

Geography Level 6

Chapter 1 — People, places and environments: how places are changed and managed

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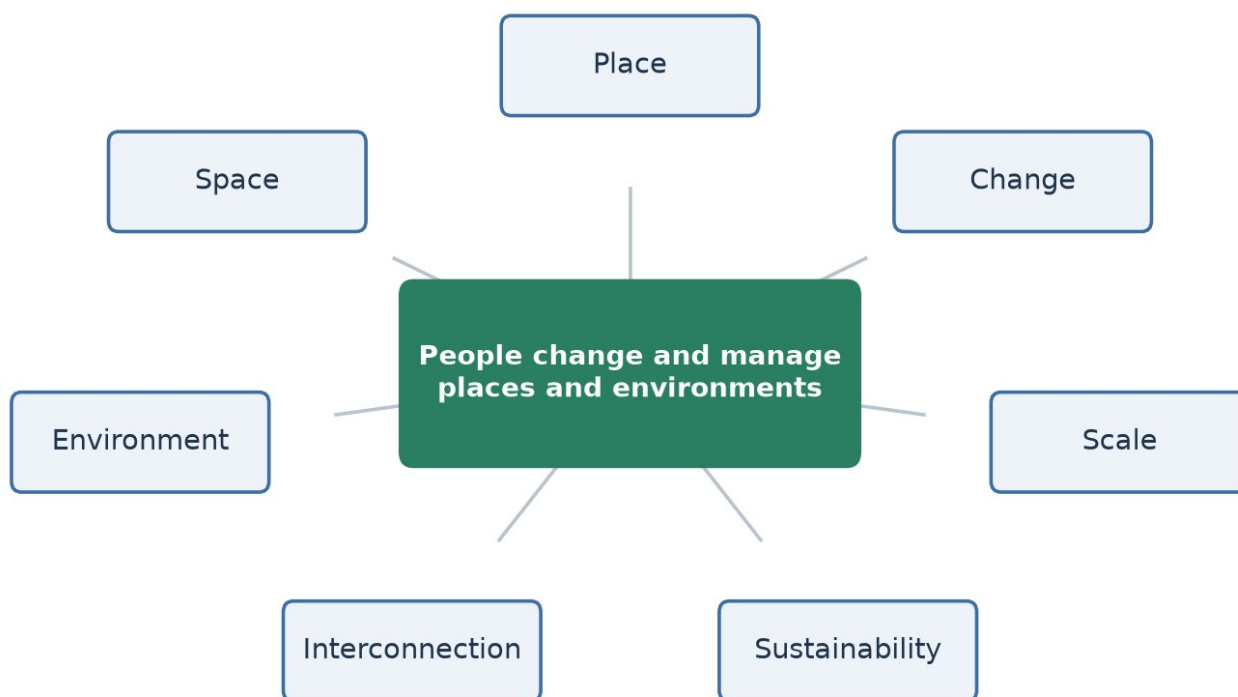
How people change and manage places and environments

Look out of a window and describe what you can see. Almost everything in that view — the houses, the roads, the shops, the park, even the trees planted along the street — was put there by a decision somebody made. Places are not frozen. They are always changing, and **people** are the biggest cause of that change. This section is about two big ideas: how people *change* places and environments, and how people *manage* them — that is, how we make choices about the way our places change.

This section teaches the Victorian Curriculum 2.0 Geography code **VC2HG6K01** and draws on **VC2HG6K01.E01** and **VC2HG6K01.E02**.

Geographers think with seven concepts. You have met most of them in earlier years; here they are all working at once.

The seven geographical concepts used in this book



Concept web with the words ‘People change and manage places and environments’ in a green box at the centre, joined by lines to seven boxes around it: Place, Space, Environment, Interconnection, Sustainability, Scale and Change

In this section the busiest concepts are **place** (a part of the world that people give meaning to), **environment** (the natural world around us), **change** and **scale** (looking at a street, a city, a state or a whole country).

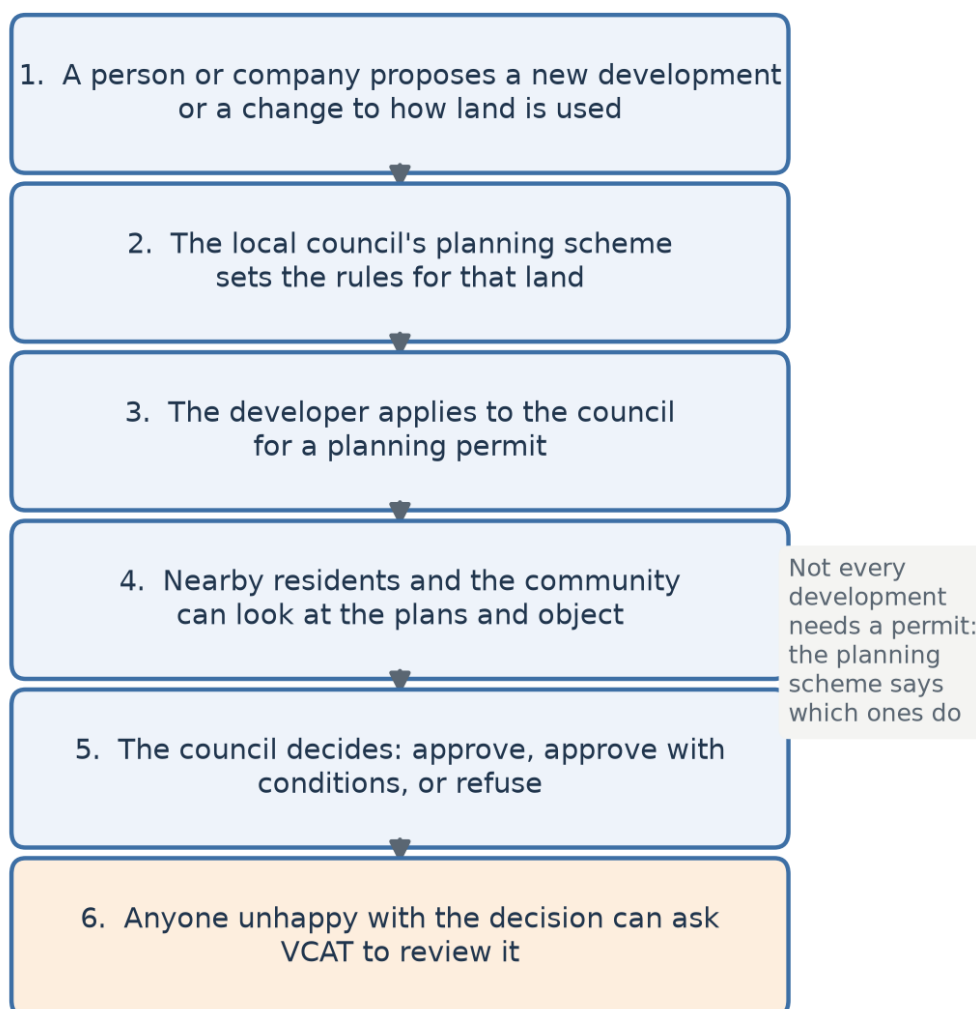
Theory

Places change, with or without us. Some change is natural: coastlines are worn away by waves, floods spread new soil, bushfires burn and regrow. But a huge share of the change we see every day is made by people, and it comes in two flavours. Some of it is **deliberate** — we build a new suburb, open a mine, plant a wind farm, declare a national park. Some of it is **unplanned** — a river polluted by a factory, a quiet town that suddenly grows when a big employer arrives. Geography studies both, because both are people changing places.

Who decides how a place changes? In Australia, choices about land do not just happen. In Victoria, a law called the *Planning and Environment Act 1987* sets up the system. Under it, every part of the state is covered by a **planning scheme** — a public rule book that says what may happen on each piece of land. The heart of a planning scheme is **zoning**: the scheme divides land into **zones**, and each zone says what the land is mainly for and what may be built on

it. When someone wants to build or to use land in a new way, they usually must ask the local council for a **planning permit** — official written permission. People who live nearby and other community members can look at the plan and **object** (say, with reasons, that they are against it), and the council must weigh those views up. If someone is unhappy with the council’s decision, an independent body called **VCAT** (the Victorian Civil and Administrative Tribunal) can review it. The flowchart below is a simplified model of that real process.

How planning decisions about places are made in Victoria



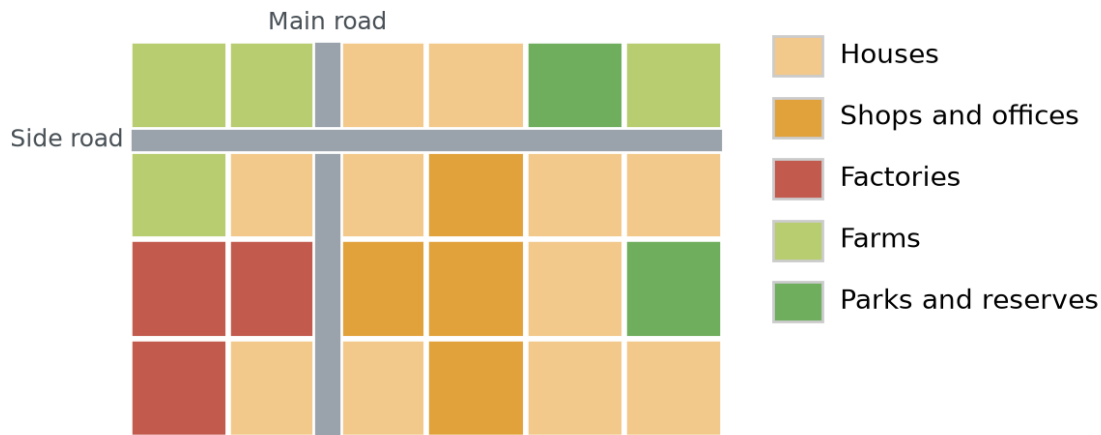
VCAT = Victorian Civil and Administrative Tribunal. This is a simplified model of a real process.

Flowchart with six rounded boxes joined by downward arrows: 1. A person or company proposes a new development or a change to how land is used; 2. The local council’s planning scheme sets the rules for that land; 3. The developer applies to the council for a planning permit; 4. Nearby residents and the community can look at the plans and object; 5. The council decides — approve, approve with conditions, or refuse; 6. Anyone unhappy with the decision can ask VCAT to review it. A side note says not every development needs a permit: the planning scheme says which ones do

Contested term — *development*. The curriculum uses the word *development* but does not define it, and it is a word people argue about. In this section, *development* is used to mean **building or changing something on land, or putting land to a new use** — a new housing estate, a shopping centre, a mine, a park. That is the planning sense of the word. In other subjects *development* can mean growth or learning (a child’s development), and in everyday talk one person’s “exciting new development” is another person’s “loss of a place I love”. Noticing which sense is being used is part of thinking like a geographer.

Reading a zoning model. Here is a model of how a small town might be zoned. It is a model, not a real town — real zoning maps are far more detailed — but it shows the idea.

A zoning model for a small town (model only - not a real town)



Every piece of land sits in a zone that sets what may be built and done there.

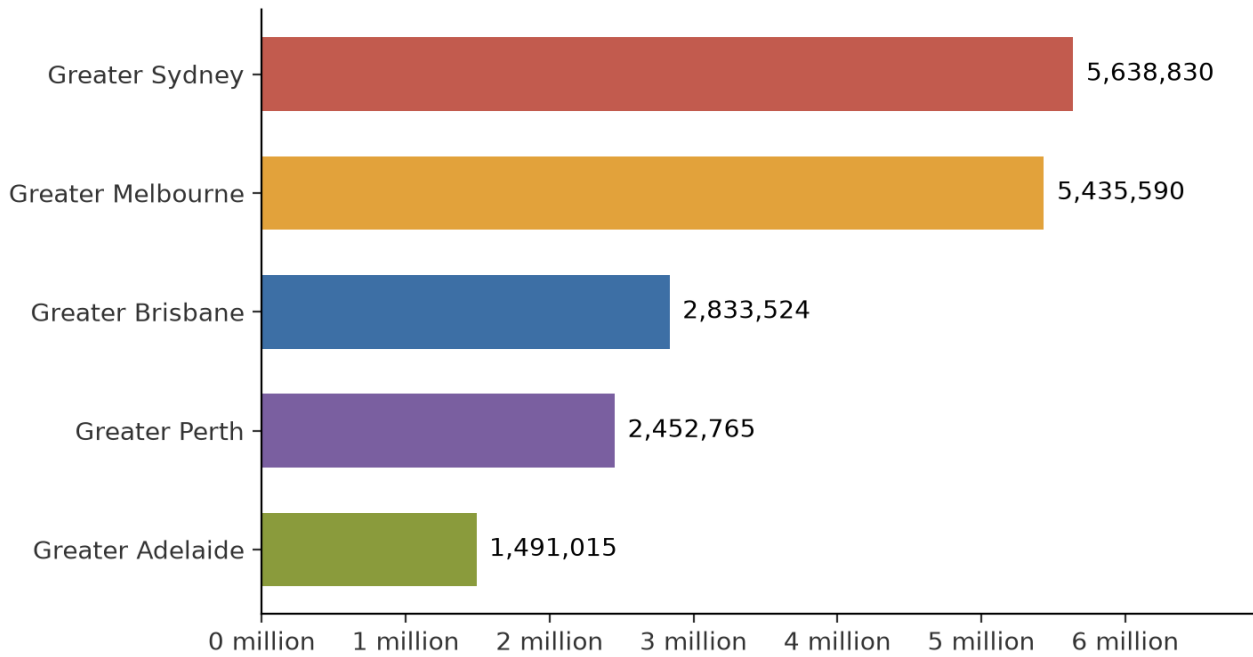
Model zoning map of a small town drawn as a grid of coloured blocks crossed by a grey main road and a grey side road. Blocks are coloured by zone: sandy blocks for houses, orange blocks for shops and offices near the crossroads, red blocks for factories grouped in one corner, pale green blocks for farms on the outer edges, and dark green blocks for parks and reserves. A legend lists Houses, Shops and offices, Factories, Farms, Parks and reserves

Notice the thinking in a map like this: shops and offices sit along the main road where people pass, factories are grouped together away from most houses, farms ring the town, and parks and reserves are kept green for everyone. Zoning is one of the clearest examples of *people managing a place*: the map does not just describe the town, it **shapes** what the town can become.

Two big ways people change places: urbanisation and land protection.

Urbanisation is the growing share of people living in cities and towns rather than in the country. Australia is one of the most urbanised countries on Earth. The chart below shows the five biggest Australian cities at 30 June 2025.

Australia's five biggest cities, 30 June 2025 (estimated resident population: people)

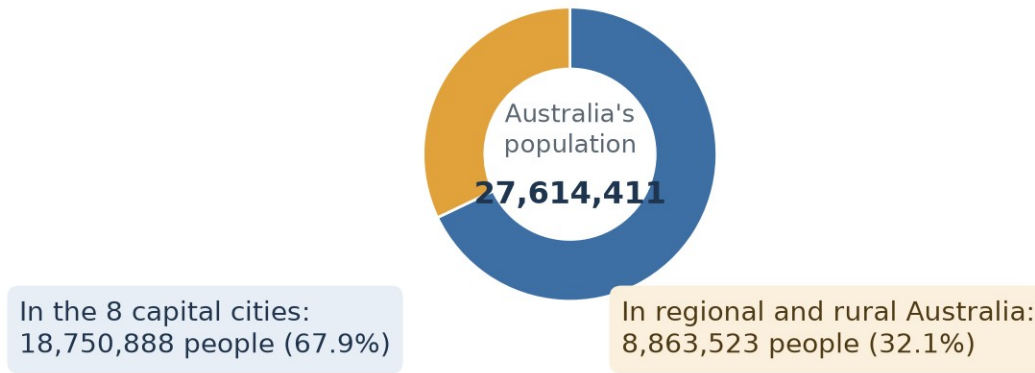


Source: Australian Bureau of Statistics, Regional population (June 2025).

Horizontal bar chart titled 'Australia's five biggest cities, 30 June 2025'. Greater Sydney has 5,638,830 people, Greater Melbourne 5,435,590, Greater Brisbane 2,833,524, Greater Perth 2,452,765 and Greater Adelaide 1,491,015. Each city is a different coloured bar and the exact number is printed beside it

Nearly seven in ten Australians live in one of the eight capital cities, as the next chart shows. When a city grows, the place itself changes: new homes, new roads, new schools, new zones on the planning map.

Where Australians live, 30 June 2025

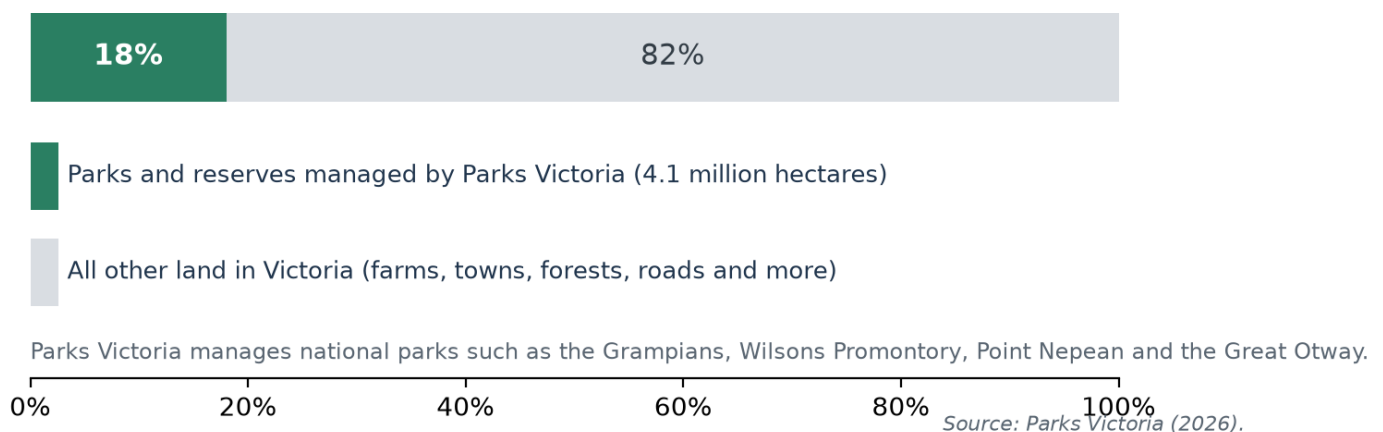


Source: Australian Bureau of Statistics, National, state and territory population and Regional population (June 2025).

Ring chart titled 'Where Australians live, 30 June 2025'. The ring is split into a large blue part and a smaller orange part. In the centre are the words Australia's population 27,614,411. A blue label box reads: in the 8 capital cities, 18,750,888 people (67.9 per cent). An orange label box reads: in regional and rural Australia, 8,863,523 people (32.1 per cent)

Land protection changes places too — by deciding what must *not* happen there. In Victoria, **Parks Victoria** is the government body that looks after public parks and reserves for everyone, including national parks such as the Grampians, Wilsons Promontory, Point Nepean and the Great Otway.

How much of Victoria is managed as parks and reserves?

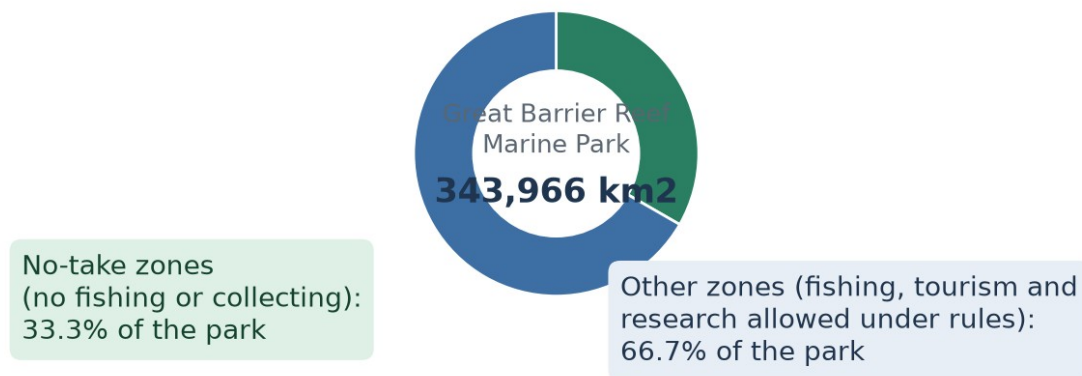


Horizontal bar of 100 per cent of Victoria's land. A green part labelled 18% is 'Parks and reserves managed by Parks Victoria (4.1 million hectares)' and a grey part labelled 82% is 'All other land in Victoria (farms, towns, forests, roads and more)'. A caption names national parks it manages: the Grampians, Wilsons Promontory, Point Nepean and the Great Otway

A **hectare** is a square 100 metres by 100 metres — about half the size of the MCG's playing oval. Protecting 4.1 million of them is a very large choice about how Victoria's environment changes.

Protection is not only on land. The **Great Barrier Reef Marine Park** (a **marine park** is a protected area of sea) was declared in 1975 and is managed by zoning, just like a town: some zones are **no-take zones**, where nothing may be fished for or collected, while other zones allow fishing, tourism and research under rules.

Zoning the Great Barrier Reef Marine Park



Source: Great Barrier Reef Marine Park Authority (park declared 1975; zoning plan figures as reported in 2026).

Ring chart titled 'Zoning the Great Barrier Reef Marine Park'. The centre reads 'Great Barrier Reef Marine Park, 343,966 km²'. A green part of the ring is 33.3% of the park and is labelled 'No-take zones (no fishing or collecting): 33.3% of the park'. A blue part is 66.7% and is labelled 'Other zones (fishing, tourism and research allowed under rules): 66.7% of the park'

The same place, two different management choices: a reef with no no-take zones and a reef with a third locked up are *different places*. That is the point of this whole section — **the way people manage a place is part of what the place is**.

Word bank - planning scheme — the public rule book that says what may happen on each piece of land - **zone / zoning** — a land category in a planning scheme (mainly for housing, shops, factories, farming or protection), and the act of dividing land into zones - **planning permit** — official written permission to build or to use land in a new way - **development** — building or changing something on land, or putting land to a new use - **urbanisation** — the growing share of people living in cities and towns - **object** — to say, with reasons, that you are against a proposal - **no-take zone** — a protected sea zone where nothing may be fished for or collected - **hectare** — an area of 100 m by 100 m

Worked examples

Example 1 — step by step: how a real decision gets made

Fishermans Bend is a strip of old factory land right next to Melbourne's city centre, where the Victorian Government is planning a whole new part of the city. Use the planning flowchart to see how the decision machinery works on a real place.

Fishermans Bend: planning a new part of Melbourne

One of Australia's largest planned urban renewal areas,
guided by a Victorian Government plan



Source: State of Victoria, Fishermans Bend (retrieved 2026).

Four fact boxes titled ‘Fishermans Bend: planning a new part of Melbourne’. How big? About 480 hectares of old factory land. Where? Right next to Melbourne’s city centre, connecting it to the bay. The plan for 2050: homes for about 80,000 residents. Jobs for 2050: work for up to 80,000 people

Step in the flowchart	What it looks like at Fishermans Bend
1. A proposal	The government proposes turning about 480 hectares of old factory land into homes, jobs and parks for about 80,000 residents by 2050.
2. The planning scheme’s rules	The land’s zones were changed so that homes, businesses and schools may be built there — zoning made the new use possible.
3. Permits	Builders still need planning permits for each project, checked against the scheme.
4. Community views	The plan was put on public view so residents, businesses and groups could comment and object.
5–6. Decisions and review	Councils and government make the decisions; anyone unhappy with a permit decision can go to VCAT.

The takeaway: even a 480-hectare change to a city is not one big “yes or no”. It is a scheme, zones, permits, objections and reviews — decisions stacked on decisions.

Example 2 — step by step: reading the reef zoning chart

Read the Great Barrier Reef ring chart above, then follow the thinking.

Question	Worked answer
How big is the park?	343,966 square kilometres — the number in the centre of the ring.
What share is no-take?	33.3% — about one third of the park, the green part of

Question	Worked answer
What does no-take mean there?	the ring. Nothing may be fished for or collected in those zones; the other 66.7% allows fishing, tourism and research under rules.
Is this people changing a place, or managing it?	Both. The reef was declared a marine park in 1975 (a change to how the place is treated), and the zones manage what happens there from then on.

Example 3 — your turn to weigh the sides: a new development

A company proposes a large new housing development on farmland at the edge of a country town. Here are the two sides, each written as strongly as its own supporters would put it.

- **For, in its strongest form:** the town needs homes — young people are leaving because they cannot find one, and the development would bring families, customers for the shops, and money to keep the school and the doctor open. Building on this paddock uses land that is already cleared, close to existing roads and pipes, instead of clearing bush somewhere else.
- **Against, in its strongest form:** the farmland is not just a paddock — it grows food, soaks up floodwater and gives the town its character, and once it is sealed under houses that can never be undone. The town should first use the empty blocks it already has inside its boundary, and the true costs (traffic, flooding, loss of the view that draws visitors) will fall on everyone, not just the buyers.

Notice what both sides do: they name the **place** they are talking about, the **change** they expect, and who wins and loses. A geographer's job is not to pick a side in advance — it is to check that *both* sides are argued this well, then weigh them against evidence. Marking in this book rewards the quality of your reasoning, not the side you land on.

Practice tasks

- Q1.** Use the bar chart of Australia's five biggest cities. Which city had the most people at 30 June 2025, and how many?
- Q2.** Use the same chart. How many more people did Greater Sydney have than Greater Melbourne? Show your working.
- Q3.** Use the ring chart "Where Australians live". True or false: at 30 June 2025, most Australians lived in a capital city. Give the percentage that proves your answer, and name the concept from the web (place, space, environment, interconnection, sustainability, scale, change) that this chart is mainly about.
- Q4.** Use the zoning model of the small town. Name two zones that sit beside the main road.
- Q5.** Still using the model town: give one sensible reason why a planner might group the factory blocks together, away from most of the houses.
- Q6.** Use the planning flowchart. A builder applies for a planning permit and a person living next door objects in writing. According to the flowchart, what happens next, and what can anyone do if they are unhappy with that result?
- Q7.** Use the Great Barrier Reef ring chart. What share of the park is in no-take zones, and what does "no-take" mean?
- Q8.** Use the Victoria parks bar. What share of Victoria's land is managed as parks and reserves by Parks Victoria? Name one national park from the caption.
- Q9.** Use the Fishermans Bend fact boxes. About how many residents is the area planned to hold by 2050, and what was the land used for before?
- Q10.** In your own words, and using at least two words from the word bank, explain how zoning both *changes* a place and *protects* a place. Two or three sentences.

Extended inquiry task — be the planner

Choose a place you know well: your street, the area around your school, or your town's main street. Then do a real, small inquiry.

1. **Find the rules.** With your teacher or family, look up how that land is zoned. In Victoria you can search the public zoning maps (VicPlan) online; in other parts of Australia your local council keeps a matching map. Write down the zone or zones you find.
2. **Describe the place as it is.** In three sentences, use the concepts of *place* and *environment*: what is the area like, and what is it mainly used for now?
3. **Propose one change.** Suggest one development that the zone would allow (for example, a new shop in a shopping zone), or explain what the zone stops from happening there.
4. **Follow the decisions.** Using the flowchart, list who would decide on your proposal, and who could object.
5. **Argue both sides at their strongest.** Write one strong argument *for* your proposal and one strong argument *against* it, each naming who wins and who loses.
6. **Conclude with reasoning.** Finish with two sentences on whether you think the change should go ahead — and state the evidence you would want to check before being sure.

