

Mathematics Level 7

Chapter 3 — Geographical inquiry: questions, data, maps and interpretation

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Asking good questions about places and how they are managed

Curriculum focus — Victorian Curriculum 2.0, Geography, Levels 5 and 6 Content description VC2HG6S01 (Geographical Skills, Geographical inquiry), together with its examples .E01–.E06. This section’s line from the achievement standard is mapped in TOC §2 (shared with 3B).

Theory

Geographers start with questions.

When a town wants to look after its creek, or a school wants to get ready for the fire season, someone has to ask good questions first. Geographers are people who study places, and every investigation they run begins with questions. In this section you will learn to *develop* questions — that is, to write them, and then to make them sharper and stronger.

What is a geographical question?

A *geographical* question is a question about places, or about one of geography’s big ideas. And because this section is about how places are **managed**, most of our questions will be about the ways people look after, change, protect or make rules about a place.

What does ‘manage’ mean here? In this section, *managing a place* means the ways people look after a place, change it, protect it, or make rules about it. For example: how a council (the group of people chosen to make rules for a local area) looks after a park; how a town gets ready for bushfires; how much water people are allowed to use in a dry year. It is also worth checking the ideas hiding inside a question before you ask it. ‘How can we stop all bushfires?’ hides the idea that every fire can be stopped. Good geographers check the ideas inside their questions first.

Question words and their jobs

Every question begins with a question word, and each word does a different job.

Question words and their jobs

Word	Its job	Example
Where	finds the place something happens	Where do the most serious floods happen?
What	describes what something is like	What grows on farms near our town?
Who	finds the people involved	Who makes decisions about our parks?
When	finds the time, or change over time	When did the last big fire burn here?
How	finds the way something happens	How do people get ready for fire season?
Why	finds the reasons	Why do more people live near the coast?

Geography often starts with Where? — finding where things are helps us see patterns.

A table of the six question words Where, What, Who, When, How and Why, showing the job each word does and an example question for each.

Three kinds of questions (.E01)

Different kinds of questions do different jobs in an investigation.

Three kinds of questions

Probing questions	Open-ended questions	Practical questions
dig for details and facts	open up many ideas — they cannot be answered with one word	help people choose what to do, and what to spend
How to spot them Starters: How many ...? Which ...? Where exactly ...?	How to spot them Starters: What could ...? How might ...? What are the ways ...?	How to spot them Starters: What should we ...? Which option is best ...?
Example How many houses were lost in Victoria's 2009 bushfires?	Example What could a forest town do to get ready for fire season?	Example What should our class put in an emergency kit?

One topic, many questions — a good investigation uses more than one kind.

Three panels describing probing questions, open-ended questions and practical questions, each with its job, its starter words and an example.

A good investigation uses more than one kind.

The seven big ideas

Every geographical question uses at least one of geography's seven *concepts*. A concept is a big idea that helps us organise what we notice about places.

Geography's seven big ideas (concepts)

Big idea	What it means	A question that uses it
place	a part of the world that means something to people	Why do people love the beach near their home?
space	the area between and around things	Where is there space for a new park in our suburb?
environment	the natural world: land, water, air, plants and animals	How does litter harm the creek's environment?
interconnection	the ways places are joined by people, goods, money and ideas	How does our food travel from farms to our shops?
sustainability	looking after a place so it stays healthy now and in the future	How can we use water so there is enough for the future?
scale	the size we look at: our street, our city, Australia, the world	Is this a problem for our town, or for the whole country?
change	how places become different over time	How has our main street changed in the last 20 years?

The Victorian Curriculum names these seven concepts for Geography: place, space, environment, interconnection, sustainability, scale and change.

A table of the seven geographical concepts — place, space, environment, interconnection, sustainability, scale and change — with what each concept means and an example question that uses it.

Interconnection means the ways places are joined to each other — by people moving, by goods being bought and sold, by money and ideas travelling. You will use this idea in Worked example 2.

Questions that help you plan (.E02)

Before an investigation, geographers also ask planning questions about the investigation itself:

- Is this source going to be useful?
- Who can help us with this project?
- What rules do we need to follow?
- What do we need to get the job done?

A *source* is any place information comes from: a map, a chart, a photo, a website, a book, or a person you can ask. Sources come in two kinds. A **primary source** is one you collect yourself — your own counts, your own photos, or answers people give you when you go and ask them. Going out to look and ask for yourself is called **fieldwork**. A **secondary source** is one that someone else already made — a book, a website, or a chart from the Australian Bureau of Statistics (ABS).

Four checks for a strong question

Is your question strong? Four checks

- 1 It names a real place.**
Say the town, river, coast or country.
- 2 It asks one clear thing.**
If it asks two things, split it into two questions.
- 3 You could answer it with information you can get.**
Maps, counts, photos, websites, or people you can ask.
- 4 It needs more than yes or no.**
If the answer is yes or no, add ...and why?

One more check — what ideas are hiding inside your question?

'How can we stop all bushfires?' already assumes every fire can be stopped. Ask first: is that true?

Four checks for a strong question: it names a real place; it asks one clear thing; you could answer it with information you can get; and it needs more than yes or no. A fifth hint says to check what ideas are hiding inside your question.

Worked examples

Example 1 — Developing questions on bushfire management (with help; .E03 and .E06)

Bushfires are a geographical challenge in Victoria: places have to be managed for very hot, windy days. Here are the real facts we will use.

Black Saturday — Victoria's most serious fire day

Saturday 7 February 2009: fires burned across Victoria on a very hot, windy day.



A hectare is 10,000 square metres — about the size of a football ground.

Source: 2009 Victorian Bushfires Royal Commission, Final Report - Summary (State of Victoria, 2009); figures checked in 'Black Saturday bushfires', Wikipedia, retrieved 25 August 2026.

Fact panel for Black Saturday: on Saturday 7 February 2009, fires burned across Victoria; 173 people died, 2,029 houses were destroyed and 450,000 hectares of land burned. A hectare is explained as about the size of a football ground. Source: 2009 Victorian Bushfires Royal Commission.

Now we develop questions from those facts, step by step.

Worked example 1 — developing questions about bushfire management

1. Start with what you know

From Chapter 1 (1E), we know some Victorian summers bring big fires. Black Saturday (7 February 2009) was the most serious day: 173 people died and 450,000 hectares burned.

2. Ask a probing question

How many houses were destroyed in Victoria's 2009 fires? Answer: 2,029 (from the fact panel above).

3. Ask a where-and-how-far question

Which parts of Victoria burned in February 2009, and are fires burning in the same places today?

