur.



▲ **Figure 6.4** South America, the distribution of the Amazon rainforest, and the fires that were active in August 2019



▲ **Figure 6.5** A satellite image of the Amazon River and its tributaries



▲ **Figure 6.6** Members of the IBAMA forest fire brigade fight burning in the Amazon area of rural settlement PDS Nova Fronteira, in the city of Novo Progresso, Para state, northern Brazil, 3 September 2019

## FACTORS CONTRIBUTING TO RAINFOREST FIRES

Type of factor	Description
Environmental	Climate change is increasing the global temperature and creating longer periods without rain in the region. <b>Deforestation</b> is also reducing the amount of water in the region and is drying out the land, increasing the risk of fires.
Economic	Brazil <b>exports</b> more beef than any other country. This demand from over 150 countries encourages Brazilian farmers to clear rainforest trees for cattle. There are economic benefits to preserving the rainforest. Just 0.4 hectares (1 acre) of land can make six times as much money from medicinal plant growing as cattle farming. However, if sustainable industries are not encouraged, farmers will continue to farm animals.
Social	In 2014, unemployment in Brazil started to go up, people's income started to go down and crime rates were increasing. Many people decided it was time for a change and voted in a new president, Jair Bolsonaro, who became Brazil's leader in January 2019. He promised to go tough on crime and improve the economy. He argued that Brazil's economic growth was being held back because it was not exploiting the resources of the Amazon rainforest. He promised to allow more farming and mining in the forest.
Historic	When the fires began, the French President, Emmanuel Macron, gathered leaders from the G7 countries to offer Brazil US\$20 million to help put out the fires. Bolsonaro initially rejected the assistance, however, meaning the fires lasted longer than they needed to. He said that Europe had already 'destroyed their environment' and if they wanted to help the environment, they could plant trees in their own countries. The Brazilian Government also had issues accepting help from France, a country that had colonised parts of Central and South America in the past and had exploited these regions' resources for France's own benefit. One government official said 'Ninety per cent of [former] French colonies are in a deplorable state ... Wherever [the French] went they left a trail of destruction, chaos and misery. They shouldn't be giving anyone advice. This is a joke.'
Technological	Our ability to transport food and goods globally due to technological advancements allows countries to <b>import</b> more goods from Brazil. This means that other countries do not have to convert as much of their own land to farming. However, this also puts pressure on exporting countries, such as Brazil, to clear their land for farming to meet overseas demand.
Political	In 2016, Brazil signed a global agreement (called the Paris Agreement) to reduce greenhouse gas emissions. However, Bolsonaro said, 'Brazil does not owe the world anything'. Though deforestation is considered to be illegal in certain protected areas of Brazil and punishable by fines, the government is not strictly enforcing these laws. Figure 6.8 shows a marked increase in deforestation rates since President Bolsonaro took office in January 2019.

▲ **Table 6.1** Factors that contributed to the Amazon rainforest fires in 2019

**deforestation** clearing a large area of trees

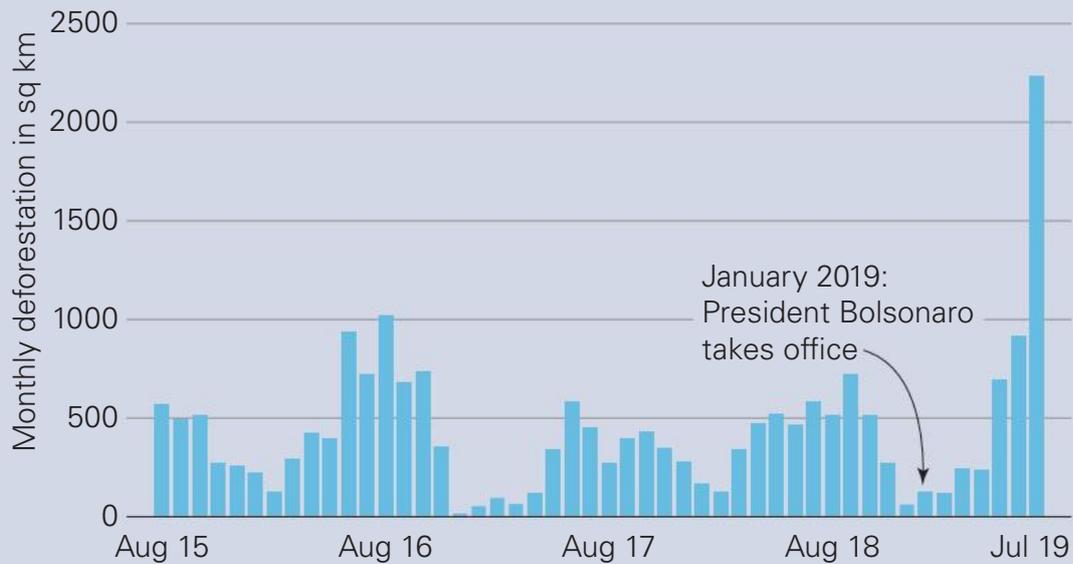
**export** to sell and send goods to another country

**import** to bring goods in from another country



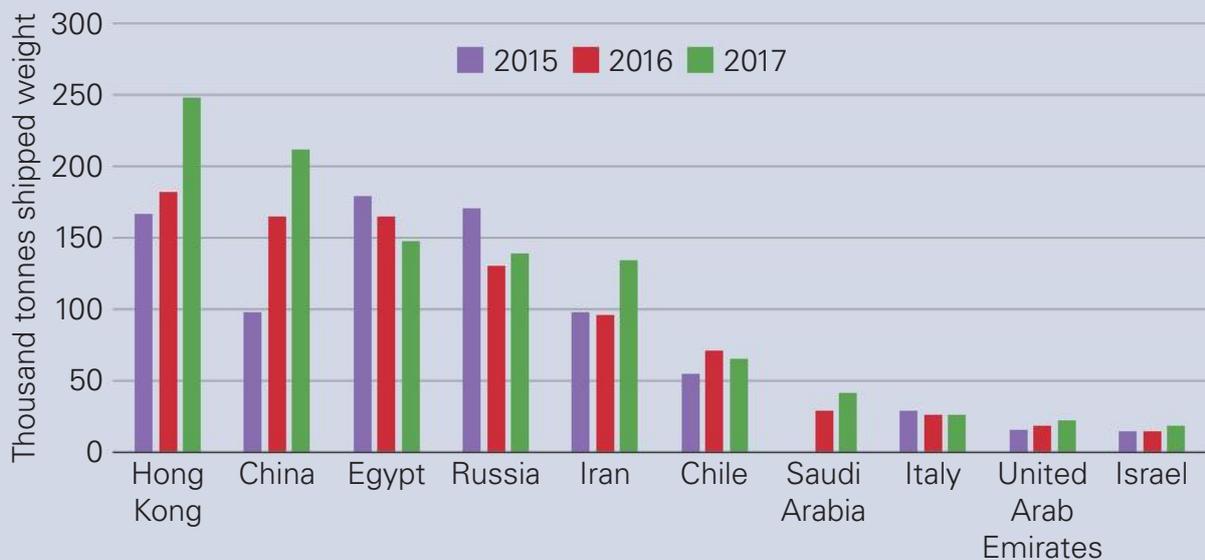
◀ **Figure 6.7** Brazilian President Jair Bolsonaro took office in January 2019. *The Washington Post* noted when he won office that 'Bolsonaro is a powerful supporter of agribusiness ... and is likely to favour profits over preservation'. Bolsonaro was also not a supporter of isolation during the COVID-19 pandemic, which may have contributed to more widespread infections during the pandemic crisis. His decision not to impose restrictions may also have been based on favouring the economy over the health of the population.

## AMAZON DEFORESTATION RATES



▲ **Figure 6.8** Deforestation rates in the Amazon, 2015–19

## BRAZILIAN FRESH/FROZEN BEEF EXPORT VOLUMES



▲ **Figure 6.9** Brazilian beef exports to the top 10 importing countries, 2015–17

## MAKING THINKING VISIBLE 6.1



### Think, pair, share

Consider both positive and negative impacts in your answer using the graphs, tables and information provided. Share your thoughts with a partner and justify your opinion.

- 1 In what ways are other countries interconnected with Brazil and the 2019 Amazon fires?
- 2 Do you think countries should boycott Brazilian beef?



**Key concepts:** place, environment, interconnection



**HASS skills:** analysing, evaluating



## 6.2 Chapter overview

Our natural world is made up of many biomes that have shaped and supported the growth of human life on Earth. In this chapter, you will explore the world's biomes and learn about the ways in which we rely on these to produce food and fibre. You will also investigate the environmental, economic and societal impacts of food and fibre production, and examine the challenges we face when attempting to provide enough food and fibre for a growing population into the future. You will complete a variety of activities, including fieldwork, that will provide you with a broad range of geographic skills as well as allow you to apply the seven geographic concepts.

### Learning goals

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

- What are biomes and how do their characteristics vary?
- What is food security?
- What factors influence crop yields within Australia and across the world?
- What is land used for in Australia and the world?
- In what ways does the production of food and fibres affect the environment?
- How did the First Australians live off the land for so long?
- Can agriculture improve the environment?
- What does the fieldwork process involve?

### Geographical skills

After completing this chapter, you should be able to:

- Describe spatial distribution using the PQE method
- Describe spatial association using the DQE method
- Read scatter graphs to understand the association between phenomena
- Apply the concept of process by drawing a flowchart
- Apply the concept of change
- Evaluate a response using the sustainability concept
- Describe the trend of a line graph.



▲ **Figure 6.10** Panoramic aerial view of the houses and the agricultural surroundings of a village in Nepal, with green barley fields and steep colourful rock cliffs in the distance



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



#### Video

Five interesting facts about Australia's biomes



## 6.3 The distribution and characteristics of biomes

### FOCUS QUESTION

What are biomes and how do their characteristics vary?

### What is a biome?

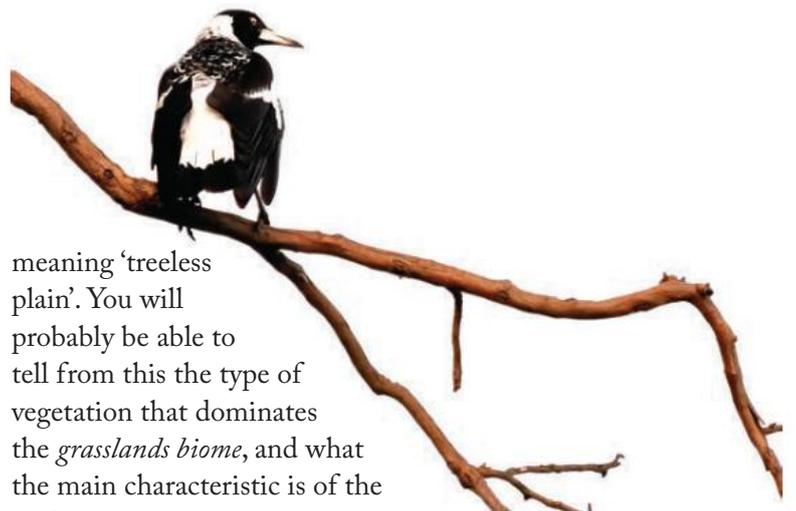
Consider the types of plants and animals that are **indigenous** to your local region. Are you more likely to see a magpie and gum tree when looking out of your school window than a moose and a maple tree? Observing the indigenous plant and animal life in a region is a good place to start when identifying a biome.

A biome is a particular geographic region that can be recognised by the plants and animal species that naturally live there. *Bios* is a Greek term meaning 'life', and it is the unique collection of life found in each region that characterises each biome.

### What are the different biomes?

As seen in Table 6.2, there are two main types of biomes: terrestrial (land) biomes and aquatic biomes. These can

be further classified into more specific biomes based on the variations of plant and animal species found in each region. A biome is often named after the main characteristic of its environment, such as the dominant vegetation that grows there. For example, the *tundra biome* gets its name from the Finnish word *tundra*,



meaning 'treeless plain'. You will probably be able to tell from this the type of vegetation that dominates the *grasslands biome*, and what the main characteristic is of the *ice biome*.

**indigenous** naturally existing in a specific place

▲ **Figure 6.11** Are magpies indigenous to your region?

### BIOME CLASSIFICATIONS

Terrestrial biomes	Aquatic biomes
Tropical rainforest	Freshwater
Temperate forest	Marine
Desert	
Tundra	
Taiga (boreal forest)	
Grassland	
Savanna/tropical grassland	
The ice biome can be terrestrial in the form of ice sheets and glaciers, or aquatic in the form of sea ice.	

▲ **Table 6.2** The main biome classifications. These can be further classified more specifically.

## ACTIVITY 6.1



### Biomes

Classify the images in Figure 6.12 (A–D) into one of the biomes mentioned in Table 6.2. What are the main biome characteristics that you can see in each image?



▲ Figure 6.12 A



▲ Figure 6.12 B



▲ Figure 6.12 C



▲ Figure 6.12 D



**Key concepts:** place, environment, interconnection



**HASS skills:** analysing, evaluating

## Characteristics of biomes and their spatial distribution

**spatial distribution** the arrangement of something (such as the forest biome) across the Earth's surface

Although biomes are recognised by their plant and animal species, there are some important characteristics that influence which species will dominate each region. The most influential of these characteristics is climate. However, latitude, soil and elevation also influence a biome's **spatial distribution**.

### LAPDOG

This mnemonic covers the impact of numerous natural forces on climate, and is good for you to be aware of as you work through this chapter:

- L**atitude
- A**ltitude
- P**revaling winds
- D**istance from the ocean
- O**cean currents
- G**reat mountain ranges.

## Climate

Climate refers to the average weather conditions of a place over a long time (usually 30 years). Weather conditions are factors that can change on a daily basis, such as temperature, wind and **precipitation**. By calculating the average daily weather conditions of a place over 30 years, we can determine its climate and predict what type of weather we can expect at different times of the year.

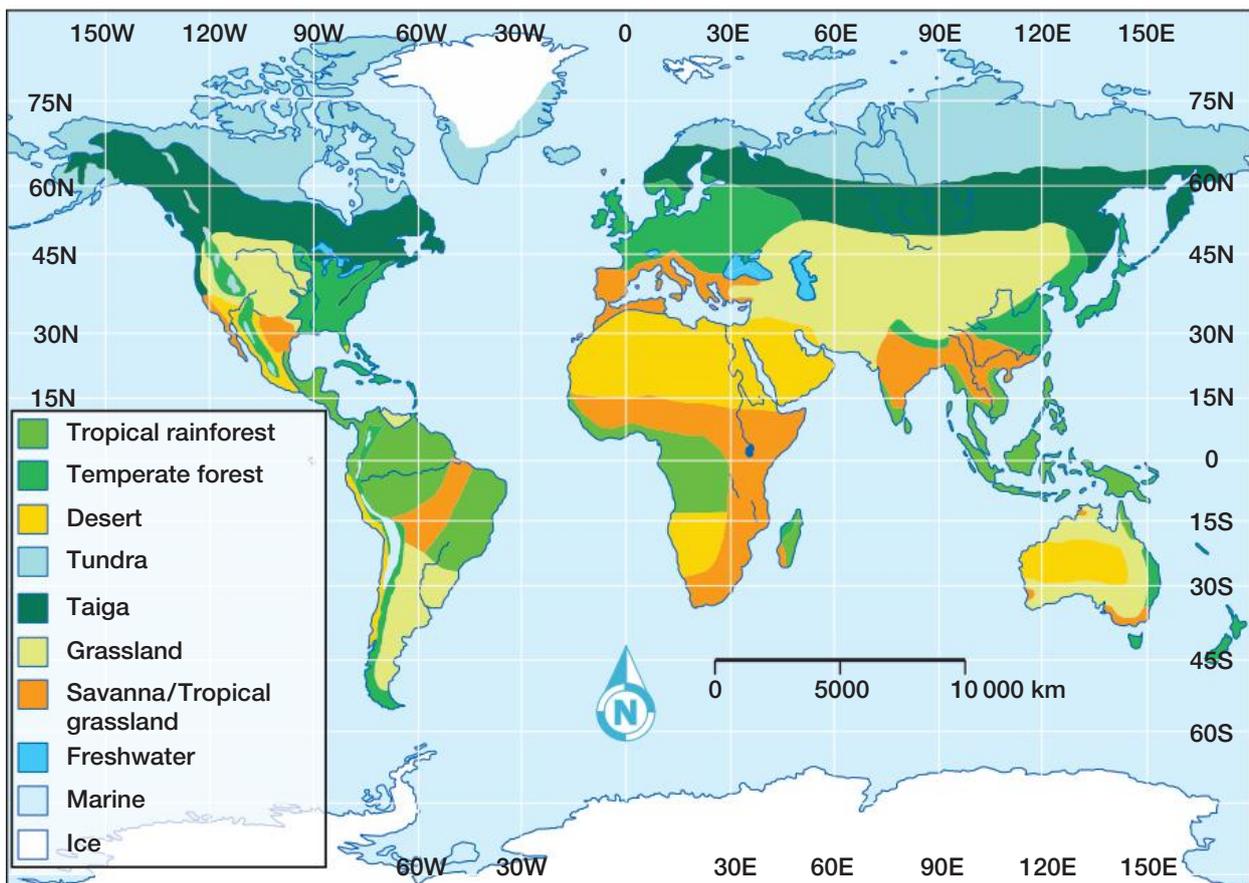
Consider the climate conditions in your region for a moment. If your region has four seasons, you may be living in a temperate climate. A common biome found in this climate is the *temperate forest biome*. These mild temperatures and annual rainfall of over 140 cm allow many species of plants and animals to thrive, therefore making it a productive biome. In fact, temperate climate conditions are so appealing that the majority of people worldwide live in this type of climate.

Alternatively, if your region receives less than 25 centimetres of rain per year, it is likely that you are in a *desert biome*. These dry conditions provide a difficult climate for life to adapt to and thrive in. However, some species have adapted in remarkable ways. For instance, the dorcas gazelle of the Sahara Desert in North Africa can

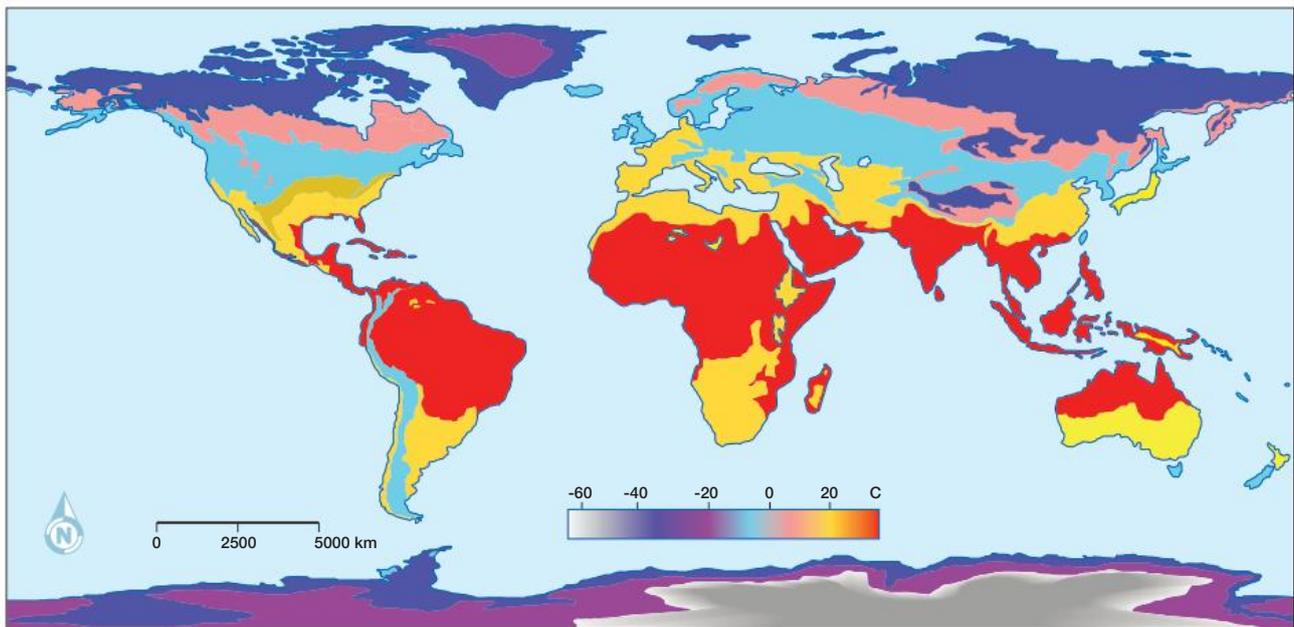
survive without drinking water and passes white pellets of uric acid, rather than waste precious water by urinating. Moreover, big ears are often common among hot-desert-dwelling animals, like jackrabbits and Fennec foxes, as the large surface area of their ears helps to radiate heat and keep them cool. The Australian thorny devil can absorb water through its feet.

**precipitation** liquid or frozen water that forms in the atmosphere and falls to Earth (e.g. rain, snow)

Latitude is another important influence on a biome, and is strongly interconnected with climate, as the latitude of a place can affect its temperature and the amount of sunlight it receives. The tropics, which are located between 23.5° latitude north and south of the equator, receive direct exposure to sunlight all year round. This makes the *tropical rainforest biome* consistently warm. This consistent exposure to sunlight, as well as high amounts of rainfall, makes it the most abundant of all biomes. It is home to approximately 50 per cent of all life, despite only taking up 2 per cent of Earth's surface. In contrast, the *polar ice biomes*, located between 65° and 90° latitude, experience half the amount of sun exposure and are consequently too cold to sustain an abundance of life.



▲ **Figure 6.13** The global distribution of biomes



▲ **Figure 6.14** A choropleth map showing the global distribution of annual average temperature

## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.1



### Describing spatial distribution using the PQE method

**phenomenon** a fact or situation that exists or happens (plural: phenomena)

When describing the distribution of a **phenomenon** using a choropleth map, as seen in Figure 6.14, there are three important things to include: the **pattern**, **quantification** and an **exception**. This is also known as the PQE method. Use at least one sentence to describe each of these with respect to Figure 6.14.

- 1 Pattern:** Give a general overview of the distribution.
  - a** Is the overall distribution even or uneven?
  - b** Where are areas that have a high or low temperature? Provide some examples.
- 2 Quantification:** Provide specific evidence to demonstrate the pattern. Use the temperatures provided in the legend and estimate the size of temperature regions using percentages.
  - a** Roughly how much of Earth has a high or low temperature?
  - b** How hot are the majority of the hottest regions? How cold are the majority of the coldest regions?
- 3 Exception:** Identify some places as examples of specific places that do not fit your pattern.
  - a** Is there a place that has a high temperature surrounded by places with a low temperature or vice versa?
  - b** Is there a place that has a much higher or lower temperature than anywhere else?



**Key concepts:** place, scale



**HASS skills:** communicating and reflecting

## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.2



### Describing spatial association using the DQE method

Geographers can apply the concept of spatial association when comparing maps to help determine whether two or more phenomena are similarly distributed over Earth's surface. If a similarity exists, there may be a link (association) between the phenomena that a geographer may want to investigate further.





When describing spatial association, there are three important things to include: the **degree** of association, **quantification** and an **exception**. This is also known as the DQE method. Use at least one sentence to describe each of these.

- 1 Degree:** Give a general overview of the degree of association.
  - a** Is there a strong, moderate, weak or no degree of association between the two phenomena? That is, does the distribution pattern of each map look similar or different?
  - b** Provide some examples that support your statement. For example, if there is a strong association, provide evidence of locations where both phenomena are similarly distributed.
- 2 Quantify:** Provide specific evidence to demonstrate the association. Provide data and estimate the percentage of coverage.
- 3 Exception:** Identify an example or several examples of specific places that do not fit the pattern of association.
  - a** Locate and name the exception.
  - b** Explain why this is an exception.

For example, if you have stated that there is a strong association, there may still be a location where only one phenomenon is present.



**Key concepts:** space



**HASS skills:** communicating and reflecting



▲ **Figure 6.15** This 50 000-year-old lion is believed to be similar to both African lions and tigers. Scientists hope to be able to bring back the species in a process called de-extinction.

## Soil

Soil varies between biomes in terms of its temperature, moisture, organic material and pH. These factors all influence which plants will thrive in each region. For instance, the *tundra biome*, which is mostly distributed within the Arctic Circle or in areas of high elevation, supports low-growing shrubs and mosses that can endure the permanently frozen soils, which are known as **permafrost**. In the coldest of *grassland biomes*, such as the steppes (large unforested plains) in Siberia, ancient organisms have been found preserved in the frozen soil. In these biomes, the soil is too cold for **decomposition** to occur. Figure 6.15 shows the frozen remains of an extinct lion cub that was found in Siberia in 2017.

**permafrost** permanently frozen soil, mostly found in the polar and tundra biomes

**decomposition** the process of being broken down to smaller pieces by bacteria and fungi

## Elevation

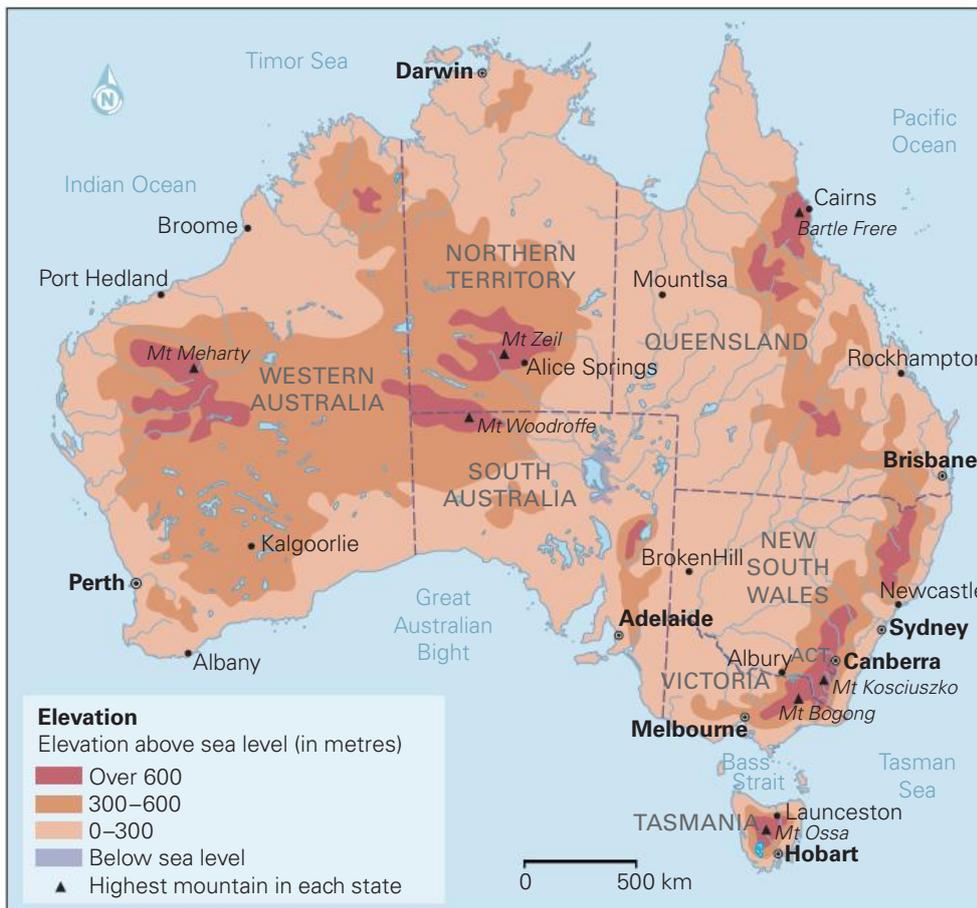
Elevation refers to the height of land above or below sea level. Low elevation biomes include the *coastal estuary biome*, which is the place where the river meets the sea, and *marine biomes*, which are below sea level. Biomes located at higher elevations will experience colder temperatures as the atmosphere gets thinner. A thinner atmosphere cannot trap as much heat.

If you were to walk from the base of a mountain to its peak, you would likely walk through a

variety of biomes. For instance, in the Andes of central Peru, you would begin your walk through a tropical rainforest, followed by a mossy forest, woodland and steppes before you reached the cold, treeless *alpine biome*. An alpine biome often starts where snow begins to form. This can occur at different elevations depending on the particular characteristics of each place. For instance, the interconnections between latitude, ocean currents and how close a place is to the polar land masses can impact the elevation of the snowline.



◀ **Figure 6.16** Hikers make their way through the steppes biome in Peru, with the Andes' alpine biome in view



◀ **Figure 6.17** Elevation map of Australia. Western Australia features a number of different biomes. Find out what they are.

## The changing distribution of biomes

The distribution of biomes is therefore determined by a unique combination of factors that support an extraordinary diversity of life. These factors have the ability to change over time, resulting in the movement of biomes. Natural changes include the processes of **erosion** and **deposition**, which affect the elevation of a region.

Importantly, humans also play a part in changing the distribution of a biome, by altering the land through deforestation, mining, farming and development. Even over-hunting or the introduction of certain animal or plant species can disrupt how species interconnect with each other, and therefore change the structure of life in the biome. Some biomes can become extinct, while new biomes can potentially form. Understanding the changes and interconnections within biomes is an important mission for geographers, who work to find a balance between the needs of a growing human population and the millions of unique and fascinating species that also share life on this planet.

**erosion** the wearing down of the Earth's surface, e.g. via waterflow or wind

**deposition** the process whereby sediment, soil or rock is added to a part of the Earth's surface to build it up



► **Figure 6.18** The biomes of Western Australia

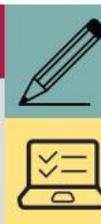
## END OF SECTION REVIEW 6.3

### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.

#### Recall

- 1 Define the term 'biome'.
- 2 What are four characteristics that can determine a biome's distribution?
- 3 Why do higher elevations experience colder temperatures?
- 4 What are some of the human and natural activities that can change the distribution of biomes over time?
- 5 Explain the difference between climate and weather.





### Interpret

- 6** Describe the distribution of biomes in Figure 6.13 using the PQE method.
- **Pattern:** Is the pattern of distribution even or uneven?
  - **Quantify:** Identify some of the major biomes. Locate where they are found and estimate what percentage of Earth they cover.
  - **Exception:** Are there any exceptions to the pattern? For example, is there a biome found mostly in one region but also to a much lesser degree in another region?
- 7** Describe the spatial association between Figures 6.13 and 6.14 using the DQE method.
- **Degree:** Is there a strong, moderate, weak or no degree of spatial association between the two phenomena?
  - **Quantify:** Support your statement in the first point by naming and locating regions and estimating the percentage of overlap between the two phenomena.
  - **Exception:** Are there exceptions to the general pattern of association? Name and locate these exceptions and explain why these are exceptions.

### Argue

- 8** 'Some biomes support more plant and animal life than others.' Do you agree with this statement? Ensure that you refer to at least three biomes and their characteristics to justify your reasons.
- 9** Do you believe that changes in the distribution of biomes are mostly due to human or natural influences? Discuss your viewpoint.

### Extension

#### Applying spatial concepts to regions in Western Australia (that have different biomes)

- 1** Choose one of the following regions in Western Australia (**places**) and conduct further research into its biome or biomes by applying the skills below.
- South West
  - Kimberley
  - Goldfields
  - Wheatbelt
  - Pilbara.

### Place

- a** Describe the place by providing its name and describing its location.
- b** Identify the Aboriginal peoples of this location who call this place home.

### Environment

- c** Identify the biome or biomes found at this location.
- d** Describe the natural environment of your chosen location.

### Space

- e** Referring to Figure 6.13, describe the distribution of this biome on a global scale.

### Interconnection

- f** Provide an example of how people have modified or managed this environment.
- g** Choose one indigenous animal or plant species and describe the way it has adapted to live in this environment.



**Key concepts:** place, change



**HASS skills:** questioning and researching



## 6.4 The environmental, economic and technological factors that influence crop yields in Australia and other areas of the world

### FOCUS QUESTION

What factors influence crop yields within Australia and across the world?

### What do you think are our most basic human needs?

There is a good chance that our basic human needs are met by the plants and animals that we grow and breed. Our food comes from vegetable and cereal crops as well as dairy, poultry and meat from animals. Our clothing and shelter can also come from plants and animals. Fibre is the thread from plants or animals that is used to make products such as cloth and rope. Cotton is a plant fibre, while wool is an animal fibre.

Dating as far back as 65 000 years ago, when Aboriginal peoples are known to have practised **agriculture**, humans have worked hard to create a consistent food and fibre supply. We have achieved this by altering biomes through actions

such as land clearing, terracing, irrigation and drainage. These actions have increased the amount of product that can be grown on a piece of land, otherwise known as **crop yield**. In this topic, we will look at factors that influence yields both here and abroad.

**agriculture** the process of growing crops and raising animals for human use and food

**crop yield** the amount of produce that is grown on a piece of land

**livestock** animals used for work, food or produce

**feed lots** places where livestock are fed to gain weight quickly

**pasture** grassed land suitable for grazing animals

### What is a crop?

Crops are plants that are grown on a large scale, usually to sell for an income. While we often think of crops as the plants that produce our food, crops are grown for many purposes:

- Feed crops use 33 per cent of global agricultural land. They are grown to feed the 70 billion **livestock** that we eat each year. To make room for these animals, **feed lots** are often used, rather than **pasture**, and animals are fed feed crops such as corn and soy instead of their natural grass diet.
- Fibre crops include cotton and flax. They are vital to our way of life and produce items such as paper, rope and cloth. The extremely versatile hemp crop can be produced into sunscreen, rope, shoes, sustainable building material (hempcrete) and was even used to make the body of the Renew Sports Car.
- Oil crops include canola, olive and palm oil and can be used in food, soaps, cosmetics and for biofuel. Biofuel is made by combining vegetable oils with alcohol and is used to fuel trucks, machinery and cars.



▲ **Figure 6.19** Hemp was used to make the body of this Renew Sports Car. The creator of the car, Bruce Dietzen, pulls a hemp cloth with Juan Carlo Mejia, who helped Bruce build the car.

## ACTIVITY 6.2



### Crops

Can you match the crop with the image? The crops pictured, in no particular order, are: corn, bamboo, coffee, rapeseed, cashew, cotton, lettuce and sugarcane. On paper or a digital document, write the crop type for each figure number.

Crop	
 <p>▲ Figure 6.20 A</p>	 <p>▲ Figure 6.20 B</p>
 <p>▲ Figure 6.20 C</p>	 <p>▲ Figure 6.20 D</p>
 <p>▲ Figure 6.20 E</p>	 <p>▲ Figure 6.20 F</p>
 <p>▲ Figure 6.20 G</p>	 <p>▲ Figure 6.20 H</p>



**Key concepts:** place, environment



**HASS skills:** communicating and reflecting

## SHEEPT factors

In Geography, factors are the circumstances that contribute to, or cause, something to occur. One of a geographer's skills is the ability to consider the social, historical, environmental, economic, political and technological factors (or **SHEEPT factors**; see Table 6.3) that might influence a phenomenon and to piece this information together. The benefits of this skill include being able to deeply understand an issue, empathise with the many different people involved and their different perspectives, and see how the issue is interconnected to other events that are happening in the world. Understanding the whole picture allows geographers to develop effective responses to issues that not only work, but also have the support of the people affected.

## Environmental factors

The environmental conditions of biomes have always been the most important factor in determining how much crop yield can be produced. Some world regions have been more vulnerable to food and economic insecurity than others, as some biomes produce less food and fibre to eat and trade. The importance of this is enormous; environmental factors have greatly influenced the wealth and prosperity of countries. For example, the five most useful domesticated animals (cows, horses, sheep, goats and pigs) all originated from species found in Europe. This allowed the people of Europe to thrive due to their ability to grow meat supplies and use animals for farm work. In South-East Asia, the high temperatures and precipitation levels of the rainforest biome create excellent rice-growing conditions. Rice is a major food **staple** for the region and plays an important role in achieving food security in the region.

**staple** a food that is eaten so often that it is one of the main parts of a person's diet

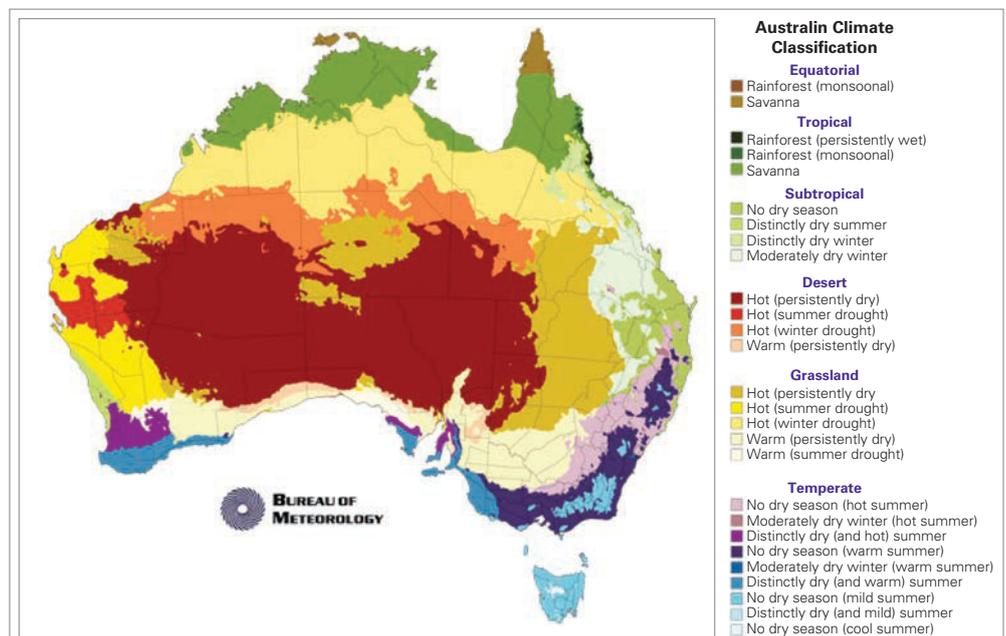
## CLASSIFICATION USING SHEEPT

Classification	Description
Social	Relating to people and their culture, values, religion, population structure, education and ethnicity
Historical	Actions or events from the past that might influence the present
Environmental	The influence of the characteristics of a natural or human environment
Economic	Relating to the earning or spending of money
Political	Relating to governments and the impacts of their decisions
Technological	The influence and uses of different types of technology

▲ **Table 6.3** Factors can be classified using SHEEPT.

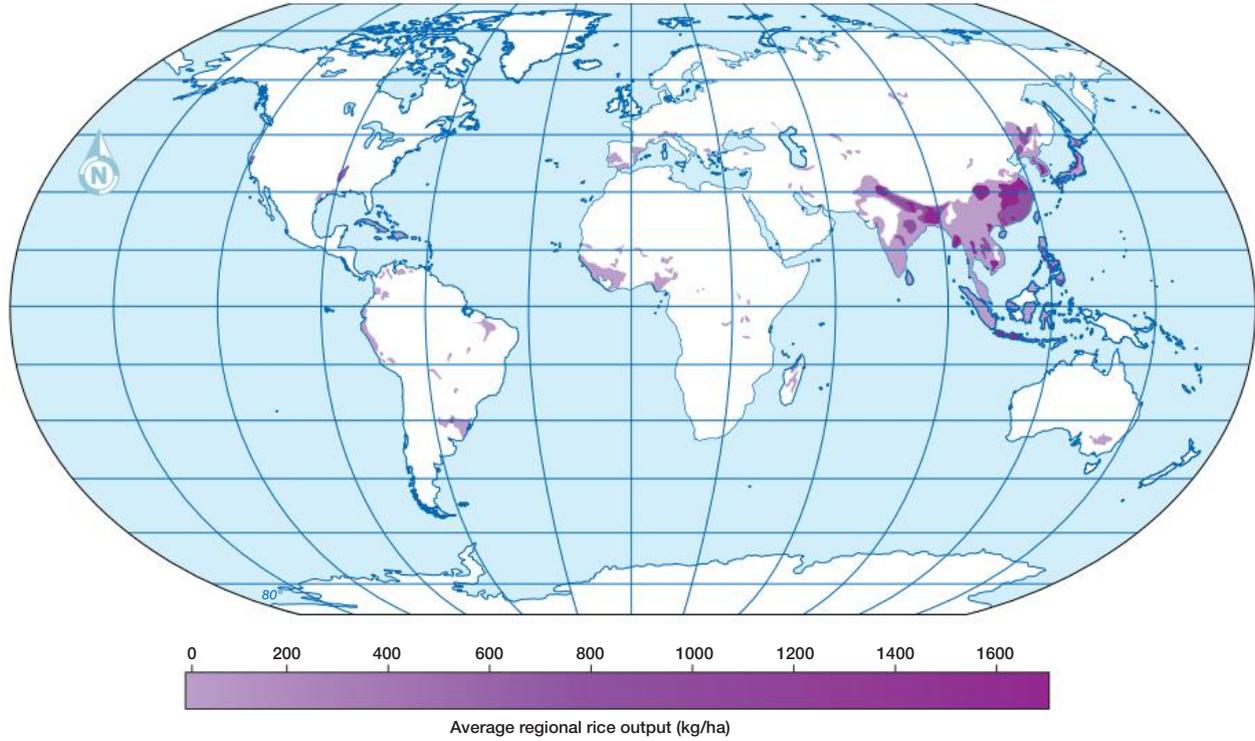
## Climate

Climate refers to the temperature, precipitation and wind in a region. Although all biomes pose some challenges to farmers, temperate biomes, such as those found on the south-west coast of Australia (see Figure 6.21), are often regarded as favourable for crop production.

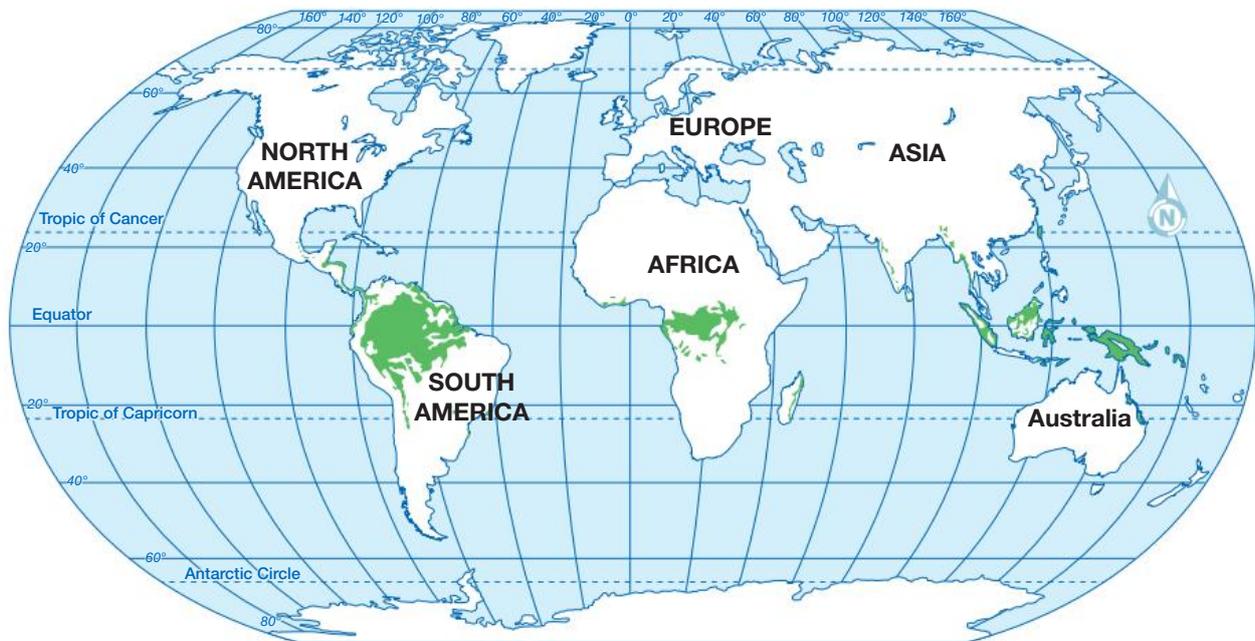


▲ **Figure 6.21** Even within temperate climates, there can be variation. This map shows the distribution of nine different temperate climates within south-western and south-eastern Australia. Can you find the climate for your region? Why do you think Australia has so many climate types? © Cambridge University Press 2021

Temperate climates provide the long exposure to sunlight over spring and summer that are needed by many crops to fully develop. These climates are not too cold or too hot. Extreme cold can freeze plant cells, preventing nutrients and water from being able to flow through a plant. Extreme heat can burn crops. Temperate climates also provide a moderate amount of rainfall, and are less likely to be subject to harsh, dry winds, which can dehydrate and damage crops.



▲ **Figure 6.22** Global distribution of rice production



▲ **Figure 6.23** Global distribution of the tropical rainforest biome

## Topography

Within large climate regions, there are many smaller regions that have their own particular conditions, known as **microclimates**. **Topography** can play a significant role in determining microclimate distribution. Valleys are prone to frost. Frost can kill crops, such as wheat and canola, because overnight the warm air rises and the cold air sinks to the crops' level. The **aspect** of a farm can further impact yield. In Australia, a slope facing east will get the gentler morning sun, whereas a west aspect will get the hotter and harsher afternoon sun. As the sun is to the north in Australia, a southern-facing slope will be cooler and is more prone to damaging winds from the Southern Ocean.

A SMART farm is one that uses modern wireless technology as part of its agricultural practices. Geographic information systems (GIS) are used to map the topography of SMART farms in Australia and across the world. GIS is a form of spatial technology that involves gathering and analysing spatial data. By organising the data into layers using interactive maps, we can more easily establish patterns and relationships. In agriculture, topography and other natural characteristics such as wind speed and **soil moisture content** are mapped in different GIS layers. Once all this information is mapped, the SMART farm can determine the best use for each zone. Figure 6.24 shows the topographic layer of a farm in Oregon, USA, while Figure 6.25 shows a weather station with an anemometer, which is a meteorological tool that measures wind speed. The data collected from the anemometer can form another layer of information in a GIS map.



▲ **Figure 6.24** 3-D render of a topographic map of Portland, Oregon, in the USA. Contains modified Copernicus Sentinel data courtesy of ESA. Relief texture NED data courtesy of USGS, The National Map.

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Topography also influences soil moisture content. Adequate soil moisture is needed to provide water to plant roots. Places of higher elevation cannot absorb much water, as gravity causes water to flow downhill too quickly to be absorbed. A steep topography also



▲ **Figure 6.25** Weather station with an anemometer, which is often used for smart agriculture and farming

**microclimate** the climate of a very small area that is different from the surrounding climate

**topography** the shape of the land's surface, which includes landforms such as hills, plateaus and valleys

**aspect** the direction that a slope faces

**soil moisture content** the amount of water in a sample of soil

**terracing** sloped land that has been cut into flat platforms for farming

has very little soil for plants to grow in. This is because the fast movement of water down a steep slope collects the soil and transports it downhill, leaving only bare rock on the hill or mountainside.

Despite these challenges, many regions across the world have found ways to increase crop yield on sloped land. In fact, the art of **terracing** is an old one, and was used by the Wari culture in the South American Andes over 1000 years ago for potatoes and maize (corn). Terracing involves cutting a series of steps into the side of a slope, as seen in Figure 6.26. The steps help to slow the water as it moves downhill, improving the soil moisture content. It also slows the movement of soil. This gives plants a chance to grow their roots, which bind the soil and reduce erosion. In the high rainfall regions of South-East Asia, rice is a popular terraced crop, while in the drier Mediterranean region, terraced fields grow olives and grapes.



▲ **Figure 6.26** The Han of China turned a barren hillside into productive red rice fields that feed thousands of people. The system is so complex that it also farms fish and eels. Water is collected in the forest above and released into channels to flood the fields from December to March.

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## Soil

Healthy soil is vital to plant health and yield. Soil is the top layer of earth and consists of minerals, water, air and **humus**. Healthy soil increases plant yield by providing the balance of nutrients, minerals, air, water and microbial life that a plant needs to grow healthily and resist diseases. In healthy soil, you will find more microbes in one teaspoon than you will find humans on Earth. Figure 6.27 lists some of the ways that soil supports plant health.

**humus** the organic part of soil that is formed when microorganisms break down plant material

### HOW SOIL SUPPORTS PLANT HEALTH

- Air pockets provide room for roots to grow and provide oxygen to the roots
- Humus acts like a sponge and retains water, increasing soil moisture, and reduces erosion by adding soil structure
- Microorganisms break down organic matter, detoxify the soil and kill disease organisms



- Nitrogen helps plants convert the sun's energy to plant food
- Phosphorus helps transfer energy from sunlight to plants and encourages plant growth
- Potassium improves the quality of fruit and helps plants fight disease
- Calcium is important for root health and leaf growth

► **Figure 6.27**  
The benefits of healthy soil in improving crop yield



## Technological factors

### Agricultural revolutions

The transformation of human societies from hunting and gathering to subsistence agriculture is often referred to as the first agricultural revolution. In subsistence agriculture, farmers grow food crops mainly to feed themselves and their families. If they have excess produce, they may sell it to gain a small profit, but this is not the aim. Subsistence agriculture is still practised by many people, particularly in the regions of sub-Saharan Africa, parts of Asia and Latin America.

The second agricultural revolution in the seventeenth and early eighteenth centuries refers to the dramatic increase of crop yields in Britain. This was due to many changes, including the increased use of the horse-drawn seed drill, which made human labour less intensive and more productive.

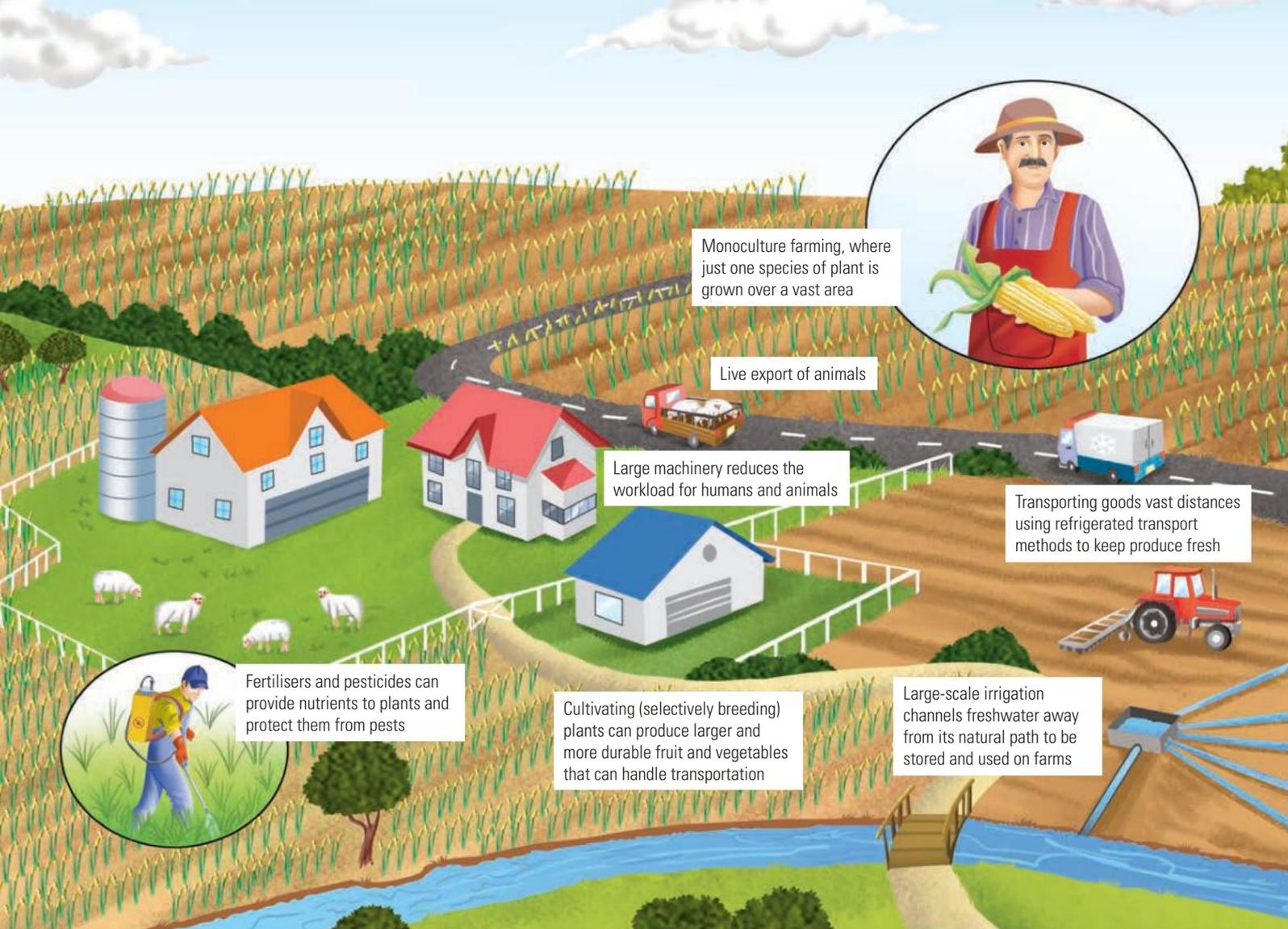
The most recent great change occurred during the green revolution, or third agricultural revolution, between 1950 and the late 1960s. This revolution has largely set the scene for the type of farming we recognise today, often called intensive industrial agriculture. Figure 6.29 illustrates the methods of intensive industrial agriculture.

Unlike subsistence agriculture, the goal of intensive industrial agriculture is to increase

crop yields to make a profit. The United States is an example of a country that has embraced agricultural technology. This has made it one of the top 10 producers of corn, wheat, potatoes and sugarcane, even though only 1 per cent of people are employed in agriculture. In Australia 90 per cent of fresh fruit and vegetables, meat, milk and eggs sold in supermarkets are domestically produced, as we have also adopted advanced agricultural practices. Despite the success that some countries have had, we are beginning to pay more attention to the longer-term economic, environmental and health concerns of these methods, which we will discuss in the next section.

► **Figure 6.28** An image of an ancient corn (maize) on the left compared to the corn of today on the right, resulting from the cultivation (selective breeding) of maize crops over time





▲ **Figure 6.29** Some methods of intensive industrial agriculture

## Precision farming

For some farmers, there is a feeling that another revolution is upon us. Precision farming is regarded as the fourth agricultural revolution. It is poised to relieve us from the most negative consequences of intensive industrial agriculture. Precision farming uses spatial technology such as sensors, drones and GPS to reduce the amount of labour, irrigated water, pesticides and fertilisers needed. GPS can be used to direct a tractor using satellite data, without the need for a human driver. Moreover, farmers can gather data about their soil's pH, nutrient and moisture content. This data can determine where to grow particular crops and apply fertilisers, rather than dose the entire field with fertilisers, which is expensive and harmful to the environment. Data can even be gathered on animals. A device similar to a fitness tracker can be secured under a cow's chin to provide farmers with data such as temperature and heart rate. This allows farmers to detect illness, stress or even when a cow is going into labour.

▼ **Figure 6.30** A fitness-tracker-like monitor for cows, which sends data to farmers





▲ **Figure 6.31** Drones spraying pesticide on crops

## Economic factors

Running an industrialised farm requires more financial input than subsistence farming. What are you paying for when you buy a tomato or a T-shirt, for example?

## Transport

Some of the fresh food in your fridge has potentially travelled thousands of kilometres to get to you via refrigerated transport, which uses a large amount of energy and fuel. Places close to cities and towns can yield more perishable foods that can survive the short travel distance to market, while more rural places will grow foods that can afford the cost of transport.

**urban** relating to a city or large town

**market forces** economic factors that affect the price, demand and availability of a product

## Labour

Despite technological improvements, agriculture still relies on people to perform much of the physical work. This is known as ‘labour’. Agriculture needs skilled workers who can understand the environmental factors that improve crop yield. Wisdom and skill have often been passed down through farming generations. However, an increasing number of Australia’s youth are moving to **urban** environments, rather than taking on the family farm. The average age of farm owners has risen from 40 to 55 in 25 years. To secure a future of sustainable crop yields, it will be important that young people in the next generation go into the agricultural industry.

## Market

The price of produce is often determined by **market forces**. This can put enormous pressure on farmers to sell their produce when it is worth a lot of money on the market, regardless of whether the produce is ready to be harvested. This can impact the yield’s quality. For instance, a potato farmer may spray their crop to harden the potato skin so that it can be harvested at a time when the price is right, rather than waiting for the potato to naturally mature and harden its skin when it is ready.



◀ **Figure 6.32** This is an example of a variety of vegetable produce that are typically on sale in a supermarket. How far do you think these vegetables have travelled to get from where they were farmed to your plate?

## Capital

The use of large machinery has dramatically increased the use of **fossil fuels** on farms, and made the price of food and fibre interconnected with the price of oil. Such machinery, as well as the constant need to buy fertilisers and pesticides, is very expensive. This is linked to market forces,

as a farmer may reduce their crop yield if the price they receive for the crop is too low and the cost of **inputs** is too high to make large-scale planting worthwhile.

**fossil fuels** non-renewable natural fuel, such as coal or gas, made from the remains of living organisms

**input** what is brought into a farm or farming system (e.g. water, machinery, chemicals)

## CASE STUDY 6.1



### The price of milk

Farmers provide the milk made on their farm to milk-processing companies. The processors decide what price they will pay for the milk. The milk is then distributed by the processors to supermarkets before finally being purchased by us, the consumers. Many countries in the world have laws that stop processors from offering farmers a price for milk that is too low. In Australia, these laws were changed in 2000. Now our dairy prices are set by market forces, and different processors are allowed to set different prices for milk. Farmers are sometimes forced to sell their milk to processors very cheaply. This was the case for Shane Hickey, a dairy farmer from Kyogle. Shane posted the following message on social media, which went viral.

'I would like to do a personal shout out to our supermarkets Woolworths, Coles, Aldi and IGA. I'm a proud dairy farmer, I work very hard ... but I'd like to say I worked for \$2.46 an hour last month ... My parents, in 1986, were paid 20 per cent more per litre than what I'm getting now.'

▲ **Figure 6.33** Nkayla Afshariyan, *Triple J Hack*, Dairy farmer calls for fairer pay after revealing a \$2.46/hour pay cheque for milk supply, 2018



▲ **Figure 6.34** Fridges stocked with milk are seen in a Coles supermarket on 24 May 2016 in Sydney, Australia. Coles shelves were low on branded milk stock as consumers purchased more expensive brands in support of local farmers. This consumer trend arose after the country's largest dairy company, Murray Goulburn, cut the price it pays suppliers by 15 per cent in April 2016.





## ANALYSIS QUESTIONS

Position yourself from each of the viewpoints in question 1 below to complete this Making thinking visible: circlepoints activity.

- 1 I am thinking of the price of Australian milk from the point of view of ...** the dairy farmer/environment/producer/consumer/cows.
- 2 I think ...** Describe the topic from your viewpoint. Be an actor – take on the character of your viewpoint.
- 3 A question I have from this viewpoint is ...** Ask a question from this viewpoint.

**Wrap up:** What new ideas do you have about the topic that you didn't have before? What new questions do you have?



**Key concepts:** sustainability



**HASS skills:** questioning and researching, analysing, evaluating

## END OF SECTION REVIEW 6.4



### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.



### Recall

- 1 What is the difference between subsistence agriculture and industrialised agriculture?



▲ **Figure 6.35** The combined automatic mower and harvester dramatically increased crop yield in the 1800s.

- 2 Define the terms 'crop yield', 'agriculture', 'fossil fuel', 'soil moisture content' and 'microclimate'.
- 3 Why is it important for geographers to consider all SHEEPT factors when studying an issue?
- 4 Why are temperate climates good for growing crops?





### Interpret

- 5 Describe how topography affects soil moisture content and erosion on a steep slope.
- 6 Describe the spatial association between tropical rainforests and rice-growing regions using the DQE method, using Figures 6.22 and 6.23.
- 7 How have environmental factors influenced the prosperity of countries?

### Argue

- 8 If the market price for your potatoes were high, would you spray them to sell them immediately or wait until they were naturally ready? Take on the role of a potato farmer and discuss the pros and cons that could influence your decision.
- 9 a Suggest reasons why more of Australia's youth are moving to urban regions rather than taking on the family farm. Include at least one push factor and one pull factor.  
b What do you think could be done to attract more youth to farm work?  
**OR** Create a video advertisement campaign encouraging young people to live and work on farms.
- 10 'Improving crop yield has changed society.' To what extent do you agree with this statement? Justify your answer with examples.

### Extension

- 1 Look up 'SMART Farm Video' (duration 3:54) on the University of New England website.
  - a List the precision agriculture technologies being trialled at the SMART farm in Kirby.
  - b Choose one of these technologies to investigate further. Ensure that you:
    - identify and describe the technology
    - explain the job it performs on farms and how it works
    - discuss the strengths and weaknesses of this technology.
- 2 Create a terraced fields tour on Google Earth. Choose three of the following sites, or choose your own:
  - Rani Khet, Uttarakhand, India
  - Tournon-sur-Rhône, France
  - Blue Terraces, Shengyan Section, Yuanyang, Honghe, Yunnan, China
  - Jatiluwih, Tabanan, West Bali.

Locate each site on Google Earth and create a summary box for the site that includes:

- a the absolute location (latitude and longitude)
  - b the highest and lowest elevations of the terraces
  - c the scale (size) of the terraces. You can calculate the area of the terraces by using the measuring tool on Google Earth.
  - d the natural characteristics that you observe in this region, including which crop/s are being grown
  - e the human characteristics of the region (the type of human activity and infrastructure that you can see)
  - f a photo of the region.
- 3 Create a 3D topographic map – refer to the 'Guide to working with topographical maps' in the digital version of the textbook.



**Key concepts:** place, space, interconnection



**HASS skills:** analysing, evaluating, communicating and reflecting



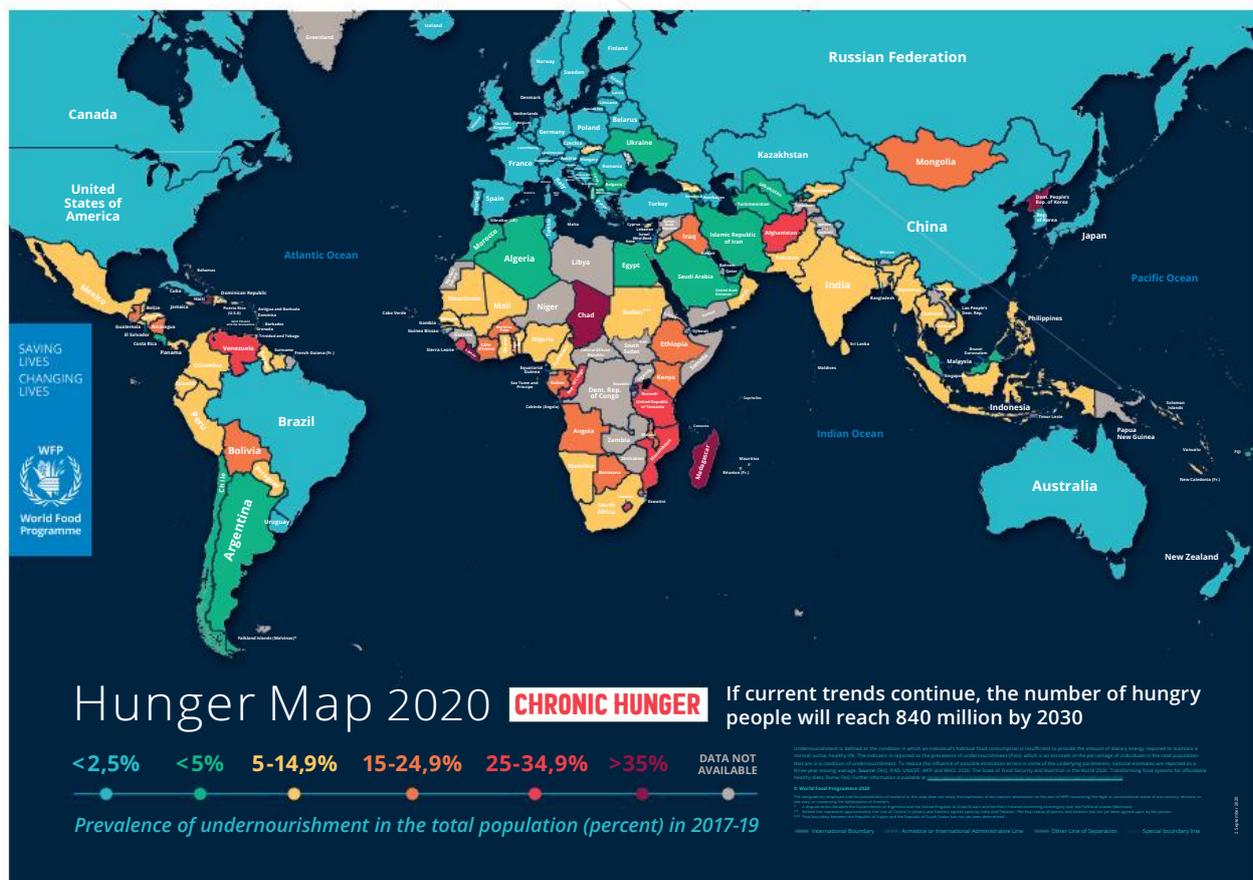
## 6.5 Food security

### FOCUS QUESTION

What is food security?

**food security** the physical availability of food and whether people have the resources and opportunity to gain reliable access to it

According to the World Food Summit, **food security** is achieved ‘when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life’.



▲ **Figure 6.36** The global distribution of undernourishment/hunger from 2017–2019. To read the detailed text on the map clearly, visit the UN’s World Food Programme website. Through this website you can also find a lot more detail on this important topic.

When we examine food security on a global scale, as in Figure 6.36, we find that people born in some countries have a higher risk of being undernourished. However, working out who has access to nutritious food is not a simple task. There can be people living in food-secure countries (such as Australia) who go hungry. Conversely, there are people in food-insecure countries (such as Zambia) who have no problem accessing food.

### Taking a closer look: changing the scale

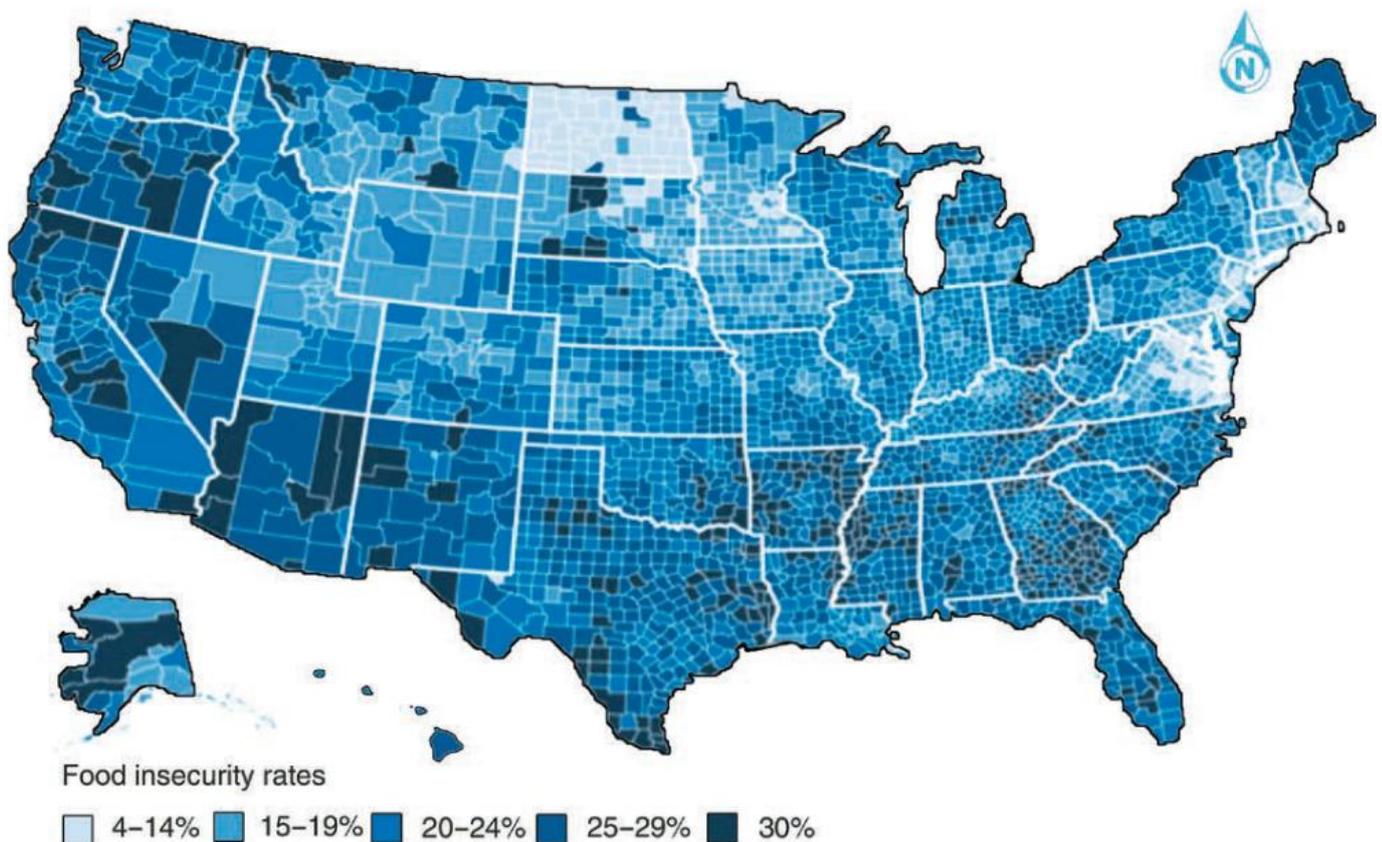
The geographic concept of scale focuses on the way that we look at different phenomena at different spatial levels. Looking at things on a small-scale map can give us the big overall picture. Looking at large-scale maps can help us see more specific detail and understand an issue in more depth. To understand the distribution of food security more closely, we need to use a larger, more specific scale.

## Amazing but true...

How does a smaller-scale map show the bigger picture? Confusing, isn't it? A good way to remember is to think that the bigger an object looks on the map, the bigger the scale of the map.

Figure 6.37 is a choropleth map of food insecurity in the United States on a state and regional scale. The United States is identified in Figure 6.36 as having a low risk of undernourishment. Taking

a closer look using Figure 6.37, we discover that there are in fact many US residents who have a much higher risk of being undernourished and experiencing food insecurity.



▲ **Figure 6.37** A choropleth map uses different shades of the same colour or different colours to identify the different data sets. In this case, it represents different food insecurity rates in the US.

▼ **Figure 6.38** An agricultural technician checks the growth of different varieties of wheat in an exhibition area in Zouping, east China's Shandong Province, in March 2021.

**Undernourishment:**  
not eating enough food to  
maintain good health  
– *Cambridge Dictionaries  
Online*

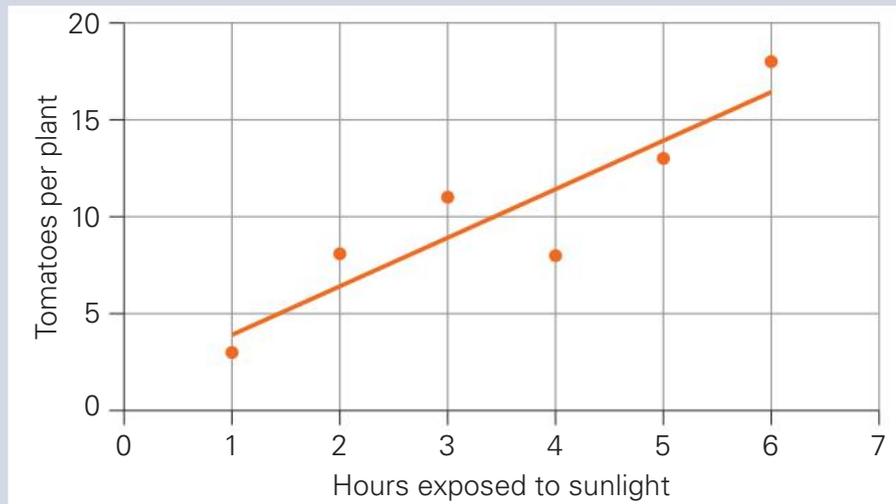


## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.3

### Reading scatter graphs to understand the association between phenomena

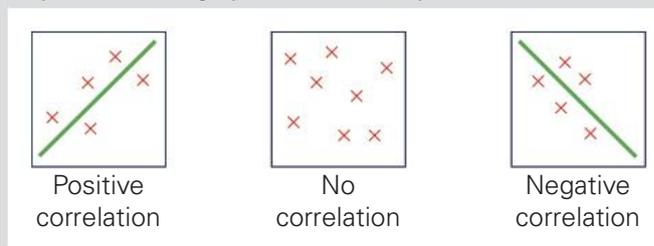
Scatter graphs are a tool that geographers can use to examine whether or not there is an association between two phenomena. For example, we can use a scatter graph to examine whether there is a possible association between how much sunlight a tomato plant gets and how many tomatoes plants produce.

#### TOMATO EXPERIMENT: POSITIVE RELATIONSHIP



▲ **Figure 6.39** A scatter graph plotting the association between exposure to sunlight and tomato yield

To read a scatter graph, either draw or imagine a line running through the middle of all the data that has been plotted on the graph. This is called your 'line of best fit'.



- A **strong correlation** is when the points sit close to the line of best fit.
- A **weak correlation** is when the points sit far from the line of best fit.
- A **positive correlation** is when an increase of the x-axis's phenomena is matched by an increase in the y-axis's phenomena. (The line of best fit goes from the bottom left to the top right.)
- A **negative correlation** is when an increase of the x-axis's phenomena is matched by a decrease in the y-axis's phenomena. (The line of best fit goes from the top left to the bottom right.)

Though a strong correlation may suggest that there is a relationship between two phenomena, ensure that you do not use the word 'cause' when describing the relationship. This is because a correlation does not necessarily mean that one phenomenon causes changes in another phenomenon. There are often additional factors that may also influence the relationship.





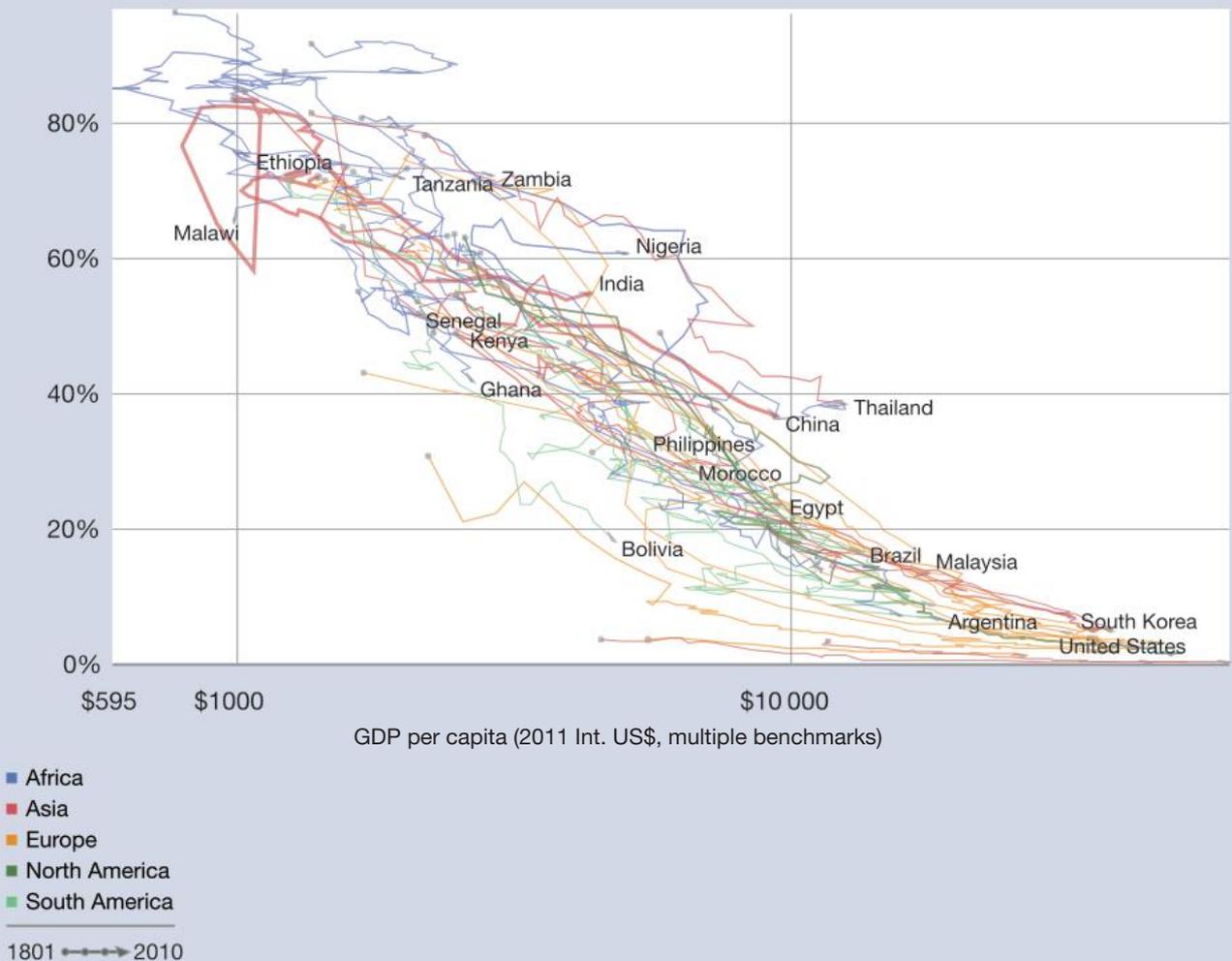
Using Figure 6.40, describe the relationship between **gross domestic product (GDP)** per capita and the percentage of the workforce employed in agriculture.

**gross domestic product (GDP)**  
the total value of goods and services produced by a country in one year

## GDP AND EMPLOYMENT IN AGRICULTURE

### GDP per head vs share of agriculture in employment, 1801 to 2010

The vertical axis shows historical estimates of the employment share in the agriculture sector. The horizontal axis shows GDP per head after adjusting for inflation (figures are in 2011 international US dollars) and uses multiple benchmarks for cross-country income comparisons.



▲ **Figure 6.40** The relationship between GDP per capita and employment in agriculture

**Source:** Our World In Data based on Herrendorf et al. (2014) and GGDC-10 (2015), Maddison Project Database (2018), Population (Gapminder, HYDE (2016) & UN (2019))  
OurWorldInData.org/employment-in-agriculture



**Key concepts:** interconnection, place



**HASS skills:** analysing

## END OF SECTION REVIEW 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 According to the World Food Summit, what are the three elements that are required to achieve food security?
- 2 How does a choropleth map show data?
- 3 Why should you avoid using the word 'cause' when describing a scatter graph?
- 4 Why is determining who has access to nutritious food a challenging task?

#### Interpret

- 5 **a** Describe the distribution of food security on a global scale using the PQE method.  
**b** Write down one question that you have about the map in Figure 6.36.
- 6 Refer to Figure 6.37, and also search for a map of the United States online which shows the names of each state.
  - a** Which US state appears to have the highest level of food security?
  - b** Which US state appears to have the lowest level of food security?

#### Argue

- 7 Outline the benefits of examining data on a global scale.
- 8 Outline the benefits of examining data on a regional scale.

#### Extension

- 1 Use a scatter graph to see whether the phenomenon of 'income' is associated with the phenomenon of 'nutrition'. Go to the 'Tools' page on the Gapminder website. Click on the x-axis and make sure that it is set to 'income'. Then click on the y-axis and, in the search bar, type 'nutrition'. Click on the link and a scatter graph should be created for you. Use your scatter graph to answer the following analysis questions:
  - a** Is there a strong, moderate or weak correlation between income and nutrition?
  - b** Is the correlation positive or negative?
  - c** Explain the relationship between income and nutrition. Quantify by including data from the graph in your answer.
- 2 Consider another phenomenon that may be associated with nutrition. Change the setting of the x-axis from 'income' to this other factor.
  - a** Is there a strong, moderate or weak correlation between your chosen phenomenon and nutrition?
  - b** Is the correlation positive or negative?
  - c** Explain the relationship between your chosen phenomenon and nutrition. Quantify by including data from the graph in your answer.



**Key concepts:** place, environment, interconnection



**HASS skills:** analysing, evaluating



## 6.6 The challenges to food production

### FOCUS QUESTIONS

- In Australia and the world, what is land used for that challenges our ability to produce food?
- What other challenges do we face when producing food?

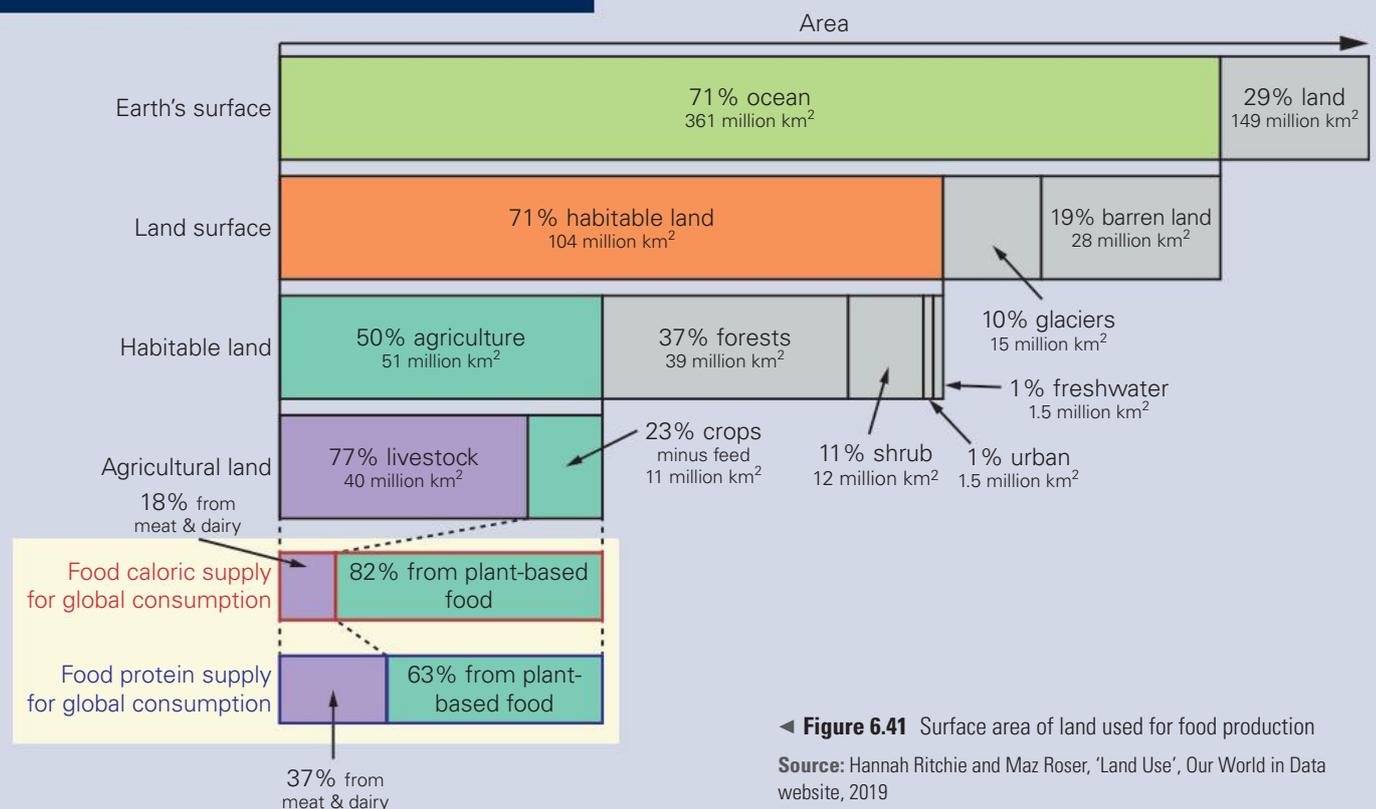
We have just one planet, which, along with the sun, provides everything we need to live, work and play. Not all biomes provide the prime conditions required to support all our human needs. However, our social and technological advancements have allowed us to use every continent of Earth in some way. As the human population grows, along with our desire for greater comforts, competition for the limited available land becomes tougher. We have also caused additional challenges as a result of our interactions on the planet; land and water degradation, a shortage of freshwater and climate change are also providing additional challenges to food production. These are explored further in Section 6.8. In this topic, we look at the ways that land is used, as well as tensions that can arise between competing land uses. Because geographers are always looking for solutions, we also ask: can we find a sustainable way to overcome the challenges to food production land uses?

### Competing land uses

Humans in different places around the world have different ideas about how land should be used. This leads to competing land uses. In some parts of the world, large populations mean that people want to use the land for urban development rather than agriculture. In other parts of the world, armed conflict means that land is not used productively and people in these areas can suffer food insecurity. Another key challenge to food production is competition for agricultural space, where people want to grow different types of crops.

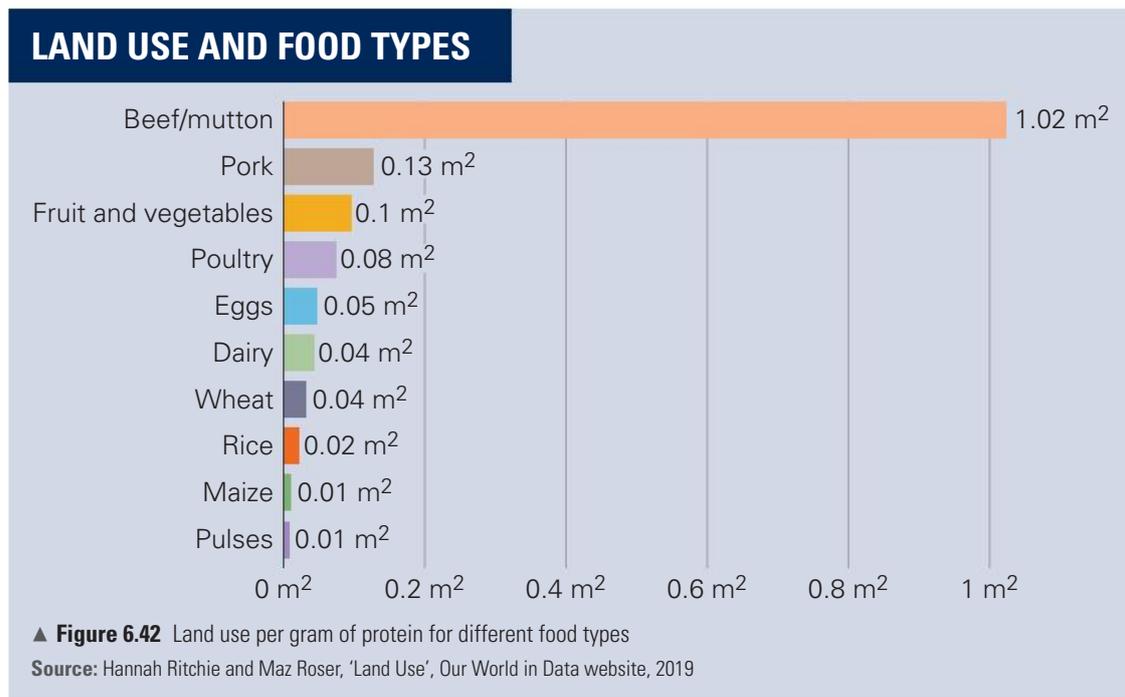
Figure 6.41 graphs the current use of agricultural land, while Figure 6.42 shows how much land is required by various food types to produce a gram of protein.

### LAND USED FOR FOOD PRODUCTION



◀ **Figure 6.41** Surface area of land used for food production

Source: Hannah Ritchie and Maz Roser, 'Land Use', Our World in Data website, 2019



Competition between crops can lead to food insecurity when market forces encourage farmers to grow non-food crops. This was the case in Mexico in 2007, when the price of corn became too expensive for many Mexicans to buy, leading to the 'tortilla riots'. To understand the process that led to these riots, complete the flowchart activity in the following 'Developing geographic concepts and skills' box.

## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.4



### Applying the concept of process by drawing a flowchart

Watch the video 'The Hidden Costs of Turning Food into Fuel' on the National Geographic website.

Arrange the following facts in order to create a flowchart. Illustrate your flowchart with drawings, symbols or pictures that relate to each step in the process.

- Once this happened, Mexico increased the amount of corn it imported from the United States from 8 per cent to over 30 per cent. This made Mexicans reliant on the United States for their food security. The Mexican Government made this decision as corn imports were cheap.
- The Mexican Government was forced to limit prices to 8.5 pesos (77 US cents) per kilogram to ensure that people could afford food. Some suppliers ignored the agreement because it was not legally binding.
- This may not be the end of the story, as biodiesel demand continues to increase.
- In 2007, the United States increased its sales of biodiesel to Europe at a good price for use in cars and trucks.
- In 1994, the North American Free Trade Agreement allowed free trade to occur between Mexico and the United States.
- This drove the prices of US corn up, as the United States could make more money using its corn for biodiesel production.
- Many Mexicans could not afford the rising cost of tortillas, pushing them towards increasing levels of food insecurity.
- Food insecurity can result in political instability, as people become desperate from hunger or the fear of hunger. In this case, Mexicans started riots to protect the price of tortillas.
- In 2007, the increase in corn prices made tortillas expensive, as these are made from corn.



**Key concepts:** environment, interconnection, change



**HASS skills:** questioning and researching, communicating and reflecting

## Competition between tropical rainforest biomes and oil palm plantations

One of the fiercest contests within land use is between tropical rainforest biomes and oil palm plantations. Figure 6.43 shows some of the ways humans use the tropical rainforest biome.

This biome is significantly under threat from palm oil. Palm oil is an edible oil that comes

from the fruit of oil palms. Forests equal to the size of 300 soccer fields are burned and cleared every hour in Malaysia and Indonesia to make way for oil palm plantations. Table 6.4 outlines some of the impacts that highlight the pros and cons of this contentious crop.

**drawing down carbon** or **carbon sequestration** where carbon dioxide is taken out of the atmosphere and stored in liquids or solids on Earth

**transpiration** the process of a plant absorbing water through its roots and releasing water vapour through pores in its leaves

### Ways in which we use the tropical rainforest biome

- **Draw down carbon** out of the atmosphere. This is also known as **carbon sequestration**.
- Provide oxygen
- Add water to the atmosphere through **transpiration** (think plant sweat), which returns to the surface as rain
- Reduce erosion and landslides as plant roots bind soil together
- Provide habitat for plant and animal species
- As medicine. About 70 per cent of plants used in the treatment of cancer have come from tropical rainforests. Only 1 per cent of plant species have been tested to assess their medicinal value, which means that there is vast potential for more medicinal cures.



▲ **Figure 6.43** The tropical rainforest biome covers about 7 per cent of the Earth's surface. It has dense vegetation at three different layers.

## IMPACTS OF OIL PALM PLANTATIONS

### Positive impact of palm oil

- The industry has created some employment in poverty-stricken regions.
- It has increased the wealth of exporting countries. It contributes approximately 2 per cent of Indonesia's GDP.
- This crop is appealing to growers because it is high-yielding, cheap to grow and in high demand.
- It is appealing to manufacturers because it is cheap to buy and has a long shelf-life, so it is great to use in products that need to last.
- It is versatile. There is a high chance that you are interconnected with palm oil through the food you eat and products you use. About half of Australia's packaged foods contain palm oil.
- Biofuel is made from the palm shells, fruits and other organic waste that is left over from producing palm oil. In 2018, half of Europe's palm oil imports were used for car and truck fuel.

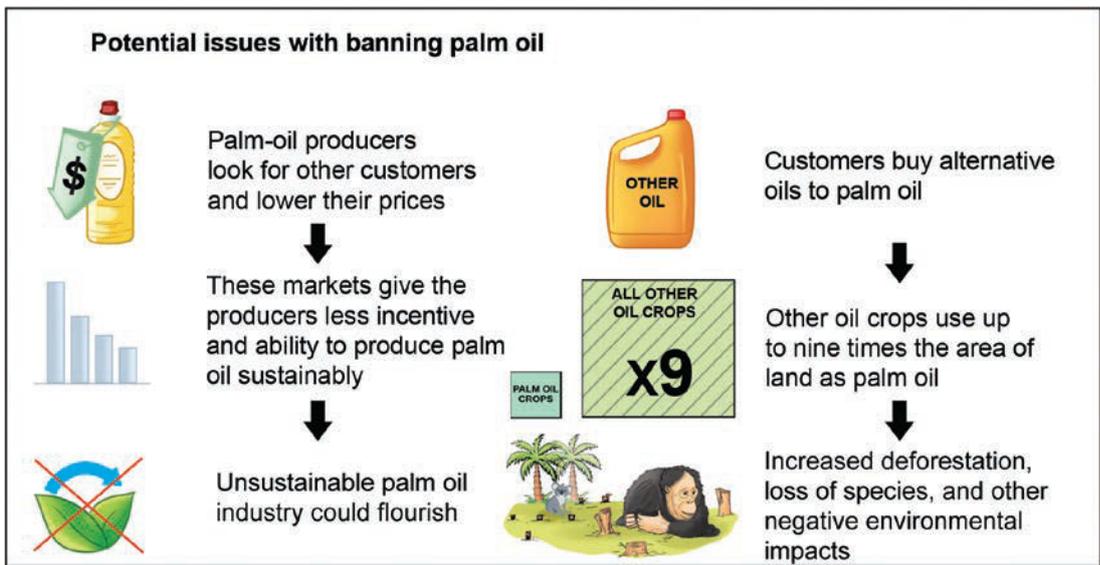
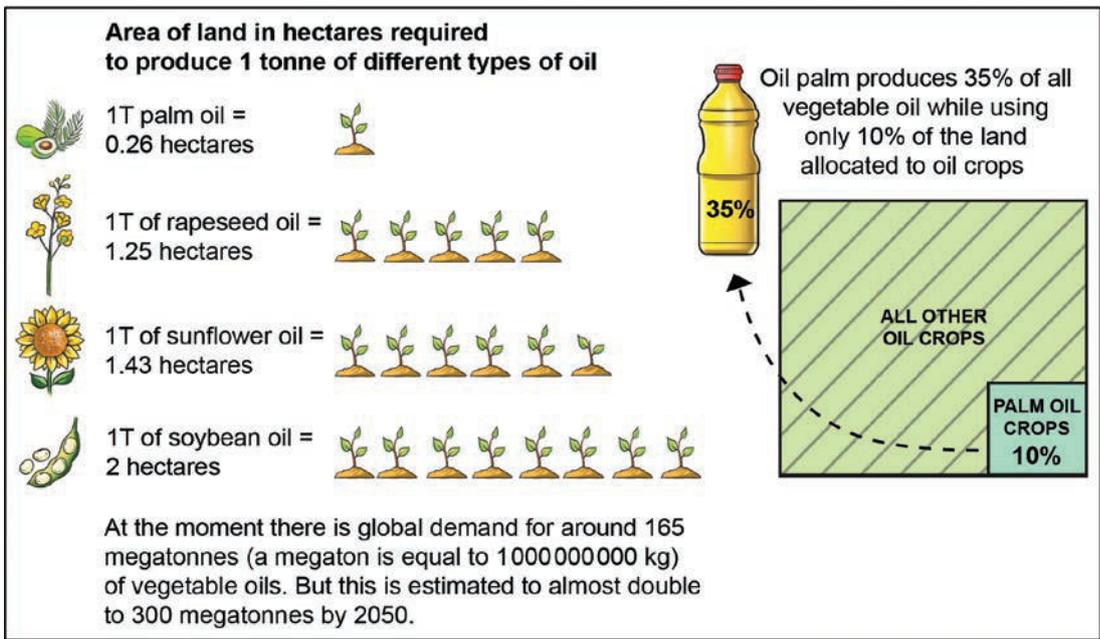
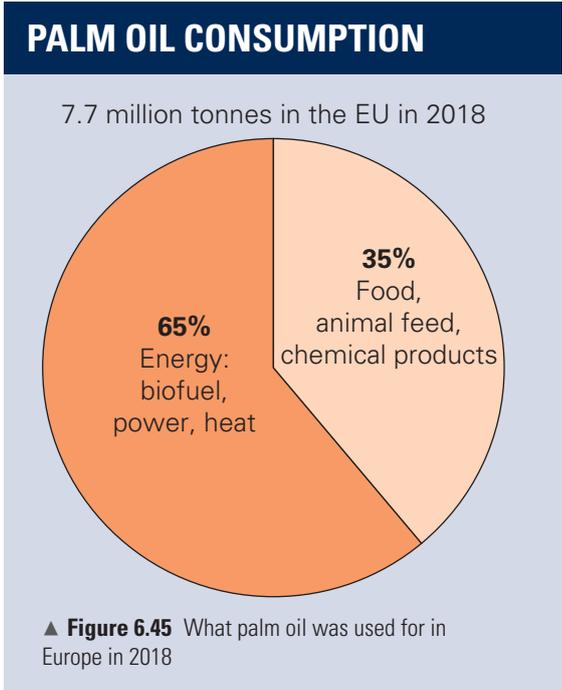
### Negative impact of palm oil

- Some locals' livelihoods are lost as they lose their homes, food, natural resources and sources of income in places where subsistence farming is key to survival.
- Deforestation is a major contributor to climate change, as trees release carbon into the atmosphere when they die.
- About 75 per cent of our accessible freshwater comes from forests, making these biomes vital to our food security. However, burning forests turn rivers to mud, create landslides and pollute the air.
- There are an increased level of droughts. When forests are cut down, less water is released to the atmosphere.
- Threatened and endangered species lose vital habitat. About 80 per cent of orangutan habitat has been altered or lost.
- Palm oil biofuel releases three times the carbon emissions of fossil fuels.

▲ **Table 6.4** Impacts of oil palm plantations



▲ **Figure 6.44** An orangutan, many of which are losing their homes due to deforestation in Indonesia



▲ **Figure 6.46** Our complex relationship with the palm oil industry

## Responses to the competition between oil palm plantations and tropical rainforests

As Figure 6.46 shows, no other oil crop can yield even a third as much oil per hectare (10 000 m<sup>2</sup>) planted as palm oil. It also requires fewer pesticides and chemical fertilisers than other vegetable oils. However, the clearing of rainforests is unacceptable and unsustainable. Effective responses are therefore necessary. This section will examine three types of responses.

### Monitoring the industry

The Roundtable on Sustainable Palm Oil (RSPO) was established in 2004. Its aim was to set global standards to increase sustainable palm oil production.

This has only had limited success. People can now purchase products labelled ‘certified sustainable palm oil’ or CSPO. However, the RSPO has been criticised for not doing enough to ensure that certified companies truly act sustainably. Many companies are still burning forests and peatlands, rather than planting on grasslands or previously destroyed forests. Workers’ rights groups have also reported abuses, including forced and child labour.

### Campaigning

Greenpeace mapped the deforestation and peat destruction of CSPO companies and discovered that some companies were not acting sustainably. Greenpeace coordinated a campaign against Wilmar, one of the world’s largest oil palm plantation owners. The campaign involved **occupying** Wilmar’s palm oil refinery and boarding a tanker ship that was transporting Wilmar’s products; blockading the Mondelez factory in Italy, which uses palm oil for the manufacturing of Oreo, Cadbury and Ritz products; and bringing images of the deforestation occurring to Mondelez head offices around the world. Some 1.3 million people signed a Greenpeace petition calling for an end to deforestation for palm oil.

There has been some success, as Wilmar has agreed to map its suppliers’ land by 2020 and use high-resolution satellite imagery to monitor deforestation. Wilmar has also stated that it will immediately stop trade with palm oil companies that are caught clearing rainforests. This is promising; however, Greenpeace plans to monitor the company to ensure it follows through on its promises.

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## Alternative technologies

Scientists in the United Arab Emirates (UAE) have been testing the use of an algae species that grows throughout their country as a possible alternative to palm oil. The species is naturally high in palmitic acid, the same acid that is found in palm oil.

The algae species can grow in freshwater or saltwater, so we don’t have to use precious freshwater resources. So long as water is available, the algae can also grow inland – for instance, in a desert – which means that it does not have to compete with other types of productive land use.

Algae oil is currently more expensive to produce than palm oil. However, the cost of algae oil may change as we learn how to grow and harvest it more efficiently. It may even become cheaper than palm oil.



▲ **Figure 6.47** Algae growing in a petri dish. Is this the sustainable solution to oil production we have been looking for?

## Competition between agricultural land and urban settlements

The best cropland is often the same land where people want to live and play.

This is not an accident.

Civilisations were able to

settle permanently in areas that have **fertile** soil and consistent water supplies. Therefore, there is often a strong interconnection between areas of high population and fertile land. While much of this land has already been turned into cities and townships, the best remaining land for crop production is often found in regions that border cities, called peri-urban regions.

Urban settlements are human-built environments with large populations such as cities, towns and suburbs.

**occupy** to move into a place and take up room

**fertile** soil that is capable of producing a lot of crops

Many people choose to live in urban settlements owing to easy access to the things they need and enjoy. These include schools, health centres, cultural activities, social services, transportation and jobs. The social and cultural diversity also allows people to enrich their lives by interacting with many types of people, giving them a feeling of belonging to a community.

As urban settlements grow, the surrounding land that was once used for agriculture becomes threatened. For example, Guangzhou was once a small village near the Pearl River Delta in China. The rich soils made it a good place to practise farming for centuries. When the government decided to urbanise the region, the city expanded rapidly to merge with nearby cities to create the Pearl River Delta Economic Zone, which is now home to approximately 70 million people. The enormous population is largely thanks to the economic benefits that this region offers, as there

is a high demand for workers and booming industries. However, farmers were forced to leave their homes and way of life behind.

**project (verb)** estimate what will happen in the future based on what has happened in the past

*‘Less than a decade ago, it was just a village. Then the cranes came ... They swallowed the farms and villages of our neighbours. We’ve been offered a new place to live, but it won’t replace what we have here.’*

– A Chinese farmer reflects on the changes happening to his village due to urban expansion.<sup>1</sup>

## Developments in Western Australia

The population in Western Australia has grown steadily since 1961. Many new settlers have arrived as a result of migration from overseas and interstate. Greater Perth has attracted most migrants, but regional centres, including the Pilbara, Peel and Kimberley regions, also have significant rates of growth. Future projections suggest that the Western Australian population may rise to 5.6 million by 2056. This will be an additional 2.9 million people.

Increasing numbers of people will drive up the demand for food. To meet this need, additional use of arable land and water will be required. At the same time, as the population grows, the demand for land for housing also increases. For example, in Greater Perth alone, an estimated 800 000 additional homes will be required to meet the needs of the anticipated population growth by 2050. To feed the people of Western Australia, studies suggest that a population growth of 2–3 per cent per year will lead to an annual increase of 3–5 per cent in agricultural production levels.

Since the Western Australian population is predicted to double by 2050, and because there are complicating factors like climate change and groundwater depletion, the future food security of the state will be affected. In 2016, the Western Australian agricultural sector set a goal of doubling in value by 2025.

While climate change is not expected to prevent short-term food security in the state, the future may be more challenging. For example, by 2030, the average temperature is **projected** to be up to 1.3°C warmer in Western Australia, and up to 5.1°C warmer by 2100.

By 2030, rainfall is also expected to decrease by up to 6 per cent across the state and by 2100 this is estimated to become a decrease of up to 18 per cent. Failing rainfall makes irrigation

<sup>1</sup> To find out more about urbanisation and farmland in China, search Citylab for ‘Life on the Forgotten Farms of Guangzhou’.

difficult, and also has a negative effect on groundwater being renewed – lower volume of rain means less water reaches the underground aquifers through saturation of the soil.

Additionally, extreme weather is expected to increase. For example, in metro Perth, the number of days in a year with temperatures over 35°C (these are known as ‘extreme heat days’) is predicted to increase from 28 (1971–2000 average) to 36 in 2030, and may be up to 63 by 2090.