Success criteria (how this is marked): your zone facts are found from a real source; your proposal fits the zone you found; both sides are argued well and strongly; your conclusion gives reasons, not just a preference. As always in this book, the quality of your reasoning is marked — two students may reach opposite conclusions and both do excellently.

Sources

- Australian Bureau of Statistics, *National, state and territory population* and *Regional population* (June 2025 releases) — Australia's population of 27,614,411 and the capital-city figures, retrieved 25 August 2026.
- State of Victoria, *Fishermans Bend* (vic.gov.au) — area, location and 2050 resident and jobs plans, retrieved 25 August 2026.
- Great Barrier Reef Marine Park Authority — park declared 1975, area and zoning share as reported in the Authority's summary of the Marine Park (consulted via its encyclopaedia summary, retrieved 25 August 2026, the Authority's own site being unreachable from the writing desk on that day).
- Parks Victoria — share of Victoria managed and named national parks, consulted via its encyclopaedia summary, retrieved 25 August 2026.
- Victorian Civil and Administrative Tribunal — Planning and Environment List hearing reviews of council decisions, retrieved 25 August 2026.
- *Planning and Environment Act 1987* (Vic) — the law under which Victoria's planning schemes operate (Victorian legislation register, in force, retrieved 25 August 2026).

The zoning map of the small town and the planning flowchart are teaching models created for this book; the flowchart is a simplified model of the real Victorian process.

Answers and marking notes

Q1. Greater Sydney, with 5,638,830 people.

Q2. $5,638,830 - 5,435,590 = 203,240$ more people in Greater Sydney.

Q3. True — 67.9% lived in the eight capital cities. The chart is mainly about *space* (how people are spread across a country) with *change* (urbanisation) close behind; either is well argued.

Q4. Any two of: houses, shops and offices, factories, farms (all four touch the main road in the model).

Q5. Any sensible reason, e.g. to keep factory noise, trucks and smells away from homes, or to give factories room and road access they need without crowding housing.

Q6. The council weighs up the objection and decides (approve, approve with conditions, or refuse); anyone unhappy with that decision can ask VCAT to review it.

Q7. 33.3% (about one third); no-take means nothing may be fished for or collected in those zones.

Q8. 18% (4.1 million hectares); any one of the Grampians, Wilsons Promontory, Point Nepean or the Great Otway.

Q9. About 80,000 residents by 2050; the land was factory/industrial land before.

Q10. Any answer that shows both ideas, e.g. “Zoning changes a place by choosing what can be built, like turning farmland into a housing zone. It protects a place too, because a park or farm zone stops other uses from being built there.” Check that at least two word-bank terms are used correctly.

Marking note — extended task. Mark the success criteria, not the conclusion reached. A “for” and an “against” that each name winners and losers meet the steelman requirement; a conclusion that names the zone you found and a piece of evidence to check meets the reasoning requirement. Two students reaching opposite conclusions can both receive full marks.

How interconnections between places change their characteristics

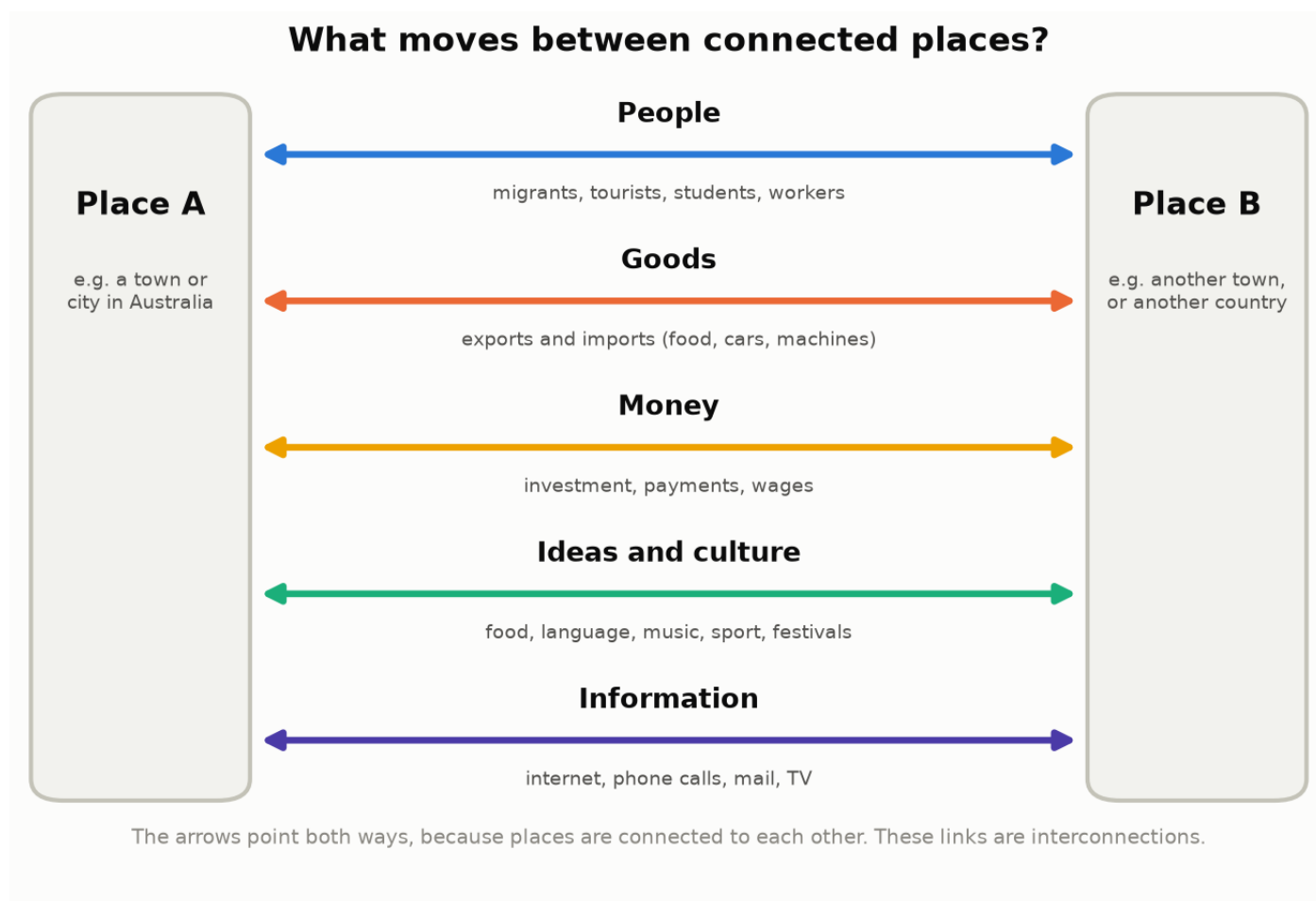
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Theory

No place is an island.

Look at a supermarket shelf, your school bag, or the fruit bowl at home. The bananas may have come from Queensland, the football on the TV from England, the jeans were made in another country, and the phone was designed in one country and built in another. Your place — your suburb or town — is joined to far-away places, and things move along those links every single day.

Geographers call these links **interconnections**. An interconnection is a link between two places along which people, goods, money, ideas or information move. And here is the big idea of this section: **interconnections change the characteristics of the places they join**. A change that begins in one place can ride a connection and change another place far away.



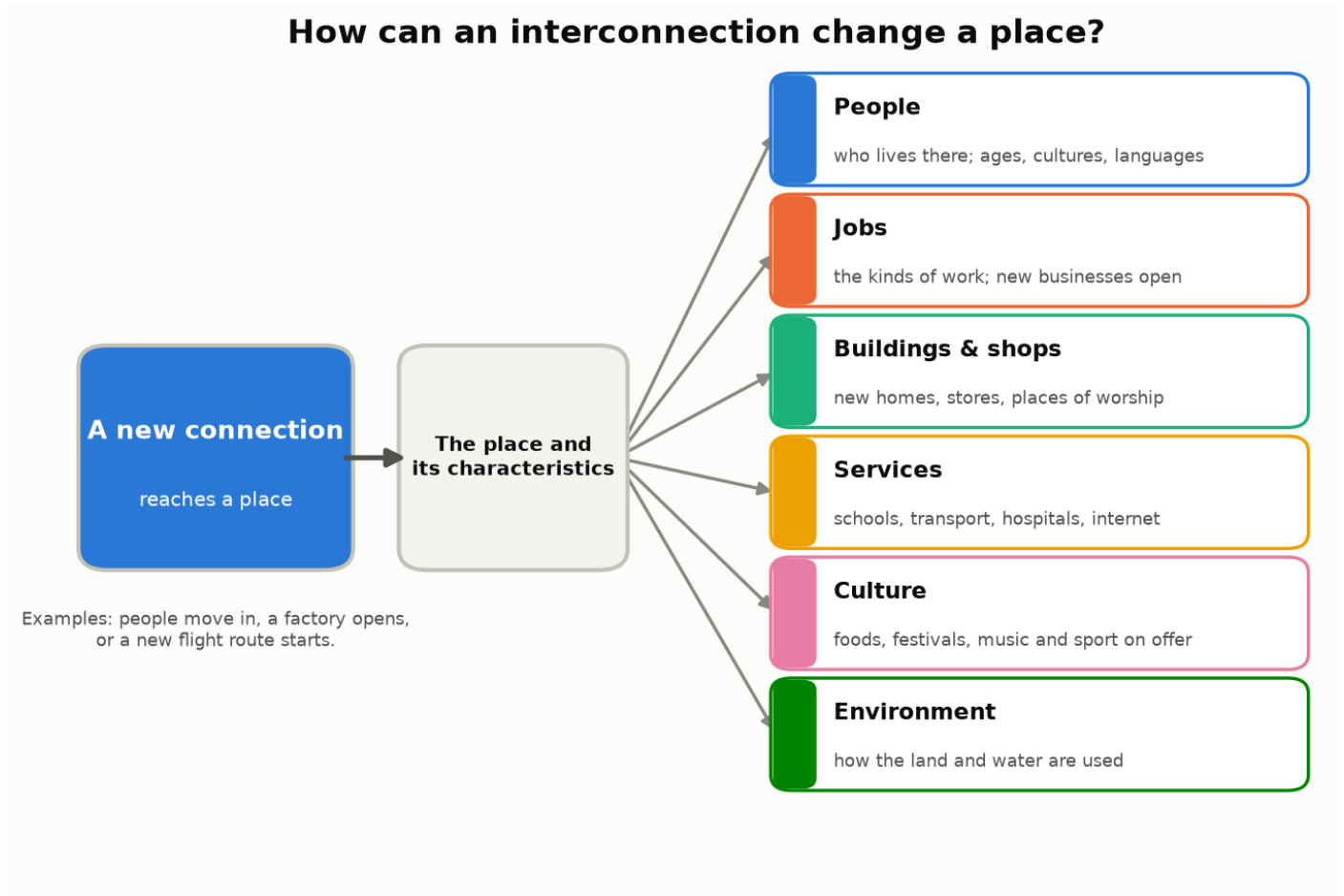
Two place boxes joined by five two-way arrows labelled *People*, *Goods*, *Money*, *Ideas and culture*, and *Information*, with an example of what moves written under each arrow.

Figure 1. What moves between connected places. Source: author's diagram after the Victorian Curriculum 2.0, VC2HG6K02 (VCAA export retrieved 29 Jul 2026).

Read Figure 1 from top to bottom. **People** move (migrants, tourists, students, workers). **Goods** move (exports and imports). **Money** moves (payments, wages, investment). **Ideas and culture** move (food, language, music, sport, festivals). **Information** moves (internet, phone calls, mail, TV). The arrows point both ways, because a link joins *both* places — and *both* places can change.

What do we mean by “the characteristics of a place”?

The **characteristics** of a place are what make it the place it is: who lives there; the kinds of work people do; the buildings and shops; the services (schools, hospitals, transport, internet); the culture (foods, festivals, languages, places of worship); and the environment (how the land, water and air are used). Section 1A showed that people change places. Interconnection is *how change travels between places*.

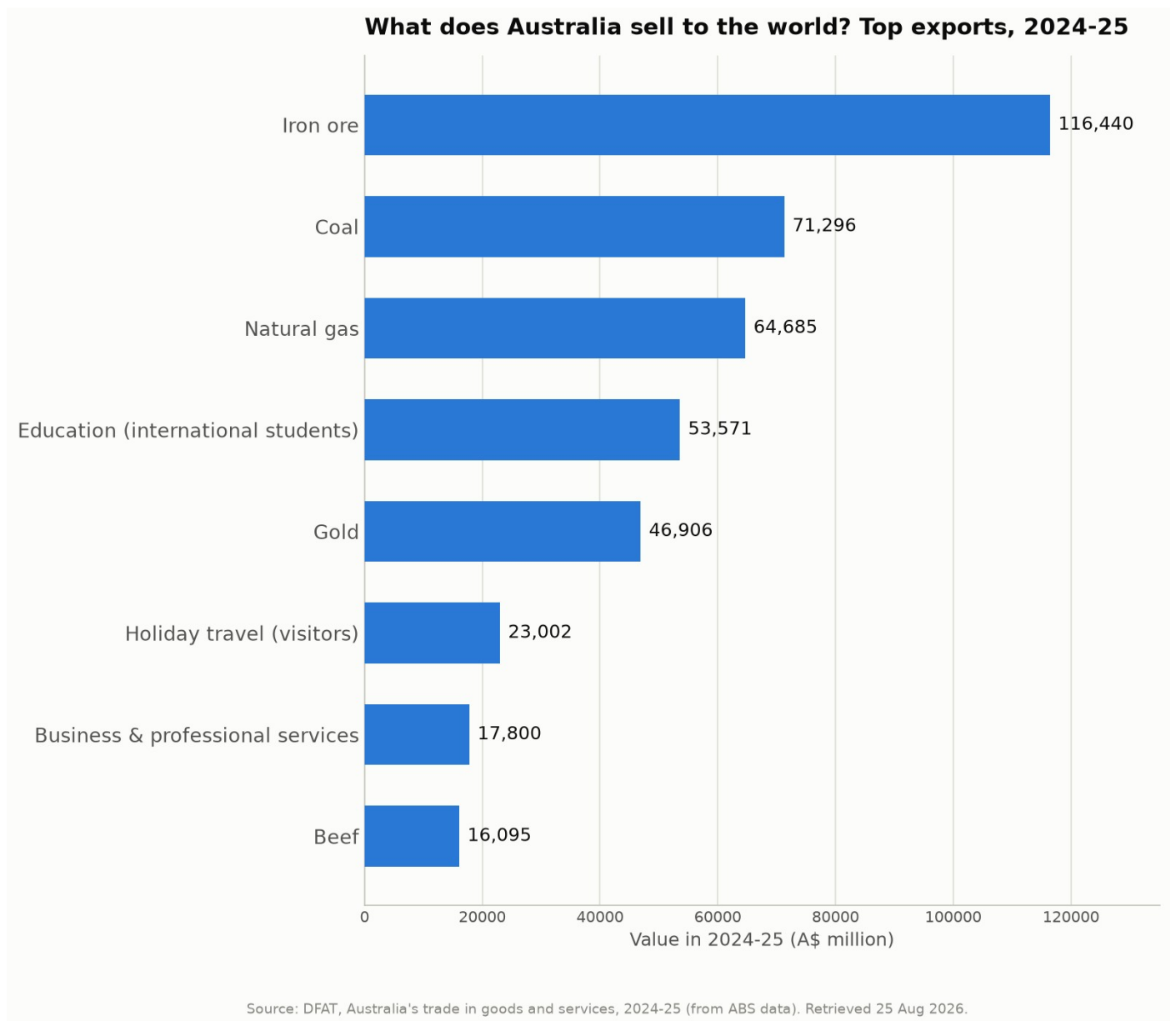


A box labelled “A new connection reaches a place” points to a box labelled “The place and its characteristics”, which points to six cards: People, Jobs, Buildings and shops, Services, Culture, Environment.

Figure 2. How one new connection can change many characteristics of a place. *Source: author’s diagram after the Victorian Curriculum 2.0, VC2HG6K02 (VCAA export retrieved 29 Jul 2026).*

Goods on the move: exports and imports.

When Australia sells something to another country, that is an **export**. When Australia buys something from another country, that is an **import**. Exports plus imports together are called **trade**.

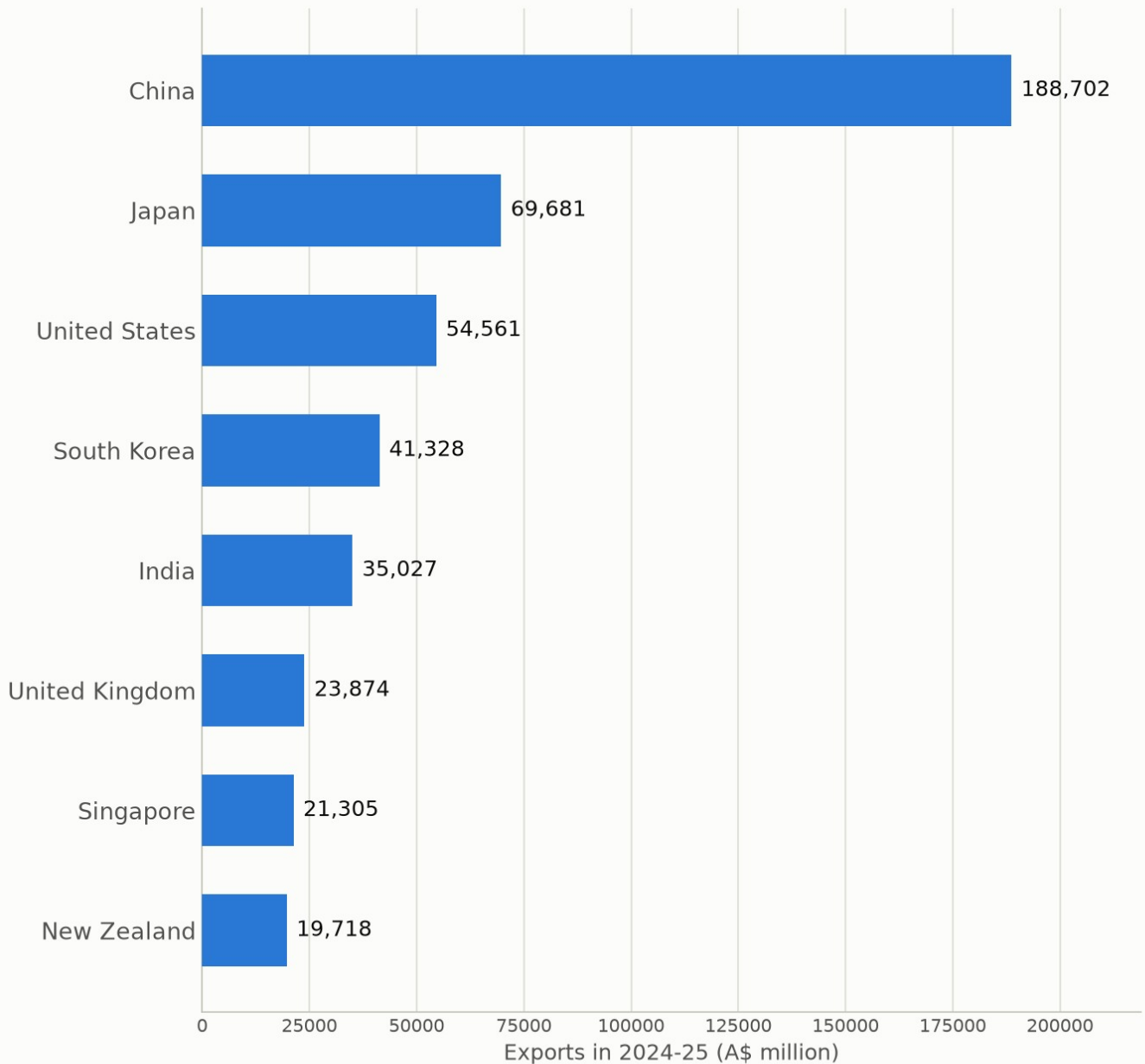


Bar chart of Australia's top eight exports in 2024-25, led by iron ore at 116,440 million dollars, then coal, natural gas, education (international students), gold, holiday travel, business and professional services, and beef.

Figure 3. What does Australia sell to the world? *Source: DFAT, Australia's trade in goods and services, 2024-25 (from ABS data). Retrieved 25 Aug 2026.*

Not everything we sell travels in a ship. Look at the fourth bar of Figure 3: **education (international students)**. When an international student pays to study at a school or university in Melbourne, that counts as an Australian export — Australia is selling a service, not a thing in a box. Holiday visitors work the same way.

Where does Australia sell the most? Top export markets, 2024-25

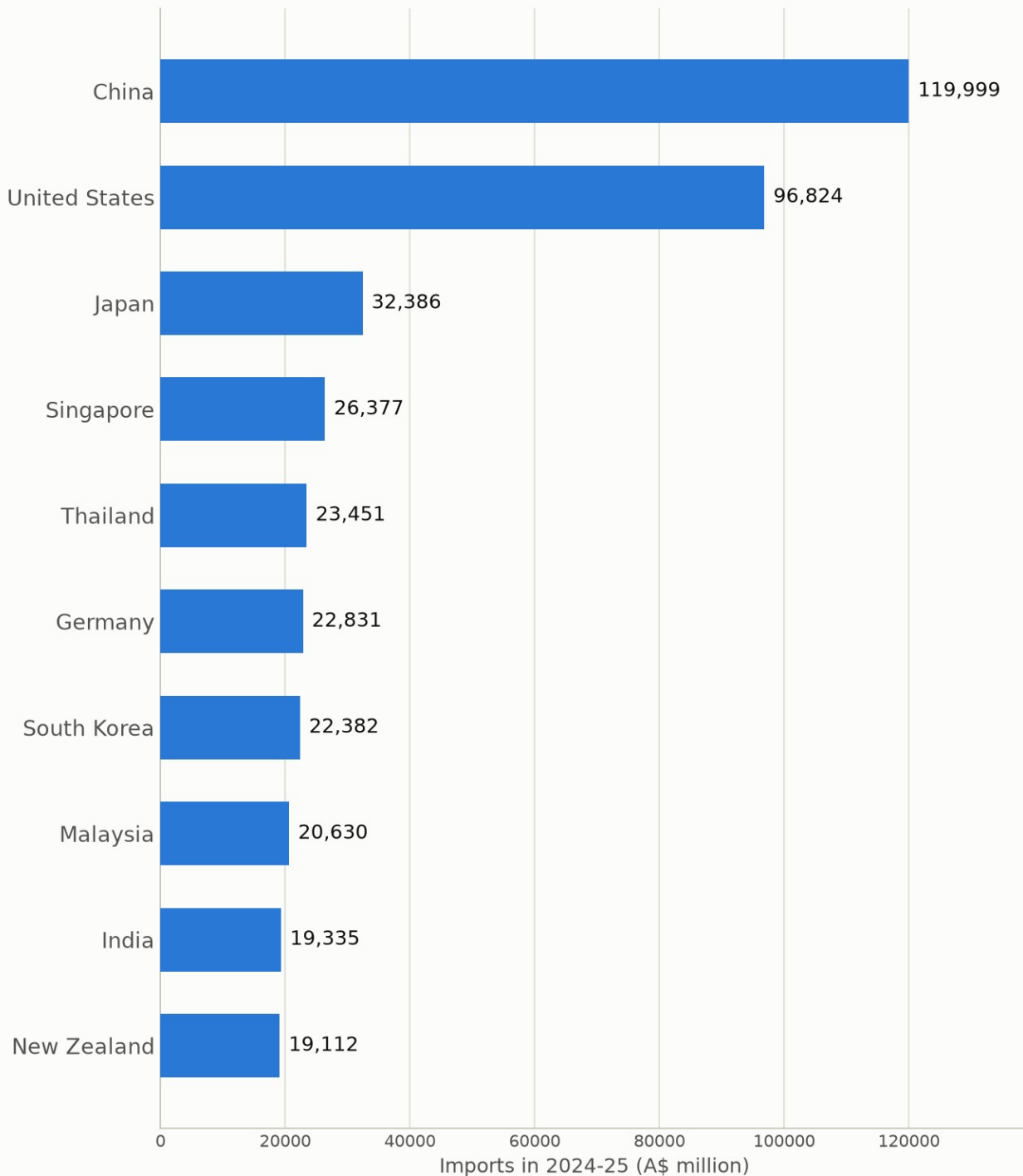


Source: DFAT, Australia's trade in goods and services, 2024-25 (from ABS data). Retrieved 25 Aug 2026.

Bar chart of Australia's top eight export markets in 2024-25: China 188,702 million dollars, then Japan, the United States, South Korea, India, the United Kingdom, Singapore and New Zealand.

Figure 4. Who buys the most from Australia? Source: DFAT, Australia's trade in goods and services, 2024-25 (from ABS data). Retrieved 25 Aug 2026.

Where does Australia buy the most from? Top import sources, 2024-25



Source: DFAT, Australia's trade in goods and services, 2024-25 (from ABS data). Retrieved 25 Aug 2026.

Bar chart of Australia's top ten import sources in 2024-25: China 119,999 million dollars, then the United States, Japan, Singapore, Thailand, Germany, South Korea, Malaysia, India and New Zealand.

Figure 5. Where does Australia buy the most from? Source: DFAT, Australia's trade in goods and services, 2024-25 (from ABS data). Retrieved 25 Aug 2026.

