Geography Level 6

Chapter 3 — Geographical inquiry: questions, data, representation and analysis

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Asking geographical questions about how places are managed

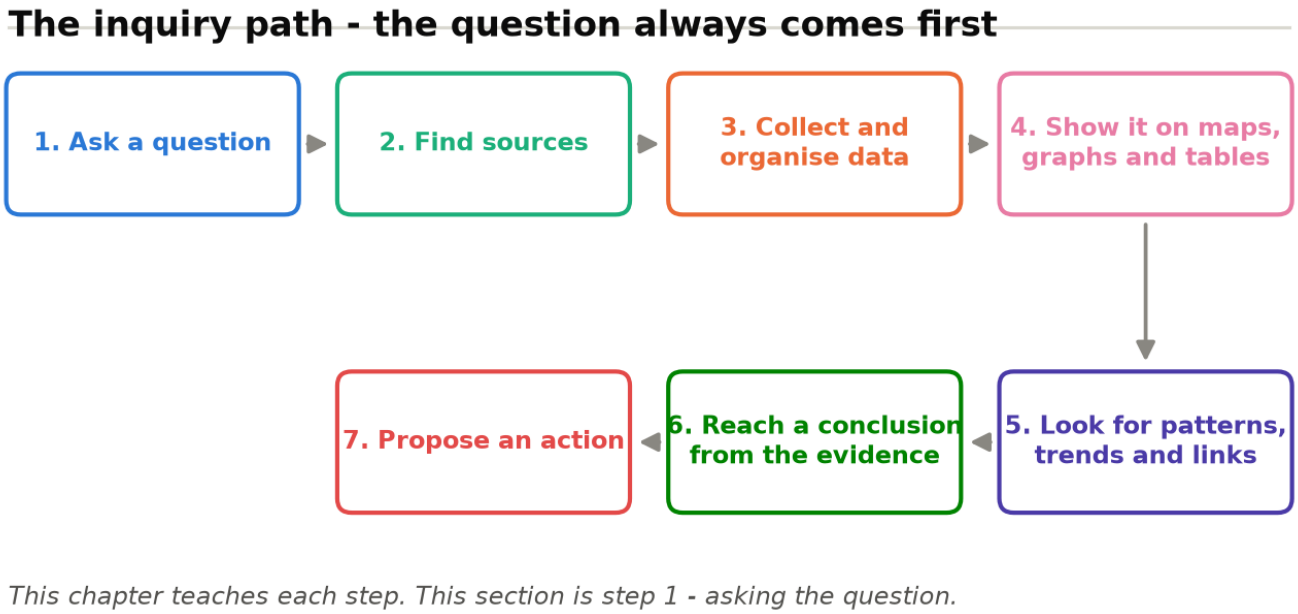
For the teacher — VC2 codes: `VC2HG6S01`, `VC2HG6S01.E01`, `VC2HG6S01.E02`, `VC2HG6S01.E03`, `VC2HG6S01.E04`, `VC2HG6S01.E05`, `VC2HG6S01.E06`

Theory

Why the question comes first

Every investigation in this book started life as a question. Section 1E asks how people live with the risk of bushfires. Section 1C asks what is changing in your own place, and who decides. Section 2B asks how Australia is tied to the countries nearby. Before any of those sections could collect a single fact, someone had to **ask a good question**. That is the skill this section teaches.

A question does three jobs for an inquiry. It tells you **what to look for**, so you do not collect everything in sight. It tells you **where to look**, so you can find sources. And it tells you **when you are done**, because a good question can be answered. The flow diagram in Figure 1 shows where asking sits in the inquiry path you will walk all through this chapter.



A flow diagram with the seven steps of a geographical inquiry, beginning with asking a question

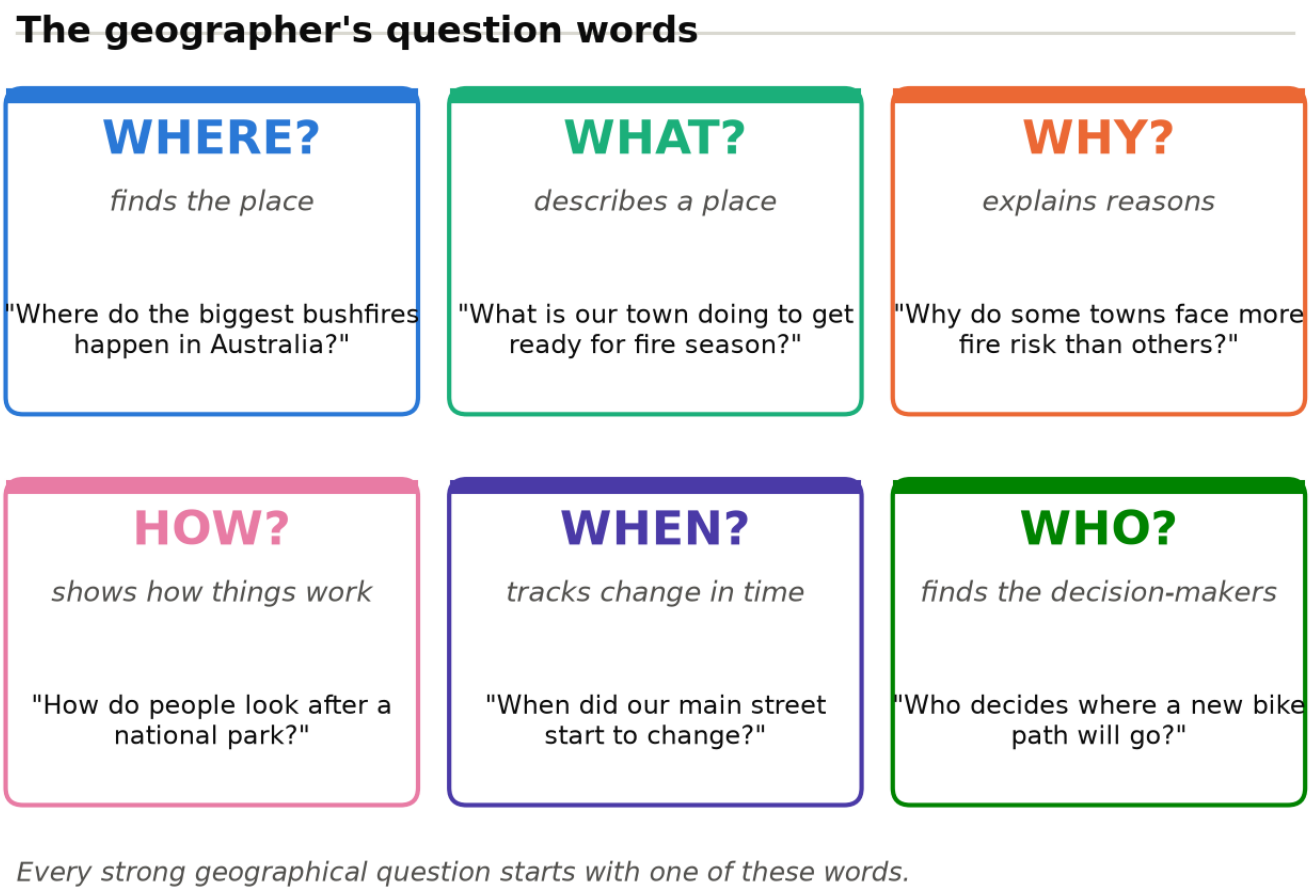
Figure 1. The inquiry path. This section teaches step 1 — the step every later step depends on.

What is a geographical question?

Geography is the study of places: where they are, what they are like, and how people and the environment share them. A **geographical question** is a question about a place that you can answer by collecting and checking evidence — facts, data, maps, photographs and the words of people who know.

This section is about questions on **the way places are managed**. To **manage** a place means to make choices about it and look after it: where houses and shops may be built, how a park or forest is cared for, how a town gets ready for hazards such as bushfires and floods. So a question about management asks about people's choices — and about how well those choices work.

Most geographical questions begin with one of six words, and each word pulls a different kind of answer (Figure 2).

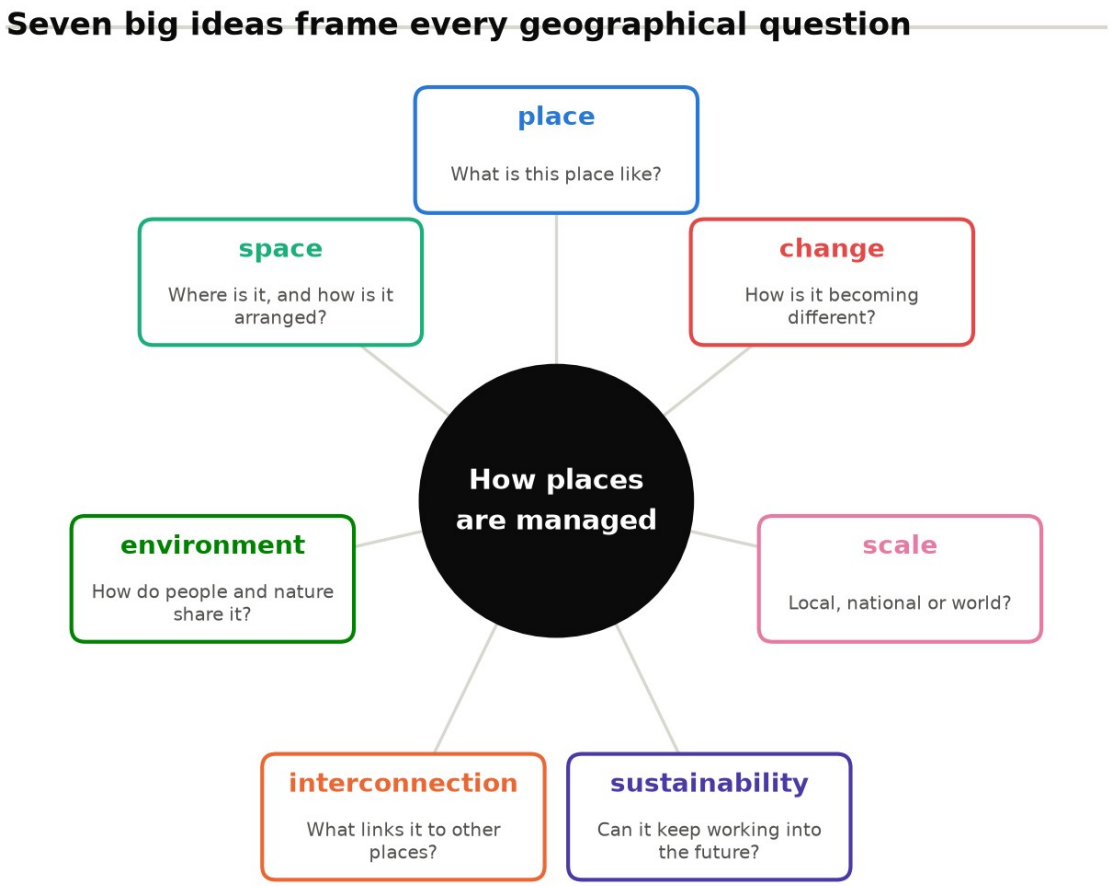


Six cards, one for each question word: where, what, why, how, when and who, each with a starter question

Figure 2. The six question words. Where and what describe and locate. Why and how explain. When tracks change through time. Who finds the people making the choices.

Seven big ideas: the geographical concepts

Geographers also sort their questions under seven big ideas, called **concepts**. They are the lenses geographers look through (Figure 3). A question about a place that also ties to one or more of these ideas is a real geographical question.



A wheel diagram with the seven geographical concepts arranged around the words "how places are managed"

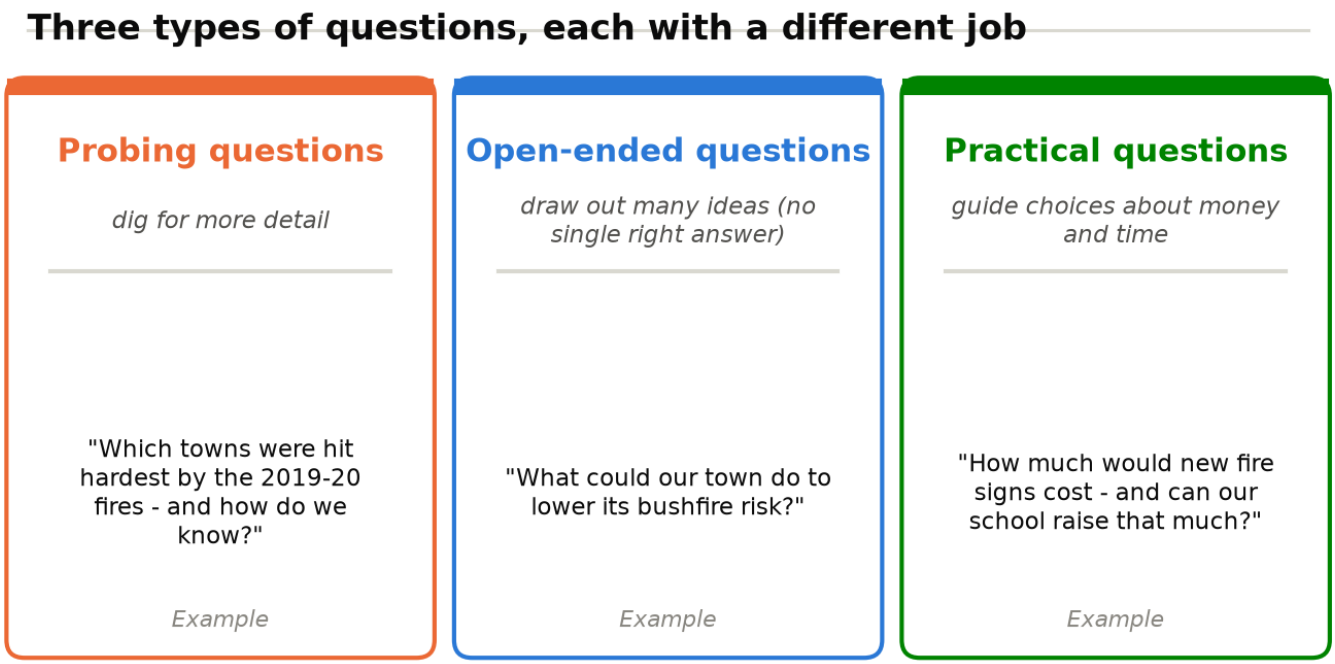
Figure 3. The seven geographical concepts. The ideas are defined here the way this book uses them.

- **Place** — what a spot is like, and what it means to the people there.
- **Space** — where things are, and how they are spread out and arranged.
- **Environment** — the living and non-living things around us, and how people treat them.
- **Interconnection** — the links between places and people, so that what happens in one place can change another.
- **Sustainability** — using a place and its resources now, in a way that keeps them working for people in the future.
- **Scale** — the size of the picture you look at: your street, your state, your country, or the world.

- **Change** — how places become different through time, and why.

Three kinds of questions for three jobs

Questions also come in different **types**, and each type has a different job (Figure 4). Good inquiries mix all three.



Three cards showing probing questions, open-ended questions and practical questions, with the job of each and an example

Figure 4. Three types of questions, matched to what you need from them.

- A **probing question** digs for more detail. Use it when a first answer is too shallow: “Which towns were hit hardest — and how do we know?”
- An **open-ended question** draws out many ideas, and no single answer is the whole story. A fair open question lets every side give its strongest reasons: “What could our town do to lower its bushfire risk?”
- A **practical question** guides choices about money and time: “How much would the new signs cost — and can our school raise that much?”

Questions that plan your sources

Before you collect any data, you need to know where your evidence will come from — and whether you are allowed to use it. Four planning questions do that job (Figure 5).

Four planning questions before you collect any data

1 Is this source useful?

Does it answer our question, and can we trust it?

2 Who can help us with this project?

A librarian, a council officer, a CFA volunteer, a park manager.

3 What rules must we follow in this inquiry?

Safety rules, permission to survey people, and care for the place.

4 What resources do we need for this project?

Time, maps, a computer, transport, and any gear to measure with.

These questions plan where your evidence will come from before you start.

Four numbered cards with the planning questions: is this source useful, who can help us, what rules must we follow, and what resources do we need

Figure 5. Ask these before you collect anything.

Planning question 1 is the most important. A **source** is useful to you when it answers your question and when you can check it — when it says where its facts came from, when it was made, and who made it. Sources come in two kinds:

- A **primary source** is evidence you collect yourself — your own counts and photographs from fieldwork outside, or a survey of your class.
- A **secondary source** is evidence someone else already made — books, articles, maps, plans, charts and trusted websites, such as the national census.

What makes a question strong?

You now have everything you need to judge a question. The checklist in Figure 6 pulls it together.

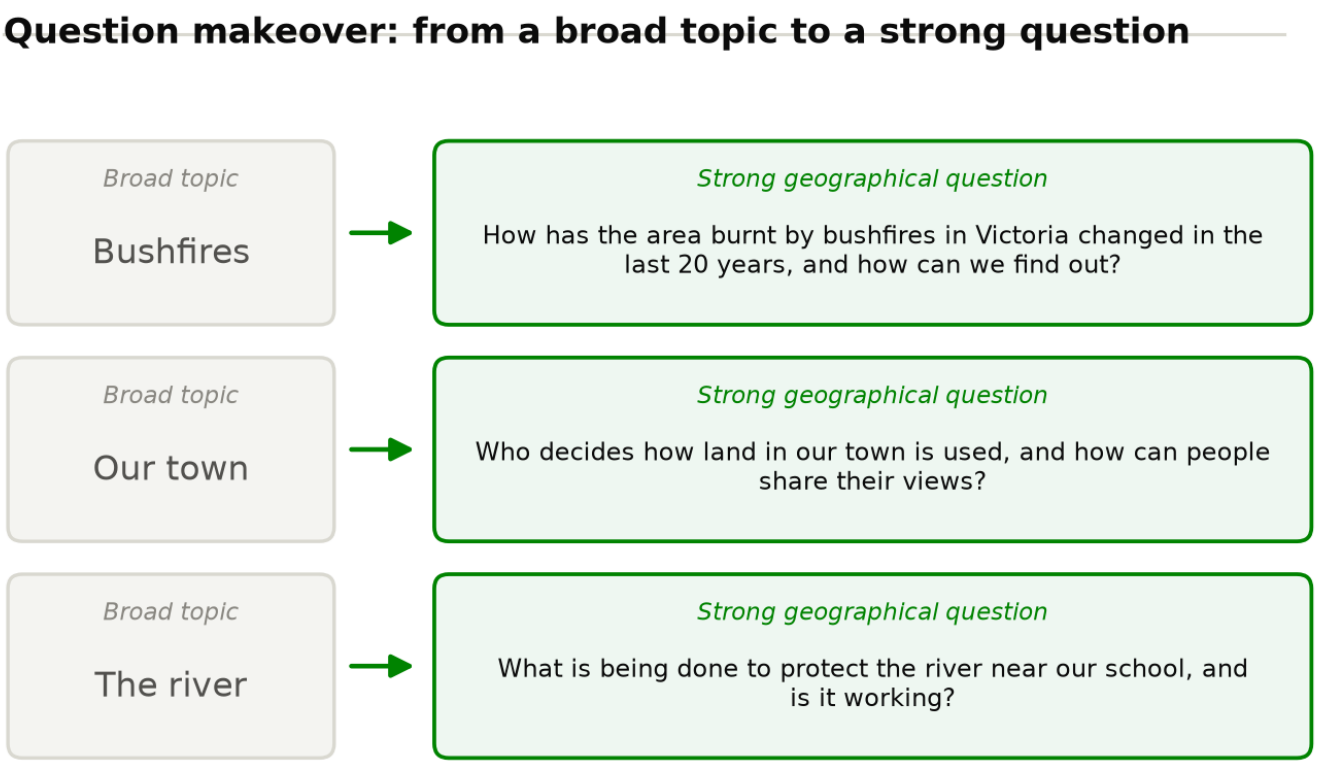
A strong geographical question...

- ✓ is about one or more places.
- ✓ can be answered with evidence - facts, data and sources we can check.
- ✓ begins with a question word: where, what, why, how, when or who.
- ✓ links to at least one of the seven geographical ideas.
- ✓ could help someone make a decision about how a place is managed.

A checklist of the five marks of a strong geographical question

Figure 6. Run every question you write through this checklist.

Figure 7 shows the checklist at work, turning three broad topics into strong questions.



Three rows, each turning a broad topic on the left into a strong geographical question on the right

Figure 7. A question makeover. The topic on the left is only a starting point; the question on the right names a place, a focus and a way to find evidence.

> **Watch for hidden ideas.** Some questions carry an idea inside them that was never checked. "Why is the new shop bad for our town?" takes sides before any evidence — it takes as true that the shop is bad. A fairer question asks first *whether* it is good or bad for the town, and lets the evidence decide. Before you answer any question, ask yourself: *what idea is this question carrying, and has that idea been checked?*

Worked examples (with steps)

Example 1 — Building a question about bushfire management

Build a geographical question from the topic "bushfire management".