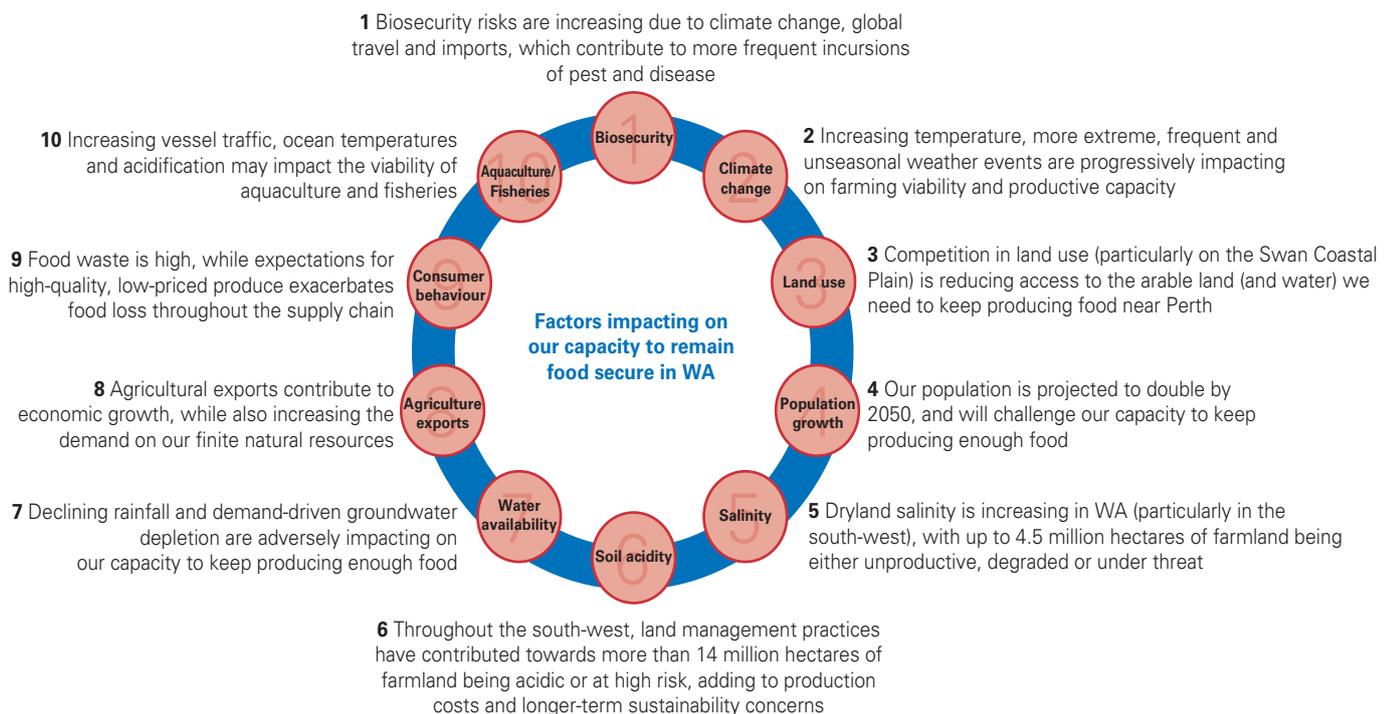
Drought conditions are also expected to increase by up to 20 per cent across Australia by 2030, and in the south-west of Western Australia by up to 80 per cent by 2070. Studies suggest that drought will affect twice as much of southern Western Australia, twice as often as it currently does, by 2030.

To put this into perspective, under climate change, forage production (e.g. grasses, legumes)

for pasture and livestock productivity may be reduced by up to 10 per cent over agricultural areas and by 10–20 per cent over the rest of the state. Wheat production (WA’s largest agricultural product by dollar value) yields tend to decline by 0.53 per cent for every 1 per cent decline in rainfall, and by 4.9 per cent for every 1°C increase in temperature.

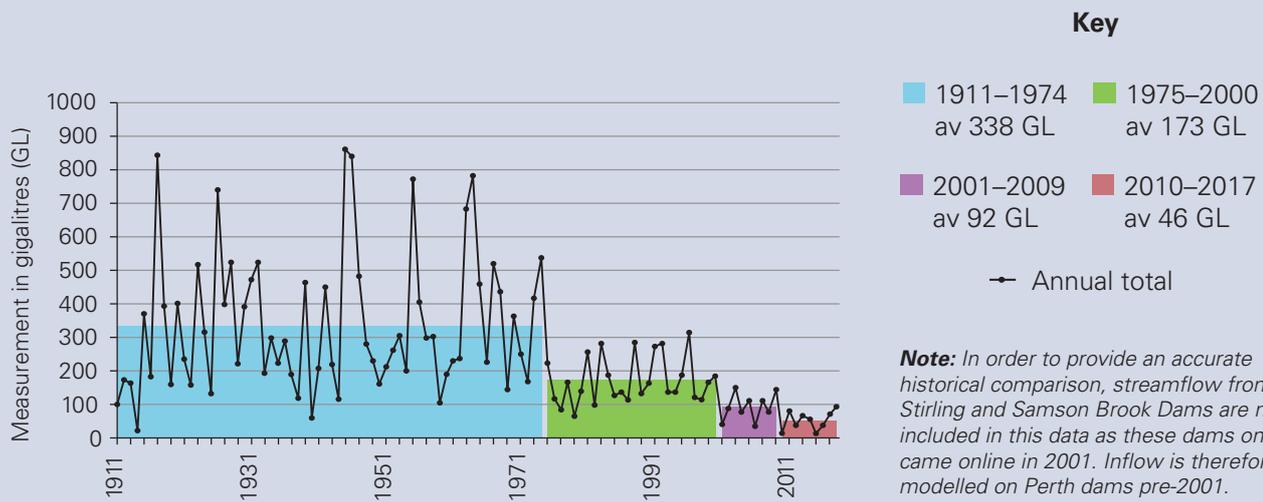
When we combine all these forecasted changes in temperature and rainfall with projected increases in more extreme heat days, and the increased duration and frequency of drought, as well as potential productivity declines, food security in Western Australia may well be severely challenged in the future.

All of these changes in climate are forecasted to take place at the same time as the population doubles. A great deal of forward planning clearly needs to take place if we are to maintain food security in Western Australia.



▲ **Figure 6.48** Factors affecting Western Australia’s food security

# HISTORICAL STREAMFLOW IN WA DAMS, 1911 TO 2017



▲ **Figure 6.49** Historical streamflow in WA dams 1911 to 2017



► **Figure 6.50** Have you visited or lived in any of the areas where grain is grown? If so, how would you describe the natural and human characteristics of the area?

## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.5



### Applying the concept of change

To describe the changes of a phenomenon, it may be useful to use the LQDE (Location, Quantify, Description, Exception) method as a guide. This method can help you describe the changes you see in detail, including not only describing the type of change that you see, but identifying where and how the changes are occurring and the extent of the impact. The following is an example guide to using the LQDE method:

- 1 Location** of the change
- 2 Quantify**
  - a** Include dates and times where possible.
  - b** Describe the distribution of change by using distance, area, direction, amount of change.  
Example: How many paddocks, houses or streets have been involved in the change?
- 3 Description** of the change
  - a** What do you see before, during and after the change?
  - b** If possible, explain the process of change.
- 4 Exception:** For example, is there an area where change has not occurred or has occurred in a different pattern or time frame?

Describe the change you see in the city of Guangzhou in Guangdong province, China, using the LQDE method. Use the Google Earth search bar to find Guangzhou. Click the historical imagery icon at the top of your screen. A slider will appear. Use the slider to see change in Guangzhou over time.



**Key concepts:** change



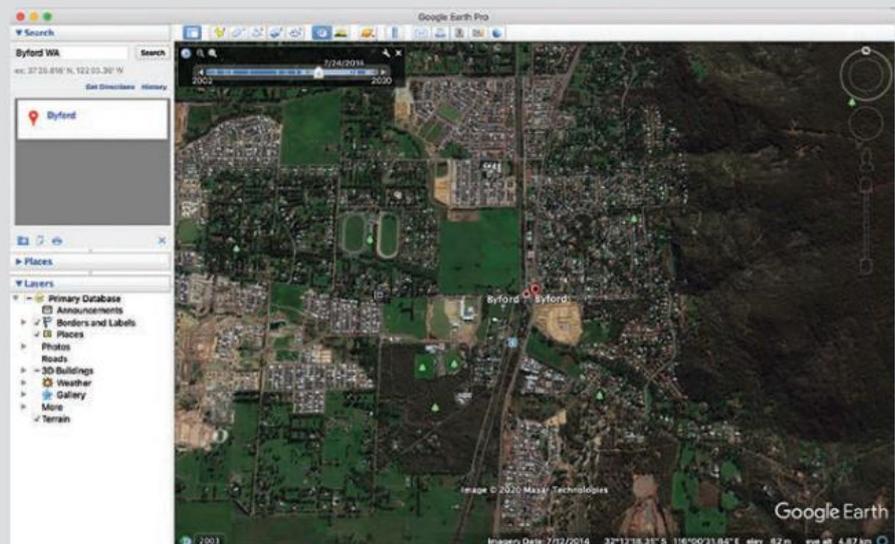
**HASS skills:** analysing, evaluating

## ACTIVITY 6.3



### Byford

Describe the change you see in Byford using the LQDE method. Use the Google Earth Pro (a free program that you can download) search bar to find Byford. Click the historical imagery icon at the top of your screen. A slider will appear. Use the slider to see Byford from 2000 to today.



▲ **Figure 6.51** Using the historical imagery feature in the Google Earth Pro program



**Key concepts:** change



**HASS skills:** analysing, evaluating

## Can we find a sustainable balance between competing land uses?

In this topic, we have examined some of the ways that land is used. We have seen how tensions can occur between different interest groups as humans struggle to support their needs and the needs of all living beings in a sustainable way. However, there

are positive examples around the world where these tensions are overcome by clever thinking, planning and cooperation. A key role for geographers is to examine these positive examples so that they can be used in other places around the world. Case study 6.2 is one of these examples.

### DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.6



#### Evaluating a response using the sustainability concept

We often hear the concept 'sustainability' used with respect to the environment and making sure that our natural resources are available for future generations. However, a broader definition of the concept simply means to be able to continue something for a long time. As geographers aim to create truly sustainable outcomes, we also measure the success of responses based on whether they are economically and socially sustainable. Economic sustainability means that a response has the financial support it needs well into the future. Social sustainability means that the response is supported by the people affected, many people benefit, and there are people who can keep the project going well into the future.

### CASE STUDY 6.2



#### Sole Food Street Farm, Vancouver

Sole Food Street Farm is located in Downtown Vancouver, Canada. It is the poorest part of the city, known for having some of the highest rates of HIV, hepatitis C, drug-related deaths and prostitution per capita in the North American continent. Sole (Save Our Living Environment) Food Street Farm was started in 2009 by Michael Ableman and Seann Dory.

Its aims were to:

- provide local people who have drug addictions or ongoing mental health problems the opportunity to earn money by growing something beautiful that others need
- provide high-quality produce on an agricultural scale
- prove that such a project could operate sustainably.

#### Challenges faced by Sole Food Street Farm

- How to grow food safely on land that had been contaminated from past land use. To overcome this, food is grown in containers, which are expensive at \$13 per container.
- Land in the city is far more expensive than rural land.
- Getting approval, as the council had never had to deal with urban agriculture before, so the existing rules and regulations didn't fit their type of development.
- Employing people with such personal challenges makes the farm less economically competitive than a usual farm. The work took two to three times longer to complete than on a typical farm, as sometimes workers would not turn up.

*'The ultimate goal of farming is not the growing of crops, but the cultivation of human beings'*  
 – Masanobu Fukuoka, quoted in M. Ableman, Street Farm, 2016, p. 31





- When the project grew to include more sites, some of the workers who relied on the nurturing of the small team environment left the job.
- Vandalism and pests. In 2013, about \$20 000 was lost due to rodents.
- The farm can generate \$300 000 in a year; however, costs are approximately \$500 000 per year. The remaining money needs to be fundraised annually. While this seems like a lot of debt, approximately \$46 million a day of taxpayer's money is used in the United States to support the farming industry to make food affordable.

### Benefits of Sole Food Street Farm

- For every \$1 spent on an employee, \$1.70 is saved from the prison and legal system, healthcare, social assistance networks and the environment through carbon sequestration and energy and transport benefits of local farming.
- It helps to counter the environmental degradation that occurs as 20 hectares of prime agricultural land is paved over and developed every hour in North America.
- The model is flexible. Growing in containers means that the farm can be moved elsewhere.
- This project gives wealthy landlords an opportunity to help their city by offering their land for cheap rent (\$1 a year in some cases) while also improving their corporate image.
- Benefits for landlords include tax relief benefits of up to 90 per cent. The farms make the neighbourhood look more beautiful, which improves the economic value of nearby buildings (which are sometimes owned by the same landlord).
- The project looks good for the city of Vancouver too. Vancouver aims to be one of the greenest cities in the world. Urban agriculture became a part of the city's Greenest City goals and Healthy Cities program.
- The food is sold at farmers' markets, local restaurants and retail outlets, reducing food miles and creating positive connections between people in the community.



▲ **Figure 6.52** Seann Dory (left) and Michael Ableman (right) from Sole Food Street Farm



▲ **Figure 6.53** Kenny, the first employee of Sole Food Street Farm

*He's been stabbed, held up at gunpoint, wanted by police; he's known most drugs. He's suffered bicycle accidents, illnesses, imprisonment. He's faced years of rehab.*

*Kenny says 'I come to work feeling miserable and leave feeling relief and hope. If it wasn't for my job, I would be sitting in a basement not caring about anything.'*

– M. Ableman, *Street Farm*, 2016, p. 15



◀ **Figure 6.54** Rob: 'It was 4 a.m. and I was standing on the farm in the middle of the city and I looked around and I felt like I was communing in church.'



◀ **Figure 6.55** Seven: 'The farm is where I come to make choices. It's the right environment. It's safe, a getaway from the hood, where there are drunks and addicts everywhere.'





## ANALYSIS QUESTIONS

- 1 Explain the significance of the name 'Sole Food Street Farm' in your own opinion.
- 2 Describe how Sole Food Street Farm is both economically and socially sustainable.
- 3 Explain how Sole Food Street Farm is an example of a smart solution in terms of competing land uses.



**Key concepts:** change



**HASS skills:** questioning and researching, analysing



**Video**  
**Figure 6.55A**  
 Village in the city

## MAKING THINKING VISIBLE 6.2



### See, think, wonder

Watch the video 'Village in the City' on DocumentaryTube and answer the following questions:

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



**Key concepts:** place



**HASS skills:** questioning and researching, analysing

## END OF SECTION REVIEW 6.6



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Define the term 'urban settlement' and give two reasons why people choose to live in urban environments.
- 2 Define the terms 'carbon sequestration' and 'carbon reservoir'. Conduct some quick online research to identify two types of carbon reservoirs other than the atmosphere.
- 3 List the different types of crops and explain what they are used for.
- 4 What are two benefits of rainforests?
- 5 Outline two of the benefits and two negatives of palm oil use.
- 6 What is meant by the term 'sustainability'?

#### Interpret

- 7 Refer to Figure 6.48. Make a note of which factors identified are related to trade, which are connected to farming and which are attributable to population increase. Now rate these in order of which you think are the biggest threats to food security in Western Australia.
- 8 Considering the pie graph in Figure 6.45, what may be an effective way of reducing the use of palm oil in society?
- 9 Describe the interconnection between fertile land and urban settlements.
- 10 Explain how competition for land use between crops can lead to food insecurity.





## Argue

- 11 A vegetarian diet supports a more sustainable use of land than an omnivore diet. To what extent do you agree? Use the evidence in Figures 6.41 and 6.42 to support your answer.
- 12 Looking at Figure 6.46, explain in a few sentences why phasing out palm oil entirely may not be a sustainable solution.
- 13 Which of the three responses to palm oil do you believe is the most successful so far? Explain your decision.
- 14 What do you think Masanobu Fukuoka means when he says: 'The ultimate goal of farming is not the growing of crops, but the cultivation of human beings'?

## Extension

- 1 Conduct online research to investigate what you can do to reduce the environmental impact of palm oil crops. Present this information in a format of your choice.



▲ **Figure 6.56** A view of land-clearing for a palm oil plantation in Sumatra in Indonesia on 11 July 2014. The Nature Climate Change journal has reported that Indonesia lost 840 000 hectares of natural forest in 2012 compared to 460 000 hectares in Brazil, despite the Indonesian forest being a quarter of the size of the Amazon rainforest.

- 2 Look up 'CBC News Interviews Street Farm Co-founder and Author Michael Ableman' on Vimeo. Using the information provided in the text and in the video, discuss in groups the ways that Sole Food Street Farm is or is not sustainable. Then copy and complete the table below. Use these factors to evaluate how successful you think the Sole Food Street Farm is as a sustainable farm.

Evaluate the success of Sole Food Street Farm using the criterion of sustainability.

<b>Introduction:</b> Provide an overview of Sole Food Street Farm and explain its aims.		
	<b>Yes</b>	<b>No</b>
Socially sustainable?		
Environmentally sustainable?		
Economically sustainable?		
<b>Conclusion/evaluation:</b> Explain whether you believe that the farm is sustainable on the whole, having weighed up the benefits and challenges. Then state whether you believe the farm is successful or not.		



**Key concepts:** place, sustainability



**HASS skills:** analysing, evaluating, communicating and reflecting



## 6.7 Environmental impact of altering biomes for food and fibre production

### FOCUS QUESTIONS

- How have humans altered biomes in the production of food and fibre?
- In what ways does the production of food and fibres affect the environment?

Humans have been altering biomes for thousands of years. We have changed the course of rivers and the spread of forests to grow crops; mined the earth to harvest coal and gold; and drilled the deep waters of oceans for oil. Most extremely, the cumulative effect of these actions is causing important changes to our climate.

Human-induced climate change is happening at a rate that is too quick for most species to adapt to. Climate change is therefore affecting biomes by changing the types of plants and animals that can inhabit each region.

**vegetation** plants found in a particular area or habitat

**drainage** the artificial removal of water from land

**irrigation** the use of additional water to grow crops, not from rainfall

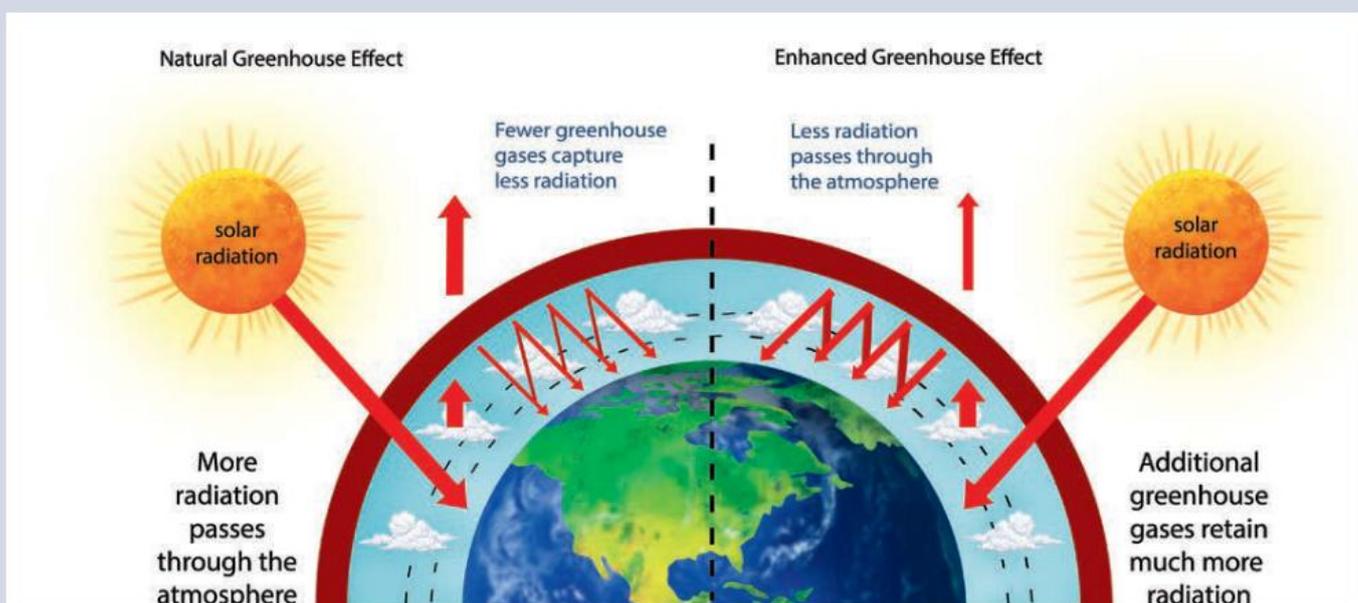
Our alteration of biomes has provided us with many benefits. It has allowed civilisations to grow and allowed us to live longer lives, making humans the most dominant species in the world today. However, these activities have come with significant environmental impacts, not only

for the biomes themselves, which have lost an estimated 60 per cent of species, but also for humankind. When the fine balance of life is disrupted too much, the environment can no longer support life effectively.

### Ways that humans have altered biomes

Vegetation clearance is necessary in the production of food and fibre. Biomes need to be cleared of their original **vegetation** in order to plant crops, and this can upset food chains in the area. When planting crops, **drainage** and **irrigation** are then used to ensure good crop yields. Drainage can be used to stop flooding and help excess water move away from crops. In contrast, irrigation is also required to help grow crops by providing them with controlled amounts of water. Terracing is another alteration sometimes made when the topography of an area is very steep. This was also explored in Section 6.4.

### ENHANCED GREENHOUSE EFFECT



▲ **Figure 6.57** The difference between the natural greenhouse effect and the enhanced greenhouse effect

## Environmental impact of altering biomes for food and fibre production

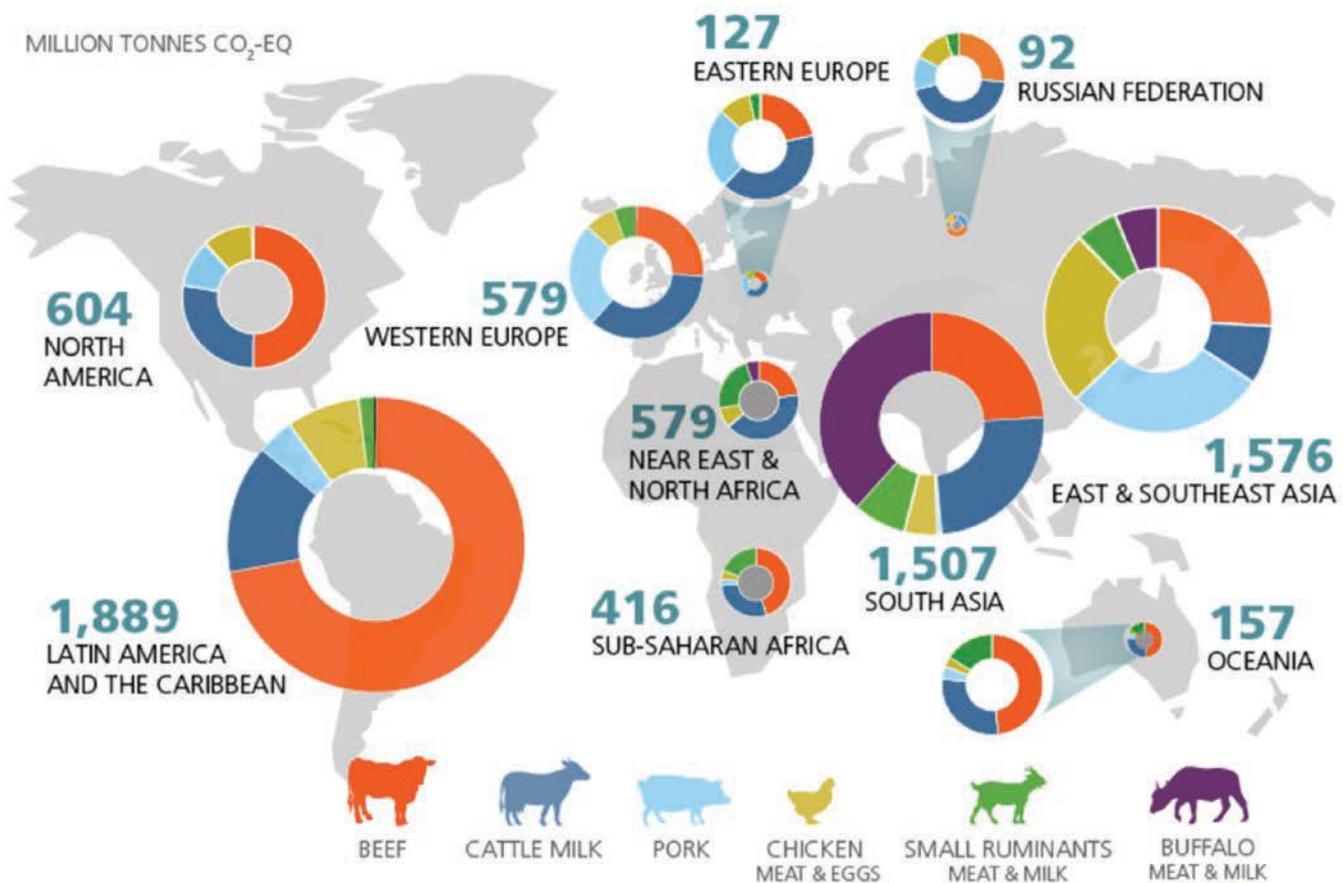
### Fossil fuel farming

Greenhouse gases exist in the atmosphere. Without greenhouse gases, Earth would have an average temperature of  $-18^{\circ}\text{C}$ . These gases keep the planet warm by trapping some of the heat that is released from Earth to space in the atmosphere. As seen in Figure 6.57, extra greenhouse gases, particularly carbon dioxide and methane, are being released into the atmosphere due to human activities. These extra gases trap more heat than is needed in the atmosphere. This warms Earth excessively and changes climate patterns such as ocean currents, rainfall and the timing of seasons.

The farming of food and fibres is linked to climate change in many ways. Carbon dioxide is released into the atmosphere from the use of

fossil fuels. Fossil fuels such as oil, coal and gas are used to power large agricultural machinery, transport and refrigerate food and fibre, and make pesticides. Moreover, high amounts of carbon are safely stored in carbon reserves such as forests and peatlands. When natural vegetation is cleared for the expansion of crops, this carbon is released from the plants and soil into the atmosphere.

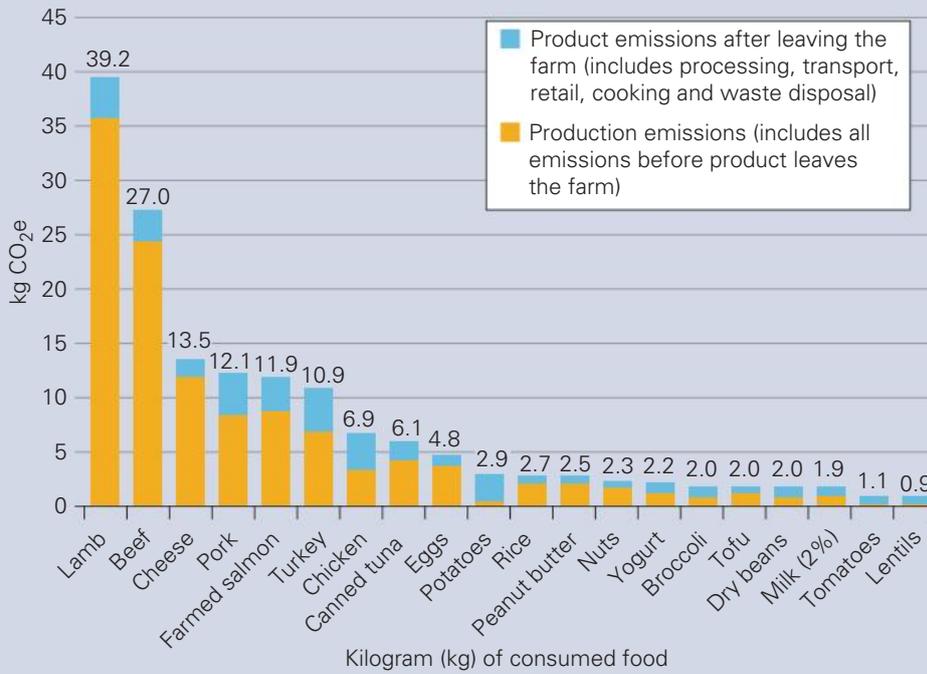
Methane is also released into the atmosphere during the production of food and fibre. Cows are often seen as the cause of this, as one cow releases 100 kg of methane a year, mostly through burping. Although farming livestock creates approximately 40 per cent of annual methane emissions, other activities also play a role. When oil is extracted and transported to be used for farming, methane leaks from pumps, pipelines and wells. The way we package our food and fibres influences emission rates too, as plastic shopping bags also emit methane.



▲ **Figure 6.58** Carbon dioxide equivalent emissions from livestock farming in 2010

Source: Data from the Food and Agriculture Organization of the United Nation's website

# FOOD INDUSTRY CARBON DIOXIDE EMISSIONS



◀ **Figure 6.59** Carbon dioxide emissions created by the food industry. Are most emissions occurring at the farm or after the product has left the farm? Is there an exception to this pattern?

## Irrigated agriculture

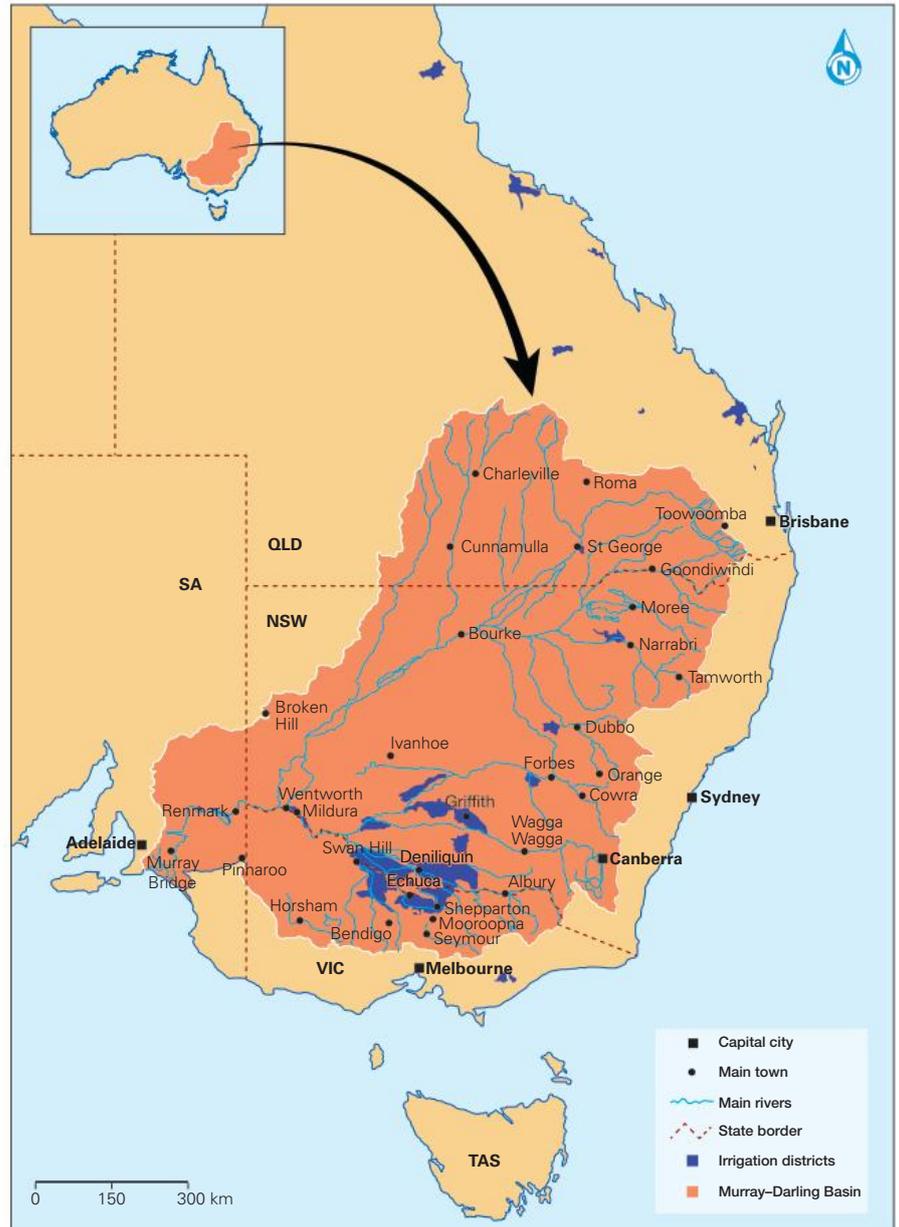
Large-scale irrigation involves channelling freshwater away from its natural path to be stored and used on farms. Freshwater is naturally

**aquifer** an underground layer of rock that holds and stores water

found above ground as rivers or lakes, or underground as **aquifers**. Irrigation

has played an important role in our food and fibre security as we can improve crop yield by adding irrigated water to regions that don't receive much rainwater.

This is clear when we consider the large role that irrigation plays in the Murray–Darling Basin (refer to the map in Figure 6.60), where 70 per cent of all of Australia's irrigated water is used. Although the Murray–Darling Basin only receives 6 per cent of Australia's annual rainfall, it produces 40 per cent of our food and 93 per cent of our cotton. However, there is concern that irrigation is not sustainable in the long term because it can cause salinity and reduce the flow of water to places downstream of the irrigated diversions.

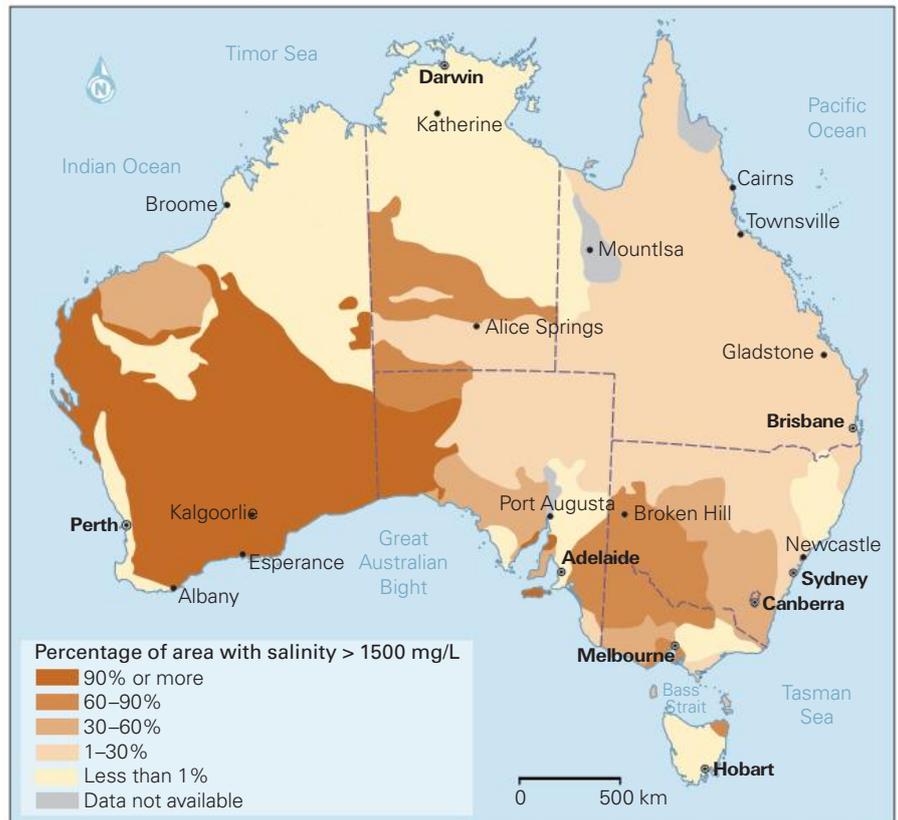


▲ **Figure 6.60** The Murray–Darling Basin

## Salinity

Salinity occurs when salts that naturally exist deep underground rise to Earth's surface, polluting the soil and killing the vegetation. Australia is an ancient land. Over time, Australia's soils have accumulated salts from natural processes such as the **weathering** of rocks, the movement of ocean salt to the land through wind and the **evaporation** of inland seas that once were a part of the landscape.

This salt is harmless when trapped deep in the soil, above the underground water table. However, when irrigation is used on farms, not all the water is absorbed by plants. Some of it seeps into the water table that lies beneath. This water table then rises as it receives more water. As it rises, the underground salts rise up with the water towards the surface. Salinity is expensive and threatens our food security. The Australian Government estimates that salinity costs the country \$130 million worth of agricultural production each year.

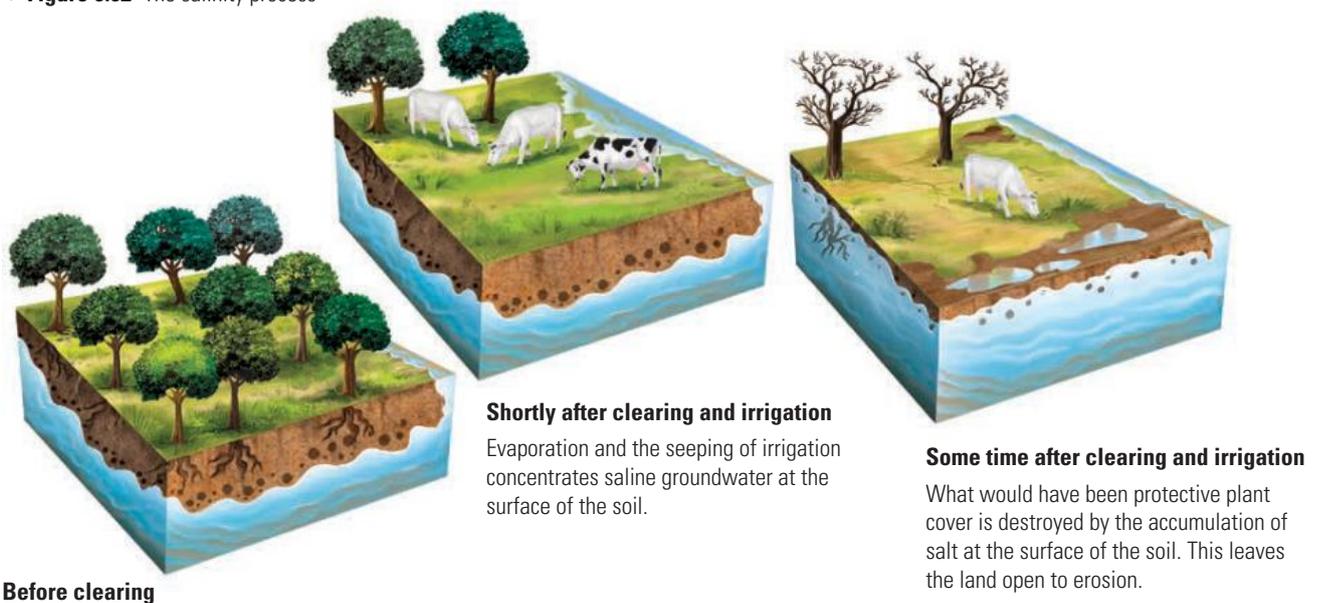


▲ **Figure 6.61** A national view of groundwater salinity. Which state has the greatest area with a high percentage of groundwater salinity?

**weathering** the process of breaking down or dissolving rocks and minerals

**evaporation** the process of a liquid becoming a gas when heated

▼ **Figure 6.62** The salinity process



## Reduced environmental flows

When water is diverted from rivers and lakes to farms, it reduces the flow of water to areas downstream, as well as the outward flow of water to floodplains and wetlands. Reducing natural flows can dramatically affect river, wetland

**riparian** the area where the land and river meet

and **riparian** biomes by changing their nature as less freshwater makes it to

the ocean and more saltwater moves inwards into estuaries from the ocean. This has flow-on effects of changing the distribution of plants and animals in the biome and causing coastal erosion.

## Monoculture farming

Humans have drastically altered biomes through the use of monoculture farming. This type of farming requires large-scale vegetation clearance and drainage and irrigation. As seen in Figure 6.63, monoculture farms grow a single type of crop, rather than a variety of crops (polyculture farming). The reasons farmers choose to monocrop come down to simplicity; it is easier to take care of just one type of plant. The farm's input requirements are more consistent, as the

entire crop is likely to require similar amounts of water, growing conditions, methods of planting and harvesting, and pest control. However, negative impacts for the environment include a reduction in species diversity, an increased susceptibility to pests and diseases, and pollution of soils and water due to the use of chemicals.

## Reduction in biodiversity

There are over 15 000 varieties of tomatoes and 7500 varieties of apples grown worldwide. However, you would be lucky to find five varieties of these fruits at a supermarket. This is because monoculture farms tend to grow crop varieties that are selectively bred for their size and shape (to look appealing to customers), as well as their ability to handle long travel distances, chemical fertilisers and pesticides. Varieties that are delicious, but delicate, risk extinction as they are being increasingly replaced by tougher varieties. This is also the case for animals. Approximately 200 livestock breeds face extinction as we have come to rely heavily on just a few select animal breeds.

▼ **Figure 6.63** Working a maize field with a vibro-cultivator. Crops grow in perfectly straight rows, reflective of the machinery used on monoculture farms.



## Increased susceptibility to pests and diseases

This lack of diversity creates more problems in the form of pest and disease resistance. Polyculture farms that grow many different plant species benefit from attracting a large diversity of insects and birds. The number of pests on these farms is kept low as they are eaten by other insects and birds in a process known as biological pest control.

Because monoculture farms lack plant diversity, they do not attract a diversity of life. In fact, they may only attract a large number of one pest species due to the fact that they are so obvious in the landscape. For example, hectares of corn are much easier for locusts to find compared to a few corn grown among beans, flowers and zucchini.

Disease can also spread rapidly in a monoculture farm because the plants are genetically so similar that they have similar weaknesses. The banana variety Gros Michel was a tastier, creamier version of the banana we eat today. However, it was wiped out by the Panama fungus and was replaced by Cavendish bananas, which were thought to be resistant to the fungus. Unfortunately, this was not the case. Figure 6.65 shows a crop of Cavendish banana trees in Queensland that were killed by a different strain of the Panama fungus called TR4.

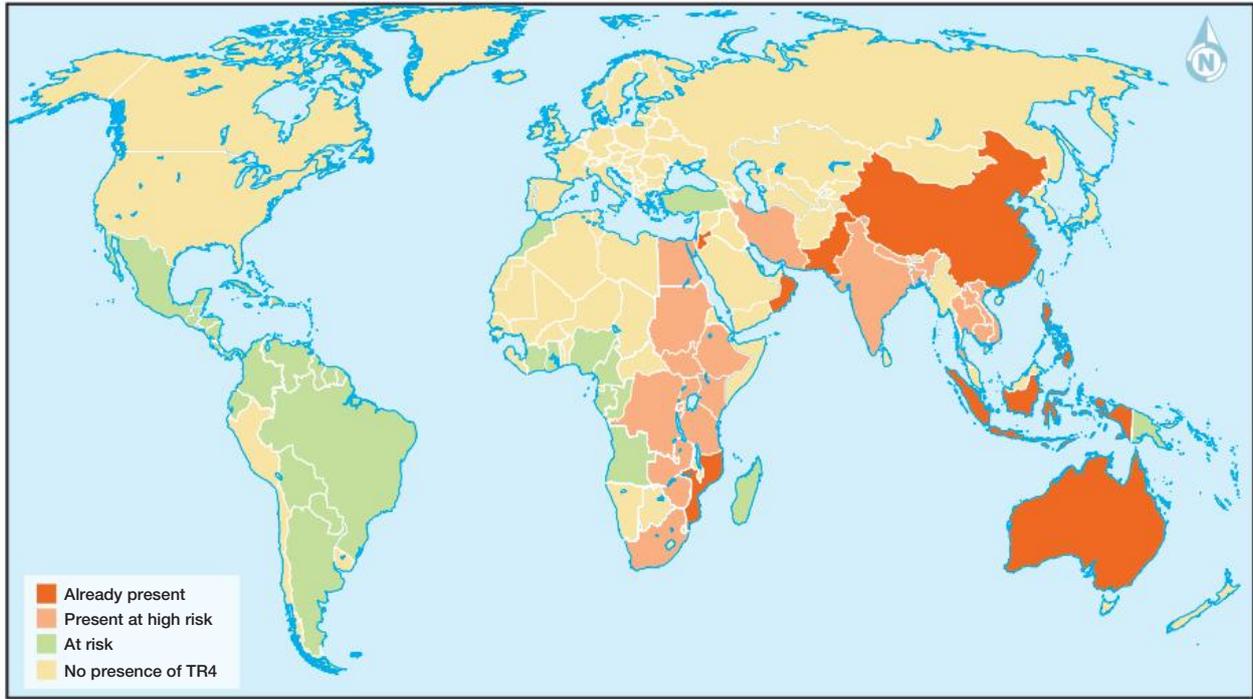


▲ **Figure 6.64** Biological pest control in action. Aphids are a pest insect that can destroy cereal and vegetable crops. This wasp is laying her egg in an aphid. When the egg hatches, the aphid is eaten from the inside out.

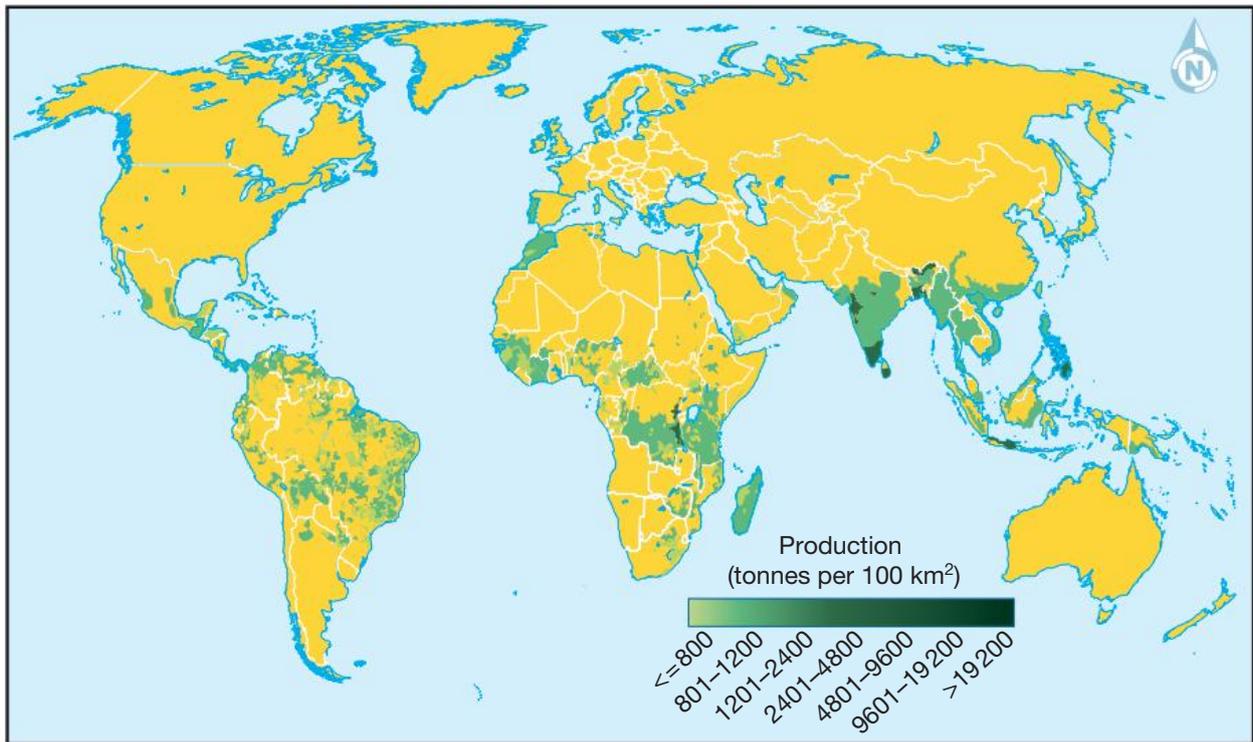
Cavendish banana trees are clones of one another, so if one is affected on a farm, they are all at risk. Researchers are currently searching through jungles for wild banana species that can resist the Panama fungus as well as ripen in a suitable amount of time, travel long distances, be mass-produced and taste good.



▲ **Figure 6.65** Cavendish banana trees in Queensland, killed off by a fungus called TR4



▲ **Figure 6.66** Global risk levels of TR4



▲ **Figure 6.67** Global banana and plantain production

## Amazing but true...

A study in China involved planting different varieties of rice in the same field. Some varieties were usually very prone to diseases when grown on a monoculture farm; however, these experienced 94 per cent less disease in this mixed-crop farm. This allowed the yield of these varieties in the mixed-crop farm to increase by 89 per cent.

## Pesticides

Artificial pesticides are used to protect the food supply by reducing the impact of pests and diseases. Because they are applied over entire fields, rather than targeting specific weeds and pests, only 5 per cent of pesticide use is effective. The repeated use of pesticides can reduce crop yield in the long term because pollinators, such as bees and hoverflies, are also killed. One-third of our food supply requires bees for pollination. The global cost of losing pollinators is estimated to be between AU\$350 billion and AU\$850 billion.

Pesticides can be toxic to people and other species. In 2018, a Californian man was awarded US\$289 million in damages for cancer caused by his use of Roundup, a weed killer used widely across the world, including in Australia. Farmers in the Punjab region of India are also turning away from pesticides. This region accounts for 20 per cent of India's use of pesticides. The drinking water was found to be contaminated, and one-third of farmers that were tested in the region were found to have resulting DNA damage. Nearby, in the north-west Indian village of Gandaman, 23 children aged 5–10 years old died after eating the government-funded school

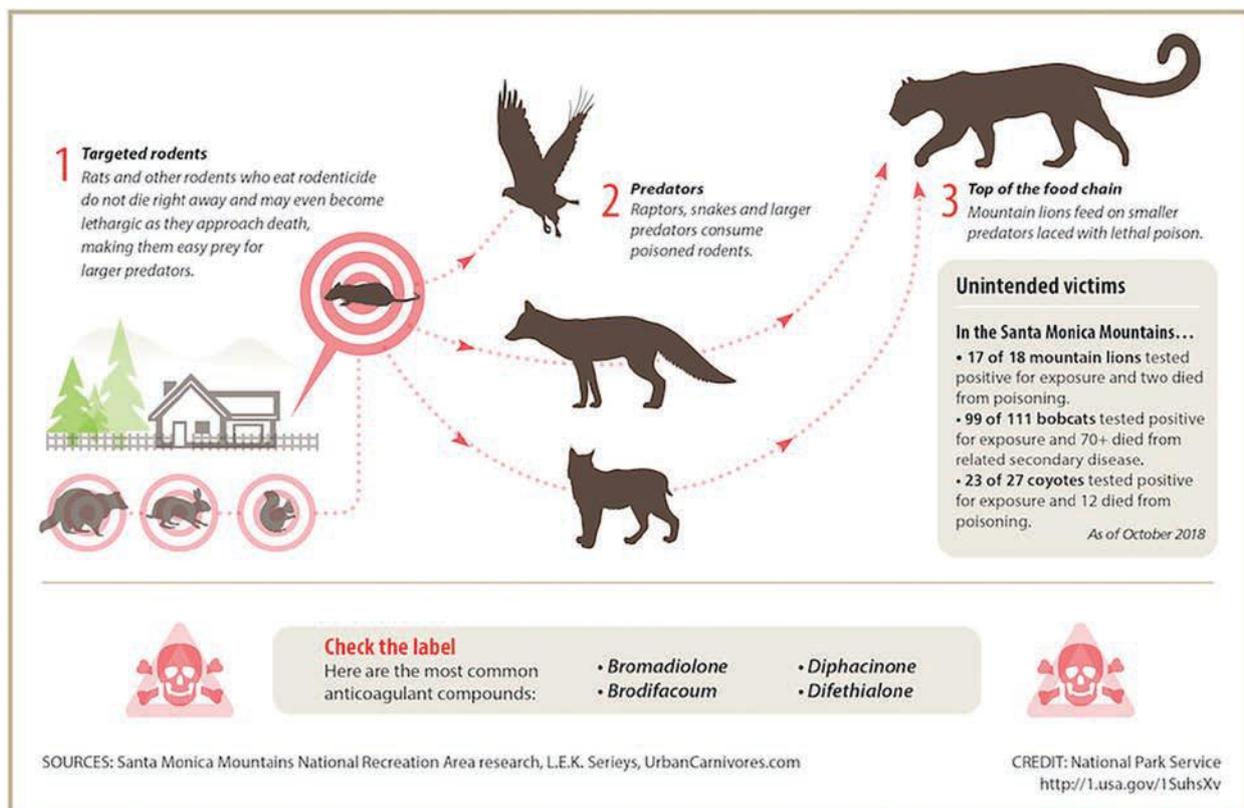
lunch, which contained 52 times the safe level of pesticide.

The pesticide monocrotophos is considered to be one of the most dangerous and is not sold in Australia. However, it is popular in India because it is cheap. For many poor farmers in rural India, this is the pesticide that they can afford.

Animals can be poisoned directly or indirectly, as Figures 6.68 and 6.69 show.



▲ **Figure 6.68** This three-year-old male Californian mountain lion was exposed to six different rodenticide (pesticides for rodents) compounds before dying.



▲ **Figure 6.69** An infographic aimed at educating Californian locals about the impact of using rat poison around the home

Pesticides can also eliminate some animals' essential food sources, causing the animals to relocate, change their diet or starve.

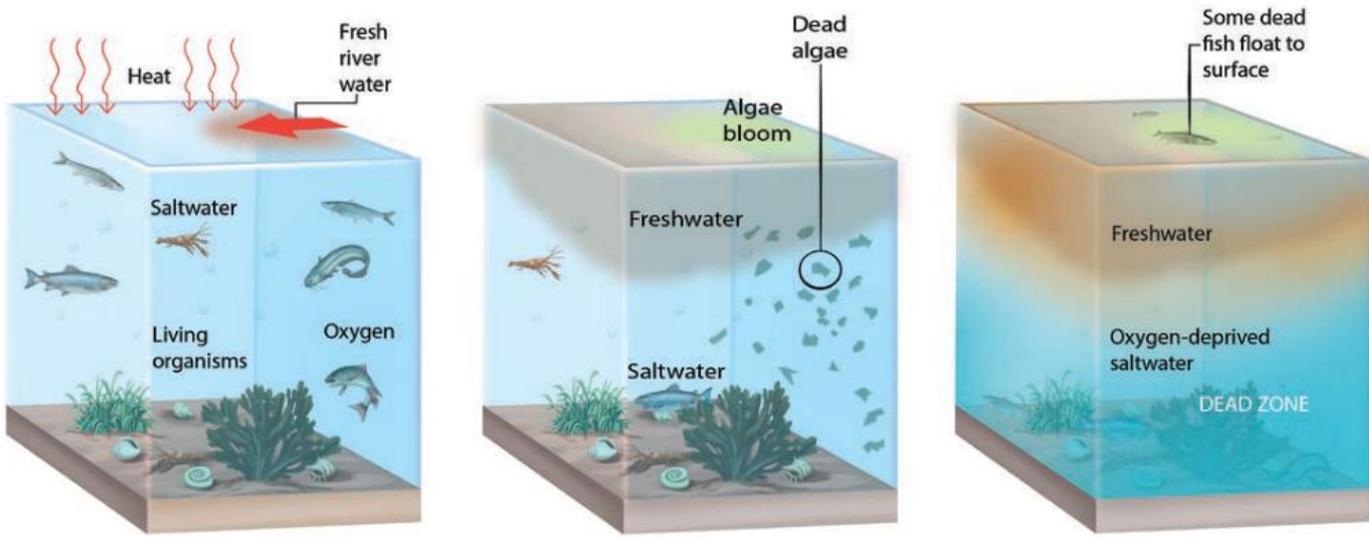
## Fertilisers

**marine dead zone** an area that has a reduced level of oxygen in the water that can cause organisms to die

Soil gets its nutrients when organic matter, such as falling leaves, is decomposed by microbes. However, there is little life in the

soil, as microbes are often killed by the repeated spraying of pesticides.

Monoculture farms strip the soil of particular nutrients more quickly, as each crop has specific nutrients that it needs most. For example, a polyculture farm might choose to grow corn and beans together. Corn will strip the soil of nitrogen, while beans will create nitrogen in the soil, thus helping to establish a balance of soil nutrients.



1 Most monoculture farms use chemical fertilisers, which are manufactured liquids consisting of nutrients that are sprayed on plants to increase their yield. Not all of the nutrients provided by fertilisers are absorbed by plants. The remaining nutrients leach into the soil or run off into rivers, eventually making their way into the ocean.

2 The excess nutrients in the water can cause algae blooms on the ocean's surface. These blooms block sunlight from penetrating the water and block the organisms in the ocean from absorbing oxygen. When these algae die, they fall to the bottom of the ocean and decompose.

3 The decomposition process uses large amounts of oxygen, leaving very little for other organisms. When this happens on a large scale, **marine dead zones** are formed as very few organisms can live in places with no oxygen.

▲ **Figure 6.70** The process causing marine dead zones

## END OF SECTION REVIEW 6.7

### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.

### Recall

- 1 Define the terms 'biological pest control', 'input' and 'riparian zone'.
- 2 Describe the difference between the natural greenhouse effect and the enhanced greenhouse effect.
- 3 Describe two ways that farming emits carbon dioxide and methane into the atmosphere.
- 4 List three natural processes that have caused Australia's soils to be salty.
- 5 Describe the difference between monoculture farming and polyculture farming. List some of the benefits and challenges of each.





### Interpret

- 6** Using Figure 6.58, identify which global region emits the greatest amount of carbon dioxide from:
- buffalo farming
  - pork farming
  - chicken farming.
- 7** Latin America and the Caribbean produce the largest amount of carbon dioxide from beef farming.
- Do you think that this is because this region consumes more beef than other regions?
  - What other reason may contribute to their large beef industries?
- 8** Examine Figure 6.60.
- Identify two towns that you think may suffer from reduced flow of water.
  - Explain why you think these towns may have reduced flows.
- 9** Examine Figure 6.66. Name three countries that already have TR4, three that are at high risk of TR4 and three that are at risk, but not high risk, of TR4.
- 10** Compare Figures 6.66 and 6.67. What percentage of the banana industry is at threat from the TR4 fungus? What potential impact would a spread of the TR4 fungus have on consumers?
- 11** Describe the processes that create marine dead zones or salinity.
- 12** Explain in one paragraph how using rodenticide on a farm can kill mountain lions in California.

### Argue

- 13** Imagine that you are an agricultural consultant to the country of Madagascar. Write a letter of advice to farmers, explaining the TR4 fungus and how to defend their banana crops from the spread of TR4 to their country.

### Extension

- 1** In what ways does the production of food and fibres affect the environment? Use the information in this book and some further research to copy and complete the table below.

Farming technique	Example of a food or fibre that is grown by using this technique	Effect on environment (can be positive or negative)
Irrigation		
Pesticide use		
Monoculture farming		
Fertiliser use		

- 2** Create a tour brochure for a trip through Western Australia's south-west, including four different towns. For each town provide: the location; the natural characteristics, such as its landforms, water bodies and wildlife; and human characteristics of the region, such as its industries (including what type of farming occurs there and what farming methods are used) and activities you can do in the region.



**Key concepts:** place, space, environment



**HASS skills:** analysing, evaluating, communicating and reflecting



## 6.8 Strategies used by Aboriginal peoples to achieve food security over time

### FOCUS QUESTION

How did the First Australians live off the land for so long?

Australia has the longest known history of agriculture in the world. In fact, there's evidence to suggest that Aboriginal Australians were baking bread 65 000 years ago; that's 50 000 years before the ancient Egyptians! Australia's history is a remarkable tale of adaptability, ingenuity and sustainable land management based on an intelligent understanding of the environment.

Australia's biomes were first altered to grow tubers and cereals as well as harvest meat, fruit and vegetables. Moreover, the farming and storage methods used by Aboriginal peoples allowed the landscape to sustain them for thousands of years. They even survived the last glacial maximum period, a time when Earth was so cold that many forests disappeared, animal species became extinct and vast volumes of surface water disappeared.

Unfortunately, much of this agricultural history remains unknown. However, the work of historian Bruce Pascoe has shed new light on this topic. In his book *Dark Emu*, Pascoe revisits historical sources from early European settlers and finds many references to thriving societies and economies based around agricultural systems. There is clearly a great potential to learn more about Aboriginal agricultural practices and use

▼ **Figure 6.71** A yam tuber



▲ **Figure 6.72** Yam digging at Indented Head. Who do you think may have drawn this sketch?

this knowledge in our current quest for food security during this new period of great change.

### Tubers

Some plant species have edible tubers, which are thick-skinned structures made of stems or roots that grow underground. The most familiar tubers in people's diets today are potatoes, introduced by European settlers in the 1700s.

However, well before the introduction of potatoes, another tuber was commonly used. The native murnong (or yam daisy) grew in southern and eastern Australia, including Tasmania. It was a staple for many people in these regions and is said to be eight times as nutritious as potatoes.

Tubers such as the murnong and nodding greenhood were so valued by Aboriginal peoples that biomes were altered to increase their yield and distribution.

This was achieved through methods such as fire-stick farming and terracing. Fire-stick farming involved choosing the areas with the best soil and burning the vegetation in those areas in order to clear the space for planting. Specific tools were then used to **till** (turn or dig) the soil. This improved the soil, as the ash from the burned vegetation provided valuable nutrients. Terracing was used on sloping clay soils, allowing Aboriginal Australians to extend their crops to steeper land.

Fire-stick farming, terracing and tilling were sustainable farming techniques. They returned nutrients to the soil, reduced erosion and helped the soil and plants absorb rainwater. The result was a soil that was rich, fertile and so soft that it was described by one early European settler as being sponge-like.



▲ **Figure 6.73** Fire was used in some regions to clear land for farming.

Seeds become domesticated when humans are involved in the growing process by continuously choosing seeds to save and replant the following year. Over time, due to this process of human selection, the seeds change their structure and the plant becomes dependent on humans to grow. Usually, the seeds chosen are ones that show desirable traits, such as good size, taste and yield.

Large dams and wells were built, and the courses of some rivers were diverted (changed) to provide irrigated water to crops to increase their yield and assist their growth. There is evidence of huge dams made of clay and pebbles that could store 700 000 litres of water in Queensland, and many more examples of similar constructions are to be found on public and private land today.

As a result of these efforts, **surplus** seeds were harvested and stored. This was significant in terms of food and economic security, as it allowed people to remain in one area, build permanent houses to live in, increase their population and engage in more non-agricultural activities.

**till** dig or loosen the soil to prepare it for planting  
**domestication** growing and adapting wild plants for human use  
**surplus** more than you immediately need

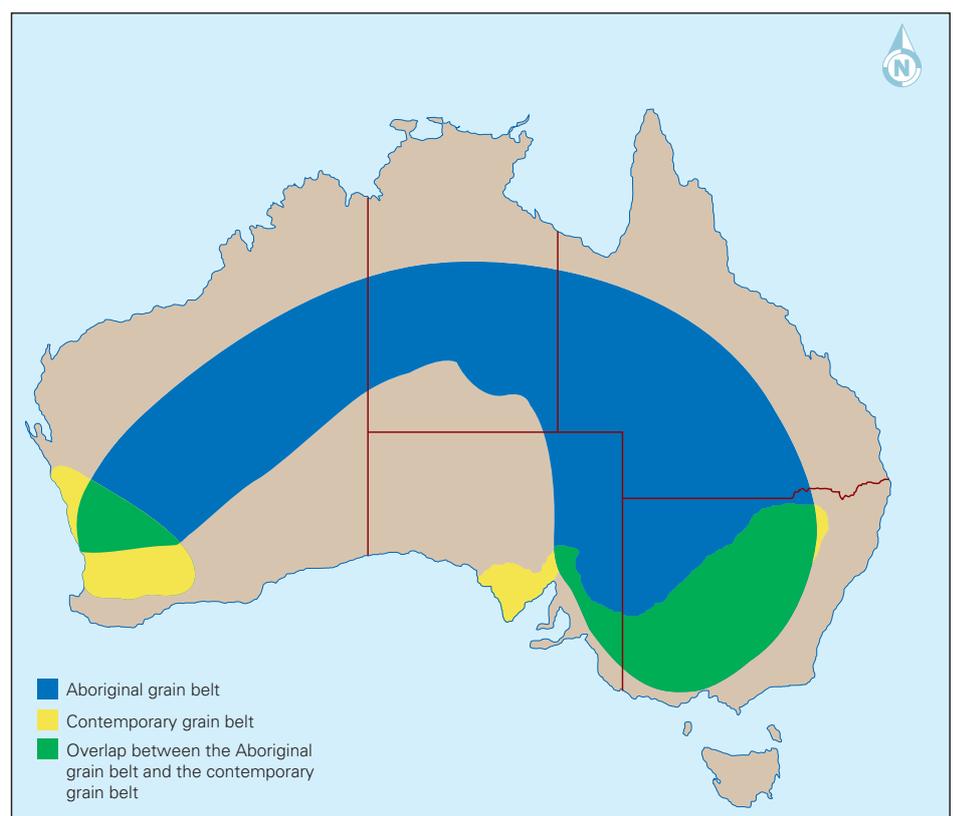
▼ **Figure 6.74** The Aboriginal grain belt of Australia compared to the contemporary grain belt

Source: Bruce Pascoe, *Dark Emu*, 2018, p. 28.

## Cereals

Cereals such as panicum (wild millet) and kangaroo grass were another vital part of Aboriginal peoples' diet and economy. As Figure 6.74 illustrates, peoples' grain belt distribution was much larger under the management of Aboriginal peoples and covered land that we today regard as being unfit for crops. Above this grain belt, cereal, such as wild rice, was grown in crocodile-infested waters.

Seed **domestication**, irrigation, storage and trade ensured a nutritious and reliable cereal supply.



Surplus seeds were also traded or gifted. This led to further distribution of the seeds in areas where they had not naturally grown and diversified existing products.

## Meat

Animal (game) farming provided a great supply of protein. Herding and harvesting were common approaches to secure this type of food. For instance, brush fences channelled kangaroos and emus into a limited area, where a net was stretched across to catch the animals. Similar nets were cast from one riverbank to another to catch birds as they swam by. This was sustainable because, once the animals were trapped, people could select which ones to kill, releasing the young and female animals.

Fish were an additional source of protein. They were farmed and caught due to some impressive feats of river engineering resulting in structures that were built so sturdily that they still exist today.

It is possible that the enormous fish traps used along the Darling River in Brewarrina, seen in Figure 6.75, are the oldest human-made structures on Earth. The process involved herding fish into human-made rock pools. These pools had openings that allowed fish to swim through. However, when fish were needed, people would block the pool openings with rocks. The pools are set at various heights so that they could be used no matter how high the water level.

This farming provided such a secure supply of food that communities flourished. At Lake Condah, the remains of houses as well as a network of channels are suggested by some to be evidence of a township of about 10 000 people. Cultural activities and gatherings were also supported by the large amount of food provided by using these fishing techniques. When many

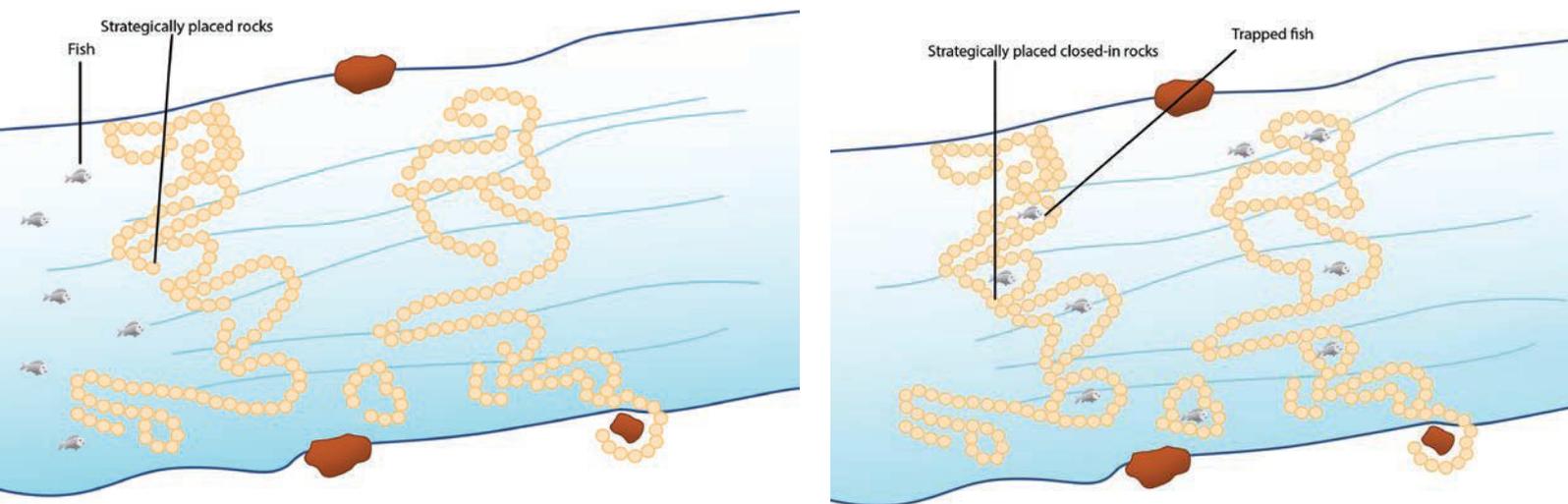
groups came together, the traps were set in place prior to the meetings to ensure there was enough fish to provide for the increased population over that time.

This method of farming was sustainable, as it allowed smaller fish through, trapping only the adult fish and only when needed. Particular traps in a system were managed by specific families, who each had a responsibility to make sure that other families upstream or downstream in the river had enough fish supply too.

Perhaps the most remarkable example of herding involved a partnership between the Yuin people of southern New South Wales and orcas. As Pascoe describes in *Dark Emu*, the herding would begin with a ritual. The Yuin would set alight two fires on the beach, and one man would limp between the two fires in order to make the orcas feel sorry for what looked like an old, frail man. Orcas would then herd larger whales into the harbour of shallower water, where the Yuin would choose one whale to kill. As a reward and out of respect for the work of the orcas, the orcas would be given the whale's tongue to eat. In Geelong, Victoria, and other regions, similar working relationships occurred between people and dolphins.



▲ **Figure 6.75** Fish traps used along the Darling River in Brewarrina, New South Wales, are thought by some to be the oldest known human-made structures on Earth, though archaeologists have had trouble dating them precisely. The fish traps were added to Australia's National Heritage List in 2005.



▲ **Figure 6.76** A diagram illustrating how the Brewarrina fish traps worked. In the image on the left, fish are able to swim back out of the traps. However, when food was required, the traps would be closed off with rocks (as seen in the image on the right) to stop the fish from swimming through.

## Concept: interconnection and sustainability

Aboriginal and Torres Strait Islander peoples were practising the geographic concepts of interconnection and sustainability long before these words existed. Things that Europeans would consider living and non-living things are all alive, interconnected and nourished by a spirit. People, information and resources were further interconnected across the country through songlines.

### Today

The Australian agricultural landscape as we know it today looks quite different from how it must have been. When the first Europeans arrived in the eighteenth century, their intention was to grow the European crops and meat that were familiar to them. Therefore, there was not much interest in native food varieties.

The distribution of these native varieties quickly diminished in size, largely due to the introduction of heavy-hoofed animals such as sheep, cattle and horses. These animals not only ate a lot of the native plants, but also compacted the soil, making it difficult for native plants to grow, causing erosion and reducing the soil moisture content.

Spatial limits also were introduced due to land ownership and the laws of trespass. In the past, Aboriginal peoples were able to move more fluidly between regions. There were also cases when, in hard times, Aboriginal communities

would move into neighbouring regions and were allowed to hunt there until conditions improved in their own region. Today, these lands are severely fragmented (divided), and overrun by private farms, cities and other infrastructure.

This significant reduction in native food varieties is not only a loss to Aboriginal peoples, it is a loss to us all. We are missing out on foods that are not only tasty but adapted to our land, requiring fewer artificial and expensive inputs (things that we add in) such as fertilisers and pesticides.

However, there is some evidence to suggest that we are waking up to the potential benefits of exploring Aboriginal agriculture. Some native foods, such as wild rice, murnong, lemon myrtle and finger lime, are finding a place in the gourmet food market.



▲ **Figure 6.77 A** Finger lime



▲ **Figure 6.77 B** Lemon myrtle



▲ **Figure 6.77 C** Wild rice



▲ **Figure 6.77 D** Murnong (yam daisy)

As the climate changes, there is growing interest in cereals such as panicum and wild rice. Wild rice, for instance, does not degrade the environment or require additional inputs such as fertilisers or irrigated water. Not only can the rice be grown in its current state, but the genes found in this rice could help create new commercial varieties that are better able to withstand the diseases that are currently harming Asian rice varieties.

Today the grain belt is significantly smaller than it once was. Could a deeper understanding of Aboriginal and Torres Strait Islander farming practices and use of native varieties help us expand the distribution and types of food growing? There is so much still to learn and explore, and the potential benefits to be gained from this knowledge go far beyond feeding ourselves. They extend to understanding ourselves and the history and culture of the land we live on.

## MAKING THINKING VISIBLE 6.3



### I used to think ... but now, I think ...

When beginning this study of land and resource management strategies used by Aboriginal peoples, you most likely had some initial ideas about what the topic was about.

- 1 In a few sentences, write what it is that you used to think about land and resource management strategies used by Aboriginal peoples. Begin each sentence with the phrase 'I used to think ...'
- 2 Consider how your ideas have changed as a result of your studies. In a few sentences, write down what you now think about land and resource management strategies used by Aboriginal peoples. Begin each sentence with the phrase 'But now, I think ...'



**Key concepts:** environment, sustainability, change



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 6.8



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What are possibly the oldest known human-made structures on Earth?
- 2 Outline the changes that occurred during the last glacial maximum period.
- 3 What was the most popular tuber eaten in southern and eastern Australia?
- 4 List the agricultural methods that were used to extend the distribution and yield of the murnong.
- 5 Choose one agricultural or hunting method (e.g. firestick farming, fish traps) and explain how this was a sustainable method of farming.
- 6 Explain the process of seed domestication.
- 7 How did the arrival of Europeans in Australia change the environment? Explain the changes that occurred and the processes that brought about the change.
- 8 List some of the benefits of having a surplus amount of seeds.

#### Interpret

- 9 Refer to Figure 6.75. Describe the environment by highlighting the natural and human characteristics that you can see.
- 10 Describe the herding ritual between orcas and the Yuin people.

#### Argue

- 11 Suggest reasons why the distribution of the Aboriginal grain belt and contemporary grain belt look so different.
- 12 Why do you think we know so little about Aboriginal agriculture?
- 13 How can wild rice play a role in our current quest for food security?

#### Extension

- 1 Create a three-course menu using native foods. If possible, explain which region each ingredient is from.
- 2 Read Bruce Pascoe's book *Young Dark Emu* to learn more about our country's past.



**Key concepts:** environment, change



**HASS skills:** analysing, evaluating



## 6.9 The effects of future population growth on global food production and security

### FOCUS QUESTIONS

- Can agriculture improve the environment?
- What land and resource management strategies are being used to try to achieve food security on a range of scales?

It's the year 2050 and the population has reached 9.8 billion people, an increase of two billion since 2020. More people are wealthier than ever before. They expect tasty food, and lots of it. As a consequence, the demand for food has increased by 60–100 per cent since 2020. On the other hand, the land available to grow food has declined. This is due to competition for land use, environmental degradation and changes to the climate. With the odds seemingly against us, can we possibly meet this ever-growing demand? One thing is certain: the challenge has been set!

As we have learnt, the agricultural industry has an enormous impact on the environment. This also makes farmers one of the biggest solutions to improving the environment and fighting challenges such as climate change and species diversity loss. However, farmers cannot face this challenge alone. They need consumers (that's us) to encourage funding for sustainable farming

policies and support farmers who are practising sustainable methods.

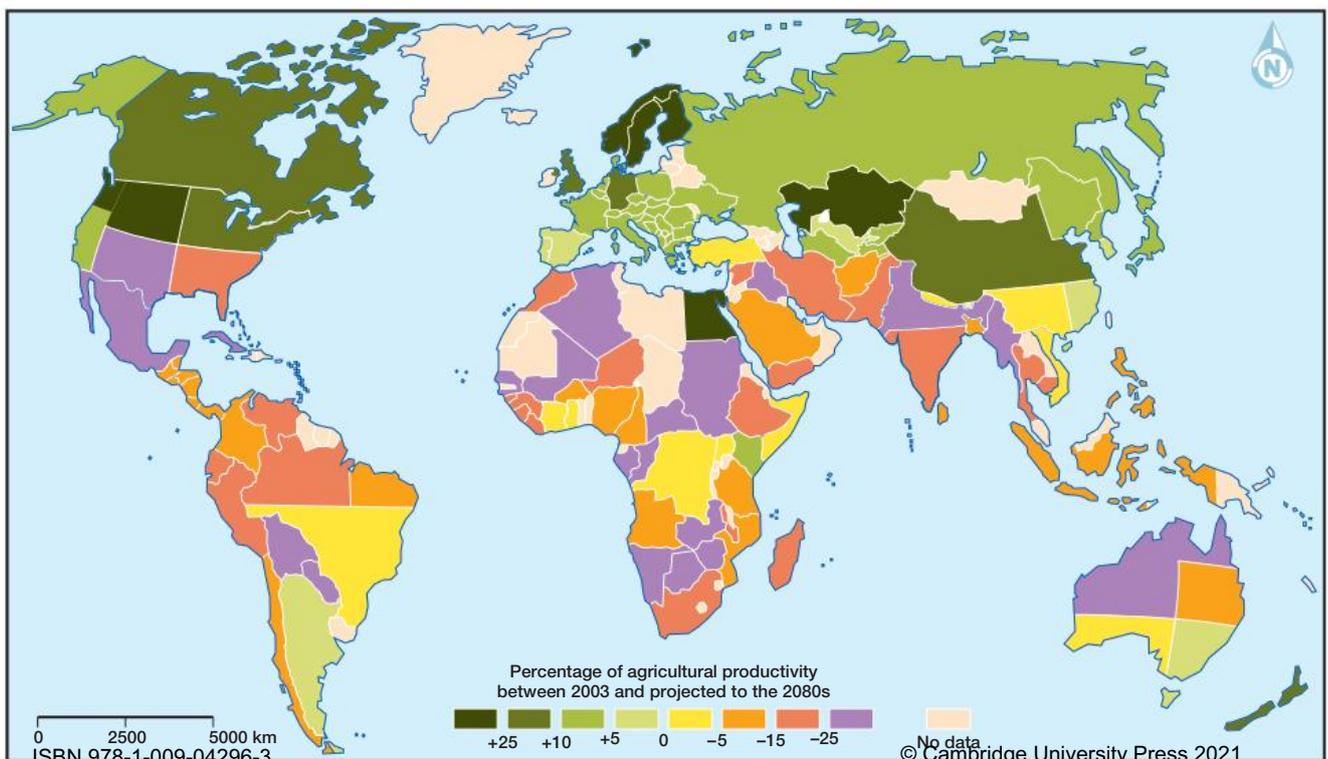
### Climate change and extreme weather events

Climate change affects various elements of the climate system, such as rainfall, the timing of seasons, sea levels, and the movement of wind and currents. These changes impact our economy and society.

### Distribution of impact

As Figure 6.78 demonstrates, climate change will not impact regions equally. Nor will all the short-term impacts be negative. For instance, a 1°C to 3°C temperature rise might benefit some crop yields in temperate regions but will create too much stress for cereal crops in tropical and seasonally dry regions.

▼ **Figure 6.78** Projected impact of climate change on agricultural yields



Despite some potential benefits, it is largely agreed that the threats to food security from a 1°C to 3°C increase outweigh the benefits – for example, through increases in bushfire risks that can harm crops and livestock. Any temperature increase above 3°C is expected to cause widespread negative consequences across the globe.

## How does climate change challenge food security?

### Temperature increases

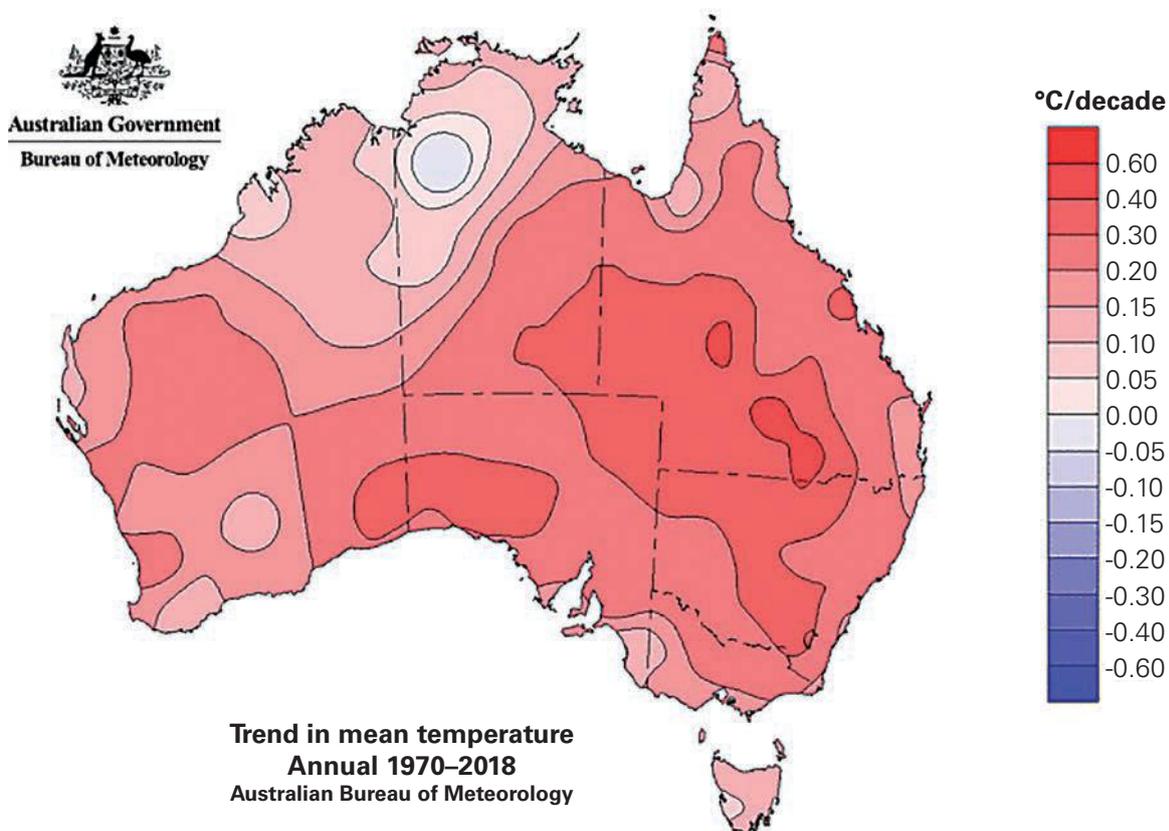
Plants and animals can cope with small changes in climate conditions, such as rainfall, soil moisture and temperature. However, each species has its own tolerance levels, and when these are exceeded, quality and yield decline, and diseases spread. Yield reduction was seen during the European heatwave of 2018, which created the worst crop losses since World War II. Wheat crops were reduced by 75 per cent in the Ukraine, a place formerly known as the Soviet Union's breadbasket. Animals, too, feel the stress. The milk yield of a dairy cow can be reduced by up to 40 per cent in extreme heatwave conditions.

In addition to declining yield, food quality is compromised. Approximately 70 per cent of Australia's wine regions may experience a diminished quality of red wines in warm areas due to earlier ripening. Both yield and quality can be further reduced through the spread of disease. For example, in our waters, heat decreases oxygen levels and increases algae blooms, leading to diseases among aquatic life such as bass and salmon.

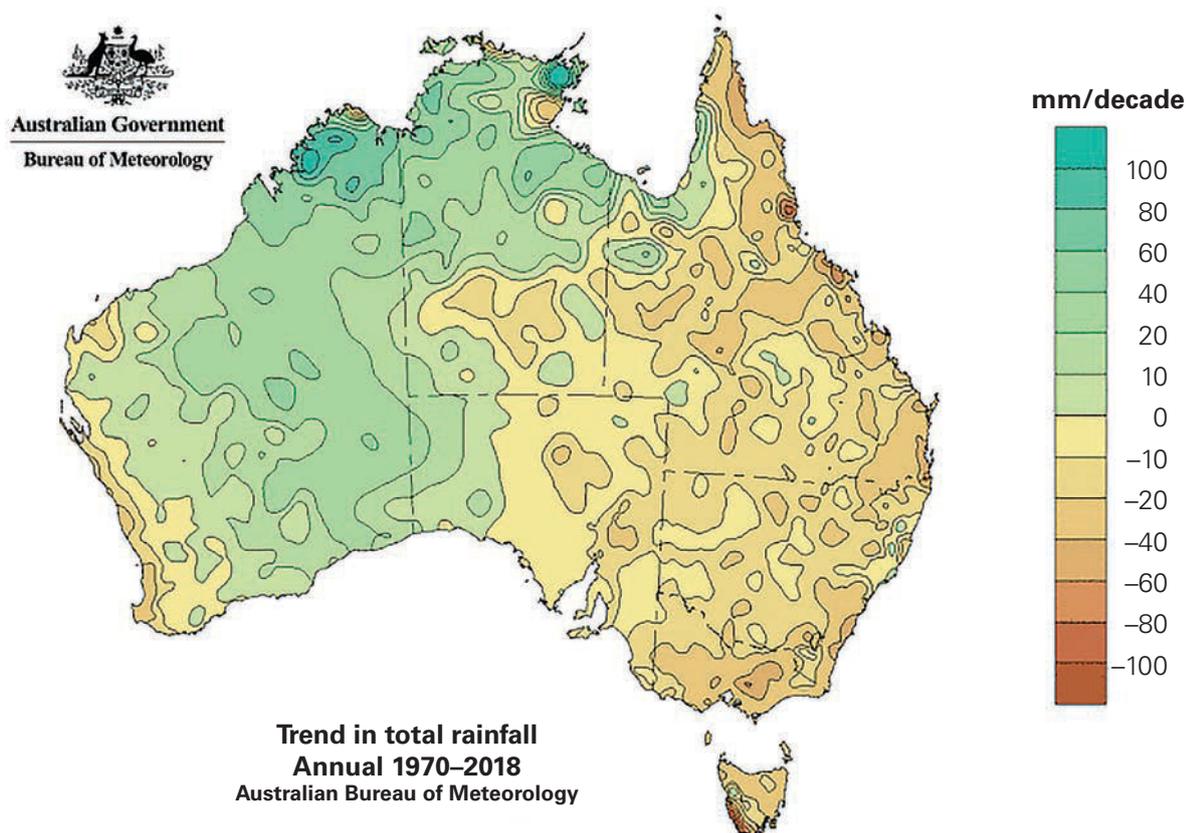
### Precipitation and soil moisture

Rising temperatures affect the water cycle and lead to more extreme weather events. More water evaporates from the land to be stored in the atmosphere. The air therefore becomes wetter while land surfaces become drier for longer periods, causing more bushfires and drought. When it does finally rain, storms and floods are more common.

In regions reliant on irrigated farming, such as the rice-growing fields along the Murrumbidgee River, increased evaporation threatens the irrigated water supply as there is less surface water available to divert to farms. Rain-fed agricultural regions, such as sub-Saharan Africa, are also at a high risk of food insecurity due to less rainfall in those regions.



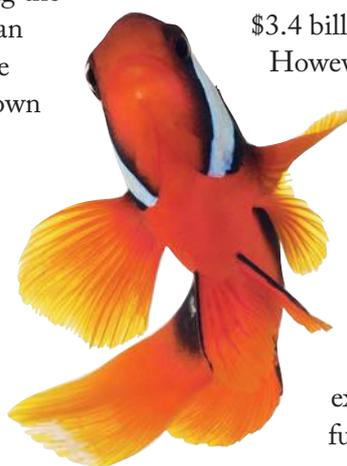
▲ **Figure 6.79** The changes in mean temperature from 1970 to 2018. Predict the temperature change that the region will experience by 2100. Justify your prediction by referring to the map.



▲ **Figure 6.80** The changes in total rainfall from 1970 to 2018. Predict the rainfall change that you believe we will experience by 2100. Justify your prediction by referring to the map.

## Movement of currents: finding Nemo – in Tasmania!

The East Australian Current (EAC) typically runs from the Great Barrier Reef along the Australian coast to Sydney. However, an increase in atmospheric carbon dioxide has strengthened a climate system known as the Antarctic Oscillation. This has changed wind patterns to push the EAC 350 km southward over the last 50 years. These southward bursts of warm waters benefit some Tasmanian fishermen, who now have a longer season to fish tuna and striped marlin. However, the warming of cold-water biomes can come at a cost to the food chain, which includes humans. Cold-water fish from the Tasman Sea provide a better source of omega-3 fatty acids for our brain health than warm-water fish.



▲ **Figure 6.81** A clownfish

## Economic impact

The uneven distribution of climate change has the potential to change trading relationships between countries. For example, Australia currently earns \$3.4 billion a year from exporting wheat.

However, the predicted reduction in rainfall in the cereal regions within Western Australia, South Australia and Victoria may make Australia reliant on wheat imports. Regions that rely on imports become economically vulnerable as they are forced to pay what other countries charge for their produce. Prices are expected to increase as water, land and fuel become scarcer and more valuable.

Almost a third of the world's workers work in agriculture. Some regions, such as sub-Saharan Africa, have a far greater percentage of workers who rely on agriculture for their jobs and livelihood.

Climate change not only limits their access to food but also limits their ability to make a living. The rural poor in these regions will therefore become particularly vulnerable to climate change.

## Social impact

There is concern that the current divide between rich and poor may increase. People who are already poor will be unable to afford the increasing cost of food. They are then forced to

reduce the amount or quality of food they eat and will not get the nutrition that they need to live a healthy and active life. Even those who are not poor will still suffer from reduced nutrition. This is because many plants that are grown in an atmosphere with high carbon dioxide levels have less protein and minerals. Hunger and lack of nutrition can affect society in many ways, from increasing poor health, decreasing ability to learn and concentrate, and conflict.

## CASE STUDY 6.3



### Extreme weather events and our food supply chains

**food supply chain** the process of getting food from the farm to the plate

The average household has about three to five days' worth of food, while our supermarkets store just a few weeks of food. This is because Australia's **food supply chains** are mostly supplied on a just-in-time basis. This allows us to have fresh food, but also means that we only have about 30 days' worth of non-perishable food and three to five days of perishable food in the supply chain.

Extreme weather events are predicted to increase due to climate change. This will increase the number and degree of food emergencies. Though our food supply systems can handle some emergencies, Australia is underprepared for major emergencies.

This fact was sadly realised during the 2010–11 Queensland floods. Towns such as Rockhampton were cut off by road, rail and air for two weeks. People flocked to food outlets to stock up on food and Brisbane was just one day away from running out of bread. Fortunately, food was eventually brought into towns via Sydney and Melbourne through west Queensland. However, if a second disaster were to have occurred during that time, such as a bushfire anywhere between Melbourne and Queensland, there would not have been an opportunity to restock.

### Land and resource management responses

#### Adaptation

On a local scale, individual farms are adapting to climate change by changing crop varieties or moving location. Winemaking company Brown Brothers has purchased land in Tasmania for its business to avoid the growing temperature and bushfire risks in Victoria. Livestock farmers have been breeding or replacing European cattle breeds with *Bos indicus*, an Asian cattle breed that is more tolerant of high temperatures.

#### Regenerative agriculture

Regenerative agriculture is an old approach to farming that is regaining popularity because of its potential to improve crop yield while at the same time tackle the challenges of climate change, soil degradation and biodiversity loss.



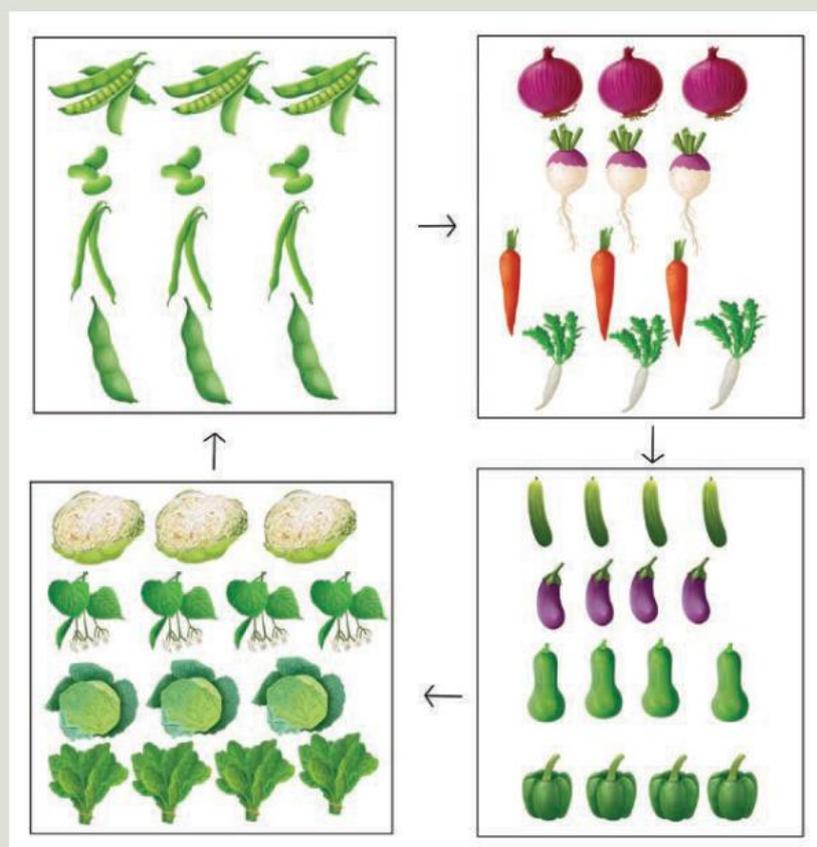


Some methods used in regenerative agriculture are listed in Table 6.5.

## REGENERATIVE AGRICULTURE

Method	Description	Benefits
<b>Crop rotation</b>	<ul style="list-style-type: none"> <li>Rotating crops between fields</li> </ul>	<ul style="list-style-type: none"> <li>Stops the soil from becoming depleted in a particular nutrient from overuse by a single crop</li> </ul>
<b>Green manure</b>	<ul style="list-style-type: none"> <li>Crops are grown just to be cut down and returned back into the soil where they grew. These are grown during the off-season to improve the soil in between growing cash crops or as part of a crop rotation system.</li> </ul>	<ul style="list-style-type: none"> <li>Farmers choose crops that improve the soil</li> <li>Provides land cover, which draws down carbon, reduces erosion and increases soil moisture</li> <li>Provides food for microbes that turn crops into humus</li> </ul>
<b>Polyculture</b>	<ul style="list-style-type: none"> <li>Planting a variety of crops together</li> </ul>	<ul style="list-style-type: none"> <li>Increases soil and plant health, makes the farm more resistant to diseases and pests, and increases biological pest control</li> </ul>
<b>Native windbreaks</b>	<ul style="list-style-type: none"> <li>Planting native trees around fields</li> </ul>	<ul style="list-style-type: none"> <li>Reduces evaporation and damage caused by wind</li> <li>Increases biodiversity by creating habitat for predator birds and other animals that control pests</li> <li>Draws down carbon from the atmosphere to combat climate change</li> </ul>

▲ **Table 6.5** Various methods used in regenerative agriculture



◀ **Figure 6.82** This is a diagram of crop rotation. From the top left, it shows that the garden bed is first planted with pods, such as peas and broad beans. These are grown to improve the soil and enrich it with nutrients.

The bed is then planted with root vegetables, such as carrots and beetroot. These are light feeders that do not take too many nutrients from the soil.

Next in this sequence come the fruiting plants, such as capsicum and cucumbers, followed by greens, such as cabbage and lettuce. Both these types of plant are heavy feeders and can deplete the soil of nutrients.

Finally, the pods are planted in the garden bed again to restore the soil quality, and the cycle can restart.





◀ **Figure 6.83** These are a pea crop (left) and an oat crop (right). Combining pea and oat crops within one field helps to reduce the spread of weeds, and their roots break up soil to let in air, moisture and nutrients. Peas take nitrogen from the air and bring it into the soil. Peas and oats may be grown before, or after, farmers have grown nitrogen-hungry crops such as corn.



◀ **Figure 6.84** Mustard plants are soil fumigators. They kill soil pathogens and parasites, such as root-knot nematode, which can infect and kill up to 2000 types of plants.



◀ **Figure 6.85** This polyculture farm grows a variety of crops, as well as flowers, to attract beneficial insects.

## Amazing but true...

Organic farms do not use synthetic chemical fertilisers or pesticides. However, some organic farms use fertilisers and pesticides made from natural ingredients. Though this is good news if you are concerned about chemicals in your food, these fertilisers and pesticides can still contribute to environmental pollution through the excessive nutrients and salts they leach into the soil and waterways.

### CROP ROTATION AND YIELD DIFFERENCE

Previous crop	Crop planted								
	Spring wheat	Oat	Barley	Canola	Flax	Field pea	Soybean	Sunflower	Grain corn
Sp wheat	85	94	95	102	104	103	102	103	96
Oat	91	79	78	95	92	93	100	102	99
Barley	88	90	82	100	102	91	100	96	92
Canola	100	101	103	87	86	98	100	92	99
Flax	96	90	107	103	83	91	98	88	85
Field pea	102	110	106	104	148	–	95	–	98
Soybean	107	108	107	103	107	90	93	103	103
Sunflower	102	102	106	90	99	85	93	82	97
Grain corn	98	110	94	110	–	90	101	115	88
<b>Yield/ac</b>	<b>50 bu</b>	<b>101 bu</b>	<b>65 bu</b>	<b>36 bu</b>	<b>21 bu</b>	<b>38 bu</b>	<b>35 bu</b>	<b>1607 lb</b>	<b>121 bu</b>

▲ **Table 6.6** Results showing yield differences for different crop rotations (ac means acre, equivalent to 0.4 hectares, and bu stands for bushel – a measurement used to judge crop yields)



## A response on a national scale: the Emissions Reduction Fund – Soil Carbon Project

In 2014, the federal government created the Emissions Reduction Fund. One part of this fund is the Soil Carbon Project, which encourages farmers to reduce their emissions by drawing down carbon into the soil. Farmers who practise regenerative agriculture can earn carbon credit units for drawing down carbon. One unit is earned for each tonne of carbon dioxide equivalent stored or avoided by a project. Farmers can earn extra income by selling their units to the government through a Carbon Abatement Contract or on the market.

### ANALYSIS QUESTIONS

- 1 List some examples of how some farmers are adapting to climate change.
- 2 Define the term 'regenerative agriculture' in your own words.
- 3 Explain how crop rotation is an example of regenerative agriculture.
- 4 Looking at Table 6.6, identify the most and least productive crops yielded in terms of bushels per acre.
- 5 Explain the purpose of the Soil Carbon Project.



**Key concepts:** environment, sustainability



**HASS skills:** analysing, communicating and reflecting

## ACTIVITY 6.4



### Impacts of climate change on food security

Create a table showing the impacts of climate change on food security. The following table can be used as a model.

Environmental changes	Impacts
Temperature increase	
Reduced precipitation and soil moisture	
Movement of currents	

OR

Create a table summarising two economic, social and environmental impacts of climate change.



**Key concepts:** change



**HASS skills:** questioning and researching, communicating and reflecting

## Population growth, nutrition and access

There are varying predictions as to whether the world population will continue to grow to 11 billion (as stated by the United Nations) or reach a peak and begin to decline by 2055 (as

calculated by Deutsche Bank). To accommodate the growing number of mouths to feed, we cannot simply continue with current farming methods. That would require more land, which is under threat from competing land uses, and more fossil fuels, which would accelerate climate change. The business-as-usual method is unsustainable.

## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 6.7



### Describing the trend of a line graph

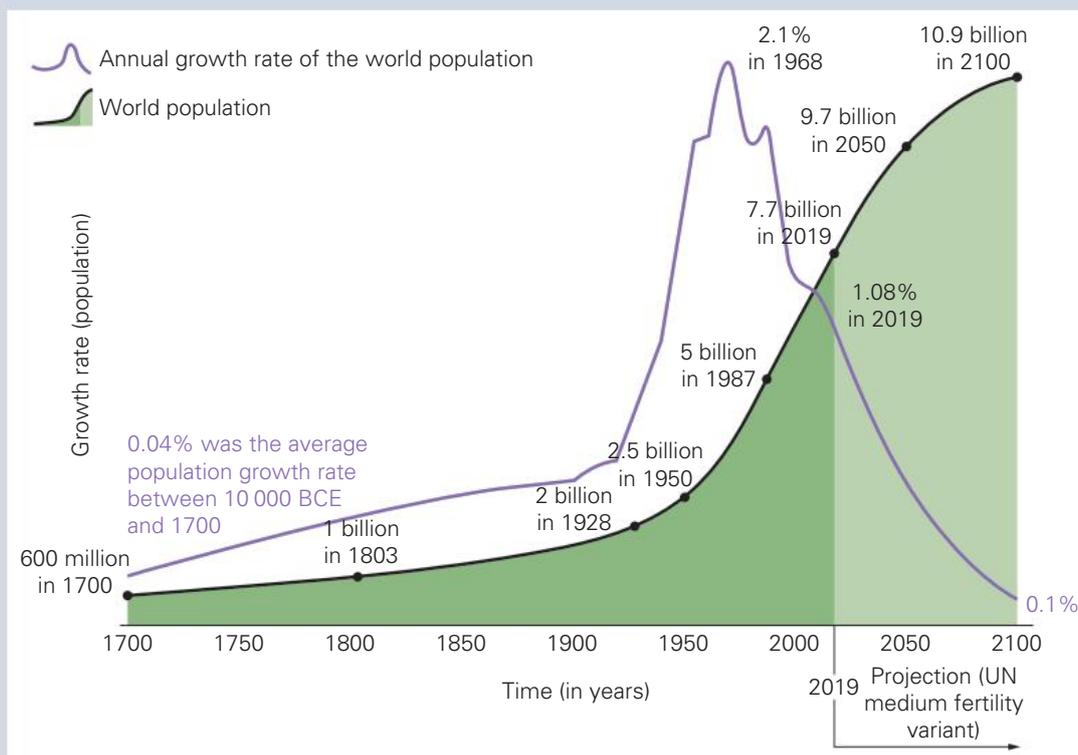
Line graphs are used in Geography to show change over time. The horizontal axis represents time and the vertical axis represents the variables that are changing. When describing the trend of a line graph, include the following information:

- Summarise what the graph is representing. What are the variables on the horizontal line and vertical line?
- Describe the overall trend, including the shape of the graph. Is the graph showing an increase, decrease or stable trend?
- Quantify by using the data in the graph. How much has it increased or decreased by, and over what time period? Make sure you read the axis labels carefully and take note of units.
- Identify time periods that stand out. Do values rise or fall more steeply during a particular time period?
- Note if there are any significant peaks or troughs. What are the maximum or minimum values, and when do they occur?

### Activity

Use the data in the line graph in Figure 6.86, and the information about how to analyse a line graph from the dot points in this box, to describe the trend in annual growth of world population, and world population.

### WORLD POPULATION GROWTH



▲ **Figure 6.86** The growth rate here shows the percentage of population increase in a given time period

Source: Our World in Data website



**Key concepts:** environment, sustainability



**HASS skills:** analysing, communicating and reflecting

However, more mouths to feed is not the immediate issue. We actually already produce enough food for everyone, yet one in nine people go hungry and one-third of all people suffer malnutrition. An enormous hindrance to food security for many is access to nutritious food.