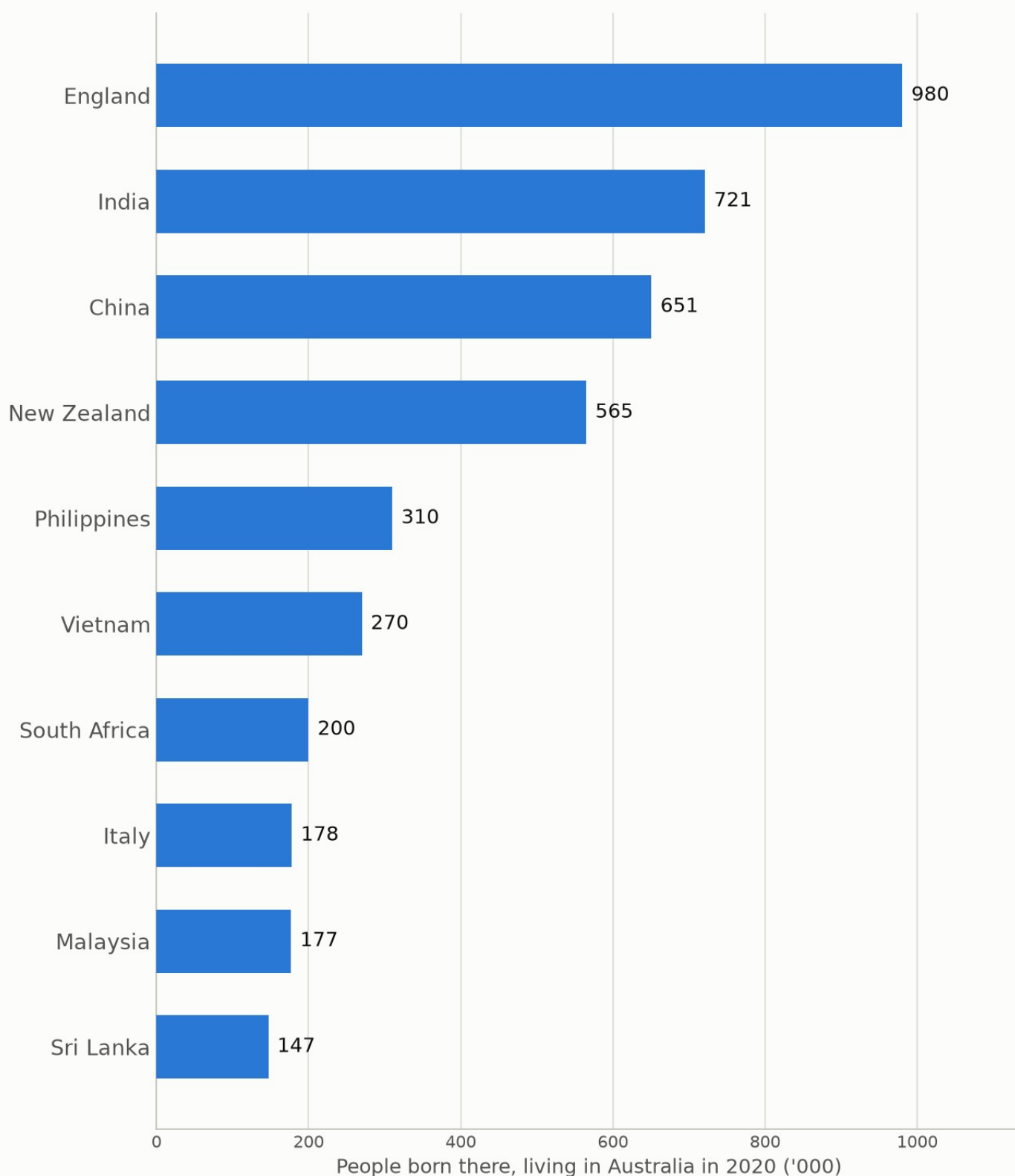
How trade changes places. Follow one bar of Figure 3: iron ore. The ore is mined in the Pilbara, in Western Australia, and shipped out through ports such as Port Hedland, mainly to China. Because of that one connection, Port Hedland has more jobs in mining, rail and the port; more workers have moved in; more homes, roads and rail lines have been built; and the environment is shaped by big ore stockpiles and busy rail lines. The connection changed the place. The other end of the link changes too: the ore becomes steel for building in Chinese cities.

Victoria is connected the same way. Much of what Victoria sells overseas comes from farms and factories — dairy from the Goulburn Valley, meat, grain and wine. When markets in Asia buy more Victorian dairy and meat, more farms, factories and jobs grow around that trade. The goods flow back the other way through the Port of Melbourne, and shops fill with things made overseas — which changes what people in a Victorian town can buy, eat and make.

People on the move: migration.

A **migrant** is a person who moves to another country to live. **Migration** (all the migrants moving) is one of the strongest interconnections there is, because people bring their foods, languages, festivals and skills with them.

Where were overseas-born Australians born? Top 10, 2020



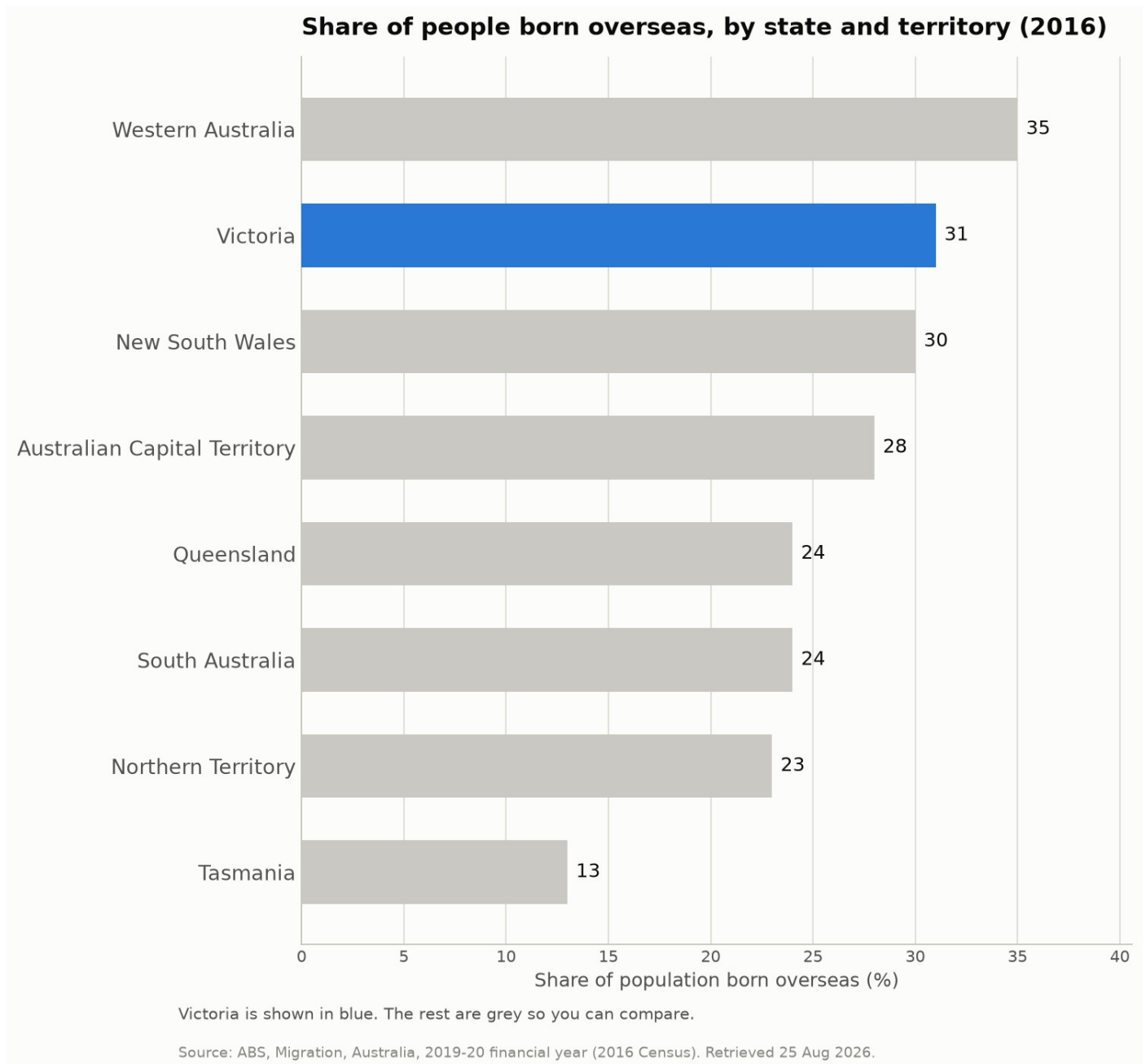
In 2020, 7.65 million people living in Australia (29.8%) were born overseas.

Source: ABS, Migration, Australia, 2019-20 financial year (cat. 3412.0). Retrieved 25 Aug 2026.

Bar chart of the top ten countries of birth of overseas-born Australians in 2020, in thousands, led by England 980, India 721, China 651 and New Zealand 565.

Figure 6. Where were overseas-born Australians born? Source: ABS, Migration, Australia, 2019–20 financial year. Retrieved 25 Aug 2026.

In 2020, 7.65 million people living in Australia — about 3 in every 10 — were born overseas. Figure 6 shows where the ten biggest groups were born.



Bar chart of the share of each state and territory's population born overseas in 2016: Western Australia 35 per cent, Victoria 31 (shown in blue), then the other states and territories, from the Australian Capital Territory's 28 down to Tasmania's 13.

Figure 7. Share of people born overseas, by state and territory. *Source: ABS, Migration, Australia, 2019–20 financial year (2016 Census). Retrieved 25 Aug 2026.*

Victoria sits near the top of Figure 7: 31 in every 100 Victorians were born overseas — the second-highest share of any state, after Western Australia.

How migration changes places. Walk around Melbourne and you can read the connections on the street: the Italian cafés of Lygon Street, Chinatown, Vietnamese bakeries, Greek festivals, Chinese New Year and Diwali celebrations. People who move in bring new foods, new languages, new festivals, new shops and new places of worship — the characteristics of the place change. Services change too, as schools, hospitals and transport adjust to serve new people.

Which country is Australia's closest? A debate, not a single answer.

Here is a question that people and governments argue about: *which countries does Australia have the closest ties with?* It is a **contested** question — one that sensible people can disagree about — because “close” is not one single thing. The answer changes with the measure you choose.

Which country is Australia's 'closest'? It depends how you measure it

If you measure 'close' by ...	The answer is ...
Total trade (exports + imports)	China
Biggest market for our exports	China
Biggest source of our imports	China
Where most overseas-born residents came from	England
Second-biggest group of overseas-born residents	India

There is no single answer. A 'close relationship' can mean trade, or people, or travel. Always say which measure you used. (Trade: DFAT 2024-25; migration: ABS 2019-20. Retrieved 25 Aug 2026.)

Table showing that the answer to “which country is Australia's closest?” depends on the measure: by total trade, by biggest export market and by biggest import source the answer is China; by where most overseas-born residents came from the answer is England, and the second-biggest group came from India.

Figure 8. “Closest” depends on how you measure it. Trade: DFAT, 2024–25; migration: ABS, 2019–20. Retrieved 25 Aug 2026.

Every view in Figure 8 is reasonable:

- **The trade view.** If “close” means money and jobs, China is clearly the closest — our biggest export market, our biggest import source, and our biggest two-way trade.
- **The people view.** If “close” means family and shared history, England and India come first — the two biggest groups of overseas-born Australians.
- **The travel-and-friends view.** Others point to New Zealand or the United States — countries many Australians visit, have family in, or have known as friends for a very long time.

No view is “wrong”. The rule of good geography is: **say which measure you used**, then back your view with evidence. That is the debate VC2HG6K02.E01 asks you to practise — and how such ties change places is exactly what this section is about.

Your place is connected too.

VC2HG6K02.E02 is about *your* place: its connections within Australia and overseas, and how those connections change its characteristics. You can find real connections with simple fieldwork: check “product of” labels in a supermarket; notice the languages on shop signs; note the restaurants and festivals in your town; ask your family where their favourite things come from. For every connection, write down your evidence — how you found out.

My place and its connections — investigation organiser

My place is: _____

Type of connection	Where is it connected to?	What moves?	My evidence (source)	How does it change my place?
Migration (example)	A country, e.g. India	People, food, languages	Shops, a festival, neighbours	New foods, festivals, neighbours
Trade				
Tourism				
Transport				
Information				

Fill in one row for each kind of connection you can find. Use evidence (what you saw, a photo, a website, a person you asked).

A blank planning table titled “My place and its connections”, with a worked example row for migration and blank rows for trade, tourism, transport and information; the columns ask for the connection, where it reaches, what moves, the evidence, and how it changes my place.

Figure 9. A planning table for investigating your own place. Source: author’s diagram after the Victorian Curriculum 2.0, VC2HG6K02.E02 (VCAA export retrieved 29 Jul 2026).

Then ask the geographer’s question: *which characteristics of my place does this connection change?* A new restaurant changes culture and shops. A factory that exports changes jobs. A new flight route changes transport and services.

Interconnections run at every **scale** — between your street and another suburb, between Victoria and Queensland, between Australia and the world. The same big idea works at all of them.

Worked examples

Example 1 — guided

Use Figure 4 (Australia’s top export markets, 2024–25). (a) Name Australia’s biggest export market. (b) Give the value of our exports to that market. (c) Is that more than Japan and the United States together?

Working	Comment
Longest bar → China.	In a bar chart, the longest bar is the biggest value.
Number at the end of the bar → A\$188,702 million.	The values are in millions of Australian dollars.
Japan 69,681 + United States 54,561 = 124,242.	Add first, then compare.
Compare: 188,702 > 124,242 → yes.	
(a) China. (b) A\$188,702 million. (c) Yes — China alone buys more from us than Japan and the United States together.	

Example 2 — guided

Iron ore is mined in the Pilbara (Western Australia) and shipped to China. Using Figure 2, name three characteristics of a Pilbara port town such as Port Hedland that this connection changes, and say how.

Jobs — much of the work in town is mining, rail and the port.

The connection creates the town's work.

People — workers move in from other parts of Australia and from overseas.

The people characteristic follows the jobs.

Buildings and services — homes, roads and rail lines are built to move ore and house workers.

Built characteristics grow with the trade.

Check: each answer is one of the six characteristic cards in Figure 2. ✓

Example 3 — independent

A student looks at Figure 6 and says: "Of the countries shown, more overseas-born Australians were born in Asian countries than in European ones." Do the numbers back that up? Show your working, and give one reason to be careful with the claim.

Asia (shown): India 721 + China 651 + Philippines 310 + Vietnam 270 + Malaysia 177 = 2,129 thousand. Europe (shown): England 980 + Italy 178 = 1,158 thousand. $2,129 > 1,158$, so **yes**, the numbers shown back the claim up. Reason to be careful: Figure 6 shows only the ten biggest groups, not every country — a chart shows what it shows, nothing more.

Example 4 — independent

Mei says "China is Australia's closest partner." Josh says "England is." Using Figure 8, explain how they can both be right.

"Closest" depends on the measure. Mei is measuring by **trade**: China is Australia's biggest export market, biggest import source and biggest two-way trade. Josh is measuring by **people**: the biggest group of overseas-born Australians was born in England. Each view names its measure and backs it with evidence, so both are reasonable — they are answering different questions. The way to end the argument is to agree on the measure first.

Practice questions

Guided

Q1. Fill in each blank. When Australia sells something to another country, that is an _____. When Australia buys something from another country, that is an _____. A person who moves to another country to live is a _____.

Q2. Use Figure 3. (a) Name Australia's biggest export and its value. (b) One of the top five exports is a service, not a thing in a ship. Name it. (c) Which is bigger, coal or natural gas, and by how much?

Q3. Use Figure 4. (a) What place does India hold in the list of export markets? (b) Give the value of Australia's exports to India. (c) True or false, with a reason: all eight of Australia's top export markets are in Asia.

Q4. Use Figure 7. (a) Which state has the highest share of overseas-born people, and what is that share? (b) Which state has the lowest? (c) Victoria's share is 31%. How many percentage points below Western Australia is that?

Q5. Use Figure 1. (a) List the five things that move between connected places. (b) Choose two of them and give one example of each from your own life.

Q6. Use Figure 2. Match each change to the characteristic card it fits best: (a) a new Vietnamese bakery opens; (b) a mine grows and clears bushland; (c) a new temple is built; (d) a new direct flight to Singapore begins.

Independent

Q7. Use Figure 5. (a) Name Australia's biggest import source and its value. (b) About how many times bigger are imports from the United States than from Japan? Show your estimate. (c) Name two Asian countries in the top five import sources.

Q8. Extended response. “China is Australia’s closest partner.” “No — England is.” Using Figures 4, 6 and 8, write the strongest case you can for **each** side (two or three sentences each), then give your own view. You must name the measure you used and the evidence that backs it.

Q9. Inquiry and fieldwork. Using the planning table in Figure 9, investigate your own place. Fill in at least **three** rows, including at least one connection **within Australia** and one connection **overseas**. For every connection, write your evidence and its source (what you saw, a label, a website, a person you asked). Finish with one sentence: *The connection that changes my place the most is ... because ...*

Q10. Education (international students) is Australia’s fourth-biggest export (Figure 3). (a) In your own words, explain what Australia is “selling”. (b) Name two ways international students change the characteristics of a place such as Melbourne.

Q11. Interconnections run at every scale. Choose a Victorian place you know well. Name one connection it has (i) within Victoria, (ii) with another part of Australia, and (iii) overseas, and say what moves along each link.

Q12. Trade and the environment. Choose one Australian export from Figure 3. Explain one way that producing it changes the environment of the place where it is produced (for example, land mined for ore, or water used for farming). Name a real Australian place in your answer.

Answers

Q1. export; import; migrant. **Q2.** (a) iron ore, A\$116,440 million. (b) education (international students). (c) coal, by A\$6,611 million. **Q3.** (a) fifth. (b) A\$35,027 million. (c) false — the United States, the United Kingdom and New Zealand are not in Asia. **Q4.** (a) Western Australia, 35%. (b) Tasmania, 13%. (c) 4 percentage points. **Q5.** (a) people; goods; money; ideas and culture; information. (b) answers will vary. **Q6.** (a) culture (also jobs, shops); (b) environment (also jobs); (c) buildings and shops (also culture); (d) services. **Q7.** (a) China, A\$119,999 million. (b) about 3 times. (c) any two of Japan, Singapore, Thailand. **Q8.** answers will vary — see the worked solution. **Q9.** answers will vary — see the worked solution. **Q10.** (a) Australia is selling teaching, courses and student life — a service. (b) any two of: new foods and shops, more languages heard, festivals, housing, jobs in teaching and hospitality. **Q11.** answers will vary. **Q12.** answers will vary.

Worked solutions

Q1. Selling to another country = an **export**; buying from another country = an **import**; a person who moves to another country to live = a **migrant**.

Q2. (a) The longest bar is iron ore at A\$116,440 million. (b) The service in the top five is education (international students). (c) Coal 71,296 – natural gas 64,685 = A\$6,611 million, so coal is bigger by that much.

Q3. (a) Counting down Figure 4: China, Japan, United States, South Korea, then India — fifth. (b) A\$35,027 million. (c) False: the list includes the United States, the United Kingdom and New Zealand, which are not in Asia.

Q4. (a) Western Australia, 35%. (b) Tasmania, 13%. (c) $35 - 31 = 4$ percentage points.

Q5. (a) People, goods, money, ideas and culture, information. (b) Example: goods — the football at home was made in Pakistan; information — a video call to cousins in another country. Your examples will differ.

Q6. (a) A bakery changes the food on offer → **culture** (it also adds a shop and jobs). (b) Clearing bushland changes the land → **environment** (the mine also adds jobs). (c) A temple is a new building and a new place of worship → **buildings and shops** (also culture). (d) A flight route is transport → **services**. Any card choice is accepted if the reason fits.

Q7. (a) China, A\$119,999 million. (b) United States 96,824; Japan 32,386. $32,386 \times 3 = 97,158$, which is close to 96,824, so imports from the United States are **about 3 times** those from Japan. (c) Any two of Japan, Singapore and Thailand.

Q8. Model answer. *The case for China:* by trade, China is by far the closest — the biggest market for Australia's exports (A\$188,702 million), the biggest source of imports, and the biggest two-way trade; many Australian jobs depend on that trade. *The case for England:* by people, England comes first — the biggest group of overseas-born Australians was born there, with shared language, history and family links. *Own view (example):* I measure "close" by trade, because jobs and money touch the most people, so I choose China — and I say so, so my measure is clear.

Q9. Model answer (one row shown; yours will name your own place). Row "Trade": connected to *China*; what moves *iron ore and coal out, machines and toys back*; evidence "*product of China*" labels in two shops on our main street, and a DFAT trade table; change our town's port and rail jobs depend on that trade. Closing sentence (example): *The connection that changes my place the most is migration, because it changed our food, our festivals and our shops.* A good answer names a source for every row and includes one within-Australia and one overseas connection.

Q10. (a) Australia is selling a service: teaching and student life. International students pay to study here, so the "export" is the course and the experience, not a thing in a ship. (b) Any two of: new foods and shops near universities; more languages heard on the street; festivals and events; more housing and part-time jobs in teaching, housing and hospitality.

Q11. Model answer for Mildura: (i) within Victoria — Mildura farmers send fruit and vegetables to Melbourne's markets (goods move); (ii) within Australia — holiday-makers from other states visit the river and the parks (people and money move); (iii) overseas — Mildura fruit is sold overseas (goods move). Any Victorian place is accepted if each link names what moves.

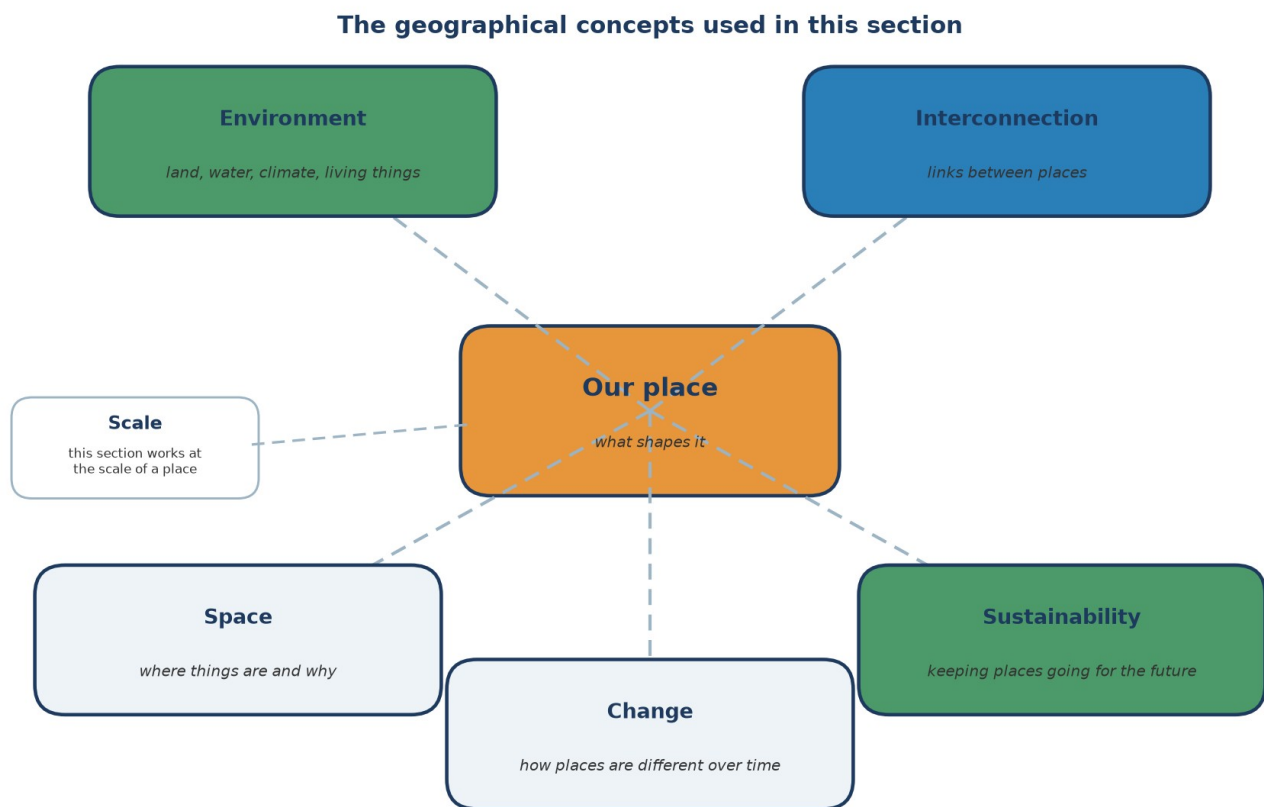
Q12. Model answer: iron ore. In the Pilbara (Western Australia), mining the ore removes hills and leaves big pits and stockpiles, and ports and rail lines are built to move it — the environment of the place is changed by the trade connection. (A farming answer is equally good: growing export dairy and fruit in the Goulburn Valley (Vic) uses river water for irrigation, changing the land and water of the place.)

Our place: what shapes it, how it changes, how people manage that change

Every place is a mix. There is the environment — the land, the river, the climate — and there is everything people have added: homes, farms, roads, shops, jobs, languages and food. Geographers call all of these the **characteristics** of a place, and they are never frozen. Places grow or shrink, new people arrive, decisions are made about what may be built and what must be protected. This section studies one real Victorian place — **Mildura** — to show what shapes its characteristics, how the place is changing, and how people manage that change. Then it hands the same questions to you for *your* place.

This section teaches the Victorian Curriculum 2.0 Geography code **VC2HG6K03** and draws on three elaborations of it: **VC2HG6K03.E01**, **VC2HG6K03.E02** and **VC2HG6K03.E03**. E03 carries the Sustainability cross-curriculum priority, and it is the book's first full inquiry.

These are the geographical concepts at work in this section.



Concept web with the words 'Our place — what shapes it' in an orange box at the centre, joined by dotted lines to five boxes around it: Environment (land, water, climate, living things), Interconnection (links between places), Space (where things are and why), Change (how places are different over time) and Sustainability (keeping places going for the future). A small white chip notes that this section works at the scale of a place.

Figure 1. The concepts doing the work in this section. Source: author's diagram after the Victorian Curriculum 2.0, VC2HG6K03 (VCAA export retrieved 25 August 2026).

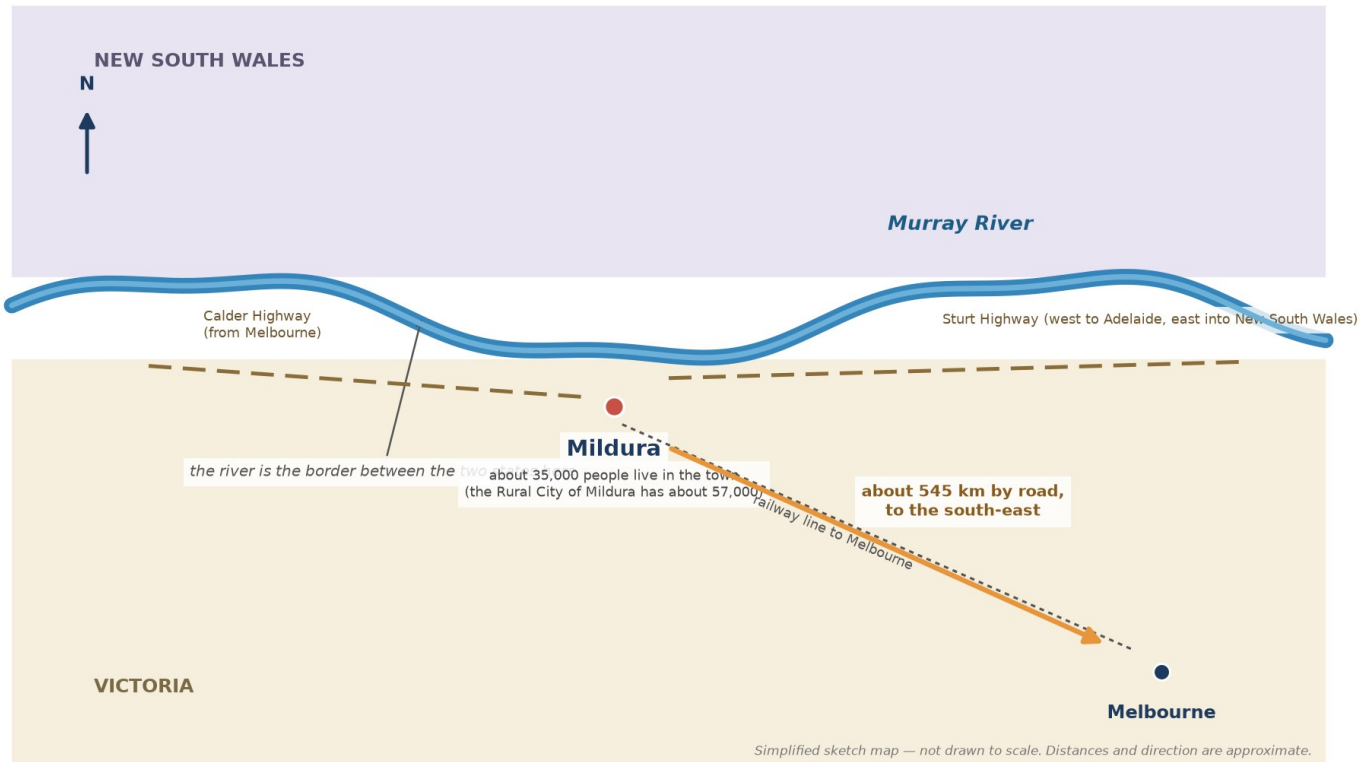
Theory

Why Mildura? Mildura is our case study because it shows every idea in this section clearly: a strong environment, a location that matters, busy interconnections, real change and real decisions. Every number in this section comes from a real source, named under each figure and listed again at the end. Read Mildura as a worked model — the questions you learn here are the ones you will then ask about your own place.