4. Ask an open-ended question

What could people in a forest town do to get ready for a very hot, windy day?

5. Ask a practical question

What should our school put in an emergency kit for the fire season?

6. Plan the information you need

For step 3: a map of the February 2009 fires (for example, fire maps kept by the Country Fire Authority) and a map of fires since, to compare.

The Black Saturday figures come from the 2009 Victorian Bushfires Royal Commission (see the fact panel).

Worked example 1 in six steps: start with what you know; ask a probing question; ask a where-and-how-far question; ask an open-ended question; ask a practical question; and plan the information you need.

Notice what happened: one topic (bushfire management) became a *range* of questions — probing, open-ended and practical — and the last step planned the information each question needs. That is exactly the skill VC2HG6S01 asks you to learn.

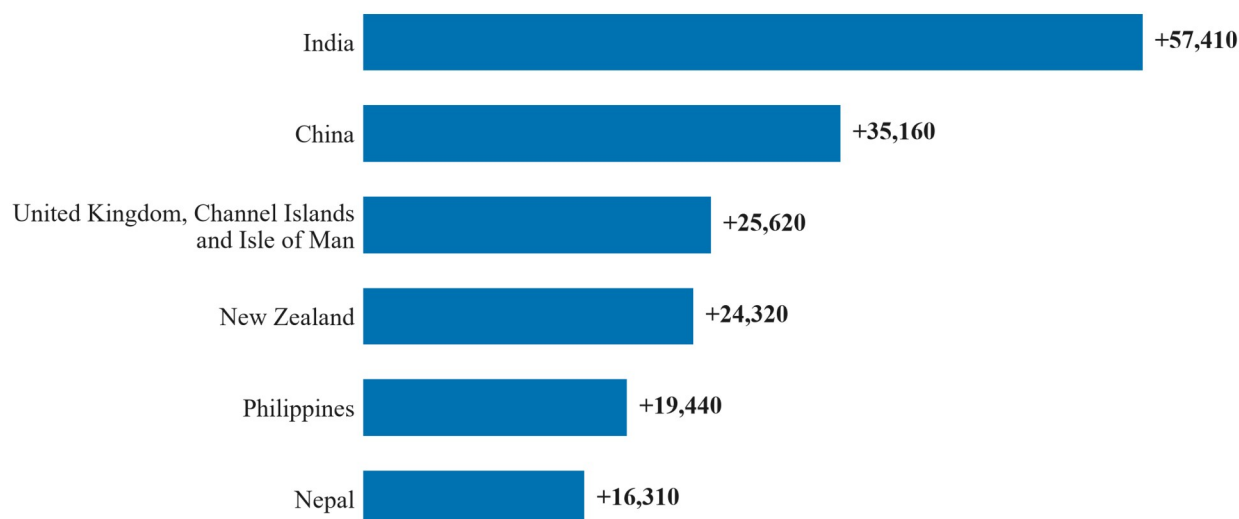
Example 2 — Which countries are most connected with Australia? (with help; .E04)

This is a big, soft question. The trick is to sharpen it by saying *how* we will measure.

When Australia sells goods to other countries, those goods are called **exports**. Two real ABS charts give us two ways to measure how connected countries are to Australia: by people, and by goods.

People moving to Australia, 2024-25

Net overseas migration by country of birth — how many more people arrived than left



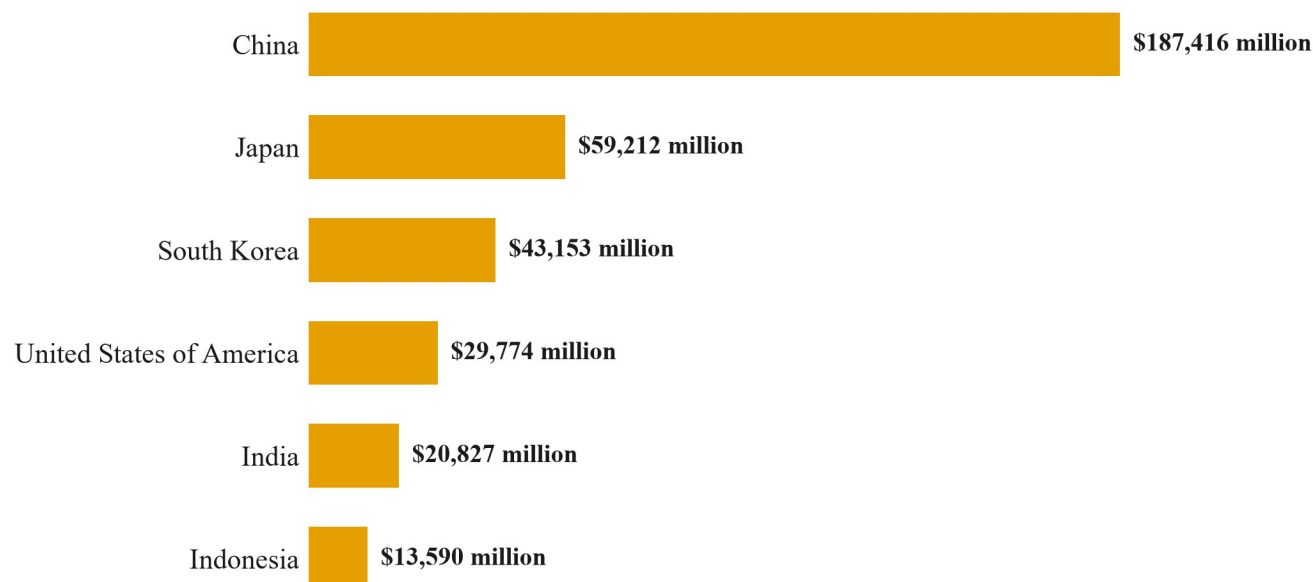
Number of people (2024-25 financial year). Units: people.

Source: ABS, Overseas Migration, 2024-25 (cat. 3407.0), Table 1.1, released 19 December 2025, downloaded 25 August 2026.

Horizontal bar chart of net overseas migration to Australia in 2024-25 by country of birth: India +57,410; China +35,160; United Kingdom, Channel Islands and Isle of Man +25,620; New Zealand +24,320; Philippines +19,440; Nepal +16,310. Source: ABS Overseas Migration, cat. 3407.0.

Goods Australia sold to other countries, 2025-26

The value of goods sent to each buyer country (merchandise exports)



Value in \$ millions, financial year 2025-26.

Source: ABS, International Trade in Goods (cat. 5368.0), Table 14a; monthly values July 2025 - June 2026 added together here, downloaded 25 August 2026.