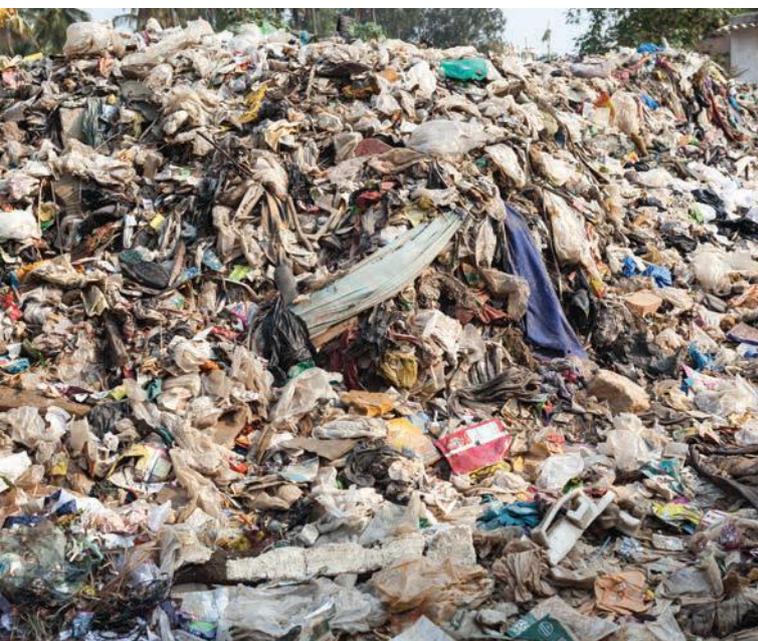
Most famines have happened at times where there is enough food for the population.

When people cannot access nutritious food, they are more likely to experience a decline in health, which can affect their ability to participate in society and break out of the **poverty cycle**. In extreme cases, a lack of access to food can lead to conflict. Conflict is both a result and a cause of food insecurity. When people lack access to food, they may resort to conflict in an attempt to secure resources. On the other hand, when conflict occurs, they have difficulty getting food. In the Syrian civil war, starvation has been used as a war tactic by government forces blocking humanitarian aid organisations from providing food and medical care.

While some people cannot access food, others are feeding their rubbish bins. One-third of the world's food is thrown out – four times the amount of food needed to wipe out global hunger.

Clothing is also thrown out at an alarming rate of 600 kg of clothes every 10 minutes in Australia alone. While this may not seem like a threat to food security, it is. The land and irrigated water that are used to grow fibres for clothing are in competition for the land and water necessary to grow food crops. Approximately 10 000 litres of water are used to make one pair of jeans. Chemicals leaching from textile waste also pollute our land and waters.

▼ **Figure 6.87** The clothing industry contributes 10 per cent of greenhouse gas emissions and 20 per cent of wastewater globally.



**poverty cycle** the continuation of poverty, often from one generation to another due to the impact of certain factors

▼ **Figure 6.88** Christy Dawn is a clothing company that uses only deadstock fabric. Deadstock fabric is fabric left over from fashion houses that would otherwise go to landfill.



## A global response to hunger: ShareTheMeal

Eradicate global hunger? There's an app for that! ShareTheMeal.com was initiated by the United Nations World Food Programme (WFP), offering an easy way for people to donate money to WFP's projects. In-app features include joining a team of like-minded people who combine their donations to achieve a chosen goal. Another feature titled The Table allows you to be matched with a specific family in need and receive personalised updates on the impact of your donations. The app also provides education through a news feed that shows updates on projects and information on global hunger.

This app helps establish personal connections between donors and those experiencing hunger, thereby encouraging donors to provide ongoing support. There are little administrative costs as the money can be directly donated over the app. In fact, 90 per cent of donations go directly to WFP projects. As WFP is 100 per cent voluntarily funded, donations are important.

## Can eating insects be the solution?

In countries such as Thailand and Cambodia in the region of South-East Asia, insects are commonly eaten. Insects contain high-quality protein, vitamins and amino acids. They require far less food and space than other protein sources, such as cattle for beef. Insects can even be fed food waste. They also emit less greenhouse gases and ammonia than livestock. The United Nations Food and Agriculture Organization is working with countries worldwide to learn more about insects and how they can be farmed in the future, not only for consumption by people around the world but also as an added source of protein for livestock feed.

► **Figure 6.89** Could insects such as crickets become a stable source of protein?

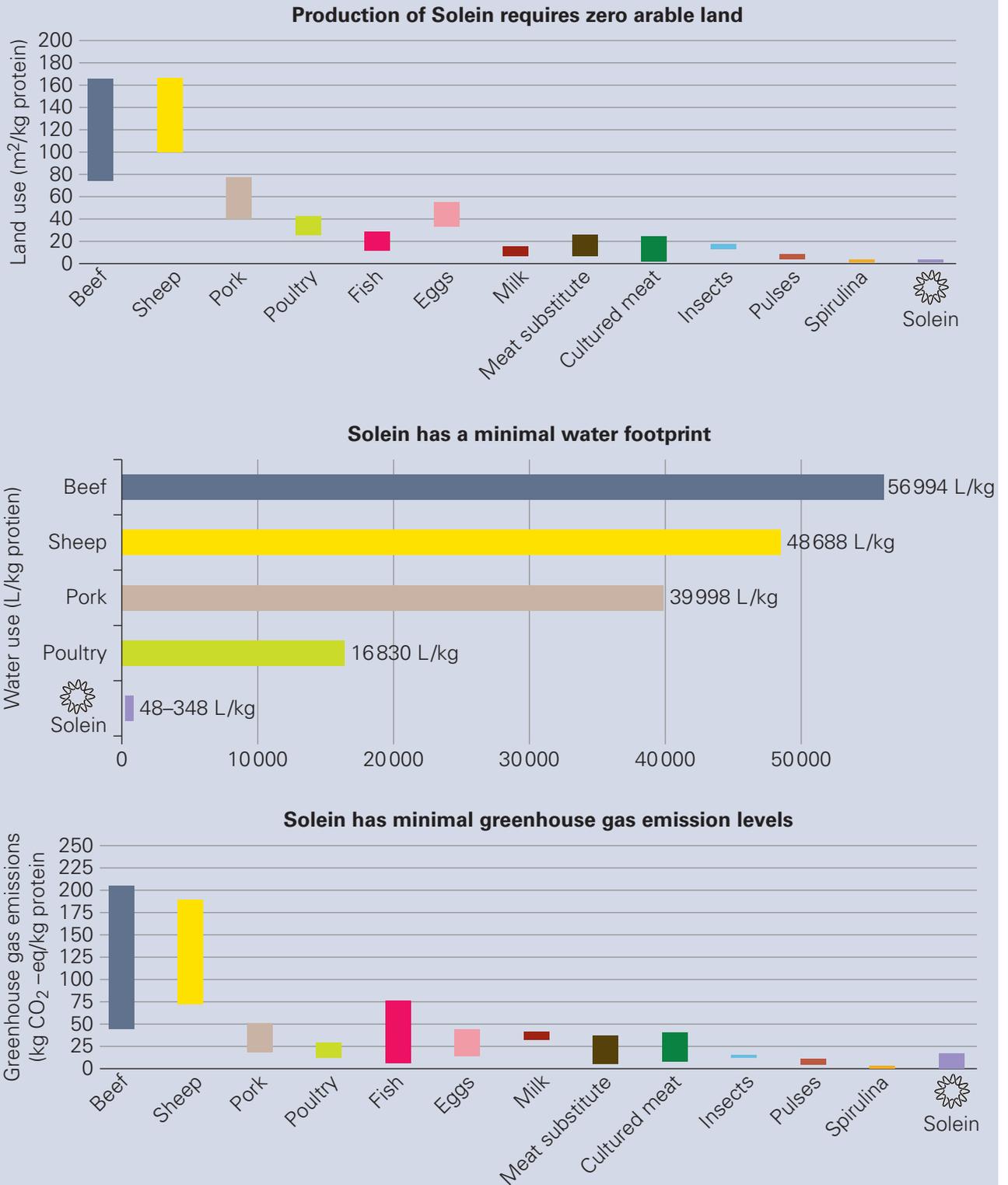


▲ **Figure 6.90** Thai restaurant, Kaeng Ron Ban Suan ('Hot Curry Cottage') in Chiang Mai specialises in dishes made from insects. The chef, Chuchart 'Auntie Noi' Pisanu, here displays some of her creations: fried water bugs, crickets with garlic, deep-fried silk worms and a soup made from red-ant eggs.

## Can we eat greenhouse gases?

A company in Finland called Solar Foods has recently created a protein powder made from air. It looks like flour and contains 50 per cent protein, 5–10 per cent fat and 20–25 per cent carbohydrates. Solein is made by extracting carbon dioxide from air using carbon-capture technology and combining it with water, nutrients and vitamins. Solein is currently manufactured using 100 per cent renewable solar energy. The company's short-term goal is to sell Solein globally and produce two million meals each year, which could result in revenue (income) of US\$1.2 billion for the company by 2023. The longer-term goal is to provide nourishment to nine billion people by 2050, with an estimated revenue of US\$500 billion.

## SOLEIN'S ENVIRONMENTAL FOOTPRINT



▲ **Figure 6.91** How Solein's environmental impact compares to other crops

**Source:** Based on Hanna Tuomisto, 'Global Food Production Emissions Find Remedy in Solein – the World's Purest Protein', Solar Foods website, 10/5/2019

## END OF SECTION REVIEW 6.9



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Why may the gap between rich and poor increase in the short term due to climate change?
- 2 Identify one potential benefit and one potential negative effect of organic farming.
- 3 Why are the rural poor particularly economically vulnerable to climate change?
- 4 How will irrigated and rain-fed regions of the world be affected by temperature increases?
- 5 How many people still go hungry today? What is the main reason for this?
- 6 How is throwing out clothing a threat to food security?

#### Interpret

- 7 Refer to Table 6.6. Imagine that you are an oat farmer trying to increase yield through crop rotation.
  - a How much is your yield if you grow oats for two years straight?
  - b How much is your yield in the second year following a year of growing peas?
- 8 In pairs, study Figure 6.86 and answer the following questions.
  - a Describe the trend of the overall world population from 1700 to 2100.
  - b Describe the trend of the annual growth rate of world population from 1700 to 2100.
  - c Why do you think the overall world population continues to grow even when the growth rate decreases?
- 9 Refer to the information about economic and social impact in this section. In your own words, explain the impact on: prices and employment; the rich/poor divide.
- 10 Refer to Figures 6.79 and 6.80. Describe the distribution of the projected impact of climate change on agricultural yields.

#### Argue

- 11 Which land and resource management strategy do you believe is better: adaptation or regenerative agriculture? Justify your decision.
- 12 How is conflict both a cause and a result of food insecurity?
- 13 Explain the benefits of Solein by using the information provided in the graphs in Figure 6.91 in your answer.

#### Extension

- 1 Consider the Queensland floods case study. Imagine that a bushfire had occurred during this time, cutting off Brisbane's food supply. Write your prediction of what would happen next.
- 2 Brainstorm and research 10 things that individuals can do to reduce their food and clothing waste.
- 3 Draw a landscape design for a farm using regenerative agriculture techniques. Annotate your design.
- 4 Visit the Redmap website. Use the information on this site to create your own map of unusual marine sightings around Australia. Map at least two species for each state. Annotate each sighting by mentioning where the species is normally found or draw lines indicating the movement of a species from its usual region/s to where it has recently been found.



**Key concepts:** change, sustainability



**HASS skills:** evaluating, communicating and reflecting



## 6.10 Conducting a fieldwork investigation

### FOCUS QUESTION

What does the fieldwork process involve?

Fieldwork lies at the heart of Geography studies. It allows you to investigate many of the concepts studied in the classroom while in the real world. Fieldwork is a fun process that involves:

- developing a background understanding of an issue
- creating a research question to explore the issue in the real world
- hypothesising an answer to your question
- conducting research
- analysing the results of your research to test your hypothesis
- evaluating what you have learnt, what worked and didn't work during the fieldwork process, and considering any further questions that you now have.

To investigate the ideas studied in this chapter, you may wish to conduct fieldwork at a farm in your local or regional area. The following is an example of the fieldwork process.

### FIELDWORK 6.1



#### Definition of topic

This includes providing an introduction to the topic and creating a research question and hypothesis.

#### Introduction

Introduce your study by providing some context. Write a 100-word paragraph introducing your chosen farm. Ensure that your paragraph addresses the following:

- 1 Name and locate your chosen farm using absolute and relative location, and include a map.
- 2 Describe its regional context. What region is it in? Use Google Earth and further research to explore the surrounding region. Are there many other farms in this region? What food is typically grown in this region?
- 3 In which biome is your chosen farm located?
- 4 Is this biome suitable for food production? Justify your answer.
- 5 Research your chosen farm using Google Earth, the farm website or social media posts. Describe the type of produce that is grown or raised on your chosen farm.

#### Research question

Write a research question that you intend to answer by using the data that you collect. For example: What are the present and future challenges to food-producing farms, and how are these challenges being met and prepared for on your chosen farm? More specific sub-questions could include:

- 1 How is the issue of species diversity loss being addressed at this farm?
- 2 How is climate change impacting this farm?
- 3 What is this farm doing to reduce the impacts of climate change?
- 4 How has soil degradation impacted this farm?
- 5 How is this farm addressing the issue of soil degradation?
- 6 What methods is this farm using to increase its yield?



**Additional content available:**  
Fieldwork template





## Hypothesis

Write a clear and concise hypothesis that you can test by collecting primary data. It should relate to your research question. The table below is an outline of potential challenges that you could investigate based on the research questions on the previous page. Using the background knowledge that you have gained throughout the course of this chapter, create a hypothesis relating to your chosen challenge that you could test at the farm.

## Collecting secondary data

Secondary data refers to information that can be found from sources such as satellite imagery from Google Earth, council documents and websites. Secondary data is not specifically created to answer your fieldwork question; however, the information can still help you answer your question and provide valuable knowledge about the geographic characteristics of your chosen location.

Farming challenge	Hypothesis	What background information (secondary data) can I use to help me research this question?	How can I test this hypothesis at the farm? That is, what primary data collection methods can I use?
Species diversity			
Climate change			
Soil degradation			
Crop yield			

## Primary data collection

Primary data is collected first-hand, during fieldwork. Unlike secondary data, primary data is aimed to specifically help answer your fieldwork question. Consider the types of primary data and equipment that you will need to test your hypothesis and answer your research question. Examples include field sketches, photographs, tallying information such as how many types of crops are grown, testing soil structure/moisture/microbial life, and interviews with the farmer.

## Presenting and analysing your data

- 1 Describe the nature of the challenge you are researching and outline your hypothesis.
- 2 Summarise your data using tables and graphs where possible.
- 3 Explain how your chosen farm is meeting or preparing for this challenge by analysing your research results (that is, explaining what your data is showing).
- 4 State to what extent your hypothesis has been supported or disproved.

## Conclusion and evaluation

Summarise your findings and evaluate the success of the field trip. What were the strengths and weaknesses of your data collection methods? What could be done differently next time? What additional data could be collected to gain a better understanding of the issue?

## Reflecting on the fieldwork

- 1 I really liked ...
- 2 I would have preferred it if ...
- 3 The most interesting discovery I made was ...
- 4 Something else I would like to mention (or a question I have) is ...

## References

Ensure that you include all the sources that you used in a bibliography.



## 6.11 Conclusion: why does it matter?

Biomes are created by many different environmental factors, and climate is a key factor. As a result of climate change and other alterations made to biomes by human interaction with the environment, many biomes are undergoing transformation. Many of these changes have worrisome outcomes and the potential to impact our short- and longer-term safety and security. We have a responsibility to future generations to make our interaction with biomes on the planet sustainable; while some positive changes have begun, there is a long way to go. You will learn more about this in the Year 10 Curriculum.

Food production and security are connected to the ways humans use, and have altered, biomes. As populations have expanded, so has our expansion across the planet, and we are now using the spaces around us in many different ways. But we have not found ways to feed everyone equally. While some of us live in cultures that waste incredible amounts of food every day and many people suffer from obesity, the majority of the population on the planet does not have enough food to sustain the energy they need for growing, learning and working. Even more striking is that the majority of those who go without enough food to eat every day are female. Gender inequality very much affects access to even the most basic of resources, like food and freshwater, in many parts of the world. You will also learn more about this in Chapter 7 and in the Year 10 Curriculum.

However, there are lots of good things occurring and it is important to remember that we can all contribute in small ways to make positive change so that the biomes that exist on

our planet stay beautiful, diverse and healthy, and are able to sustain life now and forever. Investigating local businesses and/or industries that are making changes, so that their ecological impact is less, will show you that there are plenty of people with great ideas about how to protect our biomes. These might be changes that are direct, through less pollution and waste for example, or indirect, through something like a commitment to changing to cleaner renewable energy sources. Part of positive change in awareness and attitudes has come through organisations who have committed to change, like the United Nations' Sustainable Development Goals (look them up online). It is inspiring to see there are people who are leaders in making a better future, and it is really inspiring to learn more about how we can all contribute.



▲ **Figure 6.92** Hello Kitty and the United Nations launched a collaboration to promote the Sustainable Development Goals (SDGs) through a new global video series on Hello Kitty's YouTube channel, at the UN headquarters in New York City, 24 September 2019.



## 6.12 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research task

- 1 Choose one biome to research further. Use a variety of sources and this chapter to research and complete the following:
  - a Describe the global distribution of this biome using PQE.
  - b Describe the characteristics from Section 6.3 that have influenced the distribution of this biome. For example, what type of soil, elevation, latitude and climate apply to this biome? Include and refer to data such as a climate graph or elevation map to support your description.
  - c List some of the plants and animals that live in this biome.
  - d Choose at least two plants or animals from your list and explain how they have adapted to live in this biome.
  - e How does this biome contribute to global food security? For example, identify the food that is grown in this biome and identify who eats this food. Is it eaten locally or exported? If exported, where is it exported to?
  - f What types of agriculture and agricultural methods are used in this biome (e.g. subsistence agriculture, terracing, livestock farming, intensive industrial agriculture)?
  - g Explain how climate change is impacting this biome.
- 2 Investigate the social, environmental and economic impacts of the fast-fashion industry. Present your findings in a report that includes relevant maps, data and statistics.
- 3 Investigate the impact of climate change on Australian agriculture. Present this information in an annotated map of Australia that shows the impacts in each state. Complete your map by including your mapping conventions (BOLTSS). Refer to the Interactive Textbook for more information on BOLTSS.

### Analysis



#### Making thinking visible

##### Generate, sort, connect, elaborate

In groups, consider all that you have learnt throughout the course of this chapter.

- 1 **Generate** a list of ideas and initial thoughts that come to mind when you think about biomes and food security.
- 2 **Sort** your ideas according to how central to the topic they are. Place central ideas near the centre and less direct or tangential ideas towards the outside of the page.
- 3 **Connect** your ideas by drawing connecting lines between ideas that have something in common. Explain and write in a short sentence how the ideas are connected.
- 4 **Elaborate** on any of the ideas you have written so far by adding new ideas that expand, extend or add to your initial ideas.

## Writing



### Extended-response questions

Evaluate the effectiveness of the green revolution as a response to food security.

- 1 Provide a brief history and overview of the green revolution, including its aims and methods.
- 2 Describe the positive and negative impacts of the green revolution socially, environmentally and economically. Include data, statistics and case studies from this chapter or other sources to support your evaluation.
- 3 Conclude with a statement of the short-term and long-term effectiveness of the response.



### Problem-solving task

1 Choose one of the challenges outlined in Section 6.8 and design your own response to the challenge. Consider whether your response will:

- assess and monitor the change
- reverse or adapt to the change
- involve an Aboriginal perspective
- indirectly respond to the impact by raising awareness.

Swap your response with a classmate and use the following Making thinking visible compass points activity below to assess your partner's response.



### Making thinking visible

#### Compass points: a routine for examining propositions

##### 1 E = Excited

What excites you about this idea or proposition? What's the upside?

##### 2 W = Worrisome

What do you find worrisome about this idea or proposition? What's the downside?

##### 3 N = Need to know

What else do you need to know or find out about this idea or 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 idea or proposition? How might you move forward in your evaluation of this idea or proposition?



**Key concepts:** space, change, sustainability, environment



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

# Unit 2

## Geographies of interconnection

### Overview

According to a report published on the Statista website in November 2020, over 59 per cent of the world's population had access to the internet in 2020, which is almost 4.66 billion people! Over 4.14 billion people were listed as active users of social media. The Australian Bureau of Statistics (ABS) reported that by October 2020 over 7 per cent of total retail sales in Australia occurred online.

In this unit, you will investigate changes in the ways people interact with one another and with places. You will analyse the role of technology in connecting people and the positive and negative impacts this is having on trade, production and sustainability. By exploring the interconnections between consumers and producers, you will consider how choices made on a local scale can have global consequences.

### Learning goals

After completing this unit, you should be able to answer these questions:

- How do different people perceive and interact with local places based on their age, gender and cultural background?
- In what ways do transportation and information and communication technologies connect people to information and services around the world?
- How does trade in goods and services connect people in different places on different scales?



**Video**  
Unit overview

- What impact does the production and consumption of goods have on places?
- In what way do the choices of consumers affect the sustainability of places?

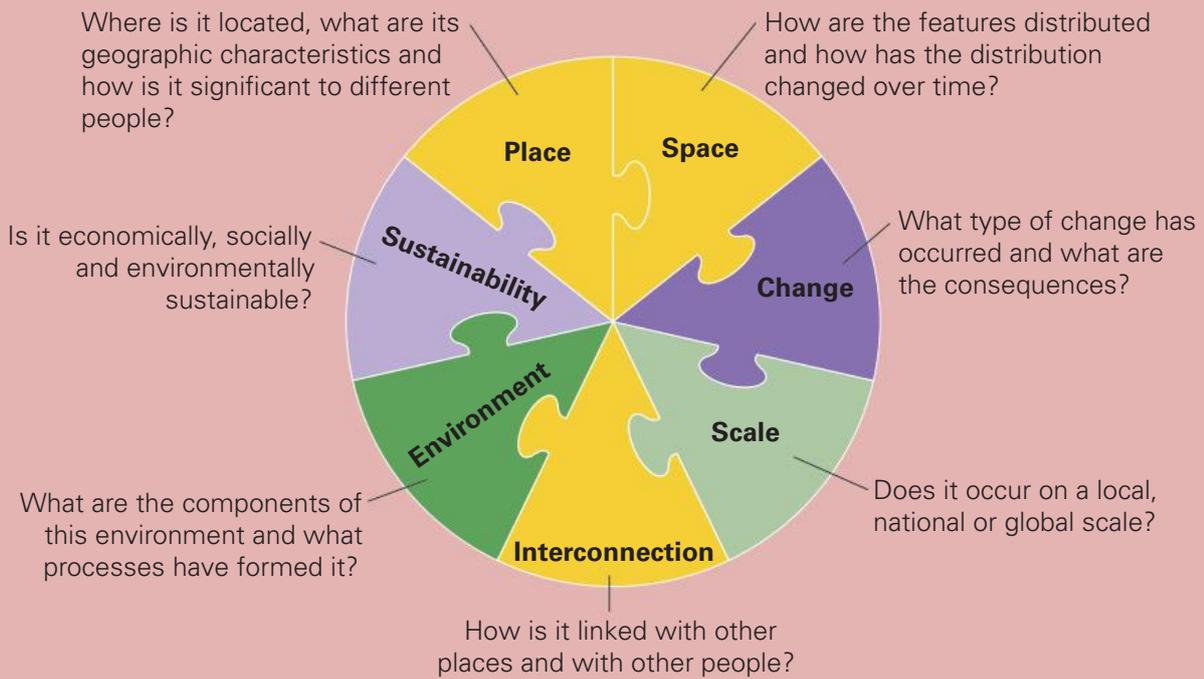
### Introducing geographical concepts and skills: *place, scale and interconnection*

Throughout this unit, there will be a focus on developing your understanding of **place, scale and interconnection**. Geographers distinguish places based on their unique geographic characteristics. Physical characteristics might include landforms, vegetation, roads and buildings. Intangible characteristics are more difficult to observe, and relate to how different people experience and value a place.

**Interconnection** involves the links between places and the influences that people have on the characteristics of places. People are interconnected with places in the ways that they create, change and manage them. Advancements in technology have enabled people to connect with **places** on a variety of **scales**. For example, a raw material might be harvested in a local area, transported to a different country to be processed and turned into a product, and then sold online all over the world.

Although this unit has a specific focus on place, scale and interconnection, these concepts are part of a group of seven interrelated key ideas that help us to think geographically.

# Geographical concepts



**Figure A**



**Figure B**

▲ Many people from around the world are interconnected with the city of Venice in Italy through tourism, as seen in Figure A. In fact, Venice usually receives about 30 million tourists each year. The COVID-19 pandemic significantly affected interconnections between people and places. Trade and tourism were impacted, as can be seen in Figure B, which shows the empty streets of Venice during the coronavirus outbreak.

*Please note at the time of writing, the global COVID-19 pandemic was having a major effect on the world. The consequences were still unfolding at the time of publication.*

# CHAPTER 7

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

## Geographies of interconnection



### 7.1 Setting the scene: devil's gold and a selfie stick

In the early hours of the morning, an Indonesian man from Banyuwangi, East Java, prepares for work. Dressed in torn clothing, he wraps a wet rag across his mouth and places a long piece of cane that connects two baskets across his deformed back. As the cane nestles into the open wounds on his shoulders, he begins the 3200-metre hike to the top of the Kawah Ijen volcano, which at this time of night illuminates the sky with blue vapour – the result of combusting sulphuric gases. Then he begins his 800-metre descent into the volcano. He will make one or two trips tonight, working long hours in a place where the air is so hot and corrosive it can dissolve teeth. He will earn approximately A\$5 in exchange for his harvest: sulphide minerals, otherwise known as ‘devil’s gold’.

Whether we know it or not, there is an *interconnection* between us and this man, who is one of the 300 sulphur miners of East Java. Once the rock is mined, it is mostly traded to China and South-East Asia, where the sulphur is used to make many different products, including fertilisers, pesticides, paper, make-up and shampoo. It is even used to bleach sugar to give it its white colour. These products are then traded globally, including to Australia.

Interconnections can occur between people and places not only through trade, but also through transportation, communication technologies and travel. Trade is not the only way that we can be interconnected with the sulphur miner in Banyuwangi. In the last 10 years, the volcano itself has become a tourist destination for people who are curious to see the miners at work and experience the volcano’s natural beauty.

Interconnections have impacts that can change places and people. In this instance, tourism can be more lucrative than mining, and some savvy miners have become tour guides, coffee store owners and homestay operators. The newly established tourism industry fills miners with the hope that their children will not have to work in the mines – a job that reduces one’s lifespan to an average of 50 years. The place itself has become a tourist region, with festivals and a cycling competition called Tour de Banyuwangi Ijen. In 2018, 4.8 million tourists visited the region, compared to fewer than one million in 2010.

For those who cannot transition into the tourism industry, mining continues to remain a dangerous job. This danger has been increased by the thousands of tourists who, holding selfie sticks, swarm miners to get a photo. They create a new hazard for the exhausted workers. Tourists also suffer from hazards, such as passing out from the volcanic heat, and trauma from gas explosions, some of which have hospitalised tourists.

It is clear that the interconnections between people and the Kawah Ijen volcano provide benefits from a local to a global scale. It is also clear that these interconnections need to be better managed to remain sustainable into the future.



◀ **Figure 7.1** Sulphur miners working in the Kawah Ijen volcano



▲ **Figure 7.2** An important natural characteristic of Indonesia is its volcanoes, which are formed due to the **subduction** zones between the Eurasian plate and the Indo-Australian plate. This map shows the location of 10 volcanoes that also serve as tourist attractions for hikers, including Mt (Kawah) Ijen, where sulphur is mined.

**subduction** a process where one tectonic plate moves under another tectonic plate and sinks into the mantle

## MAKING THINKING VISIBLE 7.1



### Think, pair, share

Should tourism be banned at the Kawah Ijen volcano? Consider both positive and negative impacts in your answer. Share your thoughts with a partner and justify your opinion.

### Compass points

Propose one idea that could make the interconnections between tourists, miners and the volcano more sustainable. Swap your idea with a partner and evaluate the idea using the following criteria:

#### 1 E = Excited

What excites you about this idea or proposition? What's the upside?

#### 2 W = Worrisome

What do you find worrisome about this idea or proposition? What's the downside?

#### 3 N = Need to know

What else do you need to know or find out about this idea or 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 idea or proposition? How might you move forward in your evaluation of this idea or proposition?



**Key concepts:** sustainability, interconnection



**HASS skills:** analysing, evaluating, communicating and reflecting



## 7.2 Chapter overview

### Introduction

People throughout the world are connected to places and each other in many ways. The networks that interconnect us are growing rapidly through the constant development of transportation and information and communication technologies.

This chapter introduces the phenomenon of globalisation. It explores how and why we are connected to people and places from a local to a global scale and

the impacts of these connections on environments and societies in different places.



### Learning goals

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

- In what ways are people connected to different places?
- How do transportation and information technologies connect people to services, places and other people?
- How are people connected to each other and other places through trade?
- What are the effects of the production and consumption of goods?

### Geography skills

After completing this chapter, you should be able to:

- Predict changes in the characteristics of places over time and identify the possible implications of change for the future
- Identify, analyse and explain significant spatial distributions and patterns, and identify and evaluate their implications over time and at different scales
- Identify, analyse and explain significant interconnections within places and between places over time and at different scales, and evaluate the resulting changes and further consequences
- Collect and record relevant geographical data and information, using ethical protocols, from reliable and useful primary and secondary sources
- Select, organise and represent data and information in different forms, including by constructing special purpose maps that conform to cartographic conventions, using digital and spatial technologies as appropriate
- Analyse and evaluate data, maps and other geographical information using digital and spatial technologies and geographical information systems (GIS) as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology.



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



#### Video

Global interconnections:  
Five interesting facts



## 7.3 The perceptions people have of place, and how this influences connections to different places

### FOCUS QUESTIONS

- What is globalisation?
- How does globalisation interconnect people, places and spaces?
- How do our perceptions of places and use of spaces change over time?
- How are people in other countries connected to places?

### The role of globalisation in the interconnections of people, places and spaces

The first **circumnavigation** of Earth occurred when a fleet of ships sailed west from Spain in 1519, and arrived back from the east in 1522, after crossing the Atlantic, Pacific and Indian oceans. The departing fleet consisted of 270 men on five ships. However, after **mutiny**, murders, illness and shipwrecks, only 19 men on one ship returned.

Today, circumnavigating Earth is simpler and much less dangerous. Moreover, rapid changes in technology mean that we continue to push the boundaries of travel. In 2019, the first non-stop flight from New York to Sydney, called 'Project Sunrise', carried 40 passengers across 15 time zones in just 19 hours, to become the longest commercial flight ever. Meanwhile, in Texas, the Starship spacecraft (which is designed to take people as far as Mars) began orbital test flights.

Advancements in transportation and information and communication technologies have fuelled globalisation. Globalisation refers to the movement of people, money, **goods**, information and values around the world. It is one of the most fundamental areas of study for human geographers.

Globalisation has had an enormous impact on how and why we are connected to places, goods and each other. It has also influenced the scale of interconnections. While people have always travelled and traded, there has never been so much trade and travel over such long distances. Figure 7.4 highlights the large scale of movement occurring in the air.

Not only has technology allowed the greater movement of people and goods, it has also allowed ideas, cultures and knowledge to cross countries, without the need for physical travel. While nothing (yet) can replace the full immersive experience of travelling to a different place, there are ways, such as using Google Earth, to really see what a place is like, either from above using satellite images or from street view.

People are also closer than ever before. When the First Fleet arrived in Australia, the letters sent to loved ones would have taken over eight months to be received. Today, we can catch up with family and friends on the other side of the world using video chat or messaging tools such as Skype and Snapchat.

In this topic, we consider the concepts of place and space, and examine how our **perceptions** of places and use of spaces are changing as a result of these new technologies and global interconnections.

### What are the geographic concepts of place and space?

Places are physical locations. They can range in scale from a booth at a café to a whole country. However, from a geographic perspective, places are also locations that hold some meaning for people. The meaning that a place has is different for everybody, depending on the type of interconnections a person has with that place.

**circumnavigation** sailing or travelling all the way around something

**mutiny** refusal by people (e.g. sailors), to continue to obey a person in authority

**goods** items for sale that can be moved

**perception** the way in which something is regarded, understood or interpreted



▲ **Figure 7.3** Tourists relaxing in La Plancha Beach Club, Seminyak, Bali

## ACTIVITY 7.1



### Interpretation task

Consider the tourists and the waiters in Figure 7.3.

- 1 How is each group of people interconnecting with this place?
- 2 What meaning might Seminyak have for each group?



**Key concepts:** interconnection



**HASS skills:** analysing, evaluating

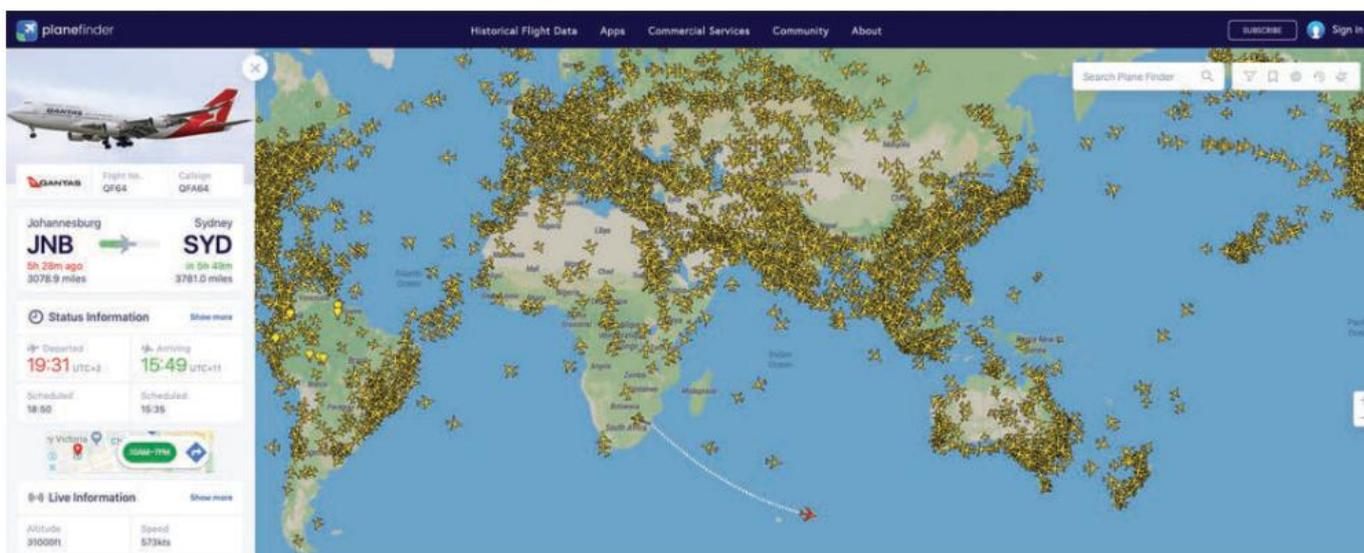
The concept of space relates to how human-made (cultural) and natural features are distributed on the Earth’s surface. To understand spaces, geographers:

- identify the distribution patterns of certain features on the Earth’s surface
- investigate why these patterns have occurred
- explore how these patterns have changed and are changing
- understand how these spaces are used and the impacts of these patterns and changes for people and the environment.

## GDP RANKINGS

Rank	Country/ economy	GDP (nominal) (billions of \$)					Growth (%)	GDP per capital (nominal) (\$)		Continent
		2019	% share	diff	2024	Rank		2019	Rank	
1	United States	21 439.45	24.8	–	25 793	1	2.35	65 112	8	North America
2	China	14 140.16	16.3	7299	20 979	2	6.14	10 099	70	Asia
3	Japan	5 154.48	5.95	8986	6 260	3	0.89	40 847	24	Asia
4	Germany	3 863.34	4.46	1291	4 675	4	0.54	46 564	18	Europe
5	India	2 935.57	3.39	928	4 632	5	6.12	2 172	145	Asia
6	United Kingdom	2 743.59	3.17	192	3 150	7	1.24	41 030	23	Europe
7	France	2 707.07	3.13	36.5	3 215	6	1.25	41 761	22	Europe
8	Italy	1 988.64	2.3	718	2 246	9	0.01	32 947	28	Europe
9	Brazil	1 847.02	2.13	142	2 296	8	0.88	8 797	77	South America
10	Canada	1 730.91	2	116	2 238	10	1.55	46 213	19	North America
11	Russia	1 637.89	1.89	93	1 940	12	1.08	11 163	66	Europe
12	Korea	1 629.53	1.88	8.36	1 988	11	1.95	31 431	30	Asia
13	Spain	1 397.87	1.61	232	1 695	13	2.18	29 961	32	Europe
14	Australia	1 376.26	1.59	21.6	1 670	14	1.71	53 825	11	Oceania
15	Mexico	1 274.18	1.47	102	1 579	16	0.4	10 118	69	North America

▲ **Table 7.1** Ranking of countries by gross domestic product (GDP)



▲ **Figure 7.4** The website Plane Finder shows the location of every plane in the air in real time

## ACTIVITY 7.2



### Research task

Go to 'Mapping the Flow of International Trade' on the Metrocosm website to see trade in goods occurring in real time across the world.

- 1 Identify the three main places of trade activity.
- 2 Identify the main type of good that is being traded.
- 3 Is there a strong, moderate or weak degree of spatial association between levels of trade activity and gross domestic product (GDP)? Refer to Table 7.1. Identify three countries that help support your answer.



**Key concepts:** interconnection



**HASS skills:** questioning and researching, analysing, evaluating

## How our perceptions of places and use of spaces change over time

As we age, the spaces that we use and the way that we perceive certain places can change as our needs and interests change. For example,

the spaces where you played as a young child (such as the local playground) may not be the spaces where you socialise today. Moreover, the ways that people connect with each other have been changing over time as technology plays an increasing role in our lives.

## CASE STUDY 7.1



### Online gaming

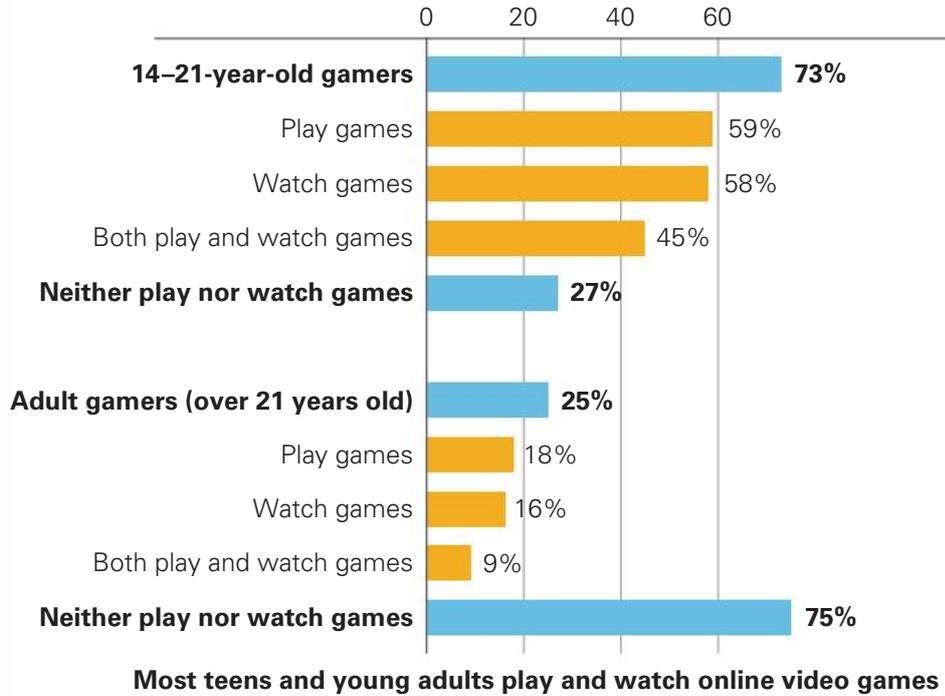
The fact that more teens and young adults are connecting to each other online can also change the way people feel about places and how they use spaces. Whereas for teenagers in the past, the bedroom was a place to retreat from the world, a teenager's bedroom today may have a vastly different meaning. It can be a portal to an online community, where people interconnect on an international scale via platforms such as YouTube, Twitch and Tik Tok. This change over time is highlighted by Figure 7.5, which shows the different usage of online gaming between two different age groups (14–21-year-old gamers and gamers over 21).





## ONLINE VIDEO GAME USERS

The percentage of people who played an online video game with multiple players or participated in a video-game competition, and the percentage who watched live or recorded video of people playing video games on Twitch, YouTube or another platform



▲ Source: Washington Post-UMass Lowell poll conducted 22 August–8 September 2017

▲ **Figure 7.5** The percentage of teens, young adults and adults who have played an online video game with multiple players or participated in a video-game competition, and the percentage who watched live or recorded video of people playing video games on Twitch, YouTube or another platform

Source: Washington Post-UMass Lowell poll conducted 22 August–8 September 2017



▲ **Figure 7.6** A teenager listening to records in her bedroom in 1971

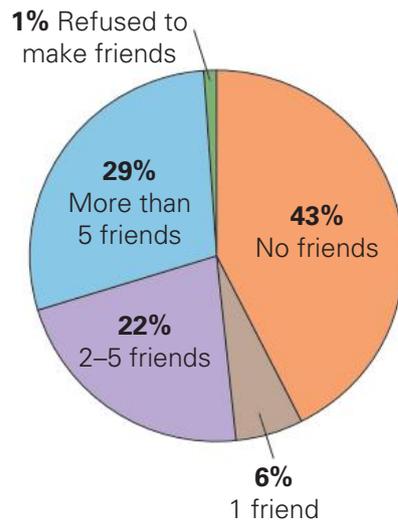
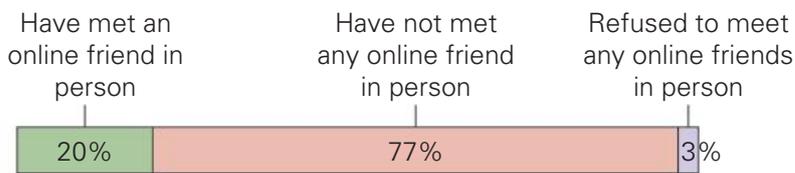


▲ **Figure 7.7** In 2019, 16-year-old American Jordan Hergoz, screen name Crimz, spent an average of at least 8 to 10 hours a day playing Fortnite to become one of the best competitive gamers in the world. His father has spent over \$40 000 on state-of-the-art equipment for him to train with.





### TEENS WHO GAME ONLINE MEETING FRIENDS IN-PERSON

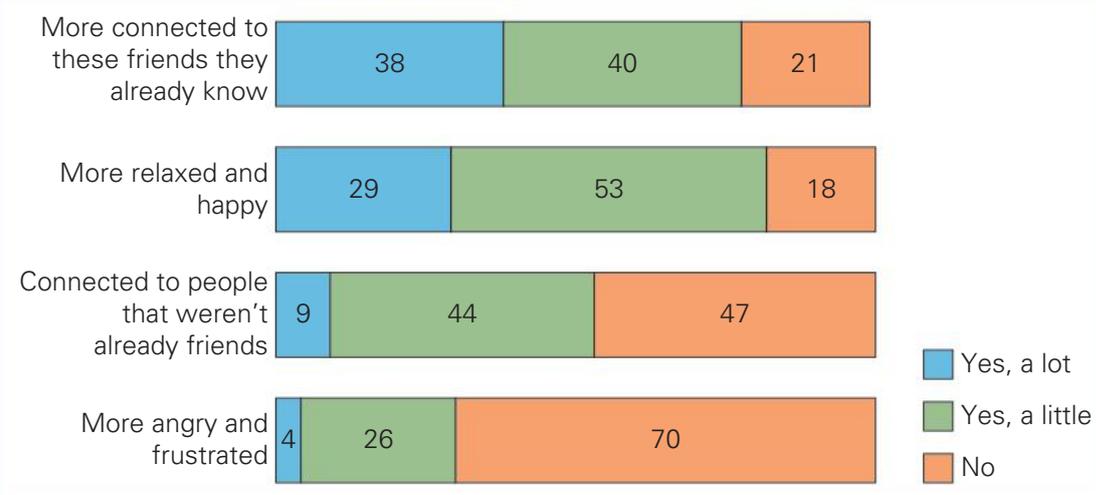


**57% of teens have made new friends online**

▲ **Figure 7.8** Percentage of teens who have made new friends online

**Source:** Pew Research Center Teens Relationships Survey, 25 September–9 October 2014 and 10 February–16 March 2015 (n=1060 teens ages 13 to 17)

### HOW TEENS FEEL PLAYING ONLINE GAMES WITH OTHERS



▲ **Figure 7.9** How gaming influences connections between friends

**Source:** Pew Research Center Teens Relationships Survey, 25 September–9 October 2014 and 10 February–16 March 2015 (n = 567 teens who play games with people online)

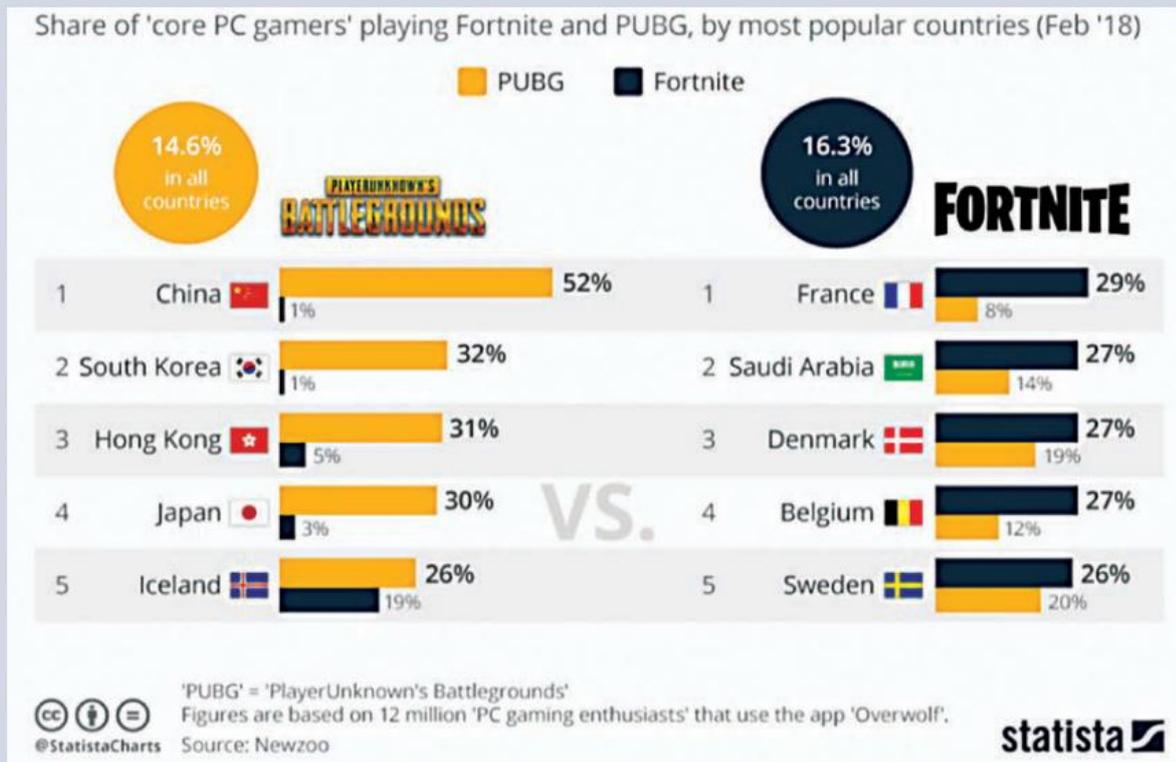




### Impacts of online gaming on interconnections between people

Figure 7.8 shows that most teens have made new friends online. The study found that 57 per cent of boys and 13 per cent of girls made these friends playing video games. Figure 7.9 shows that playing online games with friends can strengthen friendships. On the other hand, surveys have also shown that 50 per cent of online gamers have been bullied at some point, and 22 per cent of these people have stopped gaming because of this.

## PUGB VS FORTNITE



▲ **Figure 7.10** Popularity of the games PUBG and Fortnite. Is there anything that surprises you about these statistics?

## ANALYSIS QUESTIONS

- 1 Research online the latest statistics on video game play in Australia and globally. What percentage of adults play video games in Australia today?
- 2 'The way that people use spaces can change over time.' To what extent do you agree or disagree with this statement? Use the statistics in Figure 7.5 and the images in Figures 7.6 and 7.7 to support your argument.
- 3 Now you can do your own research. Conduct a survey to measure the use of online gaming and/or use of social media between different age groups and the impact of these activities on people's sense of connectedness and community.

You may want to interview people from your class and people from another age group, such as your parents. Your survey may investigate different aspects of online gaming and/or use of social media, such as daily usage, how connected or disconnected to your peers it makes you feel, what types of games or social media you use, or where you play online games or use social media. Summarise your results and discuss these as a class.



**Key concepts:** interconnection



**HASS skills:** communicating and reflecting

## How people in other countries are connected to places

People connect to places in a variety of ways. These connections can be categorised into four main areas: economic, cultural, spiritual and historical. For some, including subsistence farmers, their place provides them with the resources they need to survive. Many people have

a spiritual connection to their place that connects back through thousands of years of ancestry. For many Aboriginal and Torres Strait Islander people in Australia, their relationship with the land remains fundamental to their identity. We can also connect to places through work, travel, leisure and recreational activities. In this era of globalisation, trade connects us to many places that we have never visited.

### CASE STUDY 7.2



#### The Surui

The Surui are a tribe of Indigenous people who live in the Rondônia region of the Amazon rainforest. They have a long, ongoing connection to the place, both physical and spiritual, and only made contact with the outside world in 1969. They know every tree in their area and continue to hunt with bows and arrows. However, their livelihoods have been at risk due to illegal logging and mining.

When Surui leader Chief Almir discovered Google Earth, he knew he was on to something. The new chief has helped his tribe use detailed satellite imagery from Google Earth Outreach to monitor and report illegal behaviour. This has been successful, as the Suruis' home is the only remaining piece of intact rainforest in the region. They also use smartphones to monitor the animals they kill, to ensure they are hunting sustainably, and have worked with Google Earth to create an interactive cultural map that provides outsiders with a deeper understanding of a place that means so much to the Surui.



▲ **Figure 7.11** Satellite image of the Surui tribe's region and the surrounding region

### ANALYSIS QUESTIONS

- 1 Describe the distribution of deforestation in Figure 7.11.
- 2 What does this suggest about the effectiveness of the Suruis' environmental monitoring and reporting methods?



**Key concepts:** interconnection, space



**HASS skills:** analysing, evaluating

## END OF SECTION REVIEW 7.3



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Define the terms 'globalisation' and 'gross domestic product'.
- 2 Explain the geographic concepts of 'place' and 'space'.
- 3 Advancements in which two areas have fuelled globalisation?

#### Interpret

- 4 What meaning do you think the place Rondônia has to the Surui?
- 5 How do the Surui use the space in Rondônia?
- 6 Describe how the Surui use spatial technology to protect the Amazon rainforest.
- 7 Identify three different ways that people are connected to places.
- 8 How does globalisation connect people to places that they have never visited before?

#### Argue

- 9 Discuss the positive and negative impacts of online gaming and/or social media. Refer to the data in this section and your own experiences in your answer.

#### Extension

- 1 Watch the video 'Trading Bows and Arrows for Laptops' on YouTube and explain how spatial technology is helping outsiders learn about the Surui.
- 2 Look up 'Surui Cultural Map' on YouTube and download the Surui Cultural Map KMZ file through the link that is in the video description. Explore the map to answer the following questions about the Surui.
  - a What is considered to be a spiritual animal that cannot be eaten?
  - b Name and locate three villages using their absolute location.
  - c What do the Surui eat when they have the flu?
  - d What plant is used by the Surui to build houses?
  - e What fibre is used to make handicrafts?
  - f What fruit are children not allowed to eat, and why?
  - g What spiritual significance does the jaguar have to the Surui?



**Video**  
**Figure 7.11A**  
Trading bows and arrows for laptops



**Key concepts:** place, space, change



**HASS skills:** analysing, communicating and reflecting



## 7.4 The ways transportation and ICT are used to connect people to services, information and people in other places

### FOCUS QUESTIONS

- How are information and communication technologies used to connect people to information, services and people in other places?
- How have information and communication technologies made it possible for places to provide global business services?
- Do people have equal access to the internet around the world?
- How do transport networks connect people to services?

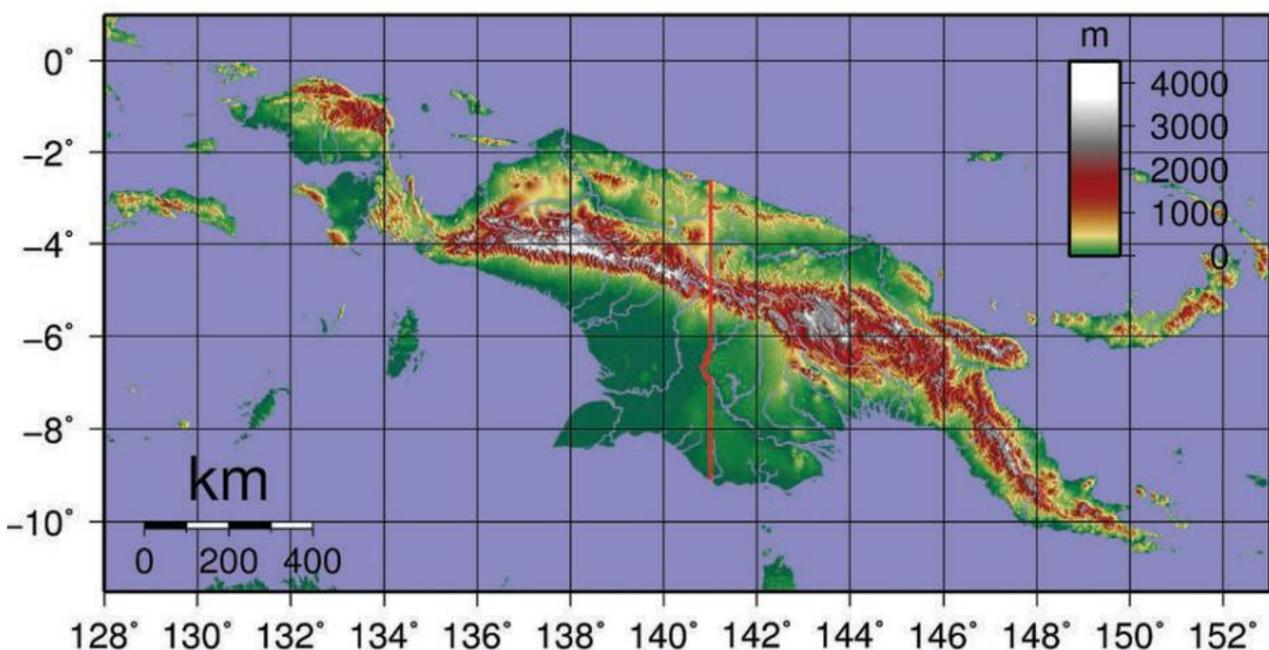
### How transport networks connect people to services

Transport networks are vital to connecting people to basic **services** to ensure a quality standard of living. However, transport networks can be frustrated by the physical geography of a region. For example, Papua New Guinea is located in the south-western Pacific region. Its physical geography consists of beaches and coral reefs on the coast, while inland there are active volcanoes, dense rainforests (including the Kokoda Trail) and steep topography. There are only 22 000 km of roads, and half of these

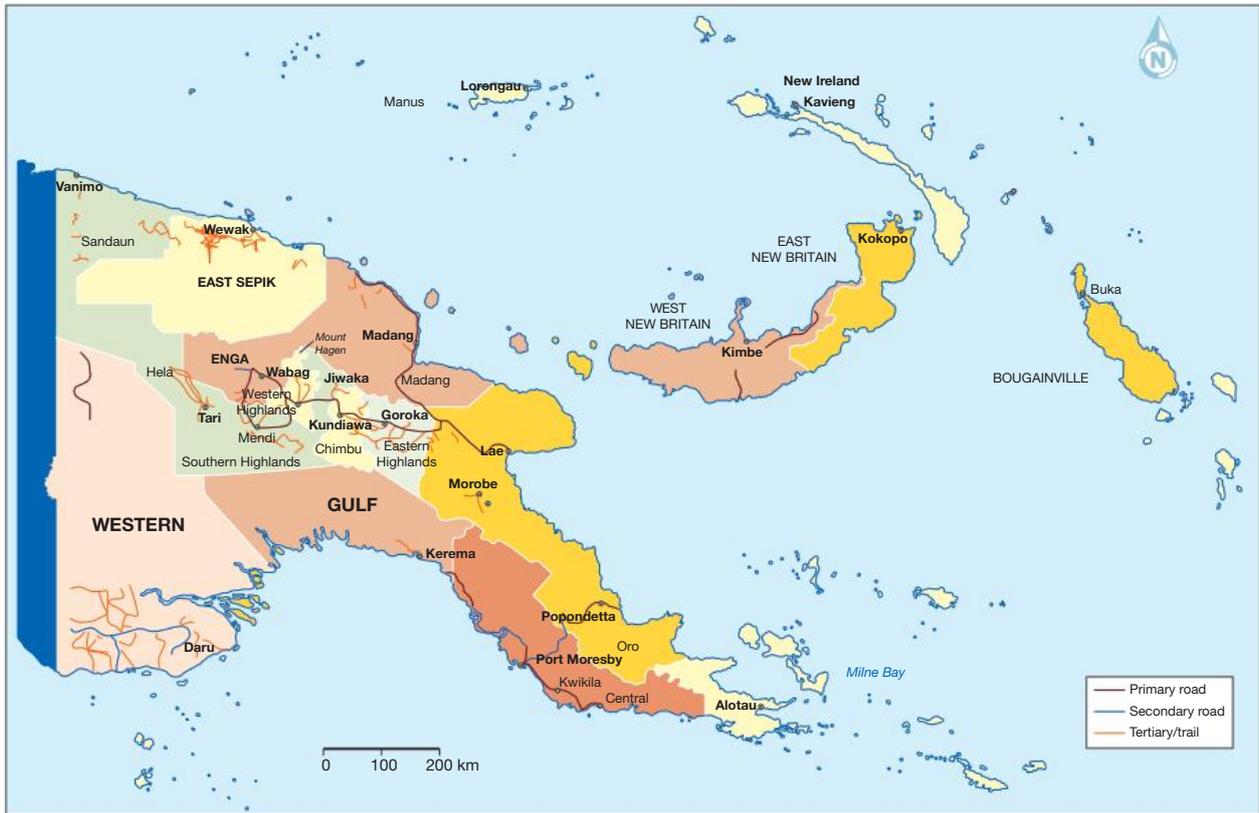
are not sealed. People in the highlands region are cut off from the rest of the country – and the world –

for six months of the year due to the risk of landslides. This prevents access to services, jobs and trade. Sixty-one per cent of the population have no access to safe water and 55 per cent have no access to improved sanitation. This results in poor health and diseases, malnutrition and stunting, and low business and tourism opportunities. It also makes disasters such as landslides difficult to recover from.

**services** public needs such as transport, communications, utilities and health care



▲ **Figure 7.12** Elevation map of Papua New Guinea



▲ Figure 7.13 Roads in Papua New Guinea

### ACTIVITY 7.3



#### Interpretation activity

Study Figure 7.12.

- 1 Describe the distribution of topography in Papua New Guinea.
- 2 In what ways does topography influence people’s access to services?



**Key concepts:** interconnection



**HASS skills:** analysing, evaluating

### ACTIVITY 7.4



#### Interpretation activity

Study Figure 7.13. Describe the distribution of roads in Papua New Guinea. Ensure that you distinguish between primary, secondary and tertiary roads.



**Key concepts:** place, interconnection



**HASS skills:** analysing

In Australia, transport networks are changing the way we connect to retail services. The role of Australia Post has changed from primarily delivering letters to becoming a courier service that facilitates the growing use of online shopping.

New technologies such as drones will also play a greater part in providing a convenient online shopping service to people. While drone delivery is more fuel-efficient than other forms of transport, there are laws regarding the airspace above private property that may limit the scale of this service.



▲ **Figure 7.14** Is this the new normal? Wing was the first company approved to launch a drone delivery service in Australia.



▲ **Figure 7.15** Australia Post has increasingly become a delivery service for online purchases.

Self-driving trucks, trains reaching speeds of 400 km per hour using magnetic levitation technology, and hybrid cargo airships are some of the new technologies that could minimise the travel time of people and services in the near future.

## How are information and communication technologies used to connect people to information, services and people in other places?

Information and communication technologies connect us to a variety of services, information and people. They operate from a local to a global scale. Today these connections can begin at a very young age – from children using educational apps at home, to families connecting with relatives using social media and individuals having their medical records stored on government databases.

Historically, the physical geography of a place played a significant role in what information and communication people could access. For instance, China's impressive mountain ranges, which include the Himalayas, and the cold and unforgiving Taklamakan and Gobi deserts, ensured that China was economically and culturally isolated from Western civilisation until the Silk Road began to create a trade passage out of China in 130 BCE. Even today, Australia's physical isolation from other countries has contributed to the fact that many Australians are less likely to know a second language compared with Europeans, who live much closer to foreign countries where different languages are spoken.

Technology has provided people with opportunities to connect and work together to face challenges in ways that overcome borders and make learning accessible to people in places all over the world. In this section, we explore some of these connections through a variety of case studies.

### CASE STUDY 7.3



## Connecting information and people: Alice Springs School of the Air

Alice Springs School of the Air (ASSOA) was established in 1951 to provide education to students living in **remote** regions of central Australia. For decades, ASSOA relied on two-way radio broadcasts. Students received instruction by pedal-powered radio and schoolwork by mail. Completed schoolwork was also sent by mail, which was a particularly lengthy process in the remote regions of central Australia.

**remote** an isolated area very far away from urban centres





A significant change occurred in 2006 when satellite technology was introduced and satellite dishes were installed at student sites. This allowed a learning platform called REACT (Remote Education and Conferencing Tool) to be used to support video communication. Some of the features, benefits and limitations of REACT are shown in Table 7.2.



◀ **Figure 7.16** Pedal-powered radio was used by early School of the Air students

### PROS AND CONS OF REACT

Students	Teachers
<ul style="list-style-type: none"> <li>• Can see and talk to their teachers and other students</li> <li>• Can re-size the video image of the teacher, so they can receive communication while working on their computer</li> <li>• Can quickly share materials with their teacher and other students</li> <li>• Can have learning conferences with overseas students</li> </ul>	<ul style="list-style-type: none"> <li>• Can demonstrate skills and include media such as video and music</li> <li>• Cannot see the students</li> <li>• Can quickly share materials and feedback with students</li> </ul>

▲ **Table 7.2** Benefits and limitations of the Remote Education and Conferencing Tool

This technology, in addition to email, Google apps for education, Edmodo and other tools, has enhanced the communication between teachers and students, as well as the sense of community and belonging that is so important to the purpose of ASSOA.



◀ **Figure 7.17** Anna Jackson, a School of the Air student, completes her schoolwork at home, three hours from Broken Hill, New South Wales, with her dog alongside her.

### ANALYSIS QUESTION

Create a table that summarises the benefits and limitations you may have experienced during the COVID-19 school closures when completing online learning.



**Key concepts:** interconnection



**HASS skills:** communicating and reflecting

## Learning Indigenous languages online

Being able to speak the language of your culture is a human right. However, a third of the world's Indigenous languages are now under threat of extinction. Researchers believe that up to 700 languages were spoken in Australia prior to British invasion. Today, only 100 Indigenous Australian languages remain. This is due to many factors, including the limited resources available to share these languages with younger generations. Information and communication technologies are playing a role in preserving Indigenous languages around the world.

### Amazing but true...

Indigenous people make up less than 6 per cent of the world's population and yet speak more than 4000 of the world's 6700 languages.

For example, researchers have recently created Opie, a little robot consisting of two tablets in a wooden frame. One tablet consists of eyes that follow the student, and the other stores memory games, stories and pronunciation guides in Indigenous languages. Opie aims to help Indigenous children learn their ancestors' language, and keep alive the languages that we have left.



▲ **Figure 7.18** It is important to keep traditional languages alive. Pictured is a sign at Springbrook National Park, Queensland, which lists local words from the Yugambah peoples' language and the equivalent meaning in English.

By using and sharing their languages, Indigenous people create stronger connections to their culture. One person involved in this is yutustanaat, a member of the Snuneymuxw First Nation and

a language teacher in British Columbia, Canada. She was one of many Indigenous people from around the world who participated in recording their language for Google Earth.

*'Our language is very healing ... It brings out caring in our people and helps our students be strong, because the language comes from the heart' – yutustanaat, quoted in Raleigh Seamster, Indigenous Speakers Share Their Languages on Google Earth, 2019*

## Learning languages for trade relations

Websites and apps, such as Duolingo and Babbel, are also helping people to learn new languages and communicate with people from other countries. In business, learning the language of trade partners is proving to be an important skill. Benefits for business include:

- helping employees communicate with international customers, which increases the chance of making a sale
- saving money by reducing the need to hire translators
- retaining customers – employees who can speak to customers in their own language can build relationships and trust and increase customer loyalty
- language training for staff to help them feel rewarded and motivated to learn.



▲ **Figure 7.19** Learning the language of trade partners has been found to increase trade confidence in businesses around the world.

## Connecting services and people

Consider the apps on your phone. Which of these help you to connect to services and people? Today, there are apps for food delivery, transport, dating, listening to music from across the world, shopping and, of course, socialising with friends. This section gives some examples of technologies that are changing the way we connect to services in a significant way.

Rapid changes are occurring to the way medical and emergency services are provided. The use of the artificial intelligence (AI) system known as Babylon is growing at a rapid rate in the United

Kingdom. The app allows people to have a video conference with a virtual GP for free. Bookings can be made 24/7 and the consultation can usually take place within two hours of booking. Prescriptions can be ordered and home-delivered. Health history is securely stored and referred to in follow-up appointments. The app also provides health checks when people include their family history and health details and it assesses their health. It is said to be approximately 80 per cent accurate (greater than the general human-GP average of approximately 72 per cent accurate).

However, the app does have its flaws. For instance, a 48-year-old smoker presenting with sudden sweating and chest pain was advised to see their GP rather than calling emergency services. These are symptoms that could indicate a heart attack and so could have cost the patient their life. The other flaw stems from its popularity. So many people in London are turning to this app that it is placing strain on the healthcare system, which had not prepared for such a scale of change.

In Australia, the GoodSAM app connects people who have first aid qualifications to people experiencing a cardiac arrest. When an ambulance is notified of a cardiac arrest, first-aiders in the area are also notified and may be able to attend to the person to perform cardiopulmonary resuscitation (CPR) while the paramedics are on their way. Similarly, Facebook Crisis Response connects people who can offer help in a crisis to those in need, as well as receiving updates and communicating with concerned loved ones.

## How information and communication technologies have made it possible for places to provide global business services

Since it went global in the 1980s, the internet has experienced rapid improvements in speed and reliability. Moreover, telecommunications such as telephone lines and wireless signals have also been integrated with more sophisticated technology and software. These developments have made it possible for some people to work more locally (including from home) and for businesses to operate more globally. For example, businesses can outsource their customer service to overseas call centres.

## CASE STUDY 7.4



### Call centres in India

Offshore outsourcing is when a company hires another company to operate one part of its business overseas. Some Australian businesses outsource their customer service and telemarketing services to organisations within other countries.

India has been a popular choice for Australian businesses because of its time zone (or willingness of workers to work through the night), cheap labour and large English-speaking population. India is currently investing in the largest rural fibre-optic roll-out ever seen worldwide. This will connect 600 000 rural villages to broadband internet. The enormous enterprise could lead to customer service and telemarketing work moving to rural regions in the future.



▲ **Figure 7.20** Inside a call centre in India

### ANALYSIS QUESTIONS

- 1 What is offshore outsourcing?
- 2 List some pros and cons about this business practice.



**Key concepts:** place, interconnection

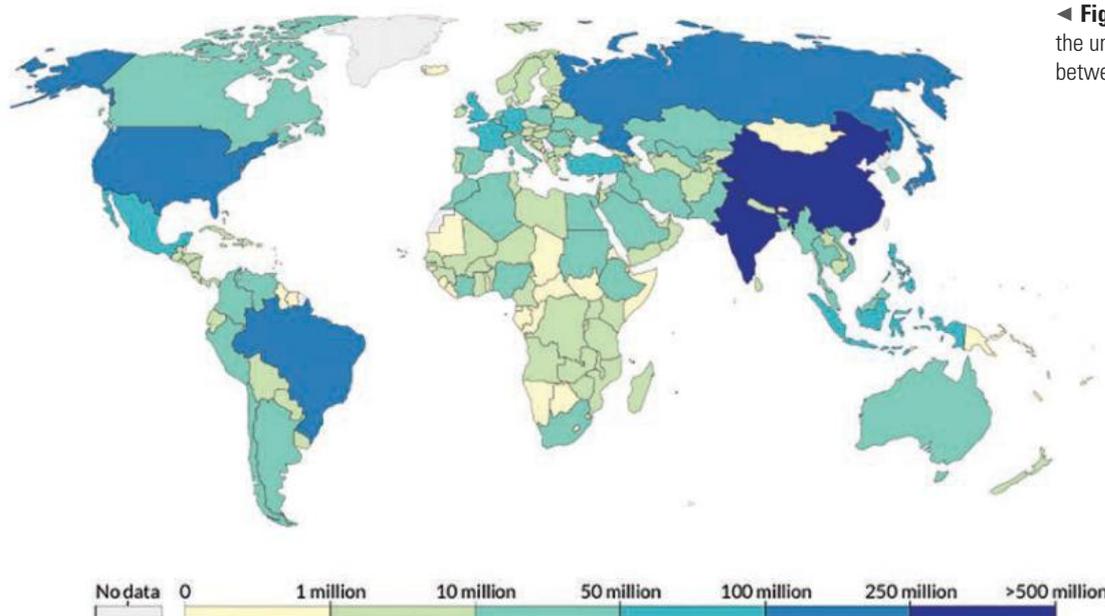


**HASS skills:** questioning and researching, evaluating

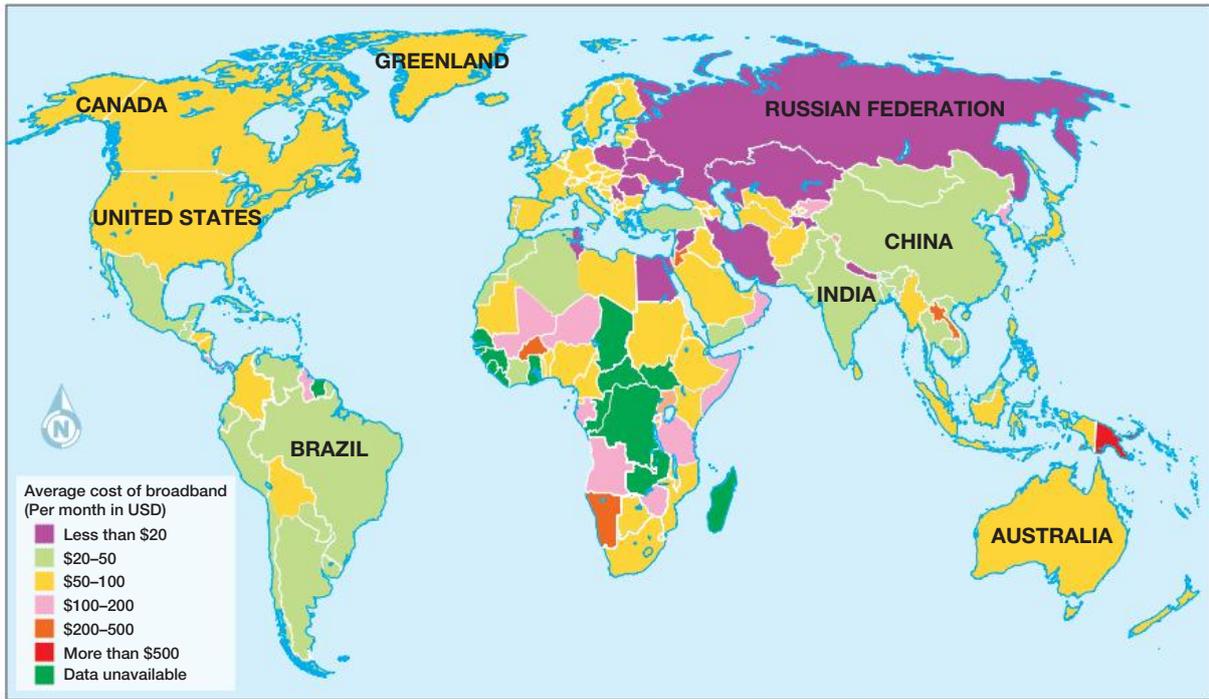
### Inequality in connectivity

Information and communication technologies is a resource that has transformed our interconnections with services, information and each other. However, not everyone experiences the same ability to use this resource. For some people, there are barriers to connections. These barriers can be economic on a household scale

(for example, the internet may be too expensive for a family or individual to access), or they may be economic on a national scale (for example, the cost of building the internet infrastructure for remote areas may be considered too expensive to implement). However, internet access is growing in all regions of the world, and many more people are being connected by it.



◀ **Figure 7.21** This map highlights the unequal use of the internet between different countries.



▲ **Figure 7.22** Average cost of broadband internet (based on the price on 14 December 2017)

Source: HowMuch.net

## ACTIVITY 7.5



### Interpretation activity

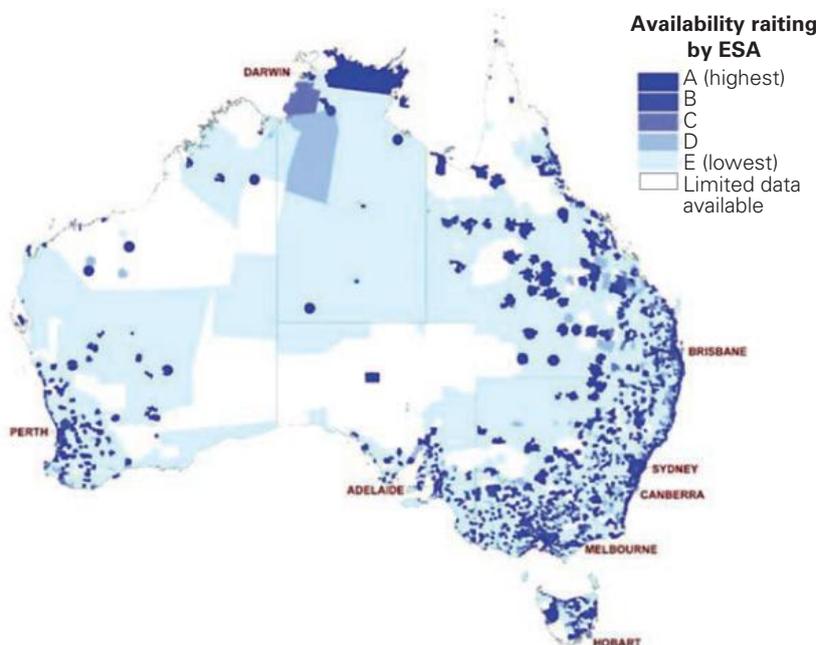
- 1 Describe the spatial association between Figures 7.21 and 7.22 using the DQE method (see Chapter 6, Section 6.3).
- 2 What other factors might account for the distribution of internet use as seen in Figure 7.21?
- 3 With a partner or as a class, discuss what may be the consequences for countries that have low internet use.



**Key concepts:** interconnection



**HASS skills:** analysing, evaluating, communicating and reflecting



◀ **Figure 7.23** Broadband availability ratings across Australia

## ACTIVITY 7.6



### Interpretation activity

Study Figure 7.23. Describe the distribution of broadband availability in Australia using the PQE method (see Chapter 6, Section 6.3).

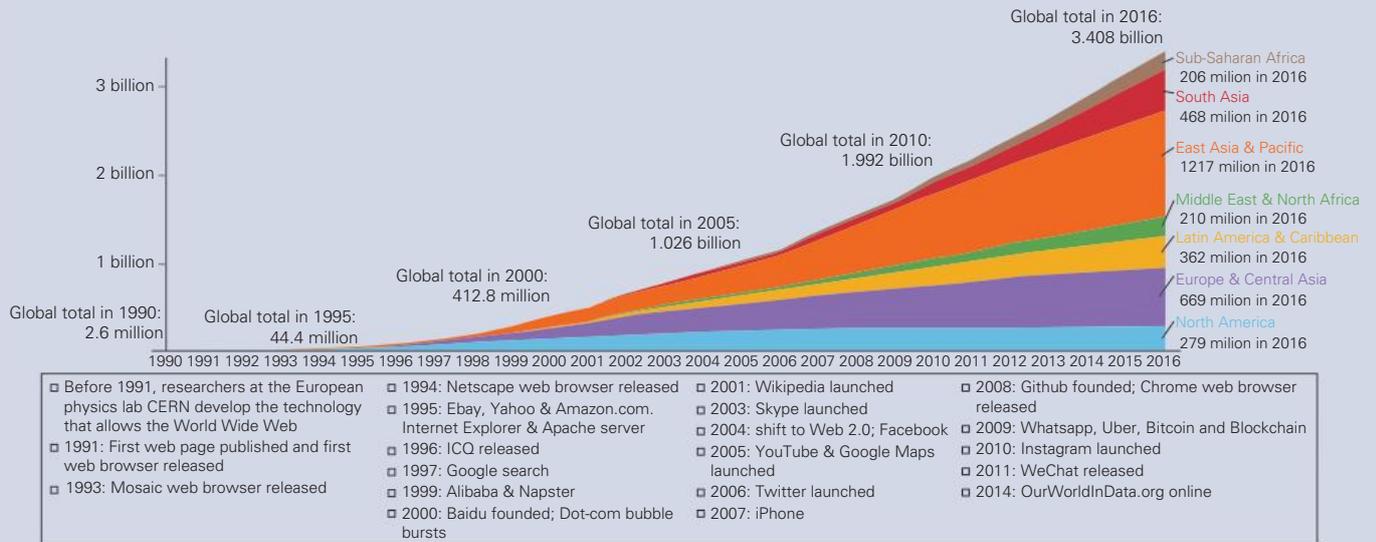


**Key concepts:** interconnection



**HASS skills:** analysing, communicating and reflecting

## INTERNET USAGE



▲ **Figure 7.24** Total amount of people using the internet per region

## ACTIVITY 7.7



### Interpretation activity

Study Figure 7.24.

- 1 Describe the overall trend of global internet use.
- 2 How many people in the world have access to the internet?
- 3 Rank the regions from highest to lowest internet use.



**Key concepts:** place



**HASS skills:** analysing

## END OF SECTION REVIEW 7.4



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 How do businesses benefit from their employees learning new languages?
- 2 What is offshore outsourcing?
- 3 What makes India a good place for customer services and telemarketing?
- 4 How many Indigenous Australian languages were spoken in Australia prior to British invasion?

#### Interpret

- 5
  - a Explain the change that has occurred at Alice Springs School of the Air.
  - b Describe the impacts of this change.
  - c Discuss the strengths and weaknesses of distance education.
- 6 Identify transport or information and communication technologies from this topic that help perform the following tasks (note that many of the technologies discussed fit into more than one category):
  - a connects people to a service
  - b connects people to information
  - c connects people to other people.
- 7 Outline some of the impacts that can result from having a poor transportation system.

#### Argue

- 8 Why do you think it is important to be able to speak the language of your ancestors?
- 9 How can the physical geography of a place impact people's access to services? Make reference to Alice Springs School of the Air and the highlands region of Papua New Guinea in your answer.

#### Extension

- 1 Look up 'Google Celebrating Indigenous Languages' online to read about this initiative. Using the knowledge that you have in your class of other languages, create a Google Earth project presentation (please note that this will require use of a Google account login). You can find a guide on how to create Google Earth projects online by looking up 'Create a map or story in Google Earth Web'. Write down a couple of words/sentences that you know of another language. Record these and then add them to the country the language is from. Collect these maps together to form a presentation world tour of different languages.
- 2 Invent your own transport or information and communication technology that connects services to people. Present your invention to your group or the class.



**Key concepts:** place, space, interconnection, change



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 7.5 The ways that places and people are interconnected with other places through trade at all scales

### FOCUS QUESTIONS

- How and why are people and places interconnected regionally through trade?
- How are products and services in your local region traded?
- How and why are people and places interconnected globally through trade?

The phenomenon of globalisation has not only influenced how we perceive places and use spaces; it has also created connections between people and places all over the world, whether we are aware of these connections or not. Many of these connections have been formed through trade. Trade simply refers to the buying and selling of goods and services. Goods are items that can be sold and moved, while services involve doing work or performing a task for others.

Goods and services are traded at all scales, and we are constantly participating in different scales of trade. For example, if you have dinner at a local, family-owned restaurant, you may be engaging in local-scale trade. The food that you eat, however, may have been transported to the restaurant from another state or even overseas, and therefore have

been involved in national or international trade. If you pay for this meal using a smartphone, which is manufactured by using a vast network of materials and labour from across the globe, you are playing your part in a global network of trade.

In this topic, we explore the ways that places and people are interconnected with other places through trade in goods and services at different scales.

### Key concepts for your memory bank



The concept of **scale** is about the way that geographical phenomena and problems can be examined at different spatial levels. It also can refer to how different geographical phenomena relate to one another. *Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*

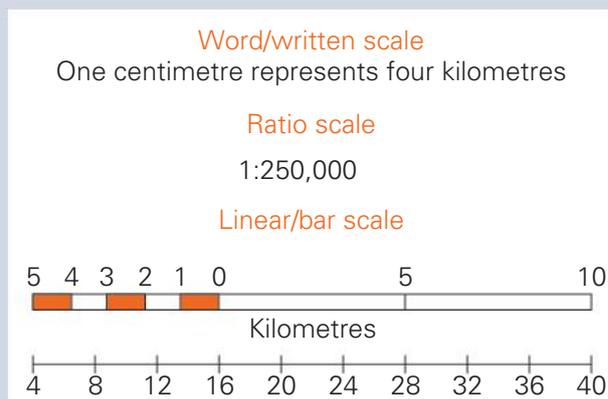
## DEVELOPING GEOGRAPHIC CONCEPTS AND SKILLS 7.1



### Scale

Scale refers to the size or amount of something. In Geography, we can determine the distances between places on a map, or the size of an area, by reading the scale. Examples of what we call 'map scale' are shown in Figure 7.25.

### MAP SCALES



◀ **Figure 7.25** Examples of scales found on maps, otherwise known as 'map scales'





Another version of scale is what we call 'observational scale'. The most commonly used observational scales are identified in Table 7.3.

## OBSERVATIONAL SCALES

<b>Local scale</b>	A local area, such as a street, school, suburb or town
<b>Regional scale</b>	Regions are areas that share the same or similar geographic characteristics. Regions can vary in size. Smaller regions may include a few towns or suburbs – for example, the Swan Valley or Peel region in Western Australia. Larger regions may include a group of countries – for example, South-East Asia.
<b>National scale</b>	Encompassing a whole country
<b>International scale</b>	Including two or more countries, but not most of the world
<b>Global scale</b>	Includes most of the world

▲ **Table 7.3** Examples of observational scales

- 1 Refer to the map of Indonesia in Figure 7.2. What is the relative location (that is, distance and direction) of Mount Ijen from Indonesia's capital city, Jakarta? Use the scale on the map to calculate the distance.
- 2 What are the observational scales shown in Figures 7.2, 7.13 and 7.33?



**Key concepts:** place, space



**HASS skills:** analysing, evaluating

## Investigating how and why people and places are interconnected locally and regionally through trade in goods and services

### Local-scale trade

When this scale of trade occurs, the goods and services are made, provided and sold locally or within a small region, for example, at farmers' markets. Some benefits and drawbacks of this scale of trade are outlined in Table 7.4.

## LOCAL TRADE

Benefits of local trade	Drawbacks of local trade
<ul style="list-style-type: none"> <li>• Can rely on word of mouth to build business</li> <li>• Lower transport costs</li> <li>• Understand the region/market</li> <li>• Provide jobs for local people. When people work locally, they can support the local economy indirectly. For example, people can spend their wages on goods and services provided by other local businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited in how much the business can grow</li> <li>• Word of mouth may not be beneficial, depending on what people have to say about the business</li> <li>• May be difficult to find and keep employees, especially skilled employees</li> <li>• Can be more expensive to produce goods and provide services</li> </ul>

▲ **Table 7.4** Benefits and drawbacks of local trade

## CASE STUDY 7.5



### Roly Poly Farm

Roly Poly Farm is located in the Harvey Hills in Western Australia, 87 km south of Perth between Pinjarra and Bunbury. The farm is set up on 5 hectares of river-bed clay-loam, which used to be a biodynamic market garden and before that, a dairy. The farm grows vegetables using a range of methodologies, including organic, bio-intensive and biodynamic, using the regenerative methods that were discussed in Chapter 6 (see Case study 6.3).

The food is grown for the local region and is sold using a local-scale method of trade called community-supported agriculture (CSA). Figure 7.26 explains its methods of trade, and Table 7.5 outlines some of the benefits of this trade method.



*CSA is a relationship of mutual support and commitment between us, the farmers and our CSA members. In return for a seasonal membership fee to help cover the production costs of the farm, CSA members receive a weekly share of quality produce grown by us using biodynamic practices. Members share in the risks and the bounty of farming. Through weekly newsletters, talking with us at farm pick up, farm tours and frequent farm photos, members have the chance to enter into a relationship with their food – where it comes from, who is growing it and the experience it has from seed to harvest. CSA is a chance to know your farmer, get real food at a great value and eat delicious, high quality, chemical free, nutrient dense vegetables and fruit.*

▲ **Figure 7.26** An excerpt from the Roly Poly Farm website, which explains its methods of trade.

Community-supported agriculture
The community has access to fresh produce
Customers develop a personal relationship with the people growing their food and a deeper appreciation for the work of the farmers
Relationships can also form among locals who meet at the farm gate to collect their produce
The produce is localised – seeds have been domesticated to suit the growing conditions of the region and are therefore stronger and healthier
It involves fewer food miles, reducing the environmental impact associated with transport
The farmer does not have to bear the entire economic burden if something goes wrong. For example, if a storm were to damage crops, each member of the community would lose the money they have invested at the start of the season, rather than the farmer risk losing their livelihood
On the other hand, everyone reaps the rewards when yields are high, as the extra food is passed on to locals
People become educated about their food, such as in which season different produce grows and regenerative farming practices that they can apply to their own gardens

▲ **Table 7.5** Benefits of community-supported agriculture





## ANALYSIS QUESTIONS

- 1 Look at the benefits of the CSA method listed in Table 7.5. Classify each benefit in the table as being social, economic or environmental.
- 2 What does the following statement from the case study mean to you: 'Members share in the risks and the bounty of farming'?



**Key concepts:** place, interconnection



**HASS skills:** analysing, communicating and reflecting

Investigating some of the products and/or services that businesses in your town, city or rural region sell to other places



**Additional content available:**  
Fieldwork template

## FIELDWORK 7.1



### Tally (quantitative) and interview (qualitative)

There are two types of data that we can collect when conducting fieldwork: quantitative and qualitative. Quantitative data can be counted and measured (such as a tally), while qualitative data is less structured and may not be expressed in numbers. Instead, it is investigative and may involve open-ended questions (such as in an interview). You can download a fieldwork template from the Interactive Textbook for this activity.

In this fieldwork task, we will practise collecting both types of data.

- 1 Select a manageable local scale to research and visit. This may be your local shopping strip or an industrial area.
- 2 Create a simple research question that is easy to investigate. Your question should focus on where and how trade occurs for businesses in your chosen area.
- 3 Tally the amount of goods and services and categorise each.
- 4 From your tally list, choose one business to research in-depth. Create interview questions that will provide you with an understanding of where and how trade occurs for that business. Example questions include:
  - What goods and/or services do you provide?
  - What goods do you need to import to support your business? Where do these imports come from?
  - What goods or services do you trade and which places do you trade these to?
  - Do you classify yourself as a local, regional, international or global trader? Why?
  - What strengths or weaknesses do you find with your scale of trade?
- 5 Present and summarise your findings. Because your tally is a form of quantitative data, it can be expressed in a graph. Create a graph (ask your teacher for guidance if you need help), then summarise the main findings from your graph and your interview in two paragraphs.

## Investigating how and why places are interconnected globally through trade in goods and services

### Multinational and transnational corporations

Multinational corporations (MNCs) are those that have a head office in one country of the world, but operate on a global scale, with different parts of their operations taking place all over the world. This allows the corporation to take advantage of places that can specialise in providing or manufacturing products at the best price or of the best quality. A similar type of corporation is a transnational corporation (TNC), which is also global but does not consider any single country its home base. This type of company can be said to be truly globalised. Advancements in transport and telecommunications have greatly assisted the rise of multinational and transnational corporations. Without these advancements, the production and

consumption of goods would still be on a much smaller, localised scale.

### Global-scale trade

Before his death, Apple co-founder Steve Jobs expressed his hope that the iPhone would be made entirely in the United States. However, this has been far from the case. In fact, the iPhone is a symbol of globalisation as it takes many countries to make and trade an iPhone.

Meanwhile, in the Tiwi Islands of the Northern Territory, acacia mangium tree plantations are felled to make woodchips. These woodchips are then sold to Japan and China, where they are turned into paper and fabric, which is then sold back to us at a higher price.

Global interactions such as these are occurring all across the world with respect to many different products. So why doesn't the United States make the entire iPhone and why do we make such a small amount of our own paper? What is the purpose of global trade?

## CASE STUDY 7.6



### The iPhone

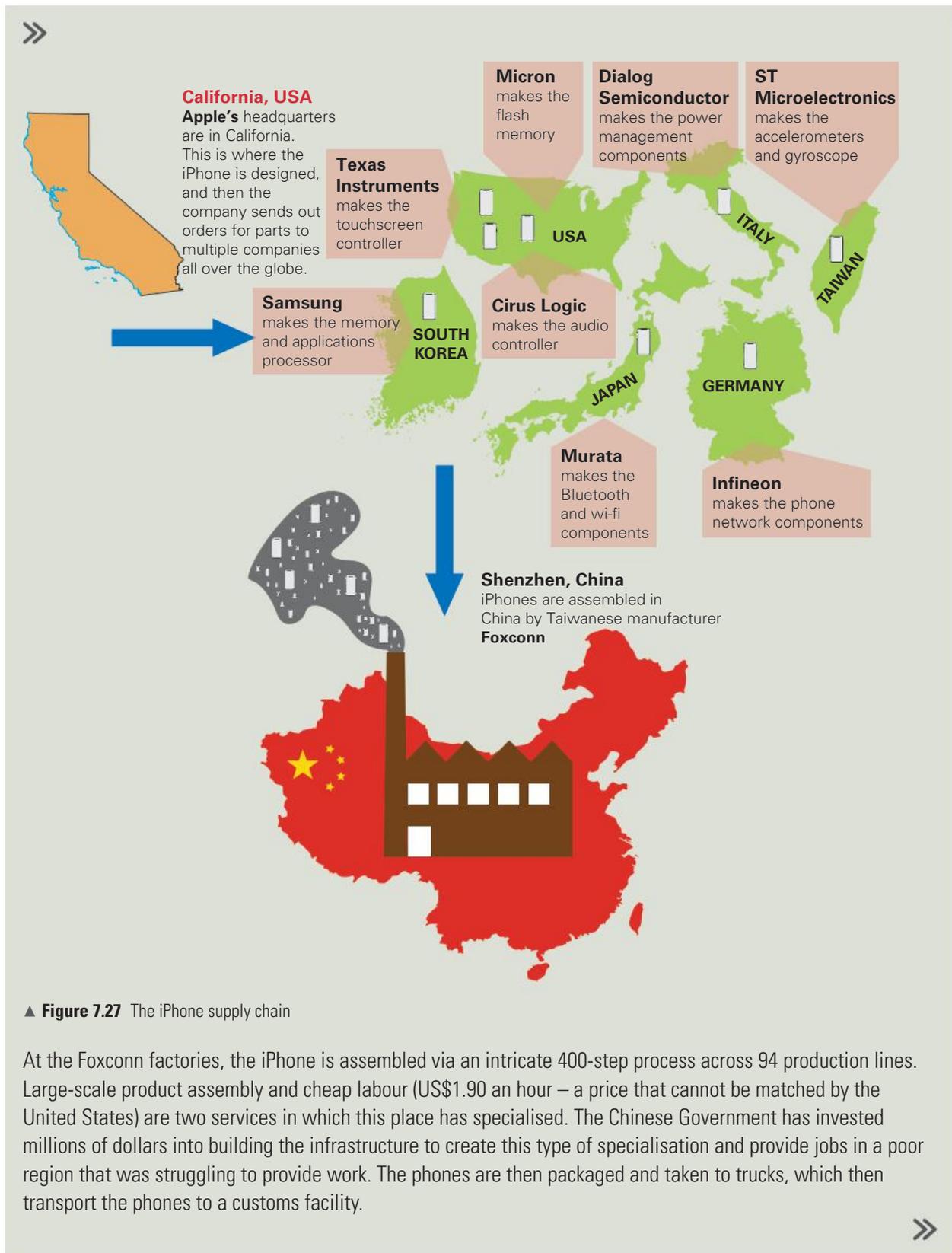
Apple is an MNC. Apple's headquarters are in Cupertino, California, in the United States.

Every day, half a million iPhones are manufactured in Zhengzhou, central China, by a company called Foxconn.

An iPhone's birth begins with the manufacturing of its components, which are made by over 200 suppliers, such as Intel, Samsung and Sony, in many countries around the world, including the United States, Japan, Korea and Taiwan. Just a handful of these components are identified in Figure 7.27. Apple then buys these components from the manufacturers and sells them to Foxconn.

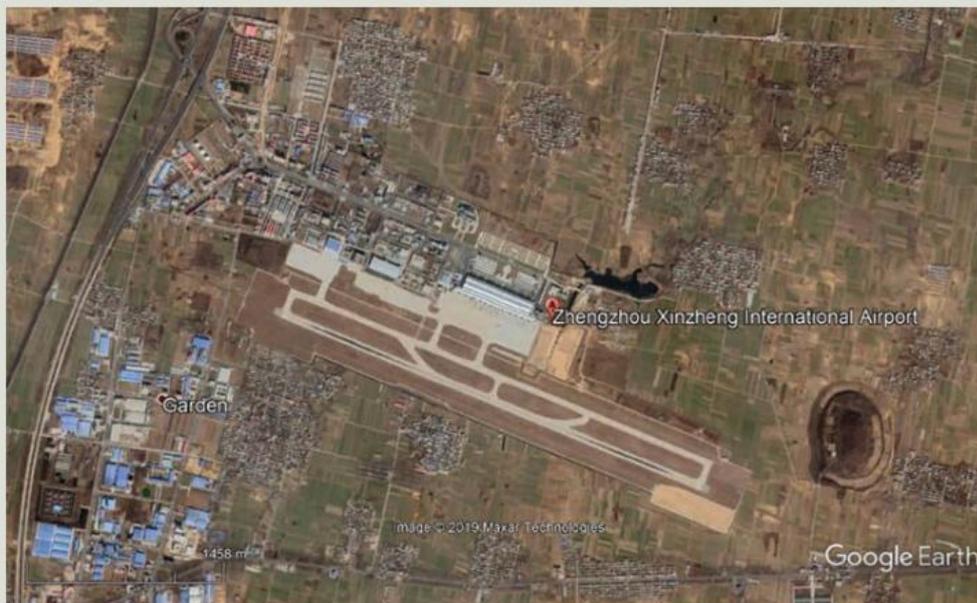
Geographers refer to this phenomenon as the international division of labour, as each country may specialise in manufacturing certain goods or services that contribute to the creation of an overall product. So, for instance, to make one product, the parts may be made in different countries, based on each country's specialty. Then the parts are all transported to a place that specialises in assembling and packaging products.



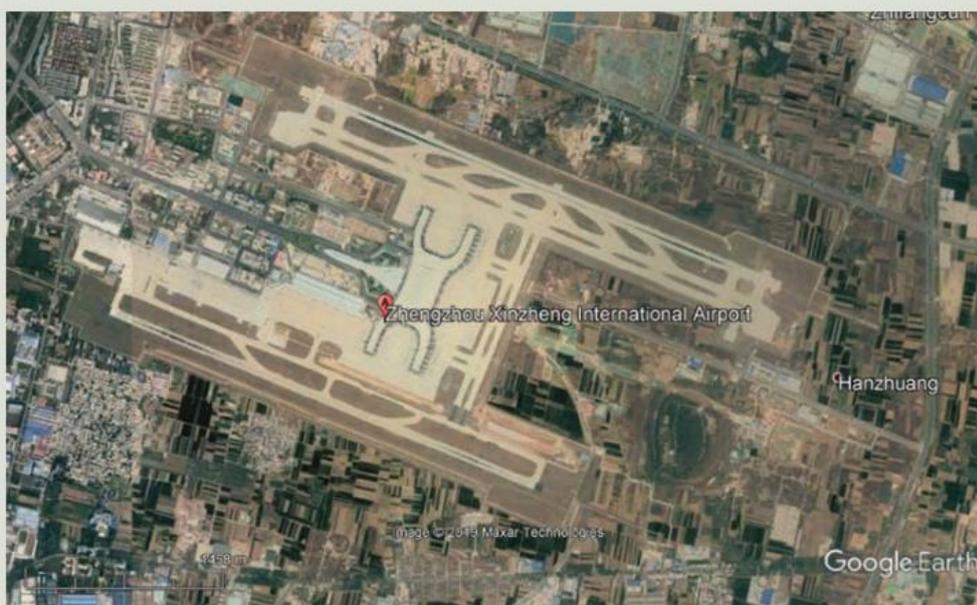


▲ **Figure 7.27** The iPhone supply chain

At the Foxconn factories, the iPhone is assembled via an intricate 400-step process across 94 production lines. Large-scale product assembly and cheap labour (US\$1.90 an hour – a price that cannot be matched by the United States) are two services in which this place has specialised. The Chinese Government has invested millions of dollars into building the infrastructure to create this type of specialisation and provide jobs in a poor region that was struggling to provide work. The phones are then packaged and taken to trucks, which then transport the phones to a customs facility.



▲ **Figure 7.28** Satellite map of Zhengzhou International Airport, China, 2009, approximately one year after Foxconn began manufacturing iPhones



▲ **Figure 7.29** Satellite map of Zhengzhou International Airport, China, 2019

While in customs, Foxconn sells the completed iPhones to Apple, which resells them to Apple affiliates around the world. iPhones that are exported from China are taken by truck to the nearby Zhengzhou airport. Figures 7.28 and 7.29 are satellite maps that have the same map scale. They show how the airport has grown in order to transport the increasing number of iPhones. These products were once transported by ship, but it has become cheaper to use planes, as a single wide-body Boeing 747 can carry 150 000 iPhones.

From Zhengzhou, a variety of freight carriers, such as FedEx, fly the phones to hubs around the world, where they are then transported via various means to Apple affiliate stores. From here, the product can be bought by us, the customers.





## ANALYSIS QUESTIONS

- 1 Study Figure 7.27 closely and answer the following Making thinking visible: see, think, wonder questions.
  - a What do you *see*?
  - b What do you *think* about that?
  - c What does it make you *wonder*?
- 2 What is the map scale of Figures 7.28 and 7.29?
- 3 Describe the land change over time between Figures 7.28 and 7.29.
- 4 Why has this change occurred?



**Key concepts:** environment, change, sustainability



**HASS skills:** analysing, evaluating, communicating and reflecting questioning and researching

## END OF SECTION REVIEW 7.5



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 Define the terms 'trade', 'goods', 'services', 'multinational corporation' and 'international division of labour'.
- 2 What is a manufacturing industry? Provide two examples.
- 3 How much does an iPhone employee in Zhengzhou get paid per hour? Why do you think that the United States could not compete with this level of wages?

#### Interpret

- 4 Explain how the iPhone is an example of specialisation and the international division of labour.

#### Argue

- 5 Discuss the pros and cons of buying locally compared to buying globally made products. In your opinion, which is better?

#### Extension

- 1 Create a world map, either on paper or online using Google Earth Pro, to show the journey of an iPhone from start to finish, based on the information provided in this chapter. Using annotations, include information about the role each location plays in creating the phone.
- 2 Choose another product made by an MNC to investigate. Research the location of the MNC's headquarters, where the parts of this product are manufactured, where they are assembled, and how they are transported and sold.



**Key concepts:** place, space, interconnection



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 7.6 The effects of the production and consumption of goods for trade

### FOCUS QUESTIONS

- What are the social and environmental impacts on places that produce raw materials?
- What are the social impacts on places that make products?
- What are the environmental impacts on places that receive waste?

As we have learnt, the production of goods is often a global-scale process. In this process:

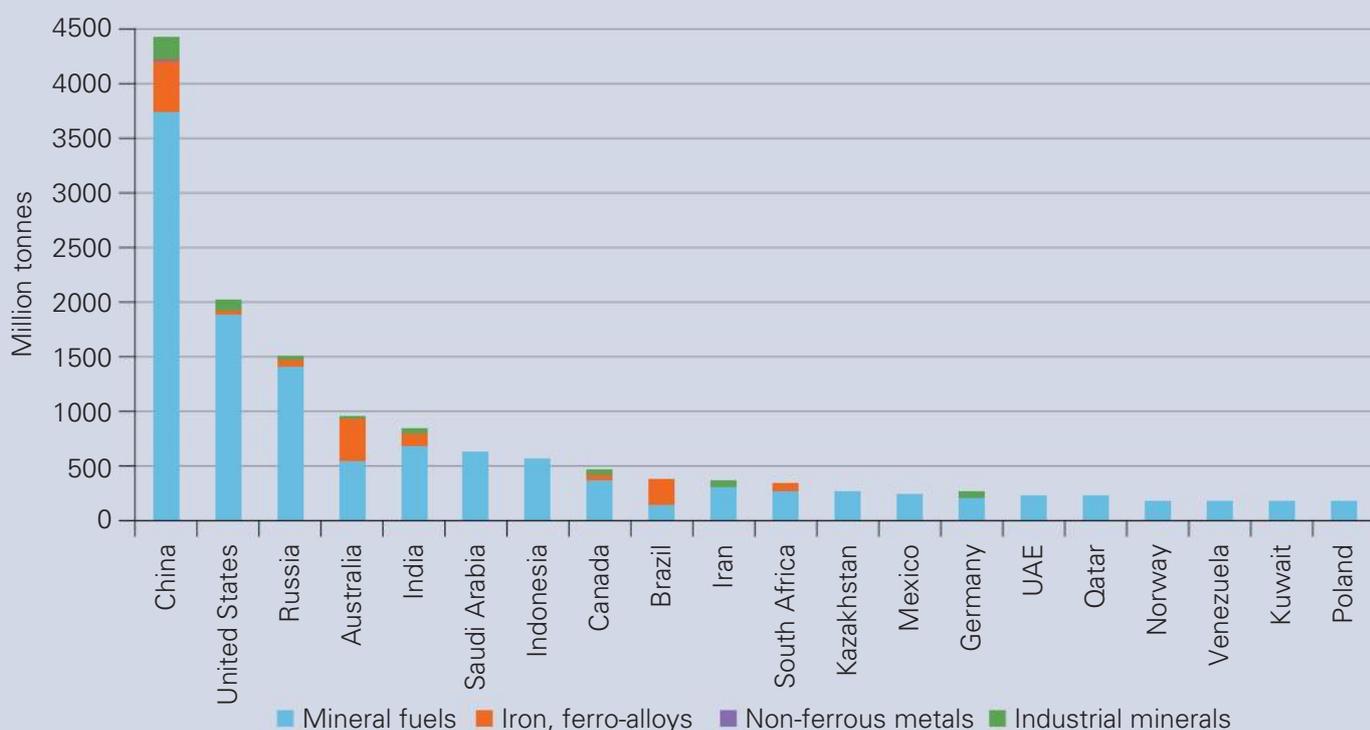
- a variety of parts may be made in different places across the world due to specialisation
- these parts are transported to a central place to be assembled and packaged
- the products are then distributed across the world to consumer markets.