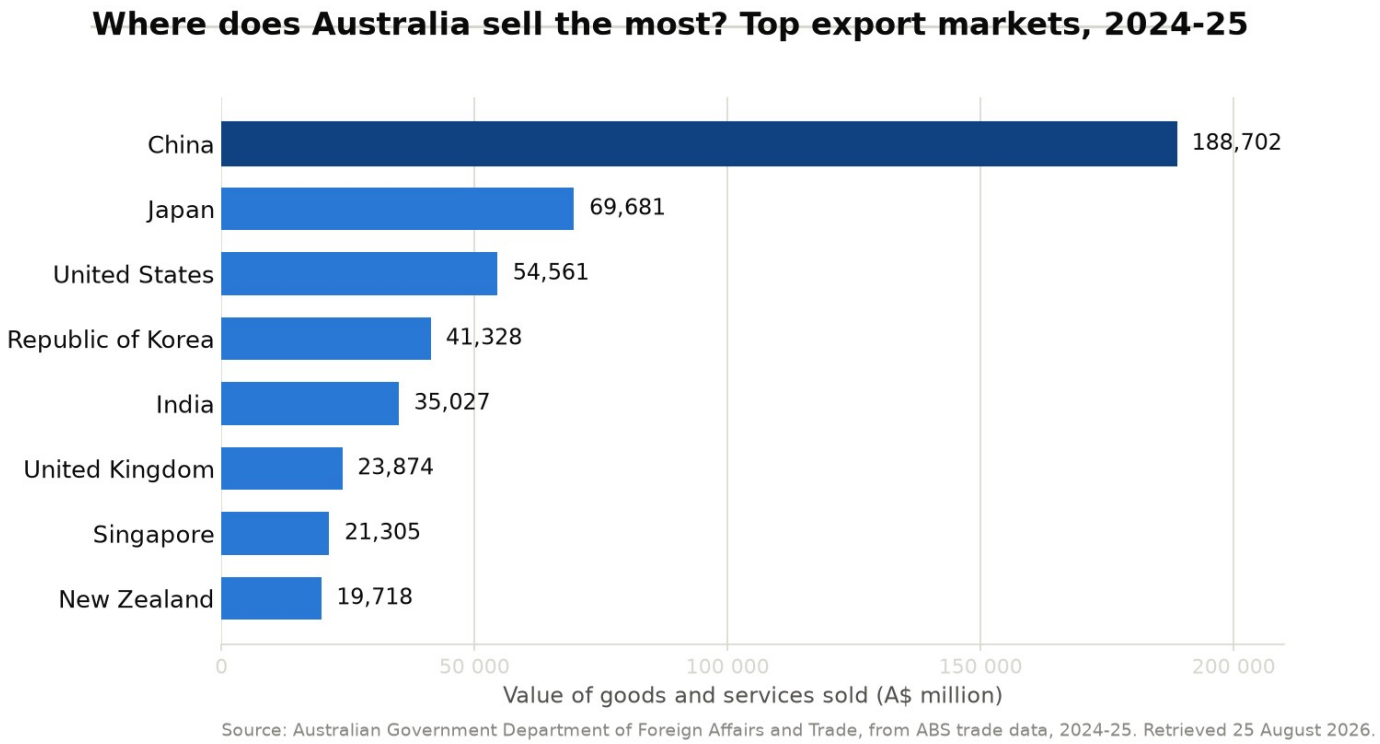
Step	What you do	What you get
1. Pick a place	Choose Australia, then zoom to Victoria	A real place, not "the whole world"
2. Pick a focus	How people get ready for bushfires, and how they respond	The *management* part
3. Pick a question word	*How* — this is an explaining question	A question word
4. Run the checklist	Place: yes. Evidence: fire records and agency reports. Concepts: change, environment, place. Decision: yes — agencies and governments use answers like this	A strong question

Result: *How do people in Victoria lower the risk from bushfires, and is it working?* That question is the doorway into Section 1E, which investigates it in full.

Example 2 — Measuring how connected Australia is to other countries

Develop a question about which countries Australia is most connected to, and plan how to measure it.

First, pick one way to measure. Trade is a strong one: the value of the goods and services a country buys from Australia and sells to it. Figure 8 shows Australia's top export markets.



A bar chart of Australia's top eight export markets for goods and services in 2024-25, in millions of Australian dollars, with China by far the largest

Figure 8. Australia's top export markets, 2024-25. Source: Australian Government Department of Foreign Affairs and Trade, from ABS trade data, 2024-25. Retrieved 25 August 2026.

Read like a geographer: by trade, **China** is Australia's biggest market by a very wide gap — about three times the next biggest, Japan — followed by the United States and the Republic of Korea. But trade is only one measure of connection. Figure 9 lists four more.

Five ways to measure how connected Australia is to other countries

Connection	What we count	Where the data come from
Trade	The goods and services we sell to and buy from each country	Government trade data (see the bar chart above)
Migration	Where the people now living in Australia were born	The national census
Tourism	How many visitors arrive from each country	Government visitor records
Education	Students who travel here to study	Government education records
Aid	Money Australia gives to help other countries	Government aid budget

A table of five kinds of connection between Australia and other countries, with what to count and where the data come from

Figure 9. Five ways to measure interconnection, and the data each one uses.

Result: *Which countries is Australia most connected to when we count trade — and does the answer change when we count where Australians were born?* Notice what this question does: it names the measure as part of the question, because a different measure can give a different answer. The 2021 census puts England, India, China and New Zealand at the top of the list for where people living in Australia were born (Australian Bureau of Statistics, Census of Population and Housing 2021, retrieved 25 August 2026) — not quite the same list as the trade list. That difference is a finding, not a mistake.

Example 3 — Asking where bushfires happen, and whether that is changing

Develop a question about where bushfires happen in Australia and whether that is changing, then identify the information you would need.

The question writes almost itself once you pick the pieces: the place (Australia), the focus (where the biggest fires burn, and the size of the burnt areas), and the change (is this shifting through time?).

Result: *Has the location and size of Australia's biggest bushfires changed over the last few decades, and how can we tell?*

"To tell" is the key phrase — it forces you to name your information before you start. Figure 10 lists what the question needs.

What information would we need to see if bushfire areas are changing?

Our question: "Has the location and size of Australia's biggest bushfires changed, and how can we tell?"

Information we need	What it tells us	Where we can get it
Pictures of burnt land taken from space	Where fires happened and how large each one was	Government maps and images from satellites
Records of past fire seasons	How often fires happened in earlier years	Reports from state fire agencies
Rainfall and temperature records	How hot and dry the land has been	The Bureau of Meteorology
Reports of recent fire seasons	What happened, and which places were affected	News reports and trusted websites
Maps of towns and forests	What was in the path of the fires	State government maps

A table of the information needed to answer whether the location and size of bushfires in Australia are changing, with what each source tells us and where to get it

Figure 10. The information the hazard question needs. Section 1E collects it and answers the question.

Example 4 — Planning sources for a local planning issue

A builder wants to put a large shop on the grassy paddock near your school. Use the four planning questions from Figure 5 before you collect anything.

Planning question	A sensible answer for this inquiry
Is this source useful?	The council's planning map answers our question and can be checked; a social media post with no names cannot
Who can help us?	A council planning officer, the school office, and the manager of the paddock if it is parkland
What rules must we follow?	Ask before surveying people, stay on public paths during fieldwork, and record views in a fair way — including views *for* the shop
What resources do we need?	A clipboard and tally sheet, a map of the area, one class period, and an adult with the group

The question this planning serves might be: *How would a large shop on the paddock change our local area, and who decides whether it is built?* That is exactly the kind of local question Section 1C investigates for your own place.

Practice questions — with steps

Q1. Match each question word to its job.

(a) who (b) where (c) why (d) when (e) what (f) how

(b) explains reasons (ii) finds the place (iii) describes a place (iv) finds the decision-makers

(c) tracks change in time (vi) shows how things work

Q2. Sort these questions into *probing*, *open-ended* and *practical*.

(a) How much would a new crossing near the school cost?
(b) Which suburb lost the most houses in the 2019-20 fires — and how do we know?
(c) What should our town do to prepare for the next fire season?
(d) Can our class raise the money in one term?
(e) What did the council officer find when she checked the drain?
(f) What are three good things and three bad things about the new bike path?

Q3. Four questions below are weak. For each, name the checklist mark from Figure 6 it fails, then fix it.

(a) Bushfires.
(b) Why is the new shop bad for our town?
(c) Is chocolate nice?
(d) What do you think about stuff?

Q4. Use the bar chart in Figure 8.

(a) Write one question the chart *can* answer.
(b) Write a second question it can answer, about change between 2023-24 and 2024-25. (The chart's source table also gives each country's value for 2023-24.)
(c) Write one question about Australia's connections that the chart *cannot* answer, and name the data you would need instead.

Q5. Name the concept (place, space, environment, interconnection, sustainability, scale or change) each question leans on most.

(a) How has our main street changed since your parents were young?
(b) Why do so many of the toys in our shops come from the same countries we trade with?
(c) Can the river keep supplying water if the town keeps growing?
(d) Which side of town has the most tree cover, and why?

Q6. Match each situation to the planning question from Figure 5 it answers.

(a) You find a chart online with no date and no name on it.
(b) You want to survey shoppers on Saturday.
(c) You need someone who knows the planning rules for your town.
(d) You want to count cars outside the school gate at 3 pm.

Practice questions — on your own

Q7. Pick a place you know well — your street, your school oval, your nearest beach or park. Write one probing, one open-ended and one practical question about how that place is managed.

Q8. Write one question about Australia's connections with other countries. Then plan two different ways to measure it, and name a source for each.

Q9. Write your own question about where a climate hazard (bushfire, flood, drought or cyclone) happens in Australia and whether that is changing. List three kinds of information you would need, and where you would get each.

Q10. (Extended) A local issue, end to end. Find one real choice being made about a place near you — a building proposal, a new path, a park being closed, a bin-free street. Then:

(a) write one strong question about it that passes every mark in Figure 6;
(b) state which concept or concepts it leans on;
(c) answer the four planning questions from Figure 5 for this inquiry;
(d) name the hidden idea, if any, that a weaker version of your question would carry.

Inquiry task — your question toolkit

This is the extended task for the section. Everything in it draws on what you have just learnt.

Choose one of this book's running investigations: **bushfire management** (Sections 1E and 3A), **Australia's interconnections** (Sections 2A-2C), **your local place** (Section 1C), or **the location and size of climate hazards** (Section 1E). For your chosen investigation:

1. Write its big question, and check it against Figure 6, mark by mark.
2. Write one extra question of each type: one probing, one open-ended, one practical.
3. Write at least two questions tied to named concepts (for example, one about *change* and one about *sustainability*), and label each with its concept.
4. Answer the four planning questions from Figure 5, naming at least one primary source and one secondary source you would actually use.
5. Sort your questions into a **question web**: the big question in the centre, and the smaller questions around it, each joined to the big question it helps to answer.

Hand in your question web with your checklist notes attached.

Answers

Q1. (a)-(iv), (b)-(ii), (c)-(i), (d)-(v), (e)-(iii), (f)-(vi).

Q2. (a) practical, (b) probing, (c) open-ended, (d) practical, (e) probing, (f) open-ended.

Q3. (a) Not a question at all — no question word; fix as in Example 1. (b) Carries a hidden idea; rewrite as "Is the new shop good or bad for our town, and what is the evidence?" (c) Not geographical — no place, and no evidence that can be checked on a map or in data. (d) Too vague — "stuff" names nothing; fix by naming a place and a focus.

Q4. (a) For example: Which country bought the most from Australia in 2024-25? (b) For example: Which top market grew the most in value from 2023-24 to 2024-25? (c) Any connection question the trade chart cannot answer — for example, where Australians were born; you would need census data.

Q5. (a) change, (b) interconnection, (c) sustainability, (d) space.

Q6. (a) Is this source useful? (b) What rules must we follow? (c) Who can help us? (d) What resources do we need?

Q7-Q10. Answers will vary; see the model solutions below.

Model solutions

Q7 (model). Place: the school oval. Probing: "Which day of the week is the oval used the most — and how would we find out?" Open-ended: "Should the oval be open to everyone on weekends, or kept for school sport?" Practical: "How much would new shade shelters cost, and who would pay?"

Q8 (model). Question: "Which countries is Australia most connected to, and does the answer change with the measure?" Measure 1: trade, using government trade data (Figure 8). Measure 2: country of birth of people living in Australia, using the national census.

Q9 (model). Question: "Has the area of Queensland burnt by bushfires changed since the year 2000, and how can we tell?" Information: satellite pictures of burnt land (government maps), records of past fire seasons (state fire agencies), and rainfall records (Bureau of Meteorology).

Q10 (model). Issue: a proposal to close a public car park to build flats. (a) "How would closing the car park change shopping on our main street, and who decides?" (b) Interconnection and place. (c) Source check: the council's planning page is named, dated and checkable — useful. Helpers: a council planning officer and two shop owners with opposite views. Rules: ask before recording anyone's words; write both views down in a fair way. Resources: the council plan, two short interviews, one visit to the street. (d) A weaker question — "Why is closing the car park a bad idea?" — carries the hidden idea that it is bad; the strong version lets the evidence decide.

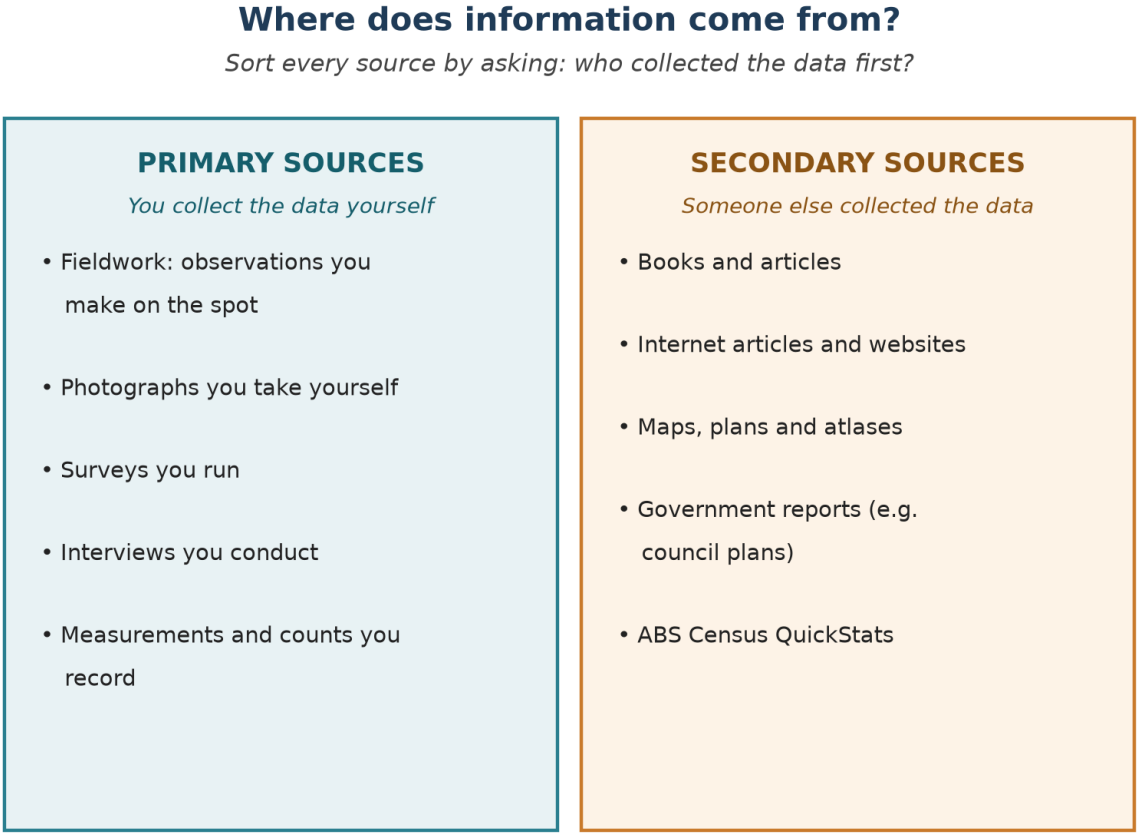
Inquiry task (model extract, bushfire investigation). Big question: "How do people in Victoria lower the risk from bushfires, and is it working?" Probing: "Which areas face the highest fire risk, and how is that rated?" Open-ended: "What should a family on the edge of town do to get ready?" Practical: "How much does a family fire plan cost to put in place?" Concept questions: *change* — "How has the length of the fire season changed over time?"; *sustainability* — "How is the forest managed so it recovers after a fire?" Planning: primary source — a talk with a CFA volunteer; secondary source — the state fire agency's website and its seasonal reports.

Gathering and organising information and data: sources and fieldwork

Content description `VC2HG6S02`*, elaborations* `VC2HG6S02.E01`*–*`VC2HG6S02.E06`*. Tasks below are tagged (E01)–(E06) against the elaborations for this content description.*

Theory

Primary and secondary sources. Every piece of information you use in an inquiry comes from somewhere. A **primary source** is information you collect yourself, first-hand. A **secondary source** is information someone else collected and wrote down or published. The quickest way to sort any source is to ask: *who collected this data first — me, or someone else?*



Two panels. The left panel lists primary sources: fieldwork observations made on the spot, photographs you take yourself, surveys you run, interviews you conduct, and measurements and counts you record. The right panel lists secondary sources: books and articles, internet articles and websites, maps plans and atlases, government reports such as council plans, and ABS Census QuickStats.

Watch the tip at the bottom of the figure: the same thing can change sides. A photograph in a book is a secondary source for you, but it was a primary source for the person who took it.

Choosing how to find out (E02). Different questions need different methods. The methods geographers use include personal observation (fieldwork), interviews, surveys, census data, internet searches, and excursions and field trips. Digital tools — a tablet, a map app, an online survey form — can help with all of them.

Match the method to the question

Different questions need different ways of finding information

Your question	A good method	Why it fits
How many students walk to school?	Survey (closed questions)	One quick answer from many people
Why were new trees planted in the park?	Interview (a council worker)	Open questions dig into reasons
How much shade is in the school yard?	Fieldwork observation	See and measure it for yourself
How has our town changed since 2011?	Census data (internet search)	Already collected for all Australia

A strong inquiry usually mixes methods: at least one primary and one secondary source.

A three-column table matching four questions to a good method and a reason: how many students walk to school pairs with a survey of closed questions; why new trees were planted in the park pairs with an interview of a council worker; how much shade is in the school yard pairs with fieldwork observation; how a town has changed since 2011 pairs with census data from an internet search.

A strong inquiry usually mixes methods: at least one primary source and one secondary source. If two different kinds of source tell you the same thing, you can trust your answer more.

Geospatial tools (E03). Geospatial tools are tools that help you find, show and record *where* things are: a globe, a wall map, or a digital map or satellite app. You also use them to locate the information you collect in fieldwork — every site you record should be marked on a map or sketch map so others can find it.

Geospatial tools: which one fits the job?

Geospatial tools help you find, show and record where things are.

Tool	Best for	Watch out for
Globe	True world shape; hemispheres; which countries sit near Australia	Only a small part shows at once
Wall map	A whole country in one view; good for class talk and marking places	Flat maps stretch shapes; no zoom
Digital map or satellite app	Zoom from world scale to your street; search by name; layers such as roads and rivers	Check who made it and when it was updated

Use geospatial tools to show WHERE the information you collected came from — mark your fieldwork sites on a map.

A three-column table comparing a globe, a wall map, and a digital map or satellite app: what each tool is best for and what to watch out for.

Organising what you collect. Raw notes — a list of words and marks made in the field — are hard to read. Organising means sorting the raw notes into groups, counting each group (a **tally** is a running count using marks: four lines and a cross makes five), and writing the counts in a table with a total row.

Organising data: from raw notes to a table

RAW NOTES (practice data: a class of 24 students records how each one travelled to school)

car, car, walk, bike, car, bus, walk,
walk, bike, car, car, walk, bus, bike,
car, walk, car, car, walk, bike, bus,
car, walk, car

sort and count →

ORGANISED TABLE

Way of travelling	Count
Walk	**7**
Ride a bike	**4**
Car	**10**
Bus	**3**
Total	**24**

Why bother? Sorted data lets you see at a glance that the car was the most common way to travel.

Two panels joined by an arrow labelled sort and count. The left panel shows raw notes: a practice list of 24 answers (car, walk, bike, bus) about how students travelled to school. The right panel shows the organised table: Walk 7, Ride a bike 4, Car 10, Bus 3, Total 24.

Keeping sources honest. For every secondary source, note *who* made it and *when*. A number with a named source and a date (for example, the ABS Census of 2021) is far stronger than a number with no name attached. Write a source line under every table, map or figure you make, and the date you found it. (Section 4A takes this further when you build conclusions from evidence.)