Where is Mildura?

A place can be located two ways. Its **absolute location** pins it down with grid numbers such as latitude and longitude. Mildura's absolute location is about 34°S, 142°E (the Bureau of Meteorology's Mildura Airport weather station sits at 34.24°S, 142.09°E, 50 metres above sea level). Its **relative location** describes where it sits *compared with other places* — and for understanding a place, relative location often tells you more.

Where is Mildura? A sketch of its relative location



Simplified sketch map showing the Murray River running as the border between New South Wales (top) and Victoria (bottom). Mildura is marked on the Victorian bank, with the Calder Highway from Melbourne, the Sturt Highway running west towards Adelaide and east into New South Wales, and a railway line to Melbourne. A double-headed arrow shows Mildura is about 545 km by road south-east of Melbourne. A note says the sketch is not drawn to scale.

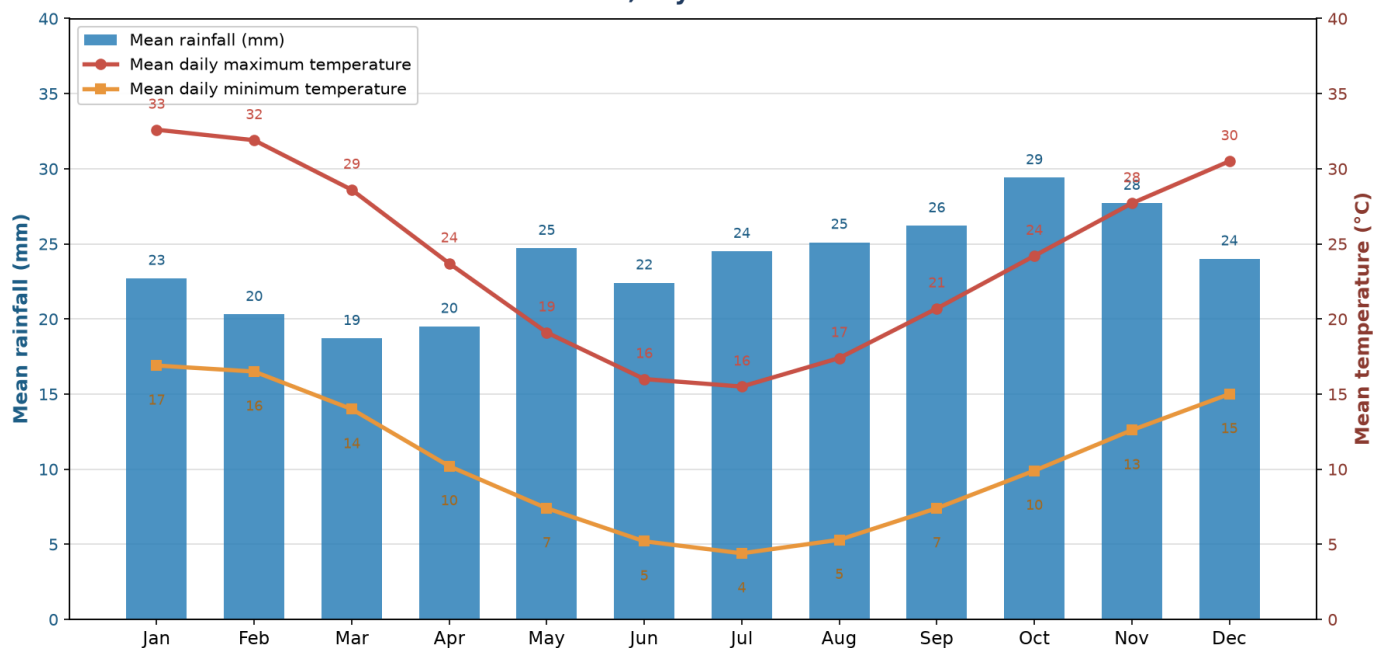
Figure 2. Mildura's relative location. *Source: author's sketch map after Wikipedia, "Mildura", and the Bureau of Meteorology, station 076031 (both retrieved 25 August 2026).*

Read Mildura's relative location from Figure 2. Mildura sits on the Victorian bank of the **Murray River**, right beside the border with New South Wales — the river itself is the border there. It is about 545 km by road north-north-west of Melbourne, joined to the capital by the Calder Highway and a railway line, and it sits on the Sturt Highway, which runs west towards Adelaide and east into New South Wales. About 35,000 people live in the town itself, and about 57,000 live in the surrounding Rural City of Mildura. Location like this — on a river, on a border, on two highways and a rail line — is not just a fact. It is one of the forces that shapes the place.

The environment shapes Mildura.

The Murray River is the heart of Mildura's environment. Inland Victoria is dry, but river water is pumped onto the land to grow crops — **irrigation** means supplying water to crops by channels or pipes rather than waiting for rain. Mildura began in the 1880s as an irrigation colony, and today its irrigated farms grow grapes (for eating, for sultanas and for wine), citrus fruit and stone fruit. The environment did not just give Mildura a site — it gave the place its work, its food and its reason to grow.

Mildura's climate: hot, dry summers and cool winters



Mean monthly values for Mildura Airport (station 076031), 1946-2026. Source: Bureau of Meteorology climate averages (retrieved 25 August 2026).

Climate graph for Mildura: blue bars show mean monthly rainfall in millimetres, a red line shows mean daily maximum temperature and an orange line shows mean daily minimum temperature in degrees Celsius. Rainfall is low in every month, highest in October at about 29 mm; maximum temperature peaks at about 33 degrees in January and minimum temperature falls to about 4 degrees in July.

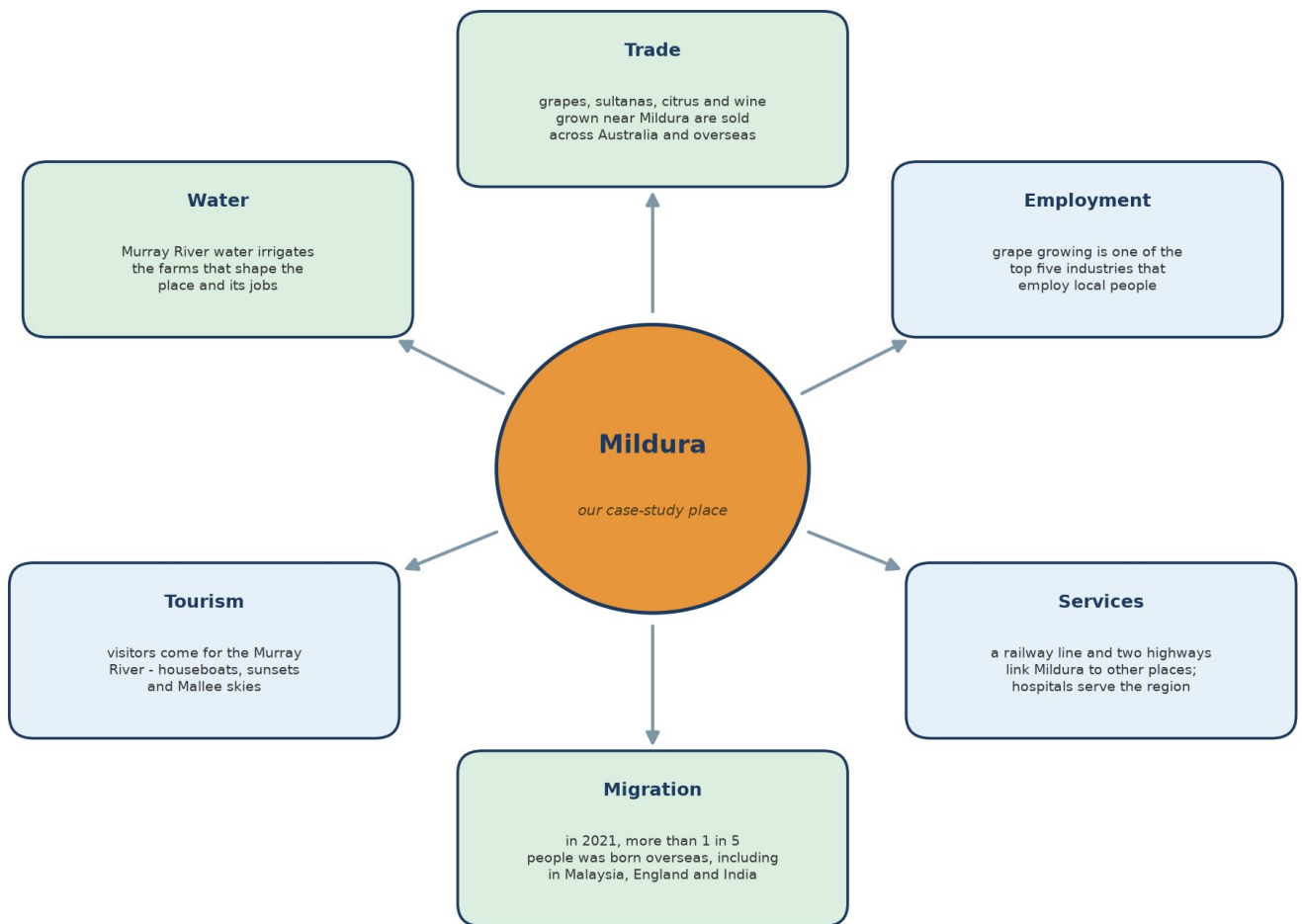
Figure 3. Mildura's climate. Source: Bureau of Meteorology climate averages, Mildura Airport, station 076031, records 1946–2026 (retrieved 25 August 2026).

Figure 3 shows what the climate adds. Mildura has hot, dry summers (January's mean maximum is 32.6 °C) and cool winters (July's mean minimum is 4.4 °C). Rain is scarce: only 285.1 mm falls in a typical year, spread over about 44 days. That is why the river matters so much — without Murray water and irrigation, the farms that shape Mildura could not exist there.

Interconnections shape Mildura too.

No place is shaped only by what is inside it. **Interconnections** — the links between places through which people, goods, money and ideas move — reach Mildura from all directions. Section 1B showed how interconnections change places; here they are at work on our case study.

Interconnections: the links that tie Mildura to other places



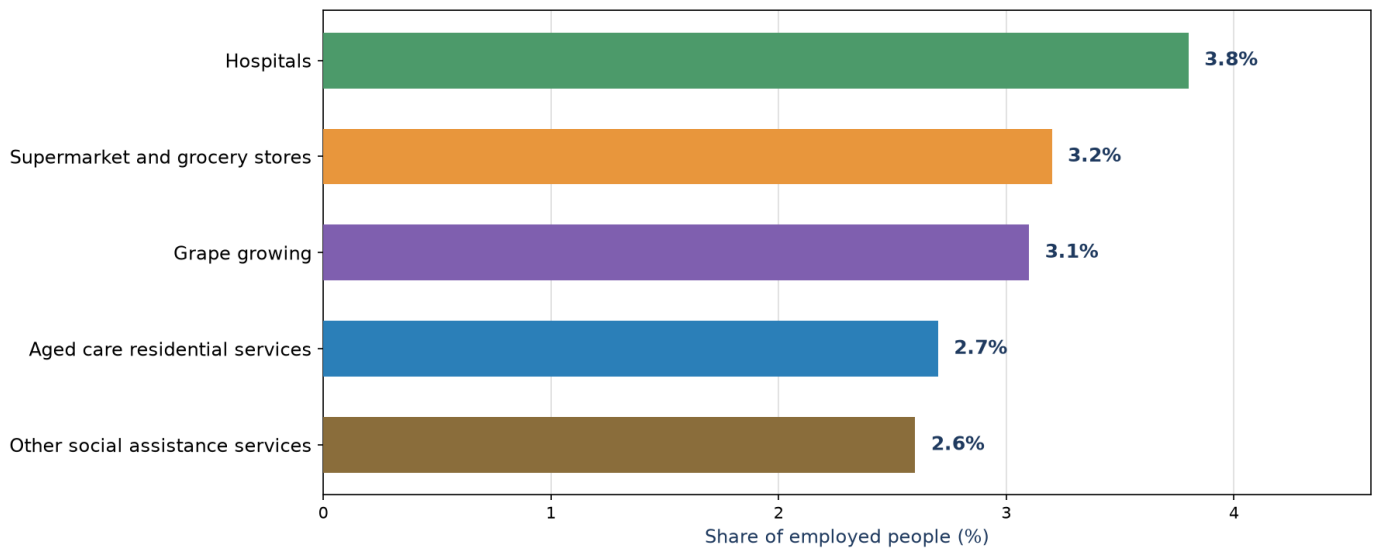
Hub-and-spoke diagram with Mildura in a central orange circle, joined by arrows to six boxes: Trade (grapes, sultanas, citrus and wine sold across Australia and overseas), Employment (grape growing is one of the top five industries employing local people), Services (a railway line and two highways link Mildura to other places; hospitals serve the region), Migration (in 2021 more than 1 in 5 people was born overseas, including in Malaysia, England and India), Tourism (visitors come for the Murray River — houseboats, sunsets and Mallee skies) and Water (Murray River water irrigates the farms that shape the place and its jobs).

Figure 4. Six interconnections that shape Mildura. *Source: author's diagram after the Victorian Curriculum 2.0, VC2HG6K03.E01, with data from the ABS 2021 Census and Wikipedia, "Mildura" (all retrieved 25 August 2026).*

Follow three of those links with real census numbers.

Employment. The 2021 Census counted what people in the Mildura area do for work. Hospitals are the single biggest employer, and grape growing is in the top five — the environment, turned into work.

Where do people in Mildura work? Top industries of employment, 2021



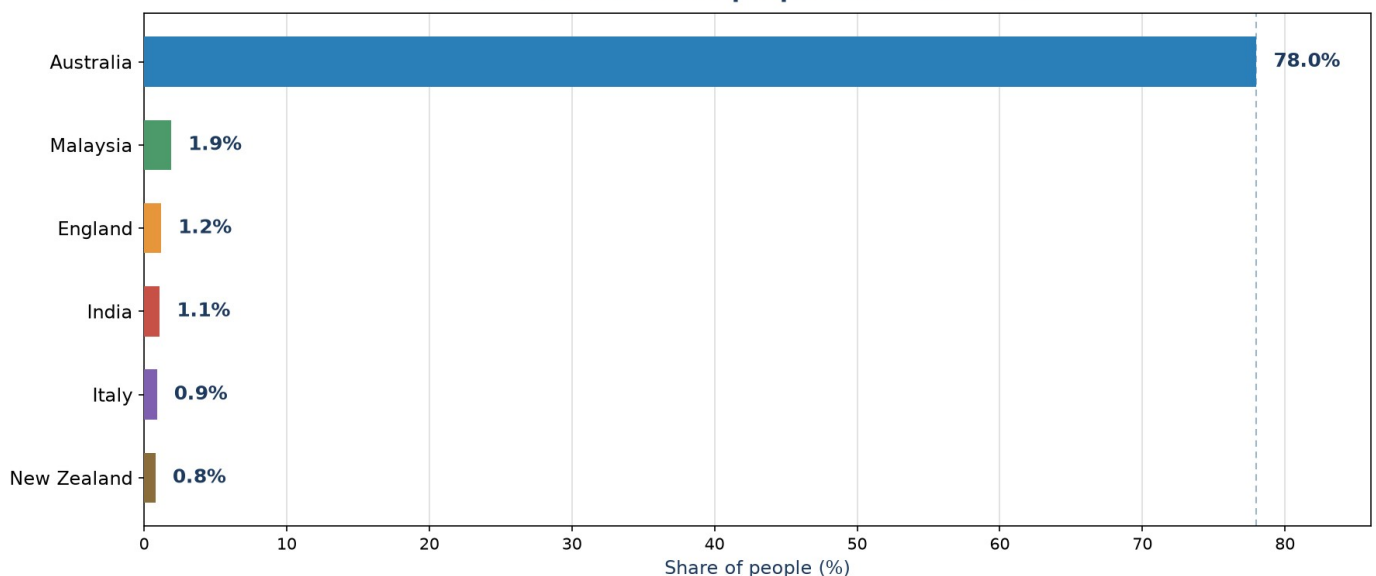
Source: ABS 2021 Census QuickStats, Mildura (C), LGA24780 (retrieved 25 August 2026).

Horizontal bar chart of the top five industries of employment in Mildura in 2021: Hospitals 3.8 per cent, Supermarket and grocery stores 3.2 per cent, Grape growing 3.1 per cent, residential care for older people 2.7 per cent, and Other social assistance services 2.6 per cent.

Figure 5. Where Mildura's people work. Source: ABS 2021 Census QuickStats, Mildura (C), LGA24780 (retrieved 25 August 2026).

Migration. The same census shows where Mildura's people were born. Most were born in Australia, but more than 1 in 5 was born overseas — people who arrived brought skills, foods and languages with them, changing the place as they joined it.

Where were Mildura's people born? 2021 Census



More than 1 in 5 people in Mildura were born overseas. The biggest groups after Australia in 2021 were Malaysia, England, India, Italy and New Zealand - migration is one way places stay connected to the wider world.

Source: ABS 2021 Census QuickStats, Mildura (C), LGA24780 (retrieved 25 August 2026).

Horizontal bar chart of country of birth in Mildura in 2021: Australia 78.0 per cent, then Malaysia 1.9 per cent, England 1.2 per cent, India 1.1 per cent, Italy 0.9 per cent and New Zealand 0.8 per cent. A note below says more than 1 in 5 people in Mildura were born overseas.

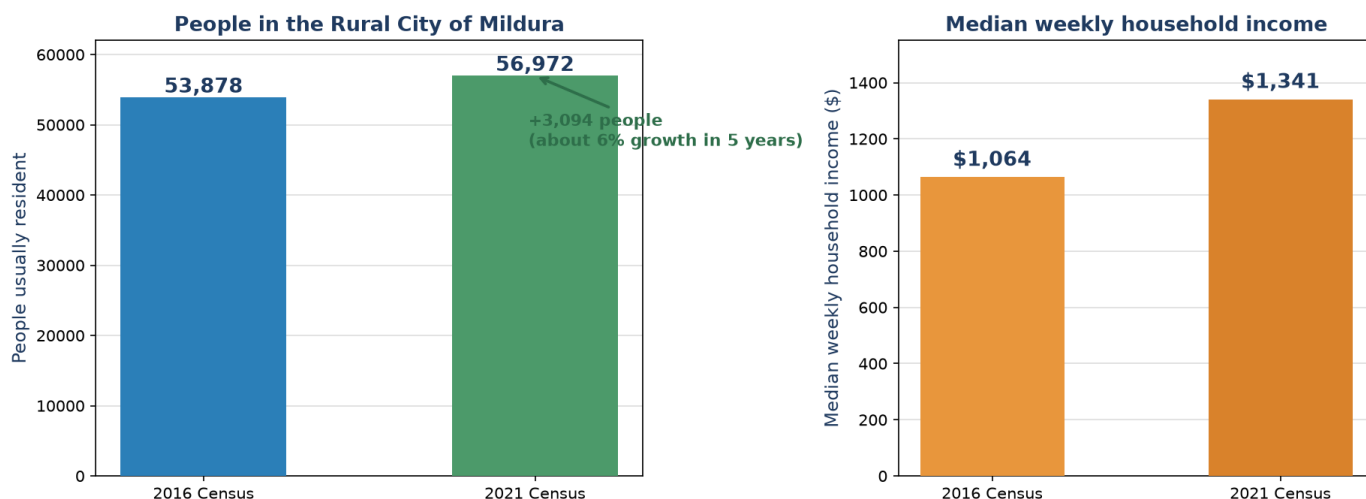
Figure 6. Where Mildura’s people were born. *Source: ABS 2021 Census QuickStats, Mildura (C), LGA24780 (retrieved 25 August 2026).*

Tourism and trade. Mildura’s tourism office — run by the Mildura Rural City Council — invites visitors to “a vibrant regional city full of contrast, from the Murray River to the outback”. Houseboats, river sunsets and Mallee skies bring visitors and their money; at the same time, grapes, sultanas, citrus and wine grown near Mildura are sold across Australia and overseas. Trade and tourism are interconnections too, and both shape what Mildura is like.

Mildura is changing.

The **census** — a count of every person and home in Australia, run every five years — lets us measure change. Between the 2016 and 2021 censuses, the Rural City of Mildura grew.

Mildura is changing: more people and higher reported incomes, 2016-2021



Source: ABS Census of Population and Housing, QuickStats for Mildura (LGA24780), 2016 and 2021 (retrieved 25 August 2026).

Two charts side by side. Left: people usually resident in the Rural City of Mildura, 53,878 at the 2016 Census and 56,972 at the 2021 Census, with a note reading plus 3,094 people, about 6 per cent growth in 5 years. Right: median weekly household income, \$1,064 in 2016 and \$1,341 in 2021.

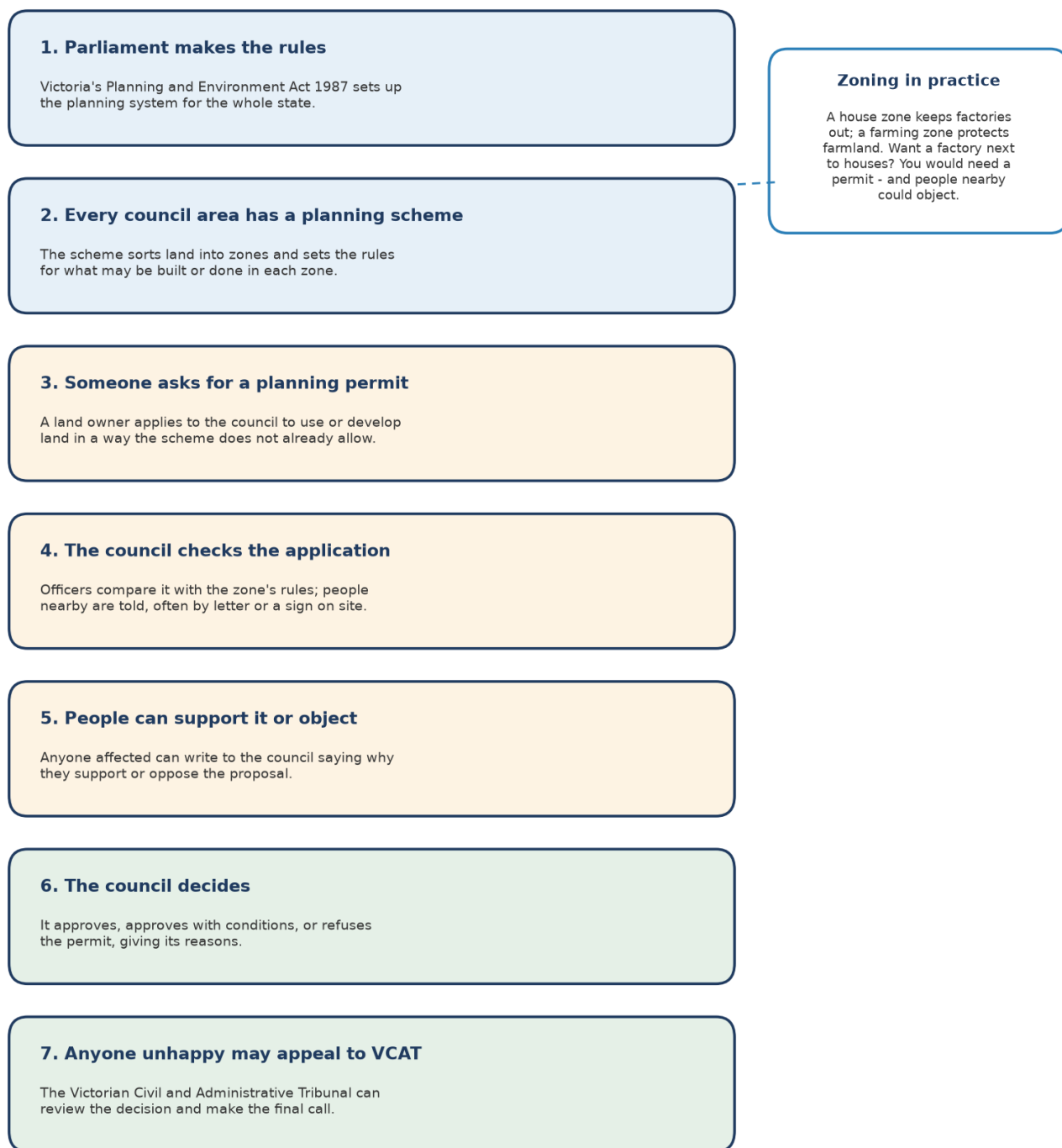
Figure 7. Change in Mildura, 2016–2021. *Source: ABS Census of Population and Housing, QuickStats for Mildura, LGA24780, 2016 and 2021 (retrieved 25 August 2026).*

The population rose from 53,878 to 56,972 — 3,094 more people, growth of about 6% in five years. The **median** weekly household income (the middle value when all households are lined up) rose from \$1,064 to \$1,341, while the median age stayed steady at 40. More people means more homes, more demand for shops, schools and hospitals, and more pressure on the farms and river that shaped the place in the first place. Change creates the next question: *who decides what this growth looks like?*

How decisions about Mildura are made.

Section 1A showed you Victoria’s planning system, and the same machinery works in Mildura. Under the *Planning and Environment Act 1987* (Vic), the Mildura Rural City Council’s area is covered by a **planning scheme** — the public rule book that sorts land into **zones** and says what may be built or done in each one. Someone who wants to use land in a way the scheme does not already allow applies for a **planning permit**; people living nearby can **object**; and anyone unhappy with the council’s decision can ask **VCAT** (the Victorian Civil and Administrative Tribunal) to review it. Here are the steps again, as a quick revision.