In this section, we examine the environmental and social impacts of goods production (where goods are made) and goods consumption (where goods are bought, used and discarded).

### Social and environmental impacts on the places that produce raw materials

Raw materials are the basic materials that we use to make products. Examples of raw materials include water, vegetables, wood, oil, coal and metals. The stacked bar graph in Figure 7.30 shows the largest producers of raw materials by volume. Australia ranks fourth in the world. Our status as a raw materials producer has had significant impacts on our society and economy. Some of these impacts are outlined in Case study 7.7.

### TOP 20 RAW MATERIALS PRODUCERS



▲ **Figure 7.30** The 20 biggest producers of raw materials (in million tonnes)

**ACTIVITY 7.8****Interpretation activity**

Study Figure 7.30.

- 1 What types of raw materials does Australia produce?
- 2 In what ways is Australia's production of raw materials similar to and different from that of other countries in the graph?



**Key concepts:** interconnection



**HASS skills:** questioning and researching, analysing

**CASE STUDY 7.7****Australia's mining boom**

In 2003, a mining boom began – Australia's largest since the 1850s gold rush. This boom was the consequence of a rapid demand for raw materials from Asian countries to meet the needs of their expanding manufacturing industries. In a short period of time, prices for iron ore increased from \$20 a tonne to peak at \$170 a tonne. The impacts of Australia's mining boom affected many Australians, as outlined in Table 7.6.

**MINING BOOM IMPACTS**

<b>Workers</b>	Many employees were well paid. For example, truck drivers in the mines could earn \$150 000 a year.
<b>Property owners</b>	House prices in the Pilbara mining region increased from \$200 000 to over \$1 000 000 as many people moved to the region for work, which increased housing demand.
<b>Multinational corporations and Australian mining companies</b>	The revenue (income) made from selling products at a higher price than in the past increased sevenfold. This created huge profits for the companies and their shareholders.
<b>Australia's society</b>	Migration to Australia increased, which in turn energised the economy (as new residents require goods and services, which stimulates businesses). It also further promotes multiculturalism.
<b>Australia's economy</b>	At its peak, mining made up 8.5 per cent of Australia's GDP. The global financial crisis, experienced in Australia from 2007 to 2009, hit many countries hard, and unemployment increased. However, Australia's employment remained strong, and the country's wealth enabled the government to spend money to allow Australians to maintain their standard of living. Australia was therefore much less affected by the crisis.
<b>Agricultural, tourism and manufacturing industries</b>	During the boom, the Australian dollar became strong, which made our produce expensive. Local manufacturing industries were forced to pay high prices for Australian raw materials. Agricultural and tourist industries suffered due to the strength of Australia's economy, as the exchange rate made our country expensive for foreigners to buy from or visit.

▲ **Table 7.6** Impacts of Australia's mining boom



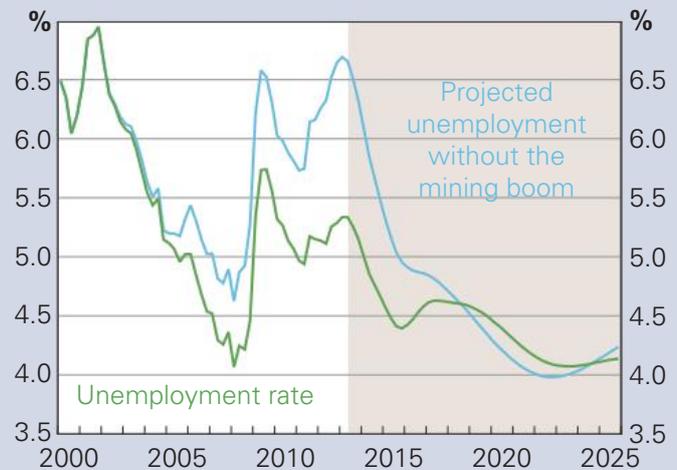


The mining boom peaked in 2012 and then slowed temporarily. Although levels of employment are slowly increasing again, this new wave of mining activity is aiming to use more robotics and automation – that is, the process where tasks are performed by machinery. This will impact the distribution of workers, as there will be more workers in city offices overseeing robots and machinery, rather than on the ground in the mines. This may also reduce the economic benefits for regional communities that had benefited from the local economic activity generated by the last boom.

## ANALYSIS QUESTIONS

- 1 Study Table 7.6 and identify two groups that benefitted from the mining boom and two groups that were disadvantaged by the mining boom.
- 2 Study Figure 7.31. Summarise the impacts that the mining boom had on the employment rate from 2000 to 2013. Refer to the data in your answer.

## UNEMPLOYMENT RATES



▲ **Figure 7.31** Australia's actual unemployment rate compared to the estimated unemployment rate if the mining boom did not occur



**Key concepts:** change



**HASS skills:** analysing, evaluating

## CONSUMPTION OF RAW MATERIALS

	Raw material	Some of its common uses	Years from 2020 until completely used up
	Indium	LCDs	2
	Silver	Jewellery, catalytic converters – i.e. a device that reduces the toxic gases and pollutants that come out of a car's tailpipe	18
	Antimony	Batteries, increasing metals' durability and decreasing friction	19
	Tin	Cans, preventing other metals' corrosion	29
	Lead	Pipes, batteries	31
	Gold	Jewellery, dentistry	34
	Uranium	Power stations, nuclear weapons	35





	Raw material	Some of its common uses	Years from 2020 until completely used up
	Zinc	Galvanises metals and used as alloys in a lot of products like plastics and cosmetics	35
	Copper	Wires, coins, plumbing	50
	Nickel	Batteries, turbine blades	79
	Tantalum	Mobiles, camera lenses	105
	Chromium	Chrome plating, paint	132
	Phosphorus	Fertiliser, animal feed	334
	Platinum	Jewellery, catalysts, fuel cells for cars	349
	Aluminium	Foil, aeroplane parts	1016

▲ **Table 7.7** The number of years before the global consumption of raw materials is exhausted

**Source:** Armin Reller from the University of Augsburg and Tom Graedel from Yale University. Please note that these figures are based on the consumption rate of these materials in 2009 (which is unlikely to have remained constant, with an ever-increasing population and increase in consumption). They also do not take into account the development of new technologies that is likely to increase these rates even more rapidly.

## ACTIVITY 7.9



### Interpretation activity

Study Table 7.7.

- 1 Which raw material are we expected to use up first? What products is this raw material used for?
- 2 Which raw material is expected to last the longest? What products is it used for?



**Key concepts:** interconnection



**HASS skills:** questioning and researching, analysing, communicating and reflecting

## Environmental impacts on countries that supply raw materials

Societies and environments are increasingly impacted as raw materials (non-renewable resources) become less available. Table 7.7 shows how long some raw materials are predicted to remain available. Many raw materials will not necessarily run out

**fracking** the process of drilling down into the Earth and pumping in a high-pressure water mixture so the rock releases the natural gas inside

completely; for example, there is much gold at the bottom of the ocean. As raw materials become more scarce, people begin to extract them from more difficult locations, which can be dangerous and expensive. For example, natural gas is now being mined through hydraulic fracturing, or **fracking**, which can create 300 million litres of toxic wastewater per well. Oil is now being extracted from tar sands in the deep ocean, requiring a lot of energy to extract and convert it into a usable form.

This dangerous process resulted in the oil spill in the Gulf of Mexico in 2010, which killed 11 workers and thousands of animals. Half of the surviving dolphins were found to be extremely sick from lung and adrenal disorders linked to oil exposure.

However, there is potential for new technologies to extract, recycle or even replace popular raw materials. For example, the use of coal is being replaced by renewable energies in some countries.

Mining raw materials impacts the environment by reducing water supplies and changing biomes. This has the flow-on effect of harming the livelihoods of rural communities who live in places where mining is occurring. Mining corporations often draw water from nearby rivers and aquifers, while run-off from the mines pollutes local water sources and soils with metals such as mercury and lead. This reduces the water and soil available for communities and commercial and subsistence agricultural activities.

Such pollution has led to community protests across the world. In Peru in 2017, people from the town of Cerro de Pasco marched 240 km to Lima to bring attention to the fact that 2070 of their children had extremely dangerous levels of lead in their blood. And in 2019, thousands of people from Çanakkale in north-western Turkey protested against the deforestation carried out for a new gold mine and the heap leaching process

used by the mining company to separate gold from ore. There is concern that the process will leak cyanide into the local dam that provides water to 180 000 people and irrigates over 5000 hectares of land.

In Australia, the proposed Carmichael coal mine in central Queensland is being resisted by people who are concerned about the potential 500 coal ships that will be able to travel through the Great Barrier Reef World Heritage Area, and about the estimated 270 billion litres of Queensland's groundwater that the mine will have access to in an area that is already prone to drought.

### The social impacts on places that make products

Have you ever wondered how a \$5 cotton T-shirt is made? After running the farm to grow the plants that produce the seed pods from which the fibres are extracted, harvesting the raw material, turning it into fabric, designing the product, manufacturing the product and then transporting it, how does anyone make a profit?

As we have learnt, companies can move their manufacturing to places that offer cheap labour. While this international division of labour increases the profits of MNCs, it has significant, and sometimes devastating, social impacts for the places where these products are made.

## CASE STUDY 7.8



### Life at Foxconn, Zhengzhou, China

Foxconn in Zhengzhou is one of the main manufacturers of iPhones. The 3.5-km<sup>2</sup> area of land was once used for agriculture, but was purchased by the Chinese Government in 2010 and converted to a gated industrial and residential zone that is often now referred to as 'Foxconn City'. Some of the work is seasonal. It is busiest in summer, when up to 350 000 people are hired to produce the new iPhones before their global release in autumn. The conditions in Foxconn are believed to be fairly standard for the Chinese manufacturing industry. So, what does life look like for the makers of our smartphones?





## CONDITIONS AT FOXCONN

<b>The people</b>	<p>The factory attracts mostly 16–30-year-olds from Henan province. People migrate to Foxconn City as it is close enough to their villages to be able to see their families. Liu (an employee) said, ‘You get Sundays off and you can go home and visit your family. That’s the perk’ (Liu, a Foxconn employee, quoted in Harrison Jacobs, ‘Inside “iPhone City,” the Massive Chinese Factory Town Where Half of the World’s iPhones are Produced’, 2018). People who work at factories further away from home only see their families on Chinese New Year and National Day. Many children are raised by their grandparents while their parents work at the factories.</p>
<b>The work</b>	<p>Production line work can be monotonous, as each employee usually only has one job to do – for instance, wipe the iPhone screen or solder one component. Though the work may not be difficult, one employee states, ‘You do the same thing every day. It never ends. After a while you get annoyed at the thing you are doing. You don’t even notice it at first ... Eventually, I felt annoyed to the core of my heart. Like I had no purpose’ (Chen, a Foxconn employee, quoted in Jacobs, 2018). Managers have been known to humiliate workers if they make mistakes – for example, by making the worker write a formal letter of apology that they need to read to fellow workers.</p>
<b>The wages</b>	<p>Workers typically earn A\$585 a month, which is below the estimated <b>living wage</b> of A\$857 a month. However, workers are attracted to this job because of the overtime that is often available. Some Foxconn workers work 60 hours of overtime a week, which amounts to 14-hour days, seven days a week. This can earn them A\$900 per month. For those who can afford it, much of the money is sent back to their family, as it is the expectation that younger Chinese people economically support their elders.</p>
<b>The accommodation</b>	<p>Most workers live in the 10-storey residential buildings in Foxconn City. Eight people share a room and sleep in bunk beds. Rent is A\$23.60 per month. The gated city has many of the usual businesses, run by migrants from Henan province or other parts of China. This includes restaurants, karaoke lounges, sport clubs, internet cafes and clubs.</p>

**living wage** an income that is high enough to live a normal standard of life

▲ **Table 7.8** Living and working conditions for Foxconn workers in Zhengzhou, China

► **Figure 7.32** Happy faces: migrant workers take the Migrant Train home to Beijing from Zhengzhou. For many of these workers, this is one of two times that they visit their family each year.

## ANALYSIS QUESTIONS

- 1 List some pros and cons about working at Foxconn.
- 2 Explain whether you think the way the iPhone is produced is ethically sound.



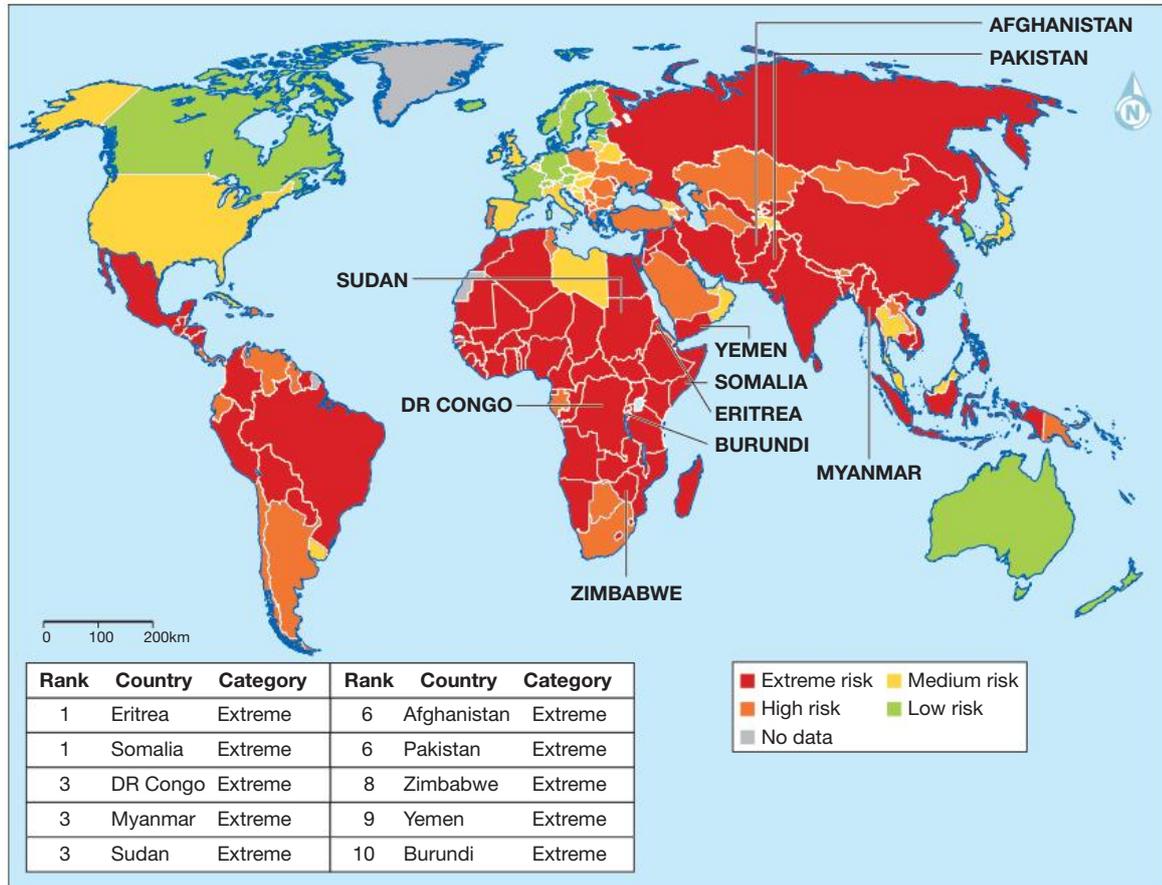
**Key concepts:** place, space, change



**HASS skills:** analysing, evaluating

## Child labour in the garment industry in Bangladesh

Child labour is defined by the United Nations Children's Fund (UNICEF) as any activity that affects a child's health and education. A child under 12 years old who is working one or more hours a week is considered to be a child labourer. Child labour has been decreasing over recent decades; however, 265 million (or 17 per cent) of children are still working. Figure 7.33 shows countries that remain places of child labour.



▲ **Figure 7.33** This colour-coding on this map indicates a child's risk of entering into child labour, depending on the country in which they live.

### ACTIVITY 7.10

#### Interpretation activity

Study Figure 7.33. Identify two regions, and two countries within each of these regions, that are considered to be in the following risk categories of child labour:

- 1 extreme risk
- 2 high risk
- 3 medium risk
- 4 low risk.



**Key concepts:** place, interconnection



**HASS skills:** analysing

**less economically developed country**

a low-income country that is struggling to develop in a sustainable way. Such countries are very vulnerable to economic and environmental challenges.

**GDP per capita** the gross domestic product divided by the number of people in that country

**poverty line** the minimum amount of money needed to afford the basic necessities of life

Bangladesh is located in the region of South Asia. It is considered to be a **less economically developed country** and has a **GDP per capita** of A\$2241, compared to Australia's GDP per capita of \$79 524.

In Bangladesh, children as young as six years old work up to 110 hours a week for

an average of less than A\$2 a day. Boys typically work in agriculture, mining and quarrying, while girls typically work in the garment industry (making clothing) and as domestic servants in people's homes. This is often referred to by geographers as the gendered division of labour. Work is separated according to gender, based on the beliefs that a country or culture might have about the roles of men and women in society.

The garment industry is the country's largest export and Bangladesh is one of the top 10 garment exporters in the world. Many of the clothes for sale in Australia are made in Bangladesh.

## Factors leading to child labour in Bangladesh

Economic factors are the main reason why children work in Bangladesh. In this country, 31 per cent of people live below the **poverty line**. Most child labourers come from poor families and are forced to leave school in order to work to help support the family. Sometimes children are forced to work for a living to support themselves because their families cannot look after them. The lack of education, as well as the long, tiring hours of work, make it very difficult for these children

to have the opportunity to work in higher paying jobs. When families continue to live in poverty from generation to generation because of a lack of opportunities, it is known as the poverty cycle.

## The impacts of Bangladesh's garment industry

The garment industry is the main employer of child labour in terms of paid work, and has fuelled the rise in child labour in urban places. The hazards associated with this work include exposure to dangerous chemicals and machinery, which can lead to injuries ranging from cuts to musculoskeletal disorders. Fires and the collapse of buildings are other risks due to overcrowding and poor infrastructure.

## Improving Bangladesh's garment industry through education and pay

Bangladesh has impressively cut its poverty rate from half of the population to a third over the last 20 years. Education was key to this shift. Primary school has become free and compulsory.

However, once a child is of secondary school age, poor families send their children to work as they cannot afford the school fees. The quality of education can be poor. On average, teachers in Bangladesh miss one out of five days of work a week. In 2016, an Overseas Development Institute study found that only half of working children aged 11–14 were able to read the sentence 'the girl is playing', compared to 89% of children only studying.

The benefits of education are enormous. Each extra year of education increases a person's income by roughly 10 per cent. Moreover, GDP per capita in low-income countries could be up to 70 per cent higher if all children were educated.

## ACTIVITY 7.11

### Interpretation activity

Study Figure 7.34.

- 1 From which region do most children leave school to work?
- 2 From which region do most children leave school without entering the child labour force?

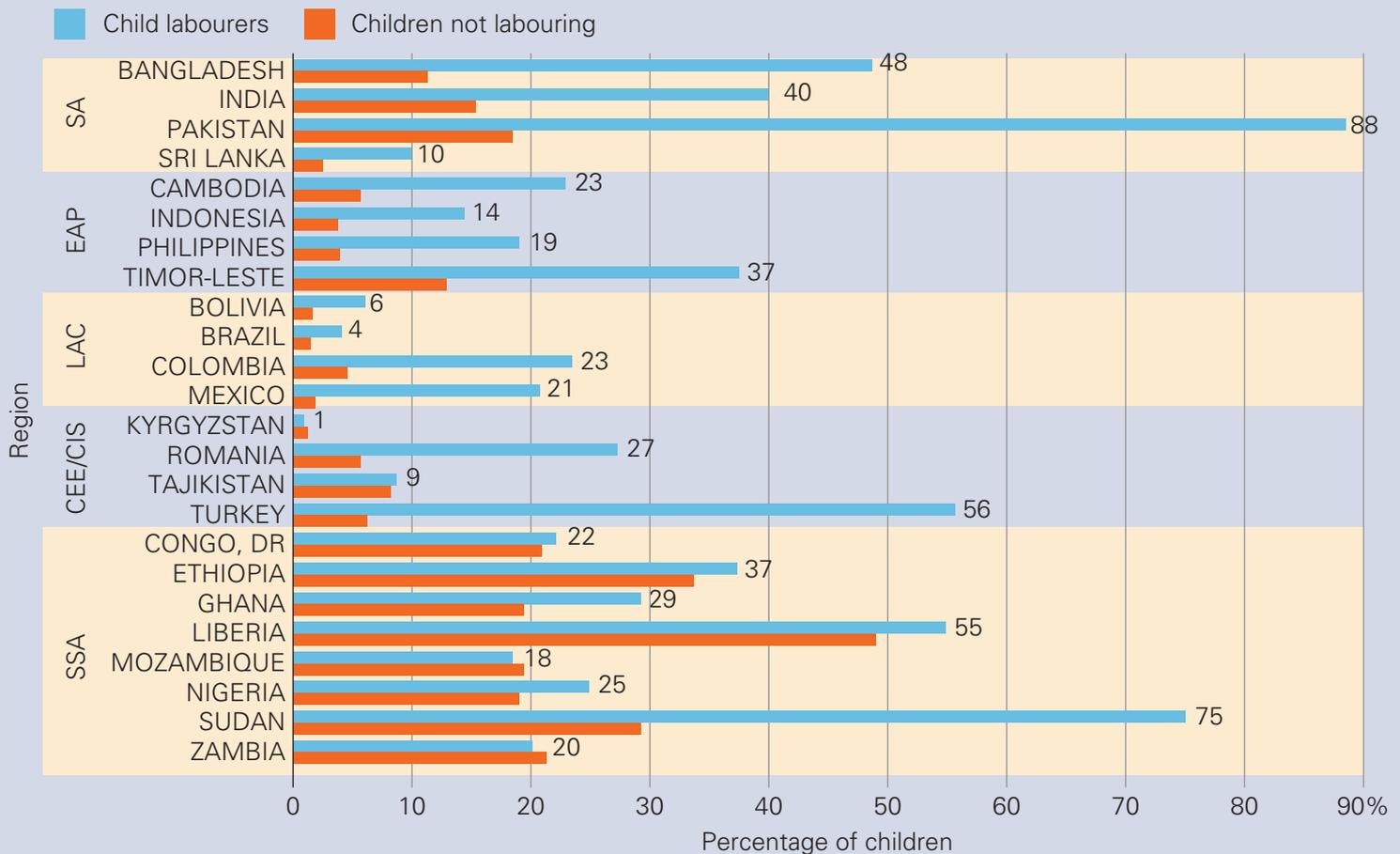


**Key concepts:** place



**HASS skills:** analysing

## SCHOOL ATTENDANCE AND CHILD LABOUR



SSA – Sub-Saharan Africa  
 CEE – Central Eastern Europe  
 CIS – Commonwealth of Independent States  
 LAC – Latin America and the Carriibbean  
 EAP – East Asia and Pacific  
 SA – South Asia

▲ **Figure 7.34** Percentage of children 7–14 years old who do not go to school, by child-labour status and by country

Although Bangladesh has created stricter labour laws, these laws are not enforced. The long supply chain from Bangladesh to our shopping stores means that we (the consumers) are disconnected from, and sometimes completely ignorant of, the places where our products are made, and the impacts of those working conditions. Paying workers a fair wage may result in paying A\$1 extra for an item of clothing in a store, or a cut in the profits of multinational corporations.

However, if the yearly wage of a Bangladeshi increased from A\$0–\$500 to A\$500–\$1000, child labour would reduce from 30–60 per cent to 10–30 per cent. Websites such as Fairtrade list certified brands that pay their workers a fair price for their labour. Consumers like us can choose to purchase Fairtrade goods. This not only supports



▲ **Figure 7.35** The Fairtrade logo – have you seen it on products at your supermarket?



companies that do the right thing but gives poor-performing companies an incentive to improve their practices.

## ACTIVITY 7.12



### Research task

Watch the video 'Child Labor: 11 year-old Halima sews clothing for Hanes' on YouTube. Write a letter from the perspective of Halima informing Australian children of her experience. Structure your letter in the following way:

- Begin by introducing yourself as Halima and describe your living and working conditions.
- Explain how poverty has influenced child labour in your country of Bangladesh.
- Then, with help from this chapter and external research, explain to Australians what they can do to ensure that products are made fairly.



**Key concepts:** place, interconnection



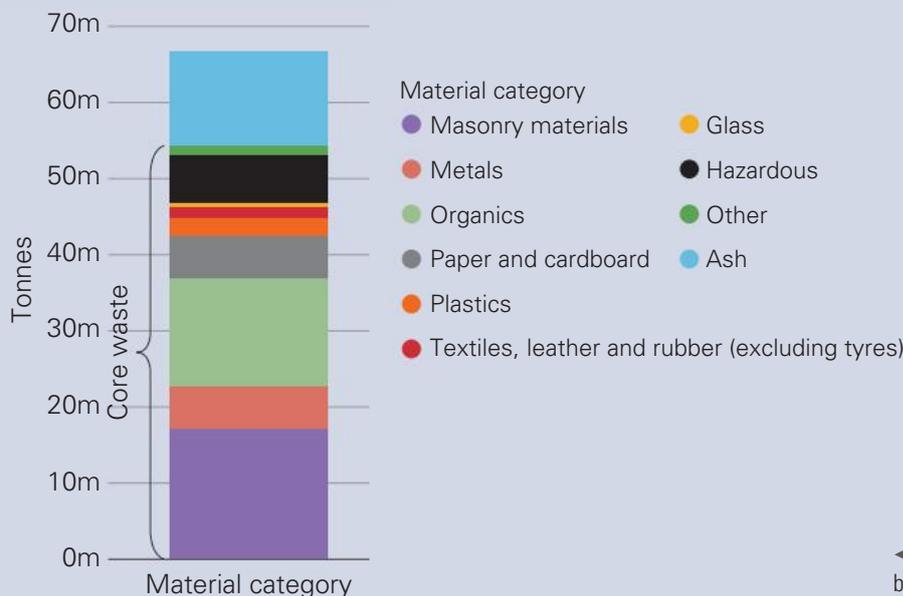
**HASS skills:** evaluating, communicating and reflecting

## Environmental impacts on places that receive waste

There has been a trend in recent years towards the reduction of poverty around the world. However, as we continue to become more wealthy, our desire and expectation to own more goods increases. Ultimately, we want new things and cannot simply store everything that we purchase.

As a consequence, we throw away many of our old goods to make room for the new ones. The scale of this behaviour is shocking. Hazardous waste from products such as batteries, cosmetics and electronics is increasing. In fact, human-made chemical production has increased by 40 000 per cent in just 40 years. One million plastic bottles are bought every minute.

## WASTE BY CATEGORY



◀ **Figure 7.36** Australia's waste by type of material in 2016–17

## ACTIVITY 7.13



### Interpretation activity

Study Figure 7.37. Rank the countries from those that accepted the most of Australia's waste to those that accepted the least of Australia's waste in January 2017 and in July 2018.

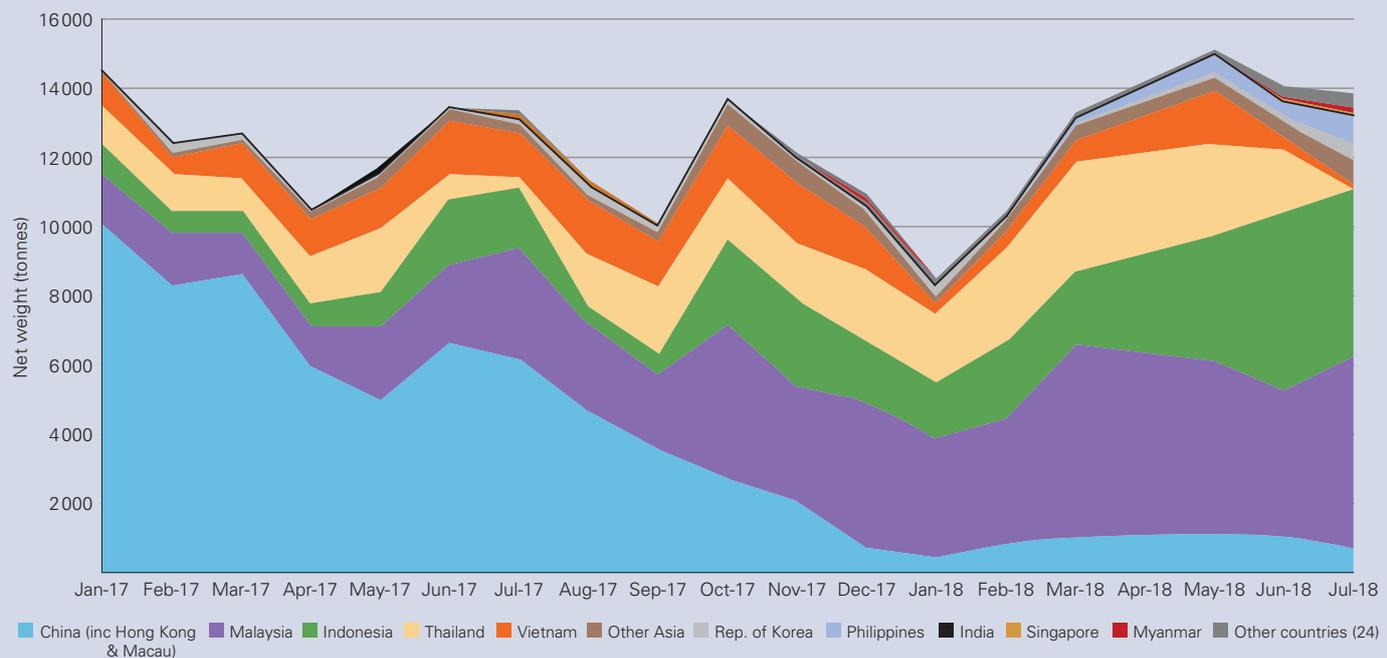


**Key concepts:** environment, interconnection



**HASS skills:** questioning and researching, analysing

## DESTINATION OF PLASTIC WASTE EXPORTS FROM AUSTRALIA, JAN 2017–JUL 2018



▲ **Figure 7.37** Countries that received Australia's plastic waste exports from January 2017 to July 2018 shown in an area chart. This shows the contribution each country made to the total amount of plastic waste exports.

Until 2018, Australia was exporting half of its plastic waste, mostly to China. In 2018, China restricted the amount of waste it would accept from Australia. Since then, Australia has exported plastic waste to South-East Asian countries that have also since placed restrictions due to environmental and social issues associated with processing plastic.

### What are the impacts of plastic pollution?

Most plastics are sold to villages, where people melt the plastics so they can be used to create other products. This process uses large amounts of water and energy. Much of the plastic is dumped and ends up in the ocean, while some plastic is burned, polluting the air and water with toxic chemicals.

### Responses: waste to energy and repair cafes

#### Waste to energy

Sweden made headlines when it announced that it was running out of plastic. In fact, it now makes A\$100 million a year from accepting plastic from other countries. Plastic is burned on an industrial scale to create heating and electricity for the country. This is seen by many as being a better outcome than burying plastic waste in

landfill. However, there are drawbacks. Because plastic is made from poor-grade oil, burning it emits carbon dioxide into the atmosphere, adding to global warming. Moreover, when a similar plant was proposed in Sydney, many people were concerned about the toxic chemicals that could be released into the air. Sweden claims that its technology is advanced enough to sufficiently reduce this risk. There is also the risk that this practice encourages the making of plastic, as it becomes a source of income and energy.

#### Repair cafes

The first repair cafe started in Amsterdam, Netherlands, in 2009. Those who have goods that need repairing can attend the cafe, where they are matched with people who have the skills to repair the goods. The idea is that those bringing in the goods will also gain skills and knowledge. The benefit of this is that it reduces the amount of goods being thrown into landfill, as well as stopping that individual from purchasing a replacement. It is also a cheaper alternative, because it is free. Social benefits include the sense of community and goodwill for those that attend the cafe, and free education. Drawbacks include the fact that, for some, the repair cafe may not be as convenient as making a new purchase, and there is no guarantee that the goods will be fixed.

## END OF SECTION REVIEW 7.6



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 Provide three examples of raw materials.
- 2 Define the terms 'living wage', 'gendered division of labour' and 'automation'.
- 3 Which SHEEPT factor (see Chapter 6, Table 6.3 for an explanation of SHEEPT) is the main cause of child labour in Bangladesh?
- 4 When did Australia's most recent mining boom reach its peak?
- 5 How will automation change the distribution of workers in the mining industry?
- 6 Would unemployment in Australia have been higher or lower without the mining boom?

#### Interpret

- 7 Imagine that you are an employee at Foxconn. Write a letter to your family in the village detailing what everyday life is like for you in Foxconn City.

#### Argue

- 8 Compare the responses to plastic waste management outlined in this topic. Which response is most sustainable? Justify your choice by comparing the benefits and challenges of both.

#### Extension

- 1 Describe the scale of Foxconn City. This includes area size and the number of people living there. Use Google Earth Pro to attach a satellite image of Foxconn City to your answer. Annotate the image to show where factories, residential and commercial shops are found.
- 2 Draw a flowchart to demonstrate the poverty cycle.
- 3 Copy and complete the following table with examples from this topic.

	Places that produce raw materials	Places that produce the goods	Places that receive waste
Impacts on these places (include a mix of social, environmental, positive and negative impacts)			

- 4 Look up 'How do you make a fairer phone?' on the Fairphone website. In what ways is the Fairphone more sustainable and more 'fair' than the usual smartphone?
- 5 Create a fair-trade guidebook for teenagers. Create categories such as clothing, food, drinks, sports equipment and cosmetics. List as many fair-trade products as you can find under the appropriate categories and make the guidebook appealing with pictures, illustrations and some additional fun facts about fair trade.
- 6 Choose a raw material that is mostly derived from recycled materials. Research how this material is recycled into a reusable form.



**Key concepts:** change, sustainability



**HASS skills:** analysing, evaluating, communicating and reflecting



## 7.7 The effects of people's travel, recreational, cultural or leisure choices on places, and the implications for the future of these places

### FOCUS QUESTIONS

- What are the impacts of tourism?
- How is technology changing the tourism industry?
- Is tourism sustainable?

### The global growth of tourism and its likely effects on the future of places

#### Introduction

**Tourism** is one of the fastest-growing industries in the world, and is growing faster than many geographers had predicted. In 2019, there were 1.5 billion international tourist arrivals, according to the World Tourism Organization. This had increased by 7 per cent since 2017. Before the COVID-19 pandemic, it was reported that 1 in 10 jobs globally related to tourism.

In 2020 international (and local) tourism was brought to a standstill by the pandemic. This was a temporary stoppage. It is anticipated that the tourism industry will once again continue to grow as the threat of the pandemic decreases.

#### Economic impacts of tourism

The jobs provided by tourism support local, regional and national economies. About 3 per cent of people worldwide work in the tourism industry directly. However, the industry has a much broader reach than this, as it supports the jobs of 10 per cent of people worldwide. Figure 7.38 demonstrates the direct, indirect and induced impacts of cruise-ship tourism. It can provide much-needed income in places that otherwise have few resources to trade, such as Macau, where 44 per cent of its income comes from tourism, particularly spent by people drawn to the region's casinos.

However, there are some negative impacts of tourism, including underemployment or

unemployment for parts of the year in places where tourism is seasonal.

Moreover, the cost of housing, goods and services can increase in order to make money from tourists, which also puts financial pressure on locals who cannot afford the price increase.

**tourism** when people travel to places outside of their normal area for business or recreation, relaxation or pleasure

#### Environmental impacts of tourism

Tourism can impact environments in a positive way by providing financial investment in improved water quality, pollution reduction and infrastructure. It can also encourage governments to protect natural environments and heritage areas.

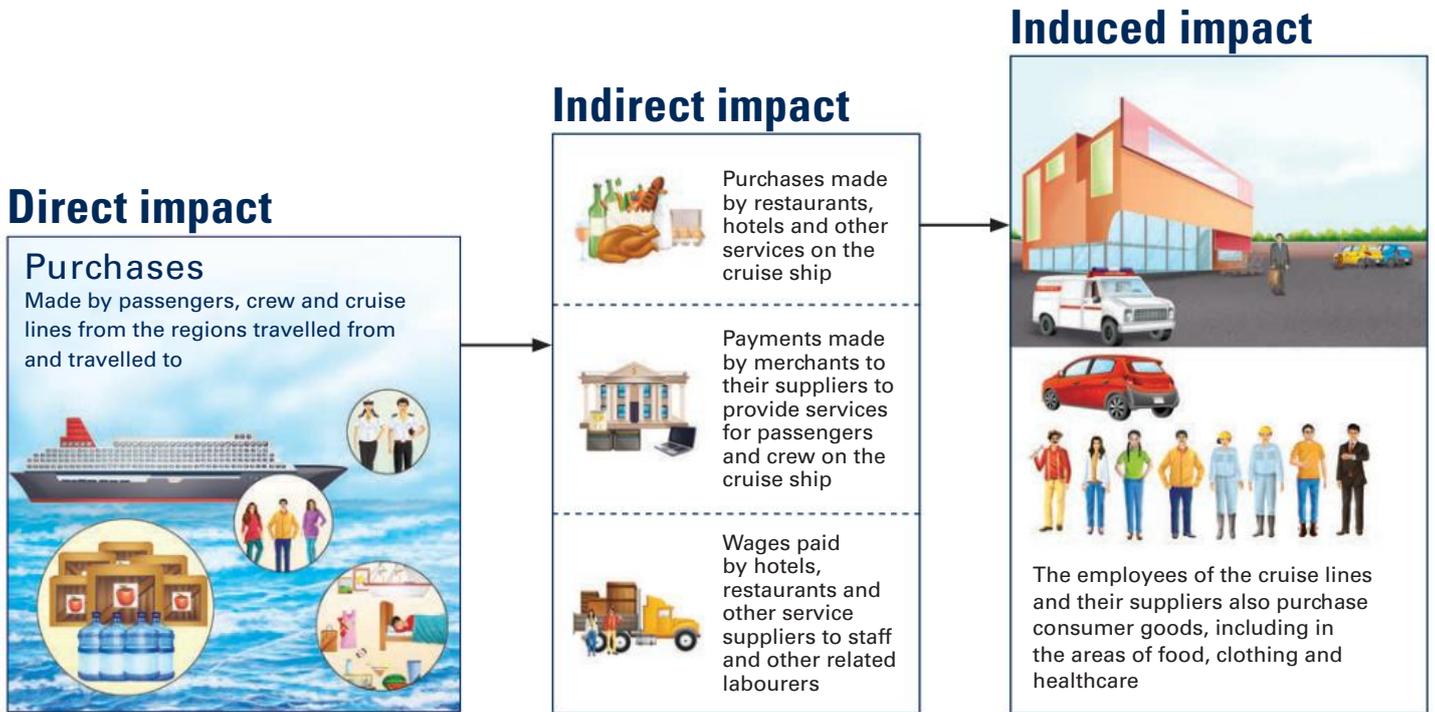
On the other hand, tourism can put a large amount of stress on places, particularly fragile environments such as coral reefs, deserts, mountains and coasts that are not able to cope with large amounts of people and their waste. The consequences can be degradation of habitats and loss of wildlife, pollution and soil erosion. If the environment becomes too damaged over time, a place may also lose its appeal to tourists, and they may no longer wish to go there. Moreover, transport alone contributes to climate change by emitting enormous amounts of carbon dioxide into the atmosphere.

The Ningaloo Coast (associated with the tourist towns of Coral Bay and Exmouth) is a World Heritage Area due to its biodiversity and natural beauty. Development is restricted to ensure sustainability of marine life, and to enable tourism to continue in the years to come.

### Social impacts of tourism

Travel can enrich people’s lives. Tourists and locals both have an opportunity to learn about one another’s culture and language, which can help people overcome their prejudices and stereotypes. It can also show travellers that there is no one way to live, and help people broaden their perspectives.

Negative social risks include changing the cultural values and behaviour of locals, increased crime, changes in family structures and roles, and damage to the natural and human environments. Conflict can occur between tourists and locals over resources. Tourists can use up to 16 times as much water as locals in some places. In addition, locals are sometimes forced to move as their homes are used to expand tourist developments.



▲ **Figure 7.38** Direct, indirect and induced impacts of cruise-ship tourism

▼ **Figure 7.39** Travelling and learning about the world can open up amazing experiences



## How is technology changing the tourism industry?

Technology has changed the travel experience and will continue to change these experiences in the future. Some emerging technologies that have an impact on tourism are outlined in Table 7.9.

### TECHNOLOGIES AND TOURISM

Technology	Use in tourism
Recognition technology	Biometric identifiers such as facial and fingerprint recognition can be used to streamline checkouts. In the future, you may be able to pay for a hotel by simply walking out the door.
Virtual reality (VR)	Virtual reality can be used by businesses to attract customers by showing them the experiences they could have. It can also be used by hotels to show potential customers the facilities they offer.
Artificial intelligence (AI)	Robots and chatbots provide travel information to tourists. Artificial intelligence is also being used to create hands-free luggage that will use sensors to automatically follow people.
Data collection	Data about each traveller is collected on databases in order to understand the traveller's wants and needs, and market a more personalised travel experience.

▲ **Table 7.9** Emerging technologies and how they impact tourism

▼ **Figure 7.40** This woman is using VR during her visit to the Holy Shrine of Imam Hussain in Karbala, Iraq. VR can enhance historical, cultural and religious experiences for visitors.



Impact of tourism around the world<sup>1</sup>

▲ **Figure 7.41** Impacts of tourism around the world

### Cambodia

'Voluntourism' refers to tourists who perform volunteer work while being tourists outside of their home country. In Cambodia, tourists volunteer at orphanages as a way of doing good. However, 80 per cent of these children are not orphans. They have been recruited from their villages by people who tell their parents that this is a great opportunity for children to get an education and meet Westerners. These children grow up with a loss of their culture and identity. Their relationships with tourists only last a few weeks, which can result in a warped sense of connection to others that is not based on any substantial, ongoing love. Abuse and mistreatment are also reported. The outcome for these children is often grim, with many of them suffering mental health issues into adulthood.

### Zanzibar

Hotels in Zanzibar hire security guards to protect the hotel's water pipes from locals who are experiencing extreme water shortages. In 2010, Zanzibar was also affected by a cholera outbreak that killed three locals. This outbreak was connected to contaminated groundwater from hotel sewage.

### Bali, Indonesia

Tourism makes up 80 per cent of Bali's income. The popularity of this island makes it far more wealthy than some other Indonesian islands where agriculture is the primary industry. Though pollution has been a problem, the group One Island One Voice holds an annual event called Bali's Biggest Clean Up. This event is supported by tourists and businesses, including MNCs that have a vested interest in keeping the island clean.

<sup>1</sup> At the time of writing, the global COVID-19 pandemic was unfolding, and having a major effect on the numbers of foreign travellers coming to and from Australia. This will likely cause dramatic changes in global tourism figures.



### Ghana

Ghana is experiencing strong growth in tourism. Ghana has a tragic history, as many people who were taken as slaves to the Americas and the Caribbean came from Ghana. The Year of Return 2019 was a marketing strategy designed to attract African-Americans to visit Ghana as tourists. While tourist growth is positive, the risk is that multinational businesses will invest in Ghana's tourism industry and overrun the locally run businesses.

### Singapore

'Bleisure travel' refers to combining travel for business with leisure activities. Singapore attracts international business people from the manufacturing, finance and real estate industries. For

leisure, these people can also enjoy shopping, sampling a variety of cuisines, seeing cultural sights and enjoying the luxuries of high-end hotels. Bleisure travel is a quickly growing industry and has the benefit of attracting people to places that they may not have otherwise visited.

### France

Paris is the most popular tourist destination in the world. The 50 million tourists each year impact local residents, who feel overwhelmed by the crowds. Tourism also affects the affordability of accommodation for locals, as residents are put out of their rental apartments by landlords who can make more money from renting the apartments using apps such as Airbnb. Some locals argue that the scale of tourism makes the city feel more like a theme park than an urban living environment.

### Australia

People around the world are becoming more wealthy. The increased affluence in China has had a strong impact on international travel, including in Australia. Chinese tourists make up the most international travellers to Australia, yet only 1.8 per cent of Chinese travel to Australia. Australia is expected to benefit from increasing numbers of Chinese tourists as more Chinese begin to afford travel.

### United States

National parks such as Yosemite and Yellowstone have helped protect the natural environment and native animals, as well as allowing tourists to enjoy nature-based tourism activities. However, the natural beauty of the United States also suffers from the impact of social media. For example, Horseshoe Bend near the Grand Canyon National Park became Instagram-famous and now attracts crowds of up to two million people annually, well beyond what the fragile desert environment can handle. The sudden popularity of the area also means that infrastructure is not in place to deal with the increase in visitors. As one local said, 'It was just a local place for family outings ... But with the invention of the cellphone, things changed overnight' (Bill Diak, local, quoted in Charlotte Simmonds et al., 'Crisis in Our National Parks: How Tourists are Loving Nature to Death', 2018).

### Greenland

Greenland is the world's largest island after Australia, and is largely covered by the only permanent ice sheet outside of Antarctica. Greenland's ice is melting due to climate change, which has increased the average winter temperature by almost 6°C. Tourism to Greenland has doubled in six years. Climate change tourism is attracting people who say they want to visit Greenland before the landscape changes and polar bears become extinct. Travelling by ship or plane to Greenland emits carbon emissions, so some people argue this is exacerbating climate change, while others see it as an opportunity for the tourism industry to grow.

### New Zealand

Wilderness refers to land that has not been developed, and has a very small, if any, amount of human impact. People attracted to wilderness tourism are often seeking the comfort of nature and hoping to escape the busyness of everyday life. However, there can be safety risks associated with this type of tourism. In 2019, tourists visiting White Island volcano lost their lives when the volcano erupted. Although the volcanic activity was being monitored, geographers are still developing their ability to accurately predict the timing of natural disasters such as this.

► **Figure 7.42** Advertisement urging tourists to consider the impacts of orphanage tourism



## END OF SECTION REVIEW 7.7

### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.

#### Recall

- 1 Is tourism a growing industry? Provide one statistic from the text to support your answer.
- 2 List one direct and one indirect impact of tourism.
- 3 Define the terms 'voluntourism', 'bleisure tourism', 'climate change tourism' and 'wilderness tourism'.
- 4 What does 'The Year of Return' refer to?

#### Interpret

- 5 Rank the emerging technologies in terms of technology that will have the most impact on tourism in the future to technology that will have the least impact. Justify your ranking order.

#### Argue

- 6 Provide your opinions on the following two questions. Justify your opinions using information from the textbook and further research. Hold a class debate on one of these topics.
  - a Do you think that voluntourism should be banned?
  - b Do you think there should be a limit on how much water tourists can use in places that are experiencing water scarcity?





## Extension

1 Organise the information that you have read in Section 7.7 by copying and completing this table.

	Positive impacts	Negative impacts	Example from 'Impact of tourism around the world' map
Economic impacts			
Social impacts			
Environmental impacts			

2 Create a travel tour through the African continent. You must stop at a minimum of one country from northern, southern, eastern and western Africa (a minimum of four countries in total).

- Describe the geographic characteristics (human and physical) of each place. Include characteristics such as the location, major landforms and biomes, places of interest, currency and exchange rate for Australian travellers, and the culture/religions/daily life of the people.
- For each country, include three activities that tourists can enjoy.

► **Figure 7.43** Where will travellers stop on your hypothetical tour of Africa?



**Key concepts:** change, sustainability



**HASS skills:** analysing, evaluating, communicating and reflecting



## 7.8 Conclusion: why does it matter?

As humans develop more effective ways of connecting communities through transport and online technology, and as populations grow around the planet, interconnection has increased. The impact of interconnection on the environment (places and spaces) and the impact on people has therefore become increasingly important. Increasing globalisation is the result of this interconnection, and globalisation has been both a positive and a negative force. Its limitations were highlighted starkly by the COVID-19 pandemic, but the interconnectivity that globalisation has created is here to stay.

Globalisation has led to governments being increasingly under pressure to consider more innovatively the changes that are occurring to places and spaces. Governments also have to recognise the geographical and economic challenges that complex, and often unregulated, expansion and interconnection have created. These are big challenges for all of our futures and we should be aware of them because they will result in lots of changes that will affect us on a daily basis, in the way we use the spaces and places in which we live.



## 7.9 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research tasks

- 1 Choose a multinational corporation to investigate. Suggestions include McDonald's, Rip Curl, Rebel, Amazon, Nestlé, Coca-Cola, Boeing, L'Oréal or BP. Address the following:
  - a Where is its headquarters?
  - b How much is the company worth?
  - c How much revenue (income) did it earn in the last financial year?
  - d How much does the average employee earn?
  - e Where does the company manufacture its goods? (Include places that supply the parts and assemble the products. You may wish to annotate a map to show the supply chain.)
  - f In which countries does it sell its goods?
  - g What are the environmental and social impacts associated with this company's operations?
- 2 Research your own connection to places around the world. Create a list of your possessions. For each item, write down where it comes from. Discuss your results in a paragraph.

### Analysis



#### Making thinking visible

In this chapter, we have read many case studies on the impacts of trade on the environment and society. Take on one of the following roles: a multinational corporation, a child labourer or other worker, the environment, a government or a consumer. Consider the phenomenon of global trade from your chosen perspective by answering the following prompts:

- 1 *I am thinking of global trade from the point of view of a ...*
- 2 *I think ...* (describe global trade from your viewpoint). Be an actor – take on the character of your viewpoint.
- 3 *A question I have from this viewpoint is ...* (Ask a question from this viewpoint.)

**Wrap up:** What new ideas do you have about the topic that you didn't have before? What new questions do you have?

## Writing



### Extended-response question

'The biggest problems facing the world today are not at all beyond our control, rather they are all of our own making, and entirely in our power to deal with' – geographer and author Jared Diamond (quoted in Darek Gondor, *Why Do We Over-consume?*, 2009). To what extent do you agree with this statement? Use examples from this chapter to help answer this question.



### Problem-solving task

Consider one of the challenges discussed in this chapter. Examples include child labour, lack of transport networks in Papua New Guinea, plastic pollution and reduction in raw material availability. Create a strategy that can overcome or reduce the negative impacts of this challenge. What are the main causes of this challenge? How does your strategy address the causes of the challenge? How could your strategy be implemented and what resources do you need? What difficulties might you face in trying to implement your strategy? How can you overcome these difficulties? Is your strategy sustainable?



▲ **Figure 7.44** A Bangladeshi child-worker carries a bowl of salt at Kutubdia in Bangladesh on 18 November 2019



**Key concepts:** change, sustainability



**HASS skills:** analysing, evaluating, communicating and reflecting

# Making connections: Geography and the other HASS topics

**Geography** has many connections with other subjects in the Humanities. Have you considered how what you have learnt about the geographies of interconnection, biomes and food security relates to the other topics you will cover this year? Here's a sample:



## Civics and Citizenship

### **Food production, interconnection (scale) and party politics: design a political slogan to address food sustainability in Australia**

Many Australians do not have enough to eat, yet thousands of tonnes of food are wasted across the country every day.

#### **Investigate:**

- how many people in your community or in Western Australia don't have regular access to food every day
- how much food waste occurs in your community or across Western Australia every day.

#### **Now identify:**

- two positive changes that could ensure there is less waste and enough food for everyone, every day (your policies)
- who has the power to make change/a difference
- who is already making change
- who your target audience is (who might vote for you)
- your slogan to convince people that your policies will work to bring about change.



## Economics and Business

### Interconnection, food production (sustainability) and innovation

#### What great business innovations are being used to create greater food security?

- 1 Identify at least three organisations or businesses that have produced creative solutions to increase sustainable food production and/or food security. Describe their innovations – what makes them so effective?
- 2 Choose one of the businesses or organisations from question 1. Examine how it is competitive and using fair trade or other socially responsible business practices as part of its innovation.



## History

### Biomes (place and environment) and World War I

Research and read about the climate in Belgium, by going online and looking up 'Belgium' at [Britannica.com](https://www.britannica.com) and navigating to the 'Climate' subsection on that page.

- 1 Which features of LAPDOG can you identify in this description? Record the relevant parts of the description that demonstrate these features.
- 2 Imagine you are an Australian soldier from Perth who has just arrived in the trenches at the Somme (practise empathy). It is winter (mid-January) and you are writing a letter home about the conditions. Make sure you identify how the weather has an impact on your ability to be an effective soldier. You might consider the impact of rainfall and temperatures on clothing, weapons, accommodation, food and other supplies, morale and health.



# Part

# 4



# History

## What is History?

History is the study of the past. We study the past in order to better understand the present and to help us prepare more effectively for the future. History can give us a sense of where we have come from. It can also give us a sense of where we are headed.

The concept of history is common to all people. It exists in all societies. The simple act of keeping records about ourselves, our families and the

nation in which we live makes all of us historians in one way or another.

History opens a window on the past. It shows how our own society has changed over time. It also helps us understand how other nations and societies have changed over time.

**primary sources** historical sources created at the time of the events being studied, e.g. photographs, speeches, letters and newspapers

**secondary sources** historical sources written after the events being studied and based on primary sources, e.g. history books, museum interpretative information and statistical tables

History is a process of investigation that follows certain rules. It begins by posing a question or starting an investigation, then gathering evidence that will answer that question.

One kind of evidence historians seek out is **primary sources**. These are records that were made by people who lived at the time being investigated. Written or printed documents are useful primary sources. Photographs, drawings and paintings can also tell us a great deal if we can interpret, or 'read', them carefully.

Another kind of evidence used by historians is **secondary sources**. These are records made at a time after the event being investigated. When using secondary sources, historians look critically at the views of the people who created those sources. They ask extra questions about those people's interpretations of what happened.

When you think about it, history could be thought of as 'the thinking person's guide to the future'.

# Introducing historical concepts and skills

Historians study the past in order to discover and understand the lives of people who lived in societies that came before our own. They aim to get a picture of what everyday life was like, what the traditions, beliefs, values and customs of the time were and how those things impacted the operation of society on a social, political and economic level. In order to work effectively, an historian must make use of specific concepts to assist in gaining an understanding of the past and making connections to the world we live in today. The eight historical concepts are:

- **Sources** – refers to any written or non-written materials that can be used to investigate and provide information about the past.
- **Evidence** – is about the information obtained from sources that is valuable for a particular inquiry. Evidence can be used to help construct a historical narrative, to support a hypothesis or to prove or disprove a conclusion.
- **Continuity and change** – refers to aspects of life or society that have remained the same or changed over a period of time.
- **Cause and effect** – is used to examine the relationship between historical events or actions, where one event or action occurs as a result of the other.
- **Perspective** – is a person's point of view, the position from which they see and understand events going on around them.

- **Empathy** – is an understanding of the past from the point of view of a particular individual or group, including an appreciation of the circumstances they faced, and the motivations, values and attitudes behind their actions.
- **Significance** – is the importance that is assigned to particular aspects of the past (e.g. events, developments, individuals, groups, movements and historical sites).
- **Contestability** – occurs when particular interpretations about the past are open to debate, for example, as a result of a lack of evidence or different perspectives.

## Using historical sources as evidence

As you investigate how the pre-Industrial Revolution world became a globalised and mechanised world, culminating in World War I, you will use the above concepts to extend your understanding of the time period. For example, the **primary and secondary sources** that provide historians with information will take the form of evidence when used to construct a historical narrative, to prove or disprove a theory, or to make judgements. Both types of sources have their limitations, such as bias, questions of reliability or a lack of representativeness. All sources, however, may be useful in some way. A good historian will consider all evidence, much like a detective, in reaching their final interpretation of events.



◀ **Source A** This photograph shows a soldier writing a letter home from the trenches. Because he was there at the time, and saw the trench warfare, his letter is a valuable primary source artefact.

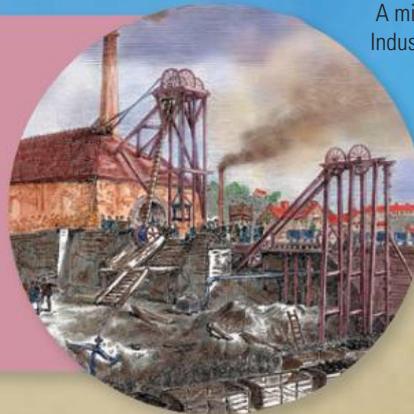
▶ **Source B** Australian historian Bill Gammage, reading one of the 1000 soldiers' letters and diaries he studied. His book *The Broken Years* (1974) is a secondary source, because it was written by somebody who was not actually in the war.



# Historical overview: the making of the modern world

## The Industrial Revolution

From the eighteenth century, the Industrial Revolution transformed the way people lived, worked, ate and travelled, as well as the goods they bought and used.



A mine during the Industrial Revolution



**Video**  
The Industrial Revolution



### Nature of the Industrial Revolution

Key industries of the Industrial Revolution included cotton and steel production, and the development of steam engines revolutionised factories and railways. In the late nineteenth century, the development of the internal combustion engine led to the first cars and aeroplanes, as well as advances in industrial chemicals.

### Living and working conditions

Workers in mines and factories faced unhealthy living conditions and unsafe working conditions. This led to the formation of trade unions and Factory Acts to regulate wages and conditions. In Australia, the Conciliation and Arbitration Commission was established in 1904 to resolve problems between unions and employers.

This historical overview is designed to help you to understand:

- The important features of the modern period (1750–1918), including technological change, imperialism and nationalism.

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

## Mass production

Made possible by machines and factories, mass production during the Industrial Revolution led to cheaper products and a greater demand for resources. Many opposed the new machines, fearing that jobs would be lost.



A painting of industrial factories in Wales, nineteenth century

### Slavery

The trade in enslaved persons from Africa brought wealth to the countries controlling slavery. Over 12 million slaves were transported between the fifteenth and nineteenth centuries. Abolition movements led to the end of slavery throughout the nineteenth century.

**NORTH AMERICA**

**MEXICO**

**WEST INDIES**

*ATLANTIC OCEAN*

*PACIFIC OCEAN*



**Video**  
The movement of peoples

### Convicts

Convicts were transported to penal colonies, such as the British colonies in eastern and western Australia.



**Video**  
European Imperialism

**SOUTH AMERICA**

### Division of the world into colonies and colonisers circa 1900

	<b>British</b>		<b>French</b>		<b>Portuguese</b>
	<b>United States</b>		<b>Dutch</b>		<b>Italian</b>
	<b>German</b>		<b>Japanese</b>		<b>Belgian</b>
	<b>Russian</b>		<b>Spanish</b>		<b>Ottoman</b>

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## New ideas

This period saw new ideas develop about human society that challenged traditional beliefs. New ideas included liberalism, modernism and socialism. These ideas helped shape major movements and events through the eighteenth to the early twentieth century, including the revolution of industries, emancipation in the US, and the spread of greater voting rights. However, it was also a period that saw the rise of nationalism (one of the most powerful forces shaping the modern world) and imperialism. Both of which helped set the stage for World War I.



Gavrilo Princip was a member of a Serbian nationalistic organisation called the Black Hand. Princip assassinated Archduke Ferdinand and his wife, sparking World War I.

### Liberalism

Liberalism encouraged business owners and intellectuals to demand a greater say in their government and the laws of their respective countries. Demands from women for the right to vote reflected a widespread belief in liberal ideas.



**Video**  
New ideas

### Modernisation

Japan modernised rapidly during this period and pushed for a greater role as an imperial power.

**1764**  
Invention of the Spinning Jenny, Lancashire, England

**1778**  
British government begins the transportation of convicts to Botany Bay, NSW

**1807**  
Slave trade outlawed in Britain

**1825**  
First steam engine railroad built

**1844**  
First messages sent by Morse Code

**1848**  
Publication of *The Communist Manifesto*, London, UK

**1858**  
Queen Victoria of the United Kingdom proclaimed 'Empress of India'

**1863**  
Emancipation proclamation leads to end of slavery in the US

**1871**  
The unification of Germany

**1901**  
Federation of Australian colonies as one country

**1902**  
Australia gives women the right to vote and to stand for election

**1905/06**  
The launch of the first Dreadnought battleship

**1906**  
First Moroccan Crisis

### Socialism

From the mid-nineteenth century, the desire of ordinary working people for improved conditions and greater involvement in industry and government reflected the socialist ideas that inspired the Communist movement.

### Modern warfare

The combination of imperialism and alliance systems, with technological advances, meant that war was able to be conducted on a global scale for the first time.



**Video**  
European Imperialism

## The uses of technology

Technological advancements and wealth generated by the Industrial Revolution, combined with the development of European empires, alliances, nationalism and political tensions, meant that warfare would now be fought on a larger scale than any fought previously, and with deadly new mechanised weapons. The result was World War I.

Australian involvement in World War I had a transformative effect on the young nation. Loyal to the British Empire, over 400 000 Australian men enlisted in the Australian Imperial Force (AIF) and fought in campaigns in Turkey, the Middle East and Europe. The horrific experiences they endured gave birth to the Anzac legend, while the high casualty rate suffered by Australian forces and the devastating impact of the conscription debate at home transformed Australian society forever.



### World War I

Over 20 million people died in World War I, several empires collapsed, and a Communist party, the Bolsheviks, seized power in Russia in 1917.



### Influenza pandemic

Following World War I, the Spanish influenza pandemic killed between 20 and 30 million people.



### Treaty of Versailles

The Treaty of Versailles formally ended the war between Germany and the Allied powers. Germany was required to disarm and pay significant reparations to other European countries.



Global conflict: a depiction of a battle in August 1916 between Italian and Austro-Hungarian armies in World War I

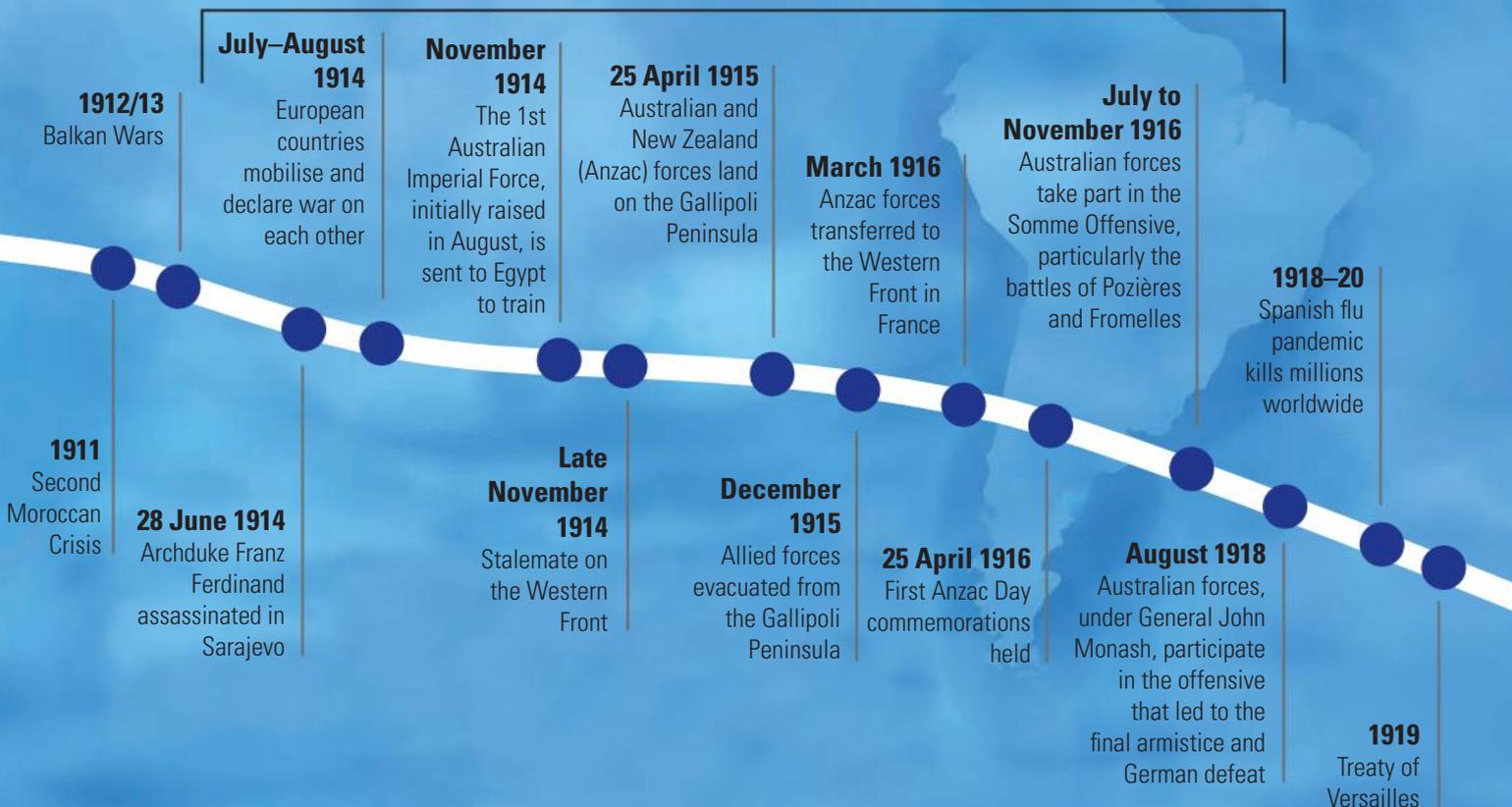


**Video**  
The inter-war years

## Activity: Historical overview

- 1 Identify two continents where Britain gained colonies during this period.
- 2 Outline the changes to people's daily lives brought about by the Industrial Revolution.
- 3 Explain the positive and negative impacts of imperial expansion.
- 4 Why might World War I be considered the most significant event that shaped the modern world?

Timeline of World War I



# Investigating the Industrial Revolution (1750–1914)

## Overview

The creation of the modern world in which we now live began with a quantum leap in humankind's command of energy, power and technology, known as the Industrial Revolution. This occurred in Britain during the eighteenth century, then across Europe in the nineteenth century. New technologies (such as steam engines), new processes (such as for making iron and steel), and the use of canals and railways gave humans unprecedented power.

These technologies enabled humans to explore and conquer the world. This assisted the formation of empires, by which powerful nations such as Britain, Germany and France acquired colonies.

In this depth study, we will explore how the Industrial Revolution first transformed life in Europe and then had a global impact on many other lands as European powers expanded their control.

## Learning goals

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

- Why did the Industrial Revolution develop so well in Britain?
- What were the main inventions and technologies that drove the Industrial Revolution?
- How did the Industrial Revolution change the pattern of human settlement?
- How did society change as a result of the Industrial Revolution?
- How did the Industrial Revolution change the lives of ordinary men, women and children? Were these changes for the better or for the worse?
- How did people respond to the Industrial Revolution?
- What are the long-term environmental consequences of the Industrial Revolution?



**Video**  
Depth study  
overview

## Introducing historical concepts and skills: *cause and effect, continuity and change, and historical significance*

In the chapters in this depth study, there will be particular focus on the historical concepts of **cause and effect**, as well as **continuity and change**. There will also be times when you will be asked to **use historical sources**, and analyse them for **perspective** and **contestability**.

When investigating the causes of events, there will often be the need to provide a sequence of the events that led up to them, as well as both long-term and short-term causes. These causes may be further categorised as **economic, social** or **political**. The same categories may apply to the effects of an event, or period of change. In addition, an explanation of effects will comment on the **significance** of the event or change.

In this respect, the historian is very much like a prosecuting lawyer making a case in court: to prove that a person is guilty, it is necessary to establish which events occurred and in what order. In the study of History, events and dates are used as a form of evidence. In good historical writing, you will do more than simply tell the story of what happened. You will need to use the sequence of events to make an argument as to why something happened.

Another important concept is **continuity and change**. Even in times of great **change** – such as the Industrial Revolution in Britain – some things remain unchanged and continue as they did before. For example, while the Industrial Revolution made massive changes to the way industry and agriculture were carried out, the government of Britain remained very much as it had been before, with a king or queen ruling in conjunction with the parliament.

▼ **Source C** A Great Western Railway engine named *King Edward VIII* speeding through Old Oak Common in north-west London in 1936. The steam train, or 'iron horse', was one of the great inventions of the Industrial Revolution.



# CHAPTER 8

## The Industrial Revolution (1750–1914)



### 8.1 Setting the scene: a typical view of the Industrial Revolution

The Industrial Revolution prompted the birth of the trade union movement. Rapid change and new industrial cities brought workers together in often severe living and working environments. Trade unions are designed to express the needs and demands of working people to their employers. Many employers were unwilling to give their workers better pay and conditions. Workers had to force the situation by taking strike action. In a strike, people stopped work and refused to resume until their demands were met.

Going on strike was risky. Factory owners could respond with a lockout, where they simply shut down their factory for some time, leaving the workers unemployed. Since workers rarely had savings, their families went hungry. Women and children often begged the men not to strike, causing workers additional anxiety.



▲ **Source 8.1** *The Strike* by German artist Robert Koehler, 1886

## MAKING THINKING VISIBLE 8.1



### See, think, wonder

#### Step 1: what do you see?

Look carefully at the details of this painting, made in 1886, showing a strike in progress.



How is the factory owner (in the top hat) reacting to the strike? What might he say to the workers? How is his servant (behind him) reacting?



How do you think the presence of the factory has affected the local environment?



This man appears to be speaking on behalf of the striking workers. What problems and grievances did they have? What demands might he be making?



What might this woman be thinking as she watches the strike?



What might this man and woman be arguing about?



How do we know from this detail that the protest might be about to become violent?

#### Step 2: what do you think?

- 1 Do you think that a painting can be a reliable picture of a conflict such as a strike?
- 2 Do you think that the artist is on the side of the rich man who owns this business or of the workers who are demanding better conditions and pay?

#### Step 3: what do you wonder?

- 1 Why do you think workers have taken this potentially violent action instead of discussing their conditions peacefully?
- 2 What might be some of their grievances and complaints?
- 3 Why has the factory owner not tried to meet the workers' complaints and demands?
- 4 Ask yourself:
  - a How are the men expressing their anger and frustration?
  - b How are the women and children reacting to the strike situation?
  - c How have the factories affected the landscape and atmosphere in the painting?
  - d What do the costumes of the owner and his servant on the porch tell us about the owner's wealth?

#### Step 4: what comments and further questions do you want to note down?

- 1 What problems did workers face when they went on strike?
- 2 Who was Robert Koehler, and why did he paint this picture of a strike that he had probably never seen?
- 3 What legal and political changes have been made since this time to improve the position of workers in many countries?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** analysing, evaluating, communicating and reflecting



## 8.2 Chapter overview

### Introduction

The Industrial Revolution created the basis of the world in which we now live. During the eighteenth and nineteenth centuries, new inventions, technologies and industries gave human beings the control of power and energy on a scale that they had never before enjoyed. Existing industries, such as coal mining and iron production, grew massively in size and sophistication. New technologies, such as the steam engine, freed ships from depending on the wind, mills from depending on waterwheels, and vehicles from depending on animal power. Humble village workshops were replaced by enormous factories in industrial cities and in the countryside. The invention of railways and steamships gave human beings unprecedented freedom of movement across the entire surface of the planet and allowed the building of colonies and great empires.

### Learning goals

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

- Why did the Industrial Revolution develop so well in Britain?
- What were the main inventions and technologies that drove the Industrial Revolution?
- How did the Industrial Revolution change the pattern of human settlement?
- How did society change as a result of the Industrial Revolution?
- How did the Industrial Revolution change the lives of ordinary men, women and children? Were these changes for the better or for the worse?
- How did people respond to the Industrial Revolution?
- What are the long-term environmental consequences of the Industrial Revolution?

### Historical skills

After completing this chapter, you should be able to:

- Explain what 'chronology' and 'cause and effect' mean in the study of history
- Understand and evaluate different historians' points of view
- Develop historical empathy with people in the past
- Interpret primary sources in both print and visual form
- Evaluate the reliability of primary sources
- Correctly use special terms specific to the topic under study
- Use factual evidence (dates, statistics, examples) to substantiate an argument.



### Digital resources

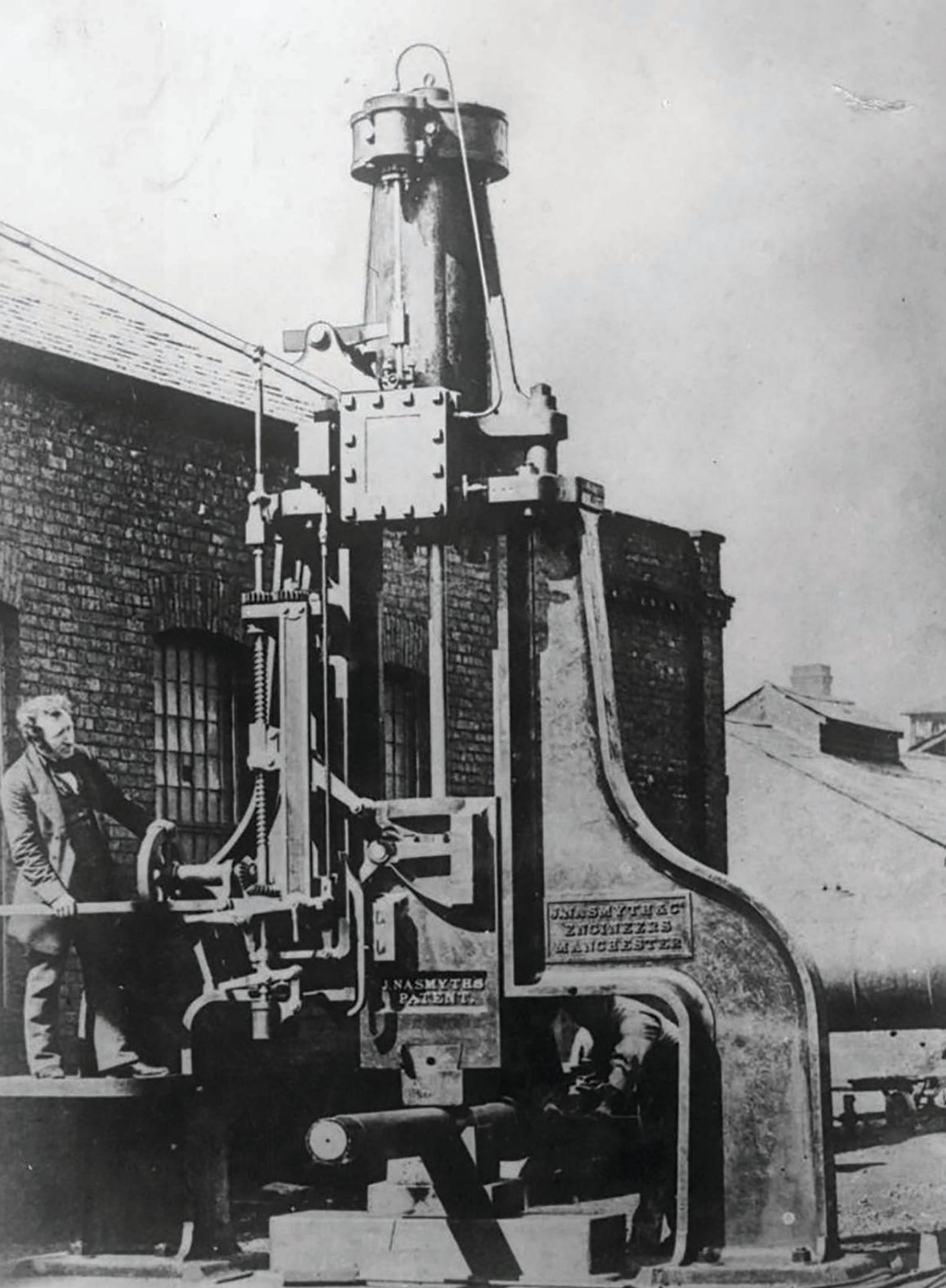
Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.



**The Industrial Revolution:**  
Five interesting facts

► **Source 8.2** The steam hammer was invented by the Scottish engineer and inventor James Nasmyth (1808–90), who is pictured here with his invention. It took the human effort out of the process of forging wrought iron and steel to form engine and machine parts, as well as substantially reducing production costs.





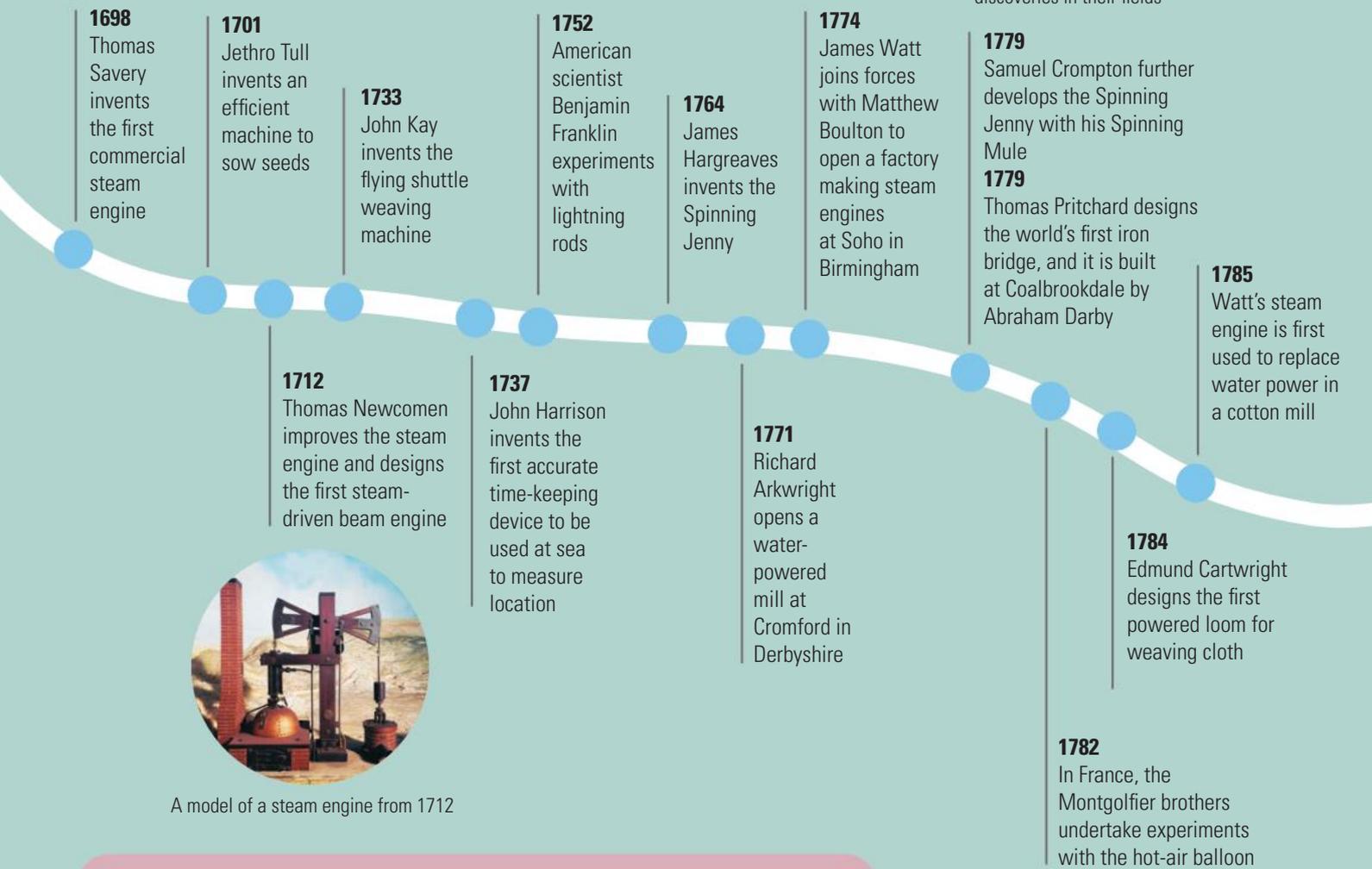
## 8.3 Timeline of key events

### What came before this topic?

- **The Middle Ages (tenth to fifteenth centuries):** a steady growth in scientific knowledge, much of it coming from the Arab world.
- **The Renaissance in Italy (fifteenth to sixteenth centuries):** continued growth in scientific knowledge. Leonardo da Vinci investigates the natural world and understands the human body by dissecting corpses.
- **The European 'Scientific Revolution' (seventeenth century):** European thinkers, such as Isaac Newton, make further discoveries of the essential laws of science.



In the seventeenth century, European scientists like Isaac Newton made key discoveries in their fields



A model of a steam engine from 1712

### Timeline questions

- 1 What can you tell from the information in the timeline about the rate of new inventions during the Industrial Revolution?
- 2 Of all the inventions listed in the timeline, which one arguably did the most to change the world completely?



**Key concepts:** continuity and change, cause and effect, significance



**HASS skills:** analysing, evaluating



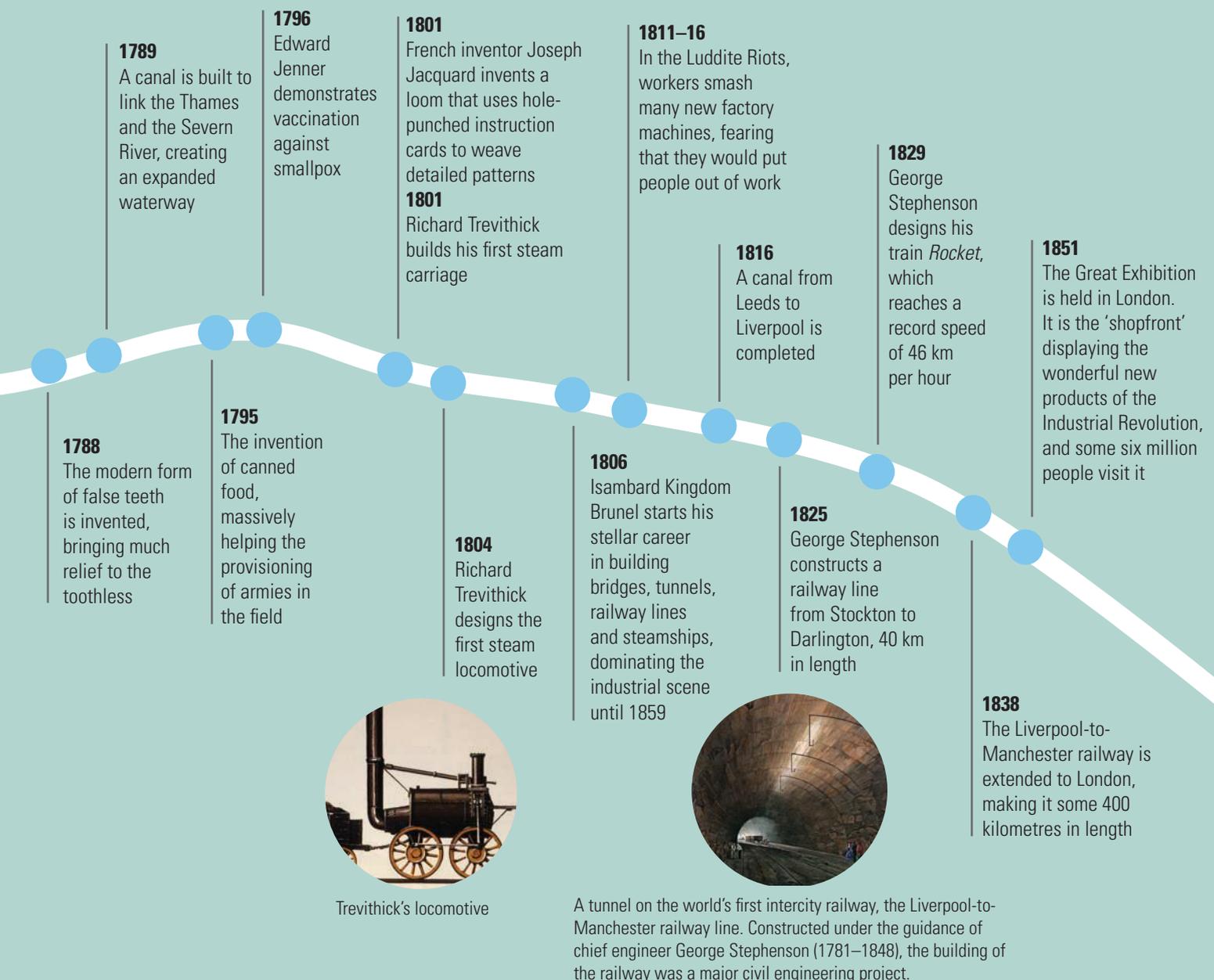
The first recorded piloted flight was made in a hot-air balloon built by the Montgolfier brothers on 21 November 1783

## What came after this topic?

- **1870–1914:** the 'Second' Industrial Revolution transforms the world again, with the emergence of petrol, electricity and steel technologies.
- **1969 to present day:** the 'Third' Industrial Revolution, new communication technologies (i.e. the digital revolution and the internet) and energy sources (i.e. renewable electricity) create millions of new jobs.
- **2000s (right now):** the 'Fourth' Industrial Revolution is the age we now live in. Our lives are being changed by extraordinary new technologies, such as artificial intelligence, virtual reality and rapidly advancing robotics.



The 'Second' Industrial Revolution saw the invention of the automobile. Pictured is a Ford Model 'T' from 1914.



Trevithick's locomotive



A tunnel on the world's first intercity railway, the Liverpool-to-Manchester railway line. Constructed under the guidance of chief engineer George Stephenson (1781–1848), the building of the railway was a major civil engineering project.



## 8.4 Why did the Industrial Revolution start in Britain?

### FOCUS QUESTION

Why did the Industrial Revolution first develop in Britain?

### Why a revolution?

In History, a revolution is usually a rapid change in the government of a country, generally carried out by some form of protest and violence by a revolutionary crowd. Such political revolutions were responsible, for example, for the birth of modern England, France and America.

In 1799, a Frenchman who had witnessed the French Revolution, Louis-Guillaume Otto, visited Britain. He was amazed at the way people's lives had been completely changed during the century by industrial developments. He called it an 'Industrial Revolution': there was no change of government but a complete change in society, in economics and in daily life for nearly the whole population.

Since then, we have accepted this second meaning of the word 'revolution' to simply mean a complete and radical change in the way we live. Such change occurs not by fighting but through massive developments in technology. This applies, for example, to the computer revolution

in more recent times. No revolutionary fighting was involved, but our lives have been totally changed by new inventions. A student sitting in your present classroom in the year 1960 could not possibly have imagined that you can now download music through a computer, create a blog, talk to somebody via Skype and share your thoughts on Twitter or Facebook.

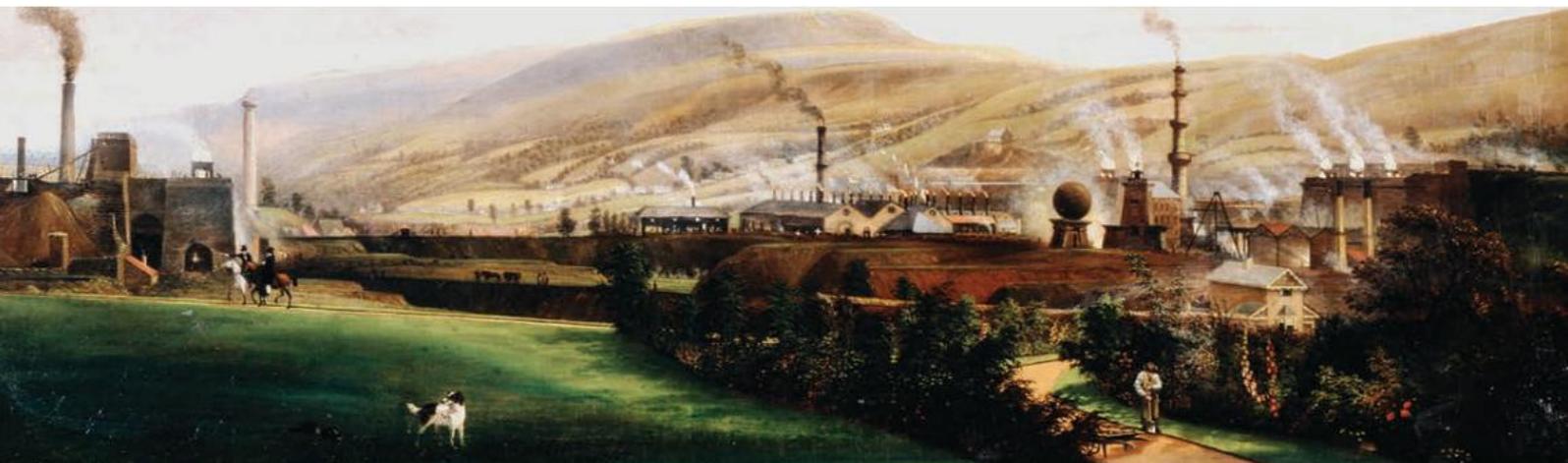
### Was the industrial 'leap forward' really a revolution?

Historian Dan Cruickshank has written:

The epoch [time] of the Industrial Revolution was Britain's heroic age. Men and women of astonishing ingenuity [intelligence], inventive power and sweeping vision appeared on the scene. Within a few fleeting decades, from 1760 to 1840, the old modes [ways] of life and work – in many ways little advanced since the Middle Ages – had given way to the modern world we know today.

▼ **Source 8.3** An industrial scene in nineteenth-century Wales. Note how the landscape has been transformed by this iron factory and the town that has sprung up around it.

▲ **Source 8.4** Dan Cruickshank, quoted in Gavin Weightman, *What the Industrial Revolution Did for Us*, 2003, p. 7<sup>1</sup>



<sup>1</sup> This is what is known as a **footnote**. Whenever you see a small number on the page, have a look down here. Historians often use these extra notes at the bottom of a page to give additional information to their readers, usually about the sources of evidence that they are quoting from, in case the reader wants to learn more.

While the Industrial Revolution did not aim to overthrow the government of Britain, it did create enormous changes in the ways most people lived, worked and enjoyed life. This was through a process known as **urbanisation**. For example, in 1750, only 15 per cent of Britain's people lived in cities; the rest lived in the countryside. By 1900, 85 per cent of Britain's population lived in cities and towns. Most of these people worked in the new, enormous factories, using machines that were totally new inventions.

Historian Anthony Burton concludes:

A new world was made in the 18th century: it was neither a **Utopia** born in a philosopher's brain, nor a land opened up by exploration. It was our own world, the world of machinery and factory. In that period, one country, Great Britain, went through a change so fundamental and traumatic that we can find nothing comparable in the whole of written history.

▲ **Source 8.5** Anthony Burton, *The Rise and Fall of King Cotton*, 1984, p. 9

## A global revolution

This was a revolution that also spread around the world. The explosion of experimentation and invention spread to European countries such as France and Germany. The Industrial Revolution also powered the spread of **empires** – such as the British Empire, with its effects felt in large parts of Asia, Africa and the Pacific region.

In the nineteenth century, America also committed heavily to **industrialisation**, creating the miracle of 'Smokestack America', with its new millionaires and even more spectacular inventions in technology. In due course, industry reached as far as Australia and fed the growth of our great cities and towns. Truly, this revolution originating in Britain became a global revolution, affecting people – for better or for worse – all over the planet.

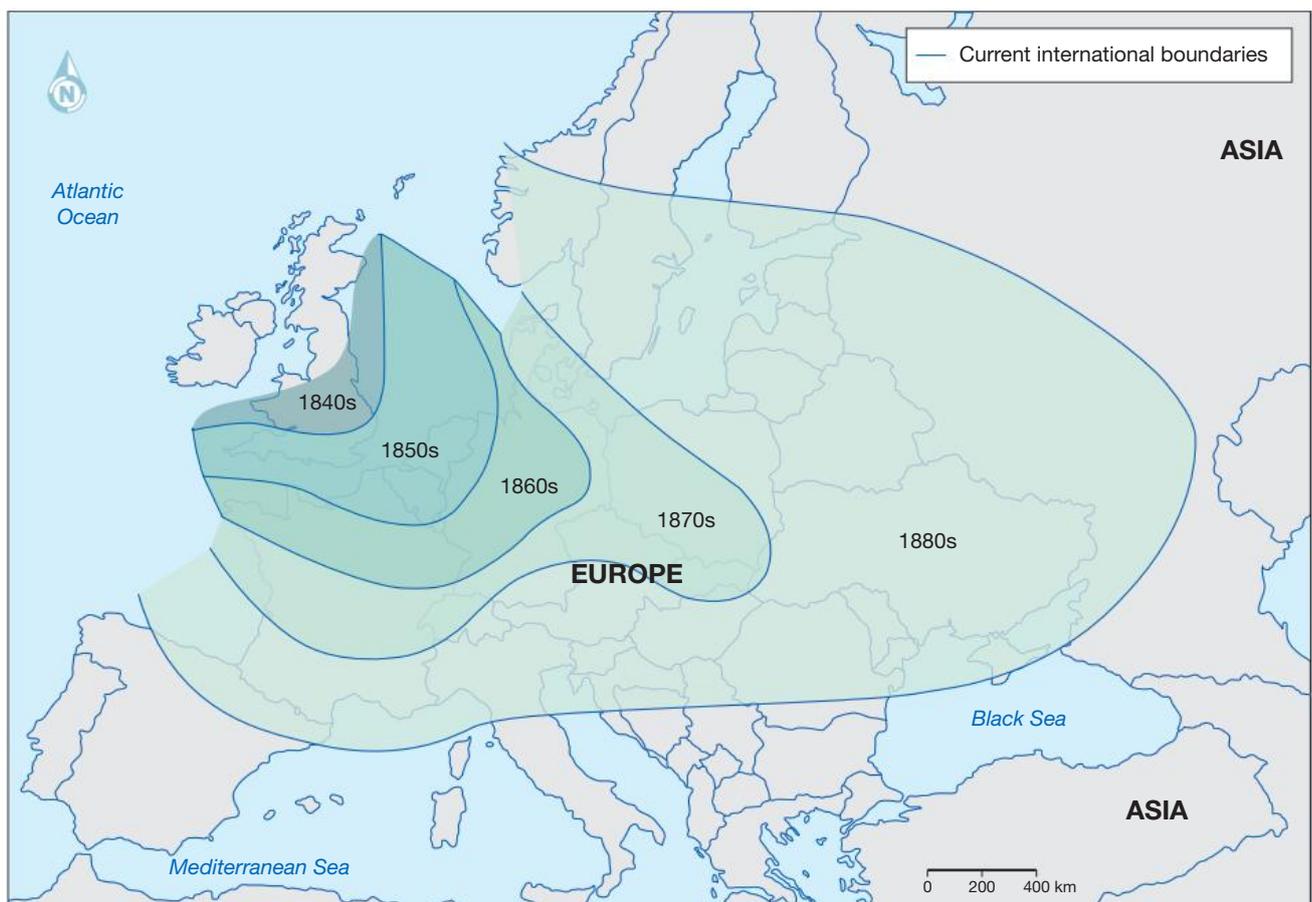
**urbanisation** the growth of cities

**utopia** a perfect society in which everyone is happy

**empire** a group of countries ruled by a single person, government or country

**industrialisation** the process of developing industries in a country

▼ **Source 8.6** The initial reach of the Industrial Revolution from Britain. The revolution eventually spread from Britain to the rest of the world.



## Why Britain?

Historians often wonder why important changes like the Industrial Revolution occur in one country before they occur in others. What was it about Britain that made it such a good place for this sudden explosion of invention and **modernisation**?

**modernisation** the act of making something more modern

improving and partly because the food supply was increasing. Peoples' wages were rising, and they could afford more fresh meat and vegetables. Overall, there was an increase in the standard of living – the quality of houses, clothing and food – even for working-class people. This in turn increased the demand for consumer goods and services, and financed more economic growth.

### Political stability

Britain's political system made the country quite stable. Britain's monarch ruled together with a parliament. The parliament did contain political parties, but the opposition party was generally loyal to the existing order.

### Reliable financial system

Britain enjoyed a very stable, reliable financial system. The Bank of England was trusted all over the world, and Britain's credit system was solid. Anybody wishing to invest in Britain saw it as a very safe option.

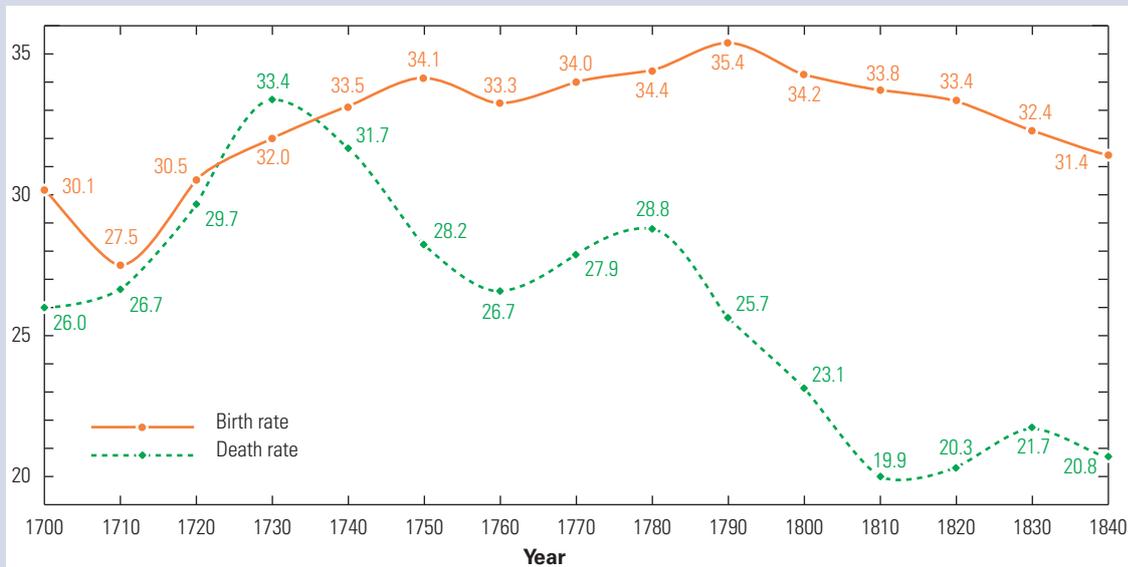
### Growing population

Britain's population was increasing at a very fast rate. In 1770, the population was 7.4 million; this had increased to 15.9 million by 1840. The birth rate increased, while the death rate decreased. This was partly because health care was

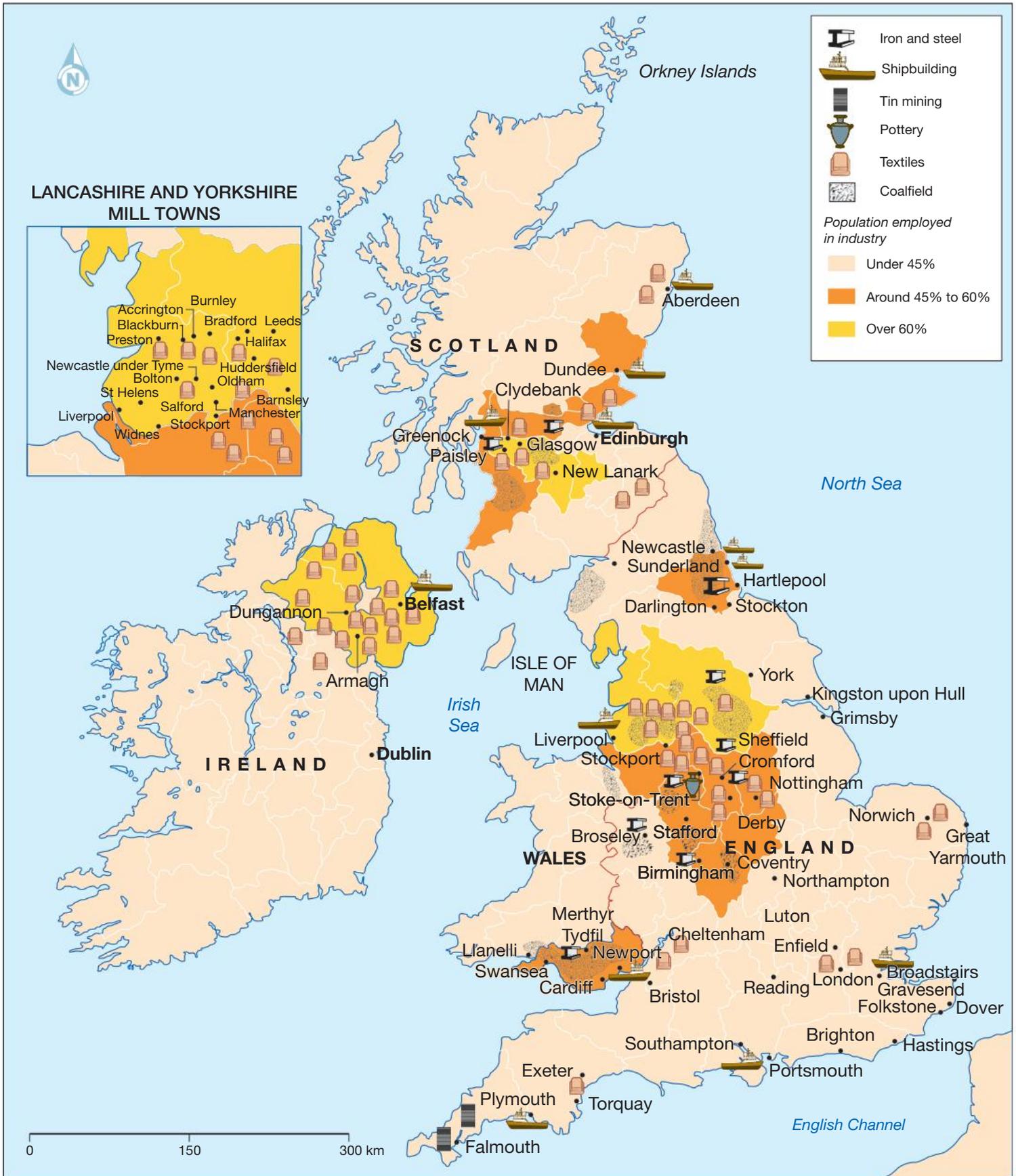
### Plentiful raw materials

Britain had good supplies of important raw materials, such as coal and iron ore. Since these were often found at similar levels, it made mining easier.

## BIRTH AND DEATH RATE PER THOUSAND PEOPLE PER YEAR



▲ **Source 8.7** This graph shows birth and death rates in Britain between 1700 and 1840. The birth rate (number of children born per 1000 people per year) increased until 1790. At the same time, the death rate decreased from a high of 33.4 deaths per 1000 people per year in 1730 to a low of 19.9 in 1810. The total population grew greatly during that time.



▲ **Source 8.8** This map of Britain's industrial economy circa 1800 shows that factories were built in areas where there were good supplies of coal and iron and useful ports. These allowed raw materials to be brought in by ships and completed goods to be sent to foreign markets.

## Generations of brilliant inventors

Britain had a new class of practical, inventive men and women with the vision to create new machines and try new technologies. Historian Dan Cruickshank explains:

It was the age of the polymath [the multi-skilled person] with many different fields of endeavour [activity] linked by the common thread of the open, inventive and enquiring mind.

▲ **Source 8.9** Dan Cruickshank, quoted in Gavin Weightman, *What the Industrial Revolution Did for Us*, 2014, p. 7

**industrialist** an owner or an employee in a high position in industry

These **industrialists** were indeed a remarkable breed. We will discuss some of them in this chapter.