Horizontal bar chart of the value of goods Australia sold to other countries in 2025-26: China \$187,416 million; Japan \$59,212 million; South Korea \$43,153 million; United States of America \$29,774 million; India \$20,827 million; Indonesia \$13,590 million. Source: ABS International Trade in Goods, cat. 5368.0, Table 14a.

Worked example 2 — which countries are most connected with Australia?

1. Start with a big wonder

'Which countries are most connected with Australia?'

2. Sharpen it — connected HOW?

By people moving between countries? Or by goods bought and sold? Pick one way to measure it, or compare both.

3. Choose real data to measure it

People: net overseas migration by country of birth (ABS chart, left). Goods: value of goods Australia sold to each country (ABS chart, right).

4. Look at what the data says

For people moving, India is on top (+57,410 in 2024-25). For goods sold, China is on top (\$187,416 million in 2025-26).

5. Notice: the answer depends on the measure

Different measures can give different answers. A strong question says HOW it measures.

6. Write the sharpened questions

'Which countries had the most people move to Australia in 2024-25?' and 'Which countries bought the most Australian goods in 2025-26?'

Data: ABS Overseas Migration 2024-25 (cat. 3407.0) and ABS International Trade in Goods (cat. 5368.0), Table 14a. See the two charts for full source lines.

Worked example 2 in six steps: start with a big wonder; sharpen it by asking connected how; choose real data to measure it; look at what the data says; notice the answer depends on the measure; write the sharpened questions.

Practice questions

With help

Q1 — Geographical, or not? Put a tick next to each question that is a geographical question.

- a) Where does Melbourne's drinking water come from?
- b) What is your favourite food?
- c) Why do more Australians live near the coast than far from it?
- d) How many players are there on a cricket team?
- e) How has your main street changed in the last 20 years?
- f) What time is lunch today?

Q2 — Question words. Match each job to its question word (use the first figure in the Theory).

- a) finds the reasons
- b) finds the place something happens
- c) finds the people involved
- d) finds the way something happens

Q3 — Finish the question (.E05). Fishermans Bend is a real place near the centre of Melbourne. For a long time it was home to old factories and places for ships. Now it is becoming a new part of the city, and the change is being managed with a rule book called the *Fishermans Bend Framework*.

Fishermans Bend facts - Size: 480 hectares — about 480 football grounds. - Plan: around 80,000 people will live there by 2050. - Rules: the *Fishermans Bend Framework* (2018) says what can be built where.

Source: Fishermans Bend Framework, Victorian Government (2018); figures checked in 'Fishermans Bend', Wikipedia, retrieved 25 August 2026.

Finish each starter so it becomes a full geographical question about Fishermans Bend.

- a) Where ...
- b) How many ...
- c) What rules ...
- d) Why ...

Q4 — Label the kind. Write *probing*, *open-ended* or *practical* next to each question.

- a) How many houses were destroyed on Black Saturday?
- b) What could a forest town do to get ready for a very hot, windy day?
- c) What should our class put in an emergency kit?
- d) Which country had the most people move to Australia in 2024-25?

Q5 — Planning questions. Your class is starting an investigation: *How does our school get ready for very hot days?* Write one planning question for each job below.

- a) a question about whether a source will be useful
- b) a question about who can help
- c) a question about rules to follow
- d) a question about what you need to get the job done

Q6 — Questions from the fact panel (.E03). Use the Black Saturday fact panel from Example 1 to write:

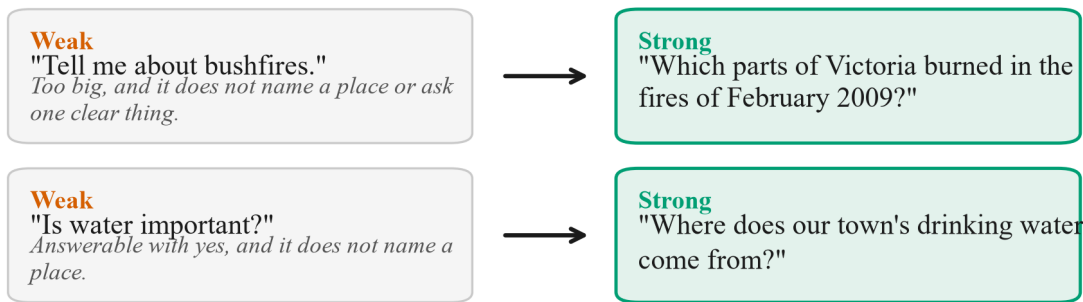
- a) one probing question
- b) one where-and-how-far question
- c) one open-ended question

Q7 — Concept match. Match each question to the concept it mainly uses: *place*, *space*, *environment*, *interconnection*, *sustainability*, *scale* or *change*.

- a) How has our main street changed in the last 20 years?
- b) Is this a problem for our town, or for the whole country?
- c) How does our food travel from farms to our shops?
- d) How can we use water so there is enough for the future?
- e) Where is there space for a new park in our suburb?

Q8 — Make it strong. Rewrite each weak question as a strong one. Use the four checks and the model below.

Making a weak question strong



Each strong question names a real place and asks one clear thing you could find out.

Model showing two weak questions rewritten as strong questions: 'Tell me about bushfires' becomes 'Which parts of Victoria burned in the fires of February 2009?', and 'Is water important?' becomes 'Where does our town's drinking water come from?'.

- a) 'Tell me about fires.'
- b) 'Is pollution bad?'
- c) 'Why is it nice?'

On your own

Q9. Choose a place you know well — your street, your school or your local park. Develop three geographical questions on how that place is managed: one probing, one open-ended and one practical.

Q10 (.E04). Look again at the two ABS charts in Example 2. For each chart, write one sharpened question that says *how* it measures connections with Australia.

Q11 (.E05). Your town wants to look after its creek. Develop two questions to guide an investigation, and for each question name one source you would use. Say whether each source is primary or secondary.

Q12 — Investigation plan (.E03, .E05 and .E06). Choose one place:

- **Place A:** Fishermans Bend (use the fact box in Q3)
- **Place B:** a forest town getting ready for the fire season (use the fact panel in Example 1)

Write a short investigation plan (about half a page). It must have: one big question; three developed questions (at least two different kinds); and for each developed question, the information you would need and one source. Run the four checks over every question before you hand it in.

Answers

Q1. Geographical: a, c, e. Not geographical: b, d, f. (b, d and f are not about places or geography's big ideas — they are about taste, sport rules and the school bell.)

Q2. a) Why. b) Where. c) Who. d) How.