Worked examples

Example 1 — guided (E01)

Collect and organise secondary data: ABS QuickStats for a local area.

The Australian Bureau of Statistics (ABS) runs the Census every five years and publishes **QuickStats** — short, free fact pages about every local area in Australia.

Step 1 — Locate the source. Go to `abs.gov.au`, choose Census, then 2021 QuickStats, then search for the local area. Here we use East Gippsland (a large rural area in eastern Victoria) and, to compare, Greater Geelong (a large city area).

Step 2 — Collect the numbers into a table. Copy only what you need, and write the source straight away.

East Gippsland (2021)	Greater Geelong (2021)
People: 48,715	People: 271,057
Median age: 52	Median age: 39
Median weekly household income: $1,110	Median weekly household income: $1,592
Born in Australia: 79.6%	Born in Australia: 77.6%

Source: ABS 2021 Census QuickStats, LGA22110 and LGA22750, retrieved 25 August 2026.

Step 3 — Understand the words. The **median** is the middle value when everything is lined up in order. A median age of 52 means half the people in East Gippsland are older than 52 and half are under 52.

Step 4 — Organise into a finding. One good sentence is enough: *East Gippsland has far fewer people than Greater Geelong (48,715 against 271,057), and its people are older on average (median age 52 against 39).*

ABS 2021 Census QuickStats: East Gippsland (Victoria) — extract

People (counted on Census night)	**48,715**
Median age	**52 years**
Median weekly household income	**$1,110**
People born in Australia	**79.6%**
Most common country of birth (outside Australia)	**England (3.8%)**
Occupied private dwellings	**19,771**

The median is the middle value once every value is put in order.

Next countries of birth: New Zealand 1.0%, Philippines 0.6%, Netherlands 0.6%, Germany 0.6%.

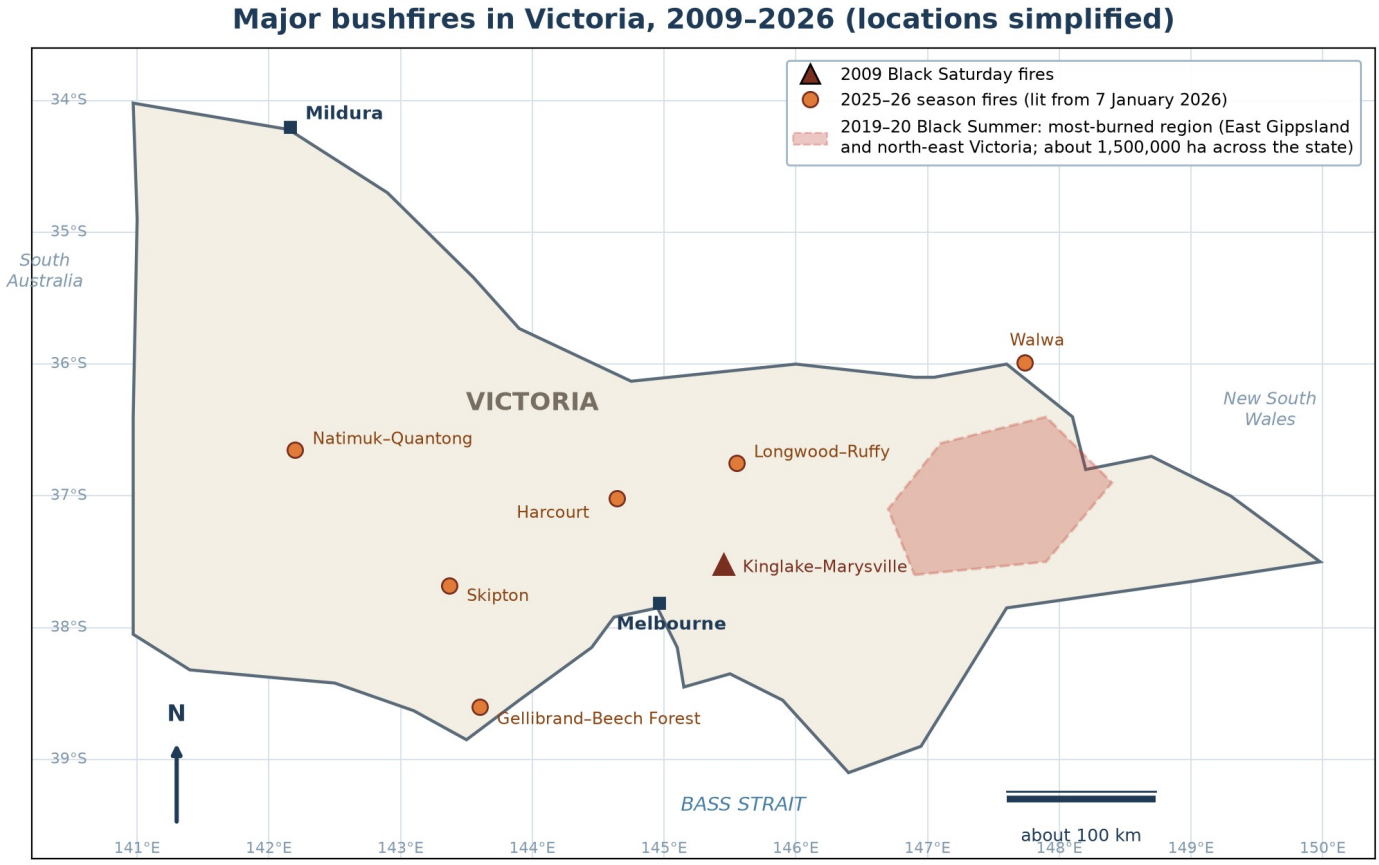
Source: Australian Bureau of Statistics, 2021 Census QuickStats, East Gippsland (S), abs.gov.au, retrieved 25 August 2026.

A model QuickStats extract table for East Gippsland: people 48,715; median age 52; median weekly household income $1,110; born in Australia 79.6%; with a gloss explaining that the median is the middle value, and a source line naming the ABS 2021 Census QuickStats.

Example 2 — guided (E06)

Use maps and other sources to locate bushfires and their extent.

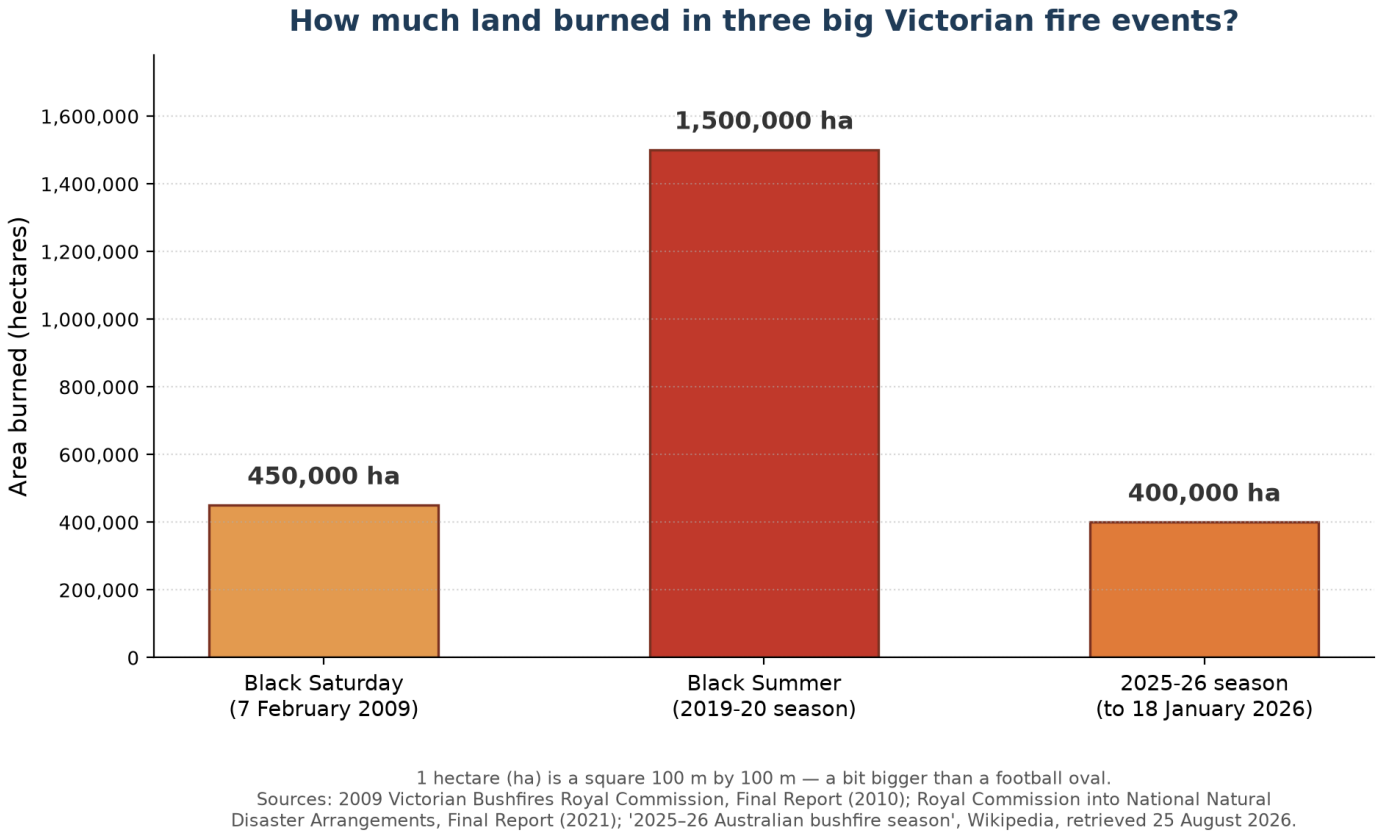
Step 1 — Locate the events on the map. The 2009 Black Saturday fires burned near Kinglake–Marysville, north-east of Melbourne. The 2025–26 season fires stretched right across Victoria — from Natimuk–Quantong in the west to Walwa in the east. The shaded area shows the part of eastern Victoria (East Gippsland and the north-east) that burned most in the 2019–20 Black Summer.



A simplified map of Victoria with a north arrow and scale bar. It marks Kinglake-Marysville (2009), the 2025-26 season fires at Natimuk-Quantong, Longwood-Ruffy, Harcourt, Skipton, Gellibrand-Beech Forest and Walwa, and a shaded region in eastern Victoria for the 2019-20 Black Summer. Source lines name the two Royal Commission reports and Wikipedia.

Step 2 — Show the extent with a graph. Hectares burned give the *spatial extent* — how much land each event covered.

Event	Area burned in Victoria
Black Saturday (2009)	about 450,000 ha
Black Summer, 2019–20	about 1,500,000 ha
2025–26 season, to 18 Jan 2026	over 400,000 ha



A bar chart of area burned in Victoria for three fire events: Black Saturday 2009 about 450,000 hectares; Black Summer 2019-20 about 1,500,000 hectares; 2025-26 season to 18 January 2026 over 400,000 hectares, with source lines.

Step 3 — Read the two figures together. The map says *where*; the graph says *how much*. The Black Summer bar is roughly three times the height of the Black Saturday bar (1,500,000 against 450,000), and the map shows why: the shaded region covers a huge slice of the state's east.

Sources: 2009 Victorian Bushfires Royal Commission, Final Report (2010); Royal Commission into National Natural Disaster Arrangements, Final Report (2021); '2025–26 Australian bushfire season', Wikipedia, retrieved 25 August 2026.

Example 3 — independent (E04, E05)

A fair summary of the points of view on a real issue: native timber logging in Victoria.

Until 2024, some of Victoria's native forests were logged for timber. Ending this was argued about for years. A fair summary gives each side its strongest form, and says who holds each view.

Two views on one issue: native timber logging in Victoria

Summarising points of view means giving each side its strongest fair form.

For ending it

Who holds this view:

Environment groups; the Victorian Government made this choice

Main points:

- Forests are home to wildlife, including animals at risk of dying out.
- Logging makes their home smaller.
- Severe bushfires had already damaged some forests.
- Courts ruled against some logging plans.

What this side wants:

Protect the forests and help wildlife recover.

For continuing it

Who holds this view:

Timber workers, mills and some country towns

Main points:

- Logging and milling give thousands of jobs to country Victoria each year.
- Some towns depend on that income.
- Homes and furniture need timber.
- Workers need time and support to find new jobs.

What this side wants:

Certainty, time and new work plans for workers and towns.

What actually happened: on 6 November 2019 the Victorian Government said native logging would end by 2030; the end was brought forward, and native logging stopped on 1 January 2024.

Source: 'VicForests', Wikipedia, retrieved 25 August 2026 (views as reported in public debate).

Two panels. Left, for ending logging: environment groups and the Victorian Government; forests are home to wildlife at risk of dying out; logging shrinks their home; bushfires had already damaged forests; courts ruled against some logging plans; this side wants protection and recovery for the forests. Right, for continuing logging: timber workers, mills and some country towns; logging gives thousands of jobs to country Victoria each year; some towns depend on that income; homes and furniture need timber; workers need time and support; this side wants certainty, time and new work plans.

Model summary. *People who support ending native logging — environment groups, and the Victorian Government, which made the final choice — argue that the forests are home to wildlife at risk of dying out, that logging shrinks that home, and that severe bushfires had already damaged many of these forests. People who wanted logging to continue — timber workers, sawmills and some country towns — argue that the industry gives thousands of jobs to country Victoria each year, that some towns depend on that income, and that workers deserve time and support to find new work. In the end, the government announced in November 2019 that logging would stop by 2030, then brought the date forward, and native logging ended on 1 January 2024.*

Notice the summary never says one side is silly or wrong. It reports what each side says, in its strongest fair form, then states the facts of what happened.

Source: 'VicForests', Wikipedia, retrieved 25 August 2026.

Example 4 — independent (E02, E03)

Choose the method and the tool, and say why.

(a) How many students in our class travelled by car today? A survey of closed questions — every student ticks one box, and the counts are quick to organise. A survey is a primary source: you collected it yourself.

(b) Where in Victoria did the January 2026 bushfires burn? You cannot observe the past, so use secondary sources: reports and a map or satellite app to locate each fire.

(c) Which part of the school yard is most shaded at lunchtime? Fieldwork — personal observation. Nobody else has collected this data, so no secondary source can answer it.

Tools: to show a visitor which half of the world Australia sits in, a globe is best (true world shape); to mark your five fieldwork sites so the class can zoom right in, a digital map app is best.

Fieldwork

Fieldwork task — school yard surface and shade survey. This is the book's practical task: you will collect primary data yourself, in the school grounds, then organise it and locate it on a map.

Step 1 — Plan. With your teacher's approval, choose a walking line across the yard (for example, from the front gate to the hall) and pick five sites along it, about ten steps between them. Work in pairs. Stay inside the school boundary, be sun-safe, and do not climb anything.

Step 2 — Record. At each site, fill in one row of a sheet like the model below: the surface (sealed means covered with a hard layer such as concrete or paving; unsealed means grass, dirt or gravel), the shade (full, some or no), and one thing you notice.

Fieldwork recording sheet — school grounds surfaces

Example filled in by one group. Your results will be different.

Question: How much of our survey line is sealed (hard) surface?

Date: 24 March 2026 Group: Mia, Jack, Priya Weather: sunny, 22 °C

Site	Distance from start	Surface	Shade?	Notes
1	0 m	Grass	Yes — 2 large trees	Soft after rain
2	10 m	Asphalt	No	Hot underfoot
3	20 m	Grass	No	Worn patch near goal post
4	30 m	Concrete	Yes — verandah	Bikes parked nearby
5	40 m	Garden bed (soil)	Yes — low shrubs	Fresh mulch

Tally: sealed surfaces 2 of 5 sites · unsealed surfaces 3 of 5 sites · shade at 3 of 5 sites

Safety check done: stayed inside school fence, kept to the shade plan, sun hats on, adult with group.

Next step: mark the sites on a sketch map of the school grounds with a north arrow.

A model fieldwork recording sheet with five sites along a walking line from the gate to the hall. Each row records the surface (sealed or unsealed), the shade (full, some or no) and a short note, plus a tally row of counts and a safety line about staying in bounds and being sun-safe.

Step 3 — Organise. Tally your five sites: how many sealed, how many unsealed; how many had full shade, some shade or no shade. Write the counts in a small table with a total row, exactly like the organising figure in the Theory.

Step 4 — Locate. Draw a sketch map of the yard (or use a map app). Mark the five sites, add a north arrow, and label two landmarks (for example, the hall and the gate) so someone else could walk your line.

Step 5 — Conclude. Write one or two sentences: for example, *most of the shaded spots in our yard are under trees on unsealed ground, so a new shaded seating area could copy that idea.*

If your class can go on an excursion (E02), the same habits work at a bigger scale. A field trip to wetlands — such as the Kerang Wetlands in northern Victoria, a Ramsar site of more than 100 lakes and swamps — uses the same sheet: observe, record, tally, and locate your stops on a map.

Practice questions

Guided

Q1 (E01). Sort these sources into primary or secondary: (a) a photograph you took of the school yard; (b) a library book about wetlands; (c) your own tally of cars at the gate at 3 pm; (d) ABS QuickStats for your local area; (e) an interview you ran with the school groundskeeper; (f) a council park plan on a website.

Q2 (E01). A book about wetlands prints a photograph of the Kerang Wetlands. For *you*, is that photograph a primary or a secondary source? Give one reason.

Q3 (E02). Choose the best method for each question and say why in one clause: (a) How many students in our class eat lunch in the yard? (b) Why did the council plant new trees near the gate? (c) How many magpies visit the yard each morning?

Q4 (E03). Choose the better geospatial tool and say why: (a) show a visitor which half of the world Australia sits in; (b) mark your five fieldwork sites so classmates can zoom in on them.

Q5 (E04). Write two closed survey questions (with tick-box options) to find out how your classmates travel to school.

Q6 (E04). The school council wants student views on building a new bike shed. Explain in one sentence each: (a) why an interview is good for finding out *reasons*; (b) why a survey is good for finding out *counts*.

Q7 (E06). Use the bar chart of area burned: (a) which event burned the most hectares in Victoria? (b) about how many more hectares was that than Black Saturday 2009?

Q8 (E06, E03). Use the locator map of Victoria: (a) name the 2025–26 fire site closest to the South Australian border; (b) the shaded Black Summer region sits near the border with which state? (c) is Longwood–Ruffy north or south of Melbourne?

Independent

Q9 (E04). Design your own four-question survey about how students use the school yard at lunchtime. Use at least three closed questions and one open question, and follow the layout of the model survey figure.

Model survey: Travel to school

Ask every person the same questions, in the same order.

1. How do you usually travel to school?

☐ Walk ☐ Ride a bike ☐ Car

☐ Bus or tram ☐ Other: ___

2. About how long does the trip take?

☐ Under 10 min ☐ 10–20 min ☐ Over 20 min

3. Who do you travel with?

☐ By myself ☐ Family ☐ Friends

4. Do you feel safe on the way to school?

☐ Yes ☐ Sometimes ☐ No

5. What would help you walk or ride more often? (write your answer)

_____

_____

Questions 1–4 are closed (quick to answer and easy to tally). Question 5 is open (richer answers).

A model survey sheet titled Travel to school with five questions: how do you usually travel (tick boxes for walk, ride a bike, car, bus or tram, other); how long the trip takes; who you travel with; whether you feel safe on the way; and an open written question about what would help you walk or ride more often.

Q10 (E05). Your class is divided over what should happen to the spare corner of the yard. Side A wants a vegetable garden: fresh food for the canteen, learning how to grow things, and a greener yard. Side B wants a quiet reading area: shade and calm away from ball games, and no watering jobs in summer heat. Write a fair two-sentence summary of each side, naming who wants what.

Q11. Organise these raw notes from a practice survey of 20 students into a table with a total row: walk, car, walk, bike, car, walk, bus, car, walk, bike, car, walk, car, bike, bus, walk, car, bike, bus, walk.

Q12. Two claims about the population of Greater Geelong: Claim A says 271,057 people (ABS 2021 Census QuickStats). Claim B is an unsigned post online: “about 200,000, I think.” Which claim would you use in a report? Give two reasons.

Q13 (E02). List three safety or planning rules for the school yard survey and give a reason for each.

Q14. A classmate says the internet has everything, so fieldwork is a waste of time. Give one thing about your school yard that you can *only* find out on the spot.

Q15 (E03). Name three things your sketch map of the five fieldwork sites must show, and say why each one matters.

Extended inquiry

Inquiry task (E01, E02, E04) — your local area in numbers. Build a mini-inquiry with at least one primary and one secondary source.

1. **Secondary (E01):** find one fact about your local area or nearest town from ABS QuickStats (or another named, dated source). Write the fact with its source and the date you retrieved it.
2. **Primary — fieldwork (E02):** make one careful observation within walking distance of the school (for example, the surface and shade at three spots, or the litter in one garden bed).
3. **Primary — survey (E04):** ask five people one closed question of your choice (for example, how they travel to school or work) and tally the answers.
4. **Organise:** put all three into one table with a source line under each row, and mark on a sketch map or map app where your fieldwork and survey were done.
5. **Report:** write three to four sentences beginning *What I found out about my local area was…* Use at least one number from your table.