How decisions about a Victorian place are made



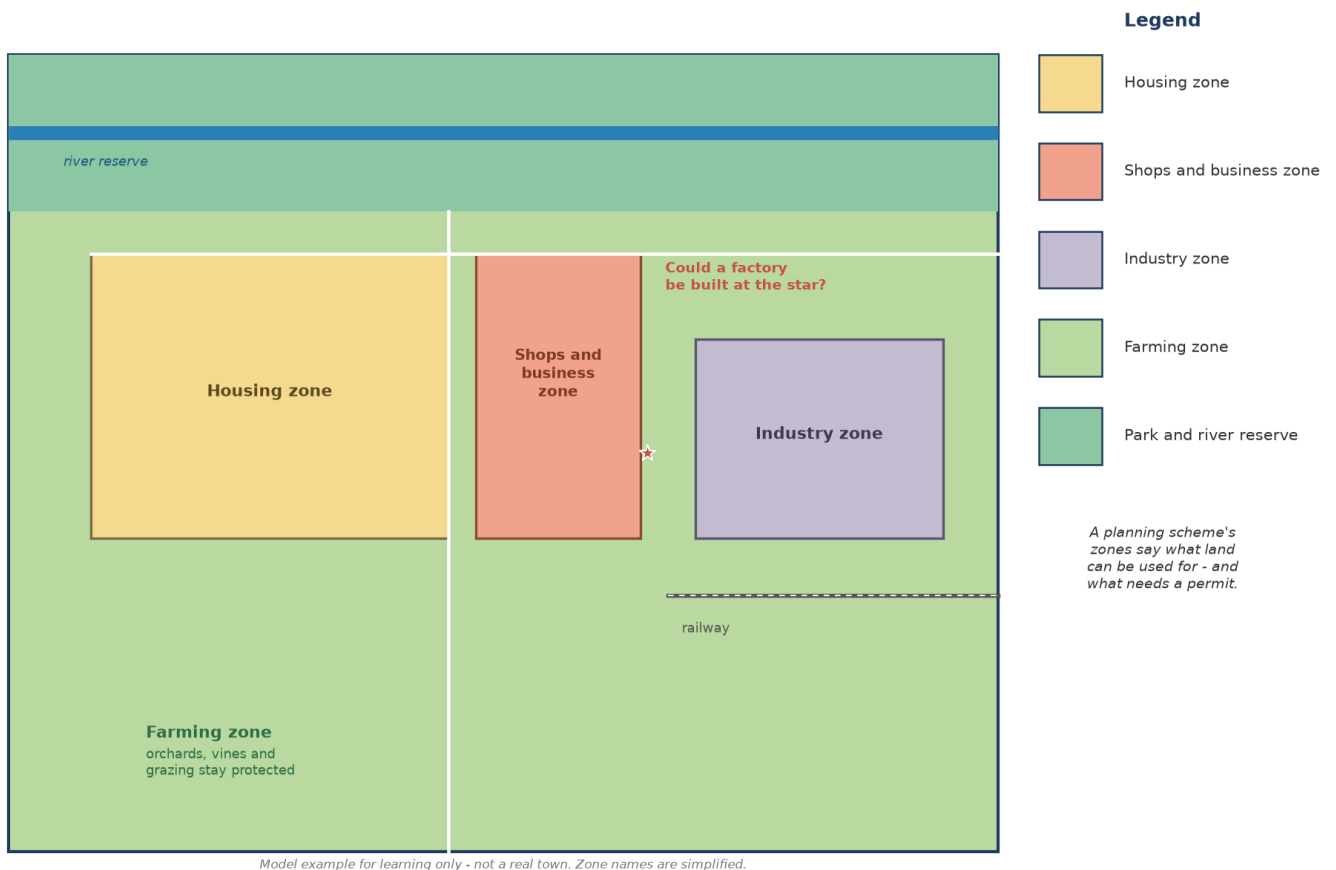
Summary of the Victorian planning-permit process under the Planning and Environment Act 1987 (Vic).
Sources: legislation.vic.gov.au; vcat.vic.gov.au; 'Urban planning in Australia', Wikipedia (all retrieved 25 August 2026).

Flowchart with seven boxes joined by arrows: 1 Parliament makes the rules (Victoria's Planning and Environment Act 1987); 2 every council area has a planning scheme that sorts land into zones; 3 someone asks for a planning permit; 4 the council checks the application and tells the people living nearby; 5 people can support it or object; 6 the council approves, approves with conditions, or refuses; 7 anyone unhappy may appeal to VCAT. A side box gives a zoning example: a house zone keeps factories out, and a farming zone protects farmland.

Figure 8. How decisions about a Victorian place are made — revision from Section 1A. Source: author's diagram after the Planning and Environment Act 1987 (Vic), legislation.vic.gov.au; vcat.vic.gov.au; and Wikipedia, "Urban planning in Australia" (all retrieved 25 August 2026).

Now apply the idea. The zoning model below is a made-up town, but it is built the way Mildura's real planning scheme must think: housing, shops, industry, farms and a river reserve.

A model zoning map (the town is made up)



Model zoning map of a made-up town: a green farming zone covers most of the map with a note that orchards, vines and grazing stay protected; a yellow housing zone and an orange shops-and-business zone sit side by side; a grey industry zone sits beside a railway line; a dark green park and river reserve runs along the top beside a blue river. A red star sits between the shops and the industry zone, with the question: Could a factory be built at the star? A legend lists the five zones.

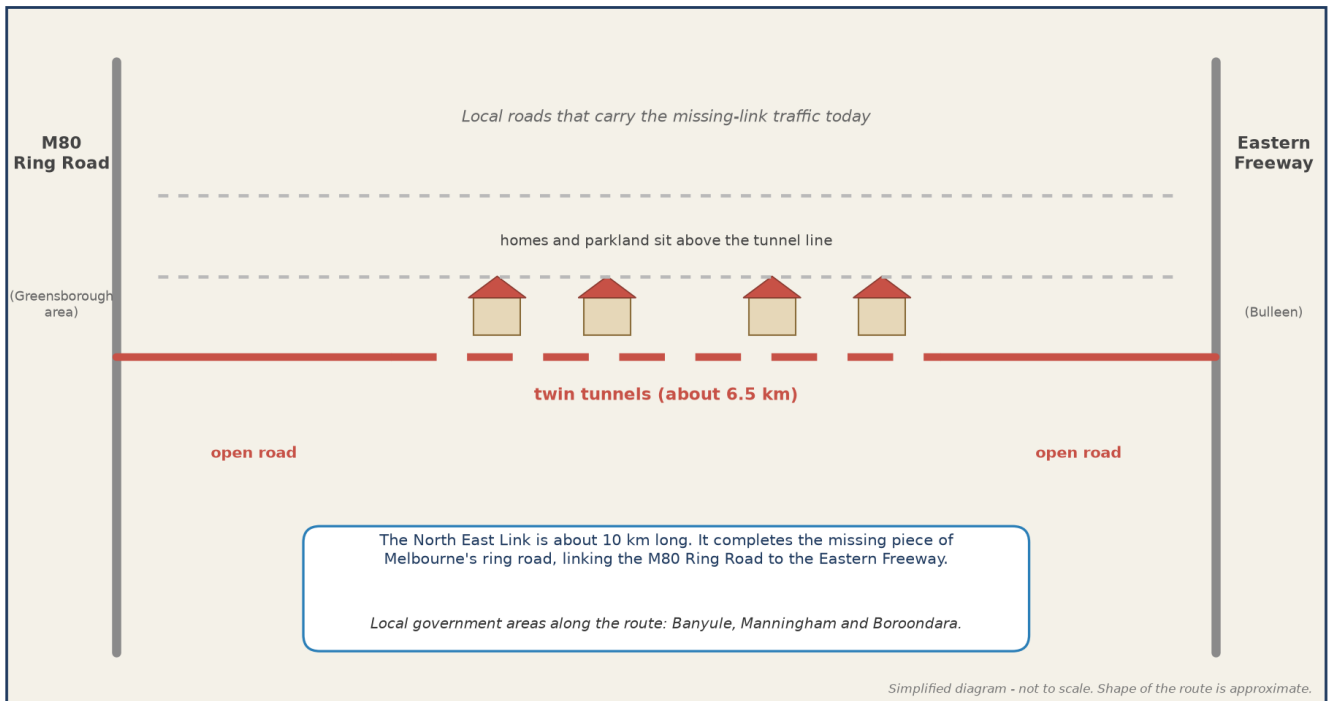
Figure 9. A model zoning map (the town is made up). *Source: author's teaching model; not a real town.*

Try the starred question before reading on — Worked example 2 below walks through it. The point of the exercise is bigger than the star: as Mildura grows, its council makes exactly this kind of decision — where new homes go, whether farmland stays protected, how the river front is kept for everyone. Zoning is how a community manages its own change.

Managing change: one real planning issue, end to end.

Now for VC2HG6K03.E03 — a current planning issue investigated all the way through. Our case is in Melbourne, Victoria's capital: the **North East Link**, a new road project. It is a good case because it shows everything this section teaches: a place's characteristics, a big change, different views, and the machinery that manages the change.

North East Link: the missing piece of Melbourne's ring road

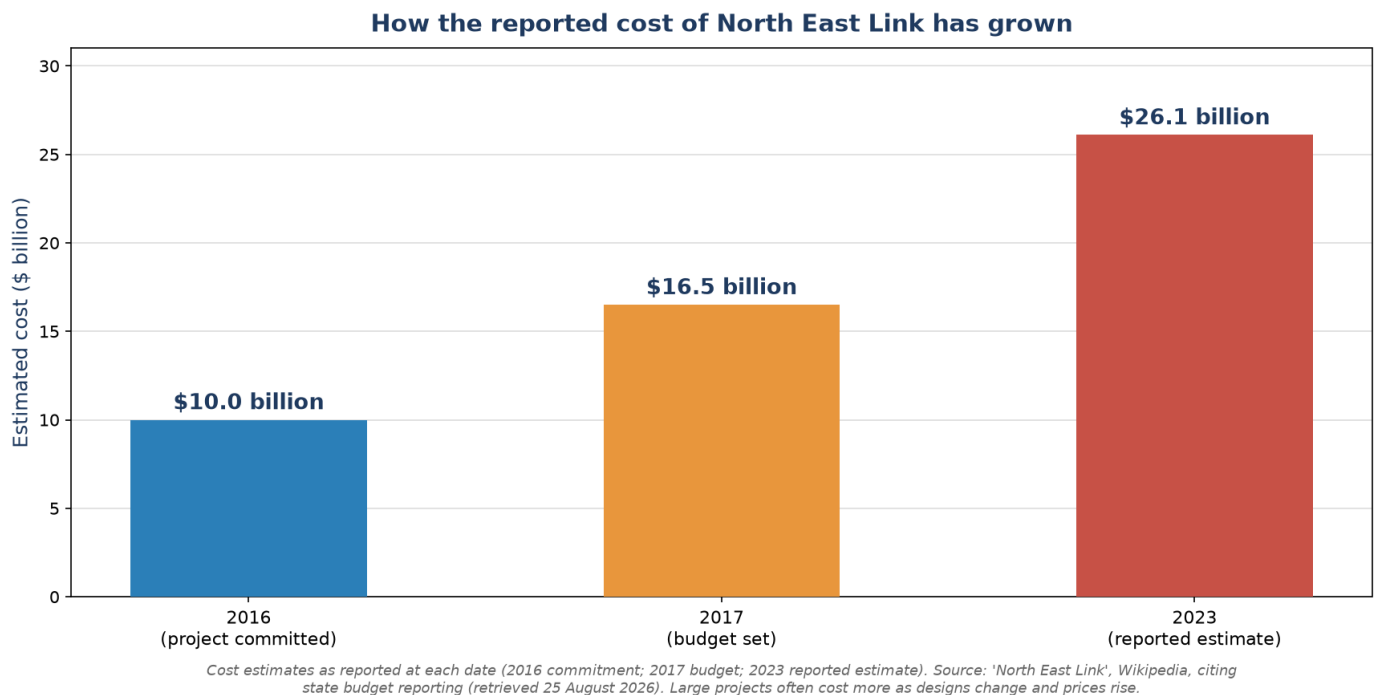


Simplified diagram of the North East Link route. Two grey vertical roads at either side are labelled M80 Ring Road (Greensborough area) and Eastern Freeway (Bulleen). Between them, dotted grey lines show the local roads that carry the missing-link traffic today. A red line joins the two roads: open road at each end and, in the middle, twin tunnels about 6.5 km long, with small houses and parkland drawn above the tunnel line. A box states the link is about 10 km long and completes the missing piece of Melbourne's ring road, and names the local government areas along the route: Banyule, Manningham and Boroondara.

Figure 10. The North East Link. *Source: author's simplified diagram after Wikipedia, "North East Link", and the State of Victoria, North East Link project page (both retrieved 25 August 2026). Not to scale.*

Melbourne's ring road — the M80 in the north and west — has a gap in the north-east. The North East Link closes it: about 10 km of new road joining the M80 Ring Road at Greensborough to the Eastern Freeway at Bulleen, with about 6.5 km of twin tunnels through the middle. The route passes through the local government areas of Banyule, Manningham and Boroondara. The idea is old — a 2007 study (the Eddington Report) recommended it and a 2008 Victorian transport plan included it — but the project only began in earnest when planning started in April 2017 and this route was chosen in November that year. Early works began in 2020, digging the tunnels was under way by mid-2024, and the road is planned to open in late 2028.

The project's reported cost has grown at every step.



Bar chart of reported North East Link cost estimates: \$10.0 billion when the project was committed in 2016, \$16.5 billion when the budget was set in 2017, and \$26.1 billion at the 2023 reported estimate.

Figure 11. The reported cost of the North East Link over time. *Source: Wikipedia, “North East Link”, cost figures from state budget reporting (retrieved 25 August 2026).*

Why people see it in different ways. Here are the two sides, each written in its strongest form — the way its own supporters would put it, with its best evidence.

- **The case for, in its strongest form.** The ring road has been missing this link for decades, so north–east traffic is forced onto local roads. The State Government says the project will take 15,000 trucks off local roads every day and cut some trips by up to 35 minutes. It joins the freight-generating south-east of Melbourne to regional and interstate markets, and a project this size creates thousands of jobs while it is built.
- **The case against, in its strongest form.** The reported cost has grown from \$10 billion in 2016 to \$26.1 billion in 2023 — money that critics, including the Public Transport Users Association, argue would buy more trains, trams and buses, which move more people for less. The road is tolled, and tolls can push some traffic back onto the local roads it was meant to relieve. Four councils along the route — Banyule, Boroondara, Manningham and Whitehorse — took legal action over the project in 2020, and Yarra Council made a formal submission against aspects of it in 2019: communities that live beside the route say their homes, parkland and peace are paying for a road most of them did not ask for.

Notice that both cases name real evidence — trucks, minutes, dollars, court action — and both care about the same place; they weigh its future in different ways. That is what a geographer works with. Rule of this book: argue each side in its strongest form before you choose, and mark yourself on the quality of your reasoning, not the side you land on.

How is this change managed? Watch the machinery of Figure 8 working on a giant project. Governments studied the idea and chose a route after years of planning. The design itself changed under pressure — the tunnelled section is longer than first planned, after the community raised concerns about what a surface road would do to homes and parkland. Councils and residents used submissions and even court action, and the project will run under conditions about noise, trees and access. Managing change does not mean everyone agrees; it means there are rules, chances to be heard, and ways to push back.

One last lens: **sustainability** — asking whether a change can last without using up what future generations will need. Is a bigger road the way Melbourne meets its future travel, or does it lock in more driving, more emissions and more sprawl? The E03 inquiry you are about to start is tagged Sustainability for exactly this reason.

Now your place. VC2HG6K03 is about *your* place. Mildura has modelled the method: find the characteristics (environment, relative location, interconnections), measure the change (census numbers, what is being built), and follow the decisions (planning scheme, permits, who supports and who objects). Your extended inquiry task below asks you to do exactly that for the place you live in — including one current local planning issue investigated end to end. The skills of Chapter 3 fit straight in (Section 3B for fieldwork and sources, Section 3C for maps and graphs), and Chapter 4 is where your class response gets concluded and presented.

Word bank - characteristics — the features that make a place what it is, natural and human-made - **absolute location** — a place's exact position, e.g. by latitude and longitude - **relative location** — where a place sits compared with other places - **irrigation** — supplying water to crops by channels or pipes instead of relying on rain - **interconnections** — links between places through which people, goods, money and ideas move - **census** — the count of every person and home in Australia, run every five years - **median** — the middle value when all values are lined up in order - **planning scheme** — the public rule book that sorts land into zones and sets the rules for each (Section 1A) - **zone / zoning** — a land category in a planning scheme, and the act of dividing land into zones (Section 1A) - **planning permit** — official written permission to build or to use land in a new way (Section 1A) - **object** — to say, with reasons, that you are against a proposal (Section 1A) - **VCAT** — the Victorian Civil and Administrative Tribunal, which reviews planning decisions (Section 1A) - **sustainability** — keeping places going for the future without using up what later generations will need

Worked examples

Example 1 — step by step: reading Mildura's climate graph

Use Figure 3. (a) Which month has the highest mean maximum temperature, and what is it? (b) About how much rain falls in Mildura in a whole year? (c) Why does farming around Mildura depend on irrigation?

Working	Comment
(a) Follow the red line to its highest point: January, 32.6 °C.	In a climate graph, read each series separately.
(b) The blue bars are all low; they add to 285.1 mm for the year.	The total is printed in the Bureau of Meteorology table behind the graph.
(c) Hot summers + only about 285 mm of rain is not enough water for fruit and grape crops, so river water is pumped to the farms.	Join climate to the environment: scarce rain is why the Murray matters.

(a) January, 32.6 °C. (b) 285.1 mm. (c) Because rainfall is too low and summers too hot for crops to rely on rain; Murray River water is supplied to the crops instead.

Example 2 — step by step: the star on the zoning model

Look at the red star in Figure 9. Could a factory be built at the star?

Working	Comment
Find the star on the map: it sits between the shops-and-business zone and the industry zone, on farming-zone land.	Always answer a zoning question by reading the zone first.
The farming zone is there to protect orchards, vines and grazing.	Zones say what land is mainly for.
A factory is not a use the farming zone is for, so it would not simply be allowed — the builder would need a planning permit, and people living nearby could object.	This is Figure 8's steps 3–5.
The map already has an industry zone beside the railway — that is where the town planned for factories.	A good answer suggests the better-fitting zone.

Not as-of-right: the star is in the farming zone, so a factory would need a planning permit and could be objected to — and the industry zone beside the railway is the zone designed for factories.

Example 3 — your turn to weigh the sides: the North East Link

Using the two strongest-form cases above and Figures 10 and 11, answer: (a) Give one piece of evidence each side uses. (b) Which side do you find more convincing — and what would you want to check before you were sure?

A strong answer might look like this. (a) The case for uses the State Government's claims of 15,000 trucks off local roads a day and up to 35 minutes saved; the case against uses the reported cost growth from \$10 billion (2016) to \$26.1 billion (2023) and the four councils' legal action. (b) Either side can be chosen — the mark is for reasoning. Example: "I find the case against more convincing because the cost has grown two and a half times, but I would want to check how many trucks actually use the local roads today before being sure." Naming evidence you still need is exactly what good geographers do.

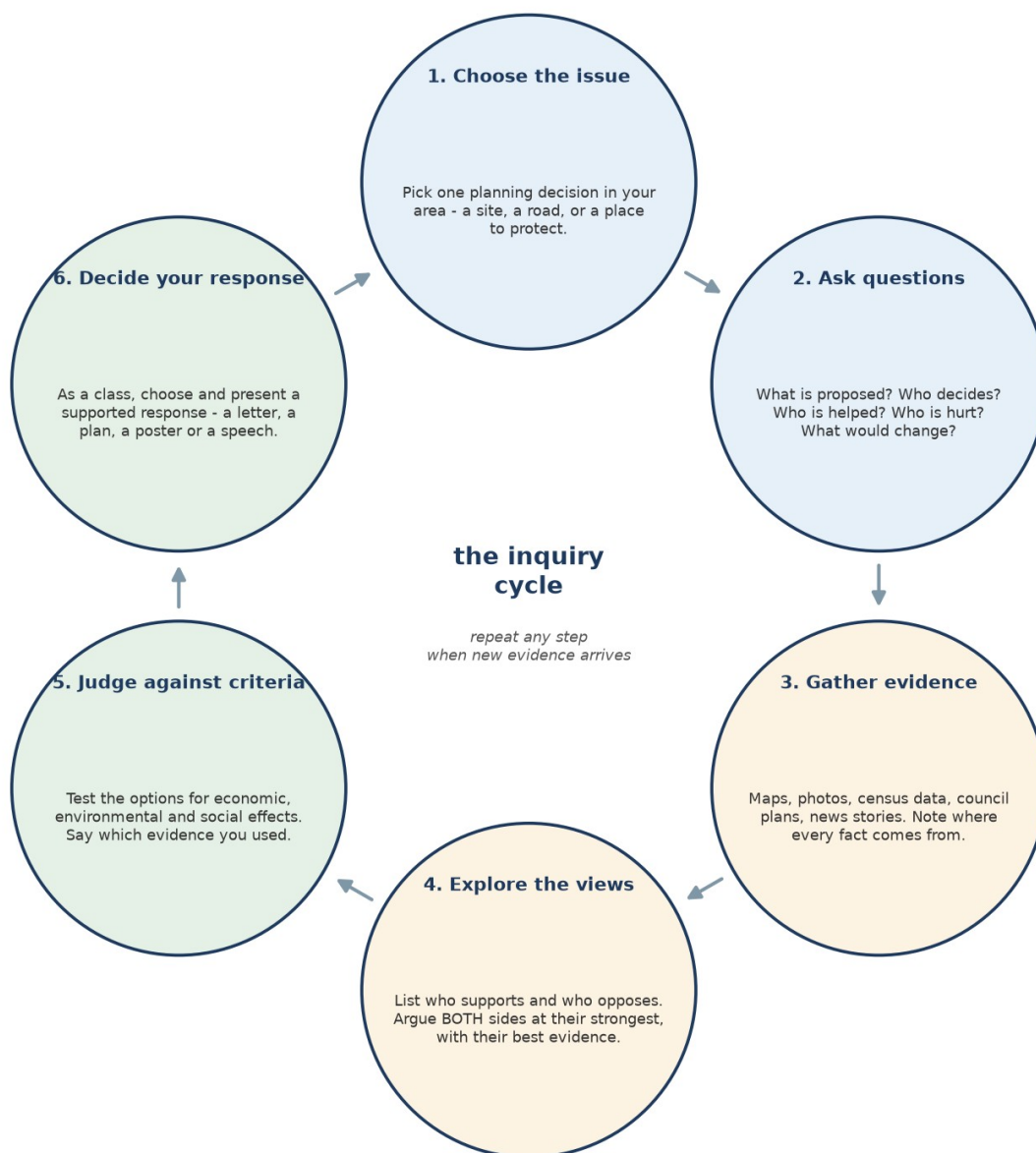
Practice tasks

- Q1.** Use Figure 2. Give two facts about Mildura's *relative* location (where it sits compared with other places).
- Q2.** Mildura's absolute location is about 34°S, 142°E. In your own words, what is the difference between absolute and relative location?
- Q3.** Use Figure 3. (a) What is Mildura's mean maximum temperature in January? (b) Which month has the most rain, and about how much? (c) Give Mildura's mean minimum temperature in July.
- Q4.** Use Figure 5. (a) Which industry employs the biggest share of Mildura's workers, and what is that share? (b) Name the top-five industry that comes directly from the environment.
- Q5.** Use Figure 6. (a) What share of Mildura's people were born in Australia? (b) Name the three most common overseas countries of birth shown. (c) What does the chart tell you about migration as an interconnection into Mildura?
- Q6.** Use Figure 7. (a) How many more people lived in the Rural City of Mildura in 2021 than in 2016? (b) By about what percentage did the population grow? (c) What happened to the median weekly household income over the same period?
- Q7.** Use Figure 8. Put these moments in the order the flowchart shows them: the council decides; someone applies for a planning permit; Parliament's Act sets up the system; people living nearby can support or object; an unhappy person asks VCAT to review.
- Q8.** Use Figure 9. (a) Which zone covers most of the model town? (b) Why might a planner put the industry zone beside the railway? (c) What is the river reserve along the top for?
- Q9.** Use Figure 10. (a) Which two roads does the North East Link join? (b) About how much of the link runs through twin tunnels? (c) Name the three local government areas the route passes through.
- Q10.** Use Figure 11. (a) What was the reported cost in 2016, and what was it by 2023? (b) Roughly how many times bigger is the 2023 figure than the 2016 one?
- Q11. Extended response.** Write the case *for* the North East Link and the case *against* it, each in two or three sentences and each in its strongest form, using evidence from this section. Then give your own view and name one piece of evidence you would still want to check.
- Q12.** List the four questions this section asks about any place — its characteristics, its location, its interconnections and its change — and answer each one in one sentence for Mildura.
-

Extended inquiry task — investigate a current local planning issue, end to end

This is the book's first full inquiry (VC2HG6K03.E03, tagged Sustainability). Work through the cycle below for the place you live in. Use Section 3B's guidance for fieldwork and sources and Section 3C's guidance for maps and graphs as you go; Chapter 4 is where your class response will be concluded and presented.

Planning your investigation: the inquiry cycle



Six-step inquiry cycle in a ring of numbered circles joined by arrows: 1 Choose the issue — pick one planning decision in your area; 2 Ask questions — what is proposed, who decides, who is helped, who is hurt; 3 Gather evidence — maps, photos, census data, council plans, news stories, noting where every fact comes from; 4 Explore the views — list who supports and who opposes, giving each side its strongest form with its best evidence; 5 Judge against criteria — test the options for economic, environmental and social effects, saying which evidence you used; 6 Decide your response — as a class, choose and present a supported response, such as a letter, plan, poster or speech. The centre notes that any step can repeat when new evidence arrives.

Figure 12. The inquiry cycle you will follow. Source: author's diagram after the Victorian Curriculum 2.0, VC2HG6K03.E03 (VCAA export retrieved 25 August 2026).

1. **Choose the issue.** Find one current planning decision in your area — a site being redeveloped, a new road being built, or a special natural area being protected are all good examples. Your council’s website and local news are good places to look.
2. **Ask questions.** What is proposed? Who decides? Who is helped? Who is hurt? What would change?
3. **Gather evidence.** Maps, photos, census data, council plans, news stories — and for every fact, write down where it came from. A walk around the site (fieldwork) counts as a primary source.
4. **Explore the views.** List who supports and who opposes. Write each side in its strongest form, with its best evidence — no weak sides allowed.
5. **Judge against criteria.** Test the options for their effects on money, the environment and people’s lives. Say which evidence you used.
6. **Decide your response.** As a class, choose a supported response — a letter to the council, a plan, a poster or a speech — and present it.

Success criteria (how this is marked): your issue is real and current; every fact has a named source; both sides are argued at their strongest; your class response gives reasons and names the evidence behind it. Two classes may reach opposite responses and both do excellently — the mark is for the inquiry, not the conclusion.

Sources

- Australian Bureau of Statistics, 2021 Census QuickStats and 2016 Census QuickStats for the Mildura area, code LGA24780 — population, median age, countries of birth, industries of employment and median household income figures (Figures 5, 6, 7), retrieved 25 August 2026.
- Bureau of Meteorology, climate averages for Mildura Airport, station 076031, records 1946–2026 (reg.bom.gov.au) — rainfall, temperature and station position figures (Figures 2, 3), retrieved 25 August 2026.
- Wikipedia, “Mildura” — town population, distance and direction from Melbourne, river and border position, highways and railway, and irrigated crops (Figure 2), retrieved 25 August 2026.
- Visit Mildura, visitmildura.com.au (© Mildura Rural City Council) — destination description quoted in the tourism paragraph, retrieved 25 August 2026.
- State of Victoria, North East Link project page, vic.gov.au (page updated 2 September 2024) — tunnel length, trucks off local roads, travel-time savings and freight connection (Figures 10 and the case for), retrieved 25 August 2026.
- Wikipedia, “North East Link” — route length and endpoints, cost estimates over time, planning history from the 2007 Eddington Report, councils’ submissions and legal action, and the Public Transport Users Association’s criticism (Figures 10, 11 and the case against); cost figures from state budget reporting, retrieved 25 August 2026.
- *Planning and Environment Act 1987* (Vic), Victorian legislation register, in force (version 167, 3 August 2026) — the law behind Figure 8, retrieved 25 August 2026.
- Victorian Civil and Administrative Tribunal, vcat.vic.gov.au — its role reviewing planning decisions (Figure 8), retrieved 25 August 2026.
- Wikipedia, “Urban planning in Australia” — Victoria’s planning schemes, zoning and permits under the Act (Figure 8), retrieved 25 August 2026.