Q3. Sample answers: a) Where is Fishermans Bend? b) How many people will live at Fishermans Bend by 2050? c) What rules does the Fishermans Bend Framework make about what can be built? d) Why is Fishermans Bend becoming a new part of the city?

Q4. a) probing. b) open-ended. c) practical. d) probing.

Q5. Sample answers: a) Is the school's hot-weather plan a useful source for us? b) Who at the school can help us with this project? c) What rules do we need to follow when we ask people questions? d) What do we need — clipboards, a camera, a map of the school?

Q6. Sample answers: a) How many hectares burned on Black Saturday? b) Which parts of Victoria burned in February 2009, and are fires burning in the same places today? c) What could people in a forest town do to get ready for a very hot, windy day?

Q7. a) change. b) scale. c) interconnection. d) sustainability. e) space.

Q8. Sample answers: a) Which parts of Victoria burned in the fires of February 2009? b) Which creeks or streets in our town have the most litter, and where does it come from? c) Why do more people visit the coast in summer than in winter? (Each one names a real place, asks one clear thing, and needs more than yes or no.)

Q9. Answers will vary. Check: each question names your place, asks one clear thing, and is answerable with information you can get.

Q10. Sample answers: people chart — 'Which countries had the most people move to Australia in 2024-25, measured by net overseas migration?' goods chart — 'Which countries bought the most Australian goods in 2025-26, measured by the dollar value of exports?'

Q11. Answers will vary. Sample: 'Where does litter enter the creek?' with a walk along the creek to look and count (fieldwork — a primary source); 'What rules does the council make about the creek?' with the council's website (a secondary source).

Q12. Answers will vary. A good plan has one big question, three developed questions of at least two kinds, and for each one the information needed plus one source. See the worked solution at the end for a model plan.

Worked solutions

Q3 — how to finish a starter.

Working	Comment
a) Where ... → <i>Where is Fishermans Bend?</i>	‘Where’ finds a place, so the finished question must ask about location. The fact box says ‘near the centre of Melbourne’, so the question is answerable.
b) How many ... → <i>How many people will live at Fishermans Bend by 2050?</i>	‘How many’ asks for a count. The fact box gives 80,000 — so check 3 (answerable) passes.
c) What rules ... → <i>What rules does the Fishermans Bend Framework make about what can be built?</i>	This is a management question: rules are one way places are managed.
d) Why ... → <i>Why is Fishermans Bend becoming a new part of the city?</i>	‘Why’ finds reasons. It needs more than yes or no, so check 4 passes.

Q8 — running the four checks on ‘Is pollution bad?’

Check	Result
1. Names a real place?	No — so add one: <i>our town</i> .
2. Asks one clear thing?	‘Bad’ is unclear — say what we mean: <i>the most litter</i> .
3. Answerable with information you can get?	Yes once it names a place — you can count litter.
4. Needs more than yes or no?	No — so change it from an <i>Is...</i> question to a <i>Which/Where</i> question.
Strong rewrite	<i>Which streets or creeks in our town have the most litter, and where does it come from?</i>

Q10 — why the measure goes into the question.

Working	Comment
Big wonder	‘Which countries are most connected with Australia?’
People measure	Net overseas migration by country of birth → <i>Which countries had the most people move to Australia in 2024-25?</i>
Goods measure	Dollar value of exports → <i>Which countries bought the most Australian goods in 2025-26?</i>
Conclusion	India tops the people chart; China tops the goods chart. The answer depends on the measure — so a strong question says how it measures.

Q12 — a model plan (Place B, forest town).

Part of the plan	What it says
Big question	How is our forest town managed for the fire season?
Developed question 1 (probing)	How many houses were destroyed in Victoria’s February 2009 fires? Information needed: the official count. Source: the Black Saturday fact panel from the 2009 Victorian Bushfires Royal Commission (secondary).
Developed question 2 (where-and-how-far)	Which parts of Victoria burned in February 2009, and are fires burning in the same places today? Information needed: two fire maps to compare. Source: fire maps kept by the Country Fire Authority (secondary).
Developed question 3 (open-ended)	What could people in our town do to get ready for a very hot, windy day? Information needed: ideas from local people. Source: your own questions asked at the town hall (fieldwork — primary).
Checks	Every question names a real place, asks one clear thing, is answerable, and needs more than yes or no.

Finding and sorting information and data — including fieldwork

Geography 5 · Chapter 3 · 3B

Owens: VC2HG6S02 (Geographical skills) **Draws on:** VC2HG6S02.E01 · VC2HG6S02.E02 · VC2HG6S02.E03 · VC2HG6S02.E04 · VC2HG6S02.E05 · VC2HG6S02.E06

3A asked the questions. 3B goes and finds the answers. We **locate** information and data (find good places to get them), we **collect** them (gather them and write them down), and we **organise** them (sort them so they make sense). The places come from Chapters 1 and 2: our own local area and how it is changing (→ 1C), how people change and manage places (→ 1A), and bushfires and other climate hazards (dangers to places, like bushfires and floods — → 1E) in Australia. Then 3C shows what we collected on maps, tables and graphs, and 3D works out what it all means.