Answers

Q1. (a) primary; (b) secondary; (c) primary; (d) secondary; (e) primary; (f) secondary. **Q2.** Secondary — the photographer collected the data, not you; you are reading someone else's record. **Q3.** (a) survey — quick ticks from many people; (b) interview — the council worker can explain reasons; (c) fieldwork observation — nobody else counts your magpies for you. **Q4.** (a) globe — it shows the true world shape and halves; (b) digital map app — you can zoom to the yard and mark exact sites. **Q5.** Any two closed questions with tick boxes; e.g. "How do you usually travel to school?" (walk / bike / car / bus) and "How long does your trip take?" (under 10 min / 10–20 min / over 20 min). **Q6.** (a) Interviews use open questions, so people can explain their reasons in their own words; (b) surveys give one short answer from many people, so the counts organise quickly. **Q7.** (a) Black Summer 2019–20; (b) about 1,050,000 ha more (1,500,000 − 450,000). **Q8.** (a) Natimuk–Quantong; (b) New South Wales; (c) north. **Q9.** Answers vary: four questions, at least three closed with tick boxes, one open, same order for everyone. **Q10.** Answers vary; a fair summary names each side and gives its strongest points without mocking either. **Q11.** Walk 7, Car 6, Bike 4, Bus 3; Total 20. **Q12.** Claim A — it names who collected the data (the ABS, from the Census) and when (2021), while Claim B names nobody and gives no date. **Q13.** Any three with reasons; e.g. stay inside the boundary so the teacher knows where you are; work in pairs so someone can get help; be sun-safe because you are outside; do not climb so nobody falls. **Q14.** Any on-the-spot fact; e.g. which corner of the yard is actually shaded at 12:40 pm today, or how many birds are in the gum trees right now — no website records your yard today. **Q15.** Any three; e.g. the five sites labelled, so others can walk the same line; a north arrow, so the map matches the real yard; landmarks or a simple scale, so distances and positions make sense. **Inquiry task.** Answers vary; check that the table has one secondary fact with a named, dated source, one fieldwork row, one survey row with a tally of five, a location note, and a findings paragraph using at least one number.

Worked solutions

Q1. Ask *who collected the data first*. (a) You took the photo → primary. (b) An author wrote the book from their own and others' work → secondary for you. (c) Your own count → primary. (d) The ABS collected the Census → secondary. (e) Your own interview → primary. (f) The council wrote the plan → secondary.

Q2. For you it is secondary. The test is who collected the data first: the photographer stood at the wetland and took the shot; you are meeting the photo inside someone else's book, so it is a secondary source for you. (For the photographer, it was primary.)

Q3. (a) A survey of closed questions: one quick tick from every student gives a clean count. (b) An interview with a council worker: "why" questions need open answers that a tick box cannot give. (c) Fieldwork observation: no book or website records the magpies in *your* yard, so you collect the data yourself with a tally.

Q4. (a) A globe: it keeps the true shape of the world, so halves and position are honest. (b) A digital map app: you can zoom from the whole state down to the yard and drop a mark on each site; a globe or wall map cannot show that detail.

Q5. Model: Q1 "How do you usually travel to school?" with boxes walk / ride a bike / car / bus or tram / other; Q2 "Do you travel alone or with someone?" with boxes by myself / with family / with friends. Both are closed (fixed options), so every answer is quick to tick and easy to tally.

Q6. (a) An interview asks open questions ("Why do you feel that way?"), so a student can give reasons and stories you did not even think to ask about. (b) A survey asks the same closed questions of many students, so you can tally — for example, 18 for it and 6 against — which a pile of interview notes cannot give at a glance.

Q7. (a) The tallest bar is Black Summer 2019–20, about 1,500,000 ha. (b) 1,500,000 − 450,000 = 1,050,000 ha more — roughly three times the area of Black Saturday.

Q8. (a) Natimuk–Quantong sits in the far west, nearest the South Australian border. (b) The shaded Black Summer region touches the east of the state, near the New South Wales border. (c) Longwood–Ruffy (about 36.75°S) is north of Melbourne (about 37.8°S) — smaller south latitude means further north.

Q9. Model answer: Q1 "Where do you usually spend lunchtime?" (oval / yard / library / garden — closed); Q2 "What do you usually do?" (sport / talk with friends / read / other — closed); Q3 "Do you feel there is enough shade?" (yes /

sometimes / no — closed); Q4 “What one thing would make lunchtime better?” (open, written). The first three tally quickly; the last one collects richer answers.

Q10. Model summary: *Side A — students who want a vegetable garden — say it would give fresh food for the canteen, teach students how to grow things, and make the yard greener. Side B — students who want a quiet reading area — say it would give shade and calm away from ball games, without watering jobs in the summer heat.* Both sides are reported in their strongest fair form; it does not mock either side.

Q11. Count each group as you cross the list out: walk appears 7 times, car 6, bike 4, bus 3. Table: Walk 7 | Car 6 | Bike 4 | Bus 3 | Total 20. The total row (20) is the check — it must equal the number of raw answers, and it does.

Q12. Use Claim A. Reason 1: it names who collected the data — the Australian Bureau of Statistics, from the 2021 Census — so you can check it. Reason 2: it is exact and dated, while Claim B is unsigned, rounded, and admits it is only a guess (“I think”). A named, dated source beats an unnamed guess.

Q13. Model: (1) stay inside the school boundary — the teacher must always know where you are; (2) work in pairs — if someone is hurt or unsure, one can stay and one can fetch help; (3) be sun-safe with a hat — the survey is done outside; (4) do not climb fences or trees — a fall ends the inquiry.

Q14. Model: which exact corner of the yard is shaded at 12:40 pm *today*, and what the ground under the gum trees is like right now. The internet holds yesterday’s map at best; today’s shade, in your yard, is only knowable on the spot. That is why fieldwork exists.

Q15. Model: (1) the five sites, numbered in order — so a reader can walk the same line you did; (2) a north arrow — so the map lines up with the real yard and your shade notes make sense (shade moves with the sun); (3) two labelled landmarks (gate, hall) or a simple scale — so positions and distances can be judged by someone who was not there.

Inquiry task. A model response follows the five steps: a QuickStats fact such as “Median age in Greater Geelong: 39 (ABS 2021, retrieved 25 August 2026)”; a fieldwork row such as “3 of 3 spots near the hall are sealed; 2 of 3 have some shade (own observation, 25 August 2026)”; a survey row such as “5 people asked: 3 car, 1 walk, 1 bus (own survey)”; a table organising all three with source lines and a sketch map marking the spots; then a paragraph: *What I found out about my local area was that most people I asked travel by car, the space near our hall is mainly sealed with patchy shade, and our area’s median age is well below the 52 of older rural areas like East Gippsland. I would plant more trees near the hall.*

Sources

- Australian Bureau of Statistics, 2021 Census QuickStats, East Gippsland (S), LGA22110 — abs.gov.au/census/find-census-data/quickstats/2021/LGA22110, retrieved 25 August 2026.
- Australian Bureau of Statistics, 2021 Census QuickStats, Greater Geelong (C), LGA22750 — abs.gov.au/census/find-census-data/quickstats/2021/LGA22750, retrieved 25 August 2026.
- 2009 Victorian Bushfires Royal Commission, *Final Report* (2010) — figures for Black Saturday (about 450,000 ha; 173 lives lost; 2,029 houses destroyed).
- Royal Commission into National Natural Disaster Arrangements, *Final Report* (2021) — figures for Black Summer (about 1,500,000 ha in Victoria; about 24 million ha nationally).
- ‘2025–26 Australian bushfire season’, Wikipedia — `en.wikipedia.org/wiki/2025-26_Australian_bushfire_season`, retrieved 25 August 2026 (season figures to 18 January 2026).
- ‘VicForests’, Wikipedia — `en.wikipedia.org/wiki/VicForests`, retrieved 25 August 2026 (native logging timeline and views in public debate).
- ‘Kerang Wetlands’, Wikipedia — `en.wikipedia.org/wiki/Kerang_Wetlands`, retrieved 25 August 2026 (Ramsar wetland complex, more than 100 lakes and swamps).

Representing information and data: maps and cartographic conventions, graphs, tables and sketches

Curriculum focus: `VC2HG6S03`

In this section you will sort your ideas with graphic organisers, build maps that follow the map-maker's conventions (BOLTSS), and make graphs, tables and sketches that anyone can read. The codes `VC2HG6S03.E01`, `.E02` and `.E03` are linked to the parts of this section that use them (see the coverage map at the end).

Theory

1. One set of data, many ways to show it

In section 3B you located, collected and organised information and data. Raw notes and numbers are hard to make sense of, so the next inquiry step is to **represent** them — put them into a form that shows the pattern plainly. The same facts can be shown as a map, a graph, a table or a sketch, and each form makes something different easy to see. A good geographer chooses the form to match the question.

If your question is about …	a good form to try is …
where something is, and what is near it	a map
how strong the connections between places are	a flow map
how much, for each group	a column graph or a table
each part's share of the whole	a pie graph
change over time	a line graph or a futures timeline
what might follow from an event	a consequence wheel
how two things are the same and different	a Venn diagram
which option is best	a decision-making grid

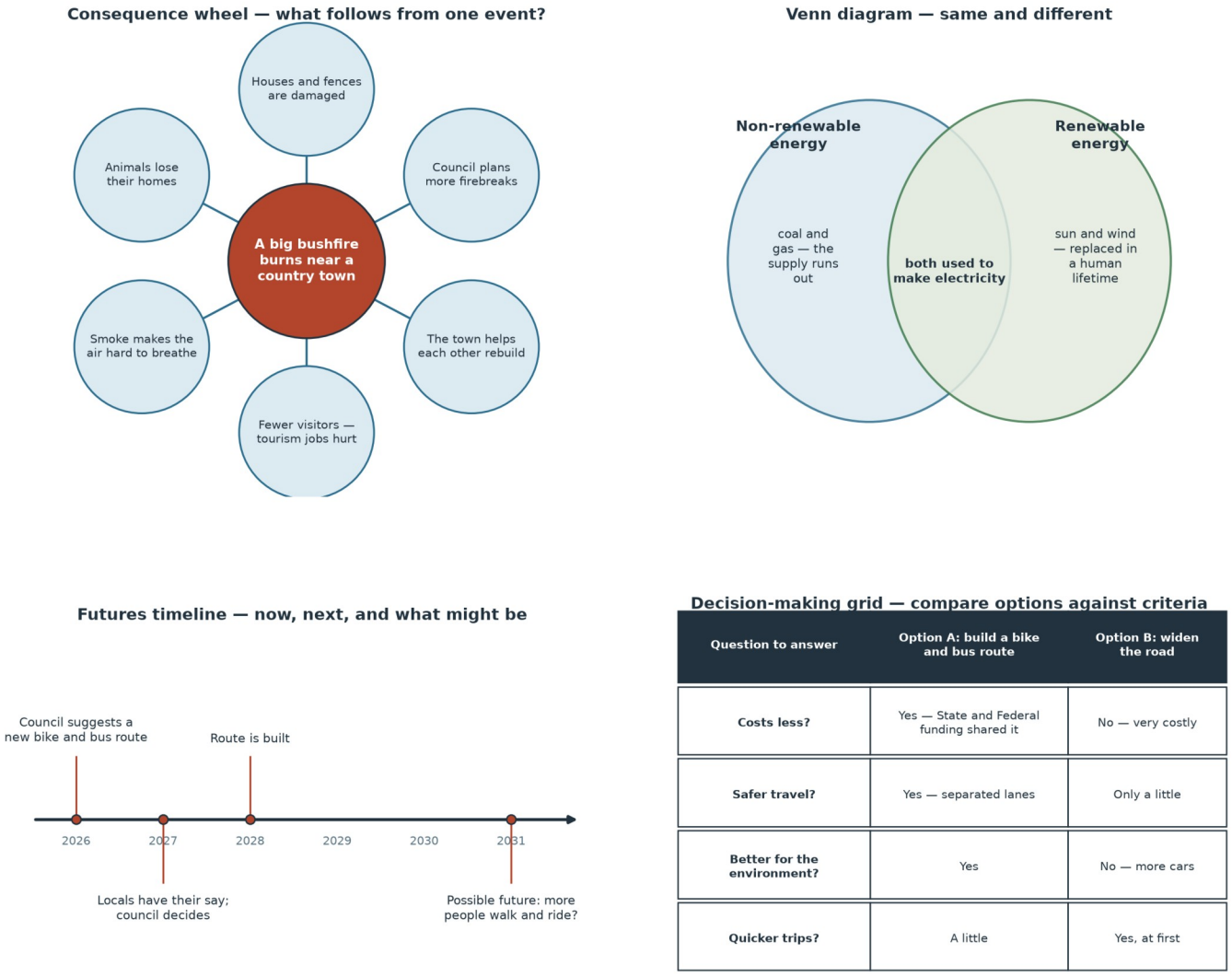
Everything in this section is built from **real, sourced data** about Australia's connections with the world, so that your practice is practice with the real thing.

2. Graphic organisers — sorting ideas you can see (VC2HG6S03.E01)

A **graphic organiser** is a diagram that sorts information so the shape of your thinking is visible. The curriculum names six that geographers reach for:

- **flow chart** — steps in order, joined by arrows (great for an inquiry process);
- **consequence wheel** — one event in the middle, its knock-on effects around it;
- **futures timeline** — a line from now into possible and preferred futures;
- **Venn diagram** — two overlapping circles for same and different;
- **decision-making matrix** — a grid that lines options up against criteria, so you can compare the options side by side (we will call it a decision-making grid);

- **bibliography template** — a set pattern for listing your sources, so nobody's work goes uncredited.



Graphic organisers sort ideas before you draw your maps and graphs.

Four graphic organisers: a consequence wheel about a bushfire near a country town, a Venn diagram comparing renewable and non-renewable energy, a futures timeline for a bike and bus route, and a decision-making grid comparing two options

Notice how each organiser in the figure borrows its content from this book's live investigations — the bushfire study (1E), sustainability (1D) and the local planning issue (1C). Organisers are where an inquiry gets its thinking tidy **before** maps and graphs are drawn.

A **bibliography** (list of sources) is an organiser too. Copy this template whenever you use a source:

Who made it	Year	Title	Where	Accessed
Department of Foreign Affairs and Trade	2025	Australia's top 15 goods & services export markets	dfat.gov.au	25 August 2026
World Bank	2026	Population of Australia (indicator SP.POP.TOTL), World Bank Open Data	data.worldbank.org	25 August 2026

3. Maps and the BOLTSS conventions (VC2HG6S03.E02)

Map-makers around the world follow the same habits so that any reader can read any map. Those habits are called **cartographic conventions** — you can just call them the map-maker's rules. In this section, *cartographic conventions* means the six agreed parts of a proper map, remembered as **BOLTSS**:

- **B — Border:** the frame drawn around the map, so you can see the area shown;
- **O — Orientation:** which way the map faces — a north arrow shows it;
- **L — Legend:** the key that explains every symbol used;
- **T — Title:** names what the map shows;
- **S — Scale:** links map distance to real distance (a line scale or a ratio scale);
- **S — Source:** says where the map's information came from, so it can be checked.

Model map of Melbourne's city centre with the six BOLTSS conventions marked by matching letters: a border frame, a north arrow for orientation, a legend of symbols, a title, a line scale and a source line

The conventions are not decoration — each one stops a real confusion:

If a map is missing …	the reader's problem is …
Border	you cannot tell where the mapped area ends
Orientation	you cannot tell which way is north, so directions are guesswork
Legend	the symbols are a secret code
Title	you do not know what the map shows
Scale	you cannot tell how big or how far anything is
Source	you cannot check the information or find out more

This is why the elaboration for this section asks you to *explain how these six parts make a map easier to read* — a map with all six parts can be read by a stranger on the other side of the world.

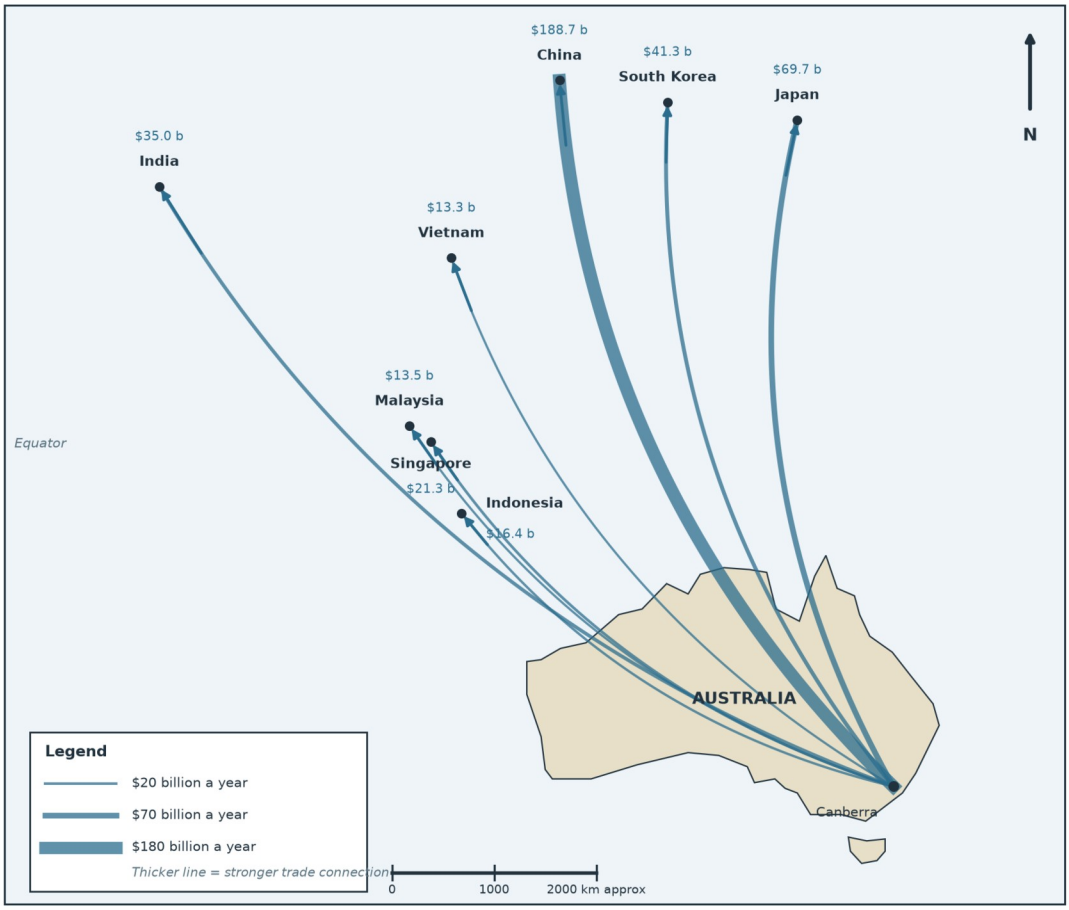
> **Word watch — "scale" has two jobs.** On a single map, *scale* is the link between map distance and ground distance (the line scale or ratio scale). Between maps, *scale* also means the size of the area being studied — local scale, national scale, world scale. The word is exact once you say which job it is doing; the trouble starts when the two jobs get mixed up.

Two kinds of scale on a map. A **line scale** is a little ruler printed on the map (see the 0–400 m bar on the Melbourne map). A **ratio scale** is a pair of numbers such as 1:20 000, meaning 1 cm on the map stands for 20 000 cm (200 m) on the ground. A line scale stays true even if the map is shrunk or enlarged; a ratio scale is only true at the size it was printed.

4. Flow maps, and choosing the right scale (VC2HG6S03.E03)

A **flow map** shows movement or connection between places with lines or arrows; a thicker line means a stronger flow. Flow maps are how geographers draw **interconnection** — one of the seven geographical concepts. The map below draws Australia's goods and services exports to its top Asian markets, so the line thickness shows the *strength* of each trade connection.