We get a good sense of the genius and capability of these inventors from a group portrait painted by John Lucas in 1858 (Source 8.10), when some of England's finest engineers gathered to plan one of their greatest projects yet. This group is typical

of the can-do people of the Industrial Revolution: willing to attempt massive projects, keen to try new techniques, new machines, new materials and seemingly able to overcome any challenges. Robert Stephenson (1803–59) sits at the table in the centre of the image. He designed the Britannia Tubular Bridge across the Menai Strait shown in the background. As a traditional bridge would block the passing of navy ships, Stephenson designed a tubular steel bridge to rise high above the water. The great engineer Isambard Kingdom Brunel (1806–59) stands at the far right.

John Harrison was also typical of these new inventors. A carpenter from Lincolnshire, he became fascinated by a government competition to design a clock so accurate that a ship's captain could use it to determine their longitude (location on the globe) at sea. He spent some 20 years designing a clock that did not need a pendulum and finally succeeded with his H4 longitudinal watch. This invention was successfully used by Captain Cook on his second voyage to Australia in 1772. Sadly, the Board of Longitude accepted Harrison's success but refused to pay him the prize money of £3000.

▼ **Source 8.10** A painting by John Lucas showing a meeting of the engineers who were involved in building the Britannia Tubular Bridge in 1858





▲ **Source 8.11** This portrait from 1767 by Thomas King has been described as less than a portrait of John Harrison and more a portrait of his invention, of which he looks justifiably proud.

From the portrait by Thomas King (Source 8.11), we sense that Harrison was a very determined and proud inventor: he sits bolt upright, gazing directly at the viewer, very much aware of his own worth and of the brilliance of his invention. His is the very ‘face’ of the Industrial Revolution.<sup>2</sup>

Another reason for rapid progress in Britain was the intellectual movement known as the Enlightenment. This Europe-wide movement was especially strong in both England and Scotland, where people flocked to discussion groups (such as the Lunar Societies) to learn about the latest scientific theories and the most recent developments in industrial technology. Industrialists were passionate to learn about inventions that could be applied to manufacturing in order to increase production and to improve the quality of goods. The Enlightenment placed a strong emphasis on **empirical knowledge**: that is, information based on direct observation and scientific experimentation.

We know that the people who contributed to the Industrial Revolution were strongly aware of their importance to history. They were proud of their hard work and their brilliant inventions. These were a matter of national pride, even national identity.

*We know that the people who contributed to the Industrial Revolution were strongly aware of their importance to history.*

William Ball (1795–1852), who worked in the iron foundry at Coalbrookdale as a foreman, was reported to be so strong that he once lifted metal weighing 460 kg. The unusual goggles he wears in the portrait in Source 8.12 are due to being blinded in one eye by a jet of red-hot metal. He became famous at the London Great Exhibition of 1851 as ‘John Bull’, a national example of British determination and pride, the British equivalent of ‘Uncle Sam’.



▲ **Source 8.12** The writing on this picture states: ‘An Englishman am I.’ William Ball, alias John Bull. Born at Horsehay, Shropshire, 8 July 1795. Worked forty years, Puddler [furnace worker] and Shingler for the celebrated Coalbrookdale Company of Ironmasters. Height, 5 feet 9 inches. Exceeds 40 stone weight. Healthy and very active.’

## Amazing but true ...

‘John Bull’ was a huge man who needed a crane to be able to mount his horse. He was so heavy that he actually broke the back of the poor animal, and it had to be put down. When he died in 1852, some 20 men were needed just to carry his coffin.

**empirical knowledge** information based on what is seen or experienced rather than theory

<sup>2</sup> Do you want to know more about this genius? To see his H4 pocketwatch in detail, visit: <https://cambridge.edu.au/redirect/9599>

## The revolution in agriculture

During medieval times, farmers on the large agricultural estates of Britain shared open fields and worked together at key times of the year, such as during harvest. By the eighteenth century, a growing population and the government's high taxes during wartime meant that this inefficient, traditional system was unable to meet demand. The large landowners' desire for more profitable

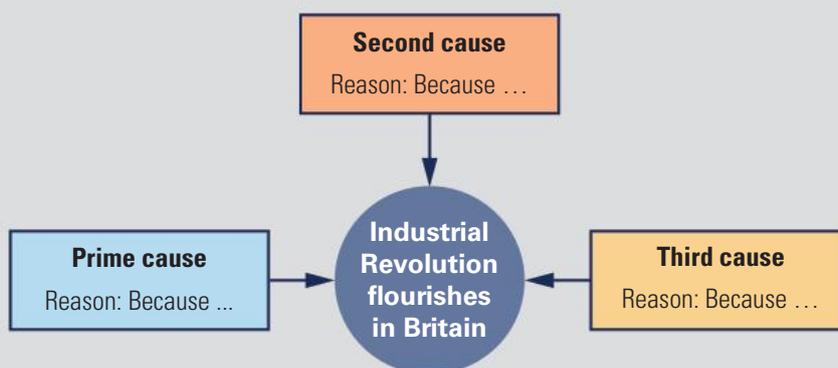
farms and greater efficiency saw many small, peasant farmers moved off the land, which was divided up among the wealthy landowners and enclosed. The farmers could then introduce the new technology, crops and breeds of animals developed in Britain and overseas. For lower-class people, however, it meant moving to cities in search of work. These people became the labour source of the Industrial Revolution.

### DEVELOPING HISTORICAL CONCEPTS AND SKILLS 8.1



#### Determining cause and effect

One of the most important ways of thinking in History is to understand **cause and effect**. Events don't happen without a reason; good historians are able to work out what causes an event to occur and what the effect of the event was. Also, most historical events have more than one cause and more than one effect. A graphic organiser is a useful way to see cause and effect.



- 1 Based on the information in this section, copy and complete the graphic organiser.
- 2 Then choose three causes from this list that you believe were the key causes of the Industrial Revolution:
  - the revolution in agriculture
  - ample resources
  - durable government
  - stable financial system
  - brilliant inventors
  - the Enlightenment and the rapid increase in scientific knowledge.
- 3 Finally, briefly explain why each cause mattered in your opinion.



**Key concepts:** cause and effect, significance, perspectives



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 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 How did Britain's political system create favourable conditions for the Industrial Revolution?
- 2 How did Britain's financial system create favourable conditions for the Industrial Revolution?
- 3 How did Britain's population growth create favourable conditions for the Industrial Revolution?
- 4 What does the story of John Harrison tell us about this special breed of inventors in Britain?

#### Interpret

- 5 What is the main difference between the first meaning of the word 'revolution' (e.g. French Revolution) and the second meaning (e.g. Industrial Revolution)?
- 6 How do we know that the new industrial developments became a matter of national pride in Britain?

#### Argue

- 7 Identify and evaluate the relative importance of the factors that encouraged the start of the Industrial Revolution in Britain.

#### Extension

- 1 Investigate the careers of the main inventors shown in the picture of the meeting at the Britannia Tubular Bridge (Source 8.10), and construct an argument as to which one of them was most important to the development of the Industrial Revolution.



**Key concepts:** sources, evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## Key concepts for your memory bank



**Cause and effect** is used to examine the relationship between historical events or actions, where one event or action occurs as a result of the other. Historians use cause and effect to identify chains of events and developments over the short term and long term. *Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*



## 8.5 The technological innovations of the Industrial Revolution: the revolution in farming

### FOCUS QUESTION

How did new ideas change farming practices during the Industrial Revolution?

### Introduction

We usually think of the Industrial Revolution as being driven by improvements in industry and located in big cities. At the time, there was a second, less obvious revolution happening out in the countryside that would also help the Industrial Revolution. Put simply, better farming techniques resulted in a large increase in the amount of food available in Britain.

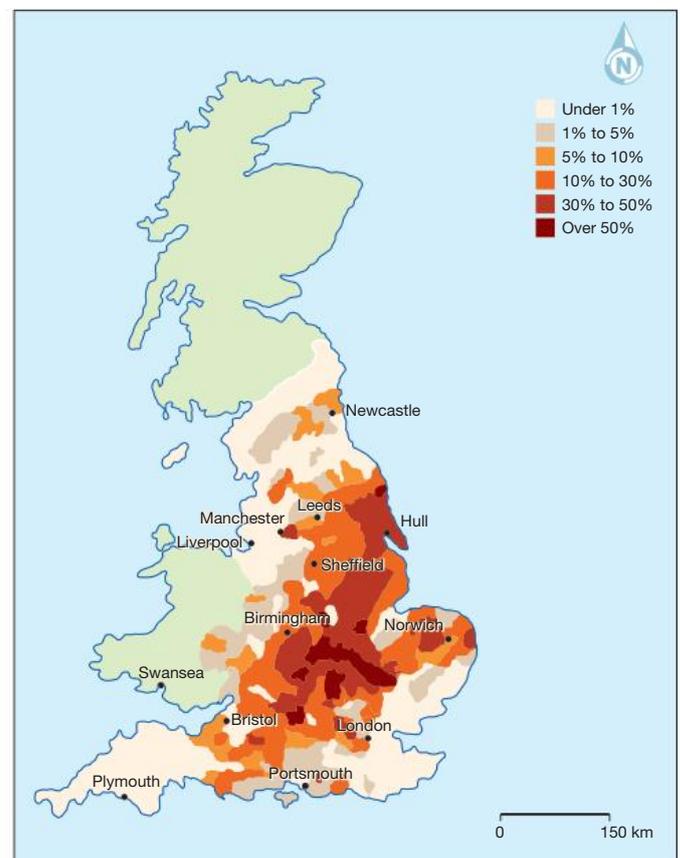
Three great changes occurred, as discussed in this section.

### Organising the land into larger farms

You might remember from Year 8 History that during the Middle Ages (from about the tenth to the fifteenth centuries), England operated under a social system known as feudalism. This kept workers tied to particular sections of land in return for safety and protection by the owners of the land, the nobility. At the time, England was made up of farms varying from many small strips of land worked by poorer farmers, to some larger properties owned by richer farmers. For years, though, wealthy farmers had been buying up the small strips from the poorer farmers.

During the eighteenth century, this process sped up, as rich landowners created much bigger farms. They bought out the small farmers and were also given land that was ‘common’ (belonging to the whole community). This was called the Enclosure Movement and was completed between about 1750 and 1850. During this time, some nearly three million hectares, or one-sixth of England, were enclosed. This was all legal: under Prime Minister William Pitt, and his agriculture adviser Arthur Young, 4000 Acts of Parliament allowed the virtual ‘theft’ of land from poor people who

had a traditional right to use it.<sup>3</sup> By the mid-nineteenth century, England was a country of wealthy owners of large farms which were, admittedly, more efficient and produced much more food.



▲ **Source 8.13** The division of land that resulted from the Enclosure Movement in England

Prior to enclosure, available farmland was divided into small, narrow strips in open fields that were worked communally. The wealthy had many strips, while the poorer farmers had only a few strips or none at all. The nobility allowed these peasants to use common land, and provided basic housing. After the open fields, and the common land, were divided up and enclosed, poor farmers had little choice but to move to the city.

<sup>3</sup> For more information, visit *The Land* magazine’s website and search for ‘A Short History of Enclosure in Britain’.

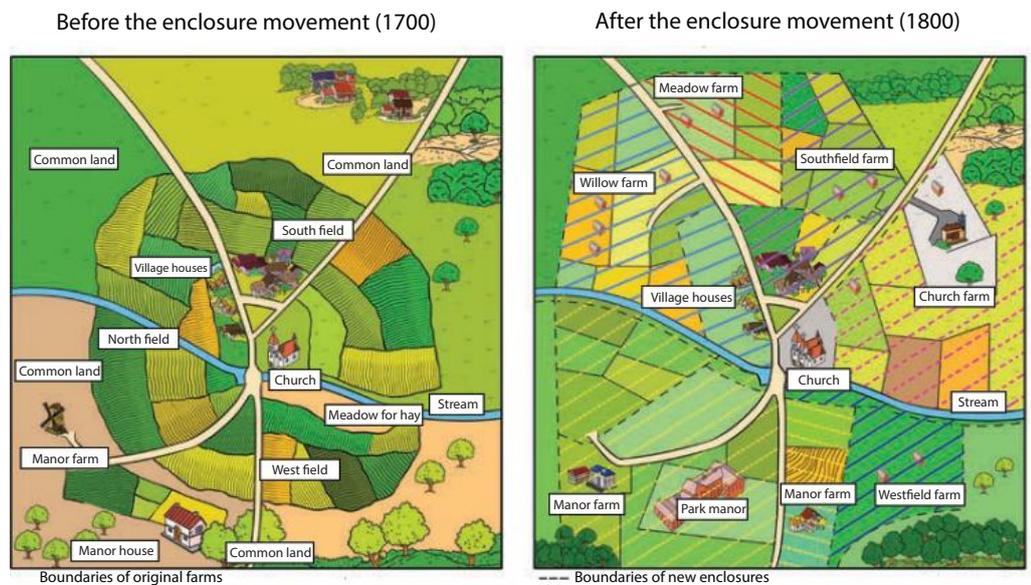
Source 8.14 demonstrates this contrast of land division before and after enclosure in a typical English village.

## A new science of farming

Farmers are sometimes cautious and unwilling to try doing things differently. When their farms became enclosed, however, British farmers turned eagerly to new scientific discoveries and inventions that promised to make farming more productive. They read the works of Thomas Coke and 'Turnip' Townsend, explaining how to enrich soil and produce better crops.

## Breeding animals for excellence

Inventors and farmers also followed the advice of men such as Robert Bakewell about how to produce healthier animals by carefully cross-breeding their animals with strong stock. Even the king, George III, played at being 'Farmer George' on his own farm at Windsor. He experimented with merino sheep imported from Spain. Others imported better breeds of pigs from China. Farmers experimented with breeding better animals. Bakewell experimented with breeding the Long-Horned Beauty, a bigger cow that produced more milk. Breeding programs selected the best male and female cattle and had them mate together. Each generation of animals was stronger, healthier and produced more milk, wool or pork. Bakewell developed superb stud animals, which he hired out to other farmers, earning him £1200 each year. The tradition of the agricultural show was also born, allowing farmers to show off their animals and to learn new farming techniques.



▲ **Source 8.14** The map on the left shows how farming land was organised in a typical village in Britain in 1700. The area surrounding the village and divided into small plots was farmed by peasants. Beyond that was common land where animals often grazed. The second map shows the same area of land, but by 1800 it has been enclosed and divided into fewer, larger blocks of farmland owned by the wealthy.

▼ **Source 8.15** A view of a traditional farming family before the changes of the Industrial Revolution. Working the land meant manual physical labour with the assistance of animals such as oxen.



▼ **Source 8.16** Thomas Coke, Earl of Leicester, on his estate at Holkham



## New farming inventions

Farmers also bought new inventions, such as Jethro Tull's machine for planting seeds. Tull realised that the traditional way of sowing seeds by hand was slow and wasteful: the seeds fell thick in some places and thin in others, resulting in low growth rates. His machine was simple and brilliant. The cart was drawn by a horse and held a container full of seeds, which dropped down a chute to feed through a funnel down to the ground. Seeds fell evenly into a furrow created by a plough at the front of the vehicle. Farmers could plant three rows of seeds at a time, and these grew in perfectly straight lines, evenly spaced; as a result, food yields increased dramatically. Ideas



▲ **Source 8.17** An oil-on-canvas mural by Alfred Reginald Thomson, RA, 1955, commissioned by the Science Museum, London, depicting Jethro Tull demonstrating his seed-drill

were being turned into reality, and the countryside was booming.

## Amazing but true ...

Human ingenuity drives the process of invention forward, always seeking to improve what is being made. Sometimes, human beings push too far. This painting by George Stubbs shows the massive Lincolnshire ox that, by scientific breeding, had been developed to an amazing height of 1.9 metres; it weighed 1300 kilograms. Sadly, the body weight was too great for the animal to support: its four legs all broke, and the poor animal died soon after. The man at the right of the image is John Gibbons, who won the beast as a prize quite cheaply when his fighting rooster (also shown) won a cockfight.



▲ **Source 8.18** John Gibbons with his Lincolnshire ox, by artist George Stubbs

## Living conditions in the countryside

William Cobbett (1763–1835) was a politician and writer who was very concerned about the conditions of poor people in the country. He set out to explore the English countryside on horseback and noted everything he saw. He created a

**hovel** a very poor-quality shelter, not fit for human use

**rod** an old unit of measurement of about 5 metres

**Pitt** Prime Minister William Pitt, who encouraged the Enclosure Movement

very valuable primary source based on direct observation. His description of Cricklade village records what he saw there – see Source 8.19.

The labourers seem miserably poor. Their dwellings are little better than pig-beds, and their looks indicate that their food is not nearly equal to that of a pig. Their wretched **hovels** are stuck upon little bits of ground on the road side, where the space has been wider than the road demanded. In many places they have not two **rods** to a hovel. It seems as if they had been swept off the fields by a hurricane, and had dropped and found shelter under the banks on the roadside! Yesterday morning was a sharp frost; and this had set the poor creatures to digging up their little plots of potatoes. In my whole life I never saw human wretchedness equal to this: no, not even amongst the free negroes in America, who, on an average, do not work one day out of four. And this is 'prosperity,' is it? These, Oh, **Pitt!** are the fruits of thy hellish system! However, this Wiltshire is a horrible county.

▲ **Source 8.19** William Cobbett, *Rural Rides*, 1830, p. 19

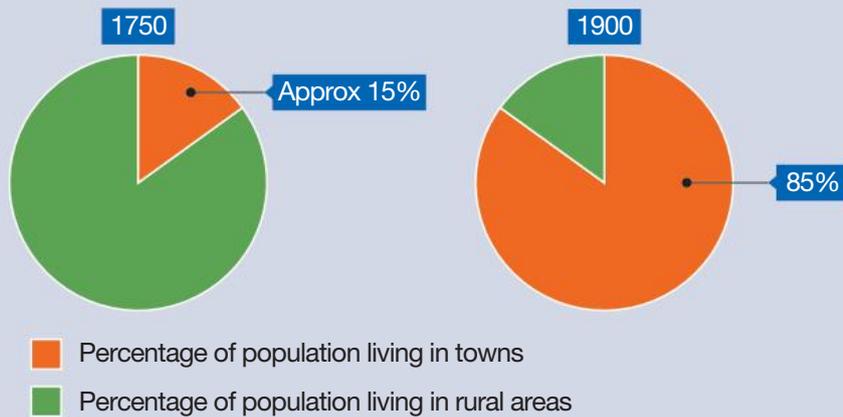
Poor working people, having no land to live off, moved to the cities in a large country-to-city migration, becoming the workforce for the great new factories that were developing. For example, records suggest that London's population doubled between 1801 and 1850.

*Poor working people, having no land to live off, moved to the cities in large country-to-city migration*



◀ Source 8.20 William Cobbett

### Percentage of total population living in towns in Britain in 1750 and 1900



▲ Source 8.21 Rapid increase in percentage of people living in towns from 1750 to 1900

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 8.2



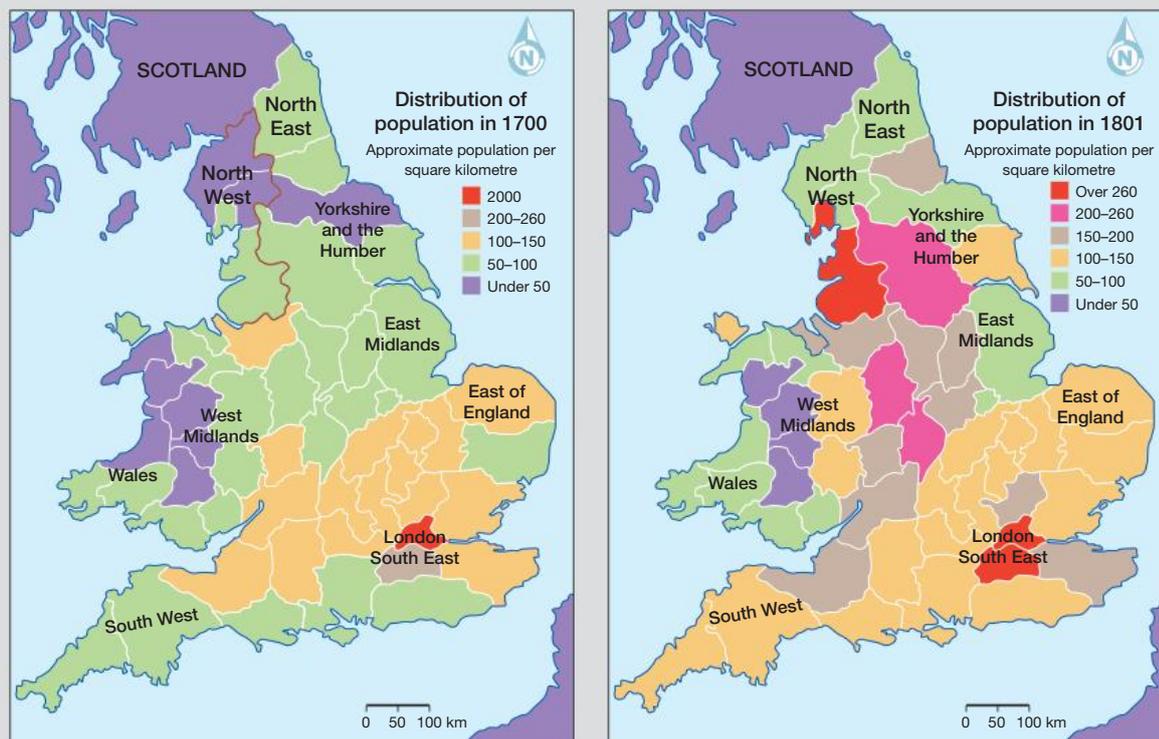
### Identifying significance

In the study of History, historians never limit themselves to merely describing what has happened in the past, but set themselves analytical questions, such as: what kinds of change have occurred in the period of time being studied? Were the changes massive in scale or relatively minor? Did the changes generally benefit people, or did they cause difficulty and hardship? Did the changes affect the entire population or only certain groups of people? Asking these sorts of questions helps historians to determine the **significance** of an event.

Examine the maps in Source 8.22 then answer the questions that follow.

- 1 Describe how population distribution in Britain changed between 1700 and 1801.
- 2 Referring also to Source 8.8, explain the significance of the distribution of the coalfields.





▲ **Source 8.22** The distribution of population in Britain in 1700 and 1801, with present-day regional boundaries. The total population rose from just over six million in 1700 to about 10.5 million in 1801. Note, for example, how the north-west region, sparsely populated in 1700, became one of the most densely populated regions in 1801, at least in its southern part, while its northern half became less densely populated.



**Key concepts:** sources, evidence, continuity and change, significance



**HASS skills:** analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 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 How did new scientific thinking help improve farming and food production in Britain? Give examples.
- 2 How did new mechanical inventions help increase food production in Britain?
- 3 What was the Enclosure Movement?

#### Interpret

- 4 How did the Enclosure Movement help to increase the supply of food in Britain?
- 5 Explain how more scientific methods of breeding animals helped increase the production of wool and meat during the Industrial Revolution.

#### Argue

- 6 Although the Enclosure Movement was harmful to poor farmers, it was a crucial factor in the rapid expansion and success of the Industrial Revolution. Explain why this was so.

#### Extension

- 1 Investigate the career of a 'gentleman-farmer', such as Thomas Coke, Earl of Leicester, and explain the new techniques of animal breeding developed by your chosen person.



**Key concepts:** cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 8.6 The technological innovations of the Industrial Revolution: the revolution in textile-making

### FOCUS QUESTIONS

- How did technology change during the revolution?
- How did the Industrial Revolution change textile-making?

### Many interlocking revolutions in technology

Human beings have always tried to improve their technologies by invention, but in some periods of history this process of invention leaps ahead. Between about 1750 and 1850, a number of interlinked inventions took industrial production to new heights. These were especially strong in the metal and textile industries.

There were four main types of change.

The first great change was to power. As we have seen, human and animal labour, waterwheels and windmills started to be replaced by steam power.

The second great change was to machinery and industry. There was an explosion of new inventions and new techniques that transformed the way important things such as cloth, iron and steel were made.

The third great change was to the increase in the scale of production. There were some large factories before 1750. As early as the 1600s, Ambrose Crowley built a large ironmaking factory at Winlaton. In the 1700s, however, many more industries changed from small workshops to large factories employing hundreds of people.

The fourth great change was to transport. First came the invention of canals. These allowed the transportation of heavy raw materials to factories across Britain. The next great change would be caused by the construction of good-quality modern roads in the 1820s. A later revolution in

transport would occur with the construction of a system of railways during the 1830s.

### Small-scale production of textiles in cottages

As Australian shoppers know, the word ‘manchester’ now refers to the section of a department store that sells fabrics for the home. This term comes from the name of one of England’s greatest industrial cities, Manchester, which was a centre of fabric production. The revolution in textile-making that occurred there was one of the most important developments of the Industrial Revolution.

Before the Industrial Revolution, the production of textiles (cloth) was a very slow process. Cloth was made in the cottage industries – also referred to as domestic production – that is, hundreds of private homes. Merchants first delivered raw material, such as wool or cotton, to individual spinners who worked at home, spinning the material into thread on spinning wheels. The merchants then had to pick up the thread and take it to the workshop of a weaver, who used a loom to weave the cloth. This did not produce very much cloth, and it was expensive and often of poor quality.

### The first textile inventions

The textile industry urgently needed to modernise. The British population was growing, and there was a strong demand for more, cheaper fabric. Clearly, there was money to be made in textiles, and profit drives invention.

## Spinning (making thread)

The first priority was to increase the speed and output of spinning, the process that takes raw wool or cotton and turns it into a thread. It was urgent to produce much finer threads and in much greater quantity.

### James Hargreaves' hand-powered Spinning Jenny (1764)

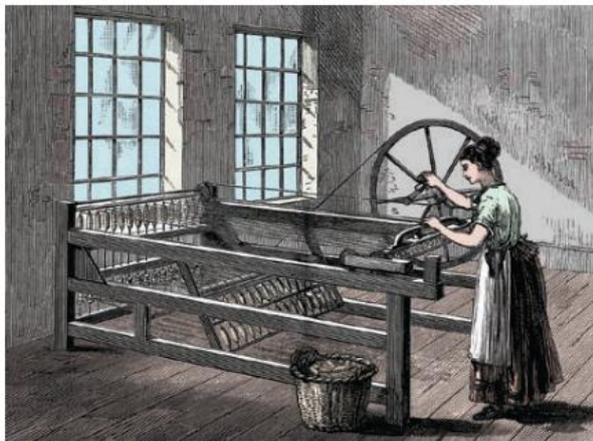
The first step was to abandon the traditional single-wheel spinning machine and to imagine one machine with many spindle wheels that could all turn at once and produce several threads. James Hargreaves invented a machine that initially had eight spindles, then 16. As the machine was improved, the number of spindles rose to over 100, all of them powered by just one person turning one wheel. Hargreaves called the machine a Spinning Engine, and his workers shortened the name to 'Jenny'. The machine was still, however, worked by hand and by human energy. Moreover, it could still be used by workers in their cottages and did not yet require the building of the great mills.



**Video**  
**Source 8.22A**  
Technology improvements in cotton mills



**Additional content available:**  
Worksheet on technology improvements in cotton mills



▲ **Source 8.23** Colourised version of a black-and-white print, created c.1880, which depicts a woman using a Spinning Jenny

### Arkwright's water frame (1769)

It was Richard Arkwright who really started the textile revolution in Britain. He began his working life as a barber and wig maker, but seems to have turned his thoughts to the new spinning machines that were then the talk of the town. He imagined a machine with hundreds of spindles, powered by horse energy. Arkwright crossed

technologies to ask a clockmaker to design the machine for him and devoted all of his time to the invention. His business suffered, as did his family's finances, but he persuaded a local businessman to finance his venture.

In 1769, Arkwright moved to Nottingham to avoid any threat from angry textile workers afraid of being put out of work. There, he found two new business partners ready to invest in his idea. Arkwright faced criticism from other cloth manufacturers frightened by the competition, and anger from workers. He moved his business to the small town of Cromford, near Derby. He had already tried to drive a spinning factory by horsepower and failed because it cost too much. Later, Arkwright discovered how to use water power to turn all the spindles. His machine was now called a water frame and used water pumped up from a nearby mine. This was successful, and his business expanded. When the mill needed even more water, Arkwright bought a Watt and Boulton steam pump to pump water. Later, he simply connected the steam engine directly to his water frames.

## FAMOUS FACE

### RICHARD ARKWRIGHT (1732–92)



Richard Arkwright transformed the manufacture of cloth during the Industrial Revolution by inventing a machine that could spin thread far more quickly than the human hand.

His spinning frame (1769) was followed by a carding machine (1775), which helped refine raw cotton before it was spun into thread. He also pioneered the use of water power to drive his mill at Cromford (1771), again with the effect of massively increasing the amount and quality of cloth that could be made. He is respected as 'the father' (the inventor) of the modern factory system that is still in use today.

## Cromford Mill: 'the factory age had arrived'

Cromford Mill expanded quickly. The mill towered six storeys high. Importantly, every machine in every room was powered by just one huge waterwheel at the base. Moreover, this factory was strictly regulated. Historian Anthony Burton states:

The factory bell rang out over Cromford announcing when work was to start. It rang again to announce the end of the working day. With the establishment of the mill at Cromford, the factory age had arrived.

▲ **Source 8.24** Anthony Burton, *The Rise and Fall of King Cotton*, 1984, p. 33

Arkwright built good-quality houses near the mill for his workers, as well as a church, a school and even shops, sporting facilities and a tavern for them.

The invention was a vast success. Cotton mills sprang up across England and were soon full of water frames being run in 12-hour shifts, from 6 a.m. to 6 p.m.<sup>4</sup>

## Samuel Crompton's Spinning Mule (1779)

Samuel Crompton took the development of spinning a stage further by inventing the Spinning Mule. This machine was capable of making extremely fine thread to create delicate fabrics like muslin. This was an important step forward, but Crompton's story turned to tragedy. He innocently agreed with a group of Manchester businessmen to hand over his invention to them, on the understanding that they would club together money for him. They wrote a letter of agreement, but cunningly omitted to state how much they were going to pay. In the end, they only paid him £60 for an invention that

would make them many thousands of pounds. Crompton died a bitter, disappointed man. He wrote, sadly:

I found to my sorrow I was not calculated to contend with men of the world

▲ **Source 8.24A** Anthony Burton, *The Rise and Fall of King Cotton*, 1984, p. 33

## Weaving

The second urgent need was to improve weaving (turning thread into cloth) to produce more cloth and of a finer sort.

### The flying shuttle (1733)

The inventor John Kay first developed a device called a flying shuttle in 1733, which allowed just one weaver to produce almost double the amount of cloth. Instead of painstakingly passing a horizontal strand of cotton across a wooden frame, a wooden shuttle carrying the thread could be rapidly flicked from one side to the other, using paddles attached by a cord. This halved the labour required to weave one piece of cloth, and enabled weavers to keep up with the rapid advances in spinning. It was also the key to mechanised weaving in the future.

### Edmund Cartwright's power loom (1784–85)

Edmund Cartwright made the mental leap of designing a power loom, but the first one he built in 1784 did not actually work. He created a more workable model in 1789, but it still had limitations, and his business went bankrupt in 1793. After this, however, the power loom was further refined and in 1834 became fully automatic. By 1850 there were over a quarter of a million power looms in use across Britain. The centre of weaving was Manchester, where a new industry – precision engineering – developed to build and maintain the machines.

4 To learn more about cotton mills and Cromford Mill, read Tony Taylor, *The Industrial Revolution*, 2014.

## END OF SECTION REVIEW 8.6



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What were the two main challenges for textile makers as demand for fabrics increased at the time of the Industrial Revolution?
- 2 Why was the production of fabrics traditionally so slow?
- 3 How did John Hargreaves and Richard Arkwright improve both the volume and the quality of the spinning of thread?
- 4 How did Edmund Cartwright's power loom improve the weaving of cloth?

#### Interpret

- 5 What were the most important turning points in the long process by which the mass production of textiles began?
- 6 Explain why the first inventors in the textile industry faced jealousy from other producers and anger from some workers.

#### Argue

- 7 Evaluate the extent to which the revolution in textile-making changed people's fashions and social lives.

#### Extension

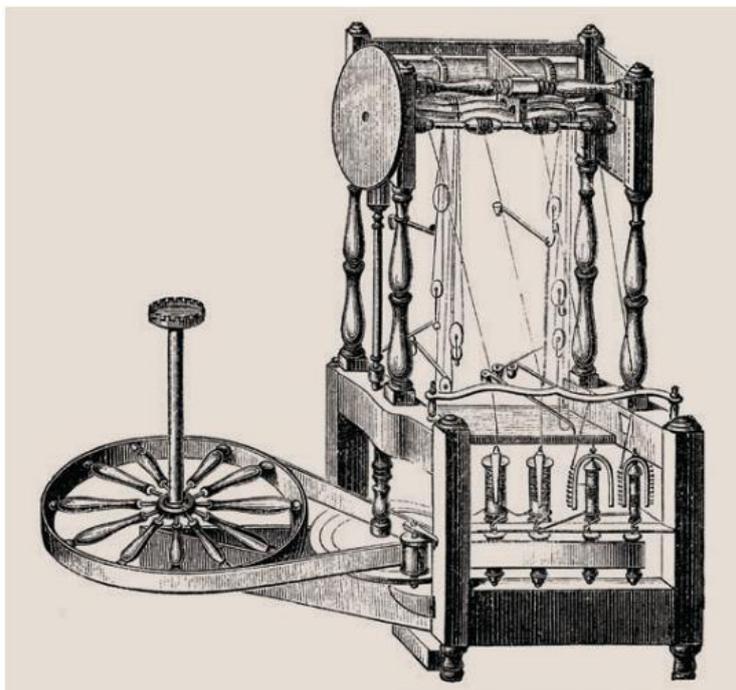
- 1 Investigate the career of Richard Arkwright. Describe the nature of the gigantic mills he built, and explain why his strict work routines signalled the beginning of the Factory Age.



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



▲ **Source 8.24B** Illustration of an Arkwright Spinning frame, which was used for spinning thread or yarn from fibres (such as wool or cotton) in a mechanised way



## 8.7 The technological innovations of the Industrial Revolution: the revolution in production

### FOCUS QUESTION

How did the lives of people change when the scale of production increased?

### Introduction

Before the Industrial Revolution, most goods – from cloth to metal tools to furniture – were produced in small workshops by several workers. Some goods, such as cotton, were even made in people's homes. This type of small-scale industry was called 'cottage industry'.



▲ **Source 8.25** Small-scale cottage production of cloth

### The development of great factories and mills

After about 1750, England's great industrialists realised they could massively increase production, sales and profits if they planned on a bigger scale.

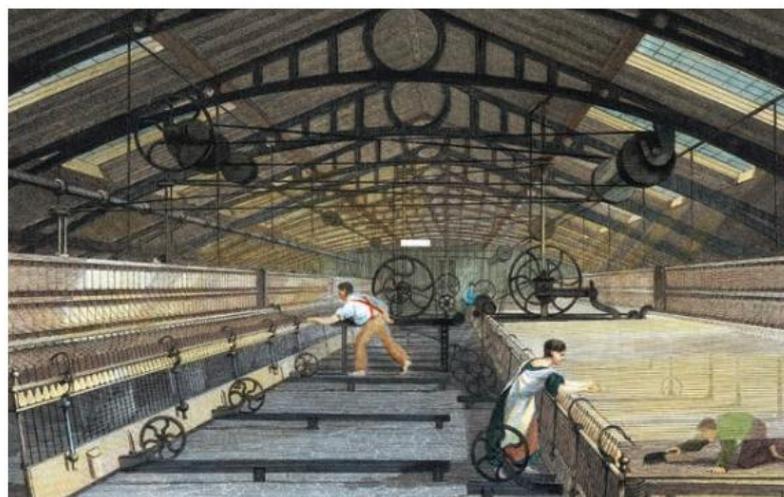
First, they built much larger, multi-storey buildings of brick, providing enormous spaces for hundreds of workers. Later, they discovered how to build even more massive structures with the new, strong iron beams that were being manufactured. These buildings came to be known as factories or sometimes as mills (a mill was generally like a factory but with grinding an essential part of the machine process, such as a flour mill).

Second, they adapted the power of the steam engine to drive great machines to produce far more than a few workers ever could.

Third, they made sure there was transport – canals first and then railways – to bring in many tonnes of raw materials, such as coal, and to carry out the many tonnes of goods they had made.

### The importance of strategic location

These new industrialists quickly learnt that a careful choice of a site for a new mill gave them another great advantage that would help their business: access to raw materials. Textile mills, for example, were placed close to a port, like Liverpool, so they could quickly buy the bales of raw cotton coming by ship from farms in America. Iron-making factories were best located in areas where both iron ore and coal were mined. All factories using steam engines also had to make sure that they were near to a coalmine, because the machines required plenty of coal for fuel. Refer to Source 8.8 for areas where steel and iron were produced.



▲ **Source 8.26** There was a gradual change from producing cotton in thousands of small cottage workshops, like the one shown in Source 8.25, to producing cloth in very large factories like this one, where new machines could spin and weave much more quickly. Note the boy sweeping up under the cotton threads.



▲ **Source 8.27** Working in mines was difficult and dangerous work, and often undertaken by children. Pictured is an engraving of workers in a coalmine, Bolton, Lancashire, 1848.

## Bad working conditions in the new mills

Although the mills were massively more efficient, this increased production came at a cost. Mill owners had to produce as much as possible, neglecting the basic safety measures that we expect today. For example, the great

machines weaving cotton clogged up with small pieces of fluff and had to be cleaned. To avoid losing time by stopping a machine, owners hired young children to reach into the machine while it worked. There were many accidents when children's hands and arms were caught up in the machinery, causing serious injury and even death.

**laissez-faire** unwillingness to get involved in or influence other people's activities

**capitalism** an economic system based on private ownership of property and business, with the goal of making the greatest possible profits for the owners

**social conscience** worrying about people who are poor, ill or old, for example, and trying to help them

## The problem of child labour

The use of child labour was a serious problem. Historian Tony Taylor reminds us that child labour did exist before the Industrial Revolution. In country families, children traditionally did work such as collecting stones, minding animals and scaring off birds.<sup>5</sup>

The Industrial Revolution simply continued this practice, but on a much larger scale and with more dangerous tasks. The new industrialists knew they could cut costs – and maximise profits – if they hired children to do minor tasks, avoiding hiring an adult, whose wages were higher.

In our own times, there are strict laws controlling the employment of young people. During the Industrial Revolution, there were no such laws for some time. Young people could be employed to do heavy, exhausting and dangerous work. On top of this, they were often beaten or abused.

## Factories become centres of settlement

The new industrialists also understood that they must keep their workers close at hand, so no time was lost coming from home to work. The factory owners built whole villages of houses around their factories. These houses were often of very poor quality and unhealthy.

## The idea of responsible capitalism

It is common to see the Industrial Revolution as a very bad experience for working people. We immediately think of huge polluting factories, with workers labouring in dangerous conditions, for little pay. We imagine greedy factory owners concerned only for profit, exploiting women and children like slave labour. Much of this was possible because of the belief in a policy called *laissez-faire*, which meant that the government should not interfere in the way the industrialists ran their factories.

This ugly picture was not always the case. One of the most exciting developments of the Industrial Revolution was that some of this new breed of manufacturers wanted to use their wealth to build good-quality communities for their workers. They provided housing, education and other services that workers previously never had in their villages. This was what we might call responsible **capitalism**.

## A man of vision and humanity: Sir Titus Salt

Sir Titus Salt (1803–76) was the owner of a large complex of woollen mills near Bradford in West Yorkshire, opened in 1853. His factory, Salt's Mill, drew water from the nearby River Aire.

Salt also belonged to the Methodist religion, which teaches what we now call **social conscience**.

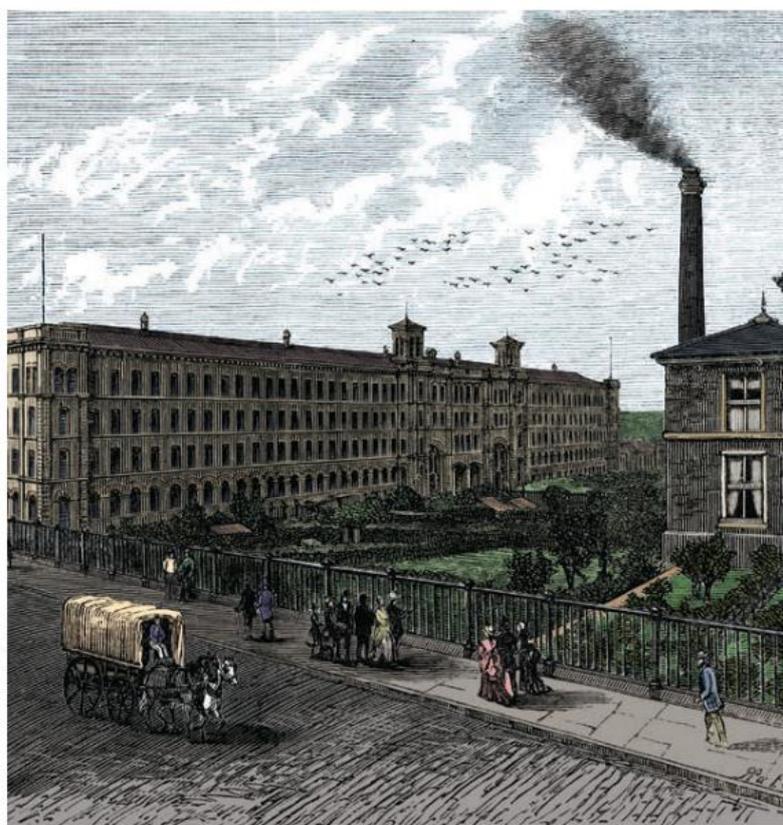


▲ **Source 8.28** Sir Titus Salt

<sup>5</sup> Read more about child labour and the Industrial Revolution in Tony Taylor, *The Industrial Revolution*, 2014.

Salt felt responsible for ensuring that his workers had decent living and working conditions. He had made his fortune by experimenting with new wools, such as Russian wool from the Don River region and Alpaca wool from South America.<sup>6</sup> He then spent much money creating good conditions for his workers.

Salt paid architects Lockwood and Mawson to build a ‘model’ village – that is, a well-designed, healthy settlement – for his workers. The result was Saltaire, a name made by joining the owner’s name with the name of the local river. Salt built clean stone houses for his workers, ensuring they all had bathrooms and laundries with running water on tap. He also built a hospital and a school. He even created a library, a concert room and a gym. He created a park and a lake, providing boats so that workers could enjoy rowing in their free time. This impressive ‘model’ village can still be visited today.<sup>7</sup> Other industrialists also created model villages for workers, including Edward Akroyd at Copley and Henry Ripley at Ripley Vale.



▲ Source 8.29 Engraving of the mill at Saltaire

## ACTIVITY 8.1



### Research and creative task

Using the resources listed in footnotes 6 and 7, research the life and work of Sir Titus Salt.

Investigate these questions:

- 1 What does the Methodist religion teach about responsibility to fellow human beings?
- 2 Why might this belief clash with the business of creating industries and making money from them?
- 3 What were conditions like in the more usual industrial estates in England?

When your research is complete, use your notes to complete the following creative writing task.

**Topic:** Imagine that you are an ordinary factory worker who has just secured a position in the woollen mill at Saltaire. You have previously worked in very bad conditions in the factories in nearby Bradford and lived among the slum houses of that city. Write a letter to your elderly parents, who are also factory workers, describing the conditions at Saltaire. Be sure to explain exactly how and why they differ from the conditions in most industrial cities in England. Draw comparisons in terms of houses, facilities and your working conditions.



**Key concepts:** perspectives, empathy



**HASS skills:** questioning and researching, communicating and reflecting

6 To find out more about Sir Titus Salt, search Biography Online for ‘Sir Titus Salt’.

7 To find out more about Saltaire, visit the Saltaire Village website.

Even during the Industrial Revolution, thoughtful people noticed its effects on ordinary working people. Many new industrialists were tough businessmen interested only in profits. They believed working people were only poor because they were lazy or drunk. Others saw that the Industrial Revolution itself was creating bad working conditions, low pay, poor-quality housing, poverty and unemployment.

Robert Owen bravely stated that bad conditions were the main cause of the dirt, violence and crime in the industrial cities. He argued that if owners took responsibility to improve factory conditions, people's lives would improve.

To demonstrate his theory, Owen built a 'model' (ideal) mill at New Lanark. It had large windows for light and air, good-quality baths, toilets and drains. He reduced working hours, so that workers had more rest and free time. He encouraged them to read or to exercise during that time. He also refused to employ young children.

▼ **Source 8.30** This image shows how much could be done when an industrialist improved workers' lives. Robert Owen designed his mill at New Lanark to be clean and healthy. Large windows gave air and light, and there was good sanitation. He even built a little school so that the workers' children could be taught to read and write.

He hoped that other factory owners would be convinced by his working example and be inspired to do the same. Later, he persuaded Sir Robert Peel the Elder to present laws in parliament regulating factory conditions. Most remarkably, he even explained to workers how to form a trade union! Finally, he was so passionate about workers' welfare that he spent his fortune improving their lives.

#### FAMOUS FACE

#### ROBERT OWEN (1771–1858)



Robert Owen was a Welsh industrialist who believed that he had a responsibility to run his factories

well, to treat his workers fairly and to use his wealth to help improve their lives. His New Lanark Mills in Scotland showed that it was possible to provide good housing and education for workers. In his 'model' village, he provided a shop that sold goods at fair prices, and he also employed hundreds of poor children from orphanages.





MR OWEN'S INSTITUTION, NEW LANARK.  
(*Quadrille Dancing.*)

▲ **Source 8.31** This image shows the inside of the facilities at New Lanark Mills in Scotland, about 1825. Visitors watch as workers' daughters are taught to dance in a clean, airy schoolroom. Notice the colourful educational pictures on the walls.

## END OF SECTION REVIEW 8.7



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 What were the main disadvantages of the old-fashioned system of 'cottage industry' (making goods with a few people working at home)?
- 2 What was the main way in which the new industrialists changed how people worked?
- 3 What was wrong with employing child labour in mines and factories?
- 4 What is meant by 'responsible capitalism'?

#### Interpret

- 5 Why could the concentration of workers in one large, unregulated factory complex have bad effects on employees in terms of health and safety?
- 6 In what ways could a well-run and well-planned factory complex improve the lives of workers?

#### Argue

- 7 Evaluate the significance of the new mills and factories in making possible an enormous increase in output. How might the Industrial Revolution have coped had it stayed with cottage production?

#### Extension

- 1 Investigate the career of Australian clothing manufacturer Fletcher Jones. In what way was he an example, in our own country, of responsible capitalism? Do you believe that regulation of working conditions should be done by the government of a country or by responsible managers, or both? Explain your reasons.



**Key concepts:** continuity and change, cause and effect, significance, perspectives



**HASS skills:** analysing, evaluating, communicating and reflecting



## 8.8 The technological innovations of the Industrial Revolution: the revolution in power

### FOCUS QUESTION

Why was the invention of the steam engine significant?

### The key to power is power

Many years before the Industrial Revolution, in the sixteenth century, artist and inventor Leonardo da Vinci designed amazing new machines intended to help his employer, the Duke of Milan, win wars and become powerful. For example, he designed an armoured vehicle that could go into battle; we would call it a tank. He designed a flying machine with rotors: a helicopter. He imagined an underwater vessel: a submarine. His designs were excellent, and yet they were never actually made, and no wars were ever won with them.

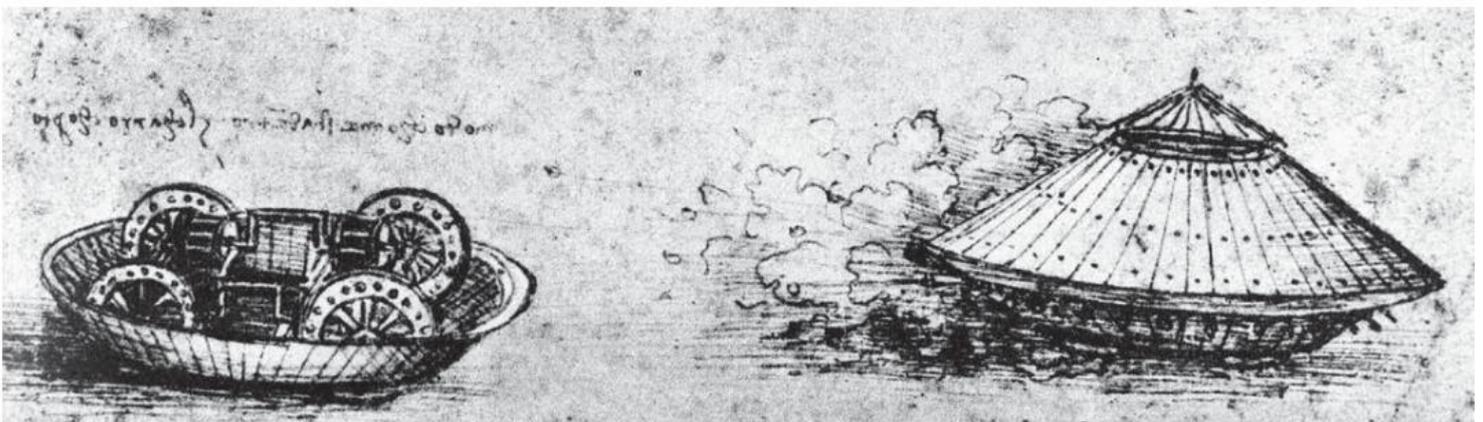
One crucial thing was missing: the power to drive them. In da Vinci's time, power (the rate of using or producing energy, usually to drive movement) still came from a few sources: human power (people pulling carts), animal power (horses and oxen pulling loads) and the movement of wind and water (to drive sailing ships, windmills and watermills). None of these sources of power was strong enough to drive the machines da Vinci

had imagined, so his brilliant plans were never made real.

Things remained so until, in the eighteenth century, humans harnessed a totally new source of power: heat from coal to produce steam. As steam-engine manufacturer Matthew Boulton proudly said: 'I sell here, Sir, what all the world desires to have – power'. We will explore how the invention of this massive new source of power touched off a series of inventions that would change human life – and the face of our planet – forever.

The steam engine was as important to the eighteenth century as the use of electricity or the internal combustion engine would be to the twentieth century: it gave humans a massive new source of power. The steam engine made mining more efficient, it drove trains on tracks at great speed and pushed steamships across the oceans of the globe with great swiftness and reach. The invention of this new form of power gave human beings economic, military and political power they had never had before.

▼ **Source 8.32** A design drawing by Renaissance artist Leonardo da Vinci that depicts a military tank for use in battle. His design was perfectly practical with one exception: in the sixteenth century, humans did not possess enough power to drive such a machine. In the eighteenth century, people invented a machine to deliver such power in the steam engine.



## The invention that empowered the world

All of these revolutions in production and transport created the expectation that improvements would continue almost limitlessly: as late as 1884, people were still speculating about the power of transport to achieve massive tasks. The magazine *Scientific American* published an article proposing that one day humans might even use powerful steam engines to haul great ships across land in a shortcut from one sea to another. The magazine published a futuristic engraving showing great double-boiler locomotives hauling such a steamship on rails (Source 8.33). Coming a century after the appearance of steam engines, this suggestion demonstrated that humankind saw almost unlimited possibilities for the power that it had unlocked.

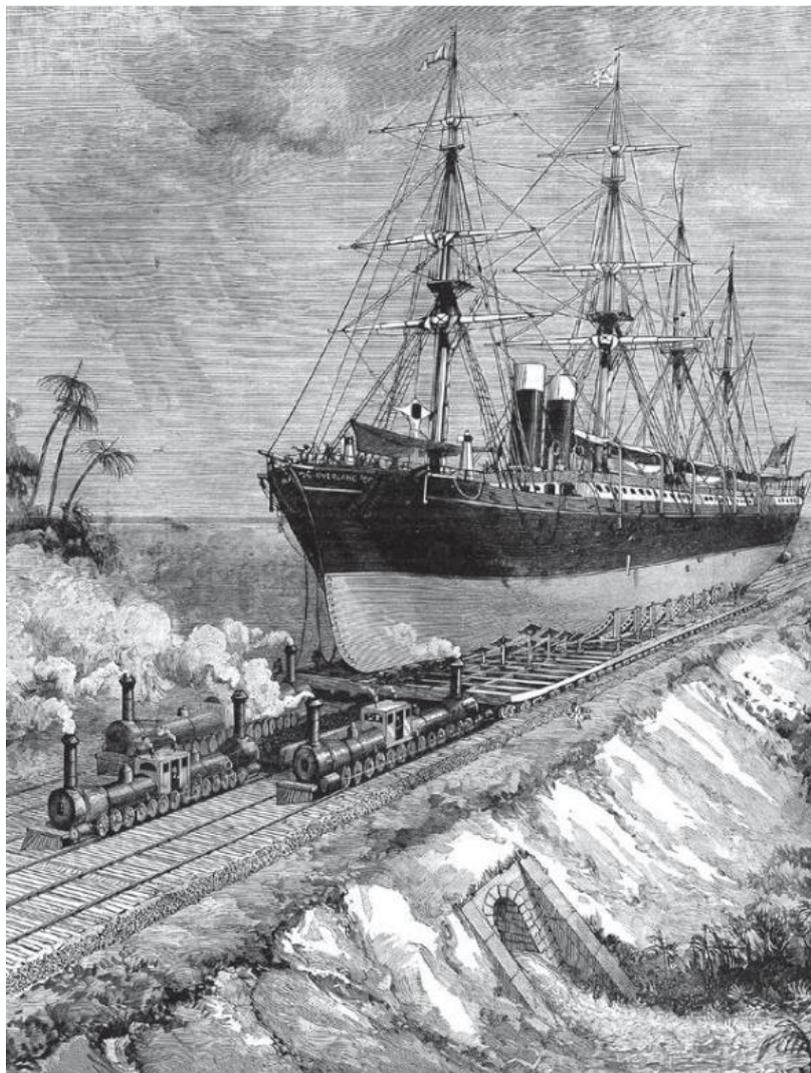
The power of steam was first discovered by the ancient Greeks. They understood that when water

is heated into vapour it expands 1800 times, creating enormous power. In modern times, Thomas Savery designed an early steam pump in 1698 to pump water out of mines.

Later, Thomas Newcomen improved Savery's device to create a powerful steam engine with a cylinder and piston, used to pump water. It allowed mines to be dug without being flooded, and was the first true steam engine to be used industrially.

James Watt improved on Newcomen's design, creating the modern condensing steam engine in 1775. Its enormous power could haul coal up mine shafts, pump air through blast furnaces to make stronger iron and drive the heavy machines in cotton mills, breweries, paper mills and many other factories. Once it was harnessed to locomotives, it had the power to haul heavy loads such as iron over long distances. Later, it would be harnessed to shipping, creating the modern steamship.

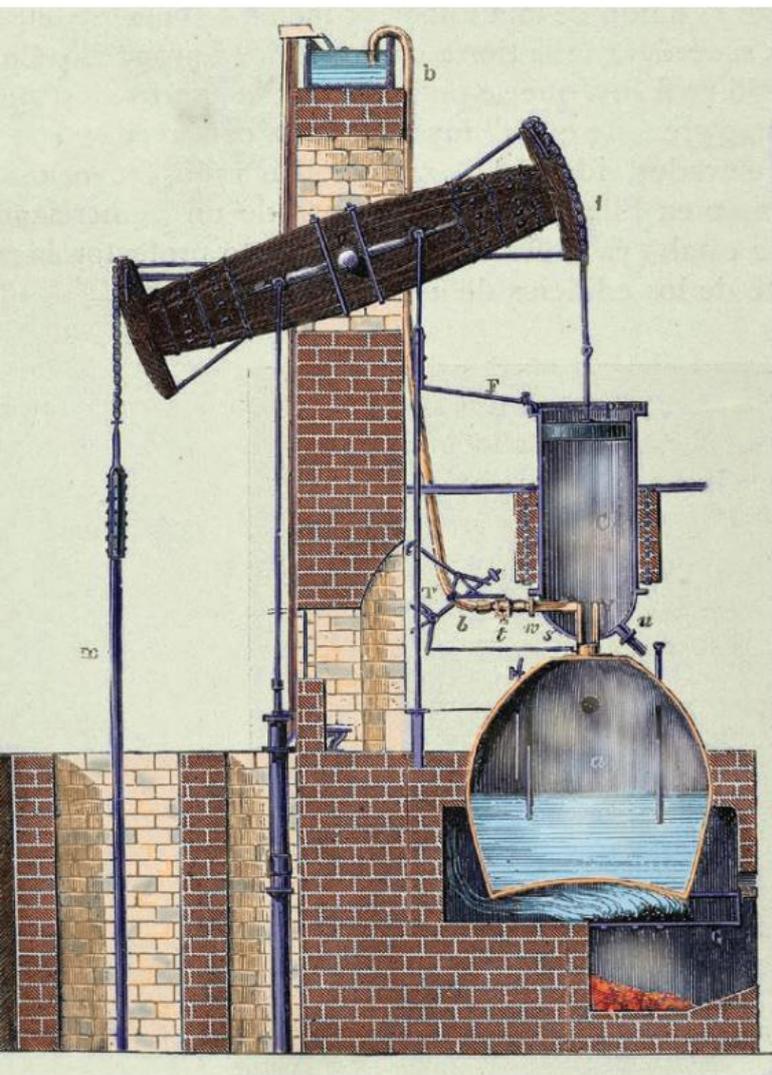
▼ **Source 8.33** An 1884 prediction of the future use of steam-powered trains – hauling a ship across the Panama Isthmus (*Scientific American*, 1884)



**Video**  
**Source 8.33A**  
James Watt's workshop



**Additional content available:**  
Worksheet on James Watt's workshop



▲ **Source 8.34** Eighteenth-century diagram of Newcomen's steam pump

### Amazing but true ...

Without your knowing about it, James Watt is remembered in every room of your house. Every light globe is printed with a measure of how many 'watts' it uses. This unit of power was first proposed by engineers as a unit of electrical power to pay tribute to James Watt, even though none of his work was ever with electricity. Later the watt was adopted as the unit for all forms of power, even human muscle power in sports science.

### FAMOUS FACE

#### **JAMES WATT (1736–1819)**

James Watt did not actually invent the steam engine, but he is credited with having made it much more efficient, with the effect that it burned less coal and produced a lot more energy.



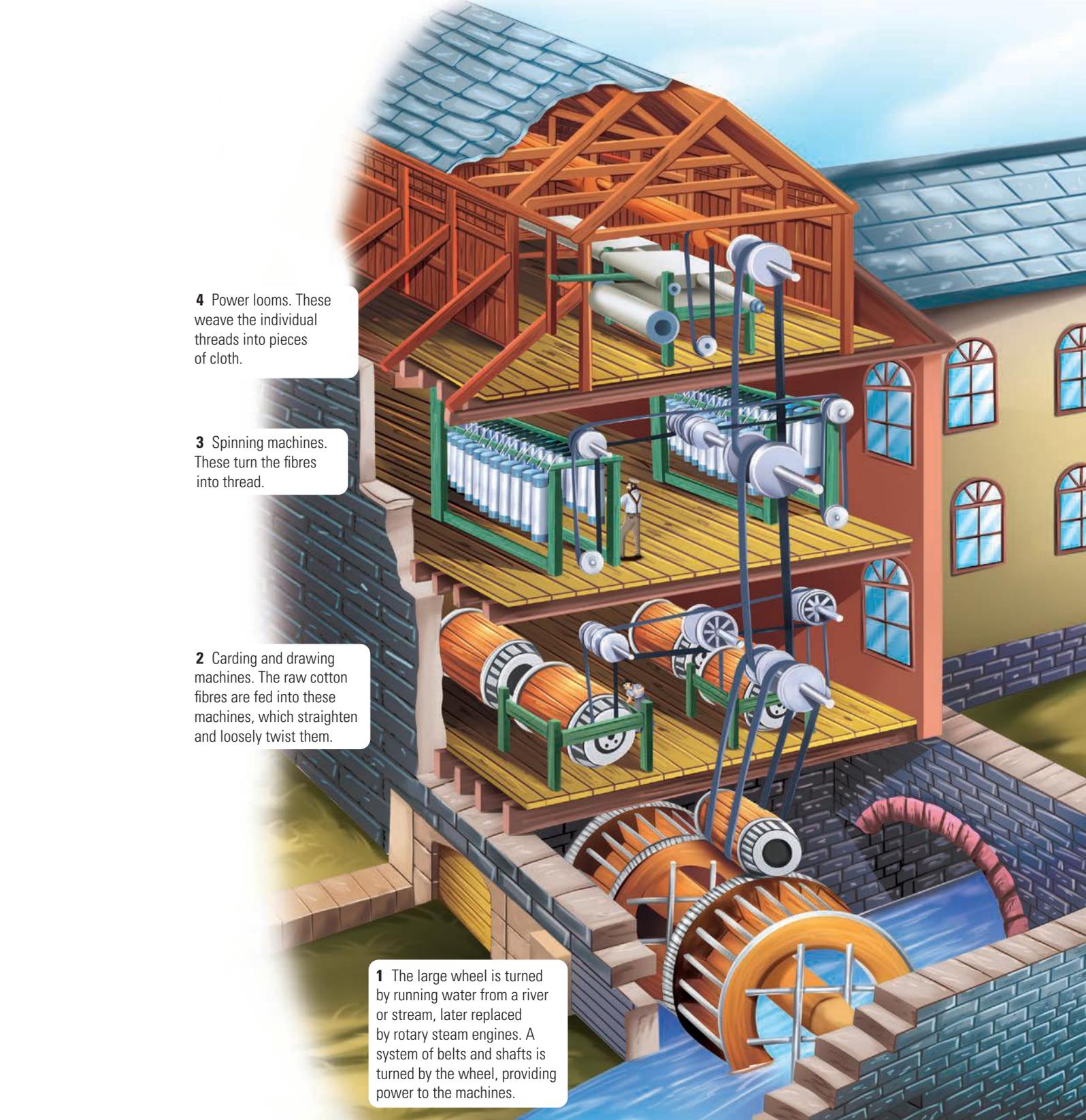
Born in Scotland in 1736, Watt quickly learnt the use of tools and instruments in the home workshop of his father. He went to London as an apprentice to a maker of fine mathematical instruments in 1754. He completed his training in just one year. His family was by now poor, but in 1757 Watt's career improved.

He made expert repairs on an instrument belonging to the University of Glasgow and was offered a job there with his own workshop and bedroom. It also offered him the education he had never been able to afford. The staff there taught him about physics, mathematics and chemistry. In 1759, Watt opened his own shop selling instruments in the Scottish city of Glasgow. This business was successful, and he was soon employing some 16 men. The same job introduced him to a new technology that fascinated him. In 1763, he was asked to repair one of Thomas Newcomen's working models of a steam engine. These were used to pump water out of mines.

Watt realised that Newcomen's machine needed improvement. It was inefficient: it burned up a lot of coal, it was slow and required three operators. Worse, the pump could only lift an arm up and down; it could not do a round-and-round movement. Watt realised that if he could translate the power and movement into rotary form, it could drive a greater variety of machines in factories, and replace more waterwheels and windmills. His first model of his own machine was made in 1765, patented in 1769 and finally worked up in 1775.

In 1774, the gentle Watt enlisted the help of the more businesslike Matthew Boulton. The partners displayed their working machine in 1776. By 1786, they had developed a machine that could be used to drive all the many machines in a cotton mill.<sup>8</sup>

<sup>8</sup> For more information about James Watt and cotton mill machinery, read James and Elisabeth Outman, *Industrial Revolution Biographies*, 2003.



**4** Power looms. These weave the individual threads into pieces of cloth.

**3** Spinning machines. These turn the fibres into thread.

**2** Carding and drawing machines. The raw cotton fibres are fed into these machines, which straighten and loosely twist them.

**1** The large wheel is turned by running water from a river or stream, later replaced by rotary steam engines. A system of belts and shafts is turned by the wheel, providing power to the machines.

▲ **Source 8.35** A water-powered textile mill. Note the method by which the power is transferred from the river to the machines. This diagram shows how, traditionally, water power had been used to drive the machines in factories. While water was a driving force, it did require that factories be built in remote, steep valleys where the water flowed strongly. Production could also be affected if drought made the river dry up. The invention of coal-fired engines meant that factories could be situated anywhere, close to coal fields and close to ports. From what you can see, what do you think the working conditions would be like in the textile mill? Who is operating the machinery? What skills were required to operate the machinery? After James Watt adapted his steam engines to produce rotary motion, they became the preferred power source for mills and factories. Why do you think this was?

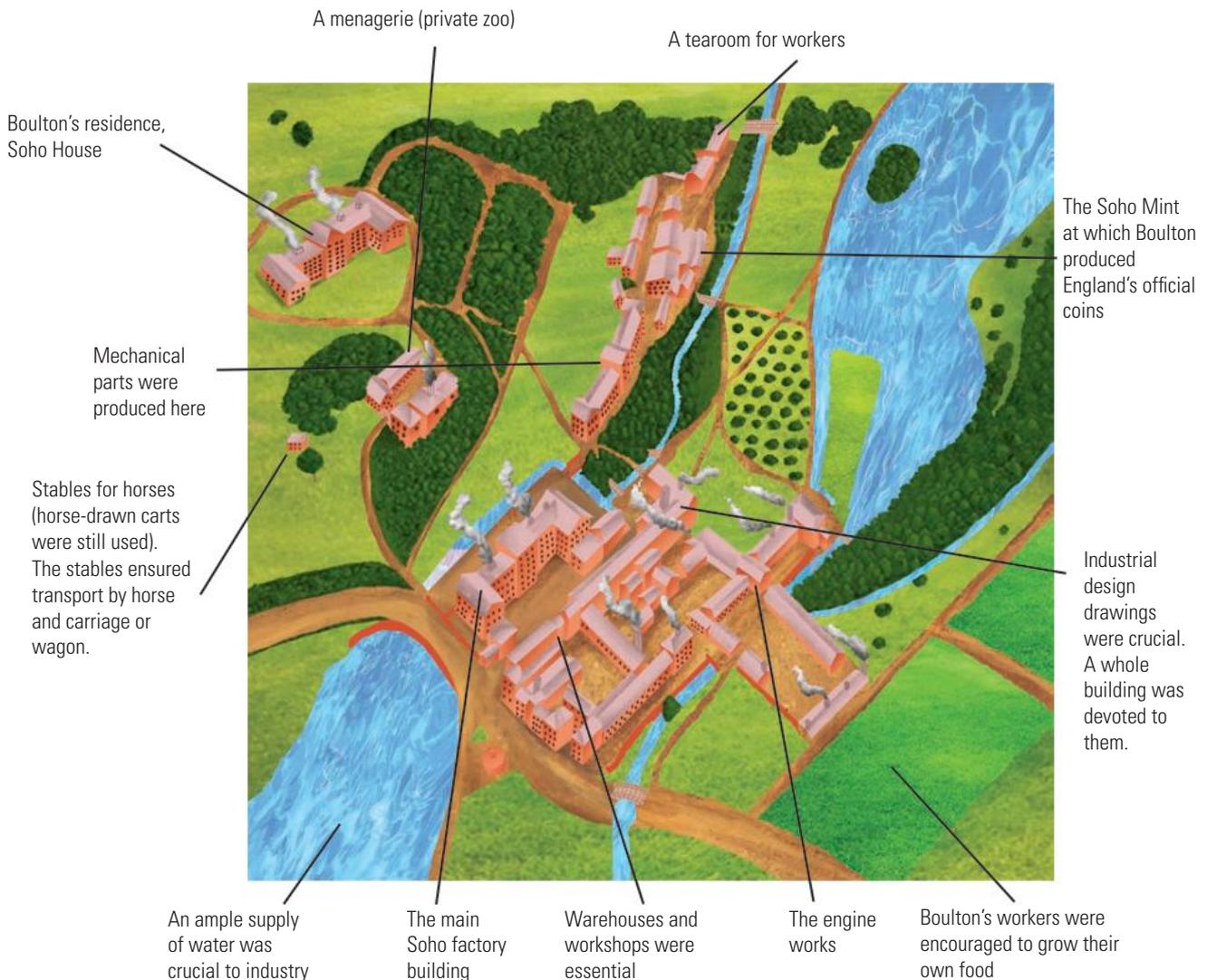
## FAMOUS FACE

**MATTHEW BOULTON (1728–1809)**

Matthew Boulton grew up in an industrialist's family in Birmingham. When his father died, Boulton transformed his small business into a more ambitious enterprise. He then built a massive new factory at Soho. He successfully produced coins for the Royal Mint and made luxury silver goods for domestic use. Like so many industrialists, he was a member of the Lunar Society's Birmingham Branch. This group was interested in discussing the latest inventions. There, he met physician Erasmus Darwin and James Watt. He immediately saw the importance of Watt's steam engine, and helped develop and market it. He also became a business partner in Watt's firm. They developed the Boulton and Watt Steam Engine, which, being more powerful than any engine before, could be used effectively first in mines, then in hundreds of factories.



Boulton was a humane industrialist who took care of his workers. He made a policy of only hiring boys who were orphans or from poor families as apprentices. He refused to employ boys from wealthy families. He also introduced the first insurance scheme for workers, to cover them in the event of injury or sickness.<sup>9</sup>



▲ **Source 8.36** Matthew Boulton's industrial estate at Soho

<sup>9</sup> Read more about Boulton in Shena Mason, *Matthew Boulton: Selling What All the World Desires*, 2009.

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 8.3

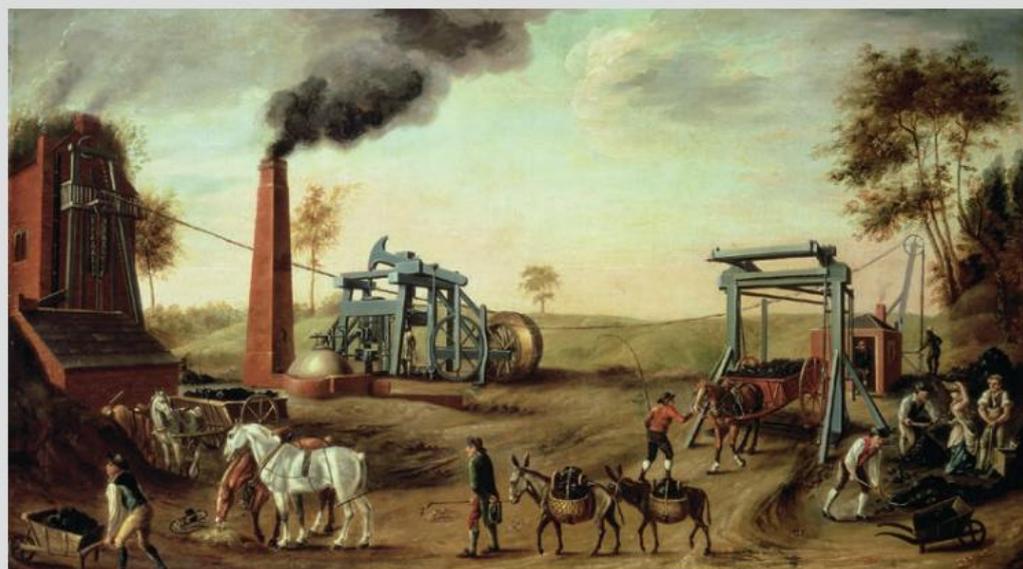


### Cause and effect

The steam engine did much more than increase human activity and production: it caused a massive shift of population from one place to another.



▲ **Source 8.37** Before the steam engine, a flour mill like the one shown here had to be powered by strongly flowing water. This meant that mills were often placed in a remote valley where there was a strong stream, far away from cities that were on flat ground.

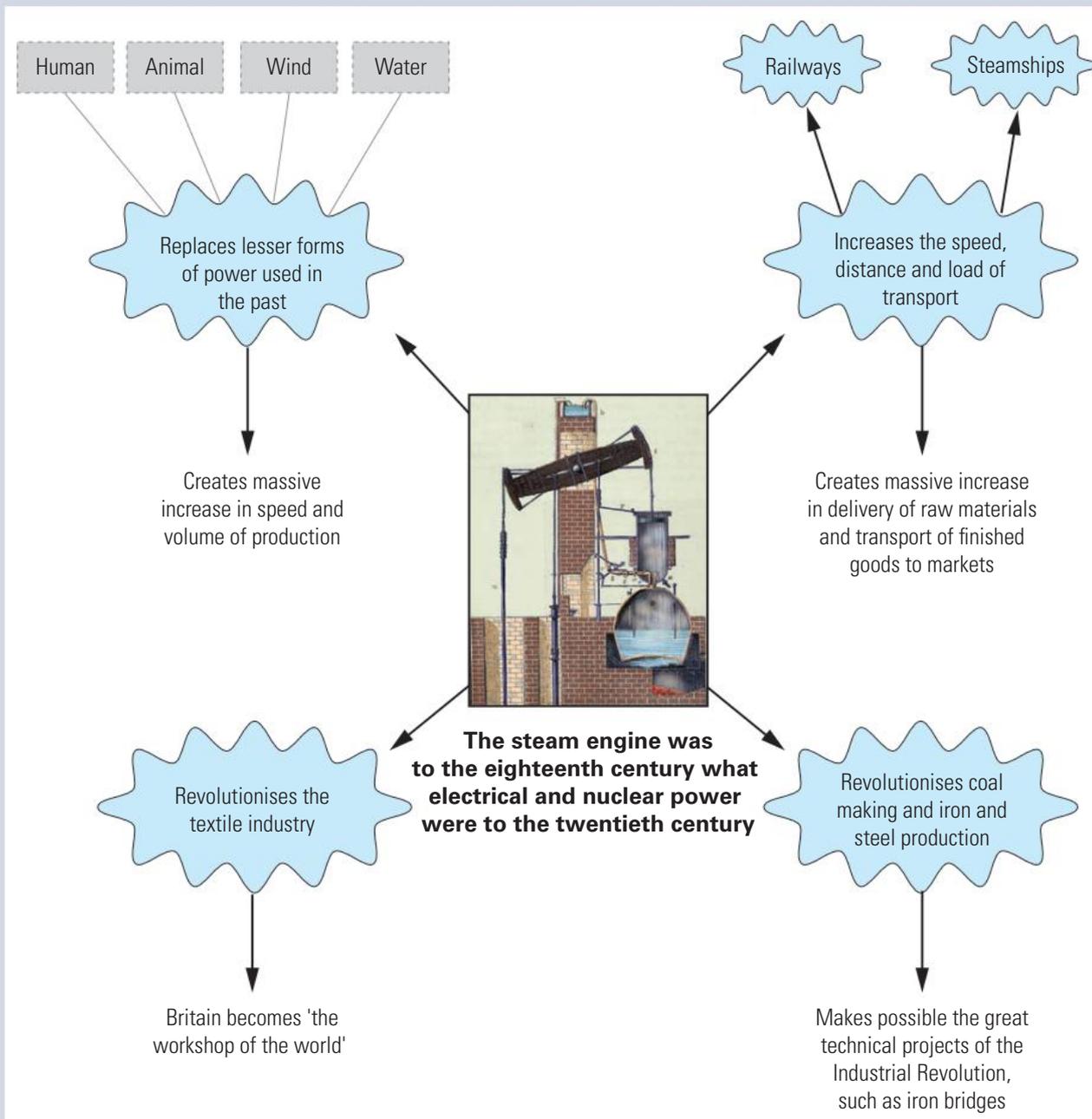


▲ **Source 8.38** Once the steam engine was invented, a mill could be placed anywhere, even on flat ground and close to other mills or to cities. This caused large shifts in population. Many workers now lived in cities and lived closer to each other. This enabled them to meet and talk more often. This in turn allowed workers to discuss their problems and grievances and, finally, to form trade unions to campaign for better conditions. Thus the labour movement was born.





## THE POWER OF STEAM



▲ **Source 8.39** How steam power transformed industry and transport



## END OF SECTION REVIEW 8.8



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 Why did Leonardo da Vinci's wonderful inventions (helicopter, tank) in the sixteenth century never come into use in his own time?
- 2 What were the main forms of power available to human beings before the Industrial Revolution?
- 3 Why did traditional forms of power limit where people worked and how much work they could do?
- 4 How did the invention of the steam engine allow the relocation of mills and of the people who worked in them?

#### Interpret

- 5 Why were Watt's improvements upon Newcomen's original steam engine crucial to the technological developments of the Industrial Revolution?
- 6 How did the invention of the steam engine cause a massive shift of population from one place to another?

#### Argue

- 7 Evaluate the extent to which the steam engine can be seen as the most important invention in terms of making the Industrial Revolution possible.

#### Extension

- 1 Investigate the successful business practices of the Watt and Boulton industrial team. To what extent can we say that it was mainly these two men who gave the steam engine its true place in the history of the Industrial Revolution?



**Key concepts:** cause and effect, significance, perspectives



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

Keep an eye out for more information about the growth of the labour movement in other places throughout this chapter.

▼ **Source 8.40** A representation of Holbeck railway junction at Leeds from 1868





## 8.9 The technological innovations of the Industrial Revolution: the revolution in transport

### FOCUS QUESTION

How did new transport technologies change the world forever?

### Limitations on transport before the Industrial Revolution

The invention of new machines allowed massive increases in the scale of production in England. This created two new problems: it was now necessary to transport greater amounts of raw materials (coal, wool, iron ore, cotton) to the factories, and once production was completed, to then transport the manufactured goods. For industry to make profits, both processes had to happen as quickly and as cheaply as possible.

Existing transport could not cope with such heavy traffic. Existing roads were too slow. The English stage wagon shown in Source 8.41 needed six horses to carry heavy loads over long distances on very poor road surfaces. If factory owners relied on this slow transport, they would never get enough materials to run their production.

Ships could also carry heavy loads along the English coast. There were also many rivers, including the Thames, the Mersey and the Severn, upon which barges would carry heavy loads. However, if a city did not have access to a river, transport options were limited.

### Turnpikes and made roads

An important improvement happened when inventors realised that roads could be an effective way of transport if their surfaces were improved. For centuries, roads had simply been paths worn into the land by traffic. Their surfaces were often uneven, with holes, boulders and deep grooves made by wheels. These slowed traffic and caused accidents.

The problem was that road repair was expensive in terms of both human labour and materials. The first major solution was the simple idea of a

▼ **Source 8.41** A traditional English stage wagon, pulled by multiple horses



**turnpike** road, a stretch of road that was sold to a developer, who paid to make the road smooth and financed the operation by charging every carriage a fee to travel over it. Since hundreds of carriages travelled the road each day, the steady flow of money allowed for regular upkeep.

The second major invention was a technique to improve the actual surface of the road, to allow for smoother, faster travel.

Two inventors in particular are remembered for this quiet revolution in transport: John Metcalf and John McAdam.

### Canals: men build their own rivers

The new industrialists first used existing rivers, widening them and deepening their channels. This meant, however, that areas with no rivers, or no deep rivers, were useless for industry.

In 1753, a group of businessmen in Liverpool made an important advance:

if there was no river where it was needed, they created one. They employed the engineer Henry Berry to build a canal from the coalmines at St Helens to the town of Warrington. The Sankey Brook Navigation was opened for business by 1757 and quickly proved that creating a canal where there wasn't a waterway could provide the heavy transport that factories needed.

The great maker of high-quality pottery, Josiah Wedgwood (1730–95), suggested the construction of a canal to join the Trent River with the Mersey River. He cleverly bought a property in Stoke-on-Trent for 3000 pounds, knowing that it would become more valuable once it was served by a canal.

**turnpike** a main road that one has to pay to use



▲ **Source 8.42** An example of the pottery made by Wedgwood at the Etruria Pottery Works

▼ **Source 8.43** Depicted here is Tyburn Turnpike, London. Turnpike roads charged tolls for users – the better the road the more traffic and the greater profit.



The canal was begun in 1766 – when Wedgwood himself turned the first spadeful of earth – and completed in 1777. It ran for about 150 kilometres and vastly increased the area served by water transport. Wedgwood built his house on one side of the river and his Etruria Pottery Works on the other.

As the engraving in Source 8.44 shows, the heavy materials needed for pottery, such as clay, were quickly transported by water right to the front door of Wedgwood's factory. In this system, just one narrow barge, pulled by a horse and guided by one man and a boy, could pull 30 tonnes of raw materials.<sup>10</sup>

Historian Phyllis Deane argues that the first great leap forward in the 'transport revolution' was in canals, and it was these that created Britain's industrial take-off. She explains that the first urgent problem was to increase the supply of coal for heating homes in the growing industrial cities; otherwise, the cities would have been unsustainable. In Manchester, for example, coal prices fell by 50 per cent when transported cheaply on the Bridgewater Canal.

The second problem was to move huge amounts of raw materials into the factories. Deane explains that by 1800 Britain had an enormous network of inland navigable waterways of 3200 km, one-third being canals that were built in two intensive campaigns in the 1760s and 1770s.<sup>11</sup>



▲ **Source 8.44** The canal systems of England offered a cheap and viable method to transport goods relatively quickly before the development of steam engines. Note the horse pulling the barge along the waterway.

<sup>10</sup> To find out more about transporting loads via canal, read Tony Taylor, *The Industrial Revolution*, 2014.

<sup>11</sup> Find out more about Britain's canals by reading Phyllis Deane, *The First Industrial Revolution*, 1979, pp. 78–9.



▲ **Source 8.45** Canal transport in England and Wales in 1800

## FAMOUS FACE

### RICHARD TREVITHICK (1771–1833)

Richard Trevithick was a mechanical engineer whose inventions changed the face of the world forever.



His main achievement, described in more detail on the next page, was to link up the newly invented steam engine for transport, creating the first steam-driven carriage and then a locomotive which could pull a train as early as 1803. His invention made it possible to haul the vast amounts of coal needed to fuel the factories and mines of the Industrial Revolution, and to transport heavy goods such as iron.

## Railway trains: weaving an iron web over the world

When we look at the first railway trains today – now historical exhibits in science museums – it is difficult to imagine a time when they must have seemed as new, exciting and amazing as the first spacecraft were in the twentieth century.

The second great revolution in transport occurred in the eighteenth and nineteenth centuries, when inventors moved away from boats on canals and imagined a steam-driven machine pulling carriages along iron rails instead. While other new machines were located inside factories, the train was seen by everybody across Britain. It completely changed the way most industries worked. It also allowed people to travel at speeds and over distances far greater than ever before.

When we can observe steam trains today – such as the much-loved Hotham Valley Tourist Railway, from Dwellingup into the Darling Ranges – they now seem charming and old-fashioned.



▲ **Source 8.46** William Hedley's *Puffing Billy* (1813)

Compared with modern high-speed trains, the old steam engines appear relatively slow, noisy and uncomfortable.

The idea of a railway was first used by the ancient Greeks, who built simple tracks made of wood, to carry carts. Well before the Industrial Revolution, the British were also using carts to move coal from mines, but these were pulled by animals and could not carry heavy loads.

The idea of a railway started in 1802 when the Surrey Iron Railway Company opened a line from the Thames docks in London to Croydon. The carriages were, however, still only drawn by horses, and loads were limited in terms of the weight that the horses could pull.

### Mr Trevithick's extraordinary inventions (1801–05)

One of the most significant inventions occurred when Richard Trevithick wondered whether the newly invented steam engine could be placed on a vehicle to carry heavy loads. Trevithick was successful. His first attempt was a steam-driven

vehicle called a 'Puffer' or 'Puffing Devil' (1801), but it was only designed to ride on roads, not tracks.<sup>12</sup>

In 1804, he was challenged by ironmaker Samuel Homfray to design a vehicle that would run on tracks and be strong enough to carry five wagons, a coach, 10 tonnes of iron and 70 passengers about 16 km from his Penydaren Ironworks in Wales to the Glamorganshire Canal.

In 1808, Trevithick set up a circular railway track in Euston Square in London to demonstrate the possibilities of steam trains. People had to pay a shilling for a ride – as much money as a working man earned in one day – to ride on the train *Catch Me Who Can*.<sup>13</sup>

### George Stephenson (1781–1848) and his early trains

George Stephenson took up from Trevithick and designed a total of 17 innovative steam locomotives between 1814 and 1821. Importantly, he was also more successful than Trevithick in publicising them and was responsible for their widespread use.



▲ **Source 8.47** An engraving of Trevithick's 1808 train demonstration in Euston Square, London, called *Catch Me Who Can*

12 Richard Cavendish, 'Richard Trevithick's First Steam Carriage. The "puffing devil", the first passenger-carrying vehicle powered by steam, made its debut on a road outside Redruth in Cornwall on 24 December 1801', in *History Today*, Volume 51, Issue 12, December 2001.

13 Want to know more? Look up 'Richard Trevithick's Puffing Devil on Trevithick Day 2017' on YouTube.

### The historic Stockton to Darlington ride (1825)

Stephenson's career took off when, in 1821, he was made the engineer in charge of a bold new project, a 42-km-long railway line from Stockton to Darlington. This opened in 1825. He designed the engine, *Locomotion*, which made the historic journey, proving that steam trains could be used effectively to haul heavy industrial loads such as coal.

### The triumph of *Rocket* (1829)

In 1829, George Stephenson demonstrated the power of his locomotive, *Rocket*, at Rainhill. He beat two other engines by completing the journey at a record speed of 42 km per hour. In 1830, the important Liverpool-to-Manchester railway was opened, joining two of Britain's greatest industrial cities.

### Railway mania

Trevithick's and Stephenson's inventions caused a virtual explosion of plans for new railways. People at the time referred to it as 'railway mania'. All these developments proved that the modern railway train – a steam-driven engine running on strong metal rails – was the key to massive increased industrial production. New railway lines were planned across Britain. Many businessmen saw the enormous possibilities of rail transport.

### The shrinking of Britain

By 1830, almost 100 locomotives were at work in Britain. The network of railways began to expand. In 1838, a company opened a new line from London to the central city of Birmingham. By 1840, others had built lines between London, Brighton, Exeter, Leeds and Manchester. By the 1860s, new lines reached the furthest parts of Britain, including Cornwall in the south, Wales in the west and Scotland in the north, with

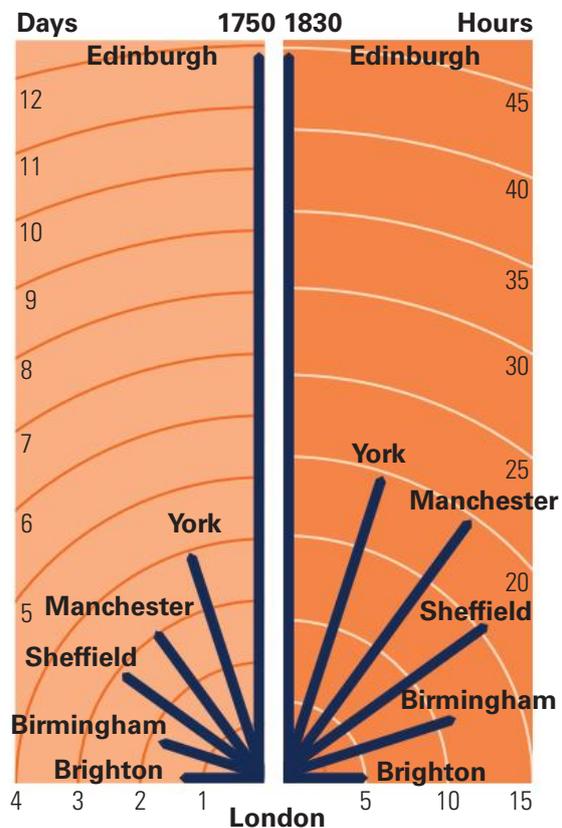
lines in Ireland as well. By 1850, Britain's railway network covered 11 000 km. For ordinary people, Britain seemed suddenly to have 'shrunk'.

We are so accustomed to the high-speed transport of the twenty-first century that the railway train seems almost like a charming and leisurely way to travel. It is very nearly impossible to imagine how intensely exciting it must have been to travel at a speed greater than a horse, to have the visual experience of the scenery whizzing by, to feel the rush of wind and to hear the mighty hiss of steam and see the belching smoke. Above all, the train created the possibility of visiting places far away from home.



#### Additional content available:

The rules and regulations for the workers of George Stephenson



▲ **Source 8.48** How distance was shrunk by rail travel. In 1750 (left), the journey from London to a city such as Manchester was measured in days; by 1830 (right), it could be measured in hours.

*By 1830, almost 100 locomotives were at work in Britain ... By 1850, Britain's railway network covered 11 000 km.*

## ACTIVITY 8.2



## Using historical sources as evidence

## TOTAL MILEAGE OF RAILWAY CONSTRUCTION

Year	Mileage	Year	Mileage
1832	39	1841	14
1833	218	1842	55
1834	131	1843	90
1835	201	1844	810
1836	955	1845	2816
1837	544	1846	4540
1838	49	1847	1295
1839	54	1848	373
1840	–	1849	16
		1850	7

Source: Neil Tonge, *Industrialisation and Society*, 1993, p. 162

▲ **Table 8.1** Total mileage of railway construction sanctioned by Act of Parliament from 1832 to 1850

## Responding to the source

- 1 Which recent occasion might have inspired the sudden spike in railway building in 1833?
- 2 In which year was the greatest increase in railway construction relative to the preceding year (in number of miles not percentage terms)?
- 3 Can you discover the reason for the quite small number of approvals in 1838–41 and for the enormous increase in approvals in 1845–47?



**Key concepts:** sources, evidence, cause and effect



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## Revolutions in transport

## John Metcalf (1717–1810)

John Metcalf became a successful civil engineer and lived an active life until age 92. He is called ‘the father of modern roads’ in memory of his pioneering work to build good-quality roads in the north of England.

In 1765, an opportunity presented itself to Metcalf: the British Government passed a law creating Turnpike Projects. As we saw earlier in this chapter, this involved the private development of England’s existing roads into good-quality routes. Since there were few people who had

experience in road building, Metcalf boldly presented himself and was given the task of building the first 5 km of road on the Harrogate–Boroughbridge route. He skilfully decided the best possible path for the road to take. His venture was a success, and he was commissioned to plan more roads.



▲ **Source 8.49** John Metcalf

In all, Metcalf created nearly 300 km of road. He designed his roads so that the surface had a slight curve on either side, to allow rainwater to drain off into roadside ditches. He amazed people by developing a special technique that could even carry his roads over swampy land.

### John McAdam (1756–1836)

John McAdam's surname has given us the term for a type of road: the macadam road. This civil engineer had the vision that roads had to be built with thought and care. They needed to be above the surrounding landscape and generally higher in the middle, so that they drained

properly. They also needed to be made up of carefully arranged layers of crushed rock, so that they were hard-wearing, and offered a smooth surface for fast, efficient transport of goods. After the British parliament created the system of turnpike roads, McAdam became the manager of the Ayrshire Turnpike Road in 1783.



▲ Source 8.50 John McAdam

## Amazing but true ...

John Metcalf was blinded by smallpox when he was six years old. Like many people who were blind at the time, he had been taught to play music on a fiddle to earn a living; he later branched out into selling horses. Amazingly, he also earned money by guiding visitors around his local area, pointing out from memory the local sights that he could not actually see. He later devised ways to explore a new region and to map out the best path for a new road across a landscape he had never seen before.



▲ Source 8.51 *The First American Macadam Road*, Boonsboro Turnpike Road between Hagerstown and Boonsboro, Maryland, United States, 1823

## ACTIVITY 8.3



### Check your understanding

- 1 Explain why the existing roads in Britain in the 1700s were not of a satisfactory quality.
- 2 Explain why the Industrial Revolution created an urgent demand for a good-quality system of roads.
- 3 Explain how the British parliament solved the problem of poor roads.
- 4 How did the turnpike system work?
- 5 How did John Metcalf design new and better roads?
- 6 How did John McAdam further develop a new 'technology of roads'?



**Key concepts:** cause and effect



**HASS skills:** analysing, evaluating

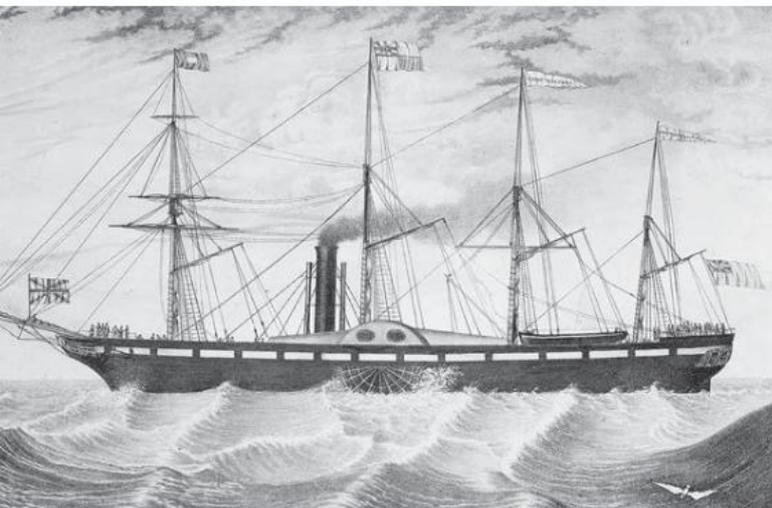
## Revolutions in transport: the steamship

### Mastering the oceans of the world

Europeans had already explored much of the world from the fifteenth century onwards, but they did so in sailing ships, which depended entirely upon the wind for energy. This meant that long voyages were slow, and ships were at the mercy of insufficient winds – in which case they were becalmed – or too much wind and the danger of shipwreck in storms.

Two aspects of the Industrial Revolution – the harnessing of steam power and the improvement of iron production – allowed another revolution to take place. Engineers now discovered that ships could be made of iron and powered by a steam engine. New ships were designed and built in

▼ **Source 8.52** Designed by Isambard Kingdom Brunel and launched in Bristol in 1837, the SS *Great Western* was the first purpose-built transatlantic steamship. This lithograph of the ship was created in 1838.



both Britain and America. At first, they were only powerful enough for river and coastal traffic.

### The transatlantic race between the *Sirius* and the *Great Western*

In 1837, construction began on the *Sirius*, but it was only intended to travel from Cork, in Ireland, to London. The ship's hull was of wood, and it had two side paddle wheels, driven by a two-cylinder steam engine. It could travel at 12 knots (nautical miles per hour, which is equivalent to 21 km per hour on land).

When it became known that Isambard Kingdom Brunel was building the *Great Western*, designed to prove that steamships could cross the Atlantic between Britain and America, the owners of the *Sirius* suggested that they should compete with Brunel to complete the same journey. The *Sirius* reached New York on 22 April 1838 and the *Great Western* arrived the following day.

While Brunel had lost that particular race, he eventually won the competition. The *Great Western* was also a wooden-hull ship driven by paddle wheels and a steam engine, like the *Sirius*. However, Brunel went on to design the *Great Britain*, launched in 1843.

It was a first in every respect: the longest vessel ever created, the first to be made entirely of iron and the first to be driven by a propeller rather than a paddle wheel. This does not mean that iron ships driven by steam engines immediately replaced sailing ships – the latter remained in use for some decades – but did mean the Atlantic had been crossed, and the world suddenly seemed a smaller place.<sup>14</sup>

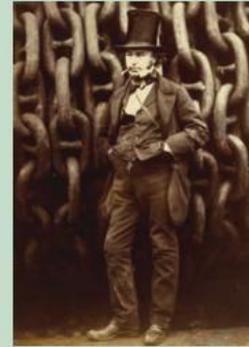
<sup>14</sup> To make a virtual visit to this wonderful ship, which has been preserved in the English port of Bristol, access 'Brunel's SS Great Britain' on the Go Bath Bristol website.

## FAMOUS FACE

**ISAMBARD KINGDOM BRUNEL (1806–59)**

Born in Portsmouth to French migrant parents who had fled the French Revolution, Isambard Kingdom Brunel became one of the most influential engineers of the Industrial Revolution. He designed groundbreaking revolutionary ships and also railways, bridges, viaducts and tunnels, many of which are still in use today.

Isambard Kingdom Brunel, English inventor and civil engineer, pictured here before the anchor chains designed for his SS *Great Western* steamship

**Video****Source 8.52A**

The Thames tunnel: the first tunnel under a river in the world

**Additional content available:**

Worksheet on the Thames Tunnel

**END OF SECTION REVIEW 8.9****Review questions**

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

**Recall**

- 1 Why was the creation of the canal system so crucial to ensuring the success of the early Industrial Revolution?
- 2 What were the main techniques used to create a good road system capable of serving the needs of the Industrial Revolution?
- 3 What was Richard Trevithick's truly groundbreaking contribution to railway transport?
- 4 Why might Brunel's ship the *Great Britain* be seen as the birth of all modern shipping?

**Interpret**

- 5 How do we know that the great industrialists were keen to see the development of railway transport? Why were they so keen?
- 6 Why was the Liverpool-to-Manchester railway line of particular importance?

**Argue**

- 7 Evaluate the argument that without the revolution in the forms of transport, the Industrial Revolution as a whole would not have achieved the success that it did.

**Extension**

- 1 Investigate the impact of railways on the lives of ordinary people. The early trains were invented to carry industry's raw materials but were later adapted to carrying human passengers. How might the new railway travel have changed the way people understood their nation and the world around them?



**Key concepts:** continuity and change, cause and effect, significance, perspectives



**HASS skills:** questioning and researching, analysing, evaluating



## 8.10 The technological innovations of the Industrial Revolution: the revolution in coal mining

### FOCUS QUESTION

In what ways did the Industrial Revolution increase the demand for coal?

### New technologies allow deep mining

The mining of coal had long been practised in Britain, drawing on rich deposits in parts of England such as Lancashire, and in Wales and Scotland. The problem was that miners could not dig too deep because the mines filled with water. There was no method to pump the water out.

Between 1700 and 1800, two things caused a massive increase in demand for coal. One was the steady growth of Britain's population, which needed coal for heating their homes. The other was the enormous increase in the use of steam engines in all sorts of factories. This meant that it was now urgent for miners to be able to dig ever more deeply, which then caused problems with ventilation of bad air and drainage of water. Until these problems were solved, Britain's industrial growth was held back.

The steam engine provided the solution. Inventions such as Thomas Savery's pumping machine (invented 1698) proved that coalmines, tin mines and lead mines could be drained much

more efficiently by a machine than by people with buckets. Thomas Newcomen (1664–1729) and his partner John Calley (1663–1717) created a better pumping engine that, though slow, was safer and more effective. Newcomen described his machine in these terms:

Whereas the invention for raising water by the ... force of fire, authorized by Parliament, is lately brought to the greatest perfection, and all sorts of mines, etc., may be thereby drained and water raised to any height with more ease and less charge than by the other methods hitherto used, as is sufficiently demonstrated by diverse engines of this invention now at work in the several counties of Stafford, Warwick, Cornwall, and Flint. These are therefore, to give notice that if any person shall be desirous to treat with the proprietors for such engines, attendance will be given for that purpose every Wednesday at the Sword Blade Coffee House in Birchin Lane, London.

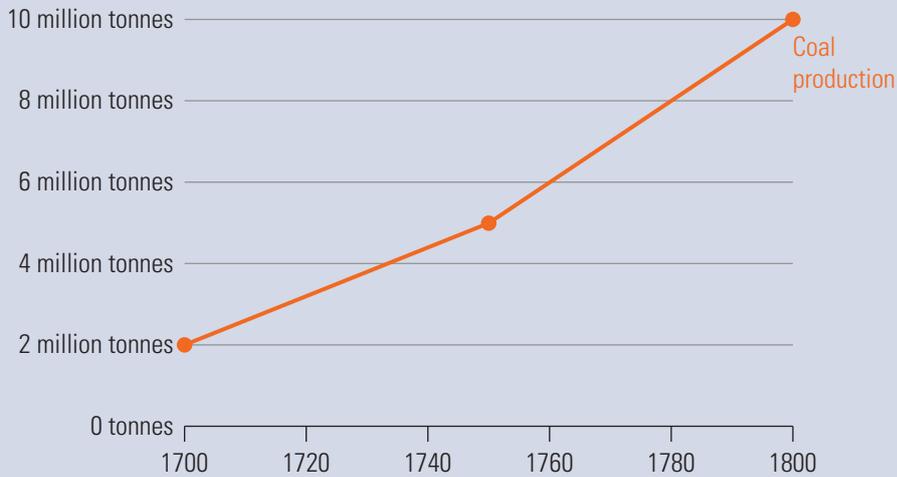
▲ **Source 8.54** Inventor Thomas Newcomen, writing in *The London Gazette*, 14 August 1716



◀ **Source 8.53** *An English Miner*, 1814, by George Walker

This caused enormous excitement among industrialists: coal could finally be dug more quickly, more safely and more cheaply. Hundreds of these steam pumps were sold and installed in coalmines and metal mines across England.

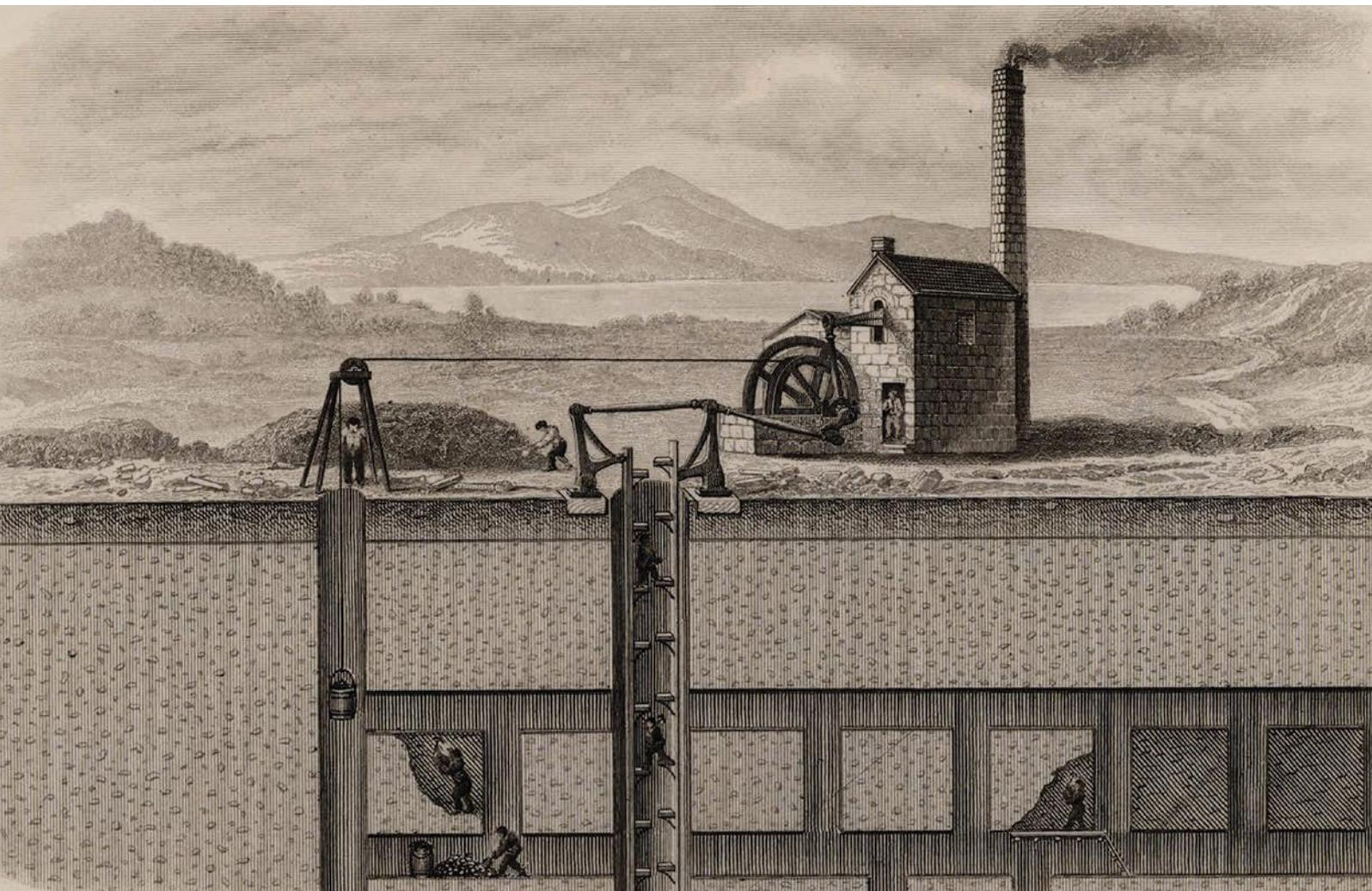
## COAL PRODUCTION



▲ **Source 8.55** Coal production in the United Kingdom, 1700–1800.