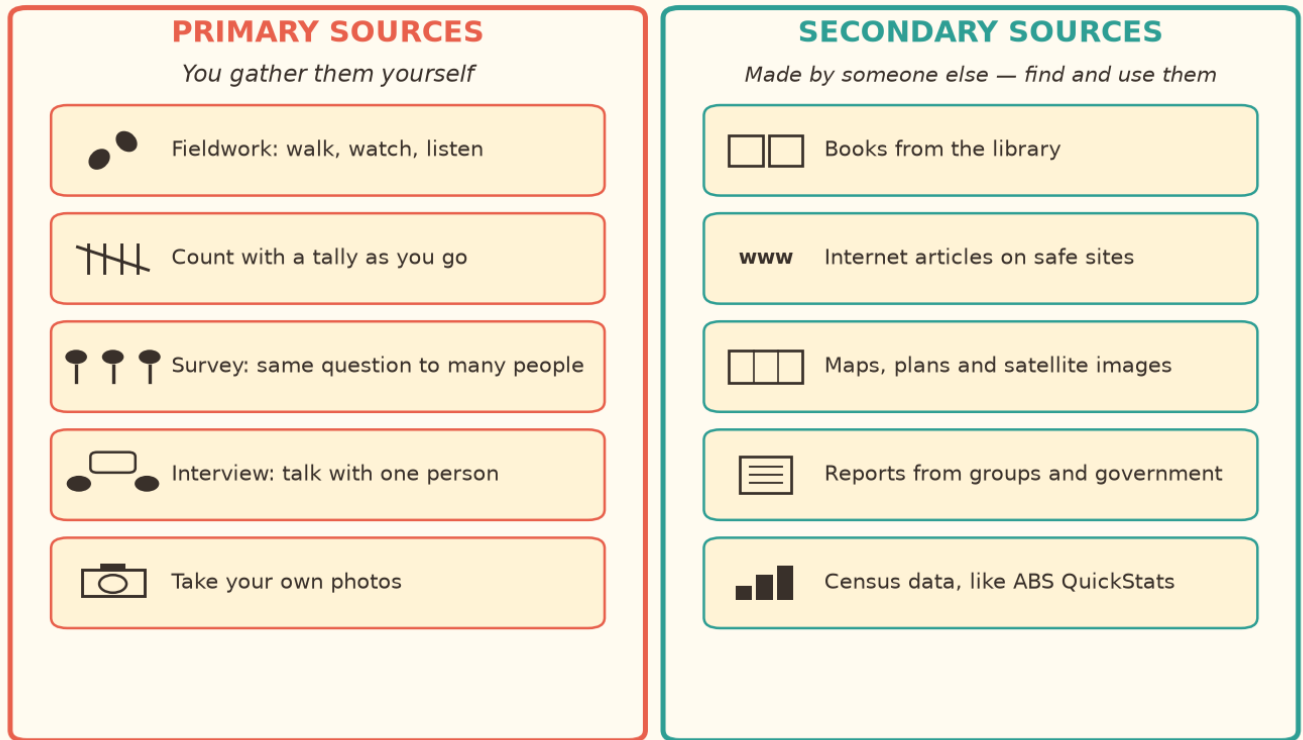
Teacher note. This section carries the book’s must-do fieldwork: at least one local data collection outside the classroom (the fieldwork task at the end). Plan the walk, permissions and safety first; the record sheet and survey sheet here are models to copy. Pair the walk with the secondary source task (Q10), so every student collects one primary and one secondary set of data about their own local area — both feed 1C and 3C. Model sheets and model tables are made-up examples that show *how* to record. Real data in this section carries a source line with the date we viewed it. “Answers will be different” is often true here; the possible answers show the shape of a good response, not the only one.

What we are learning

Information, data, sources. Geographers find things out. What we find out is **information**. When the information is facts and numbers we can write down, we call it **data**. And information and data always come from somewhere — the place they come from is called the **source**.

Two families of sources. Sources come in two families. A **primary source** is one we gather ourselves, first-hand: we go to the place, count, watch, ask and photograph. A **secondary source** is one someone else made earlier — we find it and use it. Both are useful; the trick is to pick the source that fits your question.

Two families of sources



One question, many ways to answer it — pick the source that fits your question.

A poster with two families of sources. The primary family, which you gather yourself: fieldwork (walk, watch, listen), counting with a tally, a survey (the same question to many people), an interview (a talk with one person), and taking your own photos. The secondary family, made by someone else: books from the library, internet articles on safe sites, maps, plans and satellite images, reports from groups and government, and census data such as ABS QuickStats. The caption says: one question, many ways to answer it — pick the source that fits your question.

Going to a place to look, count, ask and record for ourselves is called **fieldwork**. Fieldwork is the heart of this section — more on it at the end.

Choosing a method that fits (VC2HG6S02 .E02). A **method** is the way we collect. The method must fit the question:

Pick the method that fits the question

How many bins are there on our school grounds?

Best method: a tally on a walk

Why it fits: we can see them and count them.

What do people like best about our local park?

Best method: a survey

Why it fits: lots of people answer the same question.

Why was the town hall built in this spot?

Best method: an interview

Why it fits: one person can tell us the whole story.

How many people live in our town?

Best method: census data (a secondary source)

Why it fits: the count is too big for us — the census already did it.

Say the question first. Then choose how to collect, and say why that way fits.

Four cards, each with a question, the best method and the reason it fits. How many bins are there on our school grounds? Best method: a tally on a walk, because we can see them and count them. What do people like best about our local park? Best method: a survey, because lots of people answer the same question. Why was the town hall built in this spot? Best method: an interview, because one person can tell us the whole story. How many people live in our town? Best method: census data, a secondary source, because the count is too big for us — the census already did it.

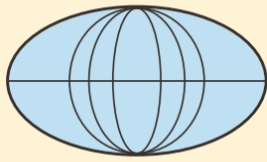
- **Personal observation** — go and watch for yourself, and count with a tally as you go.
- A **survey** — ask many people the *same* question, so the answers can be counted.
- An **interview** — a talk with *one* person who knows a lot; we listen and write down the key points.
- An **internet search** on safe sites, for sources made by others.
- **Census data** — a **census** is an official count of every person in the country, run every five years; the Australian Bureau of Statistics (ABS) puts the results online for anyone to use.
- A **field trip** — an outing to collect at the place itself, like a walk along a creek or a visit to a wetland (wet country where waterbirds live, like the Edithvale–Seaford Wetlands between Chelsea and Frankston).

Say the question first. Then choose how to collect, and say why that way fits.

Geospatial tools (VC2HG6S02 .E03). *Geospatial* means “about places on Earth”. Geospatial tools help us locate where things are, and where our fieldwork happened.

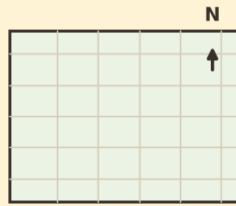
Three geospatial tools for finding places

Geospatial means: about places on Earth.



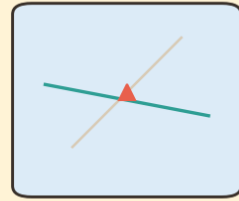
A globe

Best for: the whole world,
and how places sit around
Australia.



A wall map

Best for: countries, states
and big distances — all
visible at once.



A digital map app

Best for: zoom in on streets,
search a place name, drop
a pin where you stood.

Use these tools to find places, and to show where your fieldwork happened.

Three cards. A globe, best for the whole world and how places sit around Australia. A wall map, best for countries, states and big distances, all visible at once. A digital map app, best for zooming in on streets, searching a place name, and dropping a pin where you stood. The caption says: use these tools to find places, and to show where your fieldwork happened.

A digital map app is also a fieldwork tool: drop a pin where you stood, and your record shows just where you collected.

Organising what we collect. Collected answers are messy until we sort them. A tally table sorts answers into groups and counts each group. This model shows twelve children's answers about travel to school — it is a made-up example that shows *how* to organise:

Organising data: from messy answers to a clear table

What 12 children answered:

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

sort
into
groups



The same answers, organised:

Way to school	Tally	Number
walk		4
car		4
bus		2
bike		2
Total		12

MODEL — a made-up class example that shows how to organise. The answers are not from a real survey.