Flow map — Australia's exports to its top Asian markets, 2024–25

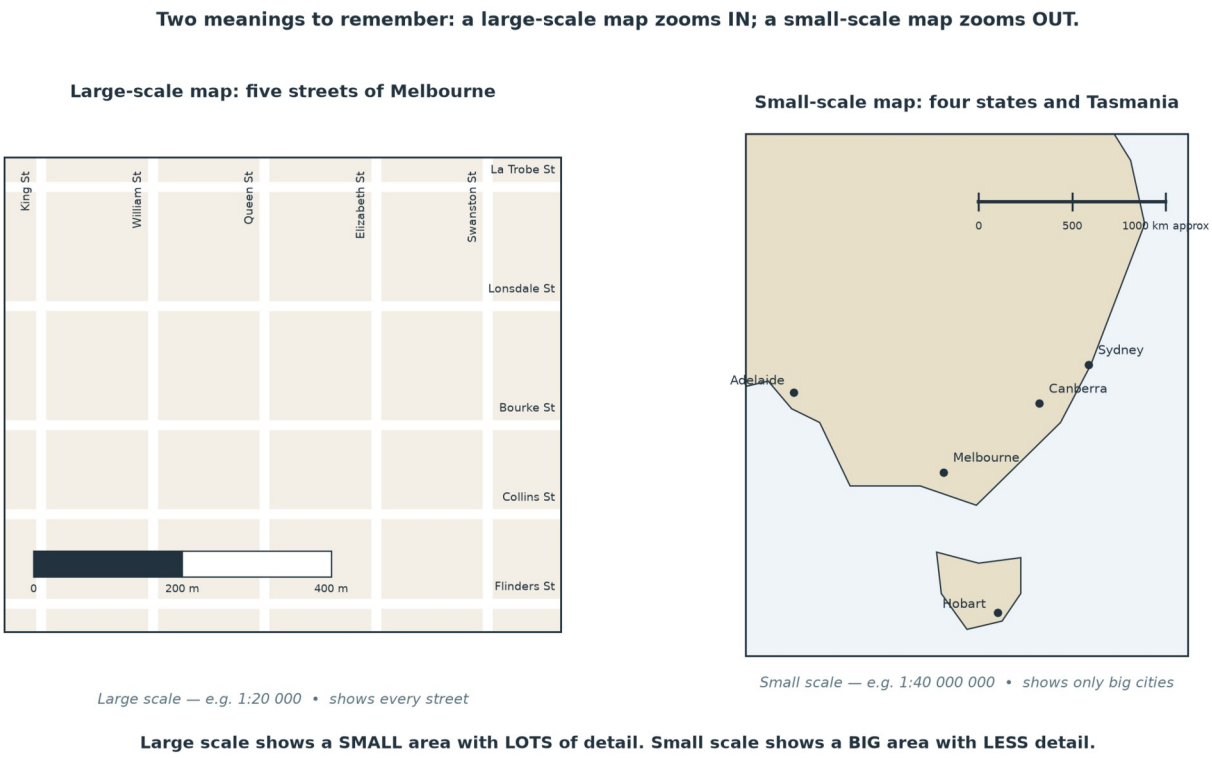


Source: export values, Department of Foreign Affairs and Trade, Australia's top 15 goods & services export markets, 2024–25 (from ABS International Trade data), retrieved 25 August 2026. Coastlines simplified by ClassBasics. Lines show trade connections, not travel routes.

Flow map of Australia's exports to its top eight Asian markets in 2024-25, drawn from Canberra with thicker lines for bigger export values, including a legend, north arrow, border, scale and source

Read it the way a geographer would: the thickest line runs to China (A$188.7 billion of exports in 2024–25 — that is 188,702 in the table's millions), then Japan and South Korea. Several of the markets sit in the Asia-Pacific region you will study in 2B, and this style of map returns there and in 1E, where flows become hazard maps.

Large scale or small scale? The next figure shows the second job of the word *scale*. A **large-scale map** zooms in: a small area with lots of detail. A **small-scale map** zooms out: a big area with less detail.



Two maps side by side: a large-scale map showing five streets of Melbourne in detail, and a small-scale map of south-eastern Australia showing only the big cities, with a caption explaining that large scale shows a small area with much detail while small scale shows a big area with little detail

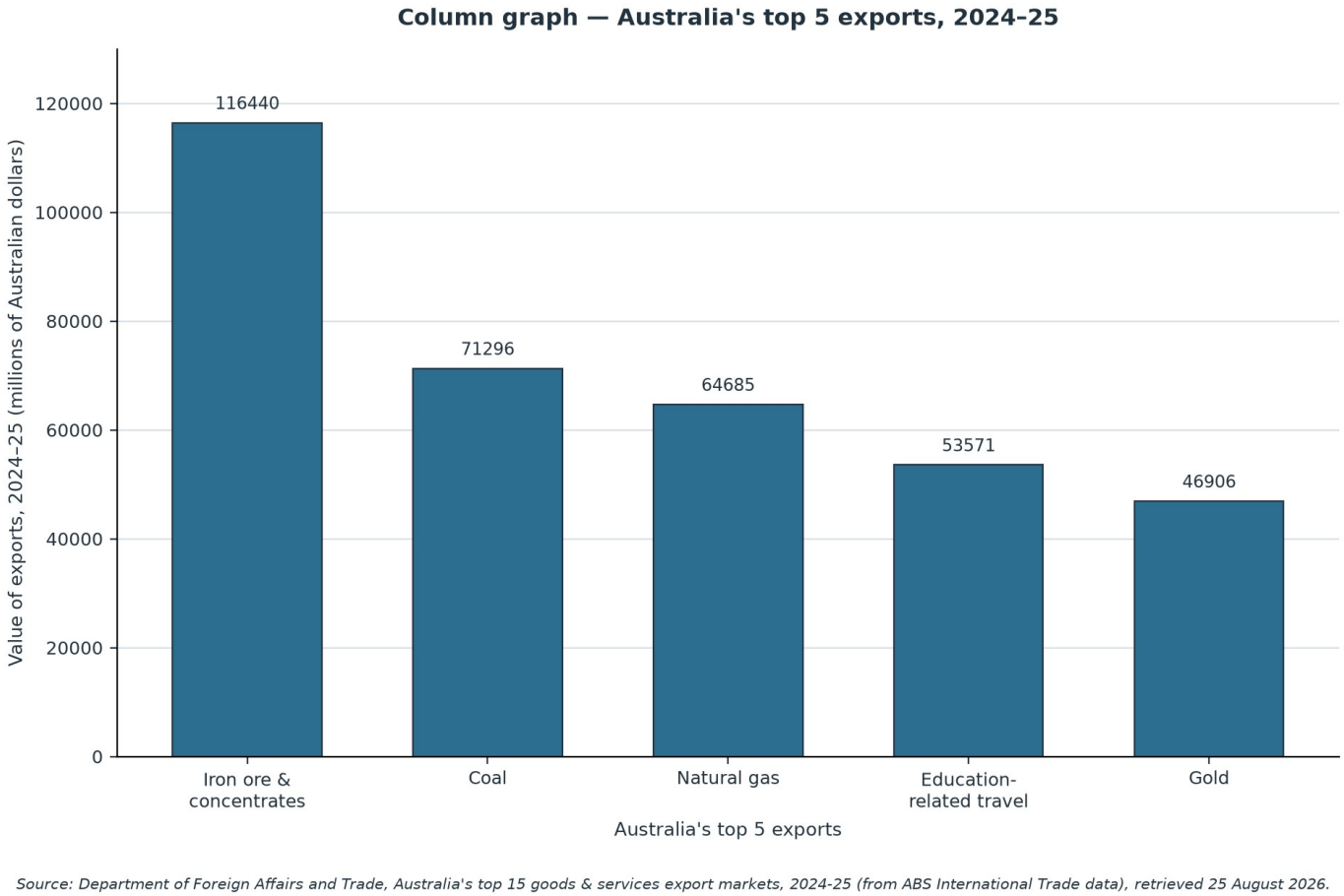
Choose the scale to match the job: to show where the bike path goes in your street you need a map at large scale; to show Australia's shipping and migration connections with Asia you need a map at small scale, because the area covered is huge.

Geographers now also build maps with **map-making technology** — satellite positioning for exact positions, satellite images for the ground picture, and digital map apps. The curriculum calls these *geospatial technologies*. Whatever tools you use, the finished map still carries BOLTSS: a digital map with no title, no scale and no source is still a broken map.

5. Graphs: column, line and pie

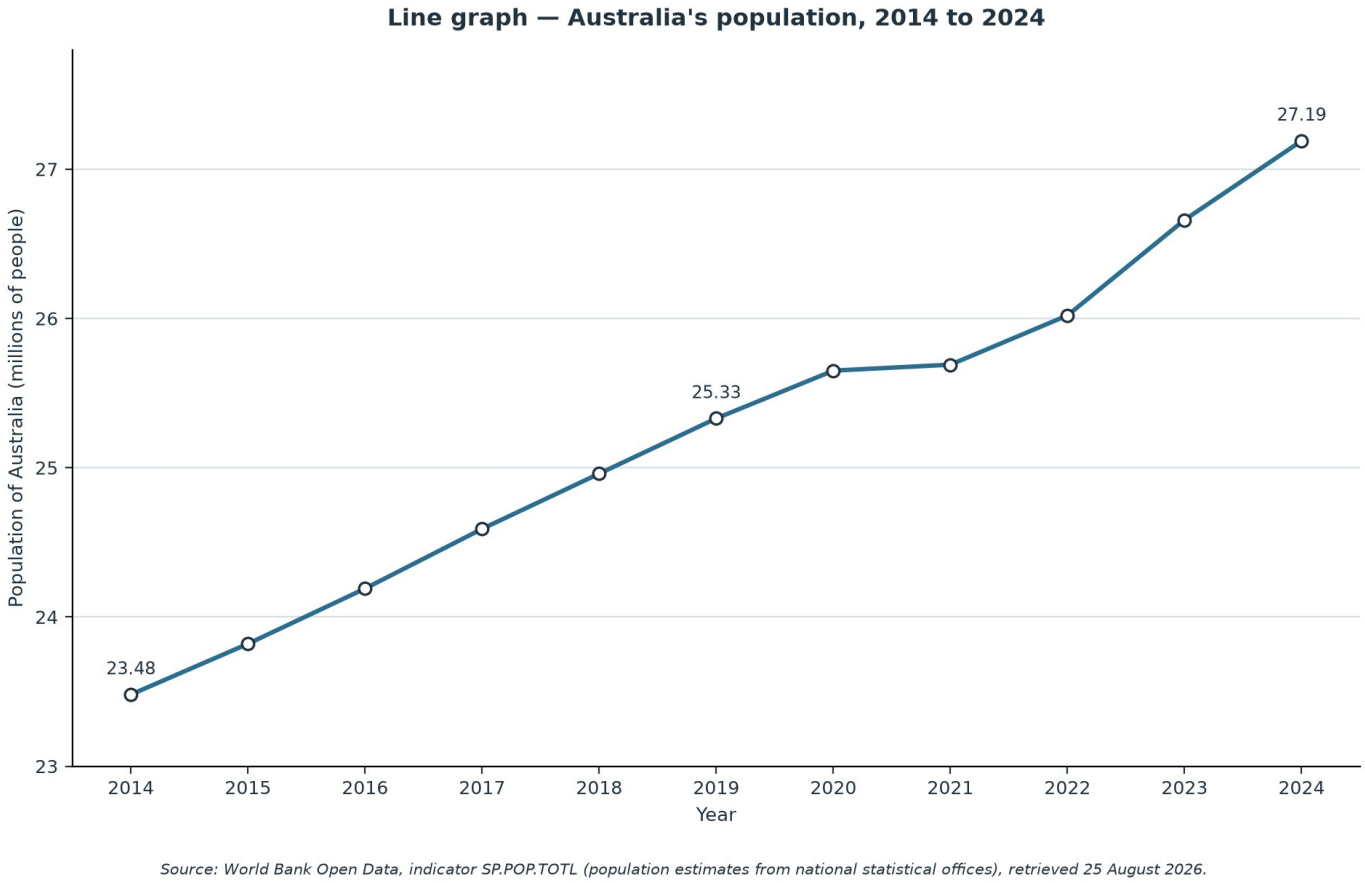
Every good graph has the same five parts: a **title** that says what is shown; **two axes** — the horizontal line along the bottom and the vertical line up the side — each **labelled with the unit**; a sensible, even **scale** starting at zero for column graphs; and a **source** line. Then the three workhorses:

Column graph — compares amounts for separate groups.



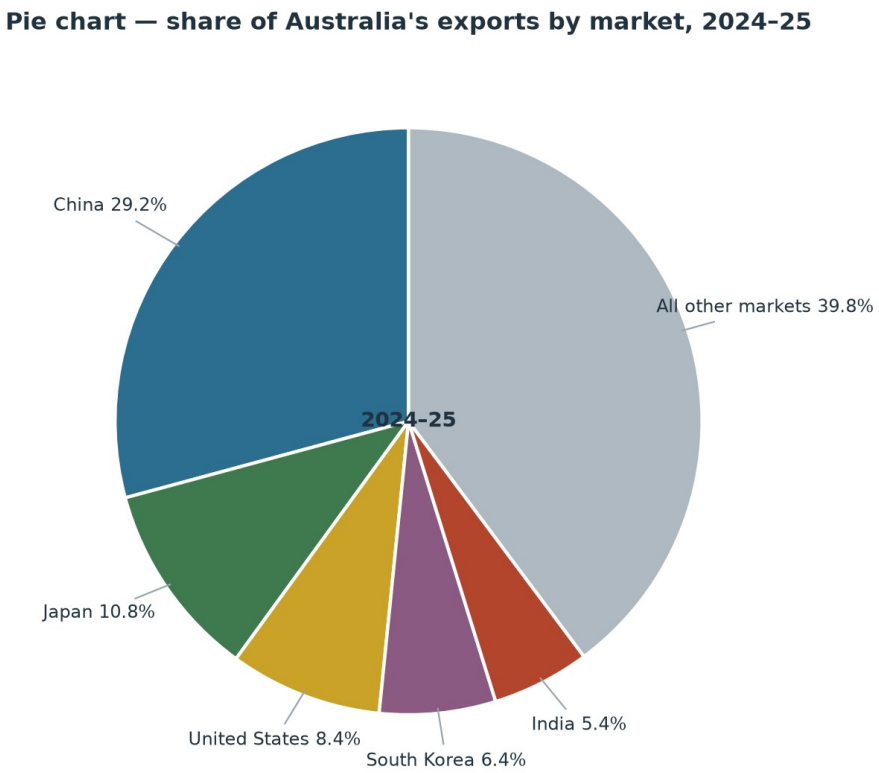
Column graph of Australia's top five exports in 2024-25, in millions of Australian dollars: iron ore and concentrates highest, then coal, natural gas, education-related travel and gold

Line graph — shows change over time; the slope of the line is the story.



Line graph of Australia's population each year from 2014 to 2024, rising from about 23.5 million to about 27.2 million people

Pie graph — shows each part's share of a whole, as slices of a circle.



Source: Department of Foreign Affairs and Trade, Australia's top 15 goods & services export markets, 2024-25 (from ABS International Trade data), retrieved 25 August 2026.

Pie chart of the share of Australia's exports by market in 2024-25: China the largest single slice at 29.2 per cent, with Japan, the United States, South Korea and India smaller, and all other markets making up 39.8 per cent

The pie trick: a whole circle is 360 degrees and a whole is 100%, so each 1% of share deserves 360 ÷ 100 = 3.6 degrees of slice. Share × 3.6 = slice angle. (China: 29.2 × 3.6 ≈ 105 degrees — well over a quarter of the circle, just as the pie shows.)

6. Tables

A table is the plainest way to show exact values, and every other format in this section can be built from one. A good table has: a **title**; **column headings that carry the unit**; neat rows in a sensible order; and a **source** line.

Table — Australia's top 15 export markets for goods and services

Rank	Market	2023–24 (A$m)	2024–25 (A$m)	Share of total 2024–25 (%)
1	China	212,420	188,702	29.2
2	Japan	80,552	69,681	10.8
3	United States	37,882	54,561	8.4
4	South Korea	42,366	41,328	6.4
5	India	34,297	35,027	5.4
6	United Kingdom	15,147	23,874	3.7
7	Singapore	22,600	21,305	3.3
8	New Zealand	19,342	19,718	3.0
9	Taiwan	20,672	18,695	2.9
10	Indonesia	15,501	16,418	2.5
11	Malaysia	12,860	13,470	2.1
12	Vietnam	14,430	13,277	2.1
13	Hong Kong (part of China)	17,028	12,334	1.9
14	Thailand	9,122	8,592	1.3
15	Philippines	7,413	6,905	1.1
	Total (all markets)	**659,863**	**646,580**	**100.0**

ource: Department of Foreign Affairs and Trade, Australia's top 15 goods & services export markets, 2024–25 (from ABS International Trade data), retrieved 25 August 202

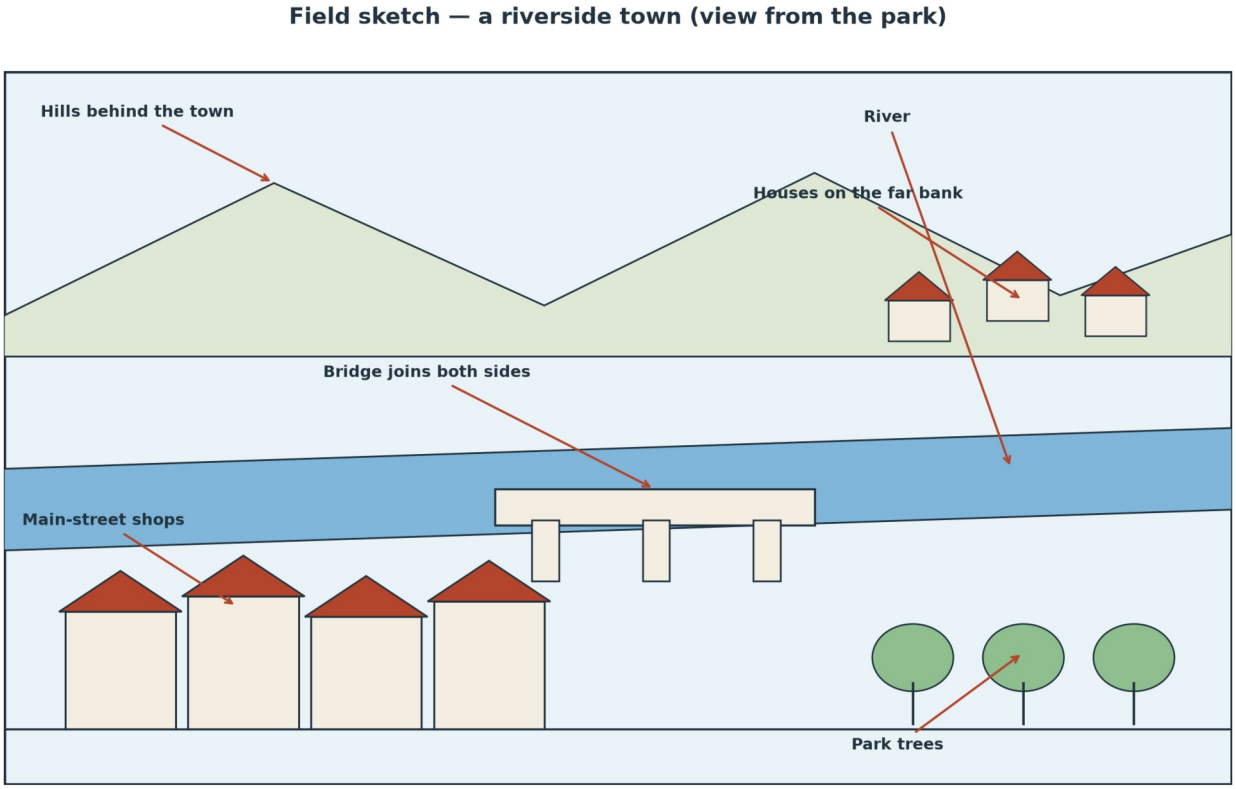
A$m = millions of Australian dollars. Goods trade is recorded trade; services are balance of payments.

Table listing Australia's top fifteen export markets for goods and services with values in millions of Australian dollars for 2023-24 and 2024-25 and each market's share of the total, plus a total row and source line

To read a table well: find the unit first (here, millions of Australian dollars), then read across one row at a time, and compare down one column at a time. Check the totals row last — it is your guard against misreading.

7. Sketches

A **field sketch** is a simple drawing of a place, made from one spot, showing only the main features, with **labels** doing the detail work. A **sketch map** is the same idea seen from above, like a quick map. They are not art: the point is to record what is there, clearly and quickly, in the field.



A field sketch shows only the main features, seen from one spot. Labels and a key do the rest of the work.

Source: model sketch drawn by ClassBasics.

Model field sketch of a riverside town seen from the park, with labels pointing to the hills behind the town, the river, the bridge, the main-street shops, the houses on the far bank and the park trees

To make one: (1) draw the frame and the horizon; (2) block in the biggest features first; (3) add the middle-sized features; (4) label with straight leader lines; (5) add a title and, if you use symbols, a key. Your 3B fieldwork is the perfect place to practise — a sketch made on site beats a memory sketched at home.

Worked examples

Example 1 — guided

Build a column graph from this table of three Asian markets (values from the DFAT table, 2024–25).