Source: UK Department for Energy and Climate (DECC), 2019

▼ **Source 8.56** Cross-section of a mine in the Devon and Cornwall area of England, showing the engine house containing the steam engine that powered the man-engine, or moving lift, and the raising of ore in buckets in a separate shaft on the left



## END OF SECTION REVIEW 8.10



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 What was the most serious limitation to large-scale coal mining in Britain? How was this problem overcome?
- 2 What were three reasons why it became urgent to be able to dig much more coal by about 1700?
- 3 How did the development of large-scale coal mining put further pressure on people to develop transport systems such as canals and railways?
- 4 How did Thomas Newcomen's inventions contribute to the development of the modern coal industry?

#### Interpret

- 5 How do you think that coal masters viewed the Industrial Revolution compared to workers, such as child labourers?



To find out more about the effects on common people of the Industrial Revolution, see Section 8.12.



#### Argue

- 6 Evaluate the argument that the energy of coal was absolutely crucial to the development of industry in the 1700s. Investigate why, by contrast, the use of coal to generate energy in present-day Australia is so controversial and heavily criticised by many.

#### Extension

- 1 Investigate the career of Thomas Newcomen, and explain the nature of the improvements he made to give the steam engine far greater power.



**Key concepts:** cause and effect, significance, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 8.11 The technological innovations of the Industrial Revolution: the revolution in the metal industries

### FOCUS QUESTION

How did changes in the metal industries affect the world?

### Early production of poor-quality iron

The iron industry existed well before the Industrial Revolution, but it was much smaller in scale and its techniques were less developed. In particular, the use of coal in furnaces to make iron gave poor results. Coal contains sulphur, which produced impurities when smelting. This made the iron weak and likely to break under strain. It was strong enough for small items, but was too weak to make larger ones. It could never, for example, be strong enough for the mighty beams needed for bridges and ships.

In 1709, malt mill maker Abraham Darby solved this weakness. He abandoned coal and used coke (a solid fuel made from coal) instead. He discovered that if coal were heated with the absence of air, it produced a hard, grey fuel without the impurities that weakened the iron. His factory at Coalbrookdale was the origin of an invention that would change the physical world that humans could build.

### Steam-driven air-bellows

Some years later, in 1742, Abraham Darby II installed one of Newcomen's steam engines to powerfully drive the bellows that pumped air into his furnace. This too resulted in an increase in the quality of the iron.

These apparently small technical innovations had two momentous effects. First, iron could now carry much

heavier loads: it was strong enough to span rivers and to build large structures such as the first iron ships. Second, as forges adopted the steam engine, the demand for coal increased; suddenly, thousands of tonnes of coal were needed weekly. This in turn urgently required new, efficient forms of transport of heavy raw materials – such as coal and iron ore – resulting in the birth of the canal system, and then of the railway system. The railway system, in particular, was successful precisely because there was strong iron available to build locomotives and tracks.

### The Iron Bridge at Coalbrookdale

By 1777, the new, strong iron was ready for its greatest challenge. Abraham Darby III commissioned John Wilkinson to build the world's first metal bridge over the River Severn near Coalbrookdale (Shropshire).



▲ **Source 8.57** Adolph Menzel, *The Iron Rolling Mill*, c. 1870. This painting depicts the methods for working with iron that had evolved from the pioneering work of Abraham Darby (Abraham Darby II was the son of the first Abraham Darby).

Given that people had only ever seen bridges made of solid stone, this must have been a breathtaking, possibly frightening, sight. Apart from the stone approaches, the entire semicircular span of the bridge was made of iron. It had five ribs, made up of two 21.3-metre metal spans bolted together at the top. The ribs were held together by lateral bars of metal.



▲ **Source 8.58** The Iron Bridge at Coalbrookdale, today. To modern eyes, this is merely a metal bridge. To people at the time it was built, in 1777, it would have been quite an amazing sight, like a spider's web of iron. People travelled to Coalbrookdale just to stand there and marvel at the sight.

## The Crystal Palace Exhibition, Hyde Park, London (1851)

The era of the First Industrial Revolution closed with another invention – again made possible

**exhibition** large trade show that demonstrates new technologies and innovations

by good-quality iron – the international **exhibition**. Once strong iron was available, it was possible to

build not only factories, but truly vast pavilions for displays of goods. Probably the most famous was England's so-called Crystal Palace, built for the Great Exhibition of 1851.

The idea of a great exhibition of a nation's products was not new – the French had held one in 1840 – but the enormous scale of England's equivalent was impressive. The idea was suggested by a civil servant, Henry Cole. He saw the Paris exhibition and decided that industrial Britain should also display its achievements to the world.

He argued that it would make British businesses world-famous and increase their sales and trade. Given the massive final success of his plan, it seems amazing that many contemporaries tried to stop the project. Fortunately, Queen Victoria's husband, Prince Albert, firmly backed the project all the way to completion.

The Crystal Palace was new because it took an existing technique using iron and glass – usually used on smaller buildings, such as greenhouses – and translated it onto a massive scale never seen before. Its designer, Joseph Paxton, was Head Gardener to the Duke of Devonshire and had already built just such a garden greenhouse of iron and glass. He also described himself, not quite accurately, as an architect. When Queen Victoria announced a competition for a large display palace, Paxton submitted his plan and won. Many people disliked his design and made ridiculous criticisms that in summer visitors would be burned to death by the sunlight coming through the panes of glass. Prince Albert's faith in Paxton did, however, prove justified.

Over eight months, Paxton successfully directed an army of 2000 workers to install 300 000 panes of glass in the metal framework. He made another discovery that would prove important to industry: pre-fabrication – that is, making parts of the building, such as columns or roof beams, elsewhere and bringing them to the palace ready to be bolted into place. The finished building was opened on 1 May 1851 by Queen Victoria.



▲ **Source 8.59** A magic lantern (a type of early projector) painting of the exterior of the Crystal Palace building, London, 1851



▲ **Source 8.60** The interior of the Crystal Palace, filled with exhibitions of the greatest inventions of the day from around the world

## The later triumphs of iron during the Second Industrial Revolution (1870–1914)

If the great Industrial Revolution was completed by the 1850s, a second phase started in the late nineteenth century and the early twentieth century, between about 1870 and 1914.

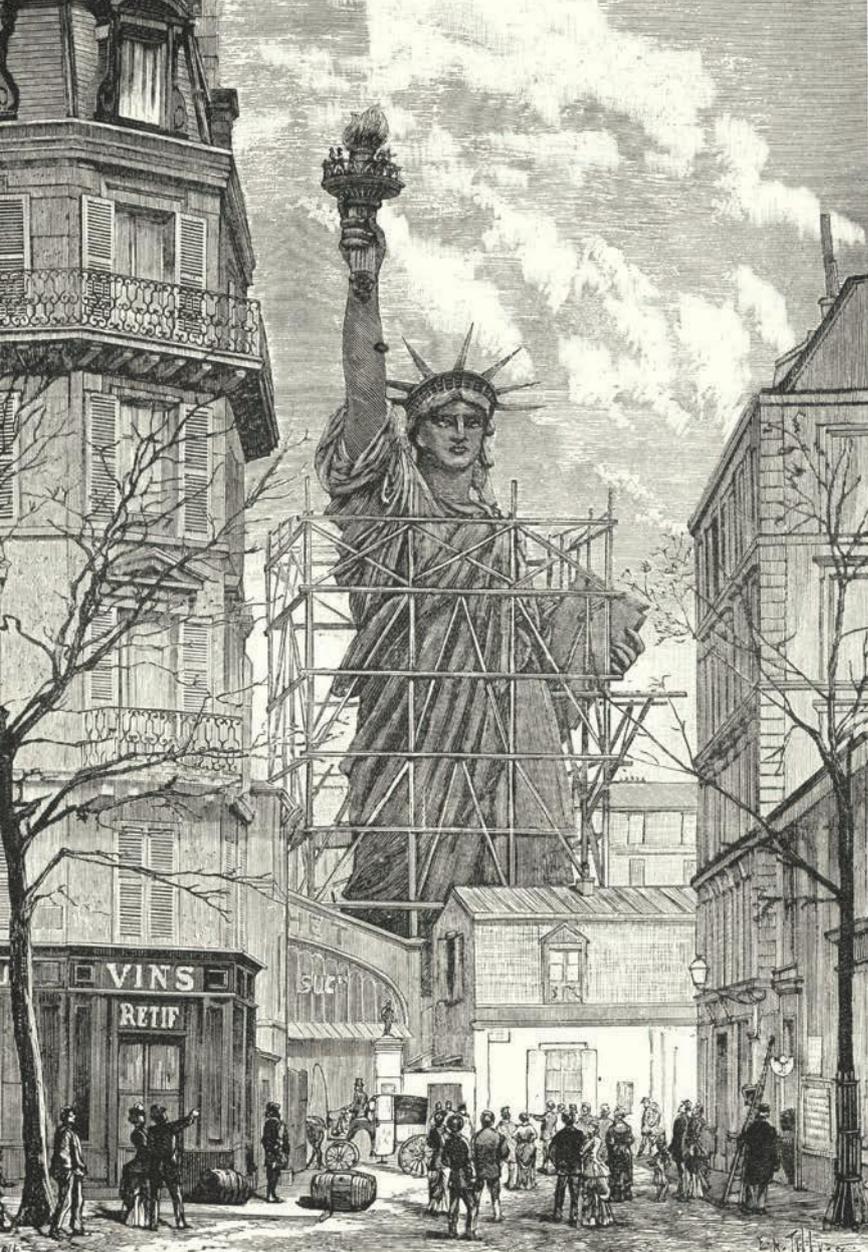
The strength and power of the new iron was dramatically organised in several projects of a scale never dreamt of before, such as the construction in Paris of the gigantic Statue of Liberty that would be erected in New York Harbor.

### The Statue of Liberty, New York (1865–86)

The idea of building a gigantic female figure of Liberty for New York was suggested in 1865 by the anti-slavery campaigner Edouard de Laboulaye.

He intended it to celebrate the centenary of America's War of Independence. He invited the French sculptor Auguste Bartholdi to design a statue whose formal title was to be *Liberty Bringing Enlightenment to the World*. The sculptor travelled to New York in 1871 to identify a suitable site and chose Bedloe's Island as the most visible place for passengers entering the city by ship. He then hired a studio in Paris, where he assembled the gigantic statue.

Bartholdi made the outside of the statue of copper to provide its distinctive green colour, but hired Gustave Eiffel to construct its inner structure of iron. The sculptor had the first parts ready by 1876, then the entire figure was carefully assembled between 1881 and 1884. When completed, it was formally presented to the American ambassador to France, then disassembled and shipped to America. It was finally assembled in New York in 1886.



## The Royal Exhibition Buildings, Melbourne (1880)

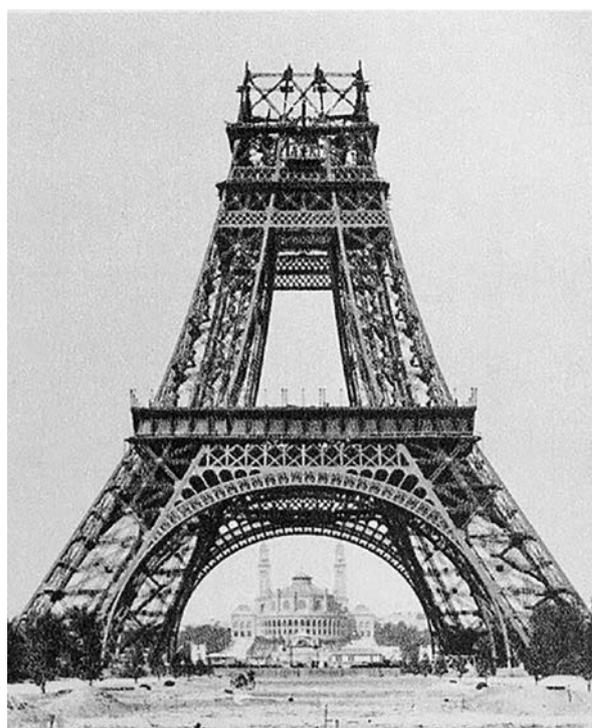
During the nineteenth century, the Industrial Revolution began to change ways of working and living in Australia. Like their British cousins, Australian colonists were proud of the industries and crafts that had developed here and copied the British idea of showing them off. They organised the Melbourne International Exhibition in 1880 to encourage industry and technology at home and trade abroad. The emphasis was on industrial technology, science education and the arts. The construction was entrusted to the architects Reed and Barnes, who made extensive use of the new material of steel. The large complex of buildings was completed in just 18 months. The exhibition attracted 1.459 million visitors. The buildings were used again for the Melbourne Centennial Exhibition (1888). The remaining section we see today is in fact only the central Great Hall of a much bigger complex of buildings, most of which were later demolished or destroyed by fire.

◀ **Source 8.61** The Statue of Liberty was first constructed in Paris. It is 93 metres tall.

## The Eiffel Tower, Paris (1887–89)

The Eiffel Tower was built between 1887 and 1889, to be ready in time for the Paris Universal Exposition of 1889. Gustave Eiffel was the master of large-scale iron construction, as seen first in the great bridges he built in France. Now he wanted to move from horizontal span to vertical height, proving that iron technology could be used to build the tallest building ever. From 1889 to 1930, it was indeed the tallest building in the world, until overtaken by the Chrysler Building in New York.

Public reaction varied. Many hated it. Some critics said it was just a Parisian rubbish bin upside down. Some people actually sold their apartments because they were sure the tower would fall on them. The novelist Guy de Maupassant had his dinner in the restaurant on the tower every night. His friends asked him why, when he hated it so much. He replied: 'Because that is the only place in Paris where I cannot see the horrible thing!'



▲ **Source 8.62** The Eiffel Tower under construction in 1888

## CASE STUDY 8.1



### The West Australian Exhibition of 1886

On a smaller scale, the Perth International Exhibition was held on the city foreshore in 1881, and this was followed by the West Australian Exhibition in 1886. What follows is a newspaper report from the opening of the latter exhibition.

#### Opening of the West Australian Exhibition

The ceremony of formally opening the West Australian Exhibition was performed by His Excellency the Governor at four o'clock on Saturday afternoon. The doors of the Town Hall, in which the Exhibition is held, were thrown open to the public at half-past three o'clock, and within half-an-hour the large Hall was well filled with numbers of curious citizens and visitors from the Port. [...] the display was well worth seeing, and the crowd of visitors found ample and pleasant occupation in inspecting the exhibits while waiting for the Governor's arrival. The platform, which was very prettily decorated with pot-plants and evergreens, was crowded with a large number of ladies and gentlemen, and the whole of the arrangements afforded conspicuous proof of the success which attended the exertions of the indefatigable Secretary, Mr. Bird. Shortly after four o'clock the Governor arrived at the Hall, being received at the Barrack-street entrance by the Chairman of the Exhibition Committee (the Rev. W. Traylen) and the Secretary (Mr. F. Bird). Upon entering the Hall His Excellency was received by all present standing, while Mrs. Randell played the National Anthem upon one of Brinsmead's grand pianos, exhibited by Mr. Grigg, of William-street. As soon as His Excellency had taken his seat on the platform, the Chairman of the Committee explained to him that the Exhibition was not quite what it had been hoped and expected it would be, partly owing to the unfortunate wreck of the *Mira Flores*, which had on board some of the intended exhibits, and partly on account of some of the exhibitors not having had sufficient time at their command to make more complete preparations. Still he believed His Excellency would see that the attempt made to hold an Exhibition of Western Australian native industries had, in the face of all difficulties, proved fairly successful. [...]

His Excellency, in reply, said that he was convinced the opening of the Exhibition was a matter of congratulation to the Colony at large. It was certainly not so very large when compared with those immense Exhibitions which were held periodically in the great centres of civilisation elsewhere; but it was at any rate an undertaking which proved the public spirit that had actuated those gentlemen who had taken part in it, and it marked another little step forward. (Cheers.)

▲ **Source 8.63** 'Opening of the West Australian Exhibition', *Inquirer and Commercial News* (Perth, WA: 1855–1901), Wednesday 3 March 1886, 2.

## MAKING THINKING VISIBLE 8.2



### Understanding and empathising

Use the article in Case study 8.1 to answer the questions below on paper, or in your Interactive Textbook.

- 1 Why do you think some Western Australians wanted to hold an exhibition in Perth at this time?
- 2 What difficulties did the organisers face in mounting the Perth Exhibition?
- 3 What was the role of the Governor in the Perth Exhibition? What aspect of the London Exhibitions were the organisers trying to emulate by including him?

## END OF SECTION REVIEW 8.11



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 Why was Britain's production of iron initially of very poor quality?
- 2 Which two inventions allowed the production of stronger, high-quality iron?
- 3 Why did improvements in iron production cause greater demands on the coal industry?
- 4 What was new about the construction of the bridge at Coalbrookdale?

#### Interpret

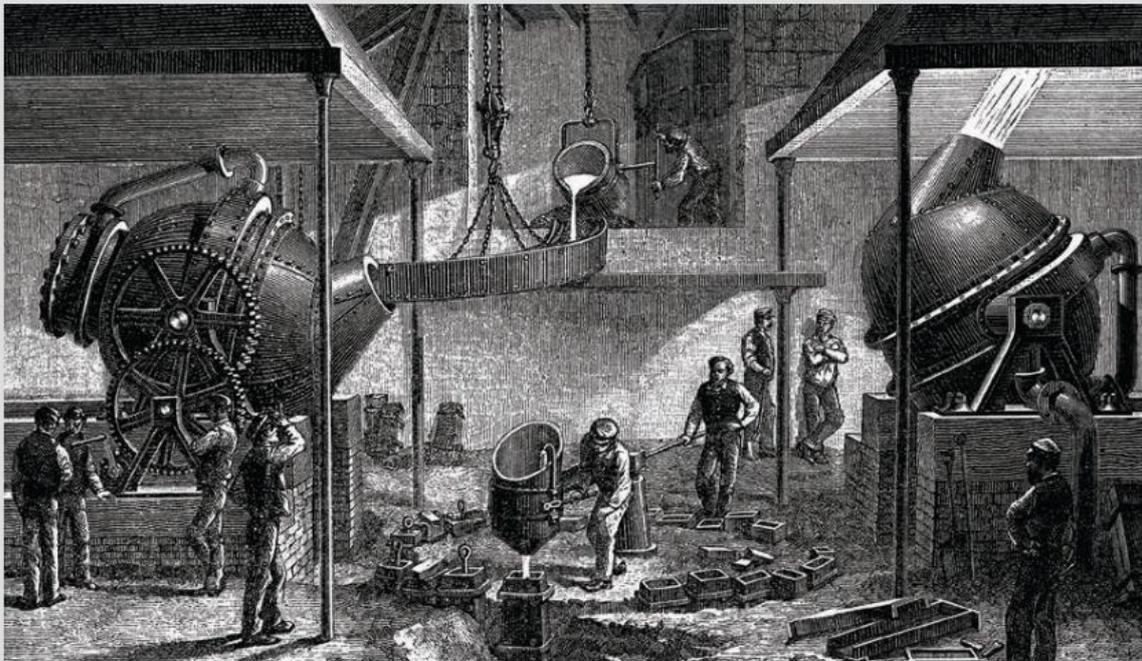
- 5 Explain how the great exhibitions served as the 'shopfront' of the Industrial Revolution and helped increase trade.
- 6 Explain how Gustave Eiffel's expertise in the use of iron allowed Auguste Bartholdi to build the massive Statue of Liberty.

#### Argue

- 7 Evaluate the overall importance of the iron industry to transport and trade during the Industrial Revolution.

#### Extension

- 1 Investigate the next stage of the use of iron during the Second Industrial Revolution. Explain how the invention of the Bessemer Process allowed the quick production of high-quality steel, and provide examples of what it was used for.



▲ **Source 8.63A** Engraved illustration of the manufacture of steel by Bessemer's Process



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

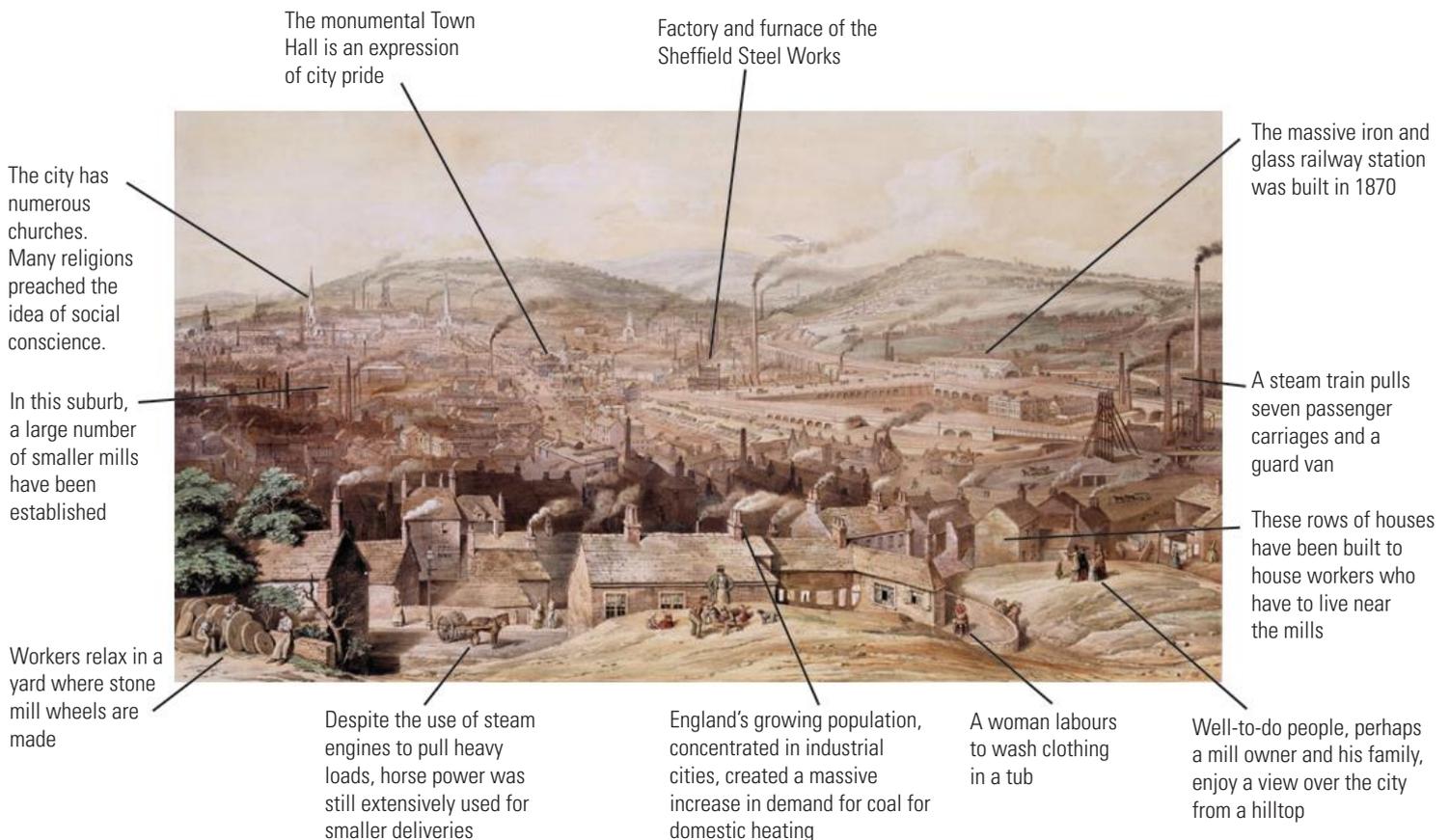


## 8.12 The experiences of men, women and children during the Industrial Revolution and their changing way of life

### FOCUS QUESTION

What was life like for people living during the Industrial Revolution?

### A view of life in a typical industrial city: Sheffield, England



▲ **Source 8.64** View of Sheffield, the great steel-making town, circa 1870

### MAKING THINKING VISIBLE 8.3



#### What makes you say that?

##### Step 1: what is going on in the image?

Look carefully at every single detail of this painting showing the industrial town of Sheffield. Based on the details you have noticed, how would you judge living conditions in Sheffield during the Industrial Revolution?

##### Step 2: what makes you say that?

What particular details in the image support your position? Do you think the image is a positive or a negative portrayal of life in Sheffield at the time?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** analysing, evaluating, communicating and reflecting

## Opportunities

The history of the Industrial Revolution might seem black-and-white, a strong contrast of good and bad. Historians

always acknowledge the extraordinary leap forward in invention and in technologies, simply because they are undeniable. They also tend to speak of the darker side of the Industrial Revolution – that is, the social effects upon working people and the

environment. We are still very much influenced by the views of social commentators, such as the analysts Karl Marx and Friedrich Engels, the novelists Charles Dickens and Elizabeth Gaskell, the poet William Blake, and painters such as Thomas Kennington and Hans Herkomer.

Until recently, nobody has thought to find out what ordinary working people themselves actually thought of the Industrial Revolution. One reason for this is that it was usually assumed that working people, being illiterate, never wrote anything about what they went through.

## The historian listens to lost voices of the Industrial Revolution

Historian Emma Griffin recently startled the world by announcing that the Industrial Revolution was – as she put it – actually an ‘Age of Opportunity’ for British working people. She states that there are some 800 autobiographies written by working people of the Industrial Revolution, although most are by men, with few recorded by women. These autobiographies contain a common message: the Industrial Revolution (a name the writers would not have known or used) simply increased the amount of work available.

The economy of the countryside offered only desperately hard work in farming, for little or no financial return. By contrast, the cities and factories of the Industrial Revolution offered enormous opportunities in employment. The skilled and the unskilled, the young and the old, male and female, could find jobs. In the

countryside, a skilled worker could make goods, but nobody could afford to buy them. In the industrial cities, the factory workers had cash and could buy goods. The factories needed workers to work all through the year, as opposed to farms, where work was seasonal; there was not much to do in winter. Indeed, the factory owners – keen to make great profits – were anxious to keep their factories operating all the time. They actually competed to get good, reliable workers. It is still true that conditions were harsh. In country areas, the average age at which children began work was 10 and a half years old; in industrial towns, the average age was eight and a half.

## Horrible jobs, dangerous workplaces

On the other hand, there is no denying that most people worked very long days – often 12 to 14 hours – and that much of their work was either dangerous or bad for their health.



◀ **Source 8.65** The Industrial Revolution provided employment opportunities, but work was often dangerous. This engraving shows women climbing ladders to carry coal up a mineshaft. Scotland, early nineteenth century.



**If you choose to continue your studies of History in the coming years, you will become very familiar with the ideas of Marx and Engels!**

## ACTIVITY 8.4



### Research task: the most horrible jobs of the Industrial Revolution

Imagine that you run an employment agency during the Industrial Revolution. Your job is to advise people who have just moved from the country to the city and who want to find a job. Their main problem is that new industries create new jobs, and new jobs create new titles for the workers who do them. These job titles would be like a foreign language to a newcomer.

**Task:** Using Leon Gray's *Horrible Jobs of the Industrial Revolution* (2016) or online research, find out what each of the following terms means. For each job, provide a simple explanation of the work involved, and include advice or warnings you would give to the newly arrived people. You can do this either on a separate piece of paper, or in the Interactive Textbook.

Job title	Warning	Illustration of job
Matchstick girls	Workers in match factories often suffered from phossy jaw.	
Mule scavenger		
Navy		
Coal hurrier		
Coal trapper		
Iron puddler		
Pure finder		



To find out more about matchstick girls, go to p. 308.



**Key concepts:** sources, evidence, empathy



**HASS skills:** questioning and researching, communicating and reflecting

## Fear of machines

The invention of powerful new machines delighted the mill owners, but they caused fear among some workers. When, for example, Richard Arkwright invented his powered loom to weave thread into cloth at high speed, working people feared that this machine would take away their jobs. In a panic, workers formed protest groups, and first threatened, then attacked mills that were using the new machines. This came to be known as the Luddite Movement. Arkwright's own mill at Chorley was one of the first victims. It was burned to the ground in 1779.



▲ **Source 8.66** This hand-coloured etching, *The Leader of the Luddites*, 1812 shows a factory burning in the background.

## Amazing but true...

Today the term 'Luddite' is often used to describe people who do not like new technology; however, it originated with an elusive figure called Ned Ludd. He was said to be a young apprentice who took matters into his own hands and destroyed textile apparatus in 1779.

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 8.4



### Understanding different experiences and perspectives

Our course of study challenges us to understand the different experiences people had of the Industrial Revolution and to identify their **perspectives** (points of view). In all history, and in the Industrial Revolution especially, the same event can create totally opposing points of view, depending on who the individual is and what they experienced.

Historians are also very keen to examine any written sources dating from the Industrial Revolution. Usually, ordinary working people leave relatively few written records, either because they cannot read or write, or because they are simply too busy working. (It is the educated middle classes that have the time and the literacy to write extensive records such as letters and diaries.) Historians are therefore very interested by the few documents that do exist, such as petitions (letters of requests or demands to their employers), which give us a direct expression of working people's experiences, problems, grievances and fears.

#### Source A

This letter was written by workers to express their fear that the new machines might take away their jobs, leaving them unemployed. While the factory owners might have been very pleased with the new and efficient machines – which really did do the work of dozens of human workers – working people had good reason to fear unemployment and, with it, the horrors of living in the grim poorhouses.





To the merchants and clothiers, The Humble address and PETITION of Thousands, who labour in the Cloth [Industry].

That the Scribbling Machines have thrown thousands of your petitioners out of employ[ment], whereby they are brought into great distress, and are not able to [earn a living] for their families, and deprived them of the opportunity of bringing up their children to labour.

The number of Scribbling-Machines extending about seventeen miles south-west of LEEDS, exceed all belief, being no less than one hundred and seventy! And as each machine will do as much work in twelve hours, as much as ten men can in that time do by hand and they working all night and day, one machine will do as much work in one day as would otherwise employ twenty men – Upon a moderate computation twelve men are thrown out of employ[ment] for every single machine used in scribbling; thus it may be supposed that full four thousand men are left to shift for a living how they can, and must of course [rely on charity from] the Parish.

We therefore hope that feelings of humanity will lead those who have it in their power to prevent the use of those machines, to give every discouragement they can do to what has a tendency to be [harmful] to their fellow creatures.

▲ **Source 8.67** A letter written by workers, quoted in L. James et al., *Industrial Revolution: Primary Sources*, 2003, pp. 57–8

### Source B

At the meeting, attended by almost every merchant in the Town, the facts did clearly appear, and after a discussion of the merits of various inventions, and the improvement in [the making of cloth] likely to be derived from them, it appeared to them all absolutely necessary that this town should [take part in] the benefit of all sorts of Improvements that can be made in the, making of their cloths, to prevent the decline of business, of which the town of Leeds has for ages had the greatest share.

▲ **Source 8.68** L. James et al., *Industrial Revolution: Primary Sources*, 2003, pp. 57–8

### Source C

## COMPARISON OF POWER LOOMS AND HAND LOOMS

Date	Power looms	Hand looms
1795	0	75 000
1813	2 400	212 000
1820	14 000	240 000
1829	55 000	225 000
1833	100 000	213 000
1835	109 000	188 000
1845	225 000	60 000
1850	250 000	43 000
1861	400 000	7 000

▲ **Table 8.2** Comparative table of the number of power looms and hand looms in Britain

### Understanding and using primary sources

- 1 Study the statistics in Source C and construct an argument about the true severity of the impact of power looms on hand-loom workers, at least as shown by these figures. When did this process start and by what year was it virtually completed?
- 2 Study Source A and make a note of the actual concerns of the people presenting this petition against power looms. What were their main concerns?



**Additional content available:**  
Worksheet on role play



- 3 As part of their argument, these workers offer their own statistical calculation of the impact of power looms on employment. What figure do they offer?
- 4 Do some research to find out why the power looms had such a serious impact on the loom workers, who really were left permanently unemployed. Why could they not just go to another job, as many people have to do today?
- 5 Study Source B. The merchants make the opposite case, and urge the introduction of power looms in their area. Why might they have done so? What are their arguments in favour of power looms?
- 6 Read Source D below. Wedgwood was a major manufacturer of china and porcelain at the time. How did men like Wedgwood see the protestors?

### Source D

I mentioned the mob which had assembled in the neighbourhood of Bolton. It had not yet done much damage; they had only destroyed a machine or two near Chowbent. We met them again on a Saturday morning, but I believe we did not see the main body of the mob. On the same day, in the afternoon, the large crowd attacked an important mill and machine near Chorley, but because of its location the mob could only approach it by only one path. This situation allowed the owner, with the help of some neighbours, to fight off the crowd and to save his mill. Two of the crowd were shot dead on the spot, one drowned in the river, and several were wounded. The mob had no guns, and did not expect such a strong defence. They were very angry, and swore to get revenge. They spent all of Sunday and Monday collecting weapons and ammunition, and they melted their pewter dishes to make bullets. They were now joined by the coalminers of the Duke of Bridgewater, who numbered about 8,000, and marched to the beat of the drums and with flags flying to the mill where they had been defeated on Saturday. They now found Sir Richard Clayton with fifty veteran soldiers who were armed with weapons, but this small force was no match for the enraged thousands of workers. The veterans were happy to just watch as the crowd destroyed some mills valued at 10,000 pounds. [The crowd plans] to destroy all the machines, not only in these places, but throughout all of England. How far they will be able to put their threats into practice, only time will tell.<sup>15</sup>

▲ **Source 8.69** Extract from a letter from Josiah Wedgwood to Thomas Bentley



**Key concepts:** sources, evidence, significance, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

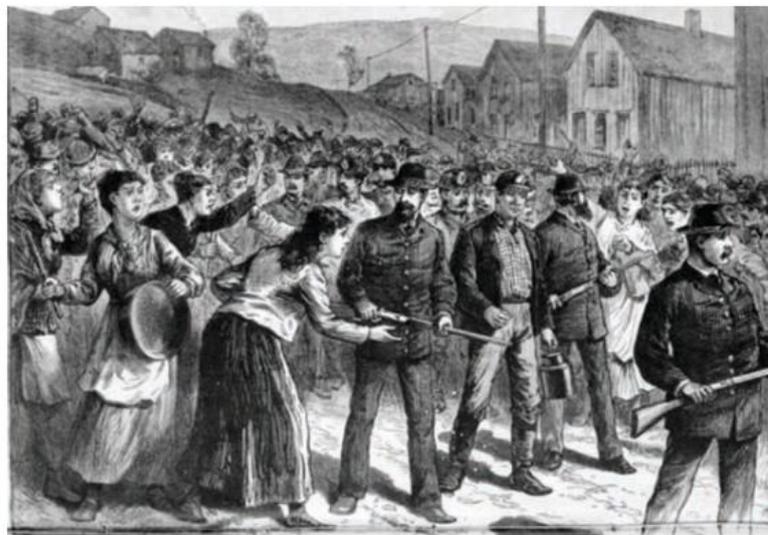


**Additional content available:** Worksheet on the blackleg miners

## Strikes

As we saw at the start of the chapter, the Industrial Revolution prompted the birth of the trade union movement. Sometimes, in order to fight for better pay and conditions, trade unions would instruct their members to go on strike. Workers tried to force their employers to listen to them by temporarily not performing their jobs, which caused enormous stresses on workers and their families.

One danger was that the factory owners could employ other workers, or import workers from distant districts, and employ them in their factory. This left the striking workers permanently unemployed, in danger of going to the poorhouse or becoming beggars. The workers hated the people who replaced them and referred to them as ‘blackleg labour’. Their anger often erupted into violence, as the unemployed workers attacked the newly arrived workers.



▲ **Source 8.70** Magazine engraving of police escorting blackleg miners to the mine in Ohio, United States, 1884

<sup>15</sup> This text has been changed to plain language by the author of this textbook chapter. The original text can be seen in Humphrey Jennings, *Pandemonium, 1660–1886: The Coming of the Machine as Seen by Contemporary Observers*, 2012, pp. 76–7.

## Accidents

Workplace accidents were common long before the Industrial Revolution. As factories and machines grew bigger and more complicated, accidents increased. Mill owners happily spent money on new machines to produce goods, but were generally unwilling to waste money on safety precautions. Many workers found themselves losing limbs when caught in the machines they worked.

The mining industry was particularly dangerous because of the danger of cave-ins. There was pressure to dig deeper and faster, with no time for safety mechanisms such as shoring up the mineshaft. In Australia, as in Britain, there were often terrible accidents.

The victims might have been forgotten, except for artists such as John Longstaff, who painted *Breaking the News* in 1887 (Source 8.71). Longstaff witnessed a mining accident in his hometown of Clunes, Victoria, when he was a boy. In this painting, he barely shows the dead miner – his body is wrapped up on a stretcher outside the cottage – but he focuses on the moment when an elderly foreman tells the man's wife that her husband has been killed in an accident. The woman holds a very young baby and has set out afternoon tea on the table for her husband. Longstaff perfectly captures the moment of complete shock – of fear mingled with horror and grief – when the woman understands what the man is telling her. If we look deeply into this painting, we can begin to feel the tragedy of working lives in the Industrial Revolution.<sup>16</sup>

## The poor

The most common image we have of the Industrial Revolution is that of the poor people who lived in cities. This image is not wrong: every city had large numbers of people who were unemployed, injured or sick, or simply unable to look after themselves. The poor were a common sight, often begging for money or selling flowers. Painters like Augustus Mulready painted sentimental pictures of the poor – usually children – appealing to kindly people who felt sorry for the unfortunate. However, feeling pity for people is not the same as helping them and, in this respect, Britain did not cope well with the problem.

### The Poor Law 1601

Queen Elizabeth I in 1601 recognised people's right to work and food, and set up poorhouses to help them. Each parish set up a home to take in beggars, the sick, the elderly and the unemployed. The managers of poorhouses were to provide food and small sums of money.

By the 1700s, this system showed serious weaknesses. By 1776, there were 2000 poorhouses in England and Wales, holding 100 000 inmates.<sup>17</sup> The managers used these people as cheap labour, to do dreadful tasks such as smashing up animal bones into powder to create fertiliser. The managers often stole the money and gave people small serves of poor-quality food called gruel. Many a poor person must have died miserably and disappeared without a trace.



◀ **Source 8.71** John Longstaff  
*Breaking the news*, 1887  
Oil on canvas  
109.7 × 152.8 cm  
State Art Collection, Art Gallery of Western  
Australia  
Purchased with funds from the Hackett  
Bequest Fund, 1933

<sup>16</sup> To learn more about this work, look up 'Breaking the News by John Longstaff' on YouTube.

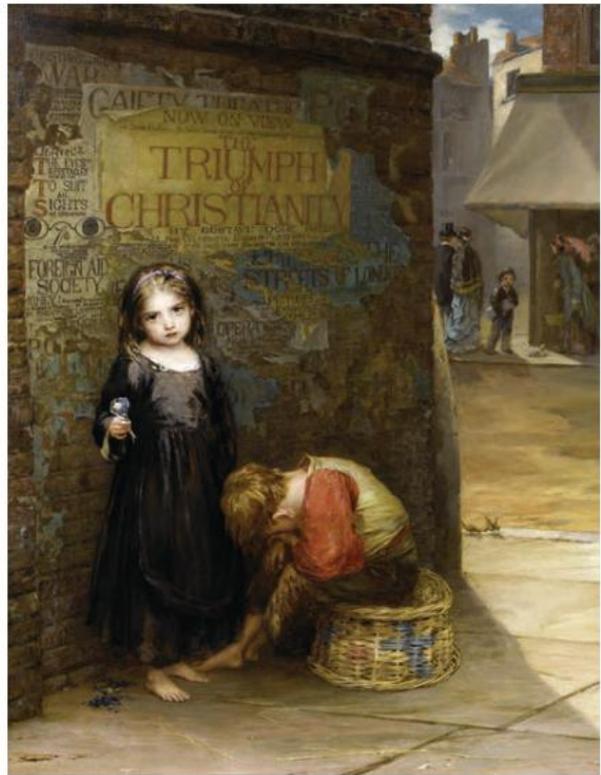
<sup>17</sup> To learn more about the *Poor Law 1601*, read Jonathan Downs, *The Industrial Revolution*, 2010, pp. 76–7.

We only know of one case, because of the actions of an investigator who exposed the deaths of a family and produced a drawing to prove them. The British Library records:

On 23 January 1769, James Eaves, his wife and two of their children were found starved to death, their naked bodies lying on straw, in a poor house in Datchworth, Hertfordshire. Their third child, a boy of about 11, was still alive but unable to stand. It transpired they had been taken ill three weeks before and had only been given 2s 6d – which even for a farm labourer was only two day's wages – from the overseers during that time.

Villagers tried to cover up the affair, but the Datchworth incident received wide publicity when the author and eccentric Captain Philip Thicknesse (1719–92) wrote an exposé, in this pamphlet. There was an inquest, though in the event no one was punished. A plaque in the village now commemorates the family and their wretched fate.

▲ **Source 8.72** An account of the Datchworth incident, British Library, *An Account of Four Persons Starved to Death in a Workhouse*, 2019



▲ **Source 8.73** Augustus Mulready, *Uncared For*, 1871

## MAKING THINKING VISIBLE 8.4



### See, think, wonder, evaluate

In this chapter, we evaluate the historical skill of interpreting visual sources to gain some sense of people's experiences of poverty in Britain.



◀ **Source 8.74** Philip Thicknesse; *A view of the poorhouse at Datchworth, where four people starved to death*, 1769

- 1 **See:** What is shown in this image?
- 2 **Think:** How has this tragedy probably occurred?
- 3 **Wonder:** How accurate is this visual source as a record of the experience of the poorhouses?
- 4 **Evaluate:** Investigate the author of the report, Captain Philip Thicknesse (1719–92). From what you discover, evaluate the reliability of his report and drawing as a historical source.



**Key concepts:** sources, evidence, perspectives, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## The *Poor Law* of 1834

In 1834, the British Government passed the *Poor Law Amendment Act*, which set up much stricter conditions for the poor in England. Historian Tony Taylor explains that the politicians who drafted the law were not guided by humane intentions, but by a fear that people might seek poor relief simply because they were too lazy to work. To prevent this, the lawmakers decided to create a new system of poorhouses so strict, so mean and so unpleasant that nobody would want to go to them unless they really had to.

Once a family went to the poorhouse (or workhouse), they were given uniforms and housed like prisoners in a large barracks-like building. They had to work hard, and were subjected to discipline that was harsh and brutal. Children were separated from their parents, and could only see them once a week. The officials were meant to provide basic meals, but they simply offered

bread and gruel, and kept the rest of the money. People starved. The people were so hungry that they often tore off rotten meat from the bones. Sometimes, dreadful fights broke out over a scrap of meat. By 1861, there were some 14 000 people in England's poorhouses.<sup>18</sup>

## Warning voices: James Greenwood visits a workhouse

While the poor on the streets were always highly visible, those in workhouses were not. Theirs was a lonely misery, and many poor people preferred to commit suicide than go into a workhouse. Fortunately, there were many thinkers, writers and painters who *were* aware of this poverty. They felt ashamed that poverty could exist in such a wealthy society. They felt genuine pity for the human suffering it caused. They were also determined to shock the public into being aware of the real nature of poverty.

### ACTIVITY 8.5

#### Using historical sources as evidence

Journalist James Greenwood (1832–1927) dressed himself up in filthy clothes, like a beggar, to gain admission to a poorhouse and write a report on conditions inside. He argued that we hear much about the poor, but we never actually meet them.

Speaking of his own tattered, filthy figure as 'he', Greenwood wrote:

He was bound for the Lambeth workhouse, there to learn by actual experience how casual paupers are lodged and fed, and what the 'casual' is like, and what the porter who admits him and the master who rules over him; and how the night passes with the outcasts whom we have all seen crowding about workhouse doors on cold and rainy evenings ... No language with which I am acquainted is capable of conveying an accurate [idea] of the [sight] I then encountered. This far too airy shed was paved with stone, the [floor] so thickly encrusted with filth that I mistook it at first for natural earth ... My bedfellows lay ... distributed over the flagstones in a double row on narrow bags scantily stuffed with straw. My appalled vision took in thirty of them, thirty men and boys which put only six inches of comfortable hay between them and the stony floor.

▲ **Source 8.75** James Greenwood, *A Night in a Workhouse*, 1866, quoted in Peter Keating, *Into Unknown England*, 1976, pp. 34, 37

#### Responding to the source

- 1 Describe this source. Who created it, and when was it created?
- 2 From what you have been told about James Greenwood, what aspects of his writing make this document clearly a primary source about the Industrial Revolution?
- 3 What was Greenwood's rationale (reason) for putting himself through such a horrible experience?
- 4 What evidence is there, from his description, that the authorities in this poorhouse might not have spent the government money allocated to them to provide decent lodging conditions for the poor?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** analysing, evaluating



**Additional content available:**  
Worksheet on the misery of the streets

18 To learn more about the *Poor Law* of 1834, read Tony Taylor, *The Industrial Revolution*, 2014.

## ACTIVITY 8.6



### Check your understanding

- 1 What were the main concerns raised by the workers who met to protest against the 'scribbling machines' (Source 8.67)?
- 2 What was the main argument of the merchants who supported the introduction of cloth-making machines?
- 3 Why did the *Poor Law* of 1834 have the opposite effect from that of helping those in need?
- 4 How did artists and writers try to make the British public more aware of the poverty around them?



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating

## How did women experience the Industrial Revolution?

### Women of the educated classes

Many of the great inventions of the Industrial Revolution were made by architects, engineers,

inventors and chemists – all professions heavily dominated by men. Any woman who wished to enter these fields faced enormous obstacles, far greater than those women still face today. Nonetheless, some women did manage to enter the race for invention and production, and their achievements were remarkable.

### FAMOUS FACE

#### LADY MARY WORTLEY MONTAGU (1689–1762)

One of the most remarkable women of science was Lady Mary Wortley Montagu, whose medical advocacy work saved incalculable millions of human lives.

Montagu was born into a noble, but not wealthy, English family. She might have lived a genteel life in a great mansion, except for the fact that she married the wealthy Edward Montagu, who in 1716 was appointed English ambassador to the imperial court of Turkey.

Although the family only stayed there for 15 months, Montagu discovered her talent for travel and her ability to observe other cultures on their own terms. Rather than assume that her own culture was superior, she admitted that the Turks possessed sophisticated learning and an advanced civilisation. She became a thoughtful observer, intelligently and respectfully studying another culture, and using it to think critically about her own society.

Montagu also recognised that the Turks were by no means 'primitive'. In many ways they were more advanced than Europeans. In one letter to Miss Sarah Chiswell, she described the Turkish practice of what is now known as inoculation, by which people were injected with a small amount of smallpox, which gave them a mild case of the illness, but ultimately gave them resistance to the disease. In doing so, she acknowledged that Turkish people had advanced medical and scientific knowledge – in this case, a simple and safe technique that was unknown in England.<sup>19</sup>



<sup>19</sup> If you would like to find out more about Lady Montagu, her travel diaries have been vividly published in book form as *Embassy to Constantinople: The Travels of Lady Mary Wortley Montagu*. Introduced by Dervla Murphy, 1988.

## ACTIVITY 8.7



### Using historical sources as evidence

The below is an extract from a letter

I am going to tell you a thing that will make you wish yourself here. The small-pox, so general and so fatal amongst us [in England], is here [in Turkey] entirely harmless by the invention of ingrafting. There is a set of old women who make it their business to perform the operation every autumn, in the month of September ... People ... make parties and when they are met (commonly fifteen or sixteen together), the old woman comes with a nut-shell full of the matter of the best sort of small-pox, and asks which vein you please to have open. She immediately rips open [the vein] that you offer with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much matter as can lie upon the head of her needle and, after that, binds it up with a hollow bit of shell; and in this manner opens up four or five veins ... Then the fever starts to seize them, and they keep to their beds two days, very seldom three. They have very rarely about twenty or thirty [small pox] in their faces, which never mark; and in eight days' time they are as well as before their illness ... There is no example of anybody who has died of it; and you may well believe I am well satisfied with the safety of the experiment, since I intend to try it on my own dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England; and I should not fail to write to some of our doctors particularly about it.

▲ **Source 8.76** An extract from Lady Montagu's letter to Lady Sarah Chiswell, circa 1716, quoted in Margaret C. Jacob, *The Enlightenment: A Brief History with Documents*, 2001, pp. 152–3

### Responding to the source

- 1 Describe Source 8.76. Who created it, and when was it created?
- 2 What exactly is 'the matter of the best sort of small-pox' that the women put into people's veins?
- 3 What is happening when 'the fever starts to seize them'?
- 4 Why are these people 'as well as before their illness' after eight days? Why have they not died of the illness, as they did in England?
- 5 Why might some of Montagu's contemporaries have been surprised or shocked to discover that the Turks had medical knowledge that the English did not have?



▲ **Source 8.77** This painting by Constant Desbordes shows a doctor (Dr. Alibert) giving a smallpox vaccination to a baby in the year 1800 (by intentionally infecting them with the comparable disease of cowpox).



**Key concepts:** sources, evidence, perspectives



**HASS skills:** analysing, evaluating

## Working women

For working women, as for men, the Industrial Revolution did offer an escape from the hard labour of farm work and a chance to earn a wage rather than simply grow crops. They might have worked long shifts of 12 to 14 hours, but this was still less than the unending work on the land.

Young women could earn a quite significant wage. It is true that they earned less than men, but this meant that factory owners were more

keen to recruit women and children as a way of economising on wages. In Manchester in 1850, the lowest-paid man earned 13 to 15 shillings, whereas the highest-paid woman earned between 7 and 11 shillings.<sup>20</sup>

The Industrial Revolution also made luxury items, including clothing, jewellery and ceramics, much more affordable. For the first time, working women had a disposable income that they could spend on such luxuries.

<sup>20</sup> Want to learn more about working women in the Industrial Revolution? Find out more by reading Jeff Horn, *The Industrial Revolution: Milestones in Business History*, 2007.

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 8.5



### The contestability of evidence

As historians, we are always looking for reliable evidence that will show us what the Industrial Revolution was really like. One sort of evidence is the *primary source* – that is, a record made by somebody alive at the time. But this alone does not guarantee that the information is completely accurate. All human beings have their own point of view, and some have very strong reasons for giving a particular view of a historical event.

Consider this painting by the artist Eyre Crowe. He actually went to the English industrial city of Wigan to



▲ **Source 8.78** Eyre Crowe, *The Lunch Hour at Wigan*, 1874

study the women factory workers and made careful sketches of them. This scene is accurate in so far as it shows known buildings such as the Victoria Mills – at the left of the scene – owned by the industrialist Thomas Taylor. Moreover, this painting was bought by the factory owner, and it is unlikely that he would have accepted it if it did not show his buildings very accurately. For these reasons, this picture is a good record of a great factory late in the nineteenth century.

But this evidence must also be challenged. Although Crowe actually went to Wigan and really observed this scene, his painting still has some limitations as a primary source for the historian. Artists also knew that the industrialists were very proud of their factories and would dislike any painting showing bad aspects of the factory. For example, the picture only shows the factory girls resting, not working. They are taking a meal break, and seem happy and relaxed. They are well-dressed – only one is barefoot – and clean and healthy. A policeman patrols the street behind them, suggesting that everything is orderly. The lunch ‘hour’ was actually quite a short break in very long working shifts of 12 hours or more.

The painter might have found a very different scene if he had gone inside the factory. In most factories, people worked exhausting shifts and received low pay. If the workers demanded better wages, the owners dismissed them and took on other desperately poor workers instead. Finally, the factory you see in the background probably lacked safety equipment. The industrialists argued that safety equipment cost money but made no profits, so there was no point buying it. In the cotton mills, for example, young women like the ones you see in the painting worked for years in a factory where the air was full of fine cotton dust. When they breathed it in, it filled their lungs, causing lung disease and finally death. It was possible to buy large extractor fans to remove the cotton dust, but many industrialists argued that it was cheaper just to hire new workers when others died.

We can get a better sense of the lives of these factory girls from this painting by Frederick Shields, showing the event of the Old Clothes Fair held in Manchester every Monday and Saturday. The painter observed this scene in 1875 and was amazed by the enormous number of women workers in the industrial city and by their desperation to buy second-hand clothing cheaply. There are only a few men visible in the entire crowd.

Some young women could earn a solid wage in the factories, but they tended to economise by buying used clothing; the painter noted that many of these clothes were in very poor condition and had been cleverly repaired to make them





look acceptable. In general, these women had to wear strong, plain, practical clothing for work purposes, but the woman in the foreground is looking longingly at a quite stylish gown. Working women would not normally be able to buy such a garment new, and so the fair was their only chance to purchase one second-hand. Another expensive item was good leather boots; at the right, a young woman carefully tries on a pair of second-hand boots while a man looks on.



▲ **Source 8.79** Frederick Shields, *Factory Girls at the Old Clothes Fair, Knott Mill, Manchester, 1875*

### Responding to the sources

- 1 Describe these sources. Who created them, and when were they created?
- 2 How do we know that Eyre Crowe's painting of the Victoria Mills at Wigan must have been quite accurate?
- 3 Why do you think the industrialist Thomas Taylor bought a 'portrait' of his factory rather than of himself personally?
- 4 The painting in Source 8.78 shows workers whom Crowe really saw and studied, but they are outside the factory and having their lunch break. How does this limit the value of Crowe's record of life in the Industrial Revolution?
- 5 If Crowe had gone inside the factory with his sketchbook, what else might he have seen?
- 6 Why would the Old Clothes Fair at Manchester have been an important opportunity for working-class women?



**Key concepts:** sources, evidence, perspectives, contestability



**HASS skills:** analysing, evaluating

## FAMOUS FACE

### ANNIE BESANT (1847–1933)

One of the most important and radical thinkers during the Industrial Revolution was Annie Besant. She was given a good education by her foster parents, and she married a clergyman in 1867. Increasingly, she turned to radical ideas, first criticising religion and speaking in favour of atheism. She wrote: 'No philosophy, no religion, has ever brought so glad a message to the world as this good news of Atheism'. She left her husband in 1873 and threw herself into two organisations: the National Secular Society and the Fabian Society. She became a supporter of what was called free-thought (meaning the right to criticise accepted religious beliefs) and of **socialism**. She went on to found and to write her own newspaper, the *National Reformer*, which addressed quite radical subjects, notably workers' rights and the role of trade unions in protecting them. The newspaper also addressed women's rights, such as the right to vote and the need for better education on methods of birth control. Since it was illegal at that time to provide advice about birth control, Besant was taken to court under charges of obscenity (making indecent comments). She won her case.



**socialism** a political doctrine sympathetic to working people and proposing that the production and distribution of goods and wealth should be shared collectively by society

Besant once wrote: 'Better remain silent, better not even think, if you are not prepared to act'. She chose to act. She became a committed activist on behalf of both workers generally and women specifically. One of her most dramatic protests occurred in 1888, when she turned her attention to the problems of women workers at the Bryant & May match factory in London.

### The matchstick girls

In 1888, people became aware of one very toxic and dangerous aspect of the Industrial Revolution. Thousands of young women worked in the Bryant & May match-making factory in East London,<sup>21</sup> often doing 14-hour shifts. The factory owners had discovered that if white phosphorous was added to a match, it would light more easily.

Phosphorous is, however, poisonous, and the ‘matchstick girls’ had no protective clothing. Their skin became soaked with the poison. Soon, they suffered a terrible condition called ‘phossy jaw’, which ate away the jaw bone and even the cheeks, leaving the inside of the mouth visible. Some young women were so poisoned that they glowed a dull green colour in the night. Doctors had to

remove the jaw to avoid the poison reaching the brain, because this would cause a terrible death.

The situation seemed hopeless. The factory owners felt no sense of responsibility for their workers, and the workers, being poor Irish women, had no choice but to work in conditions that would ultimately kill them.

The activist Annie Besant stepped in and wrote an article accusing industrialists of ‘white slavery in London’. The managers tried to bully their workers into signing a declaration that they were happy with their pay and conditions. Besant hit back by organising a strike of some 1400 women. They gained their demands. The government, however, did not ban the use of phosphorous until 1906.



▲ **Source 8.80** Bryant & May ‘Pearl’ safety matches from 1890–91, which used red phosphorus instead of white phosphorus, and a special striking surface



▲ **Source 8.81** Cartoon showing police brutality against the match-makers’ demonstration, 1871, from English newspaper *The Days’ Doings*, 6 May 1871. Though this protest took place before the phossy-jaw protests of 1888, it shows that female matchstick workers were prepared to fight for their rights.

## CASE STUDY 8.2



### The East Perth Power Station – the Industrial Revolution in Western Australia?

In 1916, during World War I, a coal-fired power station was built by the Western Australian Government on the banks of the Swan River in East Perth. It was decommissioned (shut down) in 1981, but the building remains to this day. The power station had become necessary in order to provide electricity for electric trams in Perth. Before this time, small-scale private providers existed, but most homes did not have electricity at all. Until 1951, it was the only power station for Perth.



<sup>21</sup> There is a Bryant & May match-making factory in operation today, but it is not the same company – despite the name – and it is not responsible for any poisoned workplaces.



Advanced for its time, the station was expanded and upgraded throughout its life. In building the station, the Western Australian Government was the first state government in Australia to take responsibility for a public electricity supply.



▲ **Source 8.82** East Perth Power Station, 1927

## Activities

- 1 Look at Source 8.82. What common features do you see between this power station, and the factories and mills of Industrial Revolution Britain?
- 2 What impact would this station have had on:
  - a The environment?
  - b The people in the suburbs nearby?
  - c The economy?
  - d The living standards of people in Perth?
  - e The town of Collie, where the coal was sourced?
- 3 The station was located east of Perth, on the river's edge. What factors do you think may have affected the decision to choose this site?
- 4 Do you think this station should be described as part of the Industrial Revolution? Why would Western Australia have experienced changes later than those in Britain?

## Historical concepts and skills 8.5



### Determining change and continuity

In History, it is often easy to identify the changes that have occurred, but it is also important to reflect on what did not change – these are areas of continuity. In weighing the significance of an event, it is important to consider both points of view. Often the experiences of some groups may be forgotten when investigating change for others. Consider the three aspects of life in Britain below, both before the Industrial Revolution and after. What changed in each area and what remained the same? You may like to use a table to organise your ideas.

- 1 Housing and living conditions
- 2 Participation in government
- 3 The position of women in society

## END OF SECTION REVIEW 8.12



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



### Recall

- 1 How could it be argued that the Industrial Revolution was really quite favourable to women?
- 2 What did Annie Besant do to try to improve life for working women?
- 3 What was one of the main health risks of working in a cotton factory?
- 4 What does Table 8.2 tell us about the impact of the Industrial Revolution on one specific group, the highly skilled workers of hand looms?

### Interpret

- 5 Evaluate whether the concerns of the Luddites regarding unemployment caused by new machines did become a reality.
- 6 What does the case of the matchstick girls tell us about the dangers of industrial production without legal safety regulations?
- 7 What are the limitations of 'social conscience' paintings as primary sources about the Industrial Revolution?

### Argue

- 8 Describe how a working-class woman might evaluate her decision to leave the farm and come to the city for industrial work. Make a list of positives and negatives, and draw a conclusion as to which are dominant.

### Extension

- 1 Investigate the career of Eleanor Coade. Using the internet, discover why Coade is an important figure from the Industrial Revolution.



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 8.13 Conclusion: why does it matter?



**Video**  
**Source 8.82A**  
Slaves' experiences while travelling

### Some lingering questions about the Industrial Revolution

In this final section, we consider some of the burning questions arising from this topic.

#### Did the Industrial Revolution cause an increase in the slave trade?

The trade of enslaved peoples from Africa existed well before the Industrial Revolution. However, the Industrial Revolution caused a massive increase in the demand for raw materials, such as cotton.

This led to a reliance on cotton from the American plantations, and plantation owners bought thousands of enslaved peoples who were shipped to America under inhumane conditions. It is true, however, that Britain pursued a successful campaign against the practice of slavery and succeeded in having the trade abolished in its colonies.

#### Did the Industrial Revolution cause the spread of European empires?

Empires had risen well before the Industrial Revolution. However, the Industrial Revolution



Worksheet available

increased the *need* for **colonies** and also provided the *means* to take over and control more countries.

The first cause of the new wave of **imperialism** was need. The second cause of imperial expansion was the means. European countries were by now equipped with powerful steamships that could sail efficiently around the globe. These ships were also equipped with much more efficient and deadly cannon, another product of the Industrial Revolution.

### Did the Industrial Revolution contribute to the outbreak of World War I?

The Industrial Revolution was not the main cause of the outbreak of war in 1914. It was, however, the cause of tensions between the European powers before the war. Countries such as Britain, France and Belgium competed to take over poorer countries to make them into colonies.

Owning colonies was a form of prestige, but more importantly they created wealth. A colony was the source of raw materials for European factories, of cheap labour and of a market for Europe's goods. When the newly formed country of Germany began competing for colonies, tensions increased. For example, in 1911, the Agadir Crisis – an argument between France and Germany over land in Morocco – very nearly sparked armed conflict, but was resolved.



▲ **Source 8.83** William Wyld, *Manchester from Kersal Moor*, 1852

### Did the Industrial Revolution help create global warming?

Human beings have always consumed food and other materials, and left waste behind them. The Industrial Revolution, however, created a huge increase in the amount of natural resources being used, in the amount of goods produced, in the amount of energy used to transport them and in the amount of waste left behind. For some time, humans were so focused on the enormous process of production that they might have assumed that natural resources were endless.

Nonetheless, this view of the northern industrial city of Manchester in 1854 (Source 8.83) makes it very clear how much smoke was being pumped into the atmosphere. Contemporaries did notice this pollution and commented on how dirty the cities were. It still took some time for people to really think about the impact upon the planet.

Curiously, it was not until the moon landing in 1969 – when astronauts looked back and saw Earth spinning in space – that many people realised that Earth and its atmosphere were finite (limited) and that humans could not go on creating pollution endlessly. If the Industrial Revolution had a fatal weakness, it was that it devoted all of its energy to *using* natural resources and producing goods, but very little to *controlling and disposing* of waste. It is only now that we are playing the catch-up game of recycling, and hoping that it will not be too little, too late.

The problem of waste is most dramatically seen at Ghazipur in East Delhi, India. A 'rubbish mountain' there is rising by 10 metres each year and has now reached a height of 65 metres, almost as tall as the famous palace of the Taj Mahal. It covers the same area as 40 football ovals.<sup>22</sup>

**colonies** settlements belonging to a nation that are made on land in another country

**imperialism** the domination of one or more nations by another, which seeks to use the wealth and people of the dominated nation for its own interests



#### Additional content:

Why do historians still debate for and against the Industrial Revolution?

<sup>22</sup> Want to find out more about the giant rubbish pile in Ghazipur? Use Google to find articles about it.



The mountain continues to grow, because no site has been found for a new one. People who live in the area have been forced to move out.

◀ **Source 8.84** Photograph of Earth seen from the moon, taken in 2015



▲ **Source 8.85** The gigantic rubbish mountain at Ghazipur, India

### What might a fifth Industrial Revolution look like?

After thinking about the impacts of the four Industrial Revolutions, it might be time to consider what a fifth Industrial Revolution might look like. We might start our reflection by attending a funeral. In August 2019, the

people of Iceland held a solemn funeral, not for a person, but for a natural feature: a glacier. They marked the death of Iceland's first glacier

**global warming** a rise in Earth's average temperature due to the atmosphere's inability to release heat because of the growth of greenhouse gas emissions

due to **global warming**. They erected a plaque (pictured in Source 8.87):

#### A letter to the future

Ok is the first Icelandic glacier to lose its status as a glacier.

In the next 200 years all our glaciers are expected to follow the same path.

This monument is to acknowledge that we know what is happening and what needs to be done.

Only you know if we did it.

▲ **Source 8.86** Inscription on the plaque dedicated to the Ok (Okjökull) glacier



▲ **Source 8.87** The plaque dedicated to the Ok glacier in Iceland

### David Attenborough's warning: are we seeing the final stage of the Industrial Revolution?

The Industrial Revolution had significant environmental impacts, and we who are living through its later stages today are witnessing them. In 2019, eminent naturalist Sir David Attenborough warned in an interview that humanity was approaching its last chance to moderate its impact on the global environment. He stated that, if we do not decrease global warming, within a few years it will be too late to save the planet.

In vivid terms, he described how humanity enjoys enormous power – so much so that we can destroy whole ecosystems (systems of life in the natural world) without even being aware that we have done so. When asked to explain why, he said that there is a basic disconnection between human society and the natural world. He stated that this disconnection began with the Industrial Revolution and has been speeding up ever since.

Sadly, the older generation of people who write books like this one have largely failed to reverse, or even to slow, the process of life-threatening environmental damage. This means that the generation of people who are reading these pages in secondary classrooms now will inherit this global problem and will be challenged to solve it. If they can do so, they may well achieve the greatest Industrial Revolution of all time.



▲ **Source 8.88** David Attenborough



**Additional content available:**

The Ok glacier



**Additional content available:**

The impacts of the Industrial Revolution in our own time



## 8.14 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research task

Visit the Interactive Textbook to access three different research tasks:

- Talent quest: Who was the most significant inventor of the Industrial Revolution and why?
- Industrial Revolution time capsule
- The Industrial Revolution in the world at large.

### Analysis



#### Making thinking visible

***I used to think that the Industrial Revolution was ...***

***Now I think that ...***

In this visible thinking routine, you are asked to track the difference between what you knew about the Industrial Revolution before starting this chapter and what new understandings you have acquired at the completion of this chapter.

Using these stem sentences, write a paragraph explaining what you previously knew about the Industrial Revolution and another paragraph explaining what you now understand, additionally, about this event.

**1A I used to think that the Industrial Revolution started in the twentieth century ...**

**1B Now I understand that the Industrial Revolution began in ...**

**2A I used to think that the Industrial Revolution was a bad experience for working people because ...**

**2B Now I understand that the Industrial Revolution ...**

**3A I used to think that the Industrial Revolution did nothing but pollute the environment and cause global warming ...**

**3B Now I understand that the Industrial Revolution had positive outcomes ...**

**4A I used to think that the Industrial Revolution only improved life in Britain ...**

**4B Now I understand that the Industrial Revolution ...**

**5A I used to think that the Industrial Revolution was only about machines.**

**5B Now I understand that the Industrial Revolution ...**

**6A I used to think that the Industrial Revolution was all good because it was about modern technology and progress.**

**6B Now I understand that the Industrial Revolution ...**

**7A I used to think that the Industrial Revolution only happened way in the past.**

**7B Now I understand that the Industrial Revolution ...**

## Writing



### Key terms and names

For each key term or name from the chapter, write a sentence explaining its significance:

- 1 Enclosure Movement
- 2 railway mania
- 3 Luddites
- 4 inoculation
- 5 *Poor Law*
- 6 blackleg labour
- 7 petition
- 8 Sankey Brook Navigation.



### Extended-response question

'Despite appearing to promise great benefits through industrial progress, the Industrial Revolution has done more harm than good.'

Do you agree with this statement? Explain some of the benefits of the Industrial Revolution. Explain the problems it caused. Decide whether it has in fact done more harm than good. In your answer, quote facts, figures, names, dates and statistics.



**Key concepts:** significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



# Depth study 2

## Investigating World War I (1914–1918)

### Overview

In 1914, as part of the British Empire, Australia responded immediately to World War I by supporting the Allied war effort. It was assumed that this was the ‘war to end all wars’, and that it would be over in months; neither assumption was correct. Australia involved itself in a modern war – based on the heavy industries developed by the Industrial Revolution – that changed the nature of fighting, and profoundly affected the countries that participated. This was a second important stage in the formation of the modern world we know today.

In this depth study, we will evaluate which combination of causes created this massive global conflict. We will investigate the actual nature of the new warfare, and describe the new weapons used to create a vast machinery of killing. We will develop the skill of empathy to understand the experiences and feelings of the thousands of men brutally slaughtered in the trenches, and of the nurses serving in battlefield hospitals. We will reconstruct the often-forgotten contribution of women at home, whose work in growing food and making ammunition was crucial to the war effort.

You will decide how the war affected Australia in the long term. Was the war an experience in which Australians ‘grew up’ to nationhood? Or had they already done that in the 1890s and at Federation in 1901? What is the Anzac myth? Were all the Australian soldiers sturdy lads from country Australia, brought up on mateship? Is the commemoration of war in danger of becoming the glorification of war?

### Learning goals

After completing this depth study, you should be able to answer these questions:

- How did new ideas and technological developments contribute to change in this period?

- What was the origin, development, significance and long-term impact of imperialism in this period?
- What was the significance of World War I?

### Introducing historical concepts and skills: *cause and effect, historical significance, understanding perspectives and the contestability of viewpoints and evidence*

In this depth study, there will be 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 result of these events were. There are many different types of causes and effects. They could be political, economic or social. There is also usually more than one cause or effect for an event, so don't fall into the trap of thinking an event may have only one cause or one effect.

This depth study will also focus on **historical significance**. Determining historical significance is crucial, as in History there is so much that happened in the past and you need to be able to identify what is important and what is not. Finally, you will be able to analyse primary sources to **understand the perspectives** of people in the past, and historians' opinions to examine the **contestability of viewpoints and evidence**. Look for opportunities to develop these key skills throughout this depth study.



**Video**  
Depth study  
overview



▼ **Source A** Australian troops marching towards docks to board ships bound for the fighting during World War I in November 1914



# CHAPTER 9

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

## 'The war that changed us': World War I (1914–18) and the development of modern warfare



### 9.1 Setting the scene: an eyewitness account of the humanity and the horror of the trenches

Nearly every Australian has some mental image of the horror of the trenches of World War I – if only from popular war films – and yet even these vivid impressions fall far short of the terrible reality. It is only when we look into original written records of the war by those who were there that we really understand its true savagery. In this chapter, we aim to get a clearer picture of what the experience of war was like in 1914–18. To do so, we will study written descriptions of people's experiences. We also pay attention to some remarkable visual records made by artists and photographers who went to the front, determined to capture the reality of the conflict. Finally, we investigate how this totally new form of war forced historians to develop new forms of history in order to be able to write meaningfully about it.

One of the most moving descriptions was written by a Canadian soldier, Charles Yale Harrison, in his book *Generals Die in Bed* (1928). His great quality is that he tells us about the most terrible things, but writes in a simple, clear, factual style. Nonetheless, he was very honest in describing his emotions during this terrifying experience.

Harrison recalled one ghastly trench raid, in which he had to kill a young German soldier, face to face, with his bayonet:

The enemy artillery has sacrificed the front line and is hammering the terrain between their lines and ours. Green rockets sail into the black sky. It is the German call for help. The whole front wakes up. Guns bark, yelp, snarl, roar on all sides of us. I run down the trench looking for prisoners. Each man is for himself. I am alone. I turn the corner of a bay. My bayonet points forward – on guard. I proceed cautiously.

Something moves in the corner of the bay. It is a German. I recognise the pot-shaped helmet. In that second he twists and reaches for his revolver. I lunge forward, aiming at his stomach. It is a lightning, instinctive movement. The thrust jerks my body. Something heavy collides with the point of my weapon. I become insane. I want to strike again and again. But I cannot. My bayonet does not come clear. I pull, tug, jerk. It does not come out. I have caught him between his ribs. The bones grip my blade. I cannot withdraw. Of a sudden I hear

him shriek. It sounds far-off as though heard in the moment of waking from a dream. I have a man at the end of my bayonet, I say to myself. His shrieks become louder and louder. We are facing each other – four feet of space separates us. His eyes are distended; they seem all whites, and look as though they will leap out of their sockets. There is froth in the corners of his mouth which opens and shuts like that of a fish out of water. His hands grasp the barrel of my rifle and he joins me in the effort to withdraw. I do not know what to do. He looks at me piteously. I put my foot up against his body and try to kick him off. He shrieks into my face. He will not come off. I kick him again and again. No use. His howling unnerves me. I feel I will go insane if I stay in this hole much longer ...

It is too much for me. Suddenly I drop the butt of my rifle. He collapses into the corner of the

bay. His hands still grip the barrel. I start to run down the bay. A few steps and I turn the corner. I am in the next bay. I am glad I cannot see him. I am bewildered. Out of the roar of the bombardment I think I hear voices. In a flash I remember that I am unarmed. My rifle – it stands between me and death – and it is in the body of him who lies there trying to pull it out. I am terrified. If they come here and find me they will stab me just as I stabbed him – and maybe in the ribs, too. I run back a few paces but I cannot bring myself to turn the corner of the bay in which he lies. I hear his calls for help. The other voices sound nearer.

I am back in the bay. He is propped up against [the trench wall]. The rifle is in such a position that he cannot move. His neck is limp and he rolls his head over his chest until he sees me. Behind our lines the guns light the sky with monster dull red flashes. In this flickering light this German and I enact our tragedy. I move to seize the butt of my rifle. Once more we are face to face. I pull again. My tugging and pulling works the blade in his insides. Again those horrible shrieks! ... Suddenly I remember what I must do. I turn around and pull my breech-lock back. The click sounds sharp and clear. He stops his screaming. He looks at me, silently now. He knows what I am going to do ... I see his boyish face. I pull my trigger. There is a loud report [explosion]. The blade at the end of my rifle snaps in two. He falls into the corner of the bay and rolls over. He lies still. I am free.



▲ **Source 9.2** This poster, designed late in the war by British artist Frank Brangwyn, is one of the most graphic images of the violence of the conflict. It shows a British soldier killing a German soldier with his bayonet. Curiously, the image was too effective: the British Government refused to use the poster. The German emperor allegedly put a price on the artist's head to have him killed. The purpose of the poster was to persuade people to buy government war bonds to support the war effort. Later, the British Government realised that the image was in fact very powerful, and it drew in many more recruits for the British army.

◀ **Source 9.1** Charles Yale Harrison, *Generals Die in Bed*, 1928

## MAKING THINKING VISIBLE 9.1



### Think, pair, share

Reflect on the story in Source 9.1.

#### What do you think?

- 1 Think about the story.
- 2 Try to explain your thinking with pictures or words in your notebook or on your digital device.
- 3 Share your thoughts with a partner. What does this description tell you about World War I that you did not already know?
- 4 What would you predict would be the long-term effects of such an experience upon this young man?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** analysing, evaluating



## 9.2 Chapter overview

### Introduction

The year 2018 marked the 100-year anniversary of the armistice that ended World War I. Despite being more than a century old, this conflict still haunts our imaginations, mainly because of the sufferings of the tragic generation that was born to fight and die in their thousands in the trenches.

And yet this memory does not fade with time – as most memories naturally do – but grows ever sharper and more intense. In 2018, film-maker Peter Jackson released his documentary *They Shall Not Grow Old*, based on original black-and-white film footage from the Imperial War Museum in London. He restored and coloured the original film footage using modern techniques. The documentary brings us very close to the humanity – and the horror – of the trenches. Like all commemorations of the war, it invites us simply to imagine ourselves caught up in this murderous conflict, and to better understand what a generation of young men and women went through.

Wars continue to threaten nations, giving us a renewed urgency to study and to understand conflict, in the hope of being able to prevent it.

### Learning goals

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

- What were the causes of World War I?
- How could a single assassination of a statesman escalate into a conflict between all the major powers of Europe?
- Why did men and women volunteer to go to war?
- Why was World War I quite different from the 'traditional' wars of previous centuries?
- What were the special conditions on the battlefields of World War I?
- In what ways did new weapons change the nature of fighting in this war?
- What were some of the significant places where Australian men and women served during World War I?
- How did Australian women contribute to Australia's war effort?
- What was the impact of World War I on Australia? Was it 'the war that changed us'?
- Why do we commemorate wars? What is the most appropriate way of remembering those who have served?
- What is 'the Anzac myth'?

### Historical skills

After completing this chapter, you should be able to:

- Understand what cause and effect means in the study of History
- Interpret primary sources in both print and visual form.

Other important historical skills include:

- Understanding and evaluating different historians' points of view
- Developing historical empathy with people in the past
- Evaluating the reliability of primary sources
- The correct use and definition of special terms specific to the topic under study
- The use of factual evidence (dates, statistics, examples) to substantiate an argument.



**Video**  
World War I:  
Five interesting  
facts



### Digital resources

Visit the Interactive Textbook to access:

- interactive Scorchers Quiz
- videos, image galleries and other extra materials.

► **Source 9.3** Australian troops wearing gas masks at the Second Battle of Ypres, 1915





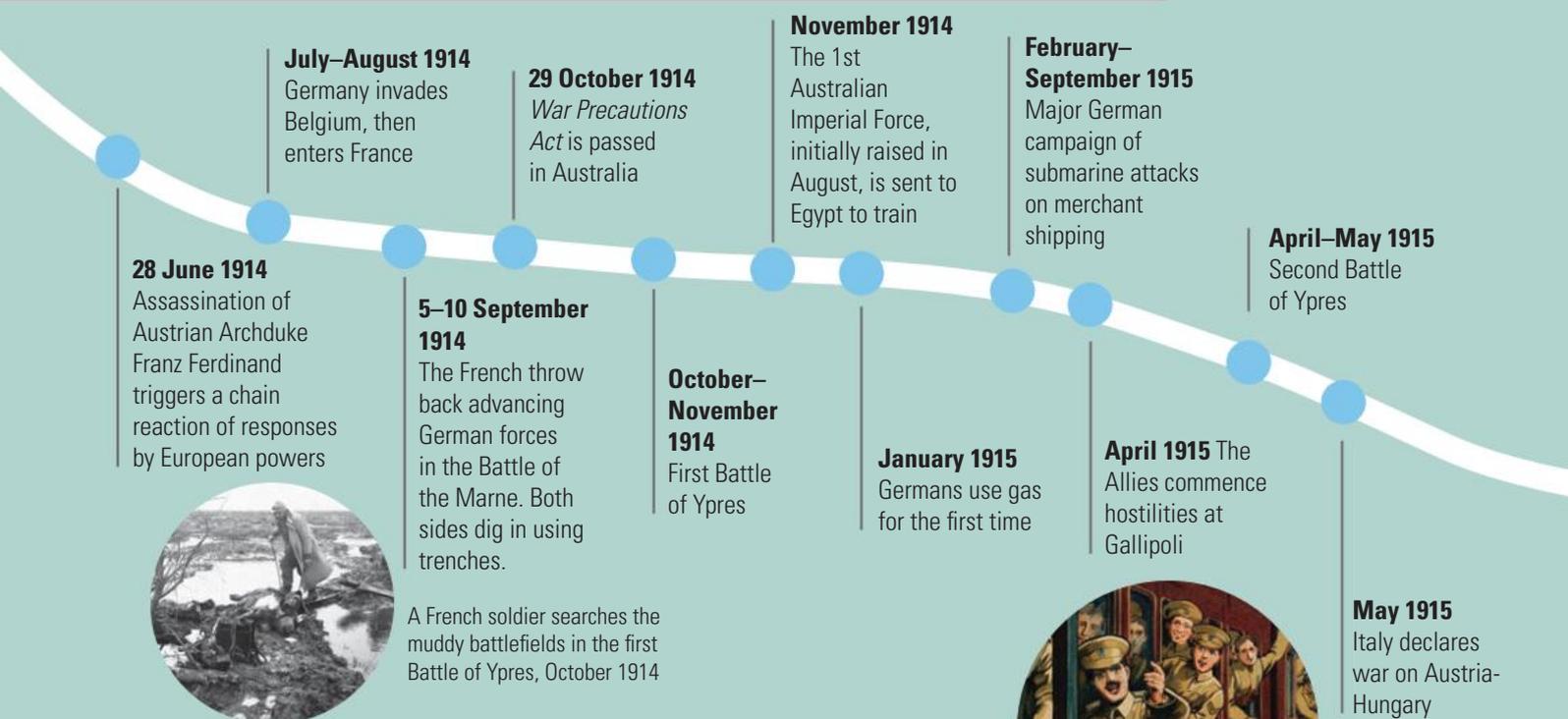
## 9.3 Timeline of key events

### What came before this topic?

- **18th century:** The Industrial Revolution in England, and later Europe, creates modern factories and modern technologies that will later produce the deadly weapons used in World War I.
- **18th century:** The Age of Empires: European powers continue to build up colonies and to form empires. Australia is a part of the British Empire.
- **19th century:** The first truly modern weapons begin to be used in warfare – for example, the machine gun in the American Civil War.
- **1870:** Chancellor (Prime Minister) Otto von Bismarck unites a number of smaller states into the new country of Germany, under the rule of Kaiser Wilhelm I.
- **1880s:** The 'scramble for empire': European powers compete to seize colonies in places such as Africa. This competition introduces new tensions among the great powers.
- **1898:** German Emperor Wilhelm II embarks on a new policy of German 'World Politics', and starts building up his navy in competition with Britain.
- **1901:** Australia is federated.
- **1911:** The Agadir Crisis: the French and the Germans almost go to war over their claims in Morocco.
- **1912–13:** The Balkan Wars: nationalistic minorities under Austro-Hungarian or Ottoman rule assert their independence and destabilise borders.



Proclamation of the German Empire in 1871. Wilhelm I is proclaimed Kaiser.



A French soldier searches the muddy battlefields in the first Battle of Ypres, October 1914



British recruiting poster from 1915. This poster depicts a group of infantry departing by train. The image captures the excitement some people felt at the outbreak of war.

### Timeline questions

- 1 What can you tell from the information in the timeline about the difficulty of achieving victory during World War I?
- 2 Of all the battles listed here, which one do you think proved to be the most decisive in winning the war?



**Key concepts:** continuity and change, cause and effect, significance

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**HASS skills:** analysing, evaluating

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**Treaty of Versailles** the treaty signed at the end of World War I that specified the terms of the peace

## What came after this topic?

- **11 November 1918:** Armistice ends fighting between Germany and the Allies.
- **January 1919:** The Allied powers meet at Versailles, France, to discuss peace treaties to formally end the war. Germany and its allies are excluded. As part of the British Empire, Australia is invited to participate.
- **June 1919:** The **Treaty of Versailles** is signed. When published, it provokes shock and rage in Germany.
- **August 1919:** The Weimar Republic is established, and immediately faces massive political, social and economic problems.
- **January 1920:** The League of Nations (precursor of the United Nations) is founded. Germany is excluded from membership.
- **February 1920:** Hitler publishes the Twenty-Five Point Program of the Nazi Party.
- **May 1921:** Germany is forced to accept massive reparations (payments for damage) to the Allies.
- **1933:** Hitler is appointed Chancellor of Germany.
- **September 1939:** Outbreak of World War II. The 'war to end all wars' has not done so.

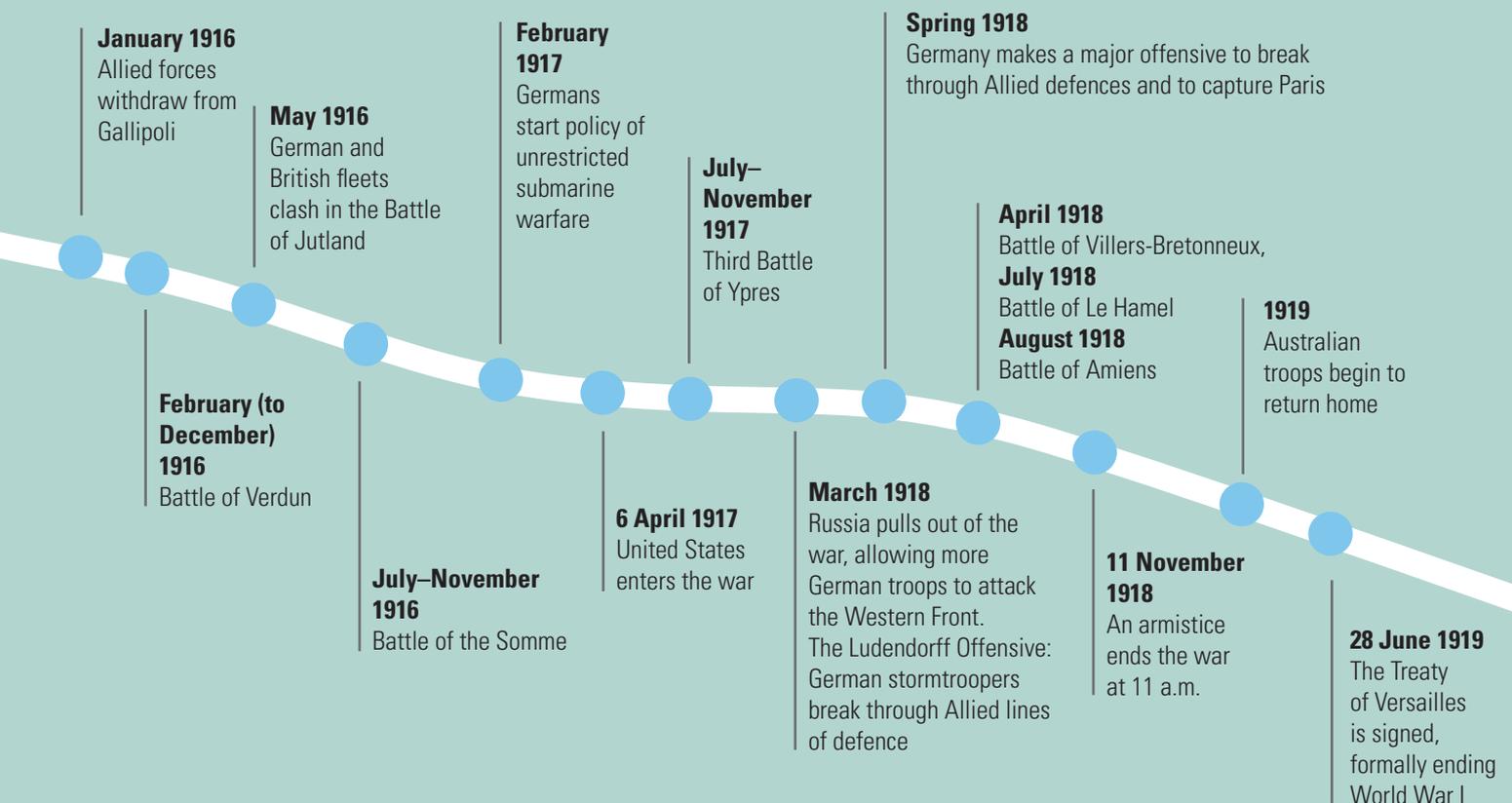


The Treaty of Versailles was signed on 28 June 1919, with victorious nations forcing Germany to carry the blame for World War I

Eight-inch British howitzers fire an artillery barrage during the Battle of the Somme in August 1916



Men of the 8th Battalion, East Yorkshire Regiment going up to the line near Frezenberg during the Third Battle of Ypres, 5 October 1917



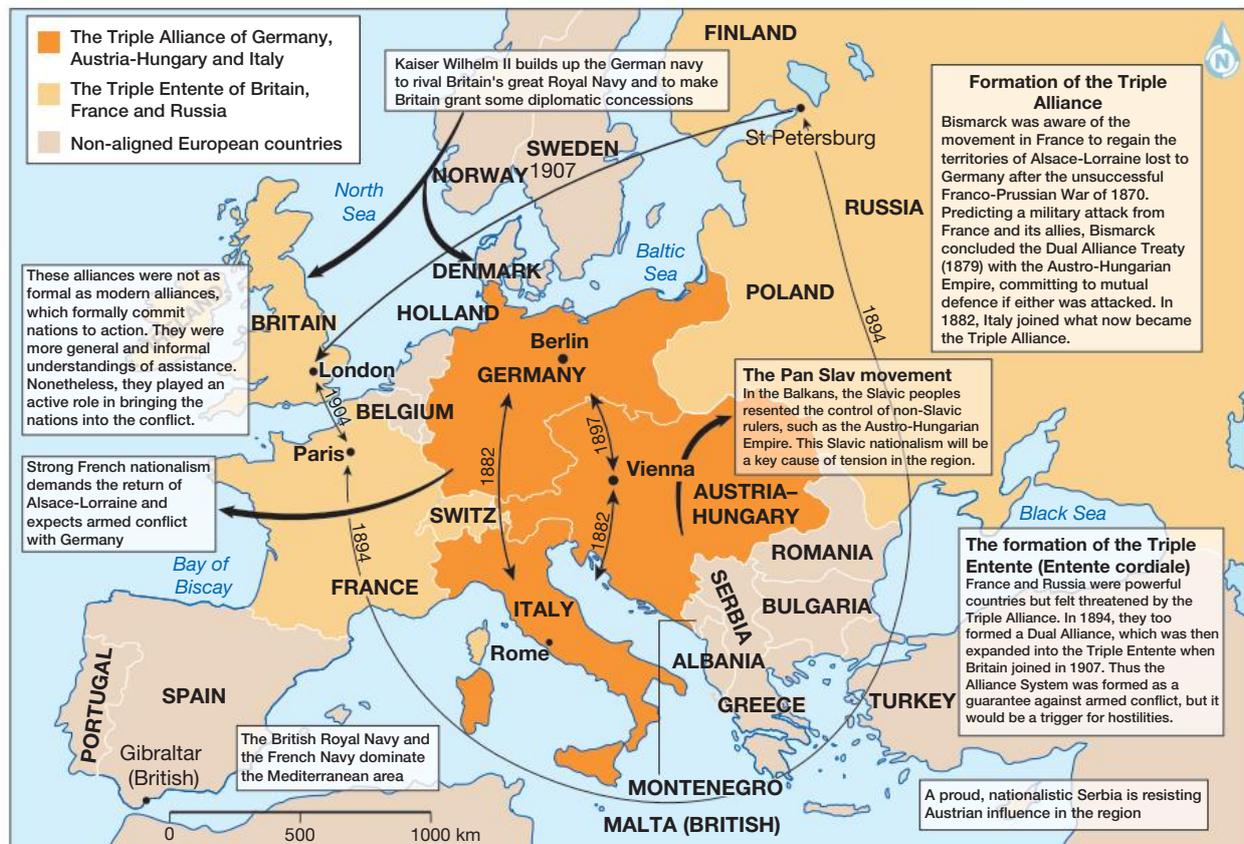


## 9.4 The causes of World War I and the reasons that men enlisted to fight in the war

### FOCUS QUESTIONS

- What were the causes of World War I?
- How could a single assassination escalate into a conflict between all the major powers of Europe?
- Why did Australian men volunteer to go to war?

### The European powers on the eve of war



▲ **Source 9.4** The two European rival armed camps pre-1914

### Gavrilo Princip and the assassination at Sarajevo

Gavrilo Princip was a Bosnian with Serbian nationality. He was a **nationalist** who hated that

**nationalist** a person who wants their country to be politically independent

his country had been forced into the vast Austro-Hungarian Empire. He belonged

to a revolutionary group called Young Bosnia and wanted to fight for a free, independent Bosnia, ruled by Bosnians, not by foreigners. Princip joined a group called the Black Hand, and recruited young men with similar nationalist feelings. The aim of such groups was to carry out violent acts of political protest – such as bombings or shootings – against the Austro-Hungarian authorities.

Princip's opportunity came when the Austrian Archduke Franz Ferdinand, the heir to the throne, announced that he would make an official visit to the Bosnian town of Sarajevo, along with his wife Sophie Chotek, Duchess of Hohenberg. He was to drive through the town in an open car, and the route was published in advance. Princip hastily bought pistols and a hand grenade, as well as some cyanide pills for suicide if needed. He carefully posted his men along the main road, Appel Quay, with each one hiding a weapon in his coat.

The royal couple arrived at Sarajevo at 10 a.m. on 28 June 1914, and were driven in a car with the hood down so that the people could see them properly. Princip and his friends waited nervously. But from there, everything went horribly wrong. One young man, Cabrinovic, was supposed to roll a hand grenade under the car, but he was so inexperienced that he forgot that the grenade had a 10-second delay, and that the official car would drive quickly over it and miss the blast; officials in a following car were injured instead. The cars speeded up, the police closed in, and the conspirators could not act.



▲ **Source 9.5** Bosnian Serb Gavrilo Princip in 1914

▼ **Source 9.6** Franz Ferdinand, Archduke of Austria, and his wife Sophie riding in an open carriage at Sarajevo shortly before their assassination



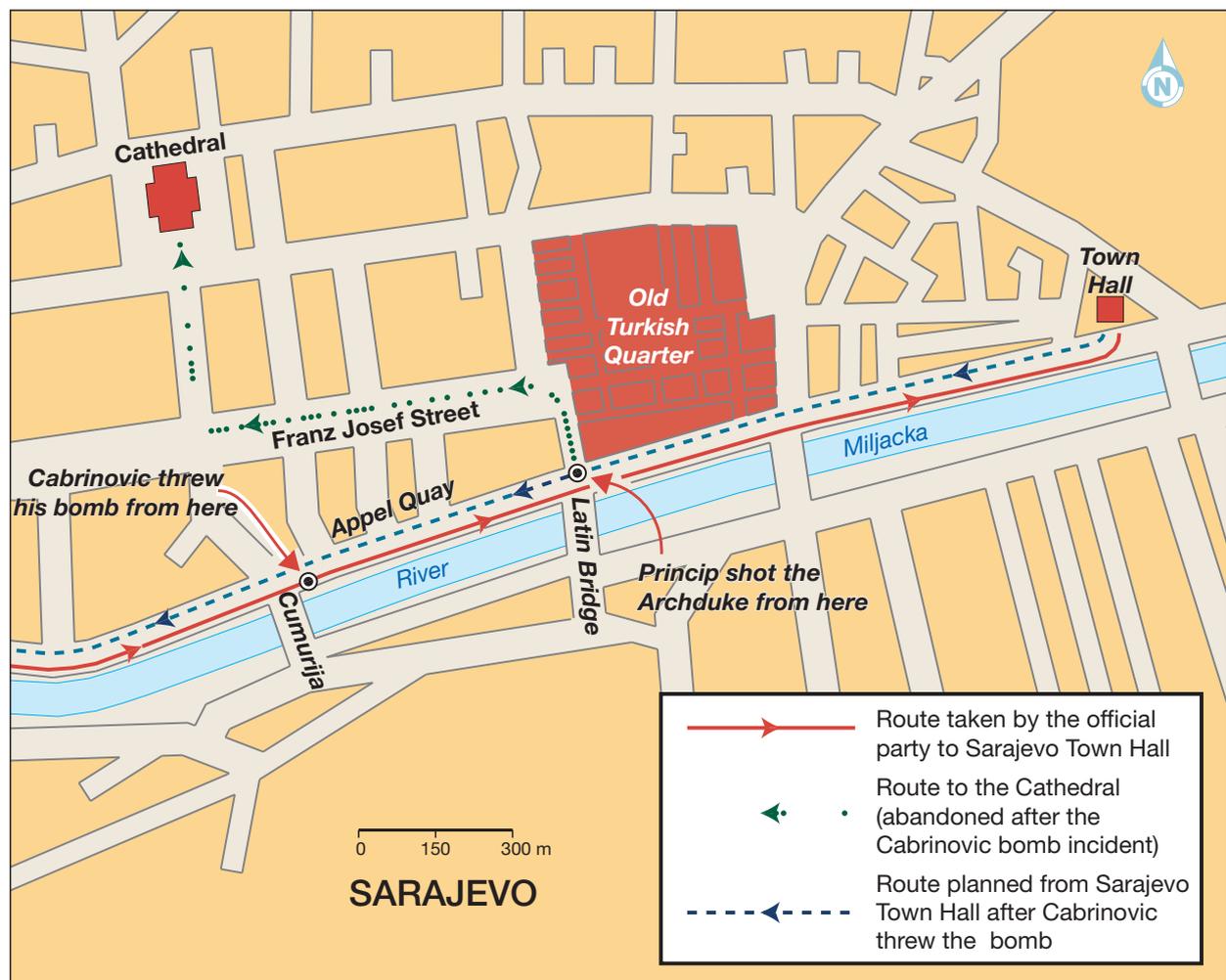
The attack descended into farce. One conspirator hastily swallowed a cyanide pill, but it was too old to work, and just made him vomit. He then threw himself off the bridge into the river, but it was summer, and the river only had a few centimetres of water in it. He was arrested. Meanwhile, Princip, stunned and confused, wandered the streets wondering what to do next. He had no backup plan. The attack appeared to have failed.<sup>1</sup>

Then, in one of the most tragic coincidences in history, Princip turned a corner and unexpectedly walked straight into the Archduke's official car. Ferdinand had already recovered from the shock, and had ordered his driver to take him to the hospital to visit the people who had been wounded by the grenade blast. The driver took a wrong turn, and drove the car down the very street in which the dazed Princip was wandering, still holding his pistol.

Princip simply raised his weapon, shooting Ferdinand and Sophie. She was pregnant, so Princip had in fact taken three lives. He was duly arrested. The members of his group who were of adult age were tried and condemned to death. Princip, being under 20, was sent to prison, where he became ill with tuberculosis and died in 1918.

## Cause and effect: the domino effect leading to disaster

The assassination at Sarajevo is so commonly described as the catalyst (cause or trigger) for World War I that it is tempting to accept this as the cause without questioning it. The problem is that political assassinations were quite common at that time, and other attempts had been made without triggering a war. The assassination of two people is tragic, but it does not explain how the major powers of Europe suddenly started the most destructive war ever.



▲ **Source 9.7** The route followed by the royal procession

<sup>1</sup> It is commonly said that Princip stopped to have a sandwich at Schiller's Delicatessen, but Mike Dash of the Smithsonian Institution has shown that this is an attractive myth, made up recently; the primary sources (from the time) mention no such thing. Read more at 'World War I: 100 Years Later' on the Smithsonian's website.



Let us look more critically at the chain reaction of events that led from a minor episode to a massive war:

**1914**

- **28 June** Austria states that Princip was linked to the Serbian nationalist movement.

**1914**

- **23 July** Austria, with strong backing from Germany, issues an impossibly strict ultimatum (set of demands made under threat). Serbia agrees to discussions, but also mobilises its army. (Mobilisation of an army is not an actual attack, merely the process of getting an army ready to attack. However, it does escalate the sense of threat.)

**1914**

- **25 July** Austria is hostile, breaks official links with Serbia, and starts to mobilise its own army.

**1914**

- **26 July** Britain calls for international peace talks, and France, Italy and Russia agree. Germany refuses to attend.

**1914**

- **28 July** Austria-Hungary suddenly declares war on Serbia.

**1914**

- **29 July** Britain again calls for international peace talks, and Russia encourages Germany to stop the mounting hostility. However, Russia worsens the situation by starting to mobilise its own troops. In response, the Germans start to mobilise their army.

**1914**

- **30 July** The Austrians start to bombard the Serbian capital of Belgrade.

**1914**

- **31 July** Russia moves into full mobilisation of its army. Germany warns that this must not continue.

**1914**

- **1 August** Germany declares war on Russia. France and Belgium move into full mobilisation of their armies.

**1914**

- **3 August** Germany declares war on France. The German army invades Belgium, which is a neutral country. Britain delivers an ultimatum for German forces to leave Belgium, to which Germany does not even reply.

**1914**

- **4 August** Britain declares war on Germany, on behalf of the members of the British Empire (including Australia, Canada, India, South Africa and New Zealand).

**1914**

- **6 August** Austria-Hungary declares war on Russia.

**1914**

- **7 August** The British Expeditionary Army lands in France. The war has begun.

► **Source 9.8** A depiction of the assassination of Archduke Franz Ferdinand and his wife Sophie, and a timeline showing the consequences of this assassination  
ISBN 978-1-009-04296-3

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▲ **Source 9.9** Main reasons why the five major European powers went to war in 1914

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.1



### Cause and effect, and perspective

A key skill in the study of History is the ability to identify chains of cause and effect to examine how and why things happened in the past. It is common in History, however, that explanations of why things happened may differ, depending on the person, the place or the time of writing. These different versions of history may be called 'perspectives'. A criticism of History, often attributed to Winston Churchill, is that it has been written by the 'victors'. When discussing the causes of World War I, this implies that the perspective of the Allied nations has often been given more weight than that of the defeated Central Powers, such as the German view.

Refer back to Source 9.8's timeline as well as Source 9.9, to help you with the following activity, which focuses on the short-term causes of World War I. By completing this activity, you will see how perspectives on the same events may differ..

### Group activity: the courtroom of history

As a historian, you must review what happened, and decide for yourself which country or which ruler was most responsible for the events that led to war. The historian is very much like the lawyer, who must strongly state their case, then convince the judge and jury by collecting firm evidence to prove their point beyond reasonable doubt. And like the lawyer, the historian must respond to cross-questioning and maintain their argument.

Your class should divide into six groups, each of which must make a case for the guilt of one of the players in this drama.





Your presentation must contain a clear contention (statement) about the guilt of your chosen country/countries, and must be strongly backed up by evidence such as dates, sequence of events, primary sources and historians' opinions.

Upon the conclusion of your presentation, your group will need to respond to questions and criticisms from the other research groups.

**Prosecution case 1:** Serbia was to blame because it did not clearly pass on a warning about the assassination plan to the Austrians, and because some officials backed nationalist movements.

**Prosecution case 2:** Austria-Hungary was to blame because it imposed an impossibly strict set of conditions on Serbia, virtually entrapping it into war.

**Prosecution case 3:** Germany was to blame because its Kaiser and military leaders encouraged Austria to strike quickly at Bosnia, in the hope of encouraging a European war.

**Prosecution case 4:** Russia was to blame because it rushed in to mobilise its troops even before Germany had done so.

**Prosecution case 5:** Britain was to blame because it did not do enough to bring the nations to the debating table.

**Prosecution case 6:** All the major European nations were to blame, because they were all making alliances, building up their armed forces and competing for colonies.



**Key concepts:** cause and effect, perspectives



**HASS skills:** analysing, evaluating, communicating and reflecting



#### Additional content

##### available:

The debate over responsibility for the war

## ACTIVITY 9.1



### Check your understanding

- 1 What were the grievances that motivated Gavrilo Princip?
- 2 What were the aims of the Young Bosnia group?
- 3 Why did Princip choose Archduke Franz Ferdinand and his wife for assassination?
- 4 Why was Princip not executed for his act, as his helpers were?
- 5 What were the strengths and the dangers of the European system of alliances?
- 6 What were the reasons for European powers to take over weaker nations as colonies?
- 7 Explain why both the alliance system and the competition for colonies could generate dangerous political and military tensions in Europe.



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## 'Patriots all': the reasons why men enlisted to go to war

### Introduction

So closely was Australia linked to Britain in 1914 that it did not make its own declaration of war. It was simply assumed to be at war as a part of the British Empire. Once the war started, there was at first no need to conscript (call up) people to join the army as there were plenty of volunteers.