Sorted data is ready for graphs in 3C — and it is much easier to read.

On the left, twelve messy answer cards: walk, car, walk, bus, car, walk, bike, car, bus, walk, car, bike. An arrow labelled “sort into groups” points to a tidy tally table on the right: walk 4, car 4, bus 2, bike 2, total 12. A note says this is a made-up class example, and sorted data is ready for graphs in 3C and much easier to read.

Sorted data is ready for 3C, where it becomes maps, tables and graphs.

Different views on one issue (VC2HG6S02 .E04 · VC2HG6S02 .E05). Surveys and interviews collect primary data that people use when making decisions. When a plan divides people — a new road, a new shopping centre — geographers collect the points of view on each side and sum them up in a fair way: name each side, say what they want, and give their reasons. Here is a real planning issue, summed up from its sources:

One issue, two sides: the North East Link (Melbourne)

A real planning issue — a new tolled road in Melbourne's north-east, due to open in late 2028

What supporters say

- It will finish the ring road around Melbourne: a new 10 km link from Greensborough to Bulleen.
- It will carry about 100,000 vehicles a day, with non-stop movement and easier access for freight.
- It will take pressure off local roads like Fitzsimons Lane, Heidelberg Road and Rosanna Road.

What critics say

- It could divide local communities and cut through open space, including Banyule Flats, the Warringal Parklands and the Yarra Corridor.
- Four local councils took legal action in 2020 to challenge it; critics say it puts more traffic on roads at the expense of public transport.
- The planned cost grew from \$10,000 million (2016) to \$26,100 million (2023).

To sum up points of view: name each side, say what they want, and give their reasons — in a fair way.

Source: "North East Link", Wikipedia, viewed 25 August 2026 (summarised; original sources listed there).

Two panels on the North East Link, a real tolled road project in Melbourne's north-east, due to open in late 2028. What supporters say: it will finish the ring road around Melbourne with a new 10 km link from Greensborough to Bulleen; it will carry about 100,000 vehicles a day with non-stop movement and easier access for freight; it will take pressure off local roads like Fitzsimons Lane, Heidelberg Road and Rosanna Road. What critics say: it could divide local communities and cut through open space, including Banyule Flats, the Warringal Parklands and the Yarra Corridor; four local councils took legal action in 2020 to challenge it, and critics say it puts more traffic on roads at the expense of public transport; the planned cost grew from 10,000 million dollars in 2016 to 26,100 million dollars in 2023. The caption says: to sum up points of view, name each side, say what they want, and give their reasons — in a fair way.

Both sides want good transport. They disagree about how to get it. A fair sum-up keeps the reasons of both sides, so decision-makers can weigh them.

Checking a source before you trust it. Before we use any source — primary or secondary — we ask five questions about it.

Before you trust a source, ask five questions



Who made it?

A person, a group, or the government?



When was it made?

New data is usually better than very old data.



Why was it made?

To inform — or to sell or win people over?



Primary or secondary?

Did the maker gather it, or copy it?



Does it match other sources?

Two good sources that agree are stronger than one.

A good source can tell you who made it, when, and why. Write these down in your source list.

A checklist of five questions to ask before trusting a source. Who made it — a person, a group, or the government? When was it made — new data is usually better than very old data. Why was it made — to inform, or to sell or win people over? Primary or secondary — did the maker gather it, or copy it? Does it match other sources — two good sources that agree are stronger than one. The caption says: a good source can tell you who made it, when, and why; write these down in your source list.

Worked examples

Example 1 — collecting from QuickStats (VC2HG6S02.E01)

The ABS puts census results online as **QuickStats** pages for every local area in Australia. They are one of the best secondary sources there is. Watch the class locate, collect and organise.

1. Locate. On a safe site (abs.gov.au), go to Census → QuickStats, and search “Greater Geelong”. The page for the 2021 Census looks like this picture.

QuickStats from the 2021 Census — Greater Geelong

A secondary source made by the Australian Bureau of Statistics (ABS)

People and homes

People counted	271,057
Median age (the middle age)	39 years
People in each household, on average	2.4
Occupied private dwellings	103,508

Where people were born

Australia	77.6%
England	3.2%
India	1.9%
New Zealand	1.1%
Philippines	0.7%
China (excludes SARs and Taiwan)	0.6%

Main language other than English spoken at home

Mandarin	0.8%
Punjabi	0.8%
Italian	0.8%
Croatian	0.7%

Most common religions

No religion	43.9%
Catholic	22.3%
Anglican	8.0%
Uniting Church	3.7%

Source: Australian Bureau of Statistics, 2021 Census QuickStats, Greater Geelong (LGA22750), abs.gov.au, viewed 25 August 2026.

QuickStats from the 2021 Census for Greater Geelong, a secondary source made by the Australian Bureau of Statistics. People and homes: people counted 271,057; the middle age is 39 years; about 2.4 people live in each home; 103,508 homes have people living in them. Where people were born: Australia 77.6%, England 3.2%, India 1.9%, New Zealand 1.1%, Philippines 0.7%, China 0.6%. Main language other than English spoken at home: Mandarin 0.8%, Punjabi 0.8%, Italian 0.8%, Croatian 0.7%. A fourth panel lists the most common religions, led by “no religion” at 43.9%. The source line reads: Australian Bureau of Statistics, 2021 Census QuickStats, Greater Geelong (LGA22750), viewed 25 August 2026.

2. Collect. Pick the numbers that answer *your* question — do not copy the whole page. The class asked: *what is Greater Geelong like?* They collected three numbers.