Market	Exports (A$m)
India	35,027
Singapore	21,305
Indonesia	16,418

Step	What to do	Comment
1	Write the title: *Australia's exports to three Asian markets, 2024–25*	the title says what, where and when
2	Label the horizontal line with the markets; label the vertical line *Exports (millions of A$)*	labels carry the unit
3	Choose a scale: 0 to 40,000, a line every 5,000	the biggest value (35,027) must fit, and the scale must start at 0
4	Draw three columns of equal width:	read each height off the scale, not by

Step	What to do	Comment
	35,027, 21,305 and 16,418	eye
5	Add the source line: *Source: DFAT, from ABS International Trade data*	every figure carries its source

Example 2 — guided

A student's map has a title, a north arrow and a legend — but no border, no scale and no source. Which conventions are missing, and what goes wrong?

Using BOLTSS as the checklist: **Border, Scale and Source** are missing. Without a border the reader cannot see the edge of the mapped area; without a scale no distance or size can be judged; without a source the information cannot be checked. The fix is to add all three before the map is shared.

Example 3 — guided

Turn Japan's share of Australia's exports (10.8%) into a pie slice angle.

Share × 3.6 = angle, so 10.8 × 3.6 = 38.88, about **39 degrees** — roughly 1 part in 8 of the circle, matching Japan's green slice in the pie graph above.

Example 4 — independent

Choose the best format for each job and give one reason.

Job	Best format	Reason
How has Australia's population changed since 2014?	line graph	change over time is the line's slope
Where exactly will the new bike path run in our street?	large-scale map or sketch map	location needs detail at local scale
What might follow if a bushfire reaches the town?	consequence wheel	it fans one event out into its effects
What share of our exports goes to each top market?	pie graph	parts of a whole are what a pie shows

Practice tasks

Guided

Q1. Write out what each letter of BOLTSS stands for, in one line each.

Q2. Using the BOLTSS model map of Melbourne: (a) name the river; (b) name the northernmost street shown; (c) name the park nearest Spencer Street; (d) which symbol marks Flinders Street railway station?

Q3. Using the flow map: (a) which market has the thickest line, and what was the value of exports to it in 2024–25? (b) which two markets sit closest to the equator? (c) why are the lines different thicknesses? (d) which BOLTSS part tells you what the thicknesses mean?

Q4. Using the large-scale/small-scale figure: (a) which map is the large-scale one, and how can you tell? (b) which map would you choose to find one particular shop? (c) which would you choose to show why Melbourne and Sydney matter to south-eastern Australia?

Q5. Using the column graph: (a) name Australia's largest export in 2024–25 and its value; (b) about how many times bigger is iron ore than gold? (c) add coal and natural gas together — would their joined column beat iron ore?

Q6. Using the line graph: (a) read the population for 2014 and 2024; (b) how much did it grow across those ten years? (c) between which two years was growth smallest, and roughly how small was it?

Q7. Using the pie graph: (a) what share of exports went to the top five markets together? (b) what is the angle of China's slice, to the nearest degree?

Q8. Using the export table: (a) which market climbed from 11th place in 2023–24 to 6th in 2024–25? (b) which market's value dropped the most, and by how much? (c) what do the letters A$m in the headings mean?

Independent

Q9. Match each job to a graphic organiser: (a) the steps of your inquiry, in order; (b) how a new shopping centre is the same as and different from the old one; (c) what your town might look like in 2031; (d) choosing between a park or a car park on an empty block.

Q10. Stand at your school gate (or picture your street). List five features you would label in a field sketch of it, in the order you would draw them.

Q11. Build your own small-scale flow map showing Australia's connections with **any three** markets from the export table. Line thickness must match the values, and the map must carry all six BOLTSS conventions. Finish with one sentence on which connection is strongest.

Q12. Using the shares China 29.2%, Japan 10.8%, United States 8.4% and all other markets 51.6%: (a) work out the four slice angles using the ×3.6 trick; (b) check your four angles add to 360 degrees (rounding allowed); (c) sketch the pie with a title, labels and a source line.

Extended inquiry task — represent an investigation

Choose **one** of this book's live investigations: the bushfire study (1E), the local planning issue (1C), or Australia's Asia-Pacific connections (2B). Using data from this section's figures, from your 3B fieldwork, or from the ABS or DFAT websites, produce a small representation set:

1. **One map** that follows all six BOLTSS conventions (a flow map if you chose connections; a large-scale sketch map if you chose the local issue; a hazard location map if you chose bushfire);
2. **One graph** (column, line or pie) built from at least three real values, with title, labelled axes with units, a scale and a source;
3. **One graphic organiser** that sorts the ideas behind your figures;
4. **A four-sentence summary** that describes the pattern your figures show.

Before handing in, run the checklist: border ✓ orientation ✓ legend ✓ title ✓ scale ✓ source ✓ on the map; title, units, scale, source on the graph; every value traceable to a named source in your bibliography.

Marking looks at the reasoning, not the artwork: conventions used correctly, values read and drawn honestly, sources named, and a summary that says what the figures show rather than what you already believed.

Answers

Q1. Border (frame around the map), Orientation (north arrow), Legend (key to symbols), Title (names what the map shows), Scale (map distance to real distance), Source (where the information came from). **Q2.** (a) Yarra River. (b) Victoria Street. (c) Flagstaff Gardens. (d) a small square. **Q3.** (a) China — A$188,702 million (about $188.7 billion). (b) Singapore and Indonesia. (c) thickness shows the value (strength) of the connection. (d) the legend. **Q4.** (a) the Melbourne streets map — it covers a small area in great detail (its scale bar counts metres, the other counts hundreds of kilometres). (b) the large-scale map. (c) the small-scale map. **Q5.** (a) iron ore and concentrates, A$116,440 million. (b) about two and a half times. (c) 71,296 + 64,685 = 135,971 — yes, it would beat iron ore. **Q6.** (a) 23.48 million (2014) and 27.19 million (2024). (b) 3.71 million people. (c) 2020 to 2021 — about 0.04 million (40,000 people), the flattest part of the line. **Q7.** (a) 29.2 + 10.8 + 8.4 + 6.4 + 5.4 = 60.2%. (b) 29.2 × 3.6 ≈ 105 degrees. **Q8.** (a) the United Kingdom. (b) China, down 212,420 − 188,702 = 23,718 (A$m). (c) millions of Australian dollars. **Q9.** (a) flow chart. (b) Venn diagram. (c) futures timeline. (d) decision-making grid. **Q10.** answers vary — features listed biggest-first, with labels. **Q11.** check: six conventions present; three flows drawn with matching thicknesses; strongest connection named. **Q12.** (a) China ≈ 105°, Japan ≈ 39°, United States ≈ 30°, others ≈ 186°. (b) 105 + 39 + 30 + 186 = 360 ✓. (c) sketch with title, labels, source.

Worked examples: E1 check — title, labelled axes with units, scale 0–40,000 by 5,000, three columns, source line. E2 — Border, Scale, Source missing. E3 — about 39 degrees. E4 — as in the table.

Coverage map (for teachers)

Code	Where it is taught and practised
`VC2HG6S03`	the whole section: every format below is a representation of collected information and data
`VC2HG6S03.E01`	Theory 2 (flow chart, consequence wheel, futures timeline, Venn diagram, decision-making matrix, bibliography template; figure 3c_graphic_organisers; Q9, Q10, extended task step 3)
`VC2HG6S03.E02`	Theory 3 (BOLTSS taught in full; figure 3c_boltss_map; missing-conventions table; Q1–Q2; Example 2; Q11)
`VC2HG6S03.E03`	Theory 4 (flow map of Australia's connections with Asian countries; large- and small-scale maps; figures 3c_flow_map and 3c_large_small_scale; map-making technology; Q3–Q4, Q11)

Graphs, tables and sketches (the other formats named in the content description): Theory 5–7, Examples 1 and 3–4, Q5–Q8 and Q12, extended task steps 2 and 4.

Interpreting and analysing information and data: patterns, trends and relationships

Curriculum focus: `VC2HG6S04`, `VC2HG6S04.E01`, `VC2HG6S04.E02`, `VC2HG6S04.E04`, `VC2HG6S04.E05`, `VC2HG6S04.E06` (elaboration `.E03` is not taught in this volume). The body headings and worked examples below carry the (E01)–(E06) tags.

Theory

When you **interpret** data, you read it and say what it means. When you **analyse** data, you look carefully at the parts and work out how they fit together. In Geography we interpret graphs, maps and tables to find three big things:

- a **pattern** — something that repeats in the data, such as "most people live near the coast";
- a **trend** — the overall direction of change over time: rising, falling, or staying about the same;
- a **relationship** — a link between two things. When one thing changes and the other changes in a similar way, there may be a relationship, and one may help explain the other.

Reading any graph (E01). Use the same steps every time: (1) read the **title** to see what is shown; (2) read both **axes** and the **scale** (the numbers marked at even intervals); (3) look at the **data**; (4) check the **source** so you know where the numbers came from. Figure 1 labels these parts on a real column graph.

- A **line graph** shows change over time, so it is the best graph for trends.
- A **column graph** (upright columns) and a **bar graph** (bars on their side) compare amounts between items.
- A **pie chart** shows shares of a whole. All the slices together make 100%.

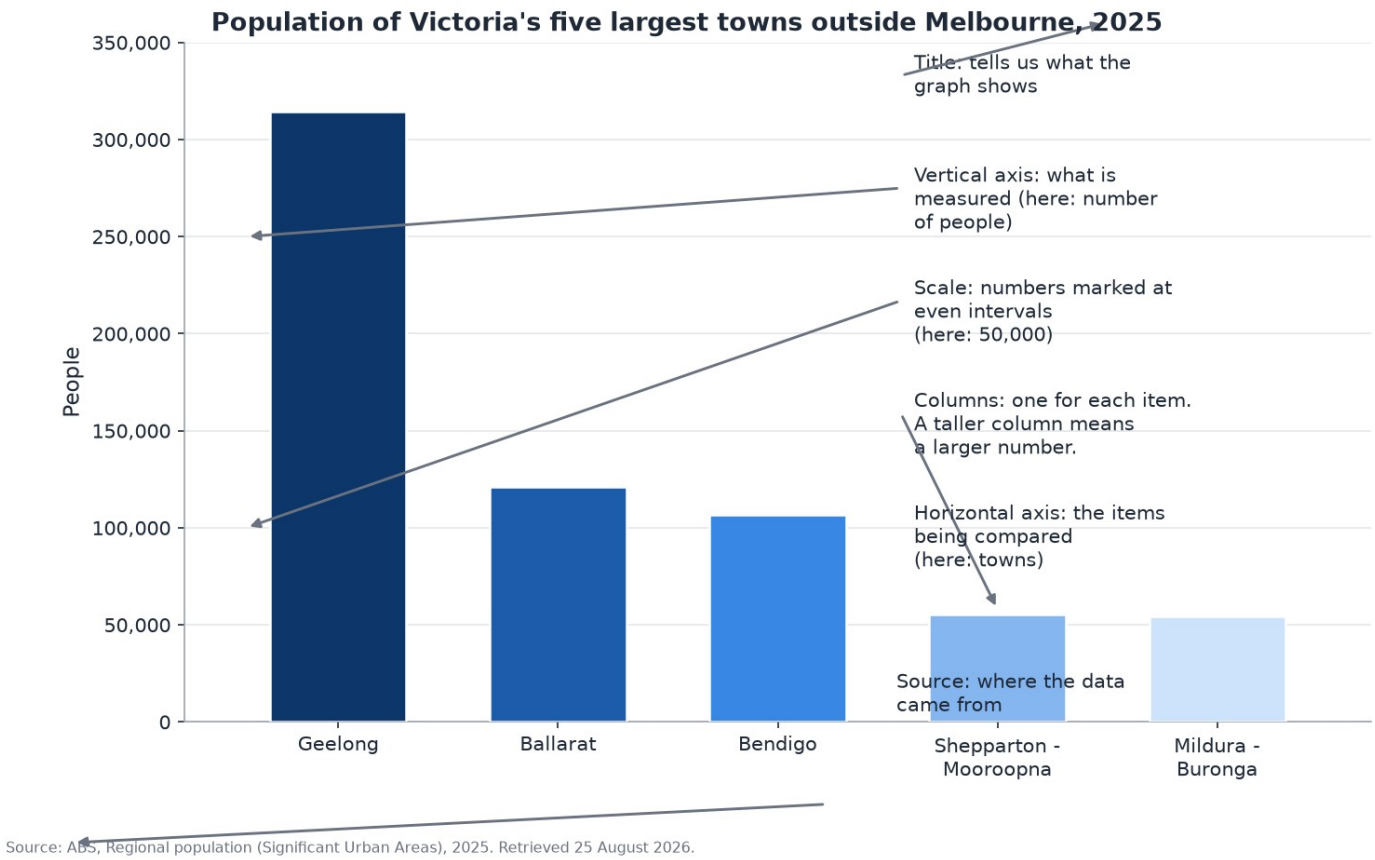


Figure 1. The parts of a graph, labelled on a real example: population of Victoria's five largest towns outside Melbourne, 2025. Source: ABS, Regional population (Significant Urban Areas), 2025. Retrieved 25 August 2026.

Reading thematic maps (E04, E06). A **thematic map** is a map about one topic. Two kinds you need to know:

- A **choropleth map** shades whole areas with one colour for each class of numbers, for example people per square kilometre. Always read the legend (key) first, because the classes tell you what each colour means.
- An **isopleth map** draws lines joining places with equal numbers. On a rainfall map these lines are called **isohyets**: every place on the "600" line gets about 600 millimetres of rain in a typical year.

Read a thematic map like a graph: title first, then legend, then the pattern, then the odd-one-out results. And because these are maps, they follow BOLTSS (taught in section 3C): Border, Orientation, Legend, Title, Scale, Source.

Comparing maps to find relationships (E05). Put a map of a natural feature (such as rainfall) beside a map of a human feature (such as where towns are). Where the two patterns match, there may be a relationship. Always check the odd ones out as well — they show that a relationship is "usually true", not "always true".

Inferring from visual sources (E02). To **infer** means to work something out from evidence, like a detective. Photographs, drawings and maps are all evidence. When you infer, write "This suggests … because …" so your reader can see the evidence you used.

What you are looking for	What it means	A sentence starter you can use
Pattern	something that repeats in the data	"Most of the … is/are in the …"
Trend	the direction of change over time	"From … to …, the numbers rose / dropped / stayed about the same."
Relationship	a link between two things	"Places with more … usually have more …, which suggests …"
Odd result	a place or item that breaks the pattern	"The odd one out is …, perhaps because …"

Worked examples

Worked example 1 — reading a line graph for a trend (E01)

Use Figure 2, which shows Victoria's population each quarter from June 2013 to December 2025.

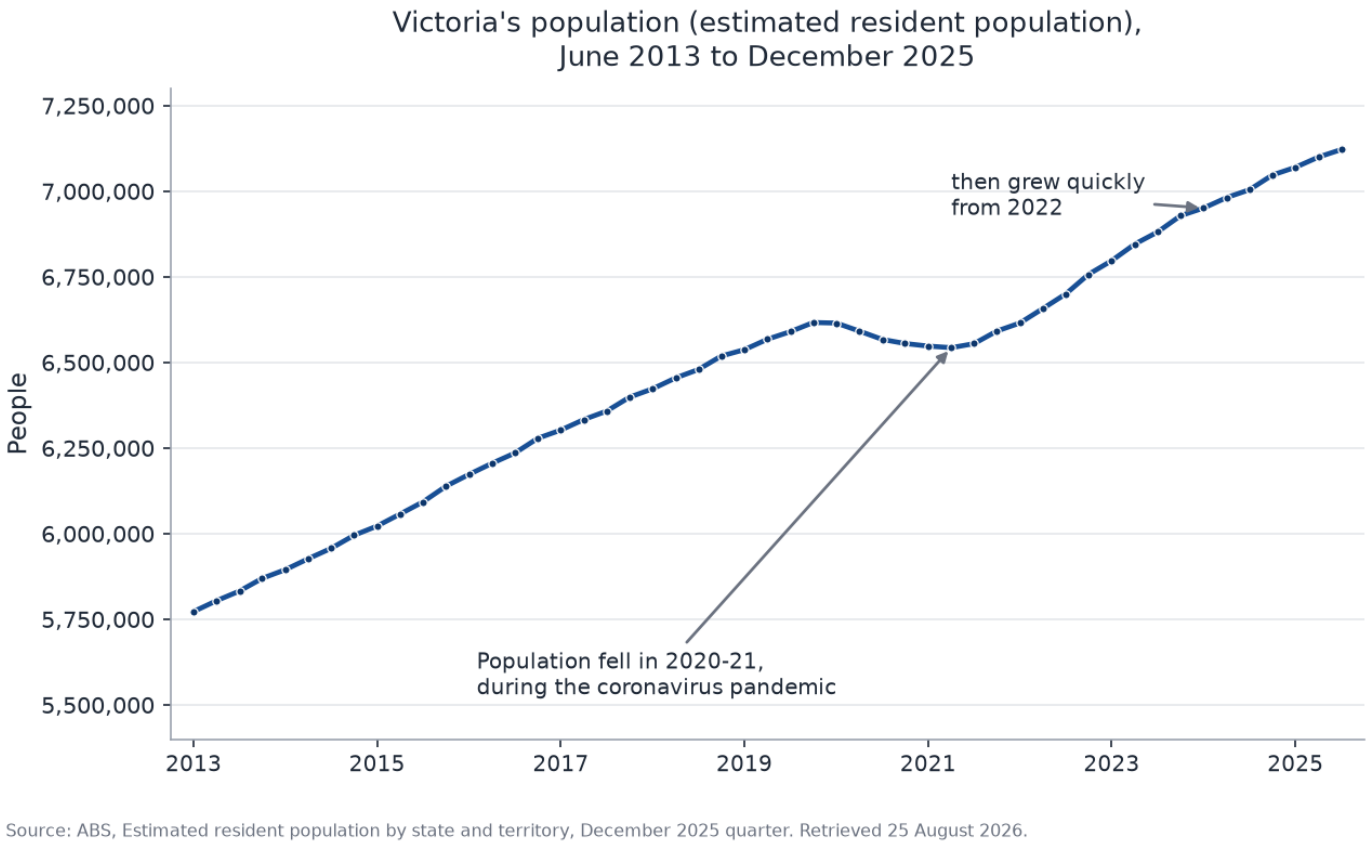


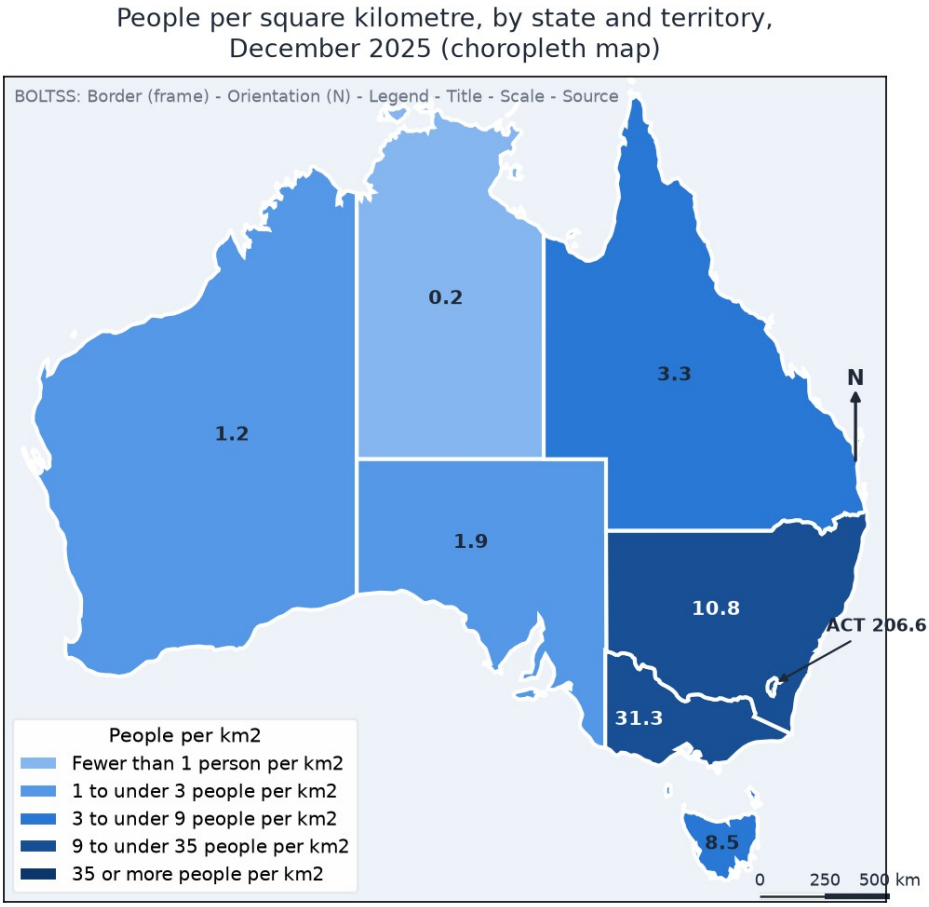
Figure 2. Victoria's population (estimated resident population), June 2013 to December 2025. Source: ABS, Estimated resident population by state and territory, December 2025 quarter. Retrieved 25 August 2026.