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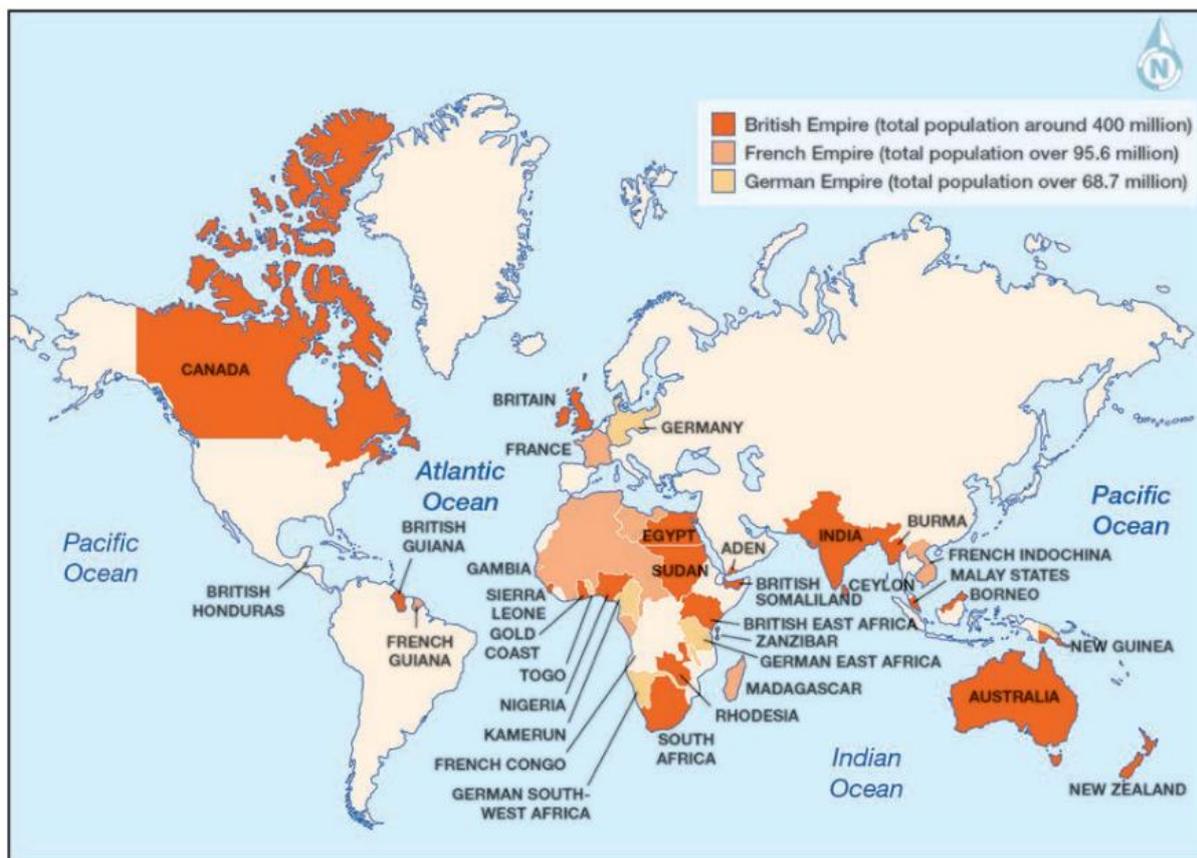
## Defending the British Empire

Most Australians felt strongly that they were a part of the British Empire, and were proud of it. Indeed, at that time – and as recently as the 1950s – Australians still referred to a trip to England as 'going home'.

### Defending 'civilisation'

Another reason might be called the moral obligation, the feeling that it was important to fight German militarism and aggression.

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▲ **Source 9.10** This map shows the world empires of Britain, France and Germany in 1914. By the end of 1914, the only overseas territory of the German Empire that remained uncaptured by the Allies was German East Africa.

Many Australians firmly believed that Germany’s military aims had to be resisted. Captain R. Mulvey, for example, wrote:

In this struggle which will determine whether spiritual principles or a military despotism will control this world of ours, I feel [it would be] better to die in fighting for such a cause than to live in lifelong [shame] for having failed to respond to the Call.

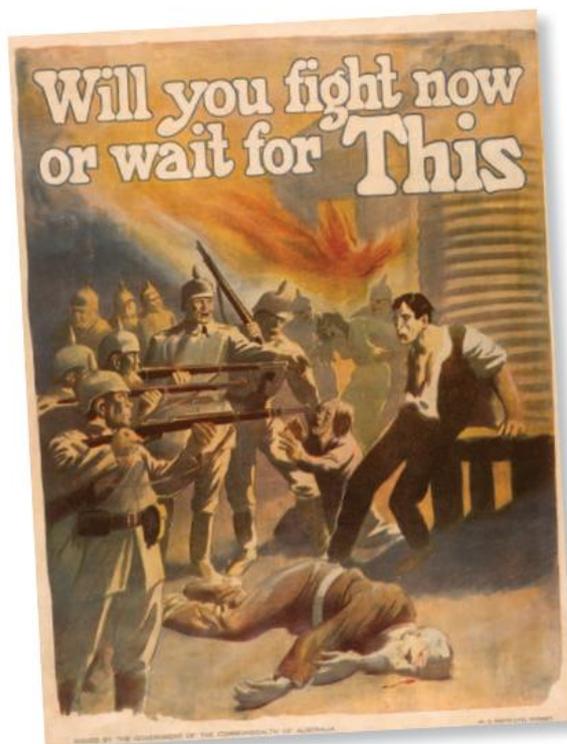
▲ **Source 9.11** Captain R. Mulvey, quoted in Bill Gammage, *The Broken Years*, 2010, p. 15

### Defending Australia

Many Australians felt they must also resist Germany’s aims because they thought that one day they might have to defend their own country. Government **propaganda** helped to increase this fear by creating posters showing how Australian

**propaganda** the use of persuasive information by a government to publicise its military success and/or to demonise an enemy country

farms might one day be under attack from brutal German soldiers, who would rape women and slaughter their husbands and children.

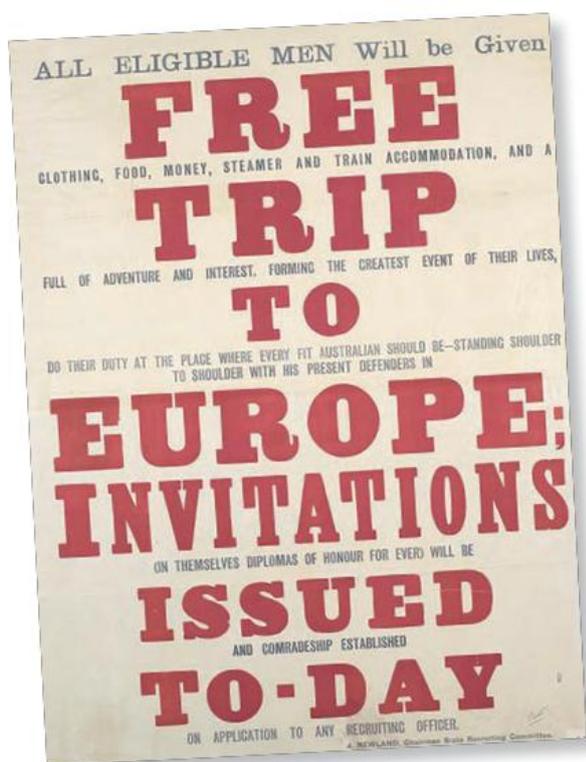


▲ **Source 9.12** This poster was designed by Australian artist Norman Lindsay for the Australian Government in 1918. Its late date reminds us that, by then, the government was desperate to recruit thousands more men and yet had twice been defeated in its attempt to introduce conscription. At one point in that same year, the Germans had successfully made a final push and seemed very close to victory. Fear of German domination and invasion was at that point very credible.

## A golden opportunity for travel abroad?

Some young men volunteered because the war offered them their only chance of a trip overseas. In the early 1900s, international travel was still massively expensive, a luxury only for the wealthiest classes. A working-class family would find it expensive even to travel within Australia, least of all to Britain. Troops who enlisted in 1914 hoped to travel free to what they called 'the Old Country', and were disappointed when their ship took them first to Egypt.

This Australian recruiting poster cleverly uses large font to appear to offer a free trip to Europe. Only in the small print does it make it clear that you have to join the army. It was for this reason, perhaps, that there were actually fights among the men lining up at the Victoria Barracks in Melbourne. Because people thought the war would be over by Christmas, some men were pushing in to get to the front of the line, fearful of missing the opportunity to see the world for free.



▲ **Source 9.13** 'Free trip to Europe' poster

## Pure patriotism: the boy-soldier Jim Martin

Many other soldiers, however, joined out of a patriotic desire to defend their own country and to help defend the British Empire. One of the most remarkable examples was the 'boy-soldier' Private Jim Martin. Born in Hawthorn in 1901,



▲ **Source 9.14** There is no doubt that, for most men, going overseas was a great adventure. Here, Australian soldiers ride camels near the pyramids in Egypt.

he had just left school and started to work on a farm in 1915. When enlistment began, he was aged 14 years and 3 months. He reported to the recruiting office, and passed himself off as a strapping 18-year-old. Keen to 'have his share of the Turks' (to start fighting them), he reported for duty, and was soon on a ship bound for Gallipoli. His first experience of war was the torpedo attack that sank his troopship. He survived in the water for four hours before being rescued. He soon found himself at Gallipoli. Jim wrote to his family:

We are very close to the Turk where we are. But you mustn't worry about me. I'm doing just splendid over here.

▲ **Source 9.15** Private Jim Martin, quoted in Department of Veterans' Affairs, *Gallipoli and the Anzacs: A Resource for Secondary Schools*, 2010, p. 72

Jim survived the savage fighting at Gallipoli in September 1915. By 25 October 1915, Jim was seriously ill with typhoid fever, and was evacuated to a hospital ship, where he died of heart failure the same evening. He is believed to be the youngest Australian to have died on active service for Australia. Tragically, he was one of thousands who died of disease due to the unhealthy conditions at Gallipoli. Indeed, as many men died of disease as those who died by Turkish bullets.



▲ **Source 9.16** Fritz Erlor, 'Boys, come over here, you're wanted' poster, circa 1917



**Video Source 9.18A**

An Aboriginal hero of World War I

## The Dinkums

A later reason for volunteering arose when, after the first few years of the war, people in Australia realised that the war was going badly and it was urgent to send more help. Military historian Peter Pederson writes:

Recruitment soared in Australia. News of the [Gallipoli] Landing, the constant lengthy casualty lists and anger at the sinking of the liner 'Lusitania' by a German submarine in May 1915 all stimulated it. Those who responded called themselves the 'Dinkums' because they joined out of conviction rather than out of a love of adventure like the 'Tourists'.

▲ **Source 9.17** Peter Pederson, *The Anzacs: Gallipoli to the Western Front*, 2007, p. 109

## Unsung Indigenous heroes: why did Aboriginal and Torres Strait Islander Australians volunteer for the war?

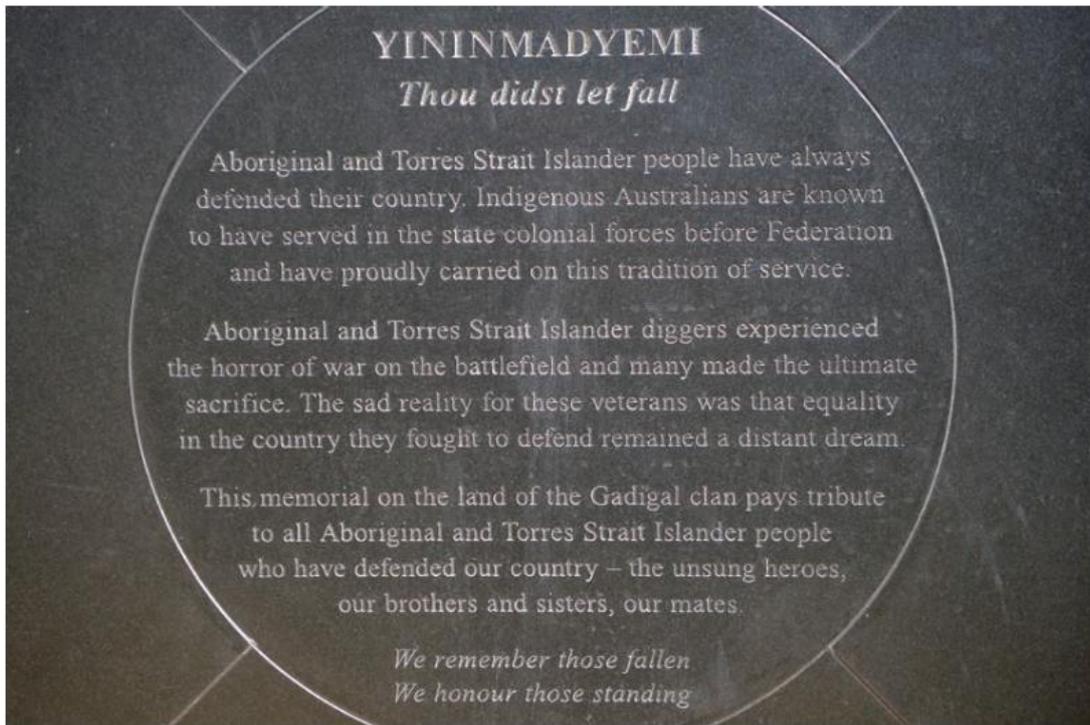
In 1914, Aboriginal and Torres Strait Islander Australians were not even

allowed to volunteer to join the army. Later, as the casualties mounted, and volunteering decreased, some Aboriginal and Torres Strait Islander people were allowed to enlist under special conditions introduced in October 1917. We will never know how many Aboriginal and Torres Strait Islander men served, because records were not kept precisely. There were about 93 000 Indigenous Australians in 1901, and it is estimated that about 1000 served in the war, but the figure may well be much higher. Likewise, there is little evidence of what motivated them to join. The historians of the Australian War Memorial state that:

It is not known what motivated Indigenous Australians to join the Australian Imperial Force (AIF), but loyalty and patriotism doubtless played a part. There was also the incentive of receiving a wage. Indigenous soldiers were paid the same rate as non-Indigenous soldiers. In general, Indigenous soldiers served under the same conditions of service as other members of the AIF, with many experiencing in the army equal treatment for the first time in their lives. There may have also been the hope that having served would deliver greater equality after the war. In reality, however, upon their return to civilian life they were treated with the same prejudice and discrimination as before.

▲ **Source 9.18** The Australian War Memorial, *Aboriginal Service During the First World War*, 2019

Their contribution has now been better recognised by the memorial sculpture in Hyde Park, Sydney, *YININMADYEMI Thou didst let fall* by Aboriginal artist Tony Albert (see Source 9.19).



**Additional content available:**  
YININMADYEMI Thou didst let fall

▲ **Source 9.19** *YININMADYEMI Thou didst let fall* by Aboriginal artist Tony Albert is a monument to Aboriginal and Torres Strait Islander soldiers in Hyde Park, Sydney.

## CASE STUDY 9.1



### Western Australian Aboriginal servicemen in World War I

In 2015, the Aboriginal History Research Unit from the Western Australian Department of Aboriginal Affairs Community Development Directorate compiled a book on 13 Aboriginal servicemen who served at Gallipoli. The *Defence Act* exempted Aboriginal people from service, but it was not always rigorously enforced, especially when recruitment slowed in later years.

Aboriginal people had greater incentive to enlist in many cases. The army promised equality and respect at a level they had rarely experienced in their lives, as well as economic independence. The only Western Australian Aboriginal person to die at Gallipoli was Trooper James Dickerson, from Gingin. An excellent horseman, at 32 years old he joined the 10th Light Horse Regiment. He landed in Gallipoli in May, and survived 'The Nek', but was mortally wounded on Hill 60 in August 1915. His younger brother, Harry, survived the war.

#### ANALYSIS QUESTIONS

- 1 Research the 1905 *Aborigines Act* of Western Australia. How were Aboriginal people treated at this time?
- 2 Why would the authorities have allowed men such as James to enlist, when they were not regarded as equal citizens at the time?



▲ **Source 9.20** James Dickerson also had a half-brother, Harry Dickerson (pictured here). Harry and James shared a mother: Aboriginal woman Mary Elizabeth Benyup. Harry was a first class machine-gunner, and was assigned to the 3rd Light Horse Machine Gun Squadron. He served with his unit throughout the Palestine campaign and survived through the war to return to Australia and be discharged from the AIF in September 1919.

## END OF SECTION REVIEW 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 Why did Australia not declare war on Germany in 1914?
- 2 Why did some people feel a moral need to fight Germany?
- 3 Why were some young men so eager to volunteer that they got into fights at recruiting stations?
- 4 Who were the Dinkums, and what did they aim to do?

#### Interpret

- 5 What were five of the main themes (subjects) in recruiting posters for World War I shown in this section?
- 6 Look again at the patriotic posters in Sources 9.12, 9.13 and 9.16. If you had lived in 1914, would these pictures have persuaded you to enlist? If so, which theme might have been the most powerful influence on your decision to serve?

#### Argue

- 7 Explain why it is so important for Australia, as a nation, to properly acknowledge those groups – such as Aboriginal Australians – whose war service has been forgotten or undervalued. Describe how oral history (spoken accounts) can help fill in the silences in our history.<sup>2</sup>

#### Extension

- 1 Investigate the extent to which Australia has now properly and fully acknowledged the service of Aboriginal and Torres Strait Islander peoples in the armed forces during World War I. In your response, provide a survey of the number and location of commemorative monuments, and list a range of recent publications on the subject.<sup>3</sup>

- 2 J. Korff writes:

There is an Aboriginal war memorial plaque in Canberra, ACT, set up not by the Australian government but by private citizens. It is not in the spotlight and not easy to find. You can find the Aboriginal war memorial plaque in the vicinity of the Australian War Memorial, a ten-minute walk away.

▲ **Source 9.21** J. Korff, *Aboriginal War Memorials*, 2018

Investigate the nature of the existing memorial plaque, and evaluate whether it is adequate to acknowledge the service of Aboriginal and Torres Strait Islander peoples in war. Write a proposal outlining a ceremony, publication or monument that you think could better acknowledge Aboriginal and Torres Strait Islander service to our nation.<sup>4</sup>

- 3 Investigate what historian Fritz Fischer said about Germany's war guilt, and explain the evidence he produced to prove Germany's ultimate responsibility for the conflict.



**Key concepts:** sources, evidence, significance, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

<sup>2</sup> For more information, visit 'Military Service and Aboriginal Voices' on the Barani website.

<sup>3</sup> You can start your research at 'Indigenous defence service' on the Australian War Memorial website.

<sup>4</sup> For more information, visit 'Australian war memorials' on the Creative Spirits website.



## 9.5 The places where Australians fought during World War I, including the Gallipoli campaign

### FOCUS QUESTION

What were some of the significant places where Australian men and women served during World War I?

### Australia's proud record of service

Australia's armed forces have good reason to be proud of their contribution to World War I. Historian Robert Fleming reminds us that Australia was a small country in terms of population – merely seven million people in 1917, compared with Germany's 68 million and Britain's 46 million. Yet Australia sent 331 781 troops overseas, and suffered 210 000 casualties, of whom 61 519 died.<sup>5</sup>

Australian troops distinguished themselves by fighting bravely, both in some hopeless and tragic military situations (Battle of Gallipoli, Battle of Fromelles) and also in some actions that proved crucial to the outcome of the war (Battle of Pozières, Battle of Villers-Bretonneux). It is significant that, of our total forces, only 4000 troops were ever captured by the enemy, suggesting that Australian soldiers had the determination to keep fighting at all costs.

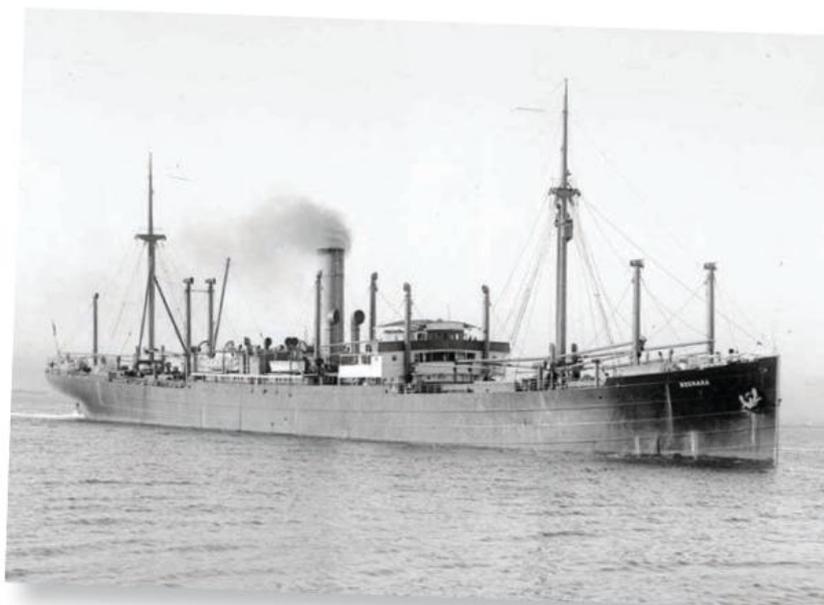
### Did Australia fire the first shots in World War I?

It is symbolic of Australia's willingness to serve that it fired some of the first shots – some believe the very first shot – of World War I. The Commander of Fort Nepean (Port Phillip Bay, Victoria), having received notification of the declaration of war with Germany on 5 August 1914, noticed the German ship the SS *Pfalz* hurrying to raise its anchor and steam out of Port Melbourne back to Germany.

He quickly sent a radio message instructing the captain to stop and, when that failed, ordered his

artillery to send a shot in front of the ship as the usual warning that he was prepared to sink it.

An Australian pilot, a Captain Montgomery, was guiding the ship towards the Heads at the time, and had to wrestle with the German captain to persuade him that, if he did not stop, the next shot would hit the ship. The captain reluctantly turned his ship around and surrendered his crew at Portsea. His act probably saved him and his crew from the horrors of war, for they served out their time safely in a prison camp in Australia. This important act was commemorated at Portsea on 5 August 2014, when it was confidently described as the very first shot fired on behalf of the entire British Empire in World War I.<sup>6</sup>



▲ **Source 9.22** The SS *Pfalz* was renamed the HMT *Boorara* (shown here) and was used as a troopship by the Royal Australian Navy.

5 To learn more about Australia in World War I, read Robert Fleming, *The Australian Army in World War I*, 2012.

6 To learn more about the first shot fired, visit the ABC News website and search for 'Bombardier John Purdue'.



▲ **Source 9.23** The gun at Fort Nepean that fired the warning shot in front of the SS *Pfalz* on 5 August 1914



▲ **Source 9.24** A newspaper report of the incident

## Significant places: German New Guinea (August–September 1914)

Australia's first military campaign is less well known to the public, but it proved that Australian forces could complete a task successfully. The campaign in German New Guinea was close to home. The German Vice-Admiral Spee's fleet of battleships was threatening Allied shipping in the South Pacific Ocean. The British gave the Australian forces the task of destroying the radio stations and supply bases that the Germans had set up to support Spee's fleet.

## Australia captures the first enemy territory in World War I

The Australian Naval and Military Expeditionary Force landed at Rabaul on 11 September 1914, then captured the German radio station at Bita Paka. Australian forces had successfully captured the first enemy territory of World War I, and shown that they could play a military role in the Pacific Region.

## Significant places: the Middle East

### What does Anzac mean?

In October 1914, 20 000 troops of the Australian Imperial Forces joined up with 10 000 New Zealand troops at Albany in Western Australia. Together, they formed a new force known as the Australian and New Zealand Army Corps, commanded by the British officer Lt General William Birdwood. The acronym 'Anzac' was first used in Cairo, Egypt, in early 1915. The soldiers were soon being referred to as 'Anzacs'.

### Amazing but true ...

The now famous name of Anzac was invented almost by chance. Everybody was still referring to the Australian and New Zealand Army Corps, despite it being quite a mouthful. It was a young officer in the Army Stores, tired of writing the long name on every order form he filled out for supplies, who begged to be allowed just to write the initials. General Birdwood rather liked the sound of it, and adopted it as the formal code name for the army.

## CASE STUDY 9.2



### What role did Albany play in World War I?

On 3 August 1914, Australia's Prime Minister, Joseph Cook, announced that he had offered to Great Britain the services of an expeditionary force of 20 000 men. Volunteers flooded in, and soon the government and the Navy had to consider how they were going to transport so many men, their equipment and provisions and, in many cases, their horses. The solution was to form a fleet of merchant vessels, converted to troop transport use, and accompany them with Naval ships for protection. This fleet became known as Convoy 1, and gathered in King George Sound, off Albany, Western Australia, in 1914.



▲ **Source 9.25** Departure of the 1st detachment of Australian and New Zealand Imperial Expeditionary Forces from King George Sound, Albany, Western Australia, Sunday, 1 November 1914. NAA 810791.

The fleet that left Albany on 1 November 1914 consisted of 26 converted Australian transports, 10 of which were from New Zealand. The fleet also included the cruisers HMS *Minotaur*, HMAS *Melbourne* and HMAS *Sydney*. Two more transports and the Japanese armoured cruiser, *Ibuki*, joined the fleet at Fremantle. A total of almost 30 000 men and 8000 horses made their way slowly to Egypt, where the men trained and prepared for action at Gallipoli, the Middle East and, later, the Western Front.

### ANALYSIS QUESTIONS

- 1 Why was the departure of this fleet an important step in Australia's relations with the world?
- 2 Look at the photograph taken of the fleet anchored in King George Sound. What advantages did this location have for these ships? How might the arrival of the fleet have impacted upon the town of Albany?
- 3 Once the ships left Western Australia they needed to cross the Indian Ocean. Why would this have been dangerous at this time?
- 4 Research the sinking of the *Emden* in 1914. Why was this a significant event, and how did it relate to the AIF fleet?
- 5 How has the town of Albany commemorated this event? Research the National Anzac Centre and the events held in 2014 to recognise the centenary of the fleet.
- 6 What happened to most of these men? How did this affect future enlistment of volunteers in Australia?



**Key concepts:** sources, evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## Amazing but true ...

The British army incorporated a large contingent of troops from all over the empire to swell its ranks. The Australian and New Zealand Army Corps (Anzac) was stationed in Egypt ready for action at Gallipoli.

**Slouch hat** A different-coloured cloth band denoted rank and service branch

**Bayonet** A bayonet was attached to the end of the rifle for close-range combat. The blade could be invaluable when ammunition was low.

**Epaulettes** To steady straps

**Uniform** Khaki helped the Anzac troops stay concealed in the heat of the Turkish sun

**Magazine** For bullets

**Rations** On average, 30 kilograms of rations would be carried. The most common foods were bully beef, hard biscuits, tea, sugar and beef cubes. Soldiers also carried firewood and spare clothes.

**Equipment** A standard Anzac soldier would carry on their Sam Browne belt: a revolver holster, ammo pouch, sword frog, compass, binoculars, map case, shovel, haversack and water bottle

**Rifle** The Lee Enfield rifle was wielded by the infantry, while officers carried small revolvers

**Puttees** (leggings)

**Bolt-action loading**

◀ **Source 9.26** An artist's representation of an Anzac recruit

## Significant places: Gallipoli

Of all the places Australians fought, Gallipoli stands largest in the public's imagination. Prime ministers travel there on Anzac Day, and thousands of Australians have followed them. In other parts of the world, many people have never heard of Gallipoli, while others ask in amazement why we so enthusiastically celebrate such a tragic, pointless and murderous military defeat. The real place of Gallipoli is shrouded with both respectful memory and a certain amount of myth. Historians – keen to get our national history right – work hard to maintain the memory and the respect, but also to correct the myths. Our greatest duty to the men and women who served there is to find out what they *really* went through.

## Why was an Allied invasion of Turkey necessary?

As war approached in 1914, both sides assumed and hoped that Turkey, then known as the Ottoman Empire, would stay neutral, because its military power was weak. One of its main military and political leaders, Enver Pasha, decided otherwise. On 2 August 1914, he made a secret agreement allowing the Germans to sail battleships into the Dardanelles waterway and to anchor near Constantinople (the modern city of Istanbul). The Germans then closed the waterway

with mines, and proceeded to shell Russian naval bases to prevent any supplies reaching Russia by sea. Russia could no longer export (sell) its products such as wheat or oil. More importantly, it could not be supplied with the crucial ammunition it needed for the war. The Allies – Britain and France – understood how much this would weaken Russia's war effort, and declared war on the Ottoman Empire.

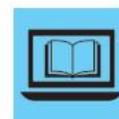
## Winston Churchill's plan for a naval attack on the Dardanelles

By late 1914, the war had settled into a stalemate. Commanders wondered how to break the deadlock of the trenches. In December, Britain's War Cabinet considered pressuring the enemy by attacking some point in the Mediterranean area. Russia then requested that the Allies attack Turkish forces in the area, to assist Russian troops defending their territory.

A young Winston Churchill suggested a bold plan to sail battleships into the Dardanelles waterway and blow up the fortresses there. While it was certainly important to reopen the Dardanelles waterway, the plan had its weaknesses. Historian Dr Martin Ball reminds us that mistakes *were* made: the British minesweepers (ships used to remove mines), for example, were not powerful enough to go against the strong current in this body of water.



**Video**  
**Figure 9.27A**  
The military invasion of Turkey



**Additional content available:**  
Worksheet on the Gallipoli landings



▲ **Source 9.27** In 1914, the Ottoman Empire was regarded as an empire in decay. It had gradually lost territories in Europe and North Africa.



◀ **Source 9.28** The result of Churchill's misjudgement of the Turkish navy and defences. The British battleship HMS *Irresistible*, shown here, was sunk by fire from shore batteries at Gallipoli.



▲ **Source 9.29** Winston Churchill, First Lord of the Admiralty in the British navy, oversaw the Dardanelles Campaign in 1915.

In addition, Churchill might have underestimated the Turkish navy and the fortress defences, expecting that the mighty British navy could easily defeat that of an inferior power: after all, they were not fighting the mighty German navy. This plan ended in disaster, as several ships hit mines, and the attack was called off on 18 March 1915.

### The plan for a land attack

The British navy demanded army support in future attacks. The commander of the Mediterranean Expeditionary Force, General Sir Ian Hamilton, hastily planned a land invasion for 25 April 1915. It is sometimes assumed that Winston Churchill was also responsible for the second disastrous plan, the landing of British, French and Australian troops on the Gallipoli Peninsula. This is incorrect. Churchill was angry and alarmed when he heard that a plan was being drawn up in haste for such a dangerous landing. He was wrongly blamed for its disastrous failure. Numerous Members of Parliament, especially from the Conservative Party, blamed him for both failures, and insisted that the government demote him from First Lord of the Admiralty.

### General Hamilton's plan for a quick campaign

General Sir Ian Hamilton assigned the landing places according to the difficulty of each location.

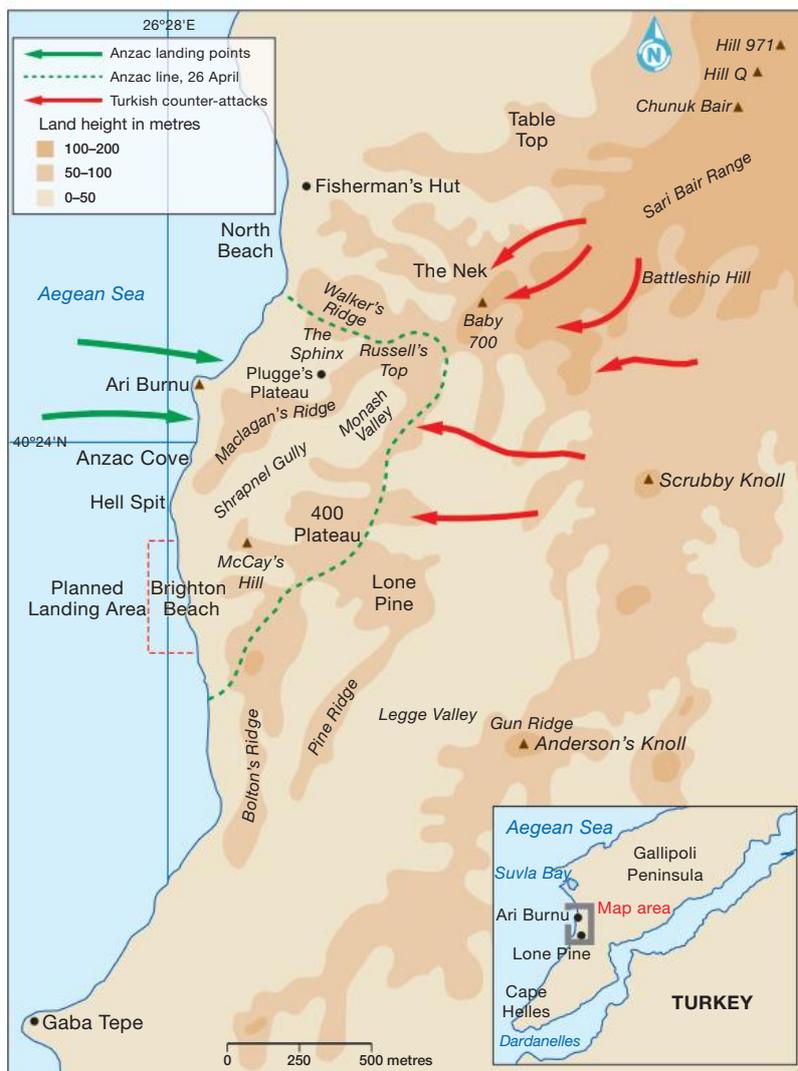
Contrary to myth, he did not throw the fresh Australian troops at the hardest point of landing. He assigned his own experienced, hardened troops of the 29th Division to the most difficult landing at Cape Helles. He correctly judged the Anzacs to be less experienced, and gave them the supposedly easier landing at Gaba Tepe Headland. A small French army was assigned another landing. Hamilton expected rapid victory, and promised to capture the Turkish capital in three weeks. He therefore only ordered supplies of food and ammunition for a short campaign. Expecting a small casualty rate of about 3000 men only, he ordered few doctors, nurses and medical supplies.

### The Anzac landing (25 April 1915)

The commander of the Anzac forces, General Birdwood, first landed 4000 men on Gallipoli at dawn, making the Australians the first to land. These 4000 men were to secure the coast as far as the third ridge, and then cover the landing of the rest of the Anzac forces. Small steamboats towed lines of lifeboats from the battleships towards the shore.

It is unclear what went wrong. Some believe that the captains mistook a small headland for the larger Gaba Tepe headland. Others believe that strong currents swept the boats off course. Whatever the cause, they landed 2 km away from the site that Hamilton had carefully chosen.

Tragically, this placed them right amid the Sari Bair hills, an impossible landscape of steep cliffs to the sea, then ridges and deep ravines. The terrain was so hostile that the Turks thought this was the least likely place to land, and therefore had stationed fewer troops there. As the Australians landed they were met with a hail of bullets, and realised the plan had gone dreadfully wrong. The second group of Australians then landed on the beach now known to us as Anzac Cove.



► **Source 9.30** The battles at Gallipoli

## ACTIVITY 9.2

### Using historical sources as evidence



◀ **Source 9.31** George Lambert was not personally at the landing at Gallipoli in 1915, and only painted this work some years later, in 1920–22. He spent six weeks at Gallipoli after the war, carefully studying the site and the battlefields there and made many sketches that he then used to do this painting when he came back to Australia.

### Responding to the source

- 1 Describe this source. Who created it, and when was it created?
- 2 How accurate do you think this source might be as a depiction of the Anzac landing?
- 3 What does this source tell you about the conditions at Anzac Cove?



**Key concepts:** sources, evidence, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

One soldier vividly described the dangerous advance onto the beach:

Now we have commenced up those steep cliffs, parts of which one has to almost pull himself branch by branch, in many places to fall back again. We are near them now, only fifty yards away, then a roar and a yell as we are charging at them. On and on, up those awful cliffs and through the dense scrub, where every few yards a Turk jumps out with his bayonet ready ...

▲ **Source 9.32** Jonathan King, *Gallipoli Diaries*, 2003, pp. 27–28

Another Anzac soldier recalled:

Then [the firing] opened out into a terrific chorus. The key was being turned on the lock on the lid of hell. Some men crouched in the crowded boat, some sat up nonchalantly, some laughed, while others cursed with ferocious delight.

▲ **Source 9.33** Extract from an anonymous Gallipoli diary, quoted in Bill Gammage, *The Broken Years: Australian Soldiers in the Great War*, 2010, p. 65

## The threat of Turkish snipers

Soldier Bert Facey remembered that landing, when they first discovered the cleverly hidden Turkish snipers. He wondered why some of the advancing Australian troops had been shot in the back, seeing the Turkish troops were in front of them:

Our casualties were heavy. We lost many of our chaps from snipers and found that some of these had been shot from behind. This was puzzling, so several of us went back to investigate, and what we found put us wise to one of the Turks' tricks. They were sitting or standing in bushes, dressed all in green – their hands, faces, boots, rifles and bayonets were all the same colour as the bushes and the scrub. You could walk close to them and not know. We had to find a way to flush the snipers out. What we did was fire several shots into every clump that was big enough to hold a man. Many times after we did this the Turks jumped out and surrendered or fell out dead.

▲ **Source 9.34** A.B. Facey, *A Fortunate Life*, 1981, p. 325



◀ **Source 9.35** This photograph shows a captured Turkish sniper at Gallipoli, disguised as a bush. These men waited until the Australian troops had charged and run past their hiding place, and then shot them from behind.

*'[Turkish snipers] were sitting or standing in bushes, dressed all in green – their hands, faces, boots, rifles and bayonets were all the same colour as the bushes and the scrub.'*

– Bert Facey, Anzac soldier at Gallipoli

## The terrible first day

Historian A.K. Macdougall contends that the first day included some of the most savage fighting in the conflict. The Turks were commanded by the brilliant officer Kemal Ataturk, who later founded the Republic of Turkey, while the soldiers fought with enormous courage to defend their homeland. Turkish officers quickly moved more troops up to the area. The Australians were caught in a hailstorm of bullets, grenades and shells. Their officers were often killed first, so groups of soldiers struggled forward, unguided, to try to capture the target of the Third Ridge. Ataturk himself led his own regiment against the Australians – whom he called ‘the English’ – and threw them right back towards the beachhead.

By nightfall, the Anzac forces had suffered 3000 casualties (dead or wounded), and the remaining troops were barely clinging to the First Ridge. Instead of commanding 7 kilometres of soil, the Anzacs commanded just 1 kilometre. General Birdwood informed the commander, General Hamilton, that his troops were trapped and might have to be evacuated; Hamilton ordered him to dig in and hold his ground at all cost. After five days, the Anzacs had suffered a staggering total of 8000 casualties (dead and wounded), while the British suffered 5000.<sup>7</sup>

## What were conditions like at Gallipoli?

The conditions at Gallipoli were some of the harshest any soldiers could experience. One English reporter wrote: ‘The Australians are in the most extraordinary position an army has ever found itself, clinging as they are to the face of the cliff’ (Ellis Ashmead-Bartlett, quoted in A.K. Macdougall, *Gallipoli and the Middle East*, 2004, p. 15). The area in which the 40 000 troops had to live was very small: 162 hectares of land – not much bigger than a modest dairy farm back in Australia.

The terrain was very steep. The daily act of carrying heavy cans of water and crates of food and ammunition up to the top of the ridge was utterly exhausting, and was harder work than fighting in the trenches. In particular, there was not a single source of natural water at Anzac Cove. It was brought by ship in barrels, then put into metal cans and carried by men or mules up to the troops. Water became a precious and scarce resource, and this made both washing and hydration against extreme heat very difficult.

The army never mastered the basic skill of building adequate toilets, so soldiers used tin cans instead. Some 50 per cent of Anzac deaths here were not from Turkish bullets, but from disease.



▲ **Source 9.36** Frank Crozier, *The Beach at Anzac*, 1919. Crozier painted this large scene after the war, but he did serve in Gallipoli in 1915, and also on the Western Front in Europe, where he witnessed the Battle of Pozières. Of all the artists of the AIF, he had the greatest direct experience of battle conditions.

<sup>7</sup> To learn more about Gallipoli, read A.K. Macdougall, *Gallipoli and the Middle East*, 2004.



**Video**  
**Source 9.36A**  
Life at Anzac Cove



**Additional content available:**  
Worksheet on life at Anzac Cove

## Amazing but true ...

Evidence has emerged that some 50 Indigenous Australians fought at Gallipoli, and that 13 of them died there. Official documents did not record their ethnicity, and no photographs of these men have survived. These men remain among so many unacknowledged heroes.<sup>8</sup>

### A Turkish view of Gallipoli

The situation at Gallipoli met almost every criterion for a military disaster. The Turkish troops were already dug in, commanded high ground and had cut down all trees to allow for a murderous sweep of machine-gun fire. They were highly trained, and were lucky to have short lines of supply from their base. They also felt they were defending their own homeland against foreign invaders.

The Turkish troops fought bravely and fiercely. Their German allies supplied them with plentiful bullets, artillery shells and hand grenades, so they could exert constant pressure bombarding the Australian trenches. On occasions, hand grenades fell like rain into the Australian trenches; men who were good cricketers specialised in catching the grenades and bowling them back at the Turks. The Turks then delayed throwing the grenades after pulling the pin, so that they were ready to explode just as the Australians caught them. Many a fine sportsman died trying to defend his fellow soldiers.

The Turks also had expert snipers who could pick off any soldier who carelessly showed himself above the trenches. Australian troops quickly learnt to use a periscope to observe the Turkish front line, and to locate possible snipers.

### Australian resilience and improvisation under fire

At Gallipoli, Australian troops, like the British and French, showed great resilience. For example, while the Turks had plenty of hand grenades

provided by Germany, the Anzacs had fewer. All ammunition came by ship from Australia. Not dismayed, the Anzacs set up a 'bomb factory', making crude bombs out of tin cans filled with explosives, shrapnel and a fuse threaded through a hole in the top of each can.

### The great battles at Gallipoli

Gallipoli is also known for the savagery of the battles fought there.

We are well aware of the massive Australian casualty rate at Gallipoli, but we must also bear a thought for the enemy. In the Battle of Anzac (19 May 1915), for example, some 42 000 Turks attacked en masse, simply charging straight into Australian machine guns. At that time, there were only 1700 Anzacs on duty, but they were dug in and ready for the attack.



▲ **Source 9.37** An example of an improvised 'jam tin' grenade found at Lone Pine, Gallipoli, in January 1919

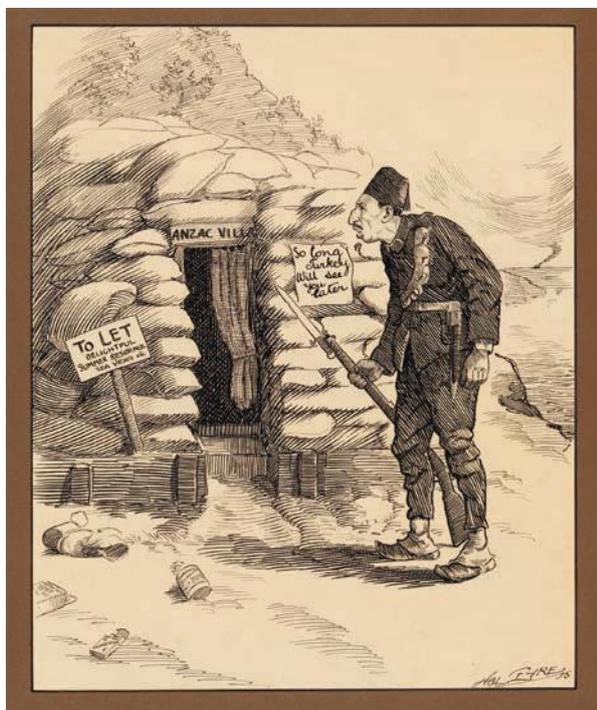
At first, soldiers reported a fierce delight in mowing down rank after rank of Turkish soldiers. As the battle wore on, and the Turks suffered 10 000 casualties, delight turned to distaste: for professional soldiers, battle is one thing, but mindless slaughter is another.

In the end, the Anzacs could not bear hearing the cries of hundreds of wounded Turks dying slowly in the hot sun, and arranged a ceasefire and actually helped the Turks carry away the wounded and dead. This loss must have been a national trauma for Turkey and meant heartbreak for thousands of families. Atatürk never repeated this costly attempt to drive the Anzacs from the shore.

The Australian forces had their own turn to attack in the summer offensives of mid-1915. In the Battle of Lone Pine (6–9 August 1915), the Australian First Brigade from New South Wales attacked Turkish positions, and met fierce opposition. They charged late in the afternoon, so the low sun was shining in the eyes of the Turks. The Anzacs quickly gained the front trenches, then spread out through the communication trenches. Both sides struggled in murderous hand-to-hand fighting with bayonets and hand grenades for three days.

<sup>8</sup> To find out more about Aboriginal soldiers at Gallipoli, Google 'SBS News 50 Aboriginal soldiers at Gallipoli'.

When the battle ended, the Anzacs had suffered over 2000 casualties, the Turks an even more tragic 6000.<sup>9</sup> The Anzacs captured and held the site. In all, seven Australians received the Victoria Cross for bravery in this savage fighting. The battle took place in the area now occupied by the Lone Pine cemetery.



▲ **Source 9.38** 'So long Turkey, see you later!' Hal Eyre, *Daily Telegraph*, 1915, State Library of New South Wales

## One important success at Gallipoli: the silence ruse

One of the best examples of the Australian spirit was the evacuation of the Anzac sector on 15–19 December 1915 employing the **silence ruse**. All military retreats are dangerous, because a departing army can be suddenly attacked from behind by the enemy and suffer massive casualties. However, by the inspired orders of General Sir Brudenell White, the Australian army was able to make a retreat without any serious losses.

This had to be managed carefully. First, White ordered that Anzac troops stop using artillery or snipers, to create the impression that action was being reduced in preparation for winter. This was so the Turks would not be suspicious as the troops withdrew. Second, the Australian troops heard rumours of a retreat, and were not happy. White

announced that they were just going to Lemnos in Greece for rest leave. The troops were resentful when they heard that the dead soldiers would be left behind in their simple graves.

On 15 December, the first of 36 000 Anzac troops were withdrawn, continuing over five nights. Nothing was left behind; all spare ammunition was destroyed. The first to go were the low-level service troops and reserve troops, leaving the battle troops to keep fighting. The fighting troops departed next, leaving only the machine-gunners on duty to come away last.

By 19 December, only 10 000 troops were left on Gallipoli, and the Germans and Turks still suspected nothing. White insisted the entire retreat must be carried out in complete silence, as the Turkish trenches were so close that the enemy could hear the give-away sounds of an army departing. Thus, the horses were well fed with fodder so they would not neigh due to hunger. The men were ordered to speak only in low tones. Even the wheels of the carts were greased so they would not make a sound.

White still faced the problem of potential gunshots from sentries throughout the night, and concerns the Turks would notice if the Australian positions suddenly fell completely silent. The solution was the ultimate in Australian bush inventiveness.

The Australians set up a number of loaded rifles, held in place by sandbags. They then tied a piece of string to each trigger, and onto it they attached an empty bucket. Above that, they suspended a bucket full of water, with holes in the base. The water in the perforated can dripped water into the second can below and, when the second bucket gained enough weight of water, it pulled on the trigger.

**silence ruse** a detailed plan to allow Anzac forces to evacuate from Gallipoli in complete silence, and by stages, to avoid the possibility of a Turkish attack on retreating troops

To make sure that the rifles fired randomly at different times, the Anzacs drilled some buckets with larger holes, so that these cans filled more quickly and fired earlier, while others were drilled with smaller holes, so that the rifles fired later, during the small hours of the morning.

<sup>9</sup> To learn more about the Battle of Lone Pine, visit the Australian Government's Anzac Portal and search for 'Battle of Lone Pine'.



▲ **Source 9.39** A rifle with a drip bucket attached to the trigger – a key invention that saved many Australian lives

While Gallipoli was a defeat in military terms, its ending was a triumph of intelligent management. Some 10 000 Anzac troops had been killed in the fighting, but not a single soldier of the 105 000 surviving troops was lost. In addition, the army saved 300 valuable field cannon for later use on the Western Front.

One Anzac sergeant wrote:

Hearts wrung by the sacrifices made and the irreparable loss of many of the brightest and best of our young nationhood, thousands of us said a sad farewell to those lonely graves on rugged Gallipoli.<sup>10</sup>

▲ **Source 9.40** Anzac sergeant in a diary

Anzac chaplain Walter Dexter was given the task of mapping the graves of the thousands of dead soldiers. He wrote:

I went up the gullies and through the cemeteries, scattering silver wattle seed. If we have to leave here, I intend that a bit of Australia shall be here.

▲ **Source 9.41** Walter Dexter, quoted in Australian Turkish Friendship Memorial Sculpture, *I Went Up the Gullies and Through the Cemeteries*, 2019

## Many points of view about Gallipoli

Australia's involvement in Gallipoli is probably the best-known of our nation's actions in World War I. In recent years, Gallipoli has become the most intensely beloved action in World War I in the public's mind, as Kokoda is for World War II. Each year, thousands of Australians make a pilgrimage (respectful journey) to Gallipoli, and stand in the chill dawn of Turkey, deeply moved by the memory of the Australians who fought bravely there. Gallipoli was a military defeat, and some people complain that we remember this defeat with such intensity and forget Australian victories such as the Battle of Beersheba. Others argue that this 'defeat' was actually an achievement of extraordinary courage and perseverance under almost impossible conditions, and reflected well on the sheer bravery and tenacity of Australian and other troops.

## CASE STUDY 9.3



### What is the link between the film *Gallipoli* and Western Australia?

Peter Weir's 1981 film *Gallipoli*, starring a young Mel Gibson, is how many Australians imagine conditions in World War I. But did you know that the film was inspired by two brothers from Guildford, Western Australia?

The climactic scene of the film is based on the charge at The Nek, on the Gallipoli Peninsula on 7 August 1915. This disastrous attempt to reach Turkish trenches cost the lives of 234 Australians, with many others wounded. War correspondent and historian Charles Bean described this action in his 1921 official history, and refers to the two brothers:

*Men known and popular, the best loved leaders in sport and work in the West, then rushed straight to their death. Gresley Harper and Wilfred, his younger brother, the latter of whom was last seen running forward like a schoolboy in a foot-race, with all the speed he could compass...*

▲ **Source 9.42** Quoted in A.W. Jose (1921). *Official History of Australia in the War of 1914–1918*. Sydney: Angus & Robertson.



<sup>10</sup> Anzac diary online.



It was this quote from Bean that inspired the character of Archy Hamilton in the film, who was played by actor Mark Lee.

Gresley and Wilfred were the sons of Charles Harper, an agricultural scientist, Member of Parliament and newspaper owner. Charles built his family home, Woodbridge, on the Swan River at Guildford. The two men enlisted on the same day in October 1914, joining the 10th Light Horse Regiment and sailing for Egypt in February 1915. Their younger brother, Prescott, enlisted in 1917.



▲ **Source 9.43** Mel Gibson in the 1981 Australian film *Gallipoli*

From Egypt, the brothers were sent to Turkey, and fought for two months before the charge at The Nek. After a barrage of shells from an offshore naval vessel finished earlier than expected, three waves of Australian soldiers were ordered to leave their trenches and attack the Turkish lines. It was a hopeless advance and casualties were high. Gresley and Wilfred were struck down in the third wave and their bodies were never recovered. Today, they are commemorated at the Lone Pine Memorial, and remembered every Anzac Day with services at Woodbridge, which is now a National Trust property.

## ANALYSIS QUESTIONS

- 1 Research The Nek using the Australian War Memorial's website (search for 'Charge at The Nek').
  - a What was the aim of the fighting at Gallipoli? What did the allied command hope to achieve at The Nek?
  - b Why did the charge fail? Who would you blame for this failure?
  - c What does this event suggest about the use of soldiers in WWI? Would you join up to fight in such a war?
- 2 Read the accounts of Gresley and Wilfred Harper at the following weblinks for the Virtual War Memorial Australia and Guildford Anzacs websites:
  - <https://cambridge.edu.au/redirect/9513>
  - <https://cambridge.edu.au/redirect/9514>
  - <https://cambridge.edu.au/redirect/9515>
  - <https://cambridge.edu.au/redirect/9516>
  - a What were the backgrounds of the two men before they enlisted for war? Why were they so admired in the army?
  - b In general, why were the Australian soldiers suited to war in the Middle East and Turkey?
- 3 Search online for the article 'Brothers' loss resonates through the ages', published in *The Western Australian*. Read the article and answer the following questions.
  - a What connection do the Harpers still have with Western Australia?
  - b Describe the commemorations that were held in Guildford on the 100th anniversary of the Gallipoli campaign.
  - c Why has World War I continued to be commemorated in Australia after 100 years?



**Key concepts:** cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating

## Beersheba

In the Middle East, Australian forces fought the Turkish army, which was assisted by German officer-advisers. In 1916, the challenge was to capture the heavily fortified town of Beersheba, to break all the other German defences.

The Australian commander was concerned that the Turks were heavily dug-in at Beersheba, and backed by heavy artillery and machine guns. A charge over open desert would slaughter his troops. He had a simple, but brilliant, idea. He realised that the Germans, expecting the usual attack, would already have set their guns to fire at a certain range – that is, exactly the point at which the Light Horsemen usually dismounted. It would not be easy to quickly rewind the guns to change their range. He therefore ordered his troops to charge, galloping at high speed like cavalry, and to use their bayonets like swords. The attack was so quick that the German guns were ineffective, and the Australians captured Beersheba with few casualties.

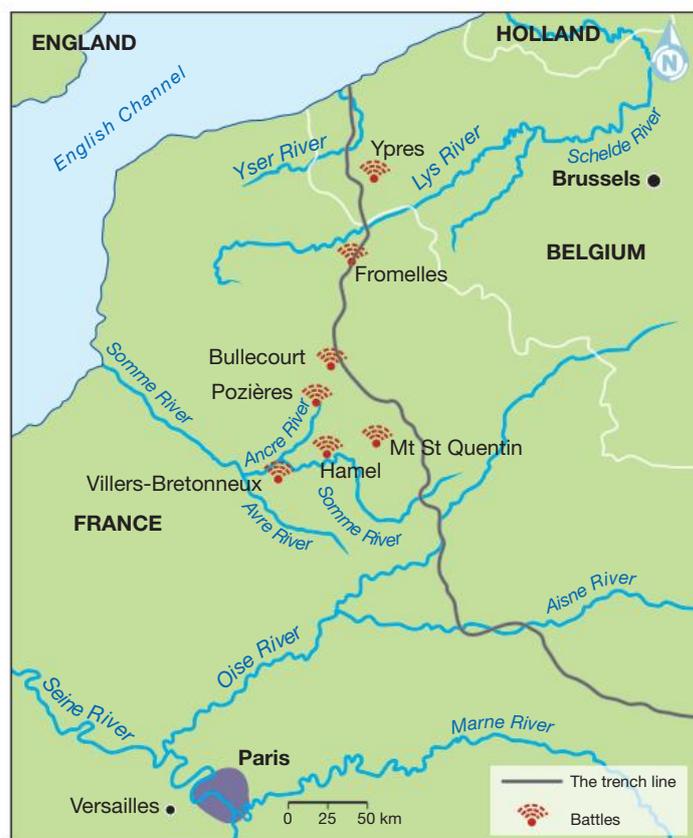


▲ **Source 9.44** The Australian forces were technically called the 'Light Horse', meaning they were actually infantry who rode up to the enemy on horseback, dismounted, and then attacked on foot. They differed from cavalry, which always attacks on horseback. This painting by George Lambert shows the uniform of the Light Horse. Their slouch hat has the distinctive symbol of the cluster of feathers, which is absurdly called 'Kangaroo Feathers'.

11 To find out more about Pozières, visit ABC News and search for 'Fromelles and Pozières: A look back at two of Australia's bloodiest WWI offensives'.

## Significant places: the Western Front

The Australian action at Gallipoli stands larger in our national memory than any other campaign in World War I, and yet Australia's actions on the Western Front in Europe were of greater scale and of larger importance to the war. Military historian Robert Fleming writes: 'Although Gallipoli is often described as Australia's "baptism of fire", it would pale in comparison to what the Diggers were to experience on the Western Front' (Robert Fleming, *The Australian Army in World War I*, 2012, p. 20).



▲ **Source 9.45** The principal battle areas of the Western Front where Australians fought between 1916 and 1918

## The Battle of Pozières (23 July to 3 September 1916)

The French village of Pozières was the scene of a savage battle that completely destroyed the village and killed many of the British and Australian troops holding it against the German counter-attack. The name Pozières still strikes a chill in our national memory because this place was, as Charles Bean put it, 'more densely sown with Australian sacrifice than any other place on earth'.<sup>11</sup>



**Video**  
**Source 9.44A**  
The Australian  
Light Horsemen



**Additional  
content  
available:**  
Worksheet

Australians were among the troops sent to capture this village, which was valuable because it was on a high ridge overlooking the battlefields below. The Australians of the 1st, 2nd and 4th Divisions made a total of 19 attempts over 42 days to capture the site, and suffered a devastating 23 000 casualties (killed, wounded or captured). In just the first day of the attack, the Australian 1st Division suffered 5285 casualties.

The heavy losses were partly due to the Australians' early success in capturing the village. Having taken Pozières, they discovered that they were almost completely open to bombardment from German artillery. The German guns began pounding the village to rubble, and there was literally no shelter in which to hide. One Australian officer recalled walking past and seeing a group of five Australian soldiers sitting at a table in the open, calmly playing cards as German shells rained down around them. When the officer returned later, the same men were slumped in their chairs, dead, having played their card game until, inevitably, a German shell finally hit them.



▲ **Source 9.46** The main street of Pozières in 1914



▲ **Source 9.47** The main street of Pozières in 1916, after the shelling

This occurred at the same time as the French were facing a massive German attack nearby at Verdun, and as the British were also facing attack at the Battle of the Somme. The men who survived this slaughter came away deeply shocked by what they had been through. One observer noted:

They looked like men who had been in Hell ... drawn and haggard and so dazed that they appeared to be walking in a dream and their eyes looked glassy and starey.

▲ **Source 9.48** Quoted in C.E.W. Bean, *The Australian Imperial Force in France: 1916. Official History of Australia in the War of 1914–1918*, Australian War Memorial, Canberra, 1941 [1929], p. 599

## Australia's greatest military disaster: the Battle of Fromelles (19–20 July 1916)

For military historians, the name of the Battle of Fromelles is also a chilling one, because it was, for Australia, one of the most tragic and wasteful battles of the Western Front. In just 24 hours, 5533 Australian soldiers would be dead, wounded or missing. In all, 1719 Australian troops were killed. Another 470 were taken prisoner. The attack did not achieve any goal whatsoever – apart from briefly confusing the Germans – and no land was captured. The Battle of Fromelles remains the worst one-day disaster, statistically, in Australian military history.

### The Australian diversionary attack at Fromelles

At this time, the British forces were planning their great attack of the Battle of the Somme, which they hoped would finally break through the German lines. They ordered Australian forces to attack nearby, near Fromelles, to create a diversionary attack (fake attack) to confuse the Germans as to where the real attack was. The Australian commanders warned the British generals that this was too dangerous a place to attack but, nonetheless, three brigades of Australian troops were ordered to attack a heavily defended German position, across open land. The German positions were on the slight rise of Aubers Ridge, some 40 metres high, from which the Germans had a vantage point over all the Australian troops.



**Video**  
**Source 9.48A**  
Artillery in  
World War I



**Additional content available:**  
Worksheet on artillery in World War I



**You will learn much more about Hitler if you study History in Year 10**

A young corporal named Adolf Hitler was in a concrete blockhouse during this battle.

The 5th Australian Division consisted of 12 battalions of troops who had only a few weeks' training and were not battle-hardened. The Australian and British attack began at 6 p.m., so they were attacking in full summer daylight. Heavy bombardments had not destroyed the German defences, which now gave heavy fire. The Australian troops had to run across 80–400 metres of open ground in full view of machine-guns. The German machine-gun fire was so intense that whole lines of men were mown down. Some men were cut in half by the bullets. The entire 15th Victorian brigade was cut down in the first 15 minutes of the battle. Sergeant Jimmy Downing recalled: 'Hundreds were mown down in the flicker of an eyelid, like great rows

of teeth knocked from a comb. It was all over in five minutes' (Sergeant Jimmy Downing, quoted in Ashley Ekins, 'The Battle of Fromelles', *Wartime*, Issue 44, 2008).

*Most bodies recently found at Fromelles still have pouches full of ammunition, suggesting that they barely lived long enough to fire a shot.*

Most bodies recently found at Fromelles still have pouches full of ammunition, suggesting these soldiers barely lived long enough to fire a shot. The men who survived were ordered to move forward and to capture the single German line. The Germans had built a line of earth embankments, not trenches, because the ground there was waterlogged. The Australian troops got lost in the landscape and became separated. During the evening,

they huddled in small groups in craters, while the German troops returned from their fortified ridge and surrounded them. The slaughter is remembered as the greatest loss by any one division in a 24-hour period during the entire war.



**Video**  
**Source 9.49A**  
Australians on the Western Front



**Additional content available:**  
Two dedicated historians who pursued the truth about Fromelles



▲ **Source 9.49** An Australian Digger killed in the German second line, held throughout the night by the 5th Australian Division during the Battle of Fromelles

## ACTIVITY 9.3



### Using historical sources as evidence

There are thousands of letters, diaries and memoirs surviving from the battlefields of World War I, of which the most famous is the German soldier's account by Erich Maria Remarque, *All Quiet on the Western Front* (1929). Among the many memoirs by Australian troops, one of the most detailed, convincing and terrifying accounts is Walter Hubert Downing's *To the Last Ridge*.

This work qualifies as a *primary source*, because it was written by a witness who was actually fighting in the trenches, and who wrote down his recollections shortly after the event, when we might expect his recollection to be quite accurate. He probably wrote quite detailed notes while at the Western Front, and then wrote them up into book form when he returned to Melbourne in 1919. The book was published in 1920.

Downing records that the mud of the trenches was already full of the bodies of soldiers who had been killed before he arrived:

The dead lay everywhere. The deeper one dug, the more bodies one exhumed [dug up]. Hands and faces protruded from the slimy, toppling walls of trenches. Knees, shoulders and buttocks poked from the foul morass. Here had been a heavy slaughter of English lads four days before ... There were also German dead, but it was hard to tell them from the rest, for khaki is grey when soaked and muddy.

▲ **Source 9.51** Walter Downing, *To the Last Ridge*, 1998, p. 17

Downing confirms from his direct experience that the Australian troops literally walked out into the open ground of no man's land and straight into machine-gun fire, which cut them down in their hundreds:

The 60th [regiment] climbed on the parapet [front wall of the trench], heavily laden, dragging with them scaling ladders, light bridges, picks, shovels and bags of bombs. There was wire to go through, and sinking ground, a creek to cross, more marsh and wire; then the German line. Scores of stammering German machine-guns spluttered violently, drowning the work of the cannonade [shelling]. The air was thick with bullets, swishing in a flat lattice of death. There were gaps in the lines of men – wide ones, small ones. The survivors spread across the front, keeping the line straight. There was no hesitation, no recoil, no dropping of the unwounded into shell holes. The bullets skimmed low, from knee to groin, riddling the tumbling bodies before they touched the ground. Still the line went on. Hundreds were mown down in the flicker of an eyelid, but still the line went on, thinning and stretching. Wounded wriggled into shell holes or were hit again. Men were cut in two by streams of bullets. Fifty-six remained of a full thousand. It was over in minutes.

▲ **Source 9.52** Walter Downing, *To the Last Ridge*, 1998, pp. 8–9

Downing also joined in smaller attacks called trench raids. He recorded that some men took joy in finally engaging with the enemy and killing him. He also recorded some of the comments made by Germans and Australians in the heat of the killing:

In a few seconds we were through the remnants of the [barbed] wire ... There were cries of 'Share that among you', as a shower of bombs fell in the trench. The appeal of 'Mercy kamarad' [friend, comrade] was dismissed with a curt 'No kamarad of mine, son!' or the sardonic 'You're just two years late'. Knobkerries [clubs] and bayonets were hard at work. A cry was heard, 'No, no Englander, I haf seven kinder.' [children] 'That's to make sure you don't have seven more.' Crash went a bomb [hand grenade] and vmm-m-m went the fragments ... No living thing was left behind us in that trench.

▲ **Source 9.53** Walter Downing, *To the Last Ridge*, 1998, p. 34



▲ **Source 9.50** Walter Hubert Downing





Downing is very frank in admitting that, as the cruel winter of 1917 set in, he and his mates began to worry about death, and to doubt their country:

We just go out into the line again and again until we get knocked [killed]. We'll never get out of this. Just in and out, in and out, and somebody stonkered [killed] every time. Australia has forgotten us, and so has God. I wouldn't wish my worst enemy to have to put up with this life. But we've got to go, and why shouldn't they too?

▲ **Source 9.54** Walter Downing, *To the Last Ridge*, 1998, p. 34

## Responding to the source

Research the life and career of Walter Hubert Downing by examining his war record on the Australian War Memorial website. If possible, read a selection of chapters from Downing's *To the Last Ridge*, either from the hard copy book or from an electronic version.<sup>12</sup>

- 1 Describe this source. Who created it, and when was it created?
- 2 Consider the dates of Downing's service, and evaluate the extent to which you think he is able to give a complete account of all the great battles of World War I.
- 3 Consider the places and the battles where Downing served and fought. Do you believe that Downing experienced the true nature of the savage fighting of trench warfare in World War I?
- 4 Read Downing's description of the trench raid. He often describes that men running into battle experienced a 'fierce ecstasy' and enjoyed killing the enemy German soldiers. What are some of the other reactions of men and women placed in such a dangerous situation as war?
- 5 Downing's descriptions contain many precise details of the names of shells and bullets, and even of the sound they made. Why was this necessary knowledge for every soldier to survive in the trenches?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.2



### The contestability of historical evidence: Australian war photographer Frank Hurley

We usually assume that photographic primary sources, being snapshots made on a camera, are a reliable source of information. As historians, however, we need to be careful before assuming that any source can be taken literally.

The career of the photographer-adventurer Frank Hurley (1885–1962) highlights the problems of making visual records of war. In reality, battles simply happen too quickly to be recorded properly. Hurley was determined to use his photography 'to illustrate to the public the things our fellows do and how war is conducted' (Jennifer Wellington, *Exhibiting War: The Great War, Museums and Memory in Britain, Canada and Australia*, 2017, p. 79).

He volunteered to the AIF as a Captain, and went to the front, risking his life among the savage fighting of the Third Battle of Ypres. He took terrible risks: a photograph of 12 October 1917 proves that he went to a deadly spot called Hellfire Corner. This was exposed to German shells, and very dangerous. He could not risk standing up to click the button on the camera as a shell exploded; he would have



▲ **Source 9.55** Frank Hurley in his uniform as an official war photographer in June 1917



<sup>12</sup> An electronic version can be found on the National Library of Australia Trove website. This source can also be accessed as an audiobook on the Trove website.



been cut to pieces by shrapnel. To give an accurate impression of this dangerous stretch of road, he photographed it when safe, and then later, in the studio, added another photograph of an explosion.

He recorded his experiences in a written personal diary and in his photographs, including colour images and great panoramas of the battlefields. He took photographs and wrote the following description of troops 'going over the top' at Zonnebeke in October 1917:

4 October 1917: Punctually at 6 a.m. our infantry attacked along an eight mile front after first it had been battered by our artillery barrage. By a remarkable coincidence the Boche [Germans] had also planned a counter attack at precisely the same hour: but our frightful barrage descended & absolutely demoralised & almost annihilated his attacking line. Our infantry followed up in three waves, the barrage being lifted for each attack & carried all objectives. We penetrated his line over 1000 yards ahead of Zonnebeke & gained the commanding ridge, which places us in a very gratifying [good] position. The enemy are now on the slope of the ridge immediately ahead & we look down on him. About 3,000 prisoners were captured & several machine guns. Our casualties regrettably were higher than usual. The battle was fought in a misty rain – heavier falls having taken place overnight, so that the entire battlefield was a great quagmire of mud. It's marvellous what conditions our fellows can & will fight under. There are no troops in the whole fighting force equal to the Australians for storming troops. I went into Zonnebeke during the day to try & get pictures but it was being so heavily shelled that we (Joyce & myself) were fortunate to escape injury. The entire country is ploughed into waves of pulverised muddy earth, the craters being filled with water, so that it is extremely difficult to move about. During a battle the whole back area is [busy] with fatigue parties & stretcher-bearers, streams of prisoners under escort, Supply Columns, etc. Shells burst in places where the Hun knows there are likely to be numbers of men: but the work goes on & the whole process continues, as though some great game was being enacted. I don't know whether one becomes callous or turns a fatalist, for the wounded & dead scarce make any impression, & one is absolutely heedless of the fact that his turn might be next instant. It's a damnable business. I wake up in the morning as though I had passed through some weird wild dream. It's impossible to realise that men are just murdering each other around you, & that you are in the heart of a great battle. The frightful roar of artillery & scream of shell though brings one to reality, but even it passes off as soon as you leave the scene of battle, & when I am back again in my cosy room at Steenvorde, I quickly forget the horrible doings of the day & after a good dinner, develop my plates & then turn in with no more thoughts for the day, than if I had been at business all the while, & had just returned from a late evening working overtime!



▲ Source 9.56 Hurley's original image

▲ Source 9.57 Frank Hurley, quoted in State Library of New South Wales, *Frank Hurley War Diary, 21 August–28 October 1917*, 2019

### Witness to war?

Given the efforts Hurley made to engage closely with the fighting and to record it, his work is surely a reliable primary source. But Hurley's work caused criticism. He was seriously challenged when, in 1918, his exhibition *Australian War Pictures and Photographs* contained images that were montages, photographs that had things added that were not in the original snapshot.

For war correspondent Charles Bean this meant that the photographs were not accurate, but fake. In October 1917, the Australian army ordered Hurley not to produce composite images. He resigned (briefly) in protest. Hurley argued: 'to get pictures one must go into the hottest and even then come out disappointed. To get war pictures of striking interest and sensation is like attempting the impossible' (Daniel O'Keefe, *Hurley at War: The Photography and Diaries of Frank Hurley at War*, 1986, p. 50). He argued that battles move so quickly that no single snapshot can include everything.





In the doctored (altered) photograph shown in Source 9.58, Hurley combined two things – the troops beginning to attack, with planes overhead – to give an overall impression of what happened.

### Research and discussion

Frank Hurley's photographs are an example of how a process of 'faking' could result in telling a greater truth about a battle.

Research his photographs, and decide to what extent

Hurley really faked his pictures. In class or group discussion, draw your own conclusions as to whether you would accept Hurley's work as a reliable primary source. Which aspects of his career seem to make him a reliable witness and his photographs useful primary sources? What are the problems with Hurley's alteration of his photographs?



▲ **Source 9.58** Hurley's second image; the original image (shown in Source 9.56) can be seen to the bottom right of the second image.

### Responding to the sources

- 1 Describe these sources. Who created them, and when were they created?
- 2 What did Frank Hurley do to maximise his direct experience of the fighting in the trenches?
- 3 How did Hurley discover that even the modern camera was not able to capture all aspects of a battle?
- 4 After having looked at Hurley's photographs, would you have supported Hurley against Charles Bean's criticisms? If so, why?



**Key concepts:** sources, evidence, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

▼ **Source 9.59** Australian wartime artist Will Dyson sketching his impressions of the war in France in 1918



### Additional content available:

Will Dyson: a critic of warfare who volunteered for the Western Front.



## Changes in war require a new way of writing its history

The very nature of World War I – the large number of nations involved, the numerous different fronts, the enormous number of troops participating – made it one of the most

complicated wars ever. This meant that the old-fashioned way of writing history was no longer good enough. Previously, historians simply described how each battle went; now, the task was more like trying to describe an enormous, moving jigsaw puzzle. The best historians understood that they must write about war in a new way.

### KEY HISTORIAN

#### **CAPTAIN CHARLES (C.E.W.) BEAN**

For Australia, one of the most significant historians was Sir Charles Bean. Soon after the outbreak of war, he was appointed official war correspondent to the Australian Imperial Forces (September 1914), and served with the rank of Captain in every area where Australian troops fought. He observed Australian troops under fire at Gallipoli, and then on the Western Front in Europe, with the exception of just one battle.

Insofar as he was present to witness events directly, and was specifically required to keep accurate records, Bean is both valuable and reliable as a witness. His greatest work is his *Official History of Australia in the War of 1914–1918*.

Bean's new style of history was not just detailed: it was much more careful and analytical. He realised that modern warfare is fast-moving and therefore confusing. In particular, communication is difficult, so there are misunderstandings between the troops at the front and other forces, such as the air force and artillery backup. He saw how, in some cases, a simple mistake of a few minutes in the timing of an artillery bombardment allowed the enemy to recover and be ready to kill thousands of troops.

He also realised there was a serious problem in gathering evidence from troops who only saw a small part of the larger battlefield. He could certainly interview men about what they had seen, but their view might be limited, or simply wrong. If the men were still in shock from violent fighting, or shell-shocked by the impact of high explosive, their evidence was even more doubtful. In essence, Bean turned History from being an act of recording to an act of investigation and careful analysis.



▲ **Source 9.60** Charles Bean (front row, far right) as a war correspondent in France, 1916

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.3



### Cause and effect

Create a timeline of Australia's involvement in World War I. Be sure to include dates, place names and images to go with your work.



**Key concepts:** continuity and change, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



#### Additional content available:

Weblinks for this research task.

## ACTIVITY 9.4



### Research task

- 1 Briefly describe Albert Jacka's family background and education.
- 2 Investigate the dangerous conditions that Australian soldiers faced at Anzac Cove during the Gallipoli campaign (1915). What did Jacka do to win the first Victoria Cross (VC) ever awarded to Australian forces in World War I?
- 3 Investigate the Battle of Pozieres on the Western Front (France). Explain why this was one of the most dangerous, and bloodiest, battles fought by Australian troops.
- 4 Investigate the savage debate about conscription that erupted in Australia during World War I. How was Jacka's name and fame misused during this debate?
- 5 Investigate how Australia's great war historian, Charles Bean, described Jacka's style of leadership. Why did his men admire him? Why did his superiors dislike him?
- 6 Investigate Jacka's leadership skills and explain why an ordinary working man could rise so quickly to become an officer.
- 7 Investigate the early controversy about the award of the VC to Jacka. Why have some thought this might have been caused by British snobbery towards Australians? What have historians found to be the true cause of this initial refusal?
- 8 Why did Jacka finally have to leave the Western Front in 1918?
- 9 How was Jacka greeted upon his arrival back in Australia?
- 10 Although Jacka is still described as 'Australia's greatest front-line soldier' for his bravery in battle, historians do know that he did on occasion make mistakes. In your opinion, does this decrease his standing as a national hero?



**Key concepts:** sources, evidence, continuity and change, significance, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



#### Video

#### Source 9.60A

Extracts from  
*The Australians'*  
*Final Campaign*  
*in 1918*



**Additional content available:** Worksheet on *The Australians' Final Campaign in 1918*

## END OF SECTION REVIEW 9.5



### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook



#### Recall

- 1 When and why did Australia fire the first shot in World War I?
- 2 What were the conditions at Gallipoli that made it so dangerous for Allied troops?
- 3 How did the Australian Light Horsemen capture the heavily fortified town of Beersheba?





## Interpret

- 4 Why is the Battle of Fromelles remembered as the most wasteful and tragic episode in Australian military history?



▲ **Source 9.61** Anzac tributes in State War Memorial in Kings Park on Anzac Day 2020. Traditional Anzac Day ceremonies were cancelled due to the COVID-19 restrictions on gatherings of people.

## Argue

- 5 Explain how historian Charles Bean developed a new and more effective way of writing about the experience of war.
- 6 Explain how one famous painter, photographer or writer used his or her skills to go to the front and record the experiences of soldiers in the trenches.

## Extension

- 1 Investigate the military career of Sir John Monash and decide whether he deserves to be seen as a general who had the creativity and inventiveness to better organise his troops for battle.



**Key concepts:** evidence, cause and effect, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 9.6 The nature of warfare during World War I

### FOCUS QUESTIONS

- Why was World War I quite different from the 'traditional' wars of previous centuries?
- What were the special conditions on the battlefields of World War I?
- In what ways did new weapons change the nature of fighting in this war?

### Why was World War I so destructive?

War is always, by its nature, violent and destructive. World War I was especially tragic because of the large numbers of people involved and the invention of new and terrible weapons. Some of these weapons, such as artillery and machine guns, already existed, but were now developed to be even more murderous. Human beings' ability to kill each other was multiplied a thousandfold. Then, under the pressure of a desperate war that dragged on without victory, further weapons – such as poisonous gas and flame throwers – were invented. These weapons created even more cruel and horrific forms of death on the battlefield.

### The image: a traditional war, over in a few months

The generation that entered World War I could have had no idea of the terrible nature of modern warfare. They assumed that war would be like the famous nineteenth-century battles, as shown in popular military paintings. Every student in every schoolroom saw heroic images of dashing cavalry charges made by powerful men in splendid, colourful uniforms, riding superb horses. In Australia and elsewhere, people thought that the war would begin, battles would be fought on battlefields, and then the conflict would be over in a few months.

▼ **Source 9.62** When people in 1914 thought of war, they pictured heroic charges and glorious victories, for instance as depicted by Lady Jane Butler in her battle paintings. Families admired these works in public art galleries, and schoolchildren gazed at black-and-white reproductions of them on classroom walls.





▲ **Source 9.63** Even the generals, accustomed to the earlier fast-moving warfare on battlefields, struggled to adjust to modern warfare. French generals resisted suggestions to buy modern weapons, such as machine guns, insisting that the fighting spirit of their troops was enough. This poster from 1916, showing a brave French soldier surging forward with only rifle and bayonet, was seriously out of touch with the realities of static trench warfare. Fighting spirit was helpless against machine guns and cannon.

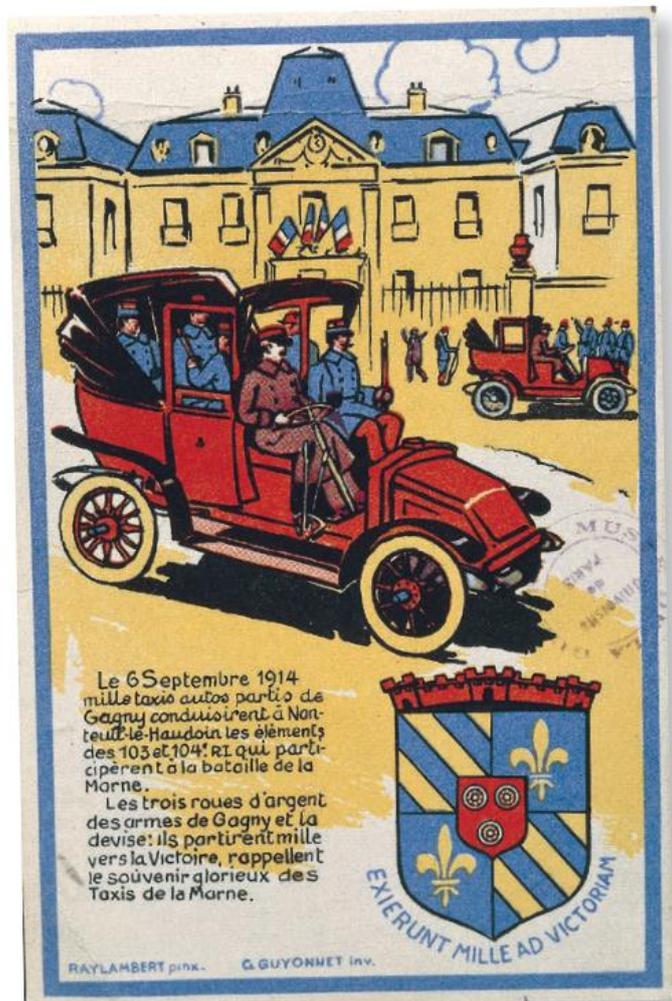
### Amazing but true ...

War had broken out so quickly that the French army did not have enough military trucks to move all its men north to meet the Germans. Since this was urgent, the government ordered every taxi in Paris to report for duty and drive the soldiers to meet the enemy. Some taxi drivers even switched on their meters and tried to charge the soldiers a fare upon arrival!

### A fast start

Initially, the war was one of fast movement. Germany used the Schlieffen-Moltke Plan, a detailed campaign to invade France and quickly defeat it before Russia could organise itself to enter the conflict. The plan succeeded. Germany's army invaded neutral Belgium, overcame that country's brave resistance, then invaded France, rapidly approaching Paris.

But the French army met the threat, and defeated the Germans at the Battle of the Marne (6–12 September 1914). German losses were so massive that the government never dared publish casualty figures. The German army retreated in chaos and dug defensive trenches. The later Battle of the Aisne marked the beginning of trench warfare.



▲ **Source 9.64** Taxis taking French soldiers to the front

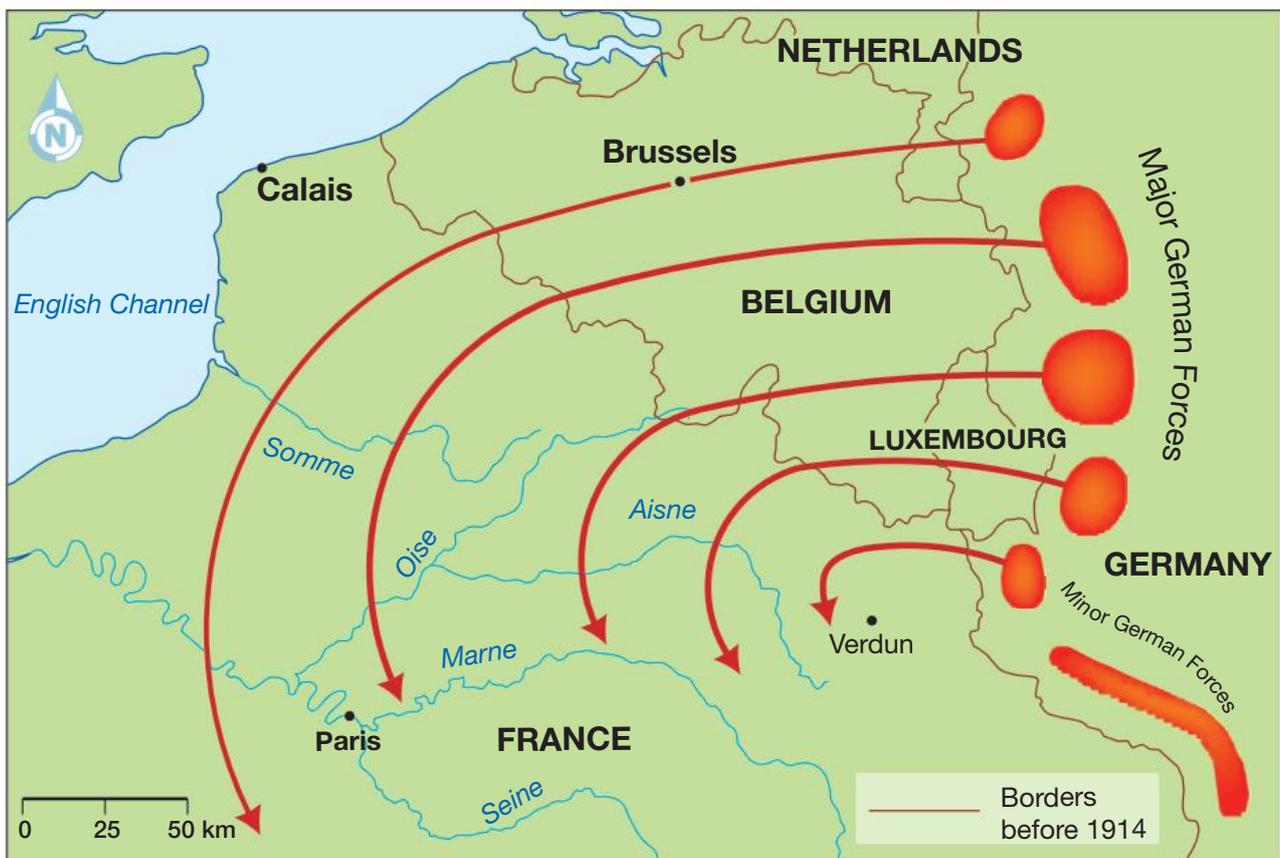
## Germany's Schlieffen-Moltke Plan

As early as 1905, Count Alfred von Schlieffen had drawn up a plan in case Germany went to war with both France and Russia. To avoid dividing his army to fight on two fronts, von Schlieffen aimed to attack France first and defeat it quickly. He would then focus on defeating Russia, as Russia would take longer to mobilise its army. To avoid heavy French defences on its border with Germany, the German army

would need to invade France by passing through neutral countries.

## The reality: stalemate and trench warfare

By late 1914, the 'war of movement' was replaced by a 'war of entrenchment', when opposing armies dug defensive positions called trenches and settled down to a long fight. The nature of war had changed forever. With some exceptions, the dashing cavalry played no role in these conditions.

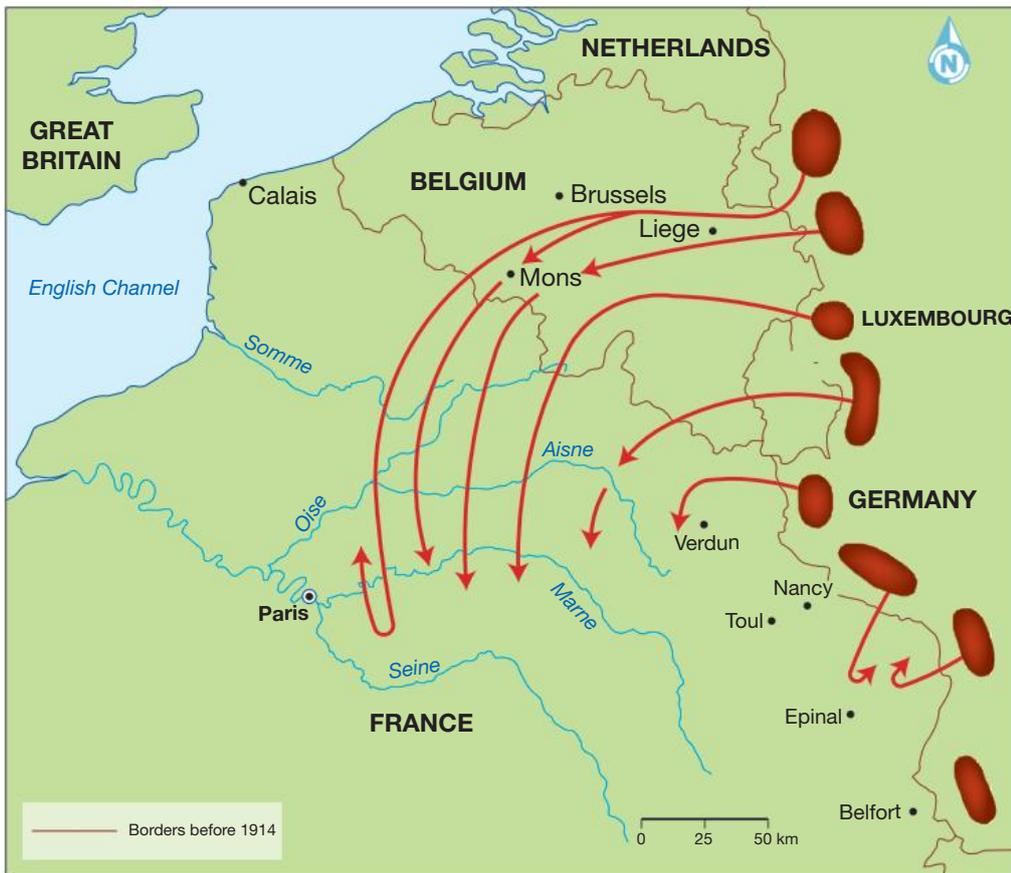


▲ Source 9.65 Germany's Schlieffen-Moltke Plan

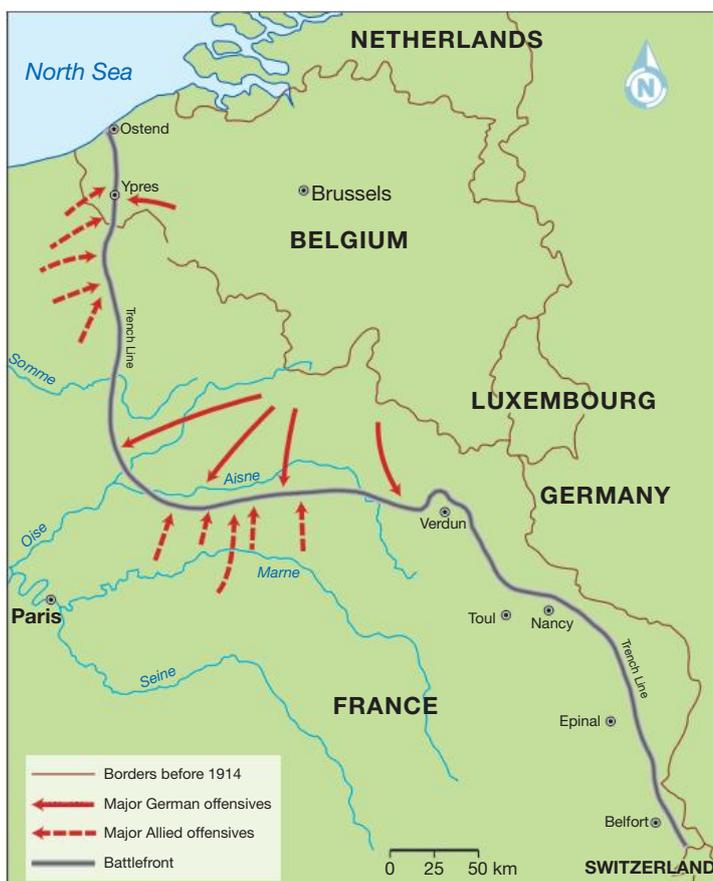
## ACTIVITY 9.5

### Using historical sources as evidence

- 1 Looking at Source 9.65, which two neutral countries would be most heavily affected by Germany's invasion?
- 2 Using Sources 9.65 and 9.66, why were fewer German forces sent across the border into France?



▲ **Source 9.66** Germany's Schlieffen-Moltke Plan in action, 1914



▲ **Source 9.67** The development of the stalemate, 1914

# THE LANDSCAPE OF DEATH: TRENCH WARFARE IN WORLD WAR I

The development of trench warfare forced all the powers into a deadly process of trying to defeat the enemy by killing as many soldiers as possible, using as many existing and new weapons as possible; this was called a War of Attrition. The landscape of death, shown here by a modern artist, was often referred to as 'Hell on Earth'.



The rapid development of artillery – especially the increasing range of shells and the size of their explosions – meant that artillery barrages could continue for days, pulverising the enemy's trenches and the troops within them.



Women played important roles on the Western Front. This included being nurses at medical posts or as drivers of lorries. They were often dangerously close to the firing line.

**Source 9.68** An artist's representation of trench warfare in World War I

The deep, sticky mud of the Western Front was not just dirty but dangerous. For example, at the Third Battle of Ypres in Belgium, relentless rain and the churning of the ground by ceaseless shelling made death by suffocation in the mud a real possibility. Survivors mentioned wading through waist-high mud and having their boots sucked down into the earth.



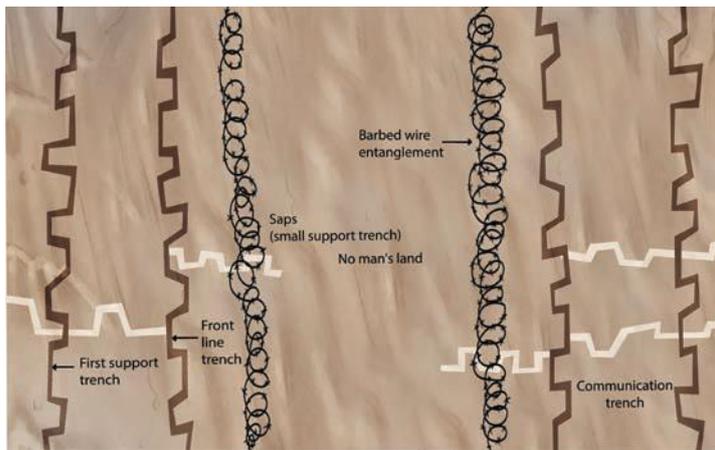
No man's land



The armies lost almost as many men to illness as to fighting: the trenches were infested with rats, which carried diseases and also fed off the dead bodies lying out in no man's land.



The lack of laundry and bathing facilities meant that soldiers' uniforms were always infested with biting lice, causing constant misery and discomfort.



▲ **Source 9.69** An aerial view of a trench system showing two opposing sides. The trenches stretched some 750 km from the Channel coast in Belgium and ran all the way to the French border.



▲ **Source 9.70** A cross-section diagram of a trench

## Technologies of making trenches

All armies developed sophisticated techniques for building trenches. The first was sapping, which involved digging into the ground to create a passageway. The sides of the trench would be held up with beams of woods. These trenches were usually around 3 metres deep.

**no man's land** the contested strip of land between enemy trenches on the battlefields of World War I

The second technique was tunnelling, to allow troops to go under **no man's land**, either to rescue the wounded or to surprise attack the enemy.

The third technique was sandbagging: in some places, the ground was not good for digging, and so soldiers built up a wall of sandbags filled with

heavy clay. These trenches were better because they were not likely to flood during the winter.

Because attacks could be both sudden and intense, there needed to be multiple layers of trenches. The first was the front-line trench, from which soldiers fired at the enemy. Next was the support trench, then behind that a reserve trench, for use if the troops were suddenly driven back by a massive attack. The fourth type of trench was a communication trench, which provided a protected passage between the front and rear trenches, which allowed men, weapons and food supplies to be moved up to the men at the front.

Soldiers often found the digging of trenches to be the hardest labour of all. The trenches had to be big – about 2 metres wide and 3 metres deep – which required the removal of enormous amounts of earth. The construction of just 250 metres of trenches would have made the soldier in Source 9.71 and 450 other men work hard for six hours. When we consider that about 2490 km of trenches were built in World War I, we can understand the massive, and exhausting, task they faced.

▼ **Source 9.71** A modern artist's representation of a typical British soldier, commonly referred to as a 'Tommy'



## MAKING THINKING VISIBLE 9.2



### See, think, wonder

Closely analyse the trench warfare images on the previous few pages.

#### What do you see?

- 1 What does Source 9.70 tell you about the way trenches were constructed?
- 2 What does Source 9.68 show you about the main dangers of going out into no man's land (the space between enemy trenches)?
- 3 How does this image help you understand the role of the aeroplane in this type of trench fighting?
- 4 How did soldiers overcome the problem of fighting an enemy they could not even see because of the trench system?



▲ **Source 9.72** The observation balloon provided valuable early warning about enemy troop movements, but was vulnerable to being shot down by enemy planes. The balloonists were given a parachute, and were told to jump out before their balloon was hit.

#### What do you think?

- 5 What might have been some of the main dangers involved in digging tunnels under no man's land?
- 6 Which military vehicle was invented (not pictured) that finally made it possible for soldiers to go out into no man's land with some degree of protection?
- 7 Why do you think this muddy landscape became even more dangerous for soldiers during the winter?
- 8 What were some of the dangers soldiers faced if they were wounded while out in no man's land?

#### What do you wonder?

- 9 Given the improvement of existing weapons and the invention of deadly new ones, why did the war drag on for so many years?
- 10 What might have been some of the physical and psychological effects on soldiers who were involved in this savage fighting?
- 11 How do you think men and women would have coped with the constant fear of injury and death?
- 12 By 1916 more than 40 per cent of casualties in the war were believed to be suffering from shell shock. Referring to Source 9.73, to what extent do you think army commanders were able to understand and deal with the true nature of shell shock? How did this affect the way they handled shell-shocked soldiers?

► **Source 9.73** The damaging impact of repeated explosions upon the human brain was a condition called shell shock. The term was coined by the British doctor Charles Myer to describe the mental trauma experienced by soldiers from trench warfare, with its constant battle and casualties. There were physical symptoms, like insomnia, damage to the central nervous system (which caused symptoms like tremors), as well as damage to hearing and sight. But it was also a psychological condition of trauma that was not understood at the time; soldiers who were shell shocked were often dismissed as cowards.



**Key concepts:** sources, evidence, cause and effect, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.4

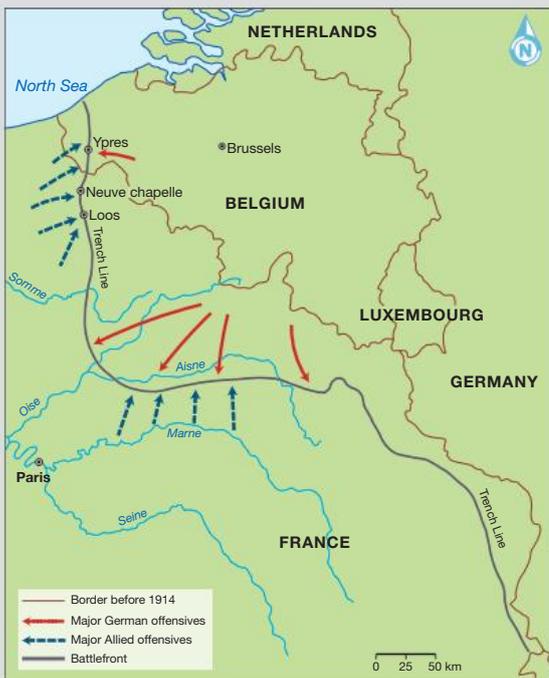


### Analysing maps

While the common soldier hiding in the trenches could have no overview of the whole battle unfolding around him, the historian must be able to measure and analyse how a battle unfolded. For this purpose, maps provide crucial graphic information about the unfolding stages of a battle or a campaign. Please note that the following maps can be zoomed in on in the digital versions of this textbook.

### The changing Western Front

#### Source A



▲ Source 9.74 The Western Front in 1915

#### Source B



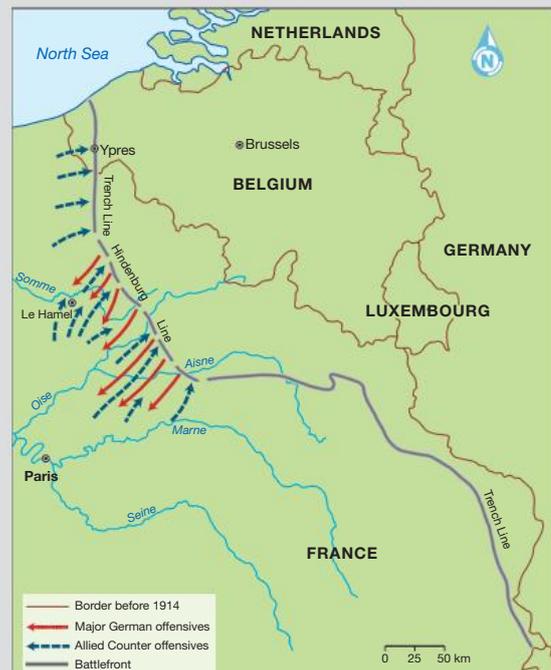
▲ Source 9.75 The Western Front in 1916

#### Source C



▲ Source 9.76 The Western Front in 1917

#### Source D



▲ Source 9.77 The Western Front in 1918





- 1 Using Source 9.74, in which area was the Allied offensive quite successful in holding back the German advance?
- 2 Using Source 9.74, in which area was the Allied offensive less successful in holding back the German advance?
- 3 Using Source 9.75, in which area did the Allies make the most significant advances into German territory?



**Key concepts:** sources, evidence, cause and effect



**HASS skills:** analysing

## Some new concepts in modern warfare

### Static warfare

World War I involved static warfare, in which the opposing forces settled into defensive positions, unable to make significant advances. In some battles, thousands of men died, without capturing even 1 metre of enemy territory.

### Some key battles of 1916–17

As the war settled down into **stalemate**, the armies involved threw their troops into desperate attacks to try to achieve a decisive victory. The Battle of Verdun (21 February–18 December 1916), for example, was a massive German attack on the French fortress town of Verdun. The French army lost 550 000 men as casualties (that is, killed, wounded or missing). French troops were also traumatised by a mass mutiny in which many troops were tried and executed for refusing to fight any more. The German army had around 430 000 casualties.

In the Battle of the Somme (1 July–18 November 1916), the British and the French combined for a mass attack on German lines. Over the next five months, the battle caused nearly one million casualties in total, on both sides. This was the British army's greatest military tragedy in history: 57 000 casualties on just the first day of the attack, with 19 240 killed.<sup>13</sup>

**stalemate** a situation in which armies have attacked each other but failed to achieve a definite victory for either side, and have settled down into defensive positions such as trenches

The Third Battle of Ypres (31 July–10 November 1917) was a British attack on the German defences in Flanders. General Haig's plan to capture strongpoints such as the Messines Ridge and the village of Passchendaele made good sense strategically. However, heavy winter rain turned the land into a death trap of mud, and the attack broke down into exhausting, pointless fighting in impossible conditions. It was a battle that soldiers on both sides remembered with absolute horror.

<sup>13</sup> To learn more about the key battles of World War I, visit the Imperial War Museums website and search for '10 Significant Battles of the First World War'.

▼ **Source 9.78** A Canadian soldier at the village of Passchendaele, Third Battle of Ypres, 1917



**war of attrition** after the development of stalemate, enemy armies stop trying to win a decisive victory and just attempt to wear down their opponents by killing as many as possible, hoping that the casualty rate and the psychological effect might cause an enemy's war effort to collapse

**total war** a war that is no longer limited to the traditional battlefield but extends to attacks on civilians in cities and involves civilians in the making of ammunition

## A war of attrition

World War I became a **war of attrition**, a conflict in which neither side could win a decisive victory to end the war. This forced both sides to try to wear down their enemy by killing as many soldiers as possible.

## The idea of total war

World War I became a **total war**, a conflict that went beyond the battlefield to target civilian populations in cities.

This was not completely new: during the American Civil War, armies had attacked enemy cities. With new, more powerful weapons, the enemy made devastating attacks on undefended civilians. German battleships fired shells onto English coastal cities. The German-invented Zeppelin (a powered hot-air balloon) flew over inland English towns and bombed them.

This new idea of total war also suggested that governments should have more control over their own people than they would in peacetime, by censorship (controlling information) and economic control of factories and production.

## The expanding conflict: multiple fronts

World War I expanded from one major site (the Western Front in Belgium and northern France) to several theatres (locations) of war.

Italy sided with the Allies in May 1915, and its armies attacked the Austro-Hungarian Empire to the north, forming the Italian Front. In the Battle of Vittorio Veneto (October–November 1918), the Italians defeated Austria's forces.

Russia, then named the Russian Empire, also sided with the Allies, and attacked Germany, forming the Eastern Front. This war proved disastrous for the Russians. Although the vast Russian army fought very bravely, it suffered from poor leadership and lack of supplies. Its losses were catastrophic. In due course, this experience virtually destroyed all of Russia's existing professional army, forcing it to fight with an untrained army of new recruits.



▲ **Source 9.79** This poster, issued by the American Government in 1915, shows the difference silhouettes of German versus British airships, to help people recognise enemy airships and take cover as necessary.

The Allies attacked Germany's ally, Turkey (then known as the Ottoman Empire), creating the Dardanelles Front, of which Gallipoli was just one part. The aim was to capture the city of Constantinople (today known as Istanbul) to allow the Allies to transport supplies to Russia. The British, French and Australians suffered heavy casualties in this poorly planned campaign. The Turkish forces suffered even greater casualties in this struggle, that modern Turkish people see as the birth of their own modern nation.

The conflict spilled over to the Middle Eastern front. In the Sinai and Palestine Campaign, Britain's expeditionary force challenged the combined Turkish and German forces and their defensive line from Gaza to Beersheba. This line had been formed to defend the oil resources of the Middle East – which the Royal Navy relied on – from capture. Australian forces, including the Light Horse (foot soldiers who rode into battle on horses), served in this theatre of war.

The War in the Balkans was also a savage conflict. In August 1914, Austria-Hungary invaded Serbia, but the fighting settled down into trench warfare. The British and the French attempted to help the Serbians, while Bulgaria joined the Central Powers' side (October 1915).

Romania joined the Allied side in August 1916. The ancient political, ethnic and religious rivalries of this troubled region became a part of the broader world war. The loss of life in this murderous conflict was, proportionally to the numbers involved, even higher than the Western Front.