3. Organise. Write the numbers into a table, and always write the source and the date you viewed it:

Question	Answer	Source
How many people were counted?	271,057	ABS QuickStats, Greater Geelong
What is the middle age?	39 years	ABS QuickStats, Greater Geelong
What share of people were born in Australia?	77.6%	ABS QuickStats, Greater Geelong

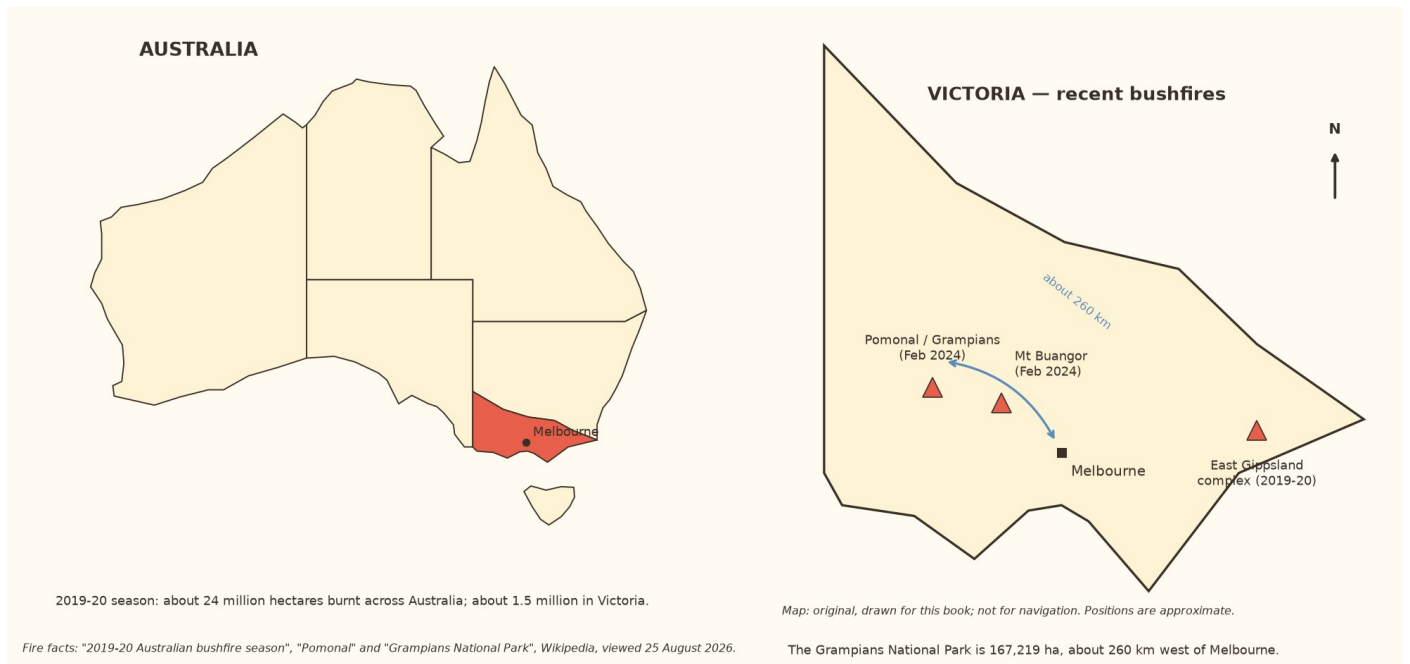
(Australian Bureau of Statistics, 2021 Census QuickStats, Greater Geelong, viewed 25 August 2026.)

One table row with a source is worth a page of copied notes. That is what organising is for.

Example 2 — locating bushfires on maps (VC2HG6S02.E06 · VC2HG6S02.E03)

Maps and satellite images are strong secondary sources for hazards. They show *where* a hazard happened and *how far* it spread. Watch the class locate recent bushfires in Victoria.

1. Locate on a map. The left panel finds Victoria inside Australia; the right panel zooms in on three recent fires. A hectare is a way of measuring land area: a square 100 metres by 100 metres.



Two map panels. Left: Australia with Victoria shaded, noting that in the 2019-20 season about 24 million hectares burnt across Australia and about 1.5 million in Victoria. Right: Victoria with three fire markers — Pomonal and the Grampians (February 2024), Mount Buangor (February 2024), and the East Gippsland group of fires (2019-20) — plus Melbourne, a north point, and a note that the Grampians National Park is 167,219 hectares, about 260 km west of Melbourne.

2. Collect the facts. From a source like the Wikipedia season page (which lists the original reports), the class collected: when each fire started, where it was, and how much land it burnt.

3. Organise into a table. Every row carries its source, so anyone can check it:

Hazard data, organised: recent bushfires in Victoria				
Event	When	Where	What happened	Source
2019-20 season ("Black Summer")	Jun 2019 - Mar 2020	Victoria, Australia	About 1.5 million hectares burnt in Victoria; 396 homes destroyed.	W*
East Gippsland fire complex	2019-20	East Gippsland	Three active fires joined; more than 130,000 hectares at one point.	W*
Pomonal fire	Feb 2024	Grampians National Park	Started in the park on a catastrophic fire-danger day; swept through the town of Pomonal; 46 homes destroyed.	W*, ABC
Mount Buangor fire	Feb 2024	Near Creswick	Started 22 February; 14,027 hectares burnt by 23 February.	W*

A hectare is a measure of land area: 100 metres by 100 metres.

W* = "2019-20 Australian bushfire season", Wikipedia; ABC = ABC News report, as cited in "Pomonal", Wikipedia.

All figures viewed 25 August 2026. These are real events — the table shows how to record hazard data from sources.

A table of recent bushfires in Victoria. 2019-20 season ("Black Summer"), June 2019 to March 2020: about 1.5 million hectares burnt in Victoria and 396 homes destroyed. East Gippsland fire complex, 2019-20: three active fires joined, more than 130,000 hectares at one point. Pomonal fire, February 2024: started in the Grampians National Park on a day of the highest fire danger, swept through the town of Pomonal, 46 homes destroyed. Mount Buangor fire, February 2024: started 22 February, 14,027 hectares burnt by 23 February. A note explains a hectare is 100 metres by 100 metres, and the sources are the Wikipedia season page and an ABC News report, viewed 25 August 2026.

Notice the two February 2024 fires: Pomonal and Mount Buangor. A satellite image of the Grampians after those fires shows the burn area as a dark patch — the image and the table agree, so each one checks the other.

Practice tasks

With help

Q1. Two families (VC2HG6S02.E01). Put each source into the primary family (we gather it ourselves) or the secondary family (someone made it earlier).

1. your own tally of seats in the local park
2. a library book about Geelong
3. your own photos of your street
4. a QuickStats page for your local area
5. a talk with one grandparent about the old days
6. a wall map of Australia
7. a survey your class ran last week
8. a satellite image on a safe site

Q2. Match the method (VC2HG6S02 .E02). For each question, choose the best method — tally on a walk, survey, interview, or a secondary source — and give one reason it fits.

1. How many bins are there on our school grounds?
2. What do people like best about our street?
3. Why did the old shop on the corner close down?
4. How many people live in Greater Geelong?

Q3. Pick the tool (VC2HG6S02 .E03). Choose a globe, a wall map or a digital map app for each job, and say why.

1. Show a visiting class how Australia sits in the world.
2. Find how far the Grampians are from Melbourne.
3. Show just where you stood during your fieldwork.

Q4. Read QuickStats (VC2HG6S02 .E01). Use the QuickStats picture from Example 1.