Working	Comment
1. Title: "Victoria's population … June 2013 to December 2025".	The title tells us the place and the time it covers.

Working	Comment
2. Axes: up the side, people (5,500,000 to 7,250,000); along the bottom, years.	Reading the axes and scale stops us misreading the line.
3. The line rises from about 5,770,000 (2013) to about 7,120,000 (2025).	Overall direction = the trend: **rising**.
4. Between 2020 and 2021 the line dips a little, then rises quickly from 2022.	A trend can have short breaks. The dip matches the coronavirus years, when fewer people were able to move to Victoria.
5. Answer: Victoria's population shows a rising trend, with a short fall in 2020-21.	A good trend answer names the direction, the size of the change, and any break in the pattern.

Worked example 2 — reading a choropleth map (E04, E06)

Use Figure 3, a choropleth map of people per square kilometre by state and territory.



Source: ABS, Estimated resident population, December 2025 quarter; Geoscience Australia, Area of Australia's states and territories. Retrieved 25 August 2026.

Figure 3. People per square kilometre, by state and territory, December 2025 (choropleth map). Values are labelled on each area. Source: ABS, Estimated resident population, December 2025 quarter; Geoscience Australia, Area of Australia's states and territories. Retrieved 25 August 2026.

Working	Comment
1. Title and legend: darker blue = more people per km2.	On a choropleth map the legend is the key to the colours.
2. NSW (10.8) and Victoria (31.3) are in darker classes; WA (1.2), SA (1.9) and the NT (0.2) are in light classes.	Read the numbers off the map, not just the colours.
3. Pattern: the crowded states are in the south-east and the sparse ones are in the centre and west.	A pattern is a repeating "where" — here, a south-east versus centre-and-west pattern.
4. Odd result: the ACT (206.6) is far darker than every	The ACT is a city in a very small area, so its per-km2

Working	Comment
state.	number is huge. Odd results need a reason.
5. Answer: population is spread unevenly — densest in the south-east, thinnest in the centre and west — with the tiny ACT as the odd-one-out.	This is a full interpret sentence: pattern + odd result.

Worked example 3 — comparing two maps for a relationship (E05)

Use Figure 4. Map A is an isopleth (isohyet) map of rainfall; Map B shows town populations with circles (a bigger circle means more people).

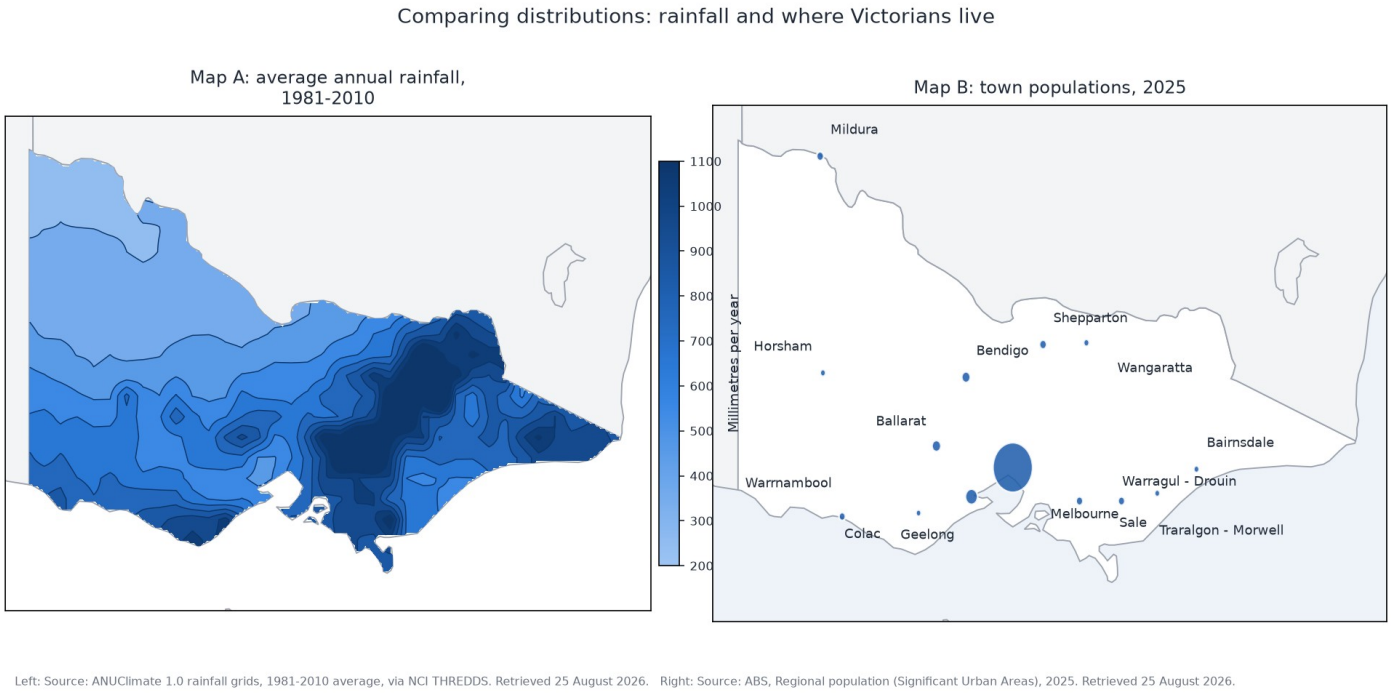


Figure 4. Comparing spread: rainfall (Map A, 1981-2010 average) and where Victorians live (Map B, 2025). Sources: left, ANUClimate 1.0 rainfall grids, 1981-2010 average, via NCI THREDDS; right, ABS, Regional population (Significant Urban Areas), 2025. Retrieved 25 August 2026.

Working	Comment
1. Map A: the wettest areas (800-1000+ mm) are in the south and the north-east highlands; the driest (about 300 mm) are in the north-west.	Describe each map on its own first.
2. Map B: the biggest circles (Melbourne, Geelong, Ballarat, Bendigo) sit in the south, where Map A shows 500-1000 mm.	Now line the two maps up in your head.
3. The dry north-west has only small towns (Mildura, Horsham). The wetter south has the big cities. The patterns match, which suggests a relationship: more rain, more people.	Matching patterns suggest — but do not prove — a relationship.
4. Odd result: Mildura (about 54,000 people) sits in a dry area, because it is on the Murray River and its farms use river water.	One odd result does not kill a relationship; it sharpens it.

Worked example 4 — inferring relationships from a visual source (E02)

Use Figure 5, two drawn scenes. They are drawings made for this workbook, not photographs, and the labels name the features.

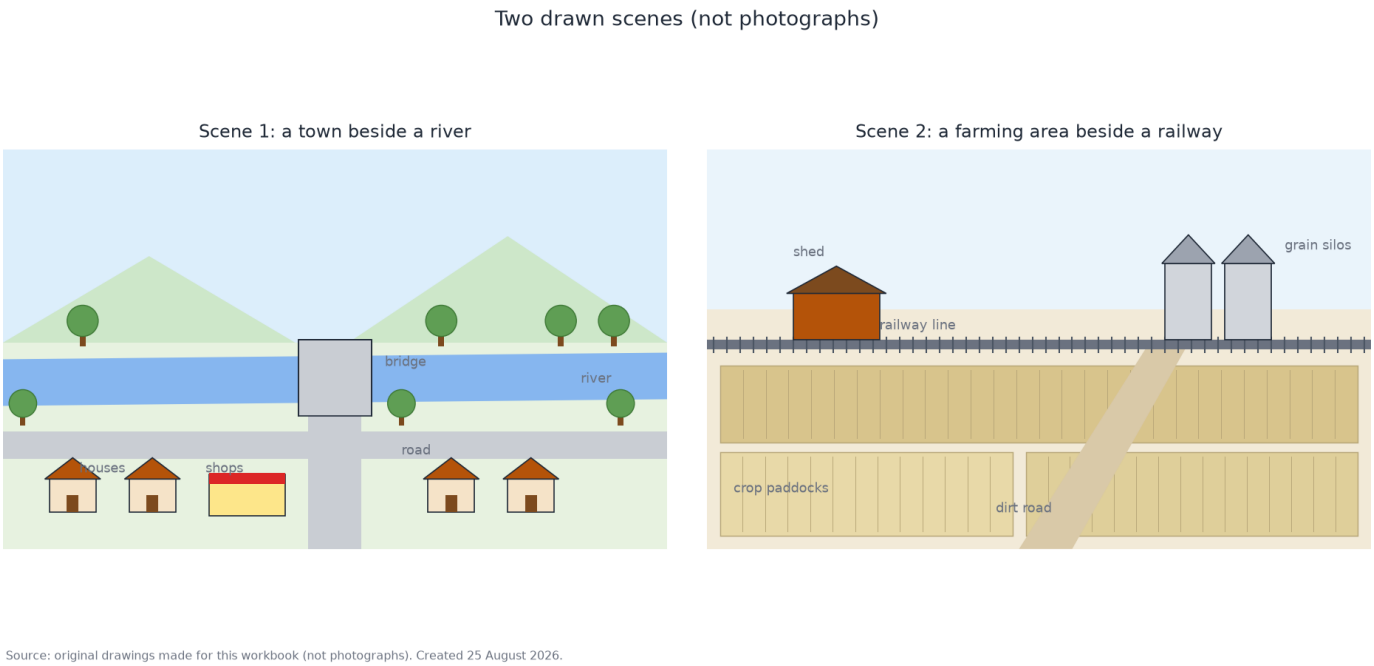


Figure 5. Two drawn scenes (not photographs). Source: original drawings made for this workbook. Created 25 August 2026.

Working	Comment
1. Scene 1: the houses and shops sit right beside the river, and the road runs to a bridge.	List the evidence you can actually see.
2. "This suggests the town grew next to the river because the river supplied water and an easy way to travel and trade, and the bridge marks the crossing point."	Infer with "this suggests … because …".
3. Scene 2: the grain silos stand right beside the railway line, with a dirt road linking them to the paddocks.	Again, evidence first.
4. "This suggests the silos were built beside the railway so grain can be loaded straight onto trains, and the dirt road lets farm machinery bring grain in from the paddocks."	The relationship is between farming and transport.

Practice questions

Q1 (guided). Use Figure 6, a column graph of the estimated resident population of each state and territory in December 2025.

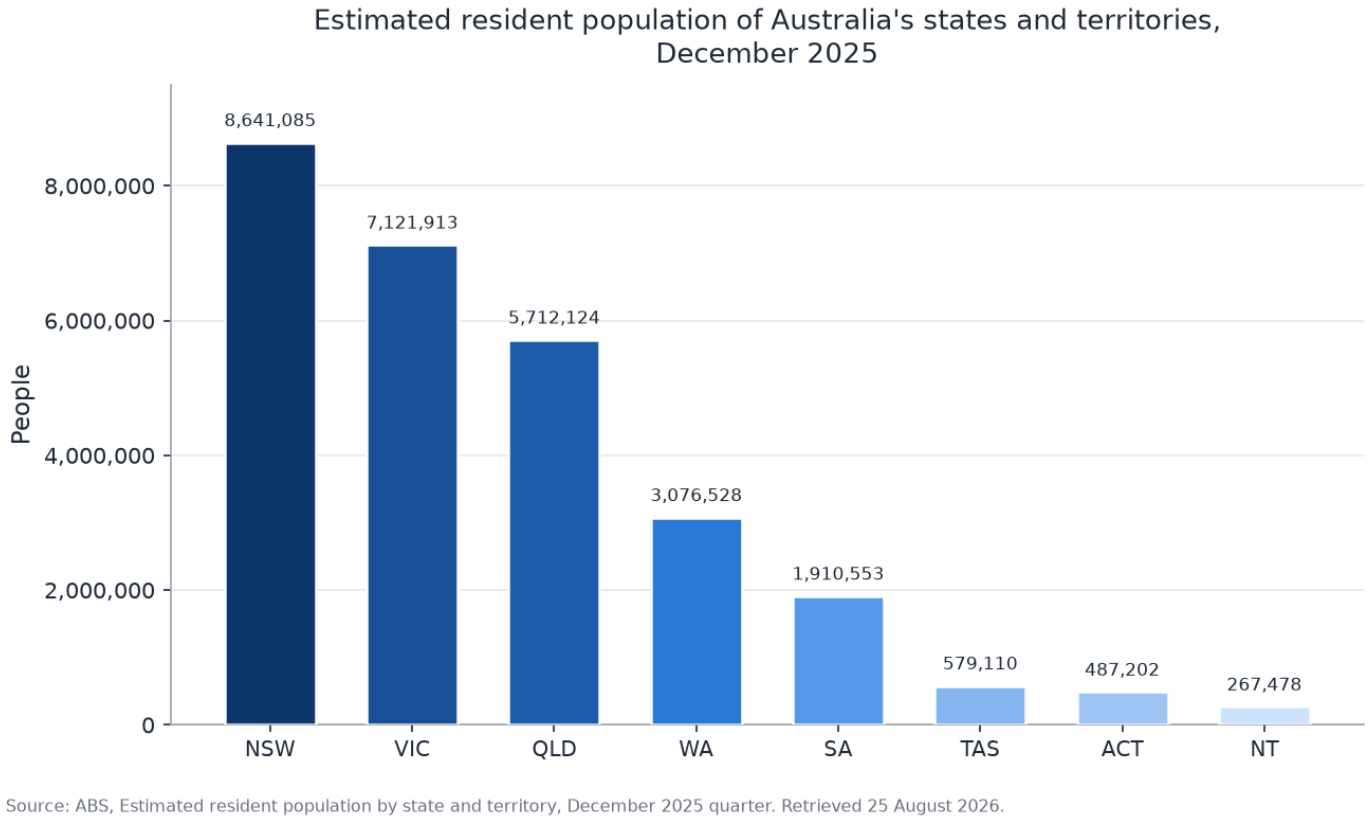


Figure 6. Estimated resident population of Australia's states and territories, December 2025. Source: ABS, Estimated resident population by state and territory, December 2025 quarter. Retrieved 25 August 2026.

a. Which state or territory had the most people, and which had the least?
b. Read Victoria's population from the graph.
c. How many more people does New South Wales have than the Northern Territory? (Show your working.)
d. Describe the pattern: where do the three states with the most people sit on the graph, and what happens to the column heights as you move right?
e. Name one trend or pattern this graph shows about how Australia's people are spread between the states and territories.

Q2 (guided). Use Figure 7, a bar graph of Australia's top 8 export markets for goods and services in 2024-25. (Exports are things Australia sells to other countries.)

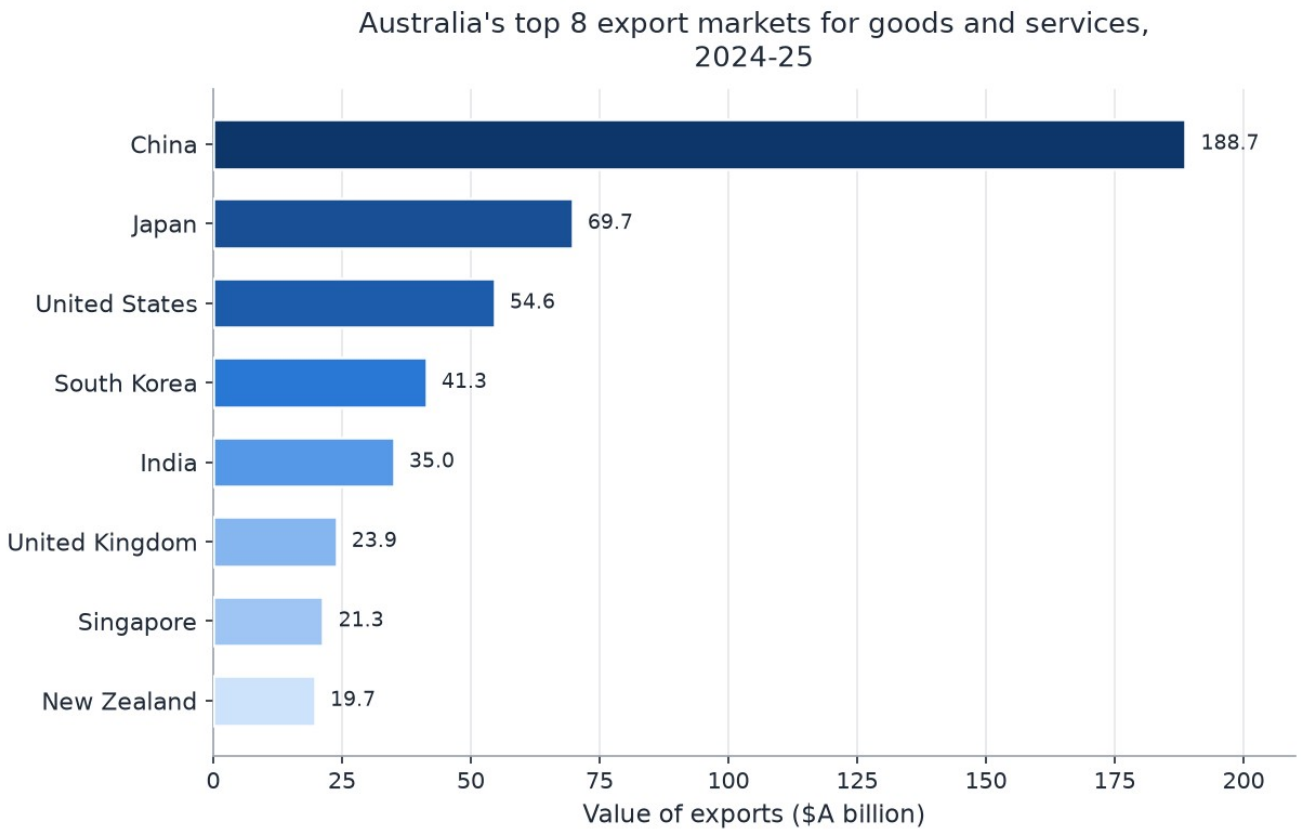


Figure 7. Australia's top 8 export markets for goods and services, 2024-25. Source: DFAT, Australia's top 15 goods and services export markets, 2024-25 (based on ABS International Trade in Goods, September 2025). Retrieved 25 August 2026.

a. Which country was Australia's biggest export market, and what was the value of those exports?
b. Put these four markets in order from smallest to largest: India, Japan, New Zealand, United States.
c. About how many times bigger were exports to China than exports to Japan? (Hint: is 188.7 closer to 2, 3 or 4 times 69.7?)
d. Describe the pattern shown by the bar lengths.

Q3 (guided). Use Figure 8, a pie chart of the share of Australia's exports by market in 2024-25.