Figures 1, 4, 8, 9, 10 and 12 are teaching diagrams created for this book; Figure 9’s town is made up and clearly labelled as a model; Figures 2 and 10 are simplified sketches, not drawn to scale.

Answers and marking notes

Q1. Any two of: on the Victorian bank of the Murray River, right beside the New South Wales border; about 545 km north-north-west of Melbourne; on the Calder Highway and a railway line to Melbourne; on the Sturt Highway between Adelaide and New South Wales.

Q2. Absolute location pins a place down with exact grid numbers such as latitude and longitude; relative location describes where a place sits compared with other places (near a river, beside a border, so far from a city).

Q3. (a) 32.6 °C. (b) October, about 29 mm. (c) 4.4 °C.

Q4. (a) Hospitals, 3.8% of employed people. (b) Grape growing (3.1%).

Q5. (a) 78.0%. (b) Malaysia, England, India. (c) Answers will vary; accept any answer that says people arriving from overseas are a live connection that adds people, skills and culture to Mildura — more than 1 in 5 residents was born overseas.

Q6. (a) 3,094 more people. (b) About 6%. (c) It rose from \$1,064 to \$1,341 per week.

Q7. Parliament's Act sets up the system → someone applies for a planning permit → people living nearby can support or object → the council decides → an unhappy person asks VCAT to review.

Q8. (a) The farming zone. (b) Any sensible reason, e.g. factories need rail for moving goods in and out, and putting industry by the railway keeps factory noise and trucks away from homes. (c) To keep the riverbank protected and open for everyone — a park along the river.

Q9. (a) The M80 Ring Road (at Greensborough) and the Eastern Freeway (at Bulleen). (b) About 6.5 km. (c) Banyule, Manningham and Boroondara.

Q10. (a) \$10.0 billion in 2016; \$26.1 billion in 2023. (b) About 2.6 times (accept “more than two and a half times”).

Q11. Mark the strength of each side's case, not the side chosen. Each case should be in its strongest form with real evidence from the section (e.g. for: 15,000 trucks off local roads a day, up to 35 minutes saved, freight and jobs; against: cost grown from \$10 billion to \$26.1 billion, four councils' legal action, tolls, parkland and homes beside the route, the public-transport alternative). The own view must give a reason, and the answer must name at least one piece of evidence still to check (e.g. how many trucks use the local roads now; what the tolls will be).

Q12. Model answer: characteristics — a dry, sunny inland place shaped by the Murray River and irrigated farms; location — about 34°S, 142°E, on the Victorian bank of the Murray beside the NSW border, about 545 km from Melbourne; interconnections — trade in grapes and wine, tourism on the river, migration (more than 1 in 5 born overseas), highways and a railway; change — population up 3,094 (about 6%) and median household income up from \$1,064 to \$1,341 between the 2016 and 2021 censuses. Any correct one-sentence answer for each question is accepted.

Marking note — extended inquiry. Mark the success criteria, not the response reached. A real, current issue with a named source for every fact meets the evidence requirement; two strongest-form sides meet the fairness requirement; a class response that gives reasons and names its evidence meets the reasoning requirement. Two classes reaching opposite responses can both receive full marks.

Why sustainability matters to places and environments

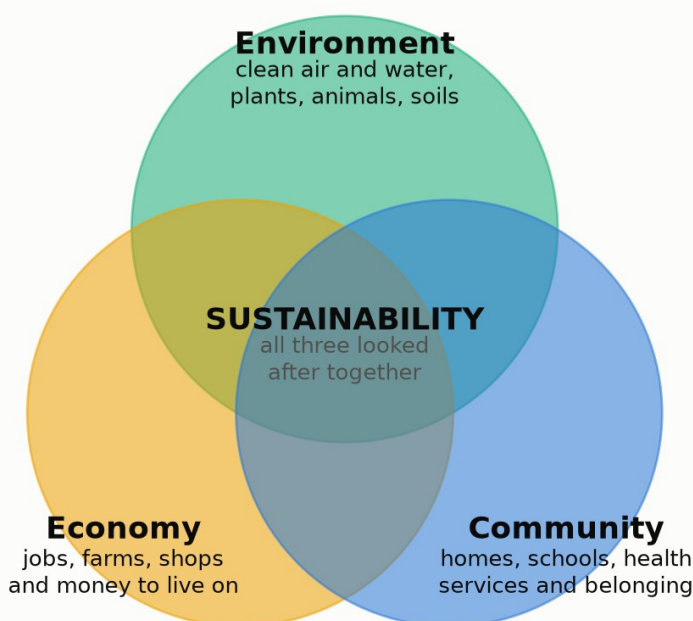
Think of your favourite place — a park, a beach, a main street, the creek behind your school. Now imagine it in fifty years. Will it still be there? Will it still be clean, and busy, and cared for? Whether the answer is yes or no depends on one big idea: **sustainability**. This section is about why that idea matters to every place and environment, and what people do that helps a place last — or wears it down.

This section teaches the Victorian Curriculum 2.0 Geography code **VC2HG6K04** and draws on **VC2HG6K04.E01**, **VC2HG6K04.E02**, **VC2HG6K04.E03** and **VC2HG6K04.E08**.

Sustainability is one of the seven concepts geographers think with (place, space, environment, interconnection, sustainability, scale, change). In this section it is joined by **place**, **environment**, **interconnection** (places affect each other) and **change**.

Sustainability: looking after three things at once

A place is sustainable when people care for the environment, the economy and the community together — not just one of them.



Model drawn for this workbook. The idea of three connected parts is a common way to show sustainability. See Glossary.

Three overlapping circles labelled Environment, Economy and Community. Where all three circles meet in the middle are the words 'Sustainability: all three looked after together'. The Environment circle lists clean air and water, plants, animals, soils; the Economy circle lists jobs, farms, shops and money to live on; the Community circle lists homes, schools, health services and belonging

Key term — sustainability. The curriculum uses this word but does not define it, and people argue about it, so here is the definition this section uses. *Sustainability* means **using and looking after a place today in a way that keeps it working for people in the future too**. The idea is often traced to a 1987 United Nations report (the Brundtland Report), which described it as meeting today's needs without stopping future people from meeting theirs. The three-circle diagram shows the three parts people try to balance: the **environment** (nature), the **economy** (jobs and money) and the **community** (people and services). Different people put the weight on different circles — a miner and a park ranger may disagree about a forest — so *sustainability* is a word to reason with, not just repeat.

Theory

Why does sustainability matter to places? A place is a little like a bank account. If you only take money out and never put any in, the account runs dry. A place that is *sustainable* keeps enough in the account — clean water, healthy soil, jobs, schools, a community that wants to stay — so that it can keep going. A place that is *not sustainable* is spending its future: the water runs low, the soil washes away, the jobs leave, or the people leave. That is why sustainability matters: it is the difference between a place that lasts and a place that fades.

People change places, for good and bad. The same place can be helped or hurt by what people choose to do. Geographers look at both sides, in Australia and overseas.

People and places in other countries

The table and chart below show real places across Asia, Europe and North America where people's choices changed the environment, the economy or the community.

People change places in other countries too

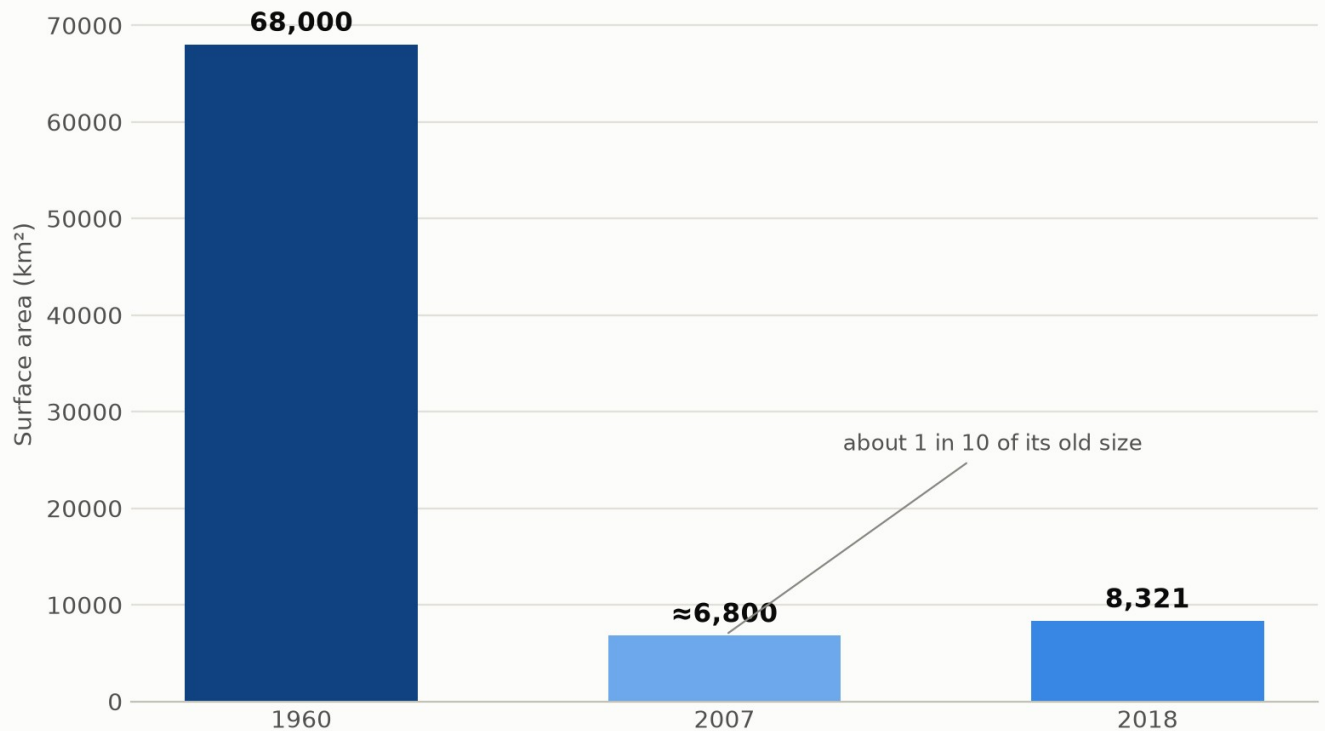
Some human changes help a place; others hurt it. These are real places.

Place and country	What people did	What happened to the place	Helped or hurt?
Aral Sea — Kazakhstan and Uzbekistan (Asia)	Took river water to grow cotton, so less water reached the sea	One of the world's biggest lakes shrank to about 1 in 10 of its old size; fishing boats were left stranded on dry ground	Hurt
Loess Plateau — China (Asia)	Replanted trees and grass on bare, crumbly hills ('Grain for Green' project)	Soil washing away dropped by about 70%, and farmers earned more from their land	Helped
The Dust Bowl — United States (North America)	Ploughed up the prairie grasses that held the soil, then a long drought came	Huge dust storms blew the soil away; about 100 million acres were damaged and millions of people had to leave	Hurt
Chernobyl — Ukraine (Europe)	A nuclear power station exploded	Poisonous material spread over the land; about 135,000 people had to move away, and an area is still closed off today	Hurt

Sources: Wikipedia, 'Aral Sea'; 'Loess Plateau'; 'Dust Bowl'; 'Chernobyl disaster' — all retrieved 25 August 2026.

A table with four rows. Aral Sea, Kazakhstan and Uzbekistan (Asia): people took river water to grow cotton, the sea shrank to about 1 in 10 of its old size and fishing boats were left on dry ground — hurt. Loess Plateau, China (Asia): people replanted trees and grass, soil washing away dropped by about 70 per cent and farmers earned more — helped. The Dust Bowl, United States (North America): people ploughed up the prairie grasses and a drought came, dust storms damaged about 100 million acres and millions left — hurt. Chernobyl, Ukraine (Europe): a nuclear power station exploded, about 135,000 people had to move and an area is still closed off — hurt

The Aral Sea got much smaller The water was taken for cotton farms, so less reached the sea.



Source: Wikipedia, 'Aral Sea' (1960 area about 68,000 km²; fell to about 10% by 2007; 2018 total 8,321 km²) — retrieved 25 August 2026.

Bar chart titled 'The Aral Sea got much smaller'. Surface area in square kilometres: 1960 about 68,000; 2007 about 6,800 (about 1 in 10 of its old size); 2018 about 8,321. The bars show a huge drop from 1960 to 2007 and a small rise by 2018

The Aral Sea is one of the clearest examples of a place made *less* sustainable: when river water was taken for farms, the sea shrank, the fishing industry died, and the towns around it lost their way of life. The Loess Plateau shows the opposite: when people replanted trees and grass, the land healed and farms did better. Same planet, two different choices.

Natural threats to sustainability

Some threats to a place come from nature. The curriculum names four: **floods, drought, heatwaves and other extreme weather**, and **storm weather that can set off thunderstorm asthma**. All four have hit Victoria hard.

Natural threats to the sustainability of Victorian places

Natural events can make a place hard to live in, hard to earn a living in, or hard on its environment.

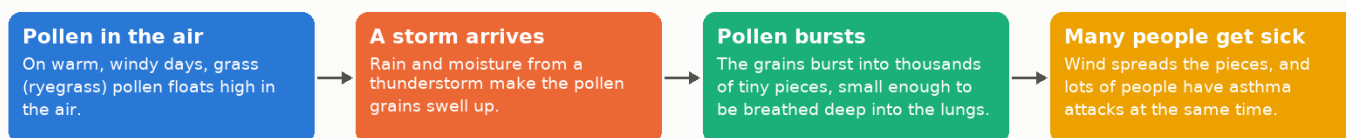
Natural threat	A real example in Victoria	What happened	Why it threatens the place
Floods	January 2011 floods — rivers like the Wimmera, Campaspe and Yarra, and towns like Charlton, Rochester and Echuca	The wettest January on record; more than 1,730 homes and properties were flooded and power was cut to 17,000+ homes	Homes, farms and shops are damaged; people lose money and feel unsafe
Drought	The Millennium Drought, 1996–2010 (at its driest 2001–09) — Murray–Darling Basin	The south-east missed about a whole year of rain over 11 years; farm water use dropped by 37%	Crops and animals suffer, farm jobs are lost, and towns run low on water
Heatwaves	Late January 2009 — Melbourne had 3 days over 43°C (45.1°C on 30 Jan), then 46.4°C on 7 Feb	Extreme heat stressed people, animals and power; it helped set off the Black Saturday bushfires	Health is put at risk, farms dry out, and fire danger rises
Storm conditions that trigger thunderstorm asthma	Melbourne, 21 November 2016 — the biggest thunderstorm asthma event on record	A storm burst ryegrass pollen into tiny pieces; asthma cases at emergency departments jumped about ten-fold	Many people become sick at once, and hospitals and ambulance services are stretched

Sources: Wikipedia, '2011 Victorian floods'; 'Droughts in Australia'; 'Black Saturday bushfires'; 'Thunderstorm asthma' — retrieved 25 August 2026.

A table with four rows. Floods: January 2011 floods on rivers like the Wimmera, Campaspe and Yarra and towns like Charlton, Rochester and Echuca — the wettest January on record, over 1,730 homes and properties flooded and power cut to over 17,000 homes; homes, farms and shops damaged. Drought: the Millennium Drought 1996 to 2010, at its driest from 2001 to 2009, in the Murray–Darling Basin — the south-east missed about a whole year of rain over 11 years and farm water use dropped 37 per cent; crops and animals suffer and towns run low on water. Heatwaves: late January 2009 — Melbourne had 3 days over 43 degrees then 46.4 degrees on 7 February, helping set off the Black Saturday bushfires; health is at risk and farms dry out. Storm conditions that trigger thunderstorm asthma: Melbourne, 21 November 2016, the biggest event on record — a storm burst ryegrass pollen into tiny pieces and asthma cases at emergency departments jumped about ten-fold; many people are sick at once and hospitals are stretched

How storm weather can trigger asthma

This is called thunderstorm asthma. It helped make 21 November 2016 the biggest event on record in Melbourne.

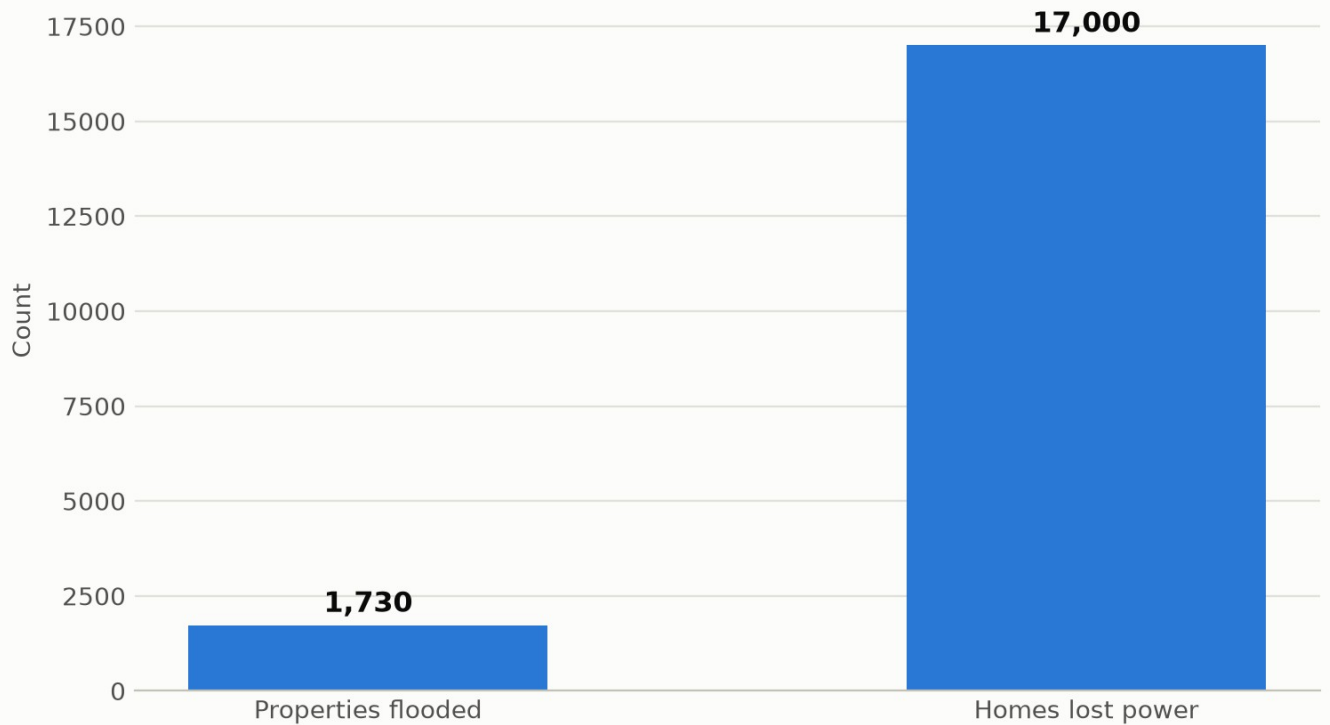


Model drawn for this workbook, based on the mechanism described by the Bureau of Meteorology and Wikipedia, 'Thunderstorm asthma' (retrieved 25 August 2026).

Flow diagram with four boxes joined by arrows. 1 Pollen in the air: on warm windy days grass pollen floats high. 2 A storm arrives: rain and moisture make the pollen grains swell. 3 Pollen bursts: the grains burst into thousands of tiny pieces small enough to be breathed deep into the lungs. 4 Many people get sick: wind spreads the pieces and lots of people have asthma attacks at the same time

Natural threats matter to sustainability because they strike all three circles at once. A flood damages homes (community), closes shops and farms (economy) and pollutes rivers and soils (environment). A long drought dries the environment, costs farm jobs and empties country towns. When a place is hit again and again, staying sustainable is harder — which is why towns plan for floods, save water in droughts, and warn people before heatwaves and storm-asthma days.

January 2011 floods: two measures of damage



Source: Wikipedia, '2011 Victorian floods' (1,730+ properties inundated; power cut to 17,000+ homes) — retrieved 25 August 2026.

Bar chart titled 'January 2011 floods: two measures of damage'. Properties flooded: 1,730. Homes lost power: over 17,000. The two bars show how one flood event touched many thousands of households

Human threats to sustainability

Other threats come from human choices. The curriculum names six: **outmigration** (people moving away), **an industry closing down**, **services and facilities closing**, **rapid population growth**, **pollution** and **new roads**.

Human threats to the sustainability of places

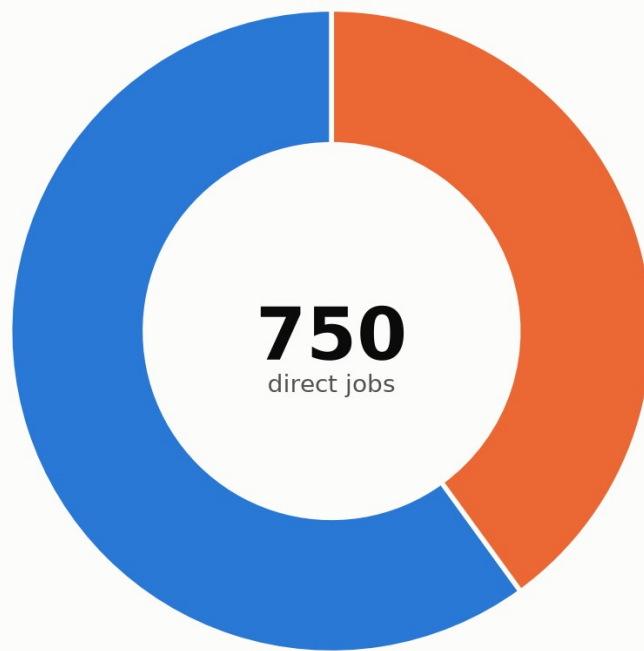
Decisions people make can also put a place's environment, economy or community under pressure.

Human threat	A real example	What it does to the place
Outmigration — people moving away	Many country towns in Victoria, as young people leave for study and work	The town loses workers, customers and volunteers; the school and shops get smaller
Loss of an industry	Hazelwood Power Station (Latrobe Valley) closed in March 2017	750 direct jobs were lost at once, and local businesses lost customers
Loss of services and facilities	Small towns losing a bank, hospital or school, so people must travel further	Daily life gets harder, and some families choose to move away
Rapid population growth	Melbourne, 5.44 million in 2025 and heading towards about 6.4 million	More homes, water, roads and schools are needed, and green space is under pressure
Environmental pollution	The 2014 Hazelwood coal mine fire put smoke over Morwell for weeks	Air pollution harmed health (11 early deaths were linked to it) and the clean-up cost over \$100 million
New roads	A new highway can send traffic, noise and pollution through a quiet place, or take traffic away from a town's shops	The character of a place changes, and some people and businesses lose out

Sources: Wikipedia, 'Hazelwood Power Station'; 'Melbourne' — retrieved 25 August 2026. Other rows are general patterns seen in many towns.

A table with six rows. Outmigration: young people leave country towns for study and work, so the town loses workers, customers and volunteers. Loss of an industry: Hazelwood Power Station in the Latrobe Valley closed in March 2017 and 750 direct jobs were lost at once. Loss of services: small towns losing a bank, hospital or school, so people must travel further and some families move away. Rapid population growth: Melbourne, 5.44 million in 2025 heading towards about 6.4 million, needs more homes, water, roads and schools. Environmental pollution: the 2014 Hazelwood coal mine fire put smoke over Morwell for weeks, 11 early deaths were linked to it and the clean-up cost over \$100 million. New roads: a new highway can send traffic, noise and pollution through a quiet place or take trade away from a town's shops

750 direct jobs were lost at Hazelwood

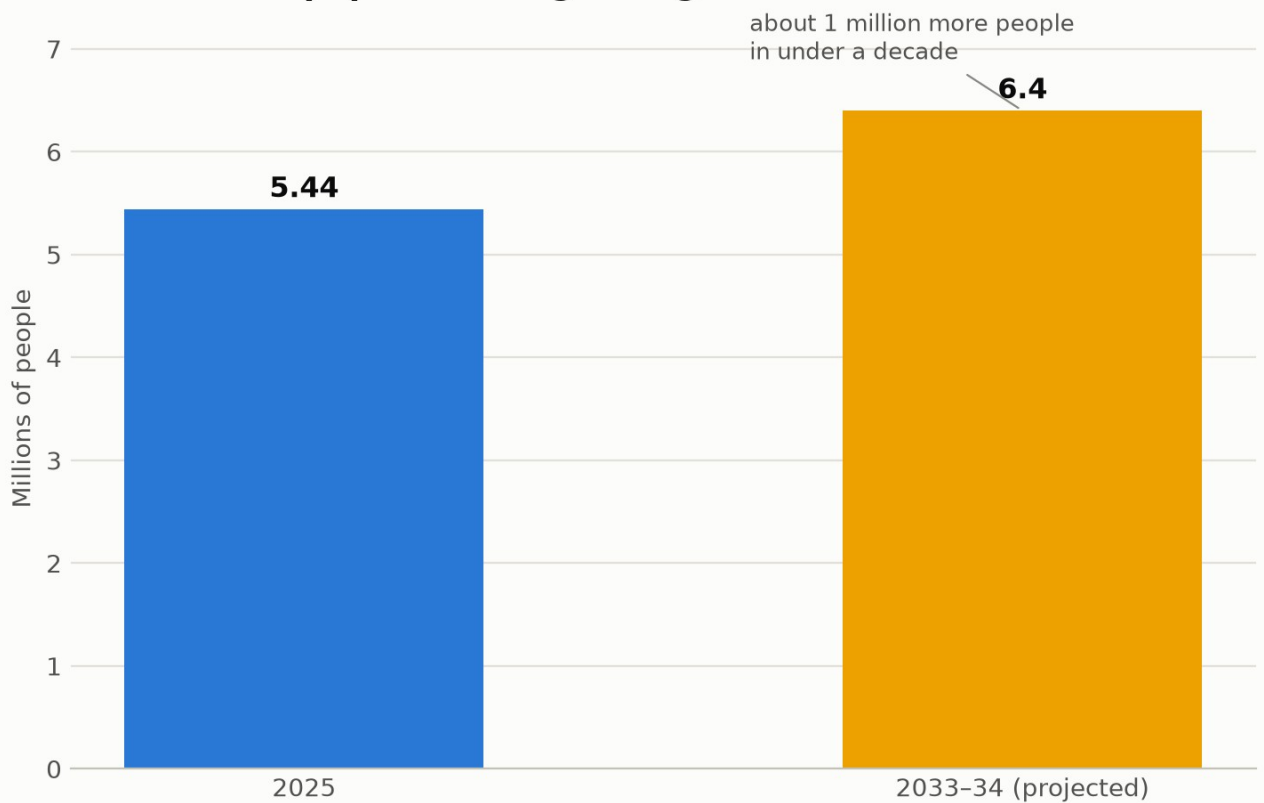


■ Permanent staff: 450 ■ Contractors: 300

Source: Wikipedia, 'Hazelwood Power Station' (450 permanent employees and 300 contractors at closure, March 2017) — retrieved 25 August 2026.