Beyond these basic facts, it is almost impossible for the modern reader to imagine the conditions of this new, brutal warfare. We understand trenches and mud and barbed wire, but we cannot feel what soldiers experienced under the massive bombardment of heavy artillery, which often rained down hundreds of high-explosive shells in an hour. The explosive forces involved were so great that soldiers felt as if they were trapped in some mighty killing machine, or perhaps caught in something elemental like an earthquake or volcanic eruption. Trenches and forests were simply wiped off the face of the Earth, men were shredded, while others became insane or ran away in sheer terror.

Frederic Manning, an Australian soldier on the Western Front, noted that the men who volunteered to serve went to war expecting a conflict of the old sort. Nobody had any idea of the deadly dangers that they would face in this new type of war:

No one knew anything about it; it was like one of the blind forces of nature; no one could control it, no one could comprehend it, and no one could predict its course from hour to hour.

▲ **Source 9.80** Quoted in Mark McAndrew et al., *The Great War and its Aftermath, 1914–1921*, 2001, p. 170

## The technologies of death

World War I was very destructive because it was fought with new and terrible weapons developed during the century before the war, when industry produced much more powerful versions of traditional weapons, such as rifles and cannon.

Human invention and its technologies always move forward, but in times of war the urgent need to win the conflict pushes technological change at a much faster rate. Existing military weapons were developed to their most deadly form.



**Additional content available:**  
Worksheet on comparing French and German perspectives on the war



To read more about the deadly technological advances in World War I, access the Interactive Textbook. There you will find more detailed information, primary sources images and activities, on:

- heavy artillery and shell shock
- the machine gun
- snipers
- the war at sea and the Dreadnought
- the armoured tank
- the use of poisonous gas
- flamethrowers
- the war in the air and the birth of the fighter plane and the bomber
- the brutality of hand-to-hand fighting
- new tactics: underground warfare.

▼ **Source 9.80A** A cemetery for World War I soldiers



## END OF SECTION REVIEW 9.6

### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.

#### Recall

- 1 What was the Schlieffen-Moltke Plan?
- 2 In which battle did static trench warfare begin?
- 3 What is a 'war of attrition'?
- 4 What is meant by 'total war'?

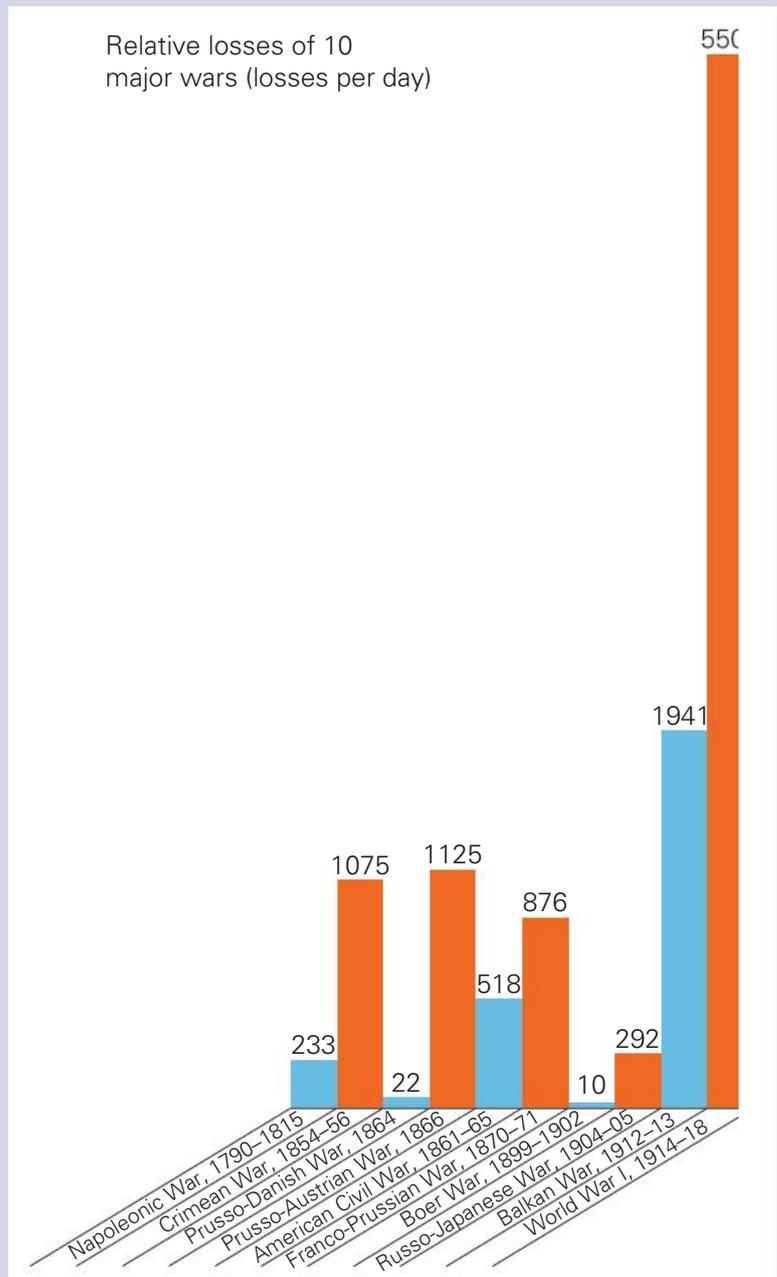
#### Interpret

- 5 What is the role of maintaining World War I memorial cemeteries? In what way do they provide a more 'human' story of the Western Front?

#### Argue

- 6 'Human technology is always developing, but the pressures and demands of war tend to speed up this process significantly.' Explain why this is so, providing examples from the technologies of death in World War I, and with reference to Source 9.81.

### LOSS OF LIFE PER DAY



▲ **Source 9.81** Graph of relative losses of life per day across 10 major wars leading up to and including World War I

### Extension

- 1 Investigate the new technologies invented during World War I, and explain which one was arguably the most important in bringing the war to an end.



**Key concepts:** sources, evidence, significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 9.7 The impact of World War I on Australia: the changing role of women and the creation of the home front

### FOCUS QUESTIONS

- How did Australian women contribute to Australia's war effort?
- How was the war experienced on the Australian home front?

### Historians uncover the true role of women in conflict

Traditionally, the writing of the history of any major event, such as war, has a serious blind spot: the role of women is forgotten or seriously underestimated. This is partly due to a careless assumption that the great public events of any time are driven mainly by men, while women stay at home, in what is known as the private sphere, and play no role. Historians now know that we cannot afford to write half-history: a history of just 50 per cent of the population is no real history at all.

### New histories discover the real roles of women

Women in 1914–18 were often restricted by the societal beliefs from the period about what they were capable of doing. This does not mean that they did nothing. The important discipline of Women's History uncovers stories of what women really experienced and did. Feminist History also analyses the power relationships between men and women. These two disciplines have helped uncover how much women really did during World War I, despite not being allowed to fight. These new histories do not aim to underplay the role of men. Instead, they aim to do justice to the often neglected or forgotten roles of women.

To illustrate this point, do some research of your own. Australian women served as nurses from 1914 to 1918. How many years was it before there was a memorial monument created in Canberra to recognise their service? When you have your answer, you will understand about the silences of History.

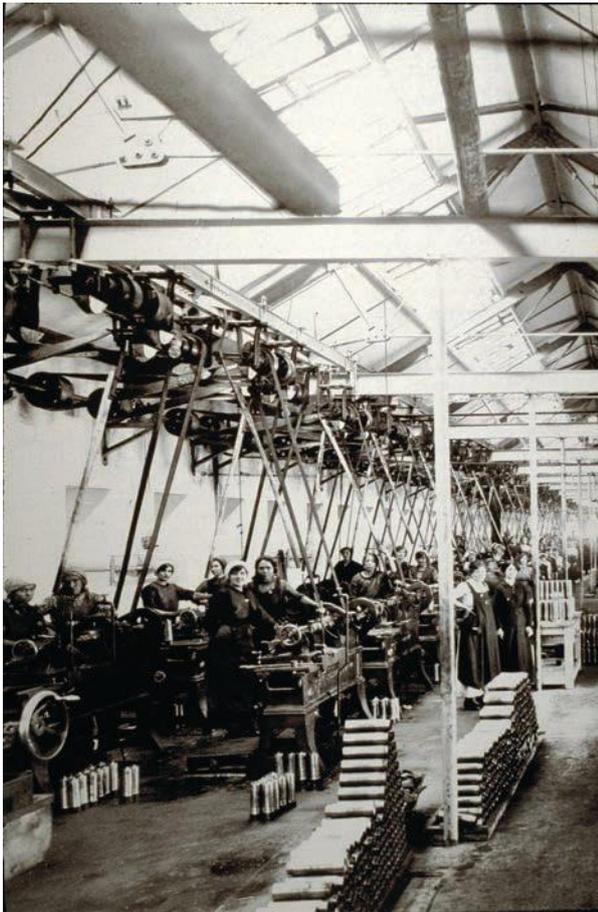
### The contribution of women in Britain

It is only when historians start investigating women's roles in war that we realise their enormous contribution to the war effort. The statistics speak for themselves.

▼ **Source 9.82** This poster by Paul Honoré was published in America to encourage women to enlist for auxiliary services and labouring jobs on the home front. His wording is interesting because his reference to 'woman-power' anticipates later feminist ideals.



"THE SPIRIT OF WOMAN-POWER"  
**WOMEN**  
 Serve Your Country Where You Can  
**REGISTER APRIL 27-MAY 4**



▲ **Source 9.83** (Left) Women working in a munitions factory (Right) British poster 'Women are working day and night to win the war'

### Women keep up the supply of weapons to the front

In Britain, because many men went to the front, women's employment in the transport industry increased 555 per cent. These women did equal work, but were paid 50 per cent of men's wages. They also went into weapons factories, and by 1917 were producing 80 per cent of the weapons being made for the army. Other women entered the more dangerous shell factories, handling the poisonous explosive TNT without protection. In time, this chemical turned their skin bright yellow. These women were referred to as 'the canary girls'. Handling a live artillery shell required great concentration, because any mistake could cause a massive explosion. At the Chilwell factory in England, just one careless mistake caused an explosion that flattened the entire building and killed 134 workers. As a result of women's work, the vital supply of weapons and shells to the soldiers in the field was maintained.<sup>14</sup>

### British women prevent the nation from starvation

By 1915, Germany was trying a new and deadly tactic: using its submarines to sink ships bringing supplies to Britain, hoping to cause the country to starve. By 1917, Britain had only three weeks of food supplies left. Some 200 000 British women stepped in to the new Women's Land Army. Women who were used to a comfortable city life now learnt how to milk cows, plough a field (without a tractor) and harvest a crop of wheat.

### Women keep the British Government running

Another 200 000 women took up positions in the British Government, and proved to be very capable administrators. Women also joined the secret Women's Defence Relief Corps, and learnt to march and use firearms. Initially, this was intended to be a sort of Home Guard, but it was shown that women were perfectly capable in teaching men how to shoot military weapons.

<sup>14</sup> To find out more about women working to create weapons for the front line, read April Madden (ed.), *The Story of the First World War*, 2018.

These women all discovered that they could do a man's job perfectly well, surprising their male employers and making some of them very uncomfortable.<sup>15</sup>

## The military service of Australian women

In Australia, women made a massive contribution to the war effort. Their most obvious contribution to war was in the active service of nursing. Australian women could enlist as nurses, provided they were not married; once they married, they had to resign. Women volunteered to serve because they knew the troops would need nurses and doctors. Nurse Evelyn Davies stated:

I feel that now I have the opportunity, I ought to go. Nurses are badly needed, goodness knows, and someone must do it. I want to do the right thing.

▲ **Source 9.84** Quoted in the Department of Veterans' Affairs, *Gallipoli and the Anzacs: A Resource for Secondary Schools*, 2010, p. 13

## Australian nurses at Gallipoli

Australian nurses did not all work safely behind the lines, far from the fighting. At Gallipoli, they worked so close to the action that they came under direct enemy fire. They continued calmly tending to their patients as enemy shells fell around them. Some of the hospital ships at Gallipoli were so close to shore that they came under Turkish fire. Nurse Daisy Richmond, on the ship *Neuralia*, recalled the moment she narrowly missed a Turkish bullet:

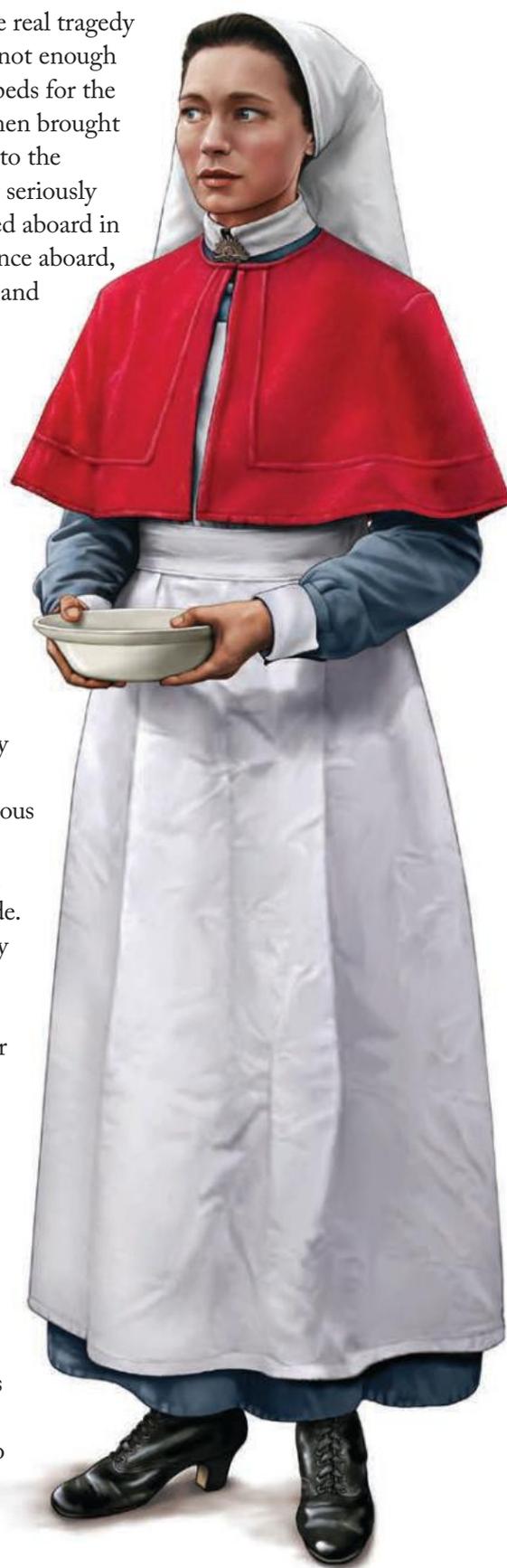
We were well under fire, many bullets coming on the decks. I was speaking to one boy, moved away to another patient when a bullet hit him and lodged in his thigh. It just missed.

▲ **Source 9.85** Nurse Daisy Richmond, quoted in R. Reid, *Gallipoli*, 2014, p. 20

These nurses realised the real tragedy of Gallipoli: there were not enough doctors, nurses or even beds for the hundreds of wounded men brought daily from Anzac Cove to the hospital ships. The most seriously wounded men were lifted aboard in special wooden trays. Once aboard, patients were examined and sorted according to the severity of their injuries. Australian nurses also worked in the Third Australian General Hospital on the Greek island of Lemnos.

## Nurses provided psychological help

Historian Janet Butler has explored more deeply how the nurses assisted their patients. Most obvious was their provision of medical care with a cool, calm, professional attitude. Equally importantly, they offered a particular sort of friendship, both with each other and with their patients. Friendship between nurses helped them deal with the heavy workloads and the distressing scenes of suffering. But the nurses also offered a special friendship to their patients. The men felt free to tell the nurses about their fears, which they could not confide to their mates in the field, and about their sufferings, which they preferred not to share with their families at home.



▲ **Source 9.86** An artist's representation of an Australian nurse

<sup>15</sup> Learn more about women in government during World War I by reading April Madden (ed.), *The Story of the First World War*, 2018.

## Personal accounts of difficulty and trauma

Historians have recently examined the primary sources of nurses' diaries and letters to uncover some startling insights into what these young women, fresh from peaceful homes in Australia, suffered when exposed to the violence of a murderous war. Butler points out that we naturally tend to focus on the trauma, the shell shock and the post-traumatic stress disorder of the soldiers themselves. Nobody checked how the nurses were coping, because they were not the ones wounded. Worse, in 1914–18, nobody understood the shell shock of the men, and the term 'post-traumatic stress disorder' had not even been heard of.

### The story of Kit McNaughton, nurse, 1915–18

The story of Kit McNaughton, who served as a nurse from July 1915, first at Gallipoli then at the Western Front, is just one of many of the young women exposed to unimaginable horrors. On one occasion, McNaughton tended an injured German soldier. She had mixed feelings about doing so. Her thinking changed when she saw that his chest was blown open; she could actually see his beating heart. Despite her care, the young man died.

## Women defy the military ban to serve as doctors in World War I

Equally remarkable is the story of Australian women who went to the Western Front to serve as doctors. Historians Heather Sheard and Ruth Lee have uncovered the story of the 24 female doctors who disobeyed official military policy and went to war as surgeons and medical officers. Typical of them was Dr Helen Sexton, who went to France and opened her own hospital – the Australian Hospital in Paris – in July 1915. The French military was rather more encouraging than the Australian military, and gave her an elegant mansion near the Auteuil Racecourse capable of holding 21 beds.

She quickly had to accustom herself to the truly terrible wounds caused by the high-powered weapons developed during the war. More

importantly, she was able to use her schoolgirl French to question her patients about what had happened to them. She carefully noted their stories, such as that of a young French-Tunisian soldier who had been hit by shrapnel during the Battle of Ypres. Unable to stand, he painfully had inched his way backwards for 4 km by using his elbows to 'walk', instead of his legs. Almost dying of thirst, he crawled under a cow to take some milk, but was only kicked in the head. The authors point out that the very existence of these women, and their brave service, is hardly recognised in any military records.<sup>16</sup>

## Women as industrial workers: the munitions girls

The second important role of Australian women was as industrial workers, when they stepped in to fill the jobs in factories when men volunteered for the front. They had to learn manufacturing techniques unfamiliar to them, and work extremely long hours and in dangerous conditions requiring enormous concentration and care.

These women joined an enormous industry that is little known to modern Australians. It was centred in the western Melbourne suburb of Maribyrnong. This was the heart of a great industrial complex, producing vital uniforms, small arms, bullets and artillery shells. It was known as 'the Arsenal of Australia', and functioned from 1910 until the 1980s. The women who worked there were not just temporarily helping out until the boys came home, but were the industrial workers who helped establish Australia's national war industry.<sup>17</sup>

## Women enter the national debate on conscription

Women also contributed their intellect and their voices to the public debate that erupted in Australia regarding the war and, specifically, the government's proposal to introduce conscription (calling up men for the army).



### Additional content available:

The significance of Australia's munitions production.



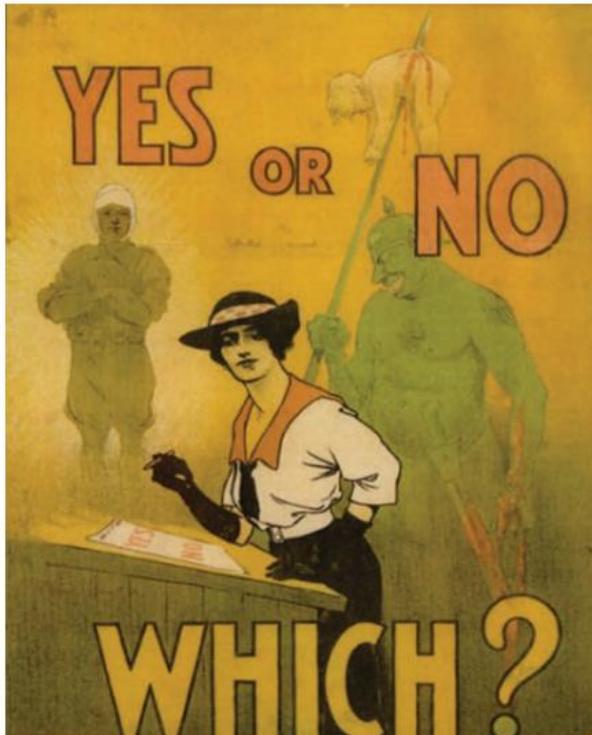
### Additional content available:

The significance of Australia's munitions production

<sup>16</sup> To learn more about female doctors in World War I, read Heather Sheard and Ruth Lee, *Women to the Front: The Extraordinary Australian Women Doctors of the Great War*, 2019.

<sup>17</sup> Some of these buildings have disappeared due to a massive fire in February 2018.

Contrary to common belief, women proved that they could think politically and campaign energetically in the public sphere. Some women spoke passionately at public rallies in favour of conscription, only to be shouted down by returned soldiers, who argued that no man should be made to experience what they had experienced in the trenches. Other women spoke forcefully against conscription, only to be shouted down as cowards and traitors who would not allow the government to send men who were desperately needed.



▲ **Source 9.87** A conscription debate poster aimed at women

## Vida Goldstein

One of the most remarkable voices was that of Vida Goldstein, who was a passionate campaigner for women's rights and a convinced pacifist (opponent of war). She campaigned to serve in parliament, and stated her ambition to be prime minister. She became chairperson of the Peace Alliance, and in 1915 formed the Women's Peace Army. She was the most eloquent voice against conscription.

## Dora Meeson: artist, feminist, women's war activist

The women mentioned above all tried to play their part by working within the official structures of nursing and manufacturing. It is much more difficult to find records of the activities of women who worked on a private level, often going against

the government by criticising it. These activists played an important role, and their actions deserve to be recognised.

Dora Meeson and her husband were also political activists, supporting the ideas of the suffragettes, who were demanding that women in Britain have the right to vote. She painted the union banner for the great Suffrage March of 1908 in London. Her husband marched with her. He was of a like mind, politically, to her. Meeson wrote:

George and I both threw ourselves heart and soul into the suffrage movement ... he was keen on fair play and believed in granting the same facilities to women as to men to further their natural abilities, and he had the very human wish to support anything that would improve the condition of the masses.

▲ **Source 9.88** Quoted in Richard Haese, 'Meeson, Dora (1869–1955)', *Australian Dictionary of Biography*, 1981, p. 50

Meeson was also an activist for women's rights, and a great suffragette. She was in charge of the London Branch of the Australian and New Zealand Voters' Committee.

Meeson was an independent person, refusing to be limited by social traditions. For example, she used to go out painting among the working men of the Thames riverside. It was during her explorations into the London docklands that she got to know the poor working-class families of the area. After the declaration of war in 1914, she was more aware than most people of the real economic difficulty that these poor families almost immediately suffered once the male wage earner was gone, whether he was still on active service or reported killed in battle.

When World War I broke out, Meeson realised that the conflict caused serious hardship for the women left behind in Britain. She noticed that many women and children were being left in poverty by the departure of their menfolk to the front, especially when government payments took months to come through. Accordingly, Meeson worked to help establish the Women's Police Volunteers, which attempted to help women who were often so desperate that they were forced into prostitution. These volunteers were, on the whole, educated middle-class women who used their greater resources and agency to assist Belgian refugees, and British women of working-class families.

## ACTIVITY 9.6



### Using historical sources as evidence

#### Responding to the source

Dora Meeson's painting reminds us that war forces women to endure separation and to take over full management of the home front.

#### Focus: what are the meanings that are written into this painting?

- 1 Meeson's painting avoids making the soldier a hero. She places his departure for war in the setting of the family as a whole. How does her painting remind us that war affects all members of society in some way? How might you predict that the various members of this family might be affected by the soldier's absence?
- 2 How does Dora Meeson remind us that the experience of separation – and of managing at home – has traditionally been a significant part of women's role over the generations?



▲ **Source 9.89** Dora Meeson, *Leaving for the Front*, 1916

#### Focus: how does this primary source fit into the context of World War I?

- 3 When this soldier was departing for the front in 1916, the situation was quite different from the hopeful, optimistic conditions of 1914. What was the nature of the war to which this man knew he was going?



**Key concepts:** sources, evidence, perspectives, empathy, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## ACTIVITY 9.7



### Check your understanding

- 1 What are the aims of Women's History and Feminist History?
- 2 What was the Women's Defence Relief Force (Britain)?
- 3 Explain why women's farm work was crucial to Britain's war effort.
- 4 How important was the work of women in the munitions industries in Britain and Australia?
- 5 How does the story of the 24 Australian female doctors who went to the front illustrate the prejudices against women at this time, and how does it demonstrate their strategies to overcome them?
- 6 What does the story of the nurses' memorial (Canberra, 1999) illustrate about the problems of commemorating women's contribution to the war effort?



**Key concepts:** sources, evidence, continuity and change, significance, perspectives, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

## How World War I created the idea of the home front

### Modern warfare produces the idea of the home front

Traditionally, military history focused on battles, commanders, weapons and tactics. The front was simply the battlefield: soldiers left home, went to a distant country to fight, then returned. The home country was not usually affected by distant wars. (There were some exceptions to the rule. In the American Civil War, for example, both sides attacked towns held by enemy forces.) World War I changed that because it drew entire civilian populations into the vast war effort. It also directly threatened their safety, even in their own homes.

More recently, military history has tried to look more broadly to appreciate the experience of millions of other Australians who did not *go* to war but who nonetheless were unavoidably *part* of the war. This is known as the home front, involving the experiences of civilian men, women and children.

Historian Mark McAndrew explains that, previously, wars were smaller in scale, involving smaller armies. World War I, however, was massive and forced governments to introduce new controls over their people to be able to win the war. In democratic countries, governments passed laws giving themselves complete power to control politics, information and especially production of food and industrial goods.<sup>18</sup> As the war dragged on, politicians and generals saw victory as worth any sacrifice of rights and freedoms.

Governments sought to control the flow of information to the public by censorship of documents on sensitive issues, either by banning their publication or by removing some information. In the trenches, soldiers' letters home were opened, read and censored of any information that could help the enemy.

Governments also introduced new measures to recruit more troops and to stamp out expressions of public opinion opposing the war. In 1914, public opinion in most countries was strongly for the war, either due to patriotism or a sense of adventure. By 1916, the endless battles and massive casualty rates had made people more negative.

In this mood, some insisted that the war should be continued, while others criticised it.

Governments had to ensure that economic production (production of goods and services) was massively increased. Every man who joined the army ceased work on production on the farm or in the factory, but still needed to be fed and clothed to the standard expected of the army. It was vital to ensure that food production was increased to guarantee that the troops were fed. Industry was also placed under massive strain to produce uniforms, guns, ships and millions of bullets and shells. World War I, it was said, would be won or lost on the factory floor.

Governments also limited food consumption by civilians at home to be able to redirect more food to the troops. This involved rationing (limiting food per person). This shocked people unused to food shortages and led some people to sell food illegally at high prices on the black market. In Canada, for example, the government was forced to make food hoarding illegal (see Source 9.90).



▲ **Source 9.90** This Canadian poster shows that the government had enacted laws to prevent both black market sales and hoarding of food, and also that people were breaking these laws. Apart from the legal threat represented by the passing policeman, the poster appeals to Canadian loyalty to stop the cheating.

<sup>18</sup> To learn more about how governments handled World War I on the home front, read Mark McAndrew et al., *The Great War and its Aftermath, 1914–1921*, 2001.

Finally, governments took security measures against their own citizens of foreign origin, declaring them enemies. The possibility of spying for military information, or even sabotage (destroying military equipment), was very real. In Britain, the pressures of war created anti-German hysteria, as expressed in the poster by the British Empire Union (Source 9.91).



▲ **Source 9.91** The British Empire Union was an organisation formed to warn British people of the danger of German spies. Examine the image carefully, and make a list of the hostile acts that Germans were accused of committing.

McAndrew concludes with an interesting point: the amount of government control was not equal in every country. Government control was greatest in countries that were close to the battle front (France, Germany), but more relaxed in countries that were far from the fighting (Australia, the United States). Between these extremes, Britain certainly took some measures of war control but, being protected by the English Channel, was not as strict about them.

## The home front in Australia

Historian Craig Wilcox argues:

War was something that damaged other people, far away in time and place. No one was ready for the political and economic demands of global and industrial society, one fought by mass armies and mighty navies, where men would be killed by poison gas and children starved by blockade, where the enemy never came close to Australia but nonetheless threatened the heart of empire. No one expected that while their volunteers went to Gallipoli then to France, their families would also be called upon to wage war on the home front.

▲ **Source 9.92** Craig Wilcox, *Home Front*, 2011, p. 7

### Australia passes wartime laws

The Australian home front was scarred by one very cruel, and unnecessary, injustice: the internment in prison camps of citizens now branded as aliens because their place of birth was an enemy country. This applied especially to Australians of German descent.

This seemed a logical precaution then, but now it appears unjust. First, it was unnecessary. Not a single hostile act by a German Australian was ever discovered. Second, these innocent people were subjected to harsh mistreatment. For example, one man with a 'German' accent was imprisoned, but he actually came from the neutral country of Sweden.

▼ **Source 9.93** A group of German prisoners of war playing zithers and guitars in their national dress at the Berrima Concentration Camp, New South Wales, circa 1916



In Australia, the Labor Government of Prime Minister Andrew Fisher passed the *War Precautions Act 1914*, giving the authorities unlimited powers for security measures. The government could instruct newspapers to alter or remove stories. Armed soldiers arrested some 7000 people – mainly Germans and Austrians – and detained them in rough wooden huts behind barbed wire. As Australians proud of our history and our democracy, today we regret the harsh treatment of innocent Australian civilians who became 'aliens' and 'enemies' in their own country.

### The home front: the fine art of persuasion/propaganda

Propaganda is the art of persuasion. In war, propaganda is designed to hide any problems, to discourage any criticism, to keep morale high, to persuade men and women to volunteer for service, and to encourage civilians to work hard to support the war effort. Propaganda is often commissioned by the government, so it is really the government speaking to its people about the war.

### Recruiting

War always produces casualties, but nobody could have predicted how very many there would be. Out of its small population of five million, Australia lost more than 60 000 men.



▲ **Source 9.94** Recruiting for the war was done by a group called the Coo-ees, who walked through New South Wales to Sydney, recruiting on average one man per kilometre they walked. According to historian Keith Hancock, these volunteers felt greater love of Britain than for their country Australia and many called themselves 'independent Australian Britons'.

### The home front: loss and grief

The most emotionally intense aspect of life on the home front was, of course, news of the war

and of loved ones. A steady flow of letters from a husband, brother or son was reassuring, although these could scarcely describe the full horror of what he was experiencing.

The stopping of letters caused great anxiety among families. Relatives also dreaded the arrival of an official telegram, bringing bad news of a man wounded, lost in action, captured or killed. Many Australian women described the terrible fear of seeing a post-boy approaching the front door.

The Australian Government did not hide the losses. Casualty lists were published in the newspapers, revealing the terrible cost of the war in human lives.

Bruce Scates has written:

The Great War cast a shadow across Australia. Of some 330,000 Australians who served overseas, over 60,000 died. Around one in four families suffered the loss of a husband or son. Those who have been called the 'secondary bereaved', those who mourned a cousin, uncle or friend, widened the ... grief even further. In Ken Inglis' estimate every second Australian family suffered a loss from the war.

▲ **Source 9.95** Bruce Scates, 'Bereavement and Mourning (Australia)', *International Encyclopedia of the First World War*, 2016, p. 1

### The home front: the economic impact of war

Participation in war is a costly exercise. World War I placed enormous economic pressures on businesses, individuals and the government. The war's impact, however, was not all negative. Although the economy was not transformed (as it was to be during World War II), significant developments occurred that would contribute to the prosperity of the 1920s.

Initially, business owners were concerned by the sudden departure of young men to Europe, and the impact of reduced shipping between Britain and Australia. The Melbourne Stock Exchange closed for a month when war was declared, due to fears about the war's economic impact. Shortages of goods contributed to high inflation for the course of the war, especially for the prices of imported goods. It is estimated that the cost of

living rose by almost 50 per cent between 1914 and 1919. Wages, however, grew more slowly, and this led to problems for families. Strikes resulted as demands for higher pay were not met. In 1916 and 1917 especially, thousands of workers went on strike in the wool industry, on the waterfront, and in mining. A major strike among transport workers in New South Wales and Victoria in August 1917 grew quickly to include other industries, and strike-breakers were used. The strikes continued into 1919, including on the waterfront in Fremantle.



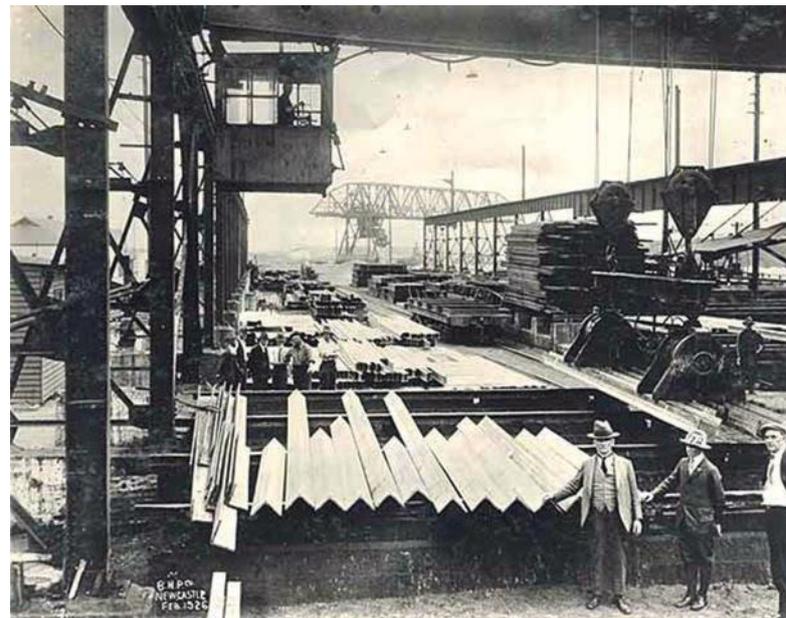
▲ **Source 9.96** Thomas Clarke Edwards, a union worker, was hit with a police baton during inter-union conflict that became the 1919 Fremantle Riot. Edwards died three days later. Following the riot, he had a large public funeral (pictured here), which thousands of people attended, including most of the Australian Labor Party members of parliament. A memorial fountain was also made in Edwards' honour, which still exists today and is now located in Kings Square, Fremantle. This conflict stemmed from an earlier dispute in 1917 over whether ships should be loaded if they were carrying supplies destined for Germany.

The war also saw new taxes imposed, especially on the wealthy. These included an income tax in 1916 and a wealth tax in 1917. These taxes required new laws passed by the Commonwealth Government, but were collected by the states. The Commonwealth also introduced some price controls, setting a maximum price for flour and bread in metropolitan areas.

The positive impact of the war was mostly felt in agriculture, transport and steel production. The government established Wheat Boards in each state, and a Central Wool Committee, to coordinate the marketing and sale of these two important agricultural exports. In 1916, Australia's allies purchased almost a million tonnes of wheat from Australian farmers and, in 1918 and 1919, the entire Australian wool 'clip' was sold to the British Government. These exports would have

proved impossible without Prime Minister Hughes' decision to purchase 15 steamers in 1916, for £2 000 000. These ships became the Commonwealth Shipping Line, and by 1918 they had already made enough profit to repay their initial cost. This government intervention in the economy would provide the backbone of Australia's economic prosperity well into the 1920s.

Private industry also experienced expansion during the war, when imports were scarce. Mining company Broken Hill Proprietary Company Limited (BHP), which had previously mined silver and lead, emerged as a major manufacturer of iron and steel. Although the moves to begin steel making at Newcastle had begun before the war, the first blast furnace to produce steel in Australia opened in early 1915. The iron ore was shipped from South Australia, as the rich deposits of the Pilbara had yet to be discovered. BHP since has become one of the world's largest mining companies, and one of Australia's biggest employers.



▲ **Source 9.97** BHP's Newcastle steelworks in the 1920s

Another side-effect of the war was that the government sold war loans, or 'bonds', to the public, to raise funds for the war effort. This was done twice during the war, and both times saw the initial offering over-subscribed. Investors bought these bonds directly from the government and received 4.5 per cent interest each year on their investment. The success of these bonds contributed to the confidence of investors in the 1920s in buying property and shares.

This helped fuel economic development in a similar way to that which occurred in the USA during the 'roaring twenties'.

Despite the drain on the economy caused by an outbreak of influenza just after the war in 1918, postwar Australia experienced some significant economic benefits. The return of servicemen, the opening up of international markets and the fact that Australia itself had not been directly affected by the war, meant that Australia was ideally placed to take advantage of postwar demand. Government programs for the repatriation of soldiers also saw the growth of suburbs and farmland, stimulating the domestic economy as well.



▲ **Source 9.98** Returned servicemen seeking work queue at the Melbourne office of the Repatriation Department.

## ACTIVITY 9.8



### Check your understanding

- 1 In what ways were Australians negatively affected economically by World War I?
- 2 What positive factors did the war bring to the Australian economy?
- 3 Why is steel production important to a nation's economy? Why was it important during World War I for Australia to produce its own steel?
- 4 What factors restricted shipping during World War I? Why might Australia be more affected by this than other countries?



**Key concepts:** continuity and change, cause and effect, significance



**HASS skills:** analysing, evaluating, communicating and reflecting

## END OF SECTION REVIEW 9.7



### Review questions

Complete the quiz in the Interactive Textbook, and answer the following questions on paper or in the Interactive Textbook.



#### Recall

- 1 In what ways were governments forced to exercise more control over their people during World War I?
- 2 What proportion of families in Australia was affected by the casualties of war?
- 3 Why was the experience of the loss of a loved one particularly difficult to bear in World War I?

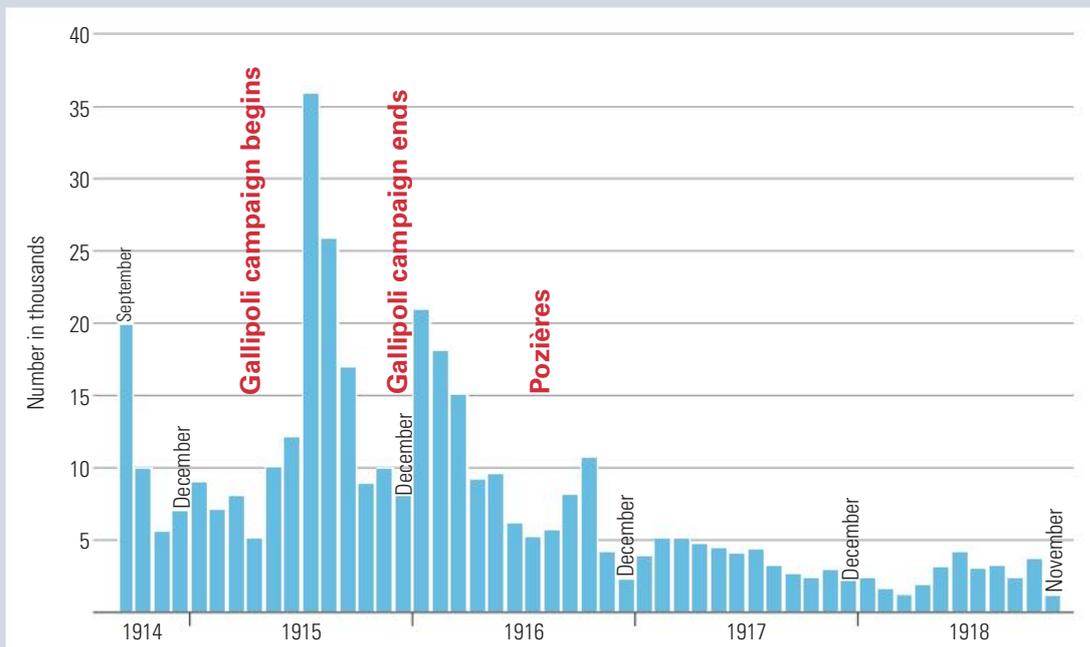
#### Interpret

- 4 To what extent can it be said that World War I 'invented' the idea of the home front?
- 5 According to the graph in Source 9.99 of Australian enlistments in the war, which campaign inspired the greatest rise in enlistments?





## ENLISTMENTS DURING THE WAR



▲ **Source 9.99** The monthly total of enlistments during the war from September 1914 to November 1918. Note the peaks and troughs, and the gradual decline in numbers.

### Argue

- 6 Explain the nature of sexist prejudices against women in the workplace, and evaluate the degree to which the war created new opportunities, skills and extra income for women in Australia.
- 7 Explain why the efforts of people on the home front were arguably crucial to eventual Allied victory in the war.
- 8 Consider you were a worker during World War I. What arguments would you use to support your case for higher wages during this time?

### Extension

- 1 Investigate the career of political activist and artist Dora Meeson, and explain how she helped British women campaign for the vote.
- 2 Read the additional content: 'Postcard propaganda: Putting the best spin on the war' in the Interactive Textbook. To what extent were official war postcards more a form of propaganda than communication?
- 3 Investigate the experiences of the 7000 people who were suddenly declared to be 'enemy aliens' and imprisoned. Describe the conditions they endured, and then conduct an argument as to whether Australia's treatment of them was a regrettable necessity or a tragic and cruel overreaction.
- 4 Research the iron and steel industry in Australia today. How is this industry different to what it was during World War I? Why?
- 5 In 1916, Australians earning over £156 a year had to pay income tax for the first time. The average annual earnings in 1916 were about £138. Find out how much an Australian worker needs to earn before they pay income tax today. Is this comparable? Why/why not?
- 6 What was the Soldier Settlement Scheme? Find out where in Western Australia this scheme operated, and how successful it was.



**Additional content available:**

Postcard  
propaganda:  
Putting the best  
spin on the war



**Key concepts:** sources, evidence, cause and effect, significance, empathy



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 9.8 The commemoration of World War I and debates about the Anzac legend

### FOCUS QUESTIONS

- Why do we commemorate wars? Should we commemorate wars?
- What is the most appropriate way of honouring and remembering those who have served our nation?
- What is 'the Anzac myth'?

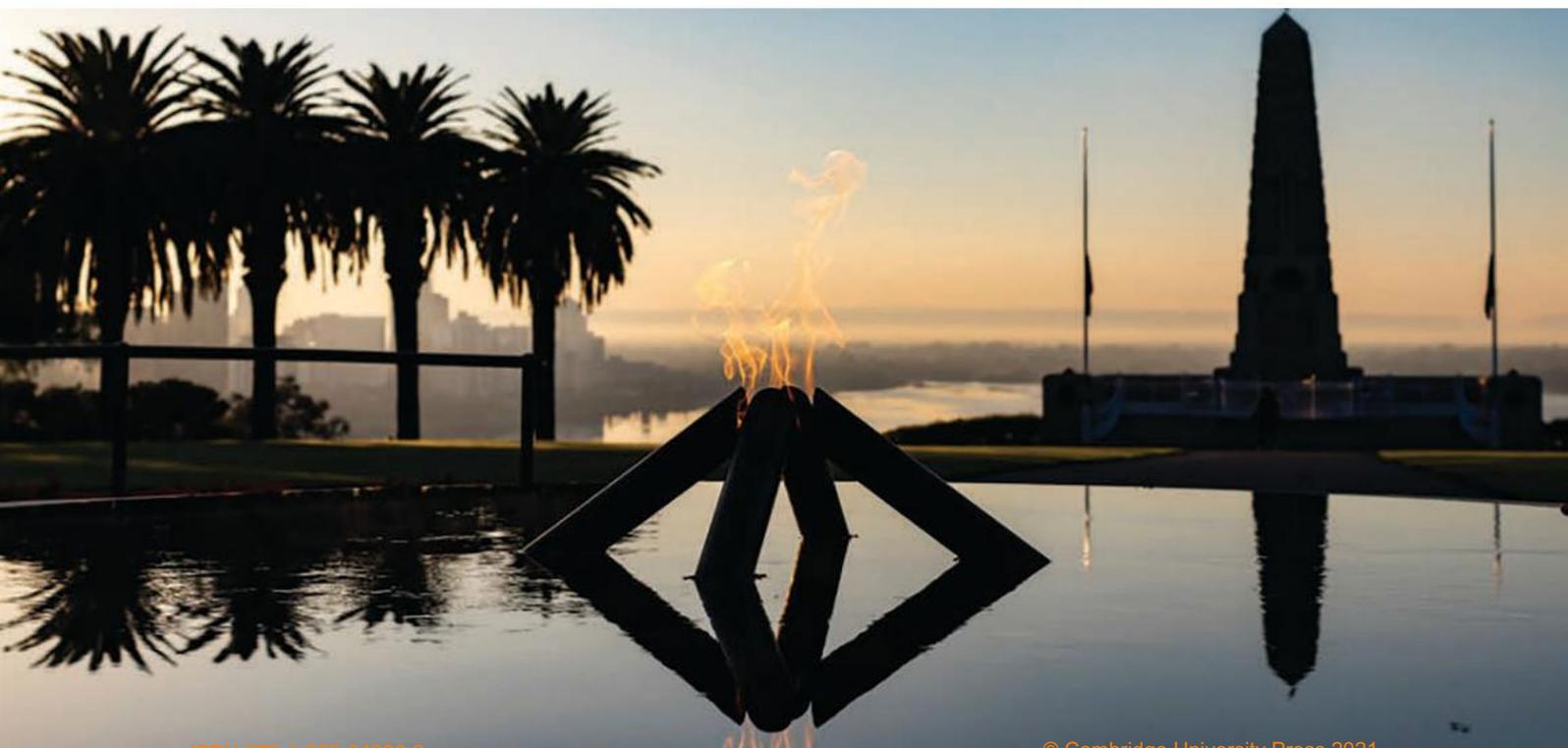
Our History course asks us to study *'different historical interpretations and contested debates about World War I and the significance of Australian commemorations of the war'*. You may wonder how Australians could possibly have different views of the commemoration of World War I. For example, there is absolutely no doubt that Australia made a very significant contribution to the Allied war effort, far out of proportion to its relatively small population. There is also no doubt that Australian troops fought bravely in the same horrific conditions of modern warfare that their Allies also suffered. Finally, there can be no debate about the quality of their service and achievement, because Australian forces really did perform impressively in the tasks assigned to them. It properly falls to us, the present generations, to make ourselves aware of what they suffered and to acknowledge how much they achieved. What, then, is there left to debate?

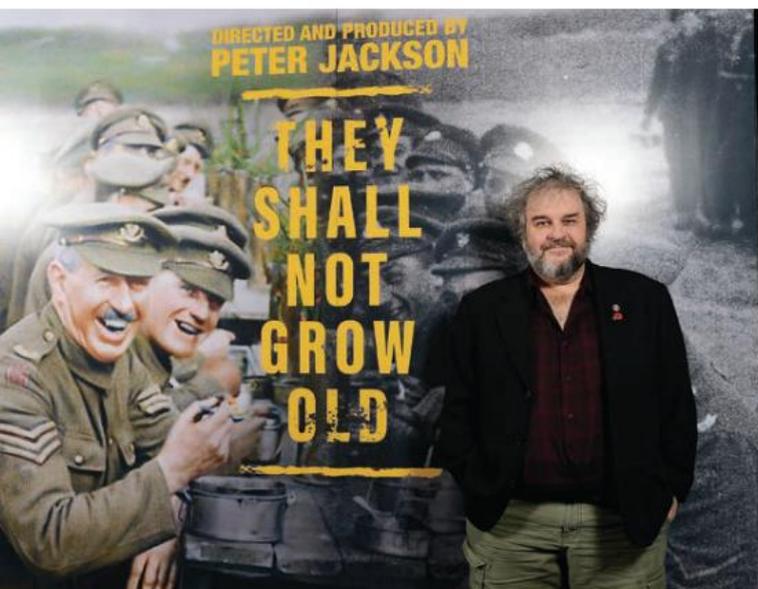
### Having survived the war ...

How did men and women feel when the guns finally fell silent on 11 November 1918? Was there wild cheering, relief and excitement to be going home?

Perhaps. Curiously, though, many men were actually quite subdued. For example, the veterans interviewed in the film *They Shall Not Grow Old* noted that people were very quiet, almost gloomy. One reason for this is that they had enjoyed the life in the services. More than one admitted that, despite all the horror and danger, the war had been one vast, exciting adventure. Another soldier said that it had been like playing a glorious game. Others had enjoyed the mateship of fighting together. Others admitted they simply wondered what they were going to do in life now. They had nothing planned; the war had seemed set to go on forever.

▼ **Source 9.100** A general view of the Flame of Remembrance at the State War Memorial in Kings Park, Perth, on Anzac Day 2021





▲ **Source 9.101** Peter Jackson's *They Shall Not Grow Old*, 2018

## Going home

To properly understand what these men and women went through, we need to trace the last part of their story: going home. This should have been a relief and a pleasure, but often it was not. German soldier and writer Erich Maria Remarque was deeply distressed when he went home, because he found that civilian life had been carrying on much as normal, and that people had absolutely no idea of what he had been through at the front. The British soldiers interviewed in *They Shall Not Grow Old* told heartbreaking stories about how, when they tried to express what they had been through, people just did not want to know. In Britain, there were no jobs available, and businesses put up signs saying 'No veterans need apply'.

The soldiers had assumed that they would at least be recognised for serving their country. They were now devastated to discover that nobody even wanted to talk about the war. Nobody was interested, and everyone just wanted to get on with life. The decade of the Roaring Twenties was, for some, one in which people enjoyed life and forgot the war altogether. These men therefore bottled up their dark memories and lived with them, hauntingly, for the rest of their lives.

We can learn from this that Australians have a duty to acknowledge those who serve.

## Does commemoration mean glorification of war?

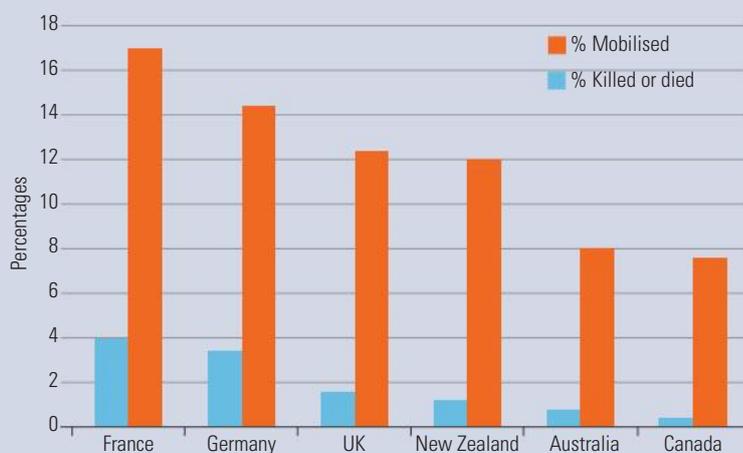
Many Australians are, however, rightly cautious about commemorating a war, because they fear that this could so easily slip over into *glorifying* war. Glorification of war is anything that suggests that war is good, heroic, adventurous or a positive experience for a nation. These ideas are indeed potentially dangerous, because they might make a nation more willing to use armed force rather than diplomacy and negotiation to resolve disputes.

More importantly, those who have served would want us to tell the truth about the war. The artist Will Dyson, for example, was a patriotic Australian who greatly admired our soldiers and their achievements. Having exposed himself to danger by sketching at the front line, he was one of the best informed about the truly terrible nature of this war. He wrote to Charles Bean:

I'll never draw a line to show war except as the filthy business it is

▲ **Source 9.102** Will Dyson, quoted in Ross McMullin, *Will Dyson: Australia's Radical Genius*, 2006.

## What was the final cost of the war?



▲ **Source 9.103** Comparative percentages of troops mobilised and troop deaths across six key nations

## What does Anzac Day mean to Australians?

It is a curious fact that Anzac Day has not always been as intensively celebrated as it is today. During the 1960s, for example, when the anti-war movement reached its peak in response to the Vietnam War, peace activists often stated that Anzac Day commemorations were just a glorification of war and militarism.

In recent years, however, commemoration of Anzac Day, and of Australia's experience in war, has enjoyed enormous popularity. It is unusual that the further we get away from the event, the more it has become deeply meaningful to many Australian people. Far from forgetting – as human memory tends to do with time – we now feel deeply moved by this commemoration.

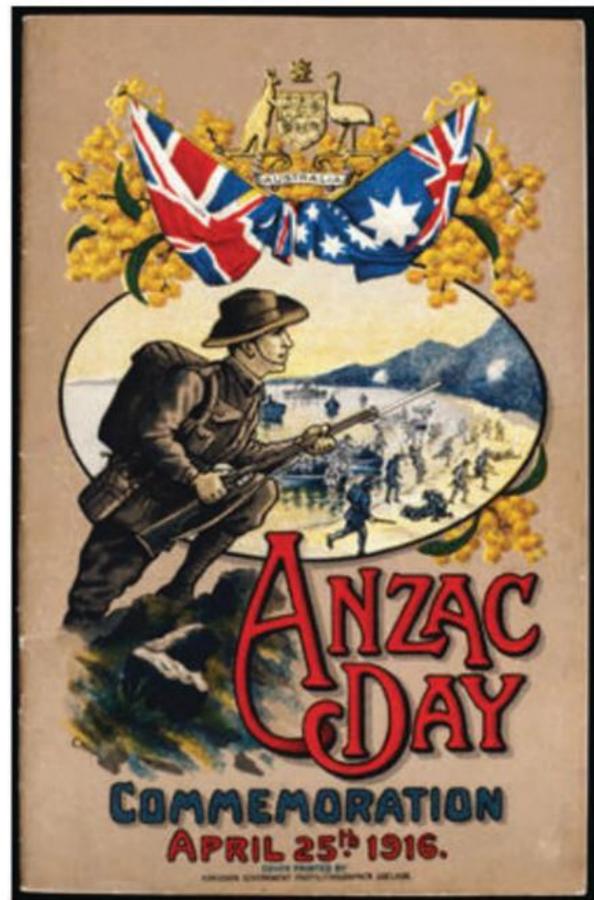
Anzac Day is a good moment to pause and reflect on why we commemorate this event and how we can best do so. More than anything else, we are paying a debt of gratitude to young men and women who voluntarily went to war. This is in no way a glorification of war itself, nor praise of the spirit of militarism. Quite the opposite: we are being asked to look directly at the horror of war and draw lessons from it.

Military historian Peter Dennis states:

Anzac Day commemorates the landing at Gallipoli of Australian forces on that day in 1915; it is the day on which Australians remember the nation's war dead and all those who have served and suffered in war; and it is also the day on which Australians remember what it is to be Australian. It is a day of both solemn ritual and boisterous celebration.

▲ **Source 9.104** Peter Dennis, *The Oxford Companion to Australian Military History*, 2008, pp. 32–7

Commemoration is not the same in all countries. In Australia, Gallipoli is the focus of our national commemoration. Those other Anzacs, the New Zealanders, respect a quite different battle. For them, their great national achievement was the Battle of Chunuk Bair.<sup>19</sup> In Britain, America and France, people have generally not even heard of Gallipoli, least of all the disastrous campaign of 1915.



▲ **Source 9.105** Poster of the first Anzac Day, 1916

## The origins of the Anzac 'myth': Captain Charles Bean

In the case of Australia, our commemoration of World War I actually began while the war was still in progress. This meant that so many important memories, as well as important objects, were saved even before the war ended.

We owe this to Captain Charles Bean. While he was still reporting as war correspondent to Australia, he began to imagine the idea of a new type of museum to preserve historical objects and, more broadly, save the memories and experiences of the men and women who had fought and suffered. The Australian Government also realised the importance of gathering and saving artefacts (historical objects). Captain John Treloar was appointed head of the Australian War Records Section, with a responsibility to select and save both documents and objects that could later be used to tell the story of this war.

<sup>19</sup> For more information about New Zealand's Anzac Day, see Colin Townsend, 'The Legacy of Chunuk Bair', *Wartime*, Winter 2001, Issue 14.

## Key concepts for your memory bank



**Empathy** is an understanding of the past from the point of view of a particular individual or group, including an appreciation of the circumstances they faced, and the motivations, values and attitudes behind their actions.

*Pop this concept into your memory bank – at the end of this book is an activity that will test your understanding of this, and other key HASS concepts!*

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.5



### The skill of historical empathy

**Preparation:** Take some time to research Charles Bean and especially why he came to believe, even when World War I (the Great War) was still in progress, that it should be commemorated.

**Activity:** Imagine that you are a newspaper reporter sent to interview Captain Charles Bean about his work during and after the war. Your aim is to write an article about the idea of a national war memorial and its purpose. How might Bean have responded to the questions below? Complete the interview by recording what he would respond if questioned today.

- 1 Captain Charles Bean, you have become a leading figure in Australia's history of the Great War. To what extent do you believe you are a reliable witness of this enormous conflict?
- 2 Given that you held the rank of officer, and did not have to do any actual fighting, are you sure that you are really equipped to understand what the common soldier went through? How much of the real fighting did you see?
- 3 When, and why, did you conceive the idea of creating a national war memorial?
- 4 Why do you believe that Australia should spend time and resources on building a memorial to this terrible war? Would we not be better advised to put money into directly helping the wounded veterans who are now coming home?
- 5 Is it possible that a national war memorial is really going to glorify war instead of showing its horrors and tragedy? How do we know that it will not inspire future generations to think of war as a glorious adventure and a good way of resolving international conflict?



▲ **Source 9.106** Charles Bean after the war



**Key concepts:** perspectives, empathy, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting

Some of our most eminent historians of Gallipoli, such as Professor Ken Inglis and Dr Martin Ball, show enormous respect (and sympathy) for the men and women who served at Gallipoli, but they are also careful to dispel the many myths that have gathered around the

Gallipoli experience. These historians insist that the greatest respect we can pay these men and women is to clear away the distortions and drill down to find out what really happened during that fateful campaign.<sup>20</sup>



**Additional content available:**

The Anzac myth examined: John Simpson and his donkey

<sup>20</sup> To read more about this issue of myth versus reality, see Ken Inglis, *Anzac Remembered*, 1998.



▲ **Source 9.107** State War Memorial, Kings Park, Perth

▼ **Source 9.108** Statue of a soldier at an Anzac war memorial in Queensland



## Using your historical judgement: is Anzac a myth?

For most Australians, our nation's achievements in war are a matter of enormous interest and, for many, of national pride. And yet there are other voices – equally credible – who argue that the reality of Australia's war service has been blown up into a myth, one that needs to be questioned and corrected.

### KEY HISTORIAN

#### **ROBERT FLEMING**

Military historians, such as Robert Fleming, have helped establish some of the realities.

First, Australia definitely made a big contribution to the war effort, far greater than its size would suggest.

Robert Fleming wrote:

Australia's role was remarkable, given the nation's comparative population – in 1914, barely 7 million (compared to 40 million in France, 46 million in Britain, and 68 million in Germany).

▲ **Source 9.109** Robert Fleming, *The Australian Army in World War I*, 2012, p. 3

Second, it cannot be denied that Australian commanders and soldiers made a very significant contribution to bringing the war to an end in 1918. At first, these soldiers might have felt that they were simply volunteering to help out the Allied war effort but, as the British commanders readily admit, our troops won crucial and deadly battles that helped win the war.

Robert Fleming wrote:

The Australian Army's participation in World War I began as a loyal response to a call to protect British Imperial interests, but became a significant contribution to the Allied victory over the German and Ottoman armies.

▲ **Source 9.110** Robert Fleming, *The Australian Army in World War I*, 2012, p. 3





Third, there is no doubt that the bravery and competence of Australian troops made the world more aware of Australia as a nation, and won admiration and respect. Some historians would also say it gave the Australians themselves a new sense of identity as a nation, not just as Victorians, Tasmanians or Western Australians.

Robert Fleming wrote:

The response in 1914 was the more extraordinary in that the Australian nation was only thirteen years old, and had not yet created a unified sense of itself. Each of the six colonies that had recently federated to become states of the Commonwealth of Australia had its own unique history, characteristics and cultural identity.

▲ **Source 9.111** Robert Fleming, *The Australian Army in World War I*, 2012, p. 3

## KEY HISTORIAN

### MARILYN LAKE AND HENRY REYNOLDS

In 2010, historians Marilyn Lake and Henry Reynolds published a book with the startling title *What's Wrong with Anzac?* Given the respect we owe to the men and women who have served as Anzacs, it may seem curious to question their contribution. But like all things that unsettle us, it is important to establish exactly what these critics meant.

#### **Critical issues: did war help make the Australian nation?**

The main issue that has caused great debate is the common idea that Australia's involvement in World War I somehow 'made our nation'. Some would argue that Australians proved themselves in the eyes of the world, and especially of Britain, and finally grew up to a sense of national identity.

Others would disagree, arguing that Australians had already defined themselves, constitutionally, in 1901, with the Federation of the colonies into states. The Anzacs may well have won the respect of their British commanders, but there is no evidence that the national identity was forged by the experience of war. Indeed, a sense of an Australian national identity had emerged even earlier, in the 1880s and 1890s.

#### **The militarisation of Australian history?**

The second big question is the idea that the Australian Government – encouraged by former Prime Minister John Howard – has sponsored an intensive campaign of publications with public money to focus attention upon the Anzac myth and upon Australian military history. This, say the critics, means that military history is taking over our national history, excluding other important achievements made by Australians, especially during peacetime.

Marilyn Lake and her co-authors write:

Like the many Australians who are concerned with the homage paid to the Anzac spirit and associated militarisation of our history, we are concerned about the ways in which history is used to define our national heritage and national values. We suggest that Australians might look to alternative national traditions that give pride of place to equality of opportunity and the pursuit of social justice: the idea of a living wage and sexual and racial equality. In the myth of Anzac, military achievements are exalted above civilian ones; events overseas are given priority over Australian developments; slow and patient nation-building is eclipsed by the bloody drama of battle; action is exalted above contemplation. The key premise of the Anzac legend is that nations and men are made in war. It is an idea that had currency a hundred years ago. Is it not now time for Australia to cast it aside?

▲ **Source 9.112** Marilyn Lake et al., *What's Wrong with Anzac?*, 2010, p. 167

It is true that there has been a publishing boom in books on Australian military history, as we can readily see just by examining the shelves in any commercial bookshop. We know from letters to the editor in newspapers that some Australians, at least, feel that this has gone too far, and that we are no longer reading much about aspects of our national history other than war.





It is also true that the Department of Veterans' Affairs has been proactive in sending out curriculum materials to schools. It should be noted, however, that a typical publication – such as its superlative *Australian Light Horse: Palestine, 1916–1918* – is a teaching resource of the highest quality and is eminently useful to any teacher of Australian History. Moreover, these excellent books are sent out free of charge, and there is absolutely no requirement that they must be used by teachers.

## DEVELOPING HISTORICAL CONCEPTS AND SKILLS 9.6



### Evaluating the historical significance of an event

#### Some study tips

When you are preparing for an essay, test or examination in History, there is one easy way to make sure that you have a good understanding about your period of study. You might have a mass of detailed notes in your exercise book or computer, but you may have trouble learning them. You need an instrument to make them simpler, clearer and easier to learn.

To solve this problem, draw up a table with a grid showing the date in one column, then a brief description of the event (what happened), then a note whether this caused change or continuity, and finally, most importantly, what the significance of the event was.

A good technique is to ask yourself some simple questions to get your thoughts going. For example: Was this event a victory for the Allies or was it a disaster? Why? How did it change the course of the war, if at all?

#### Accuracy

The skill of chronology is one of the essential skills of history. It is important to know the names of key events and the date on which they occurred. You need to be able to spell the name of the event and to give an accurate date for it. As a general rule, it is good to explain events in the order they happened, so that your examiner knows that you do know their sequence. You can, however, go back and forth in time if this helps you make a point in your argument.

If you make this grid in hard copy, you can place it on the wall of the room where you study, and learn it by heart simply by glancing at it several times. This is called ambient learning and is one of the most powerful learning techniques.

If you do this, you will be able to explain a sequence of events in the order they happened and, more importantly, make an intelligent commentary on their significance. You will walk confidently into the examination not just with facts but with a line of argument and analysis in your mind.

#### Change and continuity

One of the most powerful ways of making a good historical argument is **evaluation**, which means weighing up the value of something. You can do this by thinking about an event and deciding whether it has been a change from what existed before or a continuation of it. Hint: in some cases, one event can be *both* a change in one sense *and* a continuity in another.

#### Significance

More importantly, it is absolutely vital to be able to explain the **significance** of an event. Instead of simply listing events in the order they happened, we try to explain their significance. What *effect* did the event have?

To sharpen your analysis, ask yourself some questions. Did the event have any positive outcomes? Did it give one side in the conflict an advantage? Did it introduce a whole new dimension to the war – for example, by introducing a new weapon? Was the strategy for this battle effective or disastrously ineffective?

Evaluate your progress through this chapter by copying out and completing this table. Try to determine the historical significance of each of the following events. The first example has been filled in for you.





Date	Event	What happened?	What was its significance in the overall conflict?
1914			
June	Assassination at Sarajevo	A Bosnian nationalist shoots Archduke Franz Ferdinand in protest against Austrian authority.	A single political murder set in motion the entire machinery of European alliances, provoking war.
August	German invasion of France	German forces cross the border into France and beat back the French army in a rapid advance.	
September	The Battle of the Marne	The French rush troops to meet and push back the advancing Germans.	
September	First Battle of the Aisne	The French inflict horrific casualties on the Germans, then dig in.	
1915			
January	First use of gas by Germans	The Germans try to solve the problem of trench warfare by using poisonous gas against the Allies.	
February–September	The German U-boat campaign against Allied shipping	The Germans use packs of submarines to try to prevent ships bringing vital supplies to Britain from America.	
April	Allied landing at Gallipoli	British, French and Anzac forces land at Gallipoli to open a new front in the war.	
May	Sinking of <i>Lusitania</i>	A German U-boat torpedoes the unarmed passenger ship <i>Lusitania</i> , which sinks in 20 minutes.	
1916			
January	Allied departure from Gallipoli	Using 'the silence ruse', the Anzacs evacuate Gallipoli without casualties.	
February, continuing until December	The Battles of Verdun	A running series of bloody battles, in which the French had 400 000 casualties, and the Germans 350 000 casualties.	
May	The Battle of Jutland	A massive sea battle between the Royal Navy and the German navy, with heavy losses on both sides.	
July, continuing to November	The Battle of the Somme	The British launch an attack against German positions, sending men running across open land against machine guns.	
1917			
January	The Zimmermann telegram	German foreign minister Zimmermann sends a message offering to support Mexico if it invaded the southern states of the United States.	
February	Germany resumes its campaign of unrestricted submarine warfare	Germany decides to sink all ships going to Britain, without warning.	





Date	Event	What happened?	What was its significance in the overall conflict?
1918			
March	Russia pulls out of the war (Treaty of Brest-Litovsk)	The new Communist regime in Russia makes a separate peace treaty with Germany.	
March–May	The Spring Offensive (or Kaiser's Battle or Ludendorff Offensive)	A massive German attack breaks through Allied lines.	



**Key concepts:** cause and effect, significance



**HASS skills:** analysing, evaluating

## END OF SECTION REVIEW 9.8



### Review questions

Complete the quiz in the Interactive Textbook, and answer the questions below on paper or in the Interactive Textbook.



#### Recall

- 1 When was the first Anzac Day commemoration held?

#### Interpret

- 2 Discuss how Anzac Day is typically commemorated in Australia.

#### Argue

- 3 Explain why the view of historians Marilyn Lake and Henry Reynolds could be considered to be controversial.

#### Extension

- 1 There is still a lively debate about how we commemorate Australia's wars. How would you recommend that our nation best remember and honour wars in the future? Consider these issues:
  - a Do you believe that the act of remembering a war is the same as glorifying war?
  - b Do you feel that existing commemorations, such as Anzac Day, the Dawn Service and the Dawn Service at Gallipoli, are the best ways of honouring those who have served?
  - c Can you explain why some battles (such as Gallipoli, Kokoda) seem to fascinate the general public, while other battles (such as Beersheba) are less well-known?
  - d How would you explain the fact that public interest in our war service has recently been growing with time, rather than decreasing?
  - e Do you think that Australians today gain a stronger sense of their national identity by involving themselves in commemorations?
  - f If there is such a thing as an Australian national character, how do you think this is displayed in times of conflict or crisis?
  - g Can you think of any new and creative ways in which we might commemorate wars and teach future generations about them?



**Key concepts:** cause and effect, perspectives, contestability



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



## 9.9 Conclusion: why does it matter?

World War I was very destructive. It involved some 70 million men and women, of whom nine million were killed in action, and countless more returned home seriously wounded and traumatised. As we have seen, it was the first mechanised war, and the technological advances of the Industrial Revolution were used to develop more and more efficient ways of killing enemy forces.

World War I also changed the face of the nations on Earth. Some states (such as the Ottoman Empire) crumbled to be replaced by new countries (such as Turkey).

The terrible experience of modern warfare inspired a new field of study called international relations in 1919 and led to the creation of an international body called the League of Nations in 1920, both established with the view of trying to prevent further conflicts of this sort.

After working through this chapter, consider the following question:

*What were the main factors that made World War I such a destructive conflict?*



▲ **Source 9.113** Late in the war, American troops found this abandoned trench and dugout with a lone skeleton staring at the sky from the mud. Bodies often went unburied, since it was too dangerous to try to bury them. Graphic images like this have often been censored from the public.



## 9.10 End of chapter activities

### Reflection



#### Self-assessment

That just about wraps up this topic. How did you feel you went working through the chapter? Before you attempt the following activities, visit the Interactive Textbook to rate your confidence with this topic either online or via a downloadable checklist.

### Inquiry



#### Research task

In this chapter, you have discovered how World War I had an impact in both Europe and at home in Australia. How did the war affect Australia in the years that followed?

Historians prefer to break up this sort of question into categories, such as those below. See what you can find out about each of the topics, and then write an essay that responds to the following question: *To what extent was Australia in the 1920s shaped by World War I?*

Consider:

- 1 social impact – Spanish influenza, 1919
- 2 political impact – the 1926 Balfour Declaration
- 3 economic impact – Stanley Bruce's 'Men, money and markets' policy.

In each case, see if you can find out not only what happened, but also how it was linked to World War I and how it changed Australia in both the short and long term.

### Analysis



#### Making thinking visible

***I used to think that World War I was ...***

***Now I think that ...***

In this visible thinking routine, you are asked to track the difference between what you knew about the war before starting this chapter and what new understandings you have acquired at the completion of this chapter.

Using these stem sentences, write a paragraph explaining what you previously knew about the war and another paragraph explaining what you now understand, additionally, about the war.

**1A I used to think that World War I was caused by ...**

**1B Now I understand that World War I was caused by ...**

**2A I used to think that World War I was deadly because ...**

**2B Now I understand that World War I was deadly because ...**

**3A I used to think that Australians contributed to World War I by ...**

**3B Now I understand that Australians contributed to World War I by ...**

**4A I used to think that women contributed to World War I by ...**

**4B Now I understand that women contributed to World War I by ...**

**5A I used to think that World War I affected the home front by ...**

**5B Now I understand that World War I affected the home front by ...**

## Writing



### Key terms and names

For each key term or name from the chapter, write a sentence explaining its significance:

- war of attrition
- stalemate
- total war
- sniper
- Charles Bean
- silence ruse
- propaganda.



### Extended-response question

#### Analysing the significance of a specific battle in the overall context of World War I

**Topic: Evaluate** the importance of one major battle of World War I in terms of the final outcome of the war and victory for the Allies. In your answer, **explain** the military situation that existed at the time of the battle, **describe** what tactics were used and how the battle unfolded, and **discuss** how and why this battle had an important effect on the course of the war.

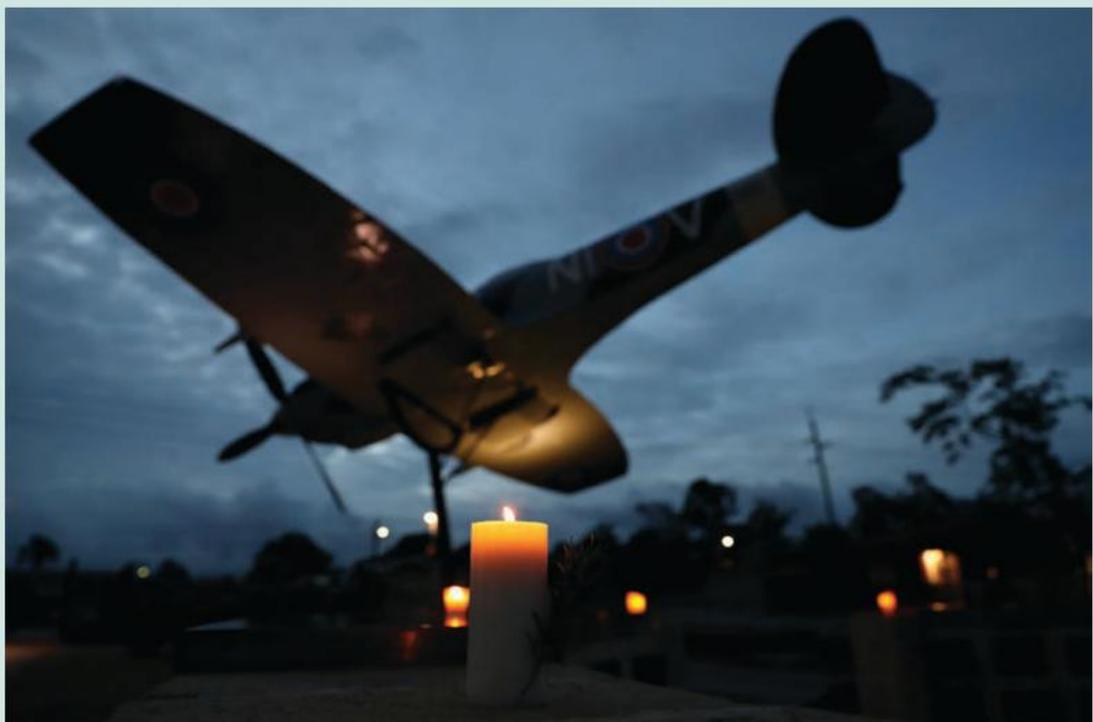
In your response, you must **substantiate** your argument by providing key names, dates, statistics and terms relevant to World War I.



**Key concepts:** significance



**HASS skills:** questioning and researching, analysing, evaluating, communicating and reflecting



▲ **Source 9.114** Candles are seen alight at the memorial at the RAAFA Air Force Memorial Estate on 25 April 2020 in Perth.

# Making connections: History and the other HASS topics

**History** has many connections with other subjects in the Humanities. Have you considered how what you have learnt about the Industrial Revolution and World War I relates to the other topics you will cover this year? Here's a sample:



## Civics and Citizenship

### Workers' rights in the Industrial Revolution

What were the key values of the Chartists, and other campaigners for workers' rights, in the Industrial Revolution? How have these ideas been incorporated into our democracy in Australia today?

Research the Reform Bill of 1832. What features are now part of Australia's political system?

### Key political players in the Industrial Revolution

Who are the key players in a political system? Which of these were involved in improving conditions for people in Britain during the Industrial Revolution?

Find out details about the following parties and people in Britain:

- The Conservative Party (the 'Tories')
- The Luddites
- The Whig Party
- The Earl of Shaftsbury (Anthony Ashley Cooper)
- Robert Owen.

How would they compare to political parties, politicians and community leaders in Australia today?

### World War I conscription debates

How did the Conscription debates of 1916 and 1917 affect politics in Australia? Follow the party membership of Billy Hughes as he tried unsuccessfully to introduce conscription in Australia. Who were the Nationalists, and how did they form? How did the Catholic/Protestant divide affect the Labor Party's vote?



## Economics and Business

### The Industrial Revolution and the origins of a global economy

How did the Industrial Revolution lead to a global economy? What happened to the economies of countries that were colonised – try a cost-benefit analysis based on the following:

- 1 impact on industry and employment
- 2 environmental implications – e.g. clearing of forests, mining and landforms
- 3 trade – goods, investment, slaves
- 4 education and training
- 5 resources – extraction, depletion and exploitation.

### World War I and Australia's economic development

How independent was Australia's economy prior to World War I, and how did this change when the war broke out? Research the impact of the war on:

- shipping
- the steel industry
- agriculture
- manufacturing.

Use the example of the Australian economy in World War I to explain the dangers of an economy dependent on one key trading partner. What are the advantages of a diverse economy, and a range of trading partners?

## Geography

### The Industrial Revolution and interconnections

In what ways did the Industrial Revolution break down barriers to international interconnection? Consider:

- railways
- shipping
- the internal combustion engine
- telephones and telegraph
- undersea cables
- trade of raw materials (e.g. cotton, tobacco), and also of enslaved people.



### World War I and connections to place – Gallipoli

Travelling to Gallipoli on Anzac Day has been described as a 'pilgrimage' in recent times. Why have Australians formed such a deep attachment to this part of Turkey? What is the attitude of the Turkish people to this? Find out what has been done in Gallipoli to cater for these visitors.

Using Gallipoli and the sites of Australian battles at Beersheba and the Western Front, explain what is meant by a 'cultural attachment to place'.

# Putting it all together: key concepts for your memory bank

## Summarising your studies of the Humanities and Social Sciences in Year 9

Throughout your studies this year, we have asked you to take special notice of certain key concepts across the four HASS subjects. In the following activities, we would like you retrieve what you know from your memory bank about these key concepts, and demonstrate your understanding of the concepts in writing.

We hope the activities present another opportunity for you to see how the key concepts are related across the HASS subjects. We also hope the activities allow you to summarise your work in HASS in Year 9 and can be looked at again to revise your studies when you start Year 10!

### Activity 1 – Create a summary of how the concepts you’ve learned about this year connect to each other

**Step 1:** Go through the chapters and identify what each of the concepts in the table below mean. Re-read the definition of the concepts in this book first. Then look up a definition of each concept. Now copy and complete the table below by defining each concept **in your own words** (one has been done for you):

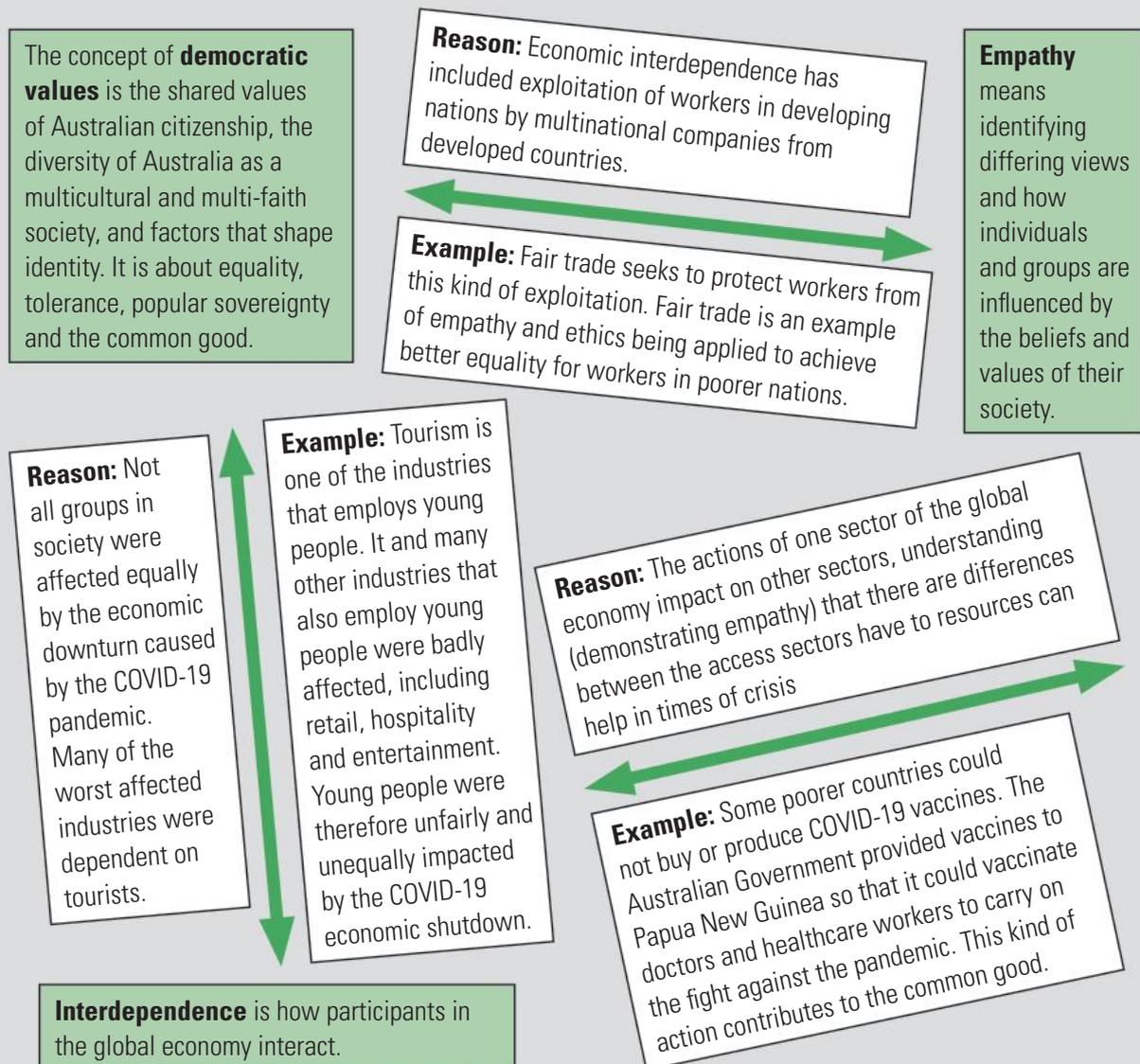
Concept	Definition
Empathy	Historical empathy leads to an understanding and an explanation of why people in the past acted as they did. Empathy involves appreciating historical context and chronology as part of an evaluation of past events.
Democratic values	
Justice	
Interdependence	
Specialisation	
Scale	
Cause and effect	



**Step 2:** Identify links between these concepts by grouping them into pairs or groups of three or more. For example: you might decide that *empathy*, *democratic values* and *interdependence* are connected because one of the core values of democracy is equality. To achieve equality, we have to try to understand each other (*show empathy*). Interdependence in the global economy also works best if we can understand each other better. To understand each other better we need to have empathy for people and communities and cultures that are different to our own.

Once you have decided which concepts you are connecting together, write out your ideas in full sentences until you have used all of the concepts in the table. Share your sentences with a partner. How are the connections you made the same and/or different to your partner's? Give your partner two pieces of warm (positive) feedback and offer two ideas that might help them improve their sentences.

**Step 3:** Create diagrams that explain how you think these concepts connect, AND use one example to support your idea about why they are connected. Use arrows to show these connections. On one side of the arrow, write your reasons for making this connection; on the other side of each arrow, write the example that demonstrates this connection (there is an example of how to do this in the diagram below).



**Extension challenge:** can you connect ALL of the concepts in a diagram like this?

## Activity 2 – Writing task: using key concepts meaningfully

In your studies of the Humanities and Social Sciences, you will need to confidently and correctly use the terms related to your subject. Write a short response to the question below, **structured in an extended response that has at least four paragraphs** (including an introduction) and using all the key concepts listed. Ensure that your use of these terms shows your understanding of what each term means. Ensure that your paragraphs are structured properly (*hint*: use the rubric from the Year 7 ‘Pulling it all together’ task to remind you how a paragraph is structured). Also make sure that you use evidence to support your ideas (*hint*: use the examples you collected from the diagrams you constructed for Activity 1).

**Question:** *Identify and discuss how the concepts you have learnt in HASS over Year 9 relate to each other.*

Use these words correctly in your answer:

- democratic values
- justice
- specialisation
- interdependence
- interconnection
- scale
- cause and effect
- empathy.

**Hint:** *the question is asking you to do more than define each of these concepts and then put these definitions together in 500–750 words of three to four paragraphs. To answer the question effectively, using well-constructed paragraphs, you will need to go through several steps:*

**Step 1:** Identify the key words of the question. Highlight, underline or circle them. These will form the most important parts of your response.

**Step 2:** What do the words ‘identify and ‘discuss’ in the question below mean? Define them both. Write down these definitions.

**Step 3:** Use the sentences and diagrams you constructed in Activity 1 to help you plan how you will address the key words in the question (identified in Step 1) in your response. To make an effective plan, you might draw a flowchart, brainstorm or use a graphic organiser. You might need to make more than one plan before you are happy with your final ideas.

**Step 4:** Before you start writing, analyse the assessment rubric for information on how you might structure a response that scores high marks. Highlight the key ideas in the right-hand column (the 5-mark column) of the assessment rubric, so that you know EXACTLY what is expected of a response that gets top marks.

**Quick review:** Does the plan you wrote for Step 3 help you get the best marks on the marking key? If the answer is yes, start writing. If the answer is no, go back and adjust your plan. Ask a partner and/or your teacher for feedback on your plan before you start to write.

**Assessment rubric:** Using key concepts meaningfully

**Word limit:** 500–750 words

	0-1	2	3	4	5
<b>Introduction</b>	The introduction does not provide a clear indication of the response to the task or is not attempted.	The introduction is somewhat clear and explains the intention of the argument. No summation of evidence is provided.	The introduction is clear and some indication of the evidence that will be provided is listed. A general indication of the main ideas of the response may be included.	States the topic/question and provides some relevant background information. An indication of direction of the argument of the response is provided.	Defines the focus of the topic/question, defines key terms and provides relevant background information. Provides a clear direction of the response in terms of line of argument/viewpoint.
<b>Topic sentences</b>	The topic sentences are unclear and appear unrelated to the task.	Not all topic sentences are accurate, clearly address the task or support the introduction.	Some topic sentences are accurate, satisfactorily address the task and support the introduction.	Most topic sentences are accurate, specific, clearly address the task and support the introduction.	All topic sentences are accurate, specific, clearly address the task and support the introduction.
<b>Evidence</b>	Little or no attempt has been made to use evidence.	Some attempt has been made to use evidence; however, it appears generalised and may be inaccurate.	There is an acceptable level of supporting evidence that is mostly accurate. Evidence may not consistently be used to support the argument.	Uses relevant evidence with accuracy. Uses evidence at some points where it provides support for the argument/viewpoint.	Uses relevant evidence with accuracy and detail throughout. Uses evidence effectively at points where it provides support for the argument/viewpoint.
<b>Linking statements</b>	No linking statements or a conclusion are included within the response.	Some linking statements are included. Limited attempt at a final conclusion has been made.	Most of the response contains linking statements between paragraphs. Final paragraph contains an attempt at a conclusion.	Linking statements make a connection between paragraphs. Final paragraph contains a brief conclusion.	Linking statements make a clear connection between paragraphs. Final paragraph contains a strong conclusion.
<b>Effort and organisation</b>	The response is incomplete or disorganised. No attempt to check spelling and grammar, indicating no planning, drafting or proofreading before submission.	The response is poorly presented, disorganised and contains several spelling and grammatical errors, indicating little planning, drafting and proofreading before submission.	The response is satisfactorily presented, contains some spelling and grammatical errors, indicating limited planning, drafting and proofreading before submission.	The response is well presented, contains few spelling and grammatical errors, and shows evidence of some planning, drafting and proofreading before submission.	The response is neatly presented, checked for spelling and grammar, and shows evidence of planning, drafting and proofreading before submission.

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# Glossary

## Civics and Citizenship

**absolute majority** a total (of votes or electoral seats) that is greater than half

**adjudicator** a tribunal, magistrate, judge (alone) or judge and jury who decides the outcome of a legal case presented to them

**adversarial system** a system in which two parties present evidence before an impartial adjudicator who will make a decision in favour of one party

**alibi** a statement that claims an individual was somewhere else when a crime was committed

**balance of power** a situation of having enough votes to determine which of the two largest parties or coalitions will win a vote in Parliament

**balance of probabilities** a standard of proof in a civil trial in which the adjudicator (magistrate or judge) must determine based on the facts and evidence which party's case is more likely

**beyond a reasonable doubt** a standard of proof in a criminal trial in which the adjudicator (magistrate, judge or jury) must have no doubt or there can be no other logical explanation based on the facts and evidence presented in court that the accused committed the crime

**bicameral** a parliament with two chambers, usually a lower house and an upper house

**bribery** the payment of money or giving advantage or benefits to someone in an official position to influence them to behave or act in a way contrary to their duties

**campaign** an organised series of events and advertising with the aim of having voters choose a particular candidate

**civil law** law that applies only to those who seek a remedy. These are disputes between individuals or individuals and organisations. A wrongdoing has been committed against a party and that party seeks compensation or damages from the person accused of the wrongdoing. This is referred to as *tort law*.

**coalition** an agreement between two or more parties to work together to form government and run the country. The responsibilities of government departments will be split between the parties.

**coercion** the use of force or threats to persuade an individual to do or say something

**common law** judge-made law; decisions of cases recorded as reference for future cases

**compensation** a payment made to an individual when another has wronged them

**constitutional monarchy** a system in which the king's or queen's power is severely limited, because they act only on the advice of the

politicians who form the government

**court** an institution designed for parties to present a case or evidence before a third party who will decide the outcome

**criminal law** law that applies to all people in a community where negative actions and behaviour are deemed contrary or against the values of society. They are often called offences and include theft, burglary, assault and arson. The consequences are given by the courts and include fines, imprisonment or community service.

**defendant** a person who is accused of a criminal offence or a civil wrongdoing against another

**expert witness** an individual such as a psychologist or a medical expert who is highly trained in a field or occupation and can provide information in a case regarding technical knowledge

**fake news** deliberately misleading or false news reports

**federal system** a system of government where power is shared between a central, national government and regional governments

**forensic evidence** evidence gained at a crime scene, such as DNA, fingerprints, bullets and firearms, as well as computers and hard drives, that can establish key facts in a crime and connect suspects or individuals to crime scenes

**free enterprise** a belief that businesses should operate with limited regulation by governments

**government** the leadership of a country (or state) responsible for its day-to-day administration

**hierarchy** a system where groups or institutions are ranked according to the authority or power they have

**hung parliament** when no political party or coalition achieves an absolute majority in the lower house of parliament and no government can be formed

**ideology** a set of beliefs about how a country is best run and its political system organised

**impartial** unbiased or unprejudiced. Not giving favour to any party in a court.

**independent** a member of parliament who does not belong to a political party. Also freedom from influence or authority of another.

**indictable offences** serious offences that must be heard before a judge or a judge and a jury. The punishments are more severe.

**institution** an organisation used by political leaders to gain power or rule a country (e.g. a public service department, police or the courts)

**interest/pressure groups** groups of people formed to promote change to the law in a particular area or issue

**judge** the impartial adjudicator in a District or Supreme Court

**judicial review** principle of justice in which a case is tested on its legality and if it was conducted in fair and just matter

**judiciary** the branch of government charged with administering the law and judging the validity of laws created by parliament. This is also known as the court or legal system.

**jurisdiction** the authority given to a legal institution to make judgments regarding certain areas of law or in particular locations

**jury** a group of 12 people chosen at random from the electoral roll who listen to evidence and determine if a defendant is guilty or not guilty

**justice** equity or fairness in the way in which people are treated. Justice can be applied across social, economic, cultural and political areas in society.

**legal representation** a lawyer such as a barrister or solicitor acts on behalf of an accused in court

**liability** legal responsibility

**liberal democracy** a system of government that is a representative democracy and follows the rule of law. Liberal democracies protect individual rights as community members obey laws made by parliaments in exchange for parliaments making laws that protect rights such as religious choice and the right to education.

**magistrate** the impartial adjudicator in a Magistrates Court

**manslaughter** a crime of unintentional death. An individual's actions while not being malicious have led to the death of another.

**media** organisations that publish or broadcast information

**minority government** a government that is formed by less than an absolute majority but the largest party/coalition can only be outvoted in debates if all other parties join up to vote against them

**miscarriage of justice** where a person has been wrongfully convicted and often imprisoned for a crime they did not commit due to problems within the investigation, trial or appeal processes

**natural justice/due process** to ensure fairness, a trial must follow strict rules and procedures, including protecting the rights of an accused, witnesses and victims in court

**onus/burden of proof** a legal concept in which a party has the responsibility of presenting evidence to a certain standard to have an accused found guilty. In a common-law system such as

in Australia, in most cases this onus falls on the prosecution and plaintiff.

**party platform** an outline of a political party's aims, values and the policies they intend to implement if elected to government

**plaintiff** a person who has brought a civil case before the courts against an individual they believe has wronged them

**plea** in court an accused must enter a guilty or not guilty statement regarding the crime they are charged with that will determine if they go to trial

**policy** principles that are followed or a proposed course of action to be taken by a group, an individual or a political party

**precedent** a decision from a previous court case that may be binding or persuasive on other courts in deciding future cases with similar circumstances

**presumption of innocence** a concept in which an accused/defendant cannot be considered guilty until the evidence finds them to be so. They are innocent until proven guilty.

**principle** an accepted rule that is followed

**prosecutor** the legal representative (lawyer, barrister) who presents the case against an accused person in a criminal trial on behalf of the state

**remand** a person charged with a crime, awaiting trial who has not been granted bail may be held in a detention facility

**rule of law** a concept in which all people, institutions, parliaments and governments are accountable to the law. The laws are applied equally, no matter the status of individuals. No one can be above the law, including the lawmakers.

**scrutiny** observation and examination of activities and behaviours to ensure validity

**separation of powers** a concept in which the three branches of government (legislative, executive and judiciary) are separate and independent of each other, with each responsible for their own role, to ensure there is no influence across branches or abuse of power

**simple offences** (called *summary offences* in some other states) less serious offences (not listed as crimes in the Western Australian criminal code) that can be heard by a magistrate. The punishments given are not as harsh.

**statute law** laws made by elected parliaments

**stayed** to be held off; in a court system it means a trial is delayed

**system of government** how the institutions used to gain power and rule a country are organised. There are many different systems of government, including *democratic* and *authoritarian* governments.

**testimonial evidence** oral evidence given by a witness

## Economics and Business

**algorithms** a set of mathematical instructions or rules that, especially if given to a computer, will help to calculate an answer to a problem

**artificial intelligence (AI)** the study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognise pictures, solve problems and learn

**brand value** the financial value of having customers who will pay more for a particular brand

**capital appreciation** an increase in the price or value of assets such as shares or property

**central bank** a bank that provides services to a national government, puts the official financial plans of that government into operation and controls the amount of money in the economy

**comparative advantage** an advantage a country has over another country because it can produce a particular type of product more efficiently

**consumer** a person who buys goods or services for their own use

**credit** a method of paying for goods or services at a later time, usually paying interest as well as the original money

**credit limit** the largest amount of money that a bank allows someone to spend using a credit card

**cryptocurrency** a digital currency produced by a public network, rather than any government, that uses cryptography to make sure payments are sent and received safely; e.g. Bitcoin

**cryptocurrency exchange** a place where digital currencies are bought and sold

**debt** an amount of money borrowed by one party from another, to be paid back at a later date

**decentralised** describes organisations or their activities that are not controlled from one central place but happen in many different places

**discretionary spending** money spent by consumers on things other than necessary purchases such as food, clothes and fuel

**dividend** a part of the profit of a company that is paid to the people who own shares in it

**economies of scale** cost advantages gained by companies from increasing production and lowering costs. This happens because costs are spread over a larger number of goods.

**exports** goods or services sold to another country

**fair trade** a way of buying and selling products that makes certain that the people who produce the goods receive a fair price

**fiat money** legal tender whose value is backed by the government that issued it

**franchise** a right to sell a company's products in a particular area using the company's name

**fraud** the crime of getting money by deceiving people (e.g. credit card fraud)

**free trade** international buying and selling of goods, without limits on the amount of goods that one country can sell to another, and without special taxes on the goods bought from a foreign country

**globalisation** the increasing interconnection between nations and people through the development of trade, technology, travel and communication

**imports** goods or services bought from another country

**innovation** the creation of new products, services or processes, or the improvement of existing ones

**Internet of Things (IoT)** objects with computing devices in them that are able to connect to each other and exchange data using the internet

**interest** money that is charged by a bank or other financial organisation for borrowing money

**investment** the act of putting money, effort and time into something to make a profit or get an advantage, or the money, effort and time used to do this

**interconnection** a state in which two or more people or groups are mutually connected to each other, often in a variety of ways

**labour-intensive production** industries and methods that need a substantial number of workers and time

**mixed market economy** an economy that has elements of private business and government to provide goods and services

**money** coins or notes that are used to buy things, or an amount of these that a person has

**mortgage** a large sum of money borrowed from a financial institution, such as a bank, and used to purchase an asset

**multinational corporation (MNC)** a large corporation headquartered in one country that produces or sells goods or services in multiple countries

**nanotechnology** an area of science that deals with developing and producing extremely small tools and machines by controlling the arrangement of separate atoms

**outsourcing** when a business pays an outside supplier to provide goods and services

**quota** a fixed, limited amount or number that is officially allowed

**return** to receive a particular amount of profit

**risk** the possibility of something bad happening; in business, the risks and rewards can be high

**robotics** the science of making and using robots

**savings** the money you keep, especially in a bank or other financial organisation

**scam** an illegal plan for making money, especially one that involves tricking people

**shareholder** a person who owns shares in a company and therefore gets part of the company's profits and the right to vote on how the company is controlled

**specialisation** where countries tend to produce certain goods that they are best at producing and then trade them with other countries

**stock exchange** a place where shares in companies are bought and sold, or the organisation of people whose job is to do this buying or selling

**supply chain** the system of people and things involved in getting a product from the place where it is made to the person who buys it

**tariff** a charge or list of charges either for services or on goods entering a country

**trade route** a route, often covering a long distance, used by people buying and selling goods

**virtual reality (VR)** a set of images and sounds, produced by a computer, that seem to represent a place or a situation in which a person can take part

## Geography

**adaptation** the process of change where an organism becomes better suited to its environment

**agriculture** the process of growing crops and raising animals for human use and food

**aquifer** an underground layer of rock that holds and stores water

**aspect** the direction that a slope faces

**biodiversity** the variety of plant and animal life found in a place

**biome** a large naturally formed community of plants and animals found in a place

**circumnavigation** sailing or travelling all the way around something

**crop yield** the amount of produce that is grown on a piece of land

**decomposition** the process of being broken down to smaller pieces by bacteria and fungi

**deforestation** clearing a large area of trees

**deposition** the process whereby sediment, soil or rock is added to a part of the Earth's surface to build it up

**domestication** growing and adapting wild plants for human use

**drainage** the artificial removal of water from land

## drawing down carbon or carbon

**sequestration** where carbon dioxide is taken out of the atmosphere and stored in liquids or solids on Earth

**erosion** the wearing down of the Earth's surface, e.g. via waterflow or wind

**evaporation** the process of a liquid becoming a gas when heated

**export** to sell and send goods to another country

**feed lots** places where livestock are fed to gain weight quickly

**fertile** soil that is capable of producing a lot of crops

**food security** the physical availability of food and whether people have the resources and opportunity to gain reliable access to it

**food supply chain** the process of getting food from the farm to the plate

**fossil fuels** non-renewable natural fuel, such as coal or gas, made from the remains of living organisms

**fracking** the process of drilling down into the Earth and pumping in a high-pressure water mixture so the rock releases the natural gas inside

**GDP per capita** the gross domestic product divided by the number of people in that country

**goods** items for sale that can be moved

**gross domestic product (GDP)** the total value of goods and services produced by a country in one year

**humus** the organic part of soil that is formed when microorganisms break down plant material

**import** to bring goods in from another country

**indigenous** naturally existing in a specific place

**input** what is brought into a farm or farming system (e.g. water, machinery, chemicals)

**irrigation** the use of additional water to grow crops, not from rainfall

**less economically developed country** a low-income country that is struggling to develop in a sustainable way. Such countries are very vulnerable to economic and environmental challenges.

**livestock** animals used for work, food or produce

**living wage** an income that is high enough to live a normal standard of life

**marine dead zone** an area that has a reduced level of oxygen in the water that can cause organisms to die

**market forces** economic factors that affect the price, demand and availability of a product

**microclimate** the climate of a very small area that is different from the surrounding climate

**mutiny** refusal by people (e.g. sailors), to continue to obey a person in authority

**natural characteristics** the natural qualities of a place

**occupy** to move into a place and take up room

**pasture** grassed land suitable for grazing animals

**perception** the way in which something is regarded, understood or interpreted

**permafrost** permanently frozen soil, mostly found in the polar and tundra biomes

**phenomenon** a fact or situation that exists or happens (plural: phenomena)

**poverty cycle** the continuation of poverty, often from one generation to another due to the impact of certain factors

**poverty line** the minimum amount of money needed to afford the basic necessities of life

**precipitation** liquid or frozen water that forms in the atmosphere and falls to Earth (e.g. rain, snow)

**project (verb)** estimate what will happen in the future based on what has happened in the past

**remote** an isolated area very far away from urban centres

**riparian** the area where the land and river meet

**services** public needs such as transport, communications, utilities and health care

**soil moisture content** the amount of water in a sample of soil

**spatial distribution** the arrangement of something (such as the forest biome) across the Earth's surface

**staple** a food that is eaten so often that it is one of the main parts of a person's diet

**subduction** a process where one tectonic plate moves under another tectonic plate and sinks into the mantle

**surplus** more than you immediately need

**terracing** sloped land that has been cut into flat platforms for farming

**till** dig or loosen the soil to prepare it for planting

**topography** the shape of the land's surface, which includes landforms such as hills, plateaus and valleys

**tourism** when people travel to places outside of their normal area for business or recreation, relaxation or pleasure

**transpiration** the process of a plant absorbing water through its roots and releasing water vapour through pores in its leaves

**tributary** a small river that feeds its water into a bigger river

**urban** relating to a city or large town

**vegetation** plants found in a particular area or habitat

**weathering** the process of breaking down or dissolving rocks and minerals

## History

**capitalism** an economic system based on private ownership of property and business, with the goal of making the greatest possible profits for the owners

**colonies** settlements belonging to a nation that are made on land in another country

**empire** a group of countries ruled by a single person, government or country

**empirical knowledge** information based on what is seen or experienced rather than theory

**exhibition** large trade show that demonstrates new technologies and innovations

**global warming** a rise in Earth's average temperature due to the atmosphere's inability to release heat because of the growth of greenhouse gas emissions

**hovel** a very poor-quality shelter, not fit for human use

**imperialism** the domination of one or more nations by another, which seeks to use the wealth and people of the dominated nation for its own interests

**industrialisation** the process of developing industries in a country

**industrialist** an owner or an employee in a high position in industry

**laissez-faire** unwillingness to get involved in or influence other people's activities

**modernisation** the act of making something more modern

**nationalist** a person who wants their country to be politically independent

**no man's land** the contested strip of land between enemy trenches on the battlefields of World War I

**Pitt** Prime Minister William Pitt, who encouraged the Enclosure Movement

**primary sources** historical sources created at the time of the events being studied, e.g. photographs, speeches, letters and newspapers

**propaganda** the use of persuasive information by a government to publicise its military success and/or to demonise an enemy country

**rod** an old unit of measurement of about 5 metres

**secondary sources** historical sources written after the events being studied and based on primary sources, e.g. history books, museum interpretative information and statistical tables

**silence ruse** a detailed plan to allow Anzac forces to evacuate from Gallipoli in complete silence, and by stages, to avoid the possibility of a Turkish attack on retreating troops

**social conscience** worrying about people who are poor, ill or old, for example, and trying to help them

**socialism** a political doctrine sympathetic to working people and proposing that the production and distribution of goods and wealth should be shared collectively by society

**stalemate** a situation in which armies have attacked each other but failed to achieve a definite victory for either side, and have settled down into defensive positions such as trenches

**total war** a war that is no longer limited to the traditional battlefield but extends to attacks on civilians in cities and involves civilians in the making of ammunition

**Treaty of Versailles** the treaty signed at the end of World War I that specified the terms of the peace

**turnpike** a main road that one has to pay to use

**urbanisation** the growth of cities

**utopia** a perfect society in which everyone is happy

**war of attrition** after the development of stalemate, enemy armies stop trying to win a decisive victory and just attempt to wear down their opponents by killing as many as possible, hoping that the casualty rate and the psychological effect might cause an enemy's war effort to collapse

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