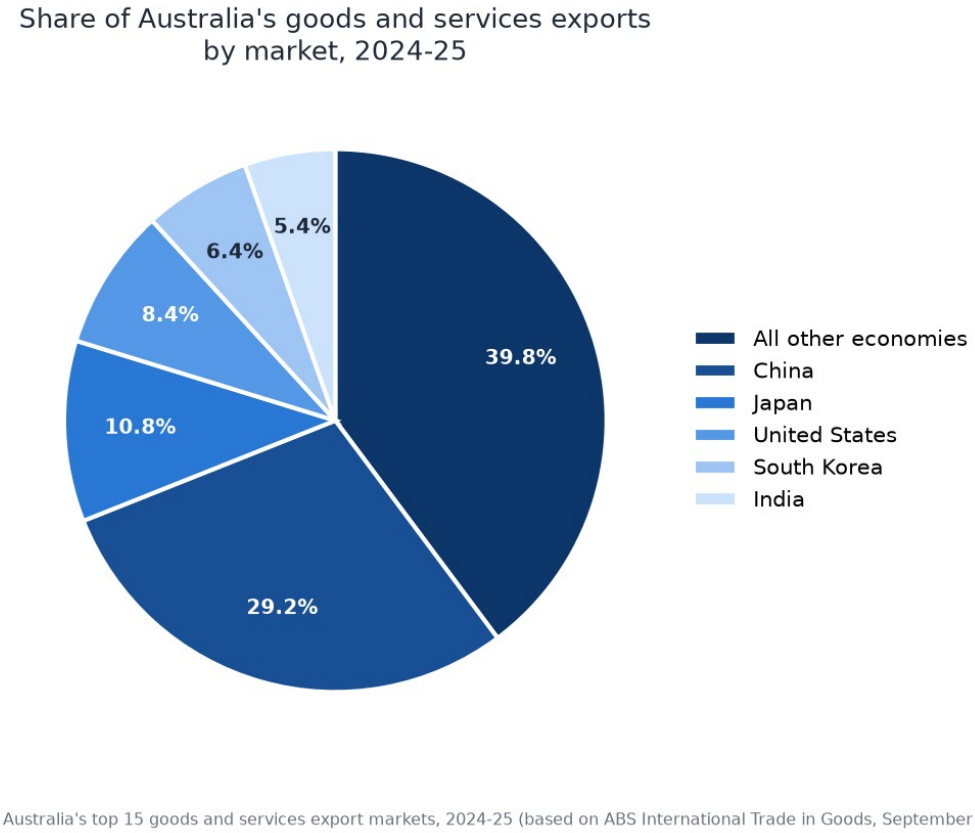
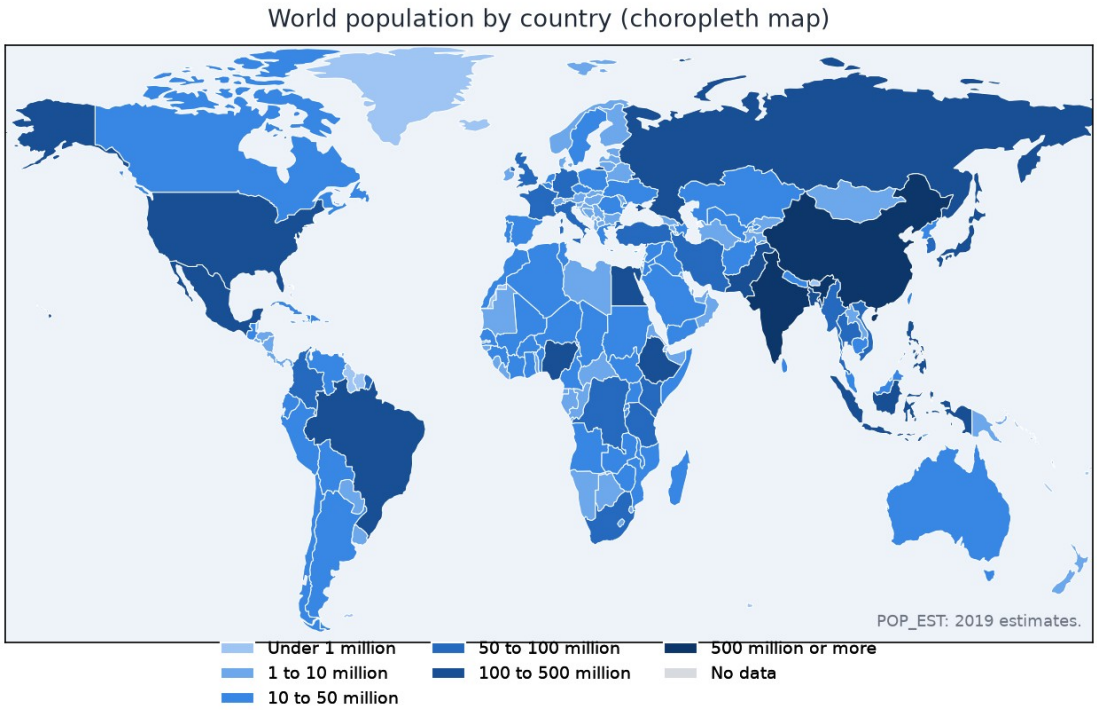


Figure 8. Share of Australia's goods and services exports by market, 2024-25. Source: DFAT, Australia's top 15 goods and services export markets, 2024-25 (based on ABS International Trade in Goods, September 2025). Retrieved 25 August 2026.

a. Which single country takes the biggest share, and what is that share?
b. What share goes to "all other countries" together?
c. Do the five named countries together take more than half of Australia's exports? Show your working with the percentages.

Q4 (some steps given). Use Figure 9, a choropleth map of world population by country.

a. Name the class (from the legend) that China and India fall into, and the class Australia falls into.
b. Describe one pattern you can see on the map. (Hint: look at Asia, then at Australia and the Pacific.)
c. Explain why a country can look big on the map (like Canada) but still sit in a light class while a much smaller country (like Japan) sits in a dark one.



Source: Natural Earth 110m admin-0 vectors, population (2019 estimates) and GDP attributes. Public domain. Retrieved 25 August 2026.

Figure 9. World population by country (choropleth map). Source: Natural Earth 110m country boundaries, population (2019 estimates) and GDP attributes. Public domain. Retrieved 25 August 2026.

Q5 (some steps given). Now compare Figure 9 with Figure 10, a choropleth map of gross domestic product (GDP) per person — the value of everything a country makes and earns in a year, divided by its number of people.

a. Which class is Australia in on Figure 10? Which classes are China and India in?
b. Compare your answer with Figure 9: what do you notice about countries with very large populations and their GDP per person?
c. Write one relationship suggested by comparing the two maps, using "which suggests … because …".

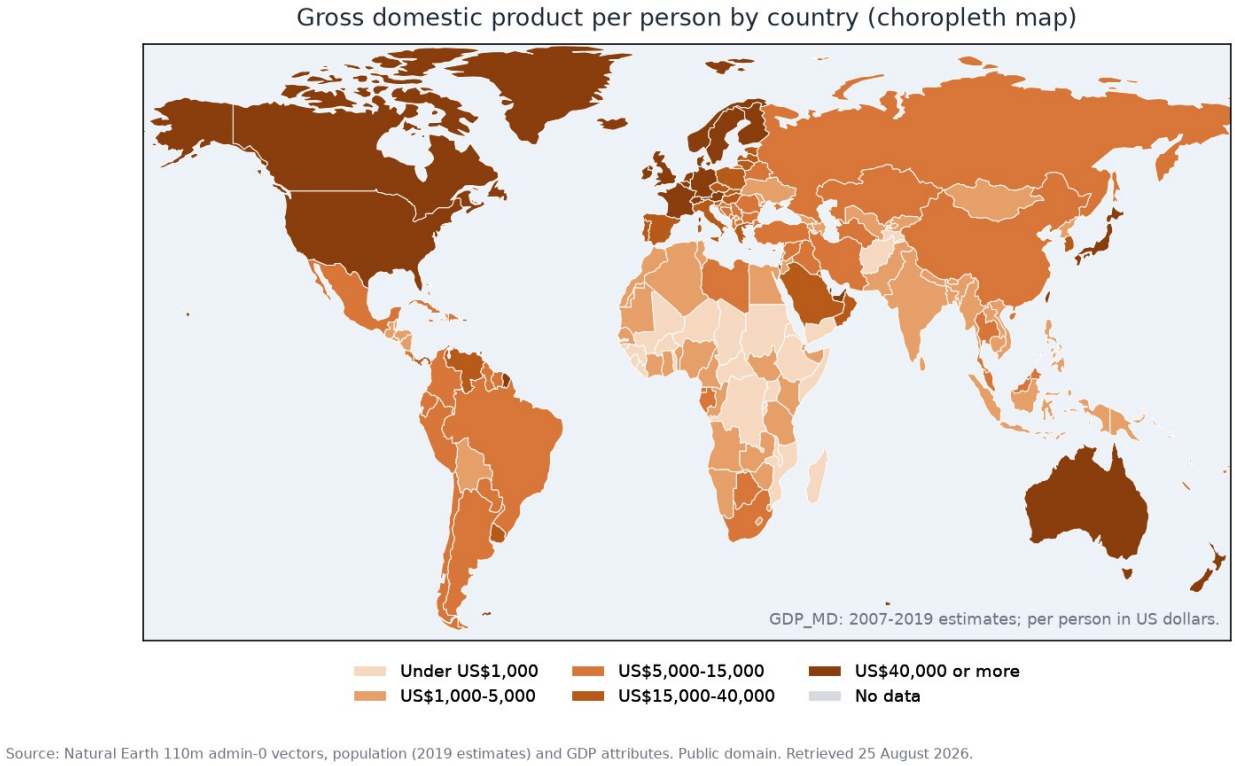
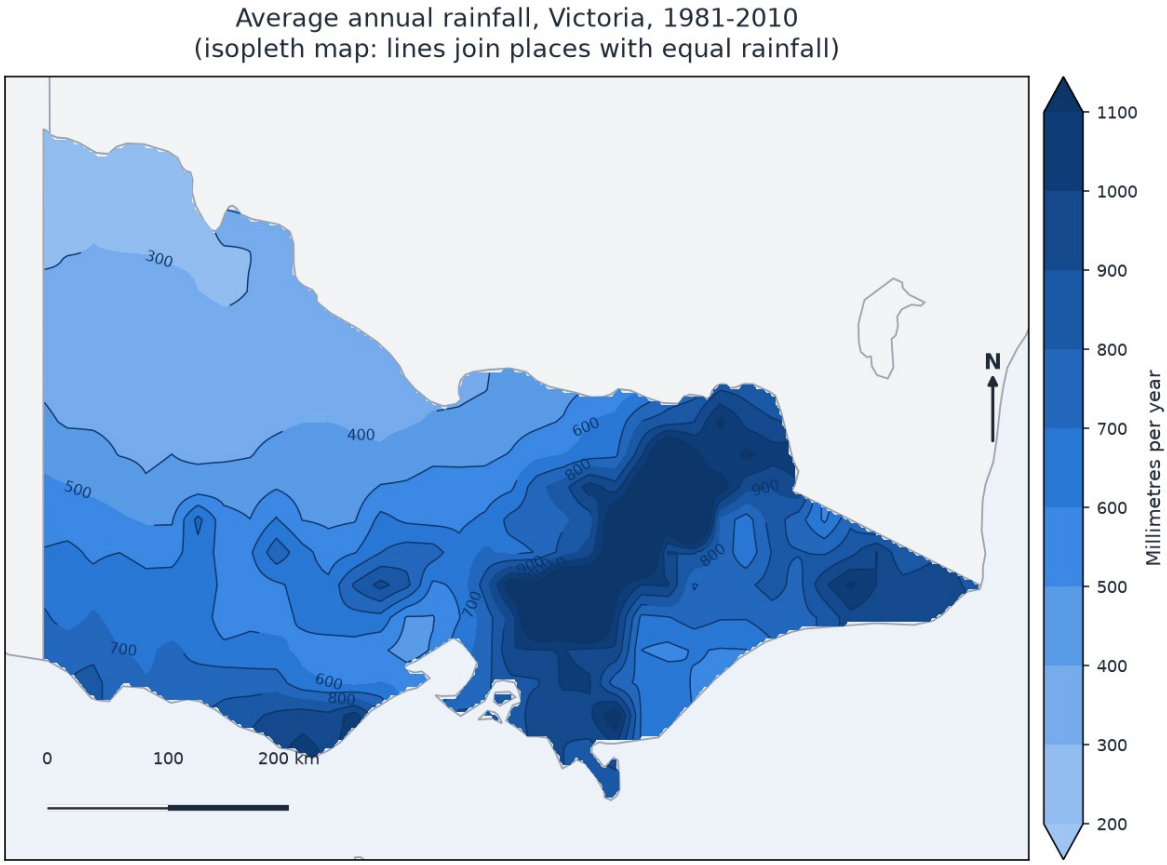


Figure 10. Gross domestic product per person by country (choropleth map). Source: Natural Earth 110m country boundaries, population (2019 estimates) and GDP attributes. Public domain. Retrieved 25 August 2026.

Q6 (some steps given). Use Figure 11, an isopleth map of average annual rainfall in Victoria. The lines are isohyets joining places with equal rainfall.

a. Read the map: about how many millimetres of rain fall in a typical year near Mildura (north-west), and in the high country of the north-east (the darkest blue)?
b. Describe the pattern of rainfall across Victoria. Use at least one compass direction (north, south, east or west).
c. Name the part of Victoria that gets the most rain on this map.



Source: ANUClimate 1.0 rainfall grids, 1981-2010 average, via NCI THREDDS. Retrieved 25 August 2026.

Figure 11. Average annual rainfall, Victoria, 1981-2010 (isopleth map). Source: ANUClimate 1.0 rainfall grids, 1981-2010 average, via NCI THREDDS. Retrieved 25 August 2026.

Q7 (independent). Use Figure 12, which shows the population of Victorian towns in 2025 with circles (a bigger circle means more people). Describe two patterns in where Victorians live. For each pattern, quote evidence (town names) from the map.

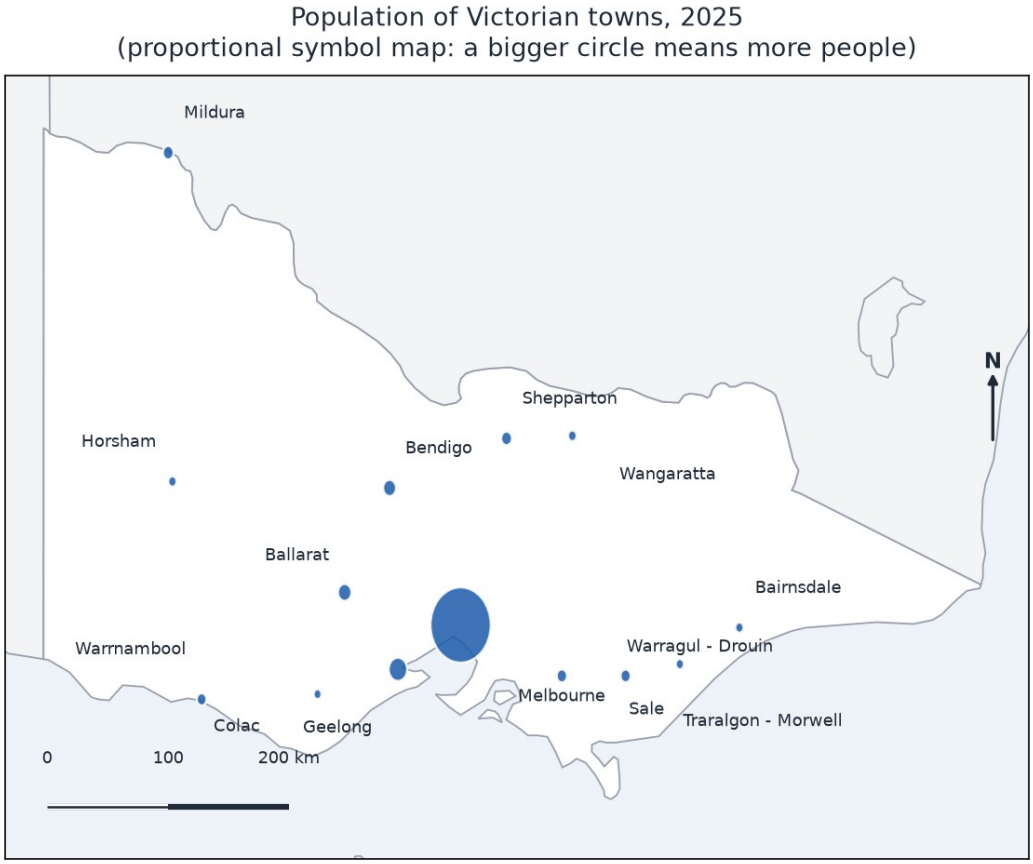


Figure 12. Population of Victorian towns, 2025 (a symbol-size map: a bigger circle means more people). Source: ABS, Regional population (Significant Urban Areas), 2025. Retrieved 25 August 2026.

Q8 (independent). Compare Figure 11 (rainfall) with Figure 12 (town populations), or use the side-by-side pair in Figure 4.

a. Describe one way the two patterns match, quoting evidence from both maps.
b. Name one town that breaks the pattern and give a geographical reason why it can still be there. (Hint: look at where Mildura sits on Figure 11, and think about rivers.)
c. Write one conclusion: what relationship do these maps suggest between rainfall and where Victorians live?

Q9 (extended response). Use Figure 5 (the two drawn scenes). For **each** scene, write a short paragraph of 4-6 sentences that infers the relationships between the features you can see. In each paragraph you must: quote at least two pieces of evidence from the drawing; use "This suggests … because …" at least once; and link the people's choices (where they built the town, the shops, the silos, the roads) to the natural or built features of the place.

Answers

Q1. a. Most: New South Wales; least: Northern Territory. b. 7,121,913. c. 8,641,085 − 267,478 = 8,373,607 more people. d. The three tallest columns are at the left (NSW, VIC, QLD); column heights fall as you move right. e. Australia's people are spread very unevenly: a few states hold most of the people, while the territories and smaller states hold few.

Q2. a. China, $188.7 billion. b. New Zealand, India, United States, Japan. c. About 3 times (69.7 × 3 ≈ 209, so a little under 3 times). d. One market (China) is far ahead, then values fall quickly and level out — a steep downhill pattern.

Q3. a. China, 29.2%. b. 39.8%. c. Yes: 29.2 + 10.8 + 8.4 + 6.4 + 5.4 = 60.2%, which is more than half.

Q4. a. China and India: "500 million or more"; Australia: "10 to 50 million". b. The darkest classes cluster in Asia (China, India, Indonesia, Pakistan, Bangladesh), while Australia, New Zealand and the Pacific sit in the light classes. c. The map shades total people, not size of land. Canada is huge in area but holds only about 38 million people, so it sits in a light class; Japan is far smaller in area but holds about 126 million people, so it sits in a dark class.

Q5. a. Australia: "US$40,000 or more". China: "US$5,000-15,000"; India: "US$1,000-5,000". b. The two countries with the biggest populations are in the middle and lower GDP per person classes, while Australia — with far fewer people — is in the top class. c. Example: "Countries with very large populations often have a lower GDP per person, which suggests that the same total income is shared between many more people."

Q6. a. Near Mildura about 300 mm; in the north-east high country 800-1000+ mm. b. Rainfall is lowest in the north-west and rises towards the south coast and the north-east highlands. c. The north-east high country (and parts of the south coast, such as the Otway coast).

Q7. Example: (1) Most Victorians live in the south — Melbourne's circle is far bigger than every other town, and Geelong, Ballarat and Bendigo are the next biggest. (2) The drier north and west hold only small towns (such as Mildura and Horsham), many of them sitting along the rivers in the north.

Q8. a. The biggest towns (Melbourne, Geelong, Ballarat, Bendigo) sit in the wetter south (500-1000 mm on Figure 11), while the dry north-west (about 300 mm) has only small towns. b. Mildura — about 300 mm of rain, yet a town of about 54,000 people, because it sits on the Murray River and its farms use river water. c. In Victoria, more rainfall usually goes with bigger towns, which suggests people settled where water was easiest to get — with river towns as the exception.

Q9. See Worked solutions below for a model response.

Worked solutions

Q1. c. 8,641,085 − 267,478: 8,641,085 − 267,478 = 8,373,607. Check by adding back: 8,373,607 + 267,478 = 8,641,085. ✓

Q2. c. 69.7 × 2 = 139.4; 69.7 × 3 = 209.1. 188.7 sits between these, closer to 209.1 − so "about 3 times" (a little under).

Q3. c. Add the named shares: 29.2 + 10.8 = 40.0; 40.0 + 8.4 = 48.4; 48.4 + 6.4 = 54.8; 54.8 + 5.4 = 60.2%. 60.2% > 50%, so yes — and the "all other countries" slice (39.8%) is what is left: 100 − 60.2 = 39.8. ✓

Q4. c. A choropleth map like Figure 9 shades by the number of *people*, while the country shapes show *area*. The two are different things: Canada fills a large part of the page but sits in the "10 to 50 million" class, because it holds only about 38 million people. Japan — a fraction of Canada's size — sits in the "100 to 500 million" class, because it holds about 126 million people.

Q5. c. Model relationship sentence: "Australia has a small population but a very high GDP per person, while China and India have huge populations but lower GDP per person, which suggests that a big population does not by itself mean each person earns more."

Q6. b. Model pattern sentence: “Rainfall is lowest in the north-west (the 300 mm isohyet sits near Mildura) and rises towards the south and the north-east, where the 800 and 1000 mm isohyets appear.”

Q7. Model answer: “Pattern 1: most people live in the south — Melbourne’s circle is by far the largest, with Geelong, Ballarat and Bendigo next. Pattern 2: the north and west hold only small towns, and several of them (Mildura, Shepparton, Wangaratta) line up along the rivers in the north.”

Q8. Model conclusion: “Comparing the maps, the wetter south holds the big cities and the drier north-west holds only small towns, so rainfall and town size show a matching pattern. Mildura breaks the pattern because the Murray River supplies water for its farms and homes. I conclude that water — from rain or from rivers — helps explain where Victorians live.”

Q9. Model response (aim for this shape in your own words):

Scene 1. The houses and shops are built right beside the river, and the road runs down to a bridge. This suggests the town grew next to the river because the river supplied fresh water and an easy way to travel and trade, and the bridge marks the best crossing point. The shops sit on the road, which suggests they were placed where people pass every day. The hills behind the town are empty of buildings, which suggests the flat land near the water was easier to build on.

Scene 2. The grain silos stand right beside the railway line, joined to the paddocks by a dirt road. This suggests the silos were built beside the railway so grain can be loaded straight onto trains and sent to market, because road-and-rail transport is faster than carting grain long distances by road. The paddocks are flat and open, which suggests the land is used for cropping rather than steep-country farming. The shed sits between the paddocks and the railway, which suggests it stores machinery used in the paddocks.