Ring chart titled '750 direct jobs were lost at Hazelwood'. The ring is split into permanent staff, 450, and contractors, 300, with 750 in the centre

Melbourne's population is growing



Source: Wikipedia, 'Melbourne' (5,435,590 in 2025; projected to reach about 6.4 million by 2033-34) — retrieved 25 August 2026.

Bar chart titled 'Melbourne's population is growing'. 2025: 5.44 million people. 2033 to 34 (projected): about 6.4 million. A note says that is about 1 million more people in under a decade

Notice that human threats work slowly, like a drip. Losing one big employer does not empty a town quickly — but over years, as workers and then shops and services follow, a place can shrink. Rapid growth is the mirror image: too many people too fast can strain water, roads and green space. Sustainability is about steering between the two — keeping a place alive without wearing it out.

Positive influences: people helping places

The good news is that people also repair and protect places. The curriculum gives three examples: **reforestation** (replanting trees), **Landcare groups**, and **rehabilitating** old mines, factories and tip sites.

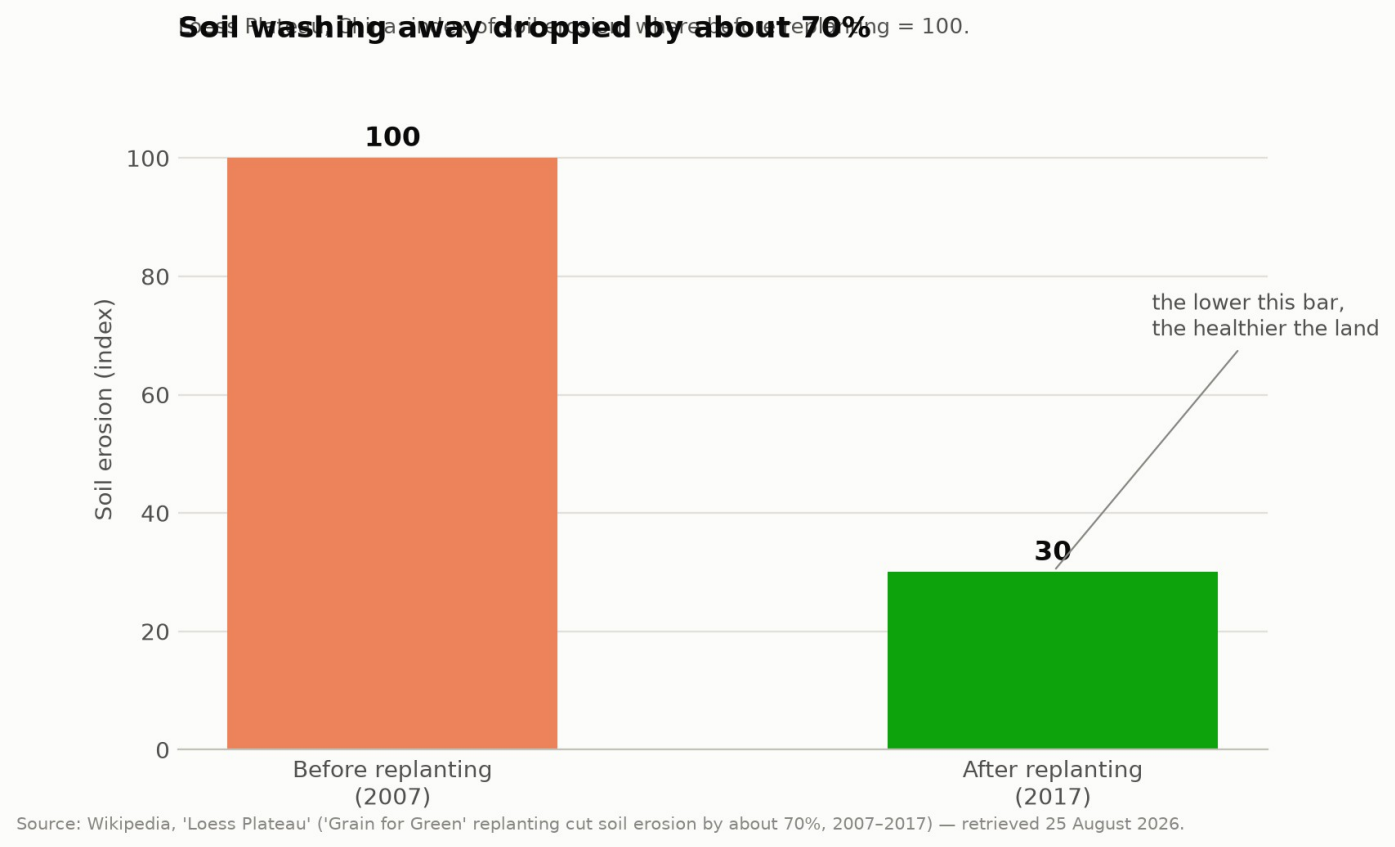
Positive influences: people helping places

The same people who can hurt a place can also repair it and look after it.

Positive action	A real example	How it helps the place
Reforestation — replanting trees	China's Loess Plateau, 'Grain for Green' (from 1999) — also shown in the overseas table	Trees and grass hold the soil, so erosion dropped by about 70%; the land can support farms and wildlife again
Landcare groups	Australia has about 4,000 Landcare groups (the movement began in 1986); Victoria has many of them	Local volunteers plant native trees and grasses, remove weeds, and repair creeks and bushland near their own towns
Rehabilitating old mines and factories	Rum Jungle, Northern Territory — an old mine that polluted the Finnis River	A \$16.2 million clean-up removed heavy metals and made the waste safe, so the river and land could start to recover

Sources: Wikipedia, 'Loess Plateau'; 'Rum Jungle, Northern Territory'; 'Landcare Australia' — retrieved 25 August 2026.

A table with three rows. Reforestation: China’s Loess Plateau ‘Grain for Green’ from 1999 — trees and grass hold the soil, erosion dropped about 70 per cent and the land supports farms and wildlife again. Landcare groups: Australia has about 4,000 Landcare groups (the movement began in 1986) and Victoria has many; local volunteers plant natives, remove weeds and repair creeks near their own towns. Rehabilitating old mines and factories: Rum Jungle in the Northern Territory, an old mine that polluted the Finnis River, had a \$16.2 million clean-up that removed heavy metals so the river and land could recover



Bar chart titled ‘Soil washing away dropped by about 70 per cent’. Loess Plateau, China: index of soil erosion where before replanting in 2007 equals 100 and after replanting in 2017 equals 30. The lower the bar, the healthier the land

Word bank - sustainability — using and looking after a place today so it keeps working for people in the future - **threat** — something that could harm a place’s environment, economy or community - **economy** — the jobs, farms, shops and money that people in a place live on - **outmigration** — people moving away from a place - **reforestation** — replanting trees on land where they were removed - **rehabilitation** — repairing damaged land, like an old mine or factory site, so it can be used again - **Landcare group** — a local group of volunteers who care for the natural environment near their town - **erosion** — the wearing or washing away of soil and rock - **floodplain** — the flat land beside a river that can flood when the river rises

Worked examples

Example 1 — step by step: reading the Aral Sea chart

Question	Worked answer
How big was the Aral Sea in 1960?	About 68,000 square kilometres — the tallest bar.
What happened by 2007?	It shrank to about 6,800 square kilometres, roughly 1 in 10 of its old size.
What caused the change?	People took river water for cotton farms, so less water reached the sea.
Which circle of sustainability was hurt first?	The economy (fishing) and the community (towns), because the environment (the sea) was damaged first.

Example 2 — step by step: is it a threat or a help?

Classify each action as a natural threat, a human threat, or a positive influence, and say which sustainability circle it touches.

Action	Type	Circle it touches
A long drought dries the Murray–Darling Basin.	Natural threat	Environment, then economy and community
A power station closes and 750 jobs go at once.	Human threat	Economy, then community
Volunteers plant native trees along a creek.	Positive influence	Environment and community

Example 3 — your turn to weigh the sides: rebuild or move?

A country town has been flooded three times in fifteen years. Here are two views, each put as strongly as its own supporters would.

- **Rebuild in place, in its strongest form:** this is home — people's families, jobs and memories are here, and moving a whole town would cost far more than building good flood protection. With levees, early warnings and homes built higher, the town can keep its school, its shops and its future, and the farmland around it still needs workers.
- **Move the most at-risk homes, in its strongest form:** every flood costs lives of money and years of recovery, and each time the bill is paid by everyone, not just the people on the floodplain. Moving the homes most likely to flood again to higher ground, and letting the river use its floodplain as a floodplain, is cheaper and safer over fifty years — and the town can still exist, just a little smaller and on safer ground.

Notice both sides name the **place**, the **change** they expect, and who wins and loses. A geographer checks that *both* sides are argued this well, then weighs them against evidence. Marking in this book rewards the quality of your reasoning, not the side you land on.

Practice tasks

Q1. Name the three circles of sustainability shown in the first diagram.

Q2. Using the overseas table, give one place people *helped* and one place people *hurt*, and say what people did in each.

Q3. Using the Aral Sea chart, about what fraction of its old size was the sea by 2007?

Q4. Name the four natural threats to sustainability listed in this section.

Q5. Using the natural threats table, which town or river area could you mention as an example of flooding in Victoria?

- Q6.** Explain in one sentence how a thunderstorm can cause asthma, using the flow diagram.
- Q7.** Using the human threats table, what happened to the Latrobe Valley when Hazelwood closed in 2017?
- Q8.** Using the Melbourne chart, about how many more people is Melbourne projected to gain by 2033–34? Name two things a faster-growing city needs more of.
- Q9.** Give two of the three positive influences named in this section, and one real example of each.
- Q10.** In your own words, and using at least two words from the word bank, explain why sustainability matters to a place you know. Two or three sentences.
-

Extended inquiry task — sustainability reporter

Pick ONE real place from this section (for example Morwell in the Latrobe Valley, Melbourne, the Murray–Darling Basin, or the Aral Sea). Then do a small inquiry and report back.

1. **Describe the place.** In three sentences, say where it is and what it is like, using the concepts of *place* and *environment*.
2. **Find one threat.** Identify one natural or human threat to that place’s sustainability, from this section or a source you check. Say which sustainability circle it touches.
3. **Find one help.** Identify one thing people are doing (or could do) to help the place, such as rehabilitation, replanting or a Landcare group.
4. **Weigh both sides.** Write one strong argument that the place has a sustainable future, and one strong argument that it is at risk — each naming who wins and who loses.
5. **Conclude with reasoning.** Finish with two sentences on whether you think the place is on a sustainable path, and state one piece of evidence you would check to be sure.

Success criteria (how this is marked): your place and facts are real and sourced; your threat and help each touch a named sustainability circle; both sides are argued strongly; your conclusion gives reasons, not just a preference. As always, the quality of your reasoning is marked — two students may reach opposite conclusions and both do excellently.

Sources

- Wikipedia, “Aral Sea” — 1960 area about 68,000 km², dropped to about 10% by 2007, 2018 total 8,321 km²; cause: rivers diverted for irrigation — retrieved 25 August 2026.
- Wikipedia, “Loess Plateau” — “Grain for Green” replanting from 1999; soil erosion down about 70% (2007–2017) — retrieved 25 August 2026.
- Wikipedia, “Dust Bowl” — about 100 million acres damaged; millions left in the 1930s — retrieved 25 August 2026.
- Wikipedia, “Chernobyl disaster” — 26 April 1986; about 135,000 people evacuated; exclusion zone remains — retrieved 25 August 2026.
- Wikipedia, “2011 Victorian floods” — wettest January on record; 1,730+ properties inundated; power cut to 17,000+ homes — retrieved 25 August 2026.
- Wikipedia, “Droughts in Australia” — Millennium Drought 1996–2010; south-east missed about a year’s rain over 11 years; farm water use dropped 37% — retrieved 25 August 2026.
- Wikipedia, “Black Saturday bushfires” — heatwave of 28–30 January 2009 (Melbourne 45.1°C on 30 Jan), 46.4°C on 7 February 2009 — retrieved 25 August 2026.
- Wikipedia, “Thunderstorm asthma” — 21 November 2016 Melbourne event, worst on record; emergency asthma presentations about ten-fold — retrieved 25 August 2026.
- Wikipedia, “Hazelwood Power Station” — closed end of March 2017; 750 direct jobs (450 permanent, 300 contractors); 2014 mine fire, 11 premature deaths attributed, clean-up over \$100 million — retrieved 25 August 2026.

- Wikipedia, “Melbourne” — population 5,435,590 (2025), projected about 6.4 million by 2033–34 — retrieved 25 August 2026.
- Wikipedia, “Rum Jungle, Northern Territory” — uranium mine 1954–1971; Finniss River pollution; \$16.2 million clean-up from 1983 — retrieved 25 August 2026.
- Wikipedia, “Landcare Australia” — about 4,000 groups; movement begun 1986 — retrieved 25 August 2026.
- World Commission on Environment and Development (Brundtland Report), *Our Common Future*, 1987 — the idea of meeting today’s needs without harming future generations (given here in simpler words) — retrieved 25 August 2026.

The three-circle sustainability diagram, the thunderstorm-asthma flow diagram and the concept map are teaching models created for this book.

Answers and marking notes

Q1. Environment, economy, community.

Q2. Any correct pair, e.g. helped: Loess Plateau (replanted trees and grass); hurt: Aral Sea (took river water for cotton).

Q3. About 1 in 10 (about 10%).

Q4. Floods, drought, heatwaves (extreme weather), and storm weather that triggers thunderstorm asthma.

Q5. Any named flood example, e.g. Charlton, Rochester, Echuca, or the Wimmera, Campaspe or Yarra rivers.

Q6. A storm makes pollen grains swell and burst into tiny pieces that wind spreads; people breathe them in and many have asthma attacks at once.

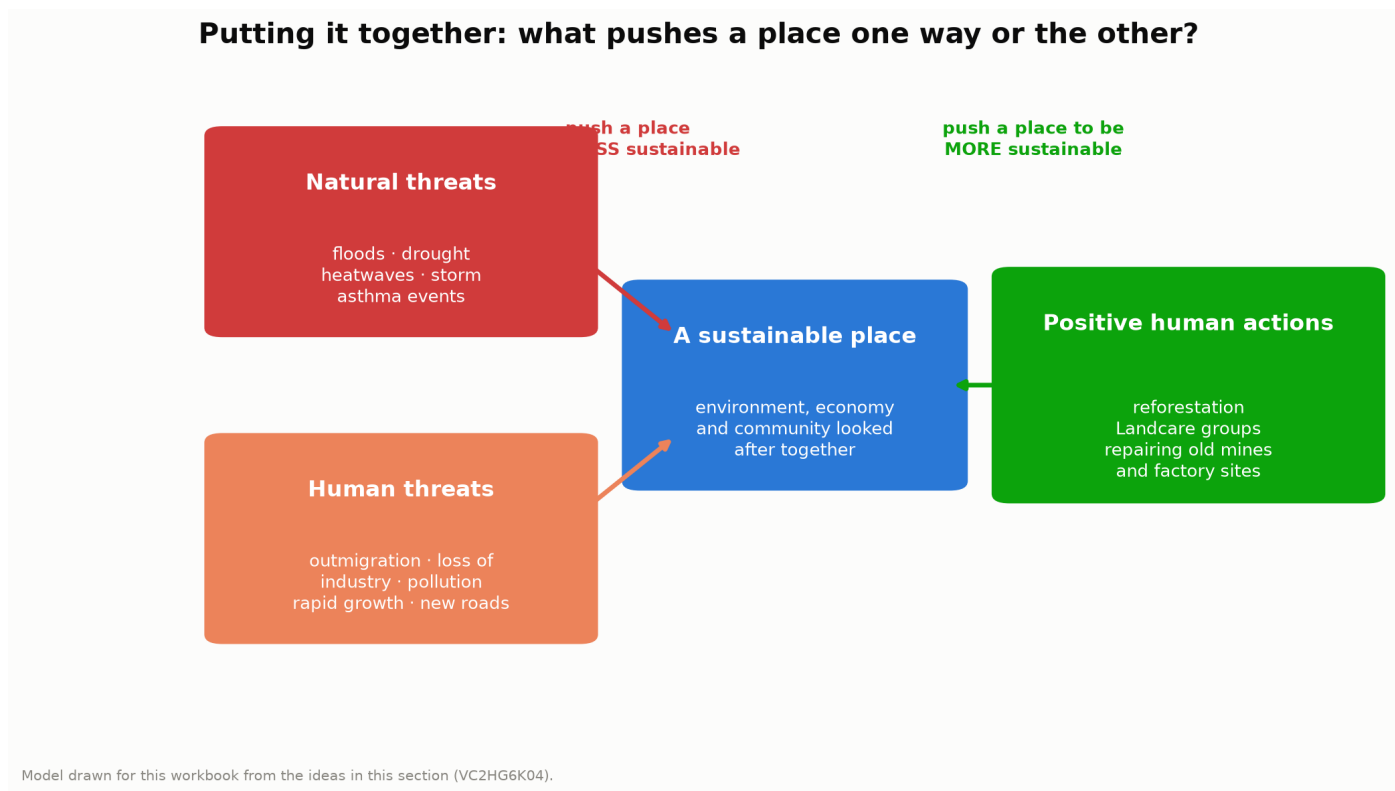
Q7. The power station closed and 750 direct jobs were lost at once, hurting the local economy and community.

Q8. About 1 million more people (5.44 million to about 6.4 million). Any two of: homes, water, roads, schools, green space.

Q9. Any two of: reforestation (Loess Plateau), Landcare groups (about 4,000 in Australia), rehabilitation (Rum Jungle).

Q10. Any answer showing that looking after a place keeps it working for the future, using at least two word-bank terms correctly.

Marking note — extended task. Mark the success criteria, not the conclusion reached. A “future” and “at risk” argument that each name winners and losers meet the steelman requirement; a conclusion that names one piece of evidence to check meets the reasoning requirement. Two students reaching opposite conclusions can both receive full marks.



Concept map with a blue box ‘A sustainable place’ in the centre. On the left, a red box ‘Natural threats’ (floods, drought, heatwaves, storm asthma) and an orange box ‘Human threats’ (outmigration, loss of industry, pollution, rapid growth, new roads) point at the centre with arrows labelled ‘push a place to be LESS sustainable’. On the right, a green box ‘Positive human actions’ (reforestation, Landcare groups, repairing old mines and factory sites) points at the centre with an arrow labelled ‘push a place to be MORE sustainable’

Bushfires and other climate hazards: impacts, prevention, preparedness, response and recovery

For the teacher — VC2 codes: VC2HG6K05, VC2HG6K05.E01, VC2HG6K05.E02, VC2HG6K05.E03

This section is taught together with the skills elaborations **VC2HG6S01.E06** (asking geographic questions about hazards), **VC2HG6S02.E06** (reading maps and satellite images of recent hazard events) and **VC2HG6S03.E03** (drawing hazard maps with BOLTSS), as listed for this section in the book’s scope and sequence.

Theory

What is a climate hazard?

A *hazard* is a natural event that can cause harm to people, places and environments. The Victorian Curriculum uses the term *climate hazard* but does not define it. This section therefore treats it as a dangerous natural event driven by weather or climate that can cause great harm — in this section: **bushfires, floods, droughts and cyclones**, the four hazards the curriculum names — and every question is answerable on that definition alone.

Australia's four main climate hazards			
A climate hazard is a dangerous natural event driven by weather or climate.			
Hazard	What is it?	Where in Australia?	When?
 Bushfire	A fire that burns out of control across grass, scrub or forest, spread by hot, dry, windy weather	Mostly southern and eastern Australia; also the south-west of WA	Fire season: spring and summer (October to March)
 Flood	Water covers land that is normally dry, after heavy rain, a full river or a storm surge	Many parts; most common along the eastern states and their rivers	Any time of year; often in the wet season (November to April)
 Drought	A long time with much less rain than usual, so land, rivers and water storages dry out	Can affect any part; hardest on inland farming lands of the south-east	Builds slowly over months or years
 Cyclone	A spinning storm with very strong winds and heavy rain, formed over warm tropical seas	Northern coasts of WA, the Northern Territory and Queensland	Cyclone season: November to April

Compiled for this book from: Bureau of Meteorology hazard and season summaries; Geoscience Australia natural-hazards overviews (retrieved 25 August 2026).

Figure 1E-1: a table of Australia’s four main climate hazards — bushfire, flood, drought and cyclone — with what each one is, where in Australia it happens and when it is most likely.

Notice the pattern in Figure 1E-1: each hazard has its own *where* and its own *when*. Bushfires belong to hot, dry, windy days in the south; cyclones belong to the warm tropical north in the wet season; floods can strike many places after heavy rain; and droughts build slowly, in many places, over months or years.

Key words for this section

- **impact** — the effect a hazard has on people, places and environments
- **economic / social / environmental** — the three kinds of impact: money, jobs and property; people’s lives, health and safety; land, water, plants, animals and air
- **prevention, preparedness, response, recovery** — the four phases communities use to manage hazards
- **frequency** — how often a hazard strikes; **severity** — how bad it is when it strikes
- **levee** — a raised bank built to keep floodwater away from a town or farm
- **planned burning** — a fire lit on purpose by fire services, in mild weather, to reduce the fuel that feeds bushfires

- **BOLTSS** — the map-maker's checklist you learnt in the skills sections: Border, Orientation (a north arrow), Legend, Title, Scale, Source

Where, how often and how bad: mapping hazards (VC2HG6K05.E01)

Geographers map hazards to see patterns: *where* they strike, *how often* they strike (frequency) and *how bad* they get (severity). Figure 1E-2 is a simple hazard map of Australia. The shaded regions are general patterns, not exact boundaries.

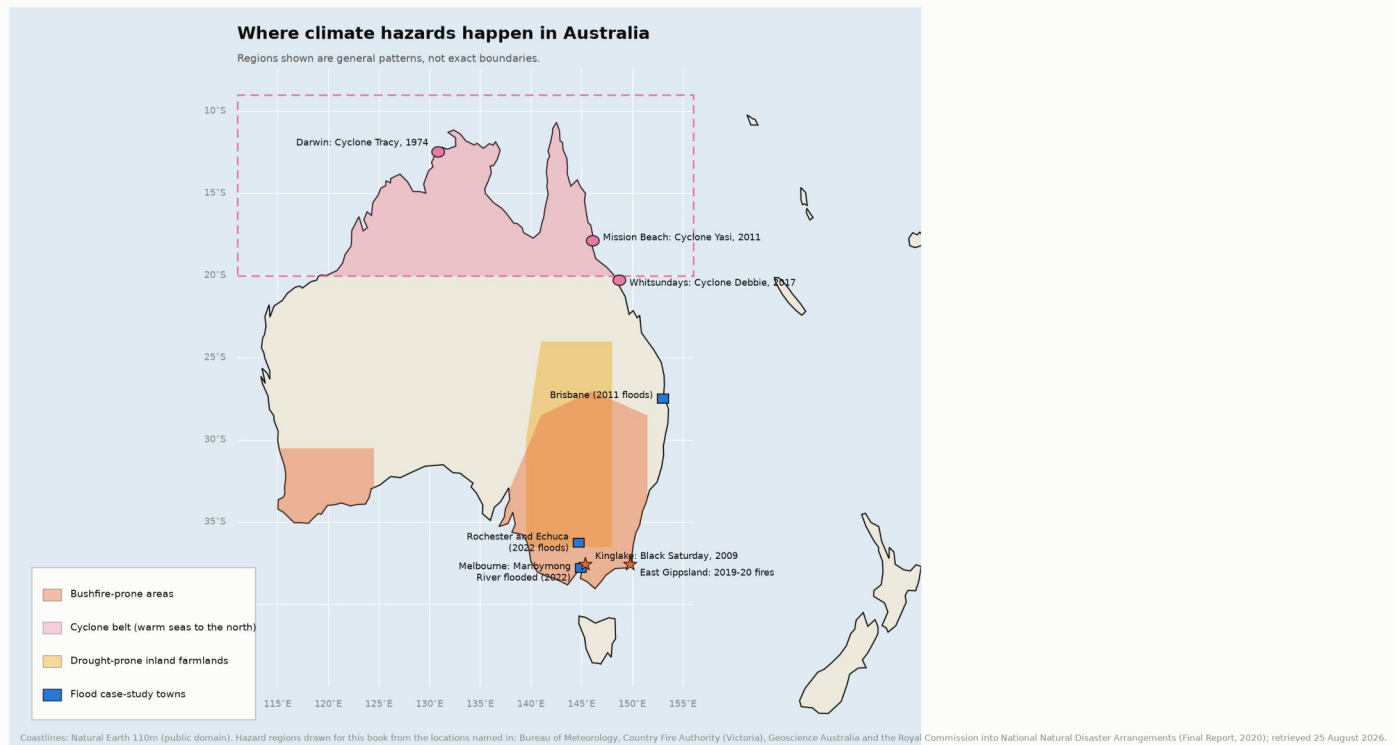


Figure 1E-2: a map of Australia shading the bushfire-prone areas of the southeast and southwest, the cyclone belt across the tropical north, and the drought-prone inland farmlands, with markers for named bushfire, flood and cyclone events.

Reading the map with the legend:

- **Bushfire-prone areas** run down the southeast and sit in the southwest of Western Australia — the same places that get hot, dry, windy summer days.
- The **cyclone belt** hugs the northern coasts, where warm seas feed spinning storms. About 11 tropical cyclones form near Australia each year, and about 4 or 5 cross the coast.
- **Drought-prone inland farmlands** sit in the southeast, where farms depend on rain and river water that can fail for years at a time.
- **Flood case-study towns** sit on rivers: Brisbane on the Brisbane River, Rochester and Echuca in northern Victoria, and Melbourne on the Maribyrnong.

The named markers give real events to hang the patterns on: Cyclone Tracy hit Darwin in 1974, Cyclone Yasi crossed at Mission Beach in 2011 and Cyclone Debbie at the Whitsundays in 2017; the 2010–11 floods reached Brisbane; the 2019–20 bushfires burned East Gippsland and, at Kinglake, the 2009 Black Saturday fires killed 173 people.

Geographers do not just label a map — they ask questions of it (VC2HG6S01.E06): *Why here? Why at this time of year? How often? How bad can it get?* And they check the map against other evidence, such as satellite images, which show burned ground and floodwater from space and let geographers measure how far a hazard spread (VC2HG6S02.E06).

Lead case: bushfires in Victoria (VC2HG6K05.E01)

Victoria is one of the most bushfire-prone places in the world. Its summers bring hot, dry, windy days, and its forests and grasslands dry out into ready fuel. Figure 1E-3 lists four of the biggest Victorian bushfire events of the last century.

Four big Victorian bushfire events

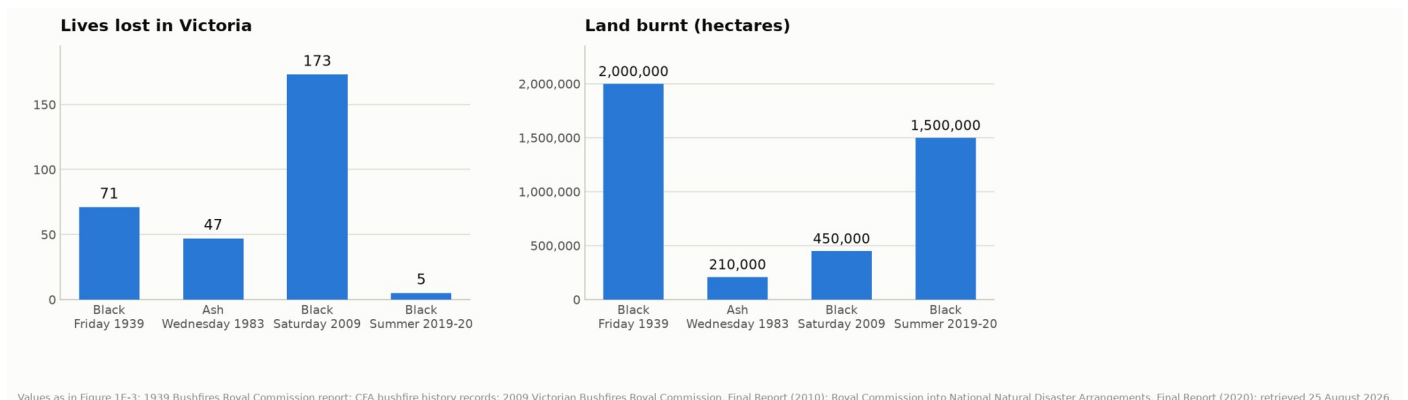
Victoria is one of the most bushfire-prone places in the world.

Event and date	Lives lost	Land burnt	Homes lost	Where
Black Friday 13 January 1939	71 people	about 2 million hectares	whole townships, such as Noojee and Narbethong	mountain districts of Victoria
Ash Wednesday 16 February 1983	47 people in Victoria (75 across Victoria and South Australia)	about 210,000 hectares	about 2,080 homes	Otways, Dandenong Ranges, Macedon, Mallee and Gippsland
Black Saturday 7 February 2009	173 people (414 injured)	about 450,000 hectares	2,029 homes	Kinglake, Marysville, and over 400 other towns and districts
Black Summer 2019-20 season	5 people	over 1.5 million hectares	about 438 homes	East Gippsland and north-east Victoria

Compiled for this book from: 1939 Bushfires Royal Commission report; Country Fire Authority bushfire history records; 2009 Victorian Bushfires Royal Commission, Final Report (2010); Royal Commission into National Natural Disaster Arrangements, Final Report (2020); retrieved 25 August 2026.

Figure 1E-3: a table of four big Victorian bushfire events — Black Friday 1939, Ash Wednesday 1983, Black Saturday 2009 and the Black Summer 2019–20 season — with lives lost, land burned, homes lost and where each event burned.

Figure 1E-4 shows the same numbers as two bar charts, one for lives lost and one for land burned, because the two measures tell different stories.



Values as in Figure 1E-3: 1939 Bushfires Royal Commission report; CFA bushfire history records; 2009 Victorian Bushfires Royal Commission, Final Report (2010); Royal Commission into National Natural Disaster Arrangements, Final Report (2020); retrieved 25 August 2026.

Figure 1E-4: two bar charts of the four Victorian bushfire events, one charting lives lost and one charting hectares burned, showing that the event with the most lives lost and the largest event are not the same one.

Read the patterns in location, frequency and severity:

- **Location:** every event burned in Victoria's forested districts — the mountain forests in 1939, the Otways, Macedon, the Mallee and Gippsland in 1983, the Kinglake and Marysville districts in 2009, and East Gippsland and the north-east in 2019–20.
- **Frequency:** a bushfire season arrives every spring and summer, and bad fire days are common within a season. Disaster-scale events are rarer: the four in Figure 1E-3 sit about 20 to 40 years between them.
- **Severity:** the event that took the most lives was not the biggest. Black Saturday (2009) took 173 lives although it burned far less land than Black Friday (1939), which burned about 2 million hectares but took 71 lives. Severity depends on where the fires strike and how many people live there, not only on size.

The costs: economic, social and environmental (VC2HG6K05.E02)

The *impacts* of a hazard are its effects, and they come in three kinds. Figure 1E-5 sorts the impacts of one event — the 2009 Black Saturday bushfires — into the three kinds.

Three kinds of impact: the 2009 Black Saturday bushfires

Impacts are the effects a hazard has. The same event hits money, people and the environment.

Economic impacts	Social impacts	Environmental impacts
money, jobs, property and what people can produce	people's lives, health, safety and how communities work	land, water, plants, animals and the air
damage counted at about \$4.4 billion	173 people died; 414 were injured	about 450,000 hectares of forest, farmland and parkland burnt
2,029 homes destroyed, plus sheds, fences and farm machines	whole towns, such as Marysville, were badly damaged	many native animals, such as koalas and birds, lost their homes
wineries, farms and tourist places closed for months	families lost homes, pets, photos and places they loved	hot fires damaged soils and polluted creeks with ash
power, phone and water services cut for days in some towns	helpers and volunteers worked long hours; the whole state felt grief	smoke drifted for weeks, reducing air quality far away

Compiled for this book from: 2009 Victorian Bushfires Royal Commission, Final Report (2010); Department of Sustainability and Environment, Victorian bushfire season summaries; retrieved 25 August 2026.

Figure 1E-5: a three-column model sorting the impacts of the 2009 Black Saturday bushfires into economic impacts, social impacts and environmental impacts, with four examples in each column.

One event, three kinds of cost: the same fires destroyed property (economic), killed and injured people and tore at community life (social), and burned habitat, soils and air (environmental). Money is only part of the story — but the money story is big. Figure 1E-6 compares what insurance companies paid out after seven major Australian hazard events.

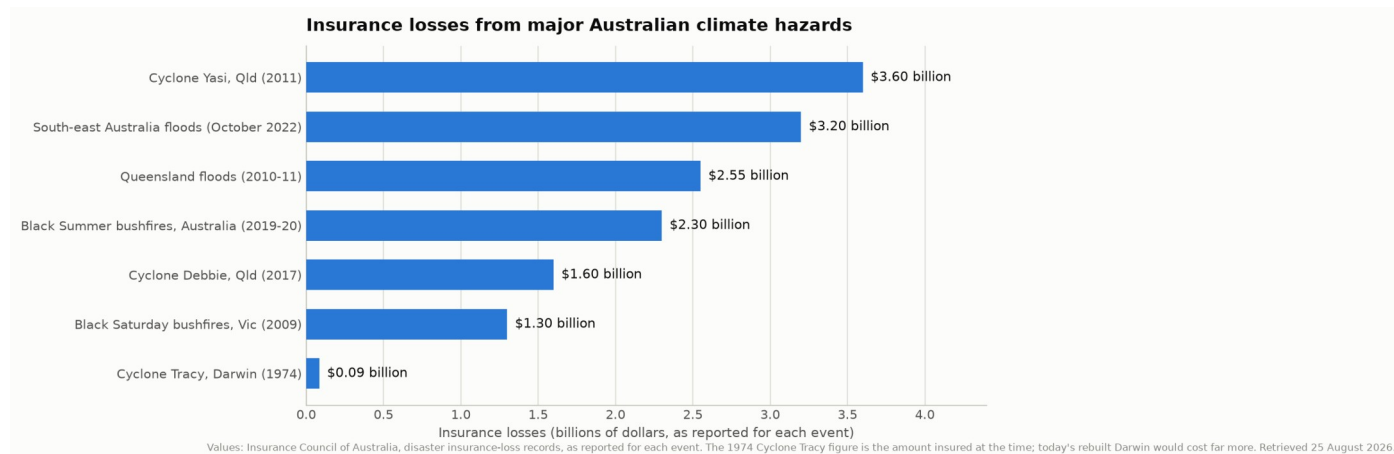


Figure 1E-6: a horizontal bar chart of insurance losses from major Australian climate hazards, from Cyclone Tracy in 1974 (about 0.09 billion dollars) up to Cyclone Yasi in 2011 (3.60 billion dollars), with the October 2022 southeast Australia floods second at 3.20 billion dollars.

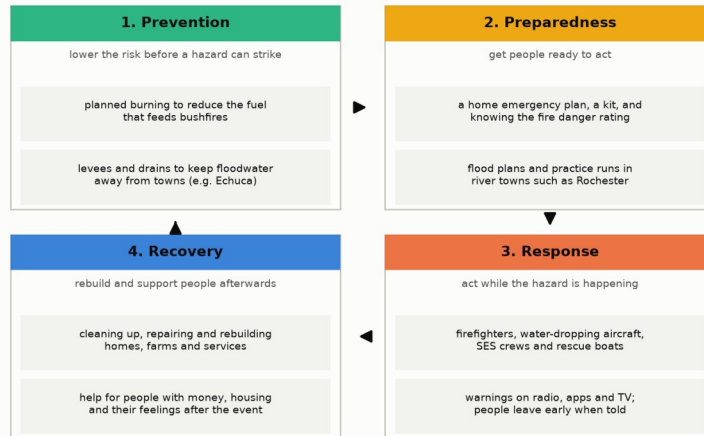
Two things to notice in Figure 1E-6. First, floods and cyclones top the insurance chart, even though bushfires top the lives-lost chart: different hazards hurt in different ways. Second, insurance losses are only the part of the cost that insurance companies pay — the full cost of a disaster, in grief, lost habitat and closed businesses, is much bigger. (Cyclone Tracy's small 1974 number is the amount insured at the time; rebuilding Darwin today would cost far more.)

Managing hazards: the four-phase cycle (VC2HG6K05.E03)

Australia's emergency management arrangements set out four phases for managing hazards — **prevention, preparedness, response and recovery** — as in the *National Strategy for Disaster Resilience* (Council of Australian Governments, 2011). The four phases form a cycle, because what is learnt after one event helps prevent the next.

The four phases of managing hazards

Communities work in a cycle: reduce the risk, get ready, act during the event, then rebuild. The cycle never stops: lessons from recovery feed back into prevention.



Phases as used in Australia's emergency management arrangements (National Strategy for Disaster Resilience, Council of Australian Governments, 2011); examples compiled for this book from CFA, Victoria State Emergency Service and Emergency Management Victoria public material; retrieved 25 August 2026.

Figure 1E-7: a cycle diagram of the four phases of managing hazards — prevention, preparedness, response and recovery — each card giving two real examples, such as planned burning and levees for prevention, emergency kits and flood practice runs for preparedness, firefighters and warnings for response, and rebuilding and support for recovery.

The cycle in plain words:

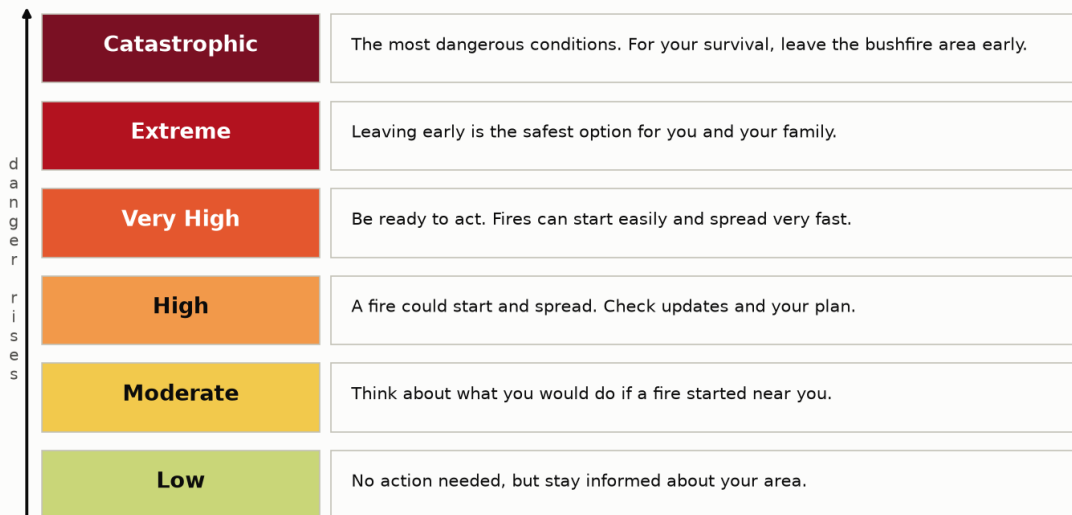
- 1. Prevention** lowers the risk before a hazard can strike — planned burning reduces the fuel that feeds bushfires; levees and drains keep floodwater away from towns such as Echuca.
- 2. Preparedness** gets people ready to act — a home emergency plan, a kit, and knowing the fire danger rating; flood plans and practice runs in river towns such as Rochester.
- 3. Response** acts while the hazard is happening — firefighters, water-dropping aircraft, SES crews and rescue boats; warnings on radio, apps and TV, and people leaving early when told.
- 4. Recovery** rebuilds and supports people afterwards — cleaning up, repairing and rebuilding homes, farms and services; help with money, housing and feelings after the event.

Preparedness in real life: fire danger ratings and warnings

Preparedness works best when everyone reads the same signals. Since September 2022, every Australian state has used the one Australian Fire Danger Rating System: six ratings, worked out each day from weather such as heat, dryness and wind, and shown on roadside signs, radio, TV and apps such as VicEmergency.

Fire danger ratings: what each one means for you

Ratings are worked out each day from weather such as heat, dryness and wind. They are shown on signs, radio, TV and apps such as VicEmergency.



Ratings: Australian Fire Danger Rating System, used nationally since September 2022 (published by the Country Fire Authority and VicEmergency); action phrases written for this book; retrieved 25 August 2026.

Figure 1E-8: the six fire danger ratings from Low to Catastrophic as coloured bands, each with a plain-language action phrase written for this book, and an arrow showing that danger rises towards Catastrophic.

On a Catastrophic day, the message is simple: for your survival, leave the bushfire area early. When a fire does start, emergency services issue warnings in three levels — **Advice**, **Watch and Act**, and **Emergency Warning** — each one more urgent than the last. Knowing the rating and the warnings is preparedness; acting on them early is what saves lives in the response phase.

Drought case study: the Millennium Drought, 1997–2009 (VC2HG6K05.E01, E02)

Not every hazard arrives in a day. The Millennium Drought (1997–2009) was the longest and one of the most severe droughts in Australia's recorded history, centred on the southeast. (An earlier one, the Federation Drought of 1895–1903, is a reminder that long droughts return.) Figure 1E-9 shows what more than a decade of low rain did.

Case study: the Millennium Drought, 1997-2009

The longest and one of the most severe droughts in Australia's recorded history, centred on the south-east.

Rivers	Farms
In the driest years (2006-2009), inflows to the River Murray system fell to about 11% of the long-term average. The Murray-Darling Basin is Australia's biggest farming region; its rivers ran very low.	Water for farms was cut hard; in the worst years some farmers got none for their crops. Dairy, rice, grape and cotton production fell sharply across the Basin.
Water storages	The end
By 2009-2010, Melbourne's water storages had fallen to about a quarter full. Cities ran water-saving rules; many homes fitted water tanks and shorter shower habits.	Heavy rain in 2010-2012 broke the drought and storages refilled. The experience changed how Australia plans for the next drought.

Compiled for this book from: Bureau of Meteorology drought records; Murray-Darling Basin Authority reports on Basin inflows; Melbourne Water storage records; retrieved 25 August 2026.

Figure 1E-9: a four-card case study of the Millennium Drought covering rivers (Murray inflows dropped to about 11 per cent of the long-term average in the driest years), farms (water for farms cut hard, production dropped), water storages (Melbourne's storages about a quarter full by 2009–10) and the end of the drought (heavy rain in 2010–2012 refilled storages).

Droughts show all three kinds of impact: farms lost income when water was cut (economic), rural towns lived with years of strain (social), and rivers, wetlands and their plants and animals ran dry (environmental). They also show the whole cycle: water-saving rules and tanks were prevention and preparedness for the *next* drought, and the way Australia now plans for drought is one of the lessons recovery passes back to prevention.

Flood case study: Victoria, October 2022 (VC2HG6K05.E01, E02, E03)

After months of wet ground, heavy rain in October 2022 made rivers across northern Victoria — and the Maribyrnong in Melbourne's west — overflow. Figure 1E-10 gives the facts of the event.

Case study: the October 2022 floods in Victoria

After months of wet weather, heavy rain made rivers across northern Victoria and Melbourne overflow.

When?	Rivers peaked around 14 October 2022. October 2022 was the wettest October on record for much of Victoria.
Which rivers?	The Avoca, Loddon, Campaspe and Murray rivers in northern Victoria, and the Maribyrnong River in Melbourne's west.
Which places?	Most of the town of Rochester was flooded; levees protected the town centres of Echuca and Shepparton; over 1,000 homes flooded along the Maribyrnong in Melbourne.
The cost	Insurance losses of about \$3.2 billion -- the most costly insured flood event in Victoria's history. Thousands of farms, homes and businesses were affected.
The response	SES crews and volunteers sandbagged homes, rescued people and ran relief centres; the Australian Defence Force helped afterwards.

Compiled for this book from: Bureau of Meteorology rainfall and river records; Victoria State Emergency Service event summaries; Insurance Council of Australia disaster loss records; retrieved 25 August 2026.

Figure 1E-10: a case-study table of the October 2022 Victorian floods: when rivers peaked, which rivers flooded, which places were affected (most of Rochester flooded, Echuca and Shepparton town centres protected by levees, over 1,000 homes flooded on the Maribyrnong), the cost (about 3.2 billion dollars in insurance losses), and the response (SES crews, volunteers and the Australian Defence Force).

The 2022 floods are a clean test of the four-phase cycle, and of Echuca's and Rochester's different stories:

- **Prevention:** Echuca's levee system, built and improved before the event, kept the town centre dry although the river peaked at record heights.
- **Preparedness:** warnings went out days ahead; Rochester and Echuca ran evacuation plans and stacked sandbags before the peak.
- **Response:** SES crews and volunteers rescued people from roofs and ran relief centres; the Australian Defence Force helped with the clean-up.
- **Recovery:** insured losses of about \$3.2 billion — the biggest insured flood event in Victoria's history — flowed into repairs, and Rochester began the slow rebuild that follows a town-wide flood.

Two fair sides: planned burning

Prevention is where reasonable people can disagree. Planned (fuel-reduction) burning is one of Victoria's main bushfire prevention tools, and it is genuinely contested. Here are both sides at their strongest:

- **For more planned burning:** dry fuel is what turns a spark into a disaster. Burning fuel in mild weather lowers the intensity of later bushfires, gives firefighters a chance to win, and shields towns on the days that matter. After Black Saturday, royal commissions heard that well-placed planned burning saved property in some districts.
- **For great care with planned burning:** every lit fire can escape, and smoke harms people's health on the day. Burning too often or in the wrong places damages the plants and animals that live in the forest, and a burn in one spot does not stop a fire driven by extreme wind somewhere else. On Catastrophic days, they argue, no amount of burning replaces leaving early.

Both sides want the same thing — safer people and healthy forests — and governments try to balance the two views each season. In this book, either side earns full marks when it is argued clearly and supported with reasons like the ones above.

Skills spotlight: draw your own hazard map (VC2HG6S03.E03)

The extended inquiry at the end of this section asks you to draw a hazard map of Australia yourself. Use BOLTSS as your checklist: a **border** around the map, a north arrow for **orientation**, a **legend** for your shadings and symbols, a **title**, a rough **scale** (for example, 1 cm $\approx$ 500 km), and a **source** line naming where your information came from.

Worked examples

Worked example 1 (with help): reading severity from Figure 1E-4

Question: (a) Which event took the most lives in Victoria? (b) How many more lives was that than Ash Wednesday? (c) Which event burned the most land?

Modelled working:

- Step 1 — read the lives-lost chart: the bars show 71 (Black Friday), 47 (Ash Wednesday), 173 (Black Saturday) and 5 (Black Summer). The tallest bar is Black Saturday, 173. ✓ (a)
- Step 2 — compare: $173 - 47 = 126$. ✓ (b)
- Step 3 — read the land-burned chart: 2,000,000 hectares (Black Friday) is the tallest bar. ✓ (c)

Answers in sentences: (a) Black Saturday took the most lives in Victoria, 173. (b) That was 126 more lives than Ash Wednesday's 47 in Victoria. (c) Black Friday burned the most land, about 2 million hectares.

Worked example 2 (with help): sorting impacts into three kinds

Question: Sort these Black Summer (2019–20) impacts into economic, social or environmental, and give the reason for each: (i) about 438 Victorian homes were lost; (ii) five people died and many lost pets and photos; (iii) koalas and other native animals lost habitat.

Modelled working:

- Step 1 — ask the sorting question for each: is it about **money, jobs and property** (economic), **people's lives, health and safety** (social), or **land, water, plants, animals and air** (environmental)?
- Step 2 — (i) homes are property $\rightarrow$ economic. (ii) deaths and loss are about people's lives and feelings $\rightarrow$ social. (iii) animals and habitat are the natural world $\rightarrow$ environmental.

Answer: (i) economic — property destroyed; (ii) social — lives lost and personal loss; (iii) environmental — animals and habitat harmed.

Practice questions

Practice with help

S1. Use Figure 1E-1. (a) Which hazard is a spinning storm that forms over warm tropical seas? (b) In which months is the cyclone season? (c) Which hazard builds slowly over months or years instead of striking in a day?

S2. Use Figure 1E-2. Name the hazard most likely at: (a) Darwin; (b) the Kinglake district in Victoria; (c) the drought-prone inland farmlands of the southeast; (d) Rochester on the Campaspe River.

S3. Use Figures 1E-3 and 1E-4. (a) How many lives were lost in Victoria on Black Saturday? (b) Which event burned the most land in Victoria, and roughly how much? (c) How many more lives were lost in Victoria on Black Saturday than on Ash Wednesday?

S4. Use Figure 1E-7. Name the phase (prevention, preparedness, response or recovery) for: (a) building Echuca's levees before any flood; (b) a family packing an emergency kit and saving the fire danger rating on their phone; (c) rescue boats moving people to safety during a flood; (d) repairing and rebuilding flooded farms afterwards.

S5. Use Figure 1E-8. (a) List the six fire danger ratings in order from lowest danger to highest. (b) Which rating says leaving early is the safest option for you and your family?

S6. Use Figure 1E-5. Sort each Black Saturday impact into economic, social or environmental: (a) wineries and tourist places closed for months; (b) 414 people injured; (c) ash polluted creeks; (d) 2,029 homes destroyed.

Practice on your own

U1. Victoria is one of the most bushfire-prone places in the world. Explain why, using at least two reasons from this section.

U2. A friend says, “Droughts can’t cost much, because nothing is destroyed in a drought.” Use Figure 1E-9 to disagree with two examples.

U3. Name the phase and give a reason for each: (a) Rochester runs a flood practice run before the wet season; (b) after the 2022 floods, grants helped farms restart; (c) Echuca’s levees kept the town centre dry in 2022.

U4. Figure 1E-6 shows Cyclone Tracy’s insurance losses as only about \$0.09 billion, even though more than 70% of Darwin’s buildings were destroyed. Explain why the number looks small.

U5. Planned burning is contested. Give the strongest reason *for* more planned burning and the strongest reason *for great care* with it, then say which side you agree with and why.

Extended inquiry

X1. Draw your own hazard map of Australia (VC2HG6S03.E03).

1. Sketch Australia’s outline from memory, then check it against Figure 1E-2 and fix it.
 2. Shade the three general regions (bushfire-prone southeast and southwest; the northern cyclone belt; the drought-prone inland farmlands) and mark one named flood town.
 3. Add one named event for each hazard, with its year (for example, Kinglake 2009).
 4. Give the map full BOLTSS, including a source line.
 5. Below the map, answer in sentences: (a) Which of the four hazards strikes some part of Australia most often, in your map’s evidence? (b) Which named event on your map was the most severe for lives lost? (c) Why do cyclones strike the north and not Victoria?
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Answers

S1. (a) Cyclone. (b) November to April. (c) Drought.

S2. (a) Cyclone. (b) Bushfire. (c) Drought. (d) Flood.

S3. (a) 173. (b) Black Friday (1939), about 2 million hectares. (c) 126 more (173 – 47).

S4. (a) Prevention. (b) Preparedness. (c) Response. (d) Recovery.

S5. (a) Low, Moderate, High, Very High, Extreme, Catastrophic. (b) Extreme.

S6. (a) Economic. (b) Social. (c) Environmental. (d) Economic.

U1–U5 and X1. See the fully-worked solutions below.

Fully-worked solutions

U1. Step 1 — the weather: Victoria's summers bring hot, dry, windy days, the exact mix that starts and spreads fires. *Step 2 — the fuel:* its forests and grasslands dry out each summer into ready fuel. *Step 3 — put together:* frequent bad fire days plus dry fuel is why Victoria sits among the most bushfire-prone places in the world (Figure 1E-2 shades the same southeast as the bushfire-prone region).

U2. Step 1 — farms: Figure 1E-9 shows water for farms cut hard, with some farmers getting no water at all for crops in the driest years; dairy, rice, grape and cotton production dropped sharply. That is a big economic cost with nothing "destroyed" in a storm. *Step 2 — cities:* Melbourne's storages dropped to about a quarter full, and cities ran water-saving rules for years — another cost. *Step 3 — conclude:* a drought destroys income, water and river health slowly rather than suddenly, so the claim is wrong.

U3. (a) *Preparedness* — a practice run gets people ready to act before the hazard arrives. (b) *Recovery* — grants after the event rebuild and support people. (c) *Prevention* — the levees were built before the flood to lower the risk, and that is why they worked when it arrived.

U4. Step 1 — the chart shows insurance losses, not total damage: it counts only what was insured, at the time. *Step 2* — in 1974 far fewer homes and businesses carried insurance than today, and building costs were much lower. *Step 3* — so the small bar does not mean a small disaster: over 70% of Darwin's buildings were destroyed and 66 people died. Rebuilding Darwin today would cost far more (see the figure's source note).

U5. Strongest reason for: burning fuel in mild weather lowers the intensity of later bushfires and gives firefighters and towns a better chance on bad days. *Strongest reason for care:* lit fires can escape, smoke harms health, and too-frequent burning damages the plants and animals of the forest — and on extreme days, leaving early is what saves lives. *Your view:* either side, stated with a reason from the two above, earns full marks.

X1 — marking guide. *Map (4 marks):* outline recognisable (1); three regions shaded and a flood town marked, matching Figure 1E-2 (1); one named dated event per hazard (1); full BOLTSS including a source line (1). *Written parts (3 marks):* (a) a defended choice — for example, floods or bushfires, arguing from the map's many named events and the every-year fire season (1); (b) Kinglake, Black Saturday 2009, 173 lives lost (1); (c) cyclones need the warm tropical seas of the north; Victoria's southern seas are too cool to feed them (1).

Sources for this section (all retrieved 25 August 2026): Royal Commission into National Natural Disaster Arrangements, *Final Report* (2020); 2009 Victorian Bushfires Royal Commission, *Final Report* (2010); 1939 Royal Commission into bushfire suppression (Stretton report); Country Fire Authority bushfire history records; Bureau of Meteorology hazard, season, rainfall, river and drought records; Geoscience Australia natural-hazards overviews; Insurance Council of Australia disaster insurance-loss records; Murray–Darling Basin Authority inflow reports; Melbourne Water storage records; Victoria State Emergency Service event summaries; Emergency Management Victoria public material; *National Strategy for Disaster Resilience* (Council of Australian Governments, 2011);

Australian Fire Danger Rating System public material (national since September 2022); Natural Earth 110 m coastlines (public domain). Every figure in this section carries its own source line.