1. How many people were counted in Greater Geelong?
2. What is the middle age of the people there?
3. After Australia, which is the most common country of birth?
4. Why is a QuickStats page a secondary source, not a primary one?

Q5. Organise the answers (VC2HG6S02 .E02). Six more children answer the travel-to-school question from the organising picture: *walk, bus, walk, car, walk, bike*. Rebuild the tally table with all eighteen answers, and check the total.

Q6. Two sides (VC2HG6S02 .E05). Use the North East Link picture.

1. Give one thing supporters say.
2. Give one thing critics say.
3. The planned cost grew from how much (2016) to how much (2023)?
4. Why must a fair sum-up keep the reasons of *both* sides?

Q7. Check the source (VC2HG6S02 .E04). A made-up web page says “our local park will close next year”, but it has no name, no date and no reason. Pick two of the five checking questions and say what the page cannot answer.

Q8. Read the hazard table (VC2HG6S02 .E06). Use the bushfire table from Example 2.

1. Which event burnt about 1.5 million hectares in Victoria?
2. How many homes were destroyed at Pomonal?
3. How many hectares had the Mount Buangor fire burnt by 23 February 2024?
4. Why does every row of the table carry a source?

On your own

Q9. Your question, your method (VC2HG6S02 .E02). Think of one place near YOUR school. Write one question about it. Choose a method that fits, give one reason it fits, and say how you will record what you collect.

Q10. Your own QuickStats (VC2HG6S02 .E01 · VC2HG6S02 .E03). With an adult, find the QuickStats page for YOUR local area on a safe site. Collect three numbers that answer a question you choose, and organise them into a table like Example 1 — with the source and the date you viewed it.

Q11. Ask people (VC2HG6S02 .E04). Pick one plan or issue people near you talk about (a new crossing, a park upgrade, a shop closing). Write either three survey questions (the same for everyone) or two interview questions (for one person who knows a lot). Say who you would ask, and why.

Q12. A hazard row (VC2HG6S02.E06 · VC2HG6S02.E03). From a safe source, find one recent bushfire or climate hazard in Australia. Record one table row — event, when, where, what happened, source — with the viewed date. Then locate the place on a digital map app and drop a pin.

Fieldwork task — our local area

This is the doing part of 3B. The fieldwork itself is the task.

1. With your class, pick **one question** about the area around your school. (Example: *what do people use our local park for?* — play, sport, dog walking, sitting and talking.)
2. Choose your methods: a **tally on a walk**, a **short survey**, and **photos** (or drawings). Agree on safety rules with your teacher before you go.

3. Copy the record sheet below, or make your own like it.

My fieldwork record sheet

MODEL — copy this sheet for your own fieldwork.

Date: _____ **Place:** _____

My question:

How I collected (tick all you used):

☐

tally

☐

survey

☐

interview

☐

photos

☐

sketch map

What I saw and heard:

What I counted:

Thing	Tally	Number

Who I asked, and what they said:

My sketch (add a north point):

Sketch box



A blank fieldwork record sheet to copy: date, place, my question, how I collected (tick boxes for tally, survey, interview, photos, sketch map), lines for what I saw and heard, a small thing-tally-number table for what I counted, a line for who I asked and what they said, and a sketch box with a north point.

4. Go on the walk. Record everything as you go — tallies, notes, photos.

5. Ask five people your survey questions, using a sheet like the model below. Tick one box for each answer as you listen.

Survey: a park in our local area

MODEL — a made-up example. Write your own questions for your own place.

Ask each person the SAME questions. Tick one box for each answer.

1. Do you visit this park?

- ☐ Yes, most weeks
- ☐ Sometimes
- ☐ No

2. What do you usually do here?

- ☐ Play
- ☐ Sport
- ☐ Walk the dog
- ☐ Just sit and talk

3. What one change would make this park better?

After the survey: sort the ticks into a tally table, like the one in the organising picture.

A model survey sheet about a park in our local area, labelled MODEL — write your own questions for your own place. It asks: do you visit this park? (yes most weeks, sometimes, no); what do you usually do here? (play, sport, walk the dog, just sit and talk); and what one change would make this park better? A footer says: after the survey, sort the ticks into a tally table like the one in the organising picture.

6. Back in class, **organise**: sort your survey ticks and your tally into one tidy table, like the organising picture above.
7. Locate your walk on a digital map app and drop a pin where you collected (VC2HG6S02.E03).
8. Keep your record sheet, your table and your pin safe — in 3C you will show what you collected in new ways.

Possible answers

Answers will be different in every class. These show the shape of a good response.

Q1. Primary (we gather): 1, 3, 5, 7. Secondary (made earlier): 2, 4, 6, 8.

Q2. 1 — a tally on a walk: we can see the bins and count them. 2 — a survey: many people answer the same question. 3 — an interview: one person who knows can tell the whole story. 4 — a secondary source (census data): the count is far too big for us to do, and the census already did it.

Q3. 1 — a globe: it shows the whole world and where Australia sits. 2 — a wall map: big distances across Victoria are all visible at once. 3 — a digital map app: a pin marks just where you stood.

Q4. (1) 271,057 people. (2) 39 years. (3) England (3.2%). (4) The ABS made the page earlier from the census; we find it and use it — we did not gather it ourselves.

Q5. walk 7, car 5, bus 3, bike 3 — total 18. (Check: $7 + 5 + 3 + 3 = 18$.)

Q6. (1) Any one of: it finishes the ring road; it carries about 100,000 vehicles a day with easier access for freight; it takes pressure off local roads like Fitzsimons Lane. (2) Any one of: it could divide communities and cut through open space; four councils took legal action in 2020; the cost grew from 10,000 million dollars to 26,100 million dollars. (3) From 10,000 million dollars (2016) to 26,100 million dollars (2023). (4) So the reader hears both sides and can weigh the reasons — a one-side sum-up is not fair.

Q7. *Who made it?* — no name is given, so we cannot tell. *When was it made?* — no date, so we cannot tell if it is new or old. A page that cannot answer these two questions is not yet a source we can trust.

Q8. (1) The 2019-20 season (“Black Summer”). (2) 46 homes. (3) 14,027 hectares. (4) So anyone can check the facts — a source line lets the reader find the same place and see the same numbers.

Q9–Q12. Answers will be different. A good response has one clear question about a real place near the school (Q9), a method that fits it, and a way to record. Q10 has a three-row table with real numbers, a named source and a viewed date. Q11 has survey questions that are the same for everyone, or interview questions for one person who knows a lot, plus a sensible choice of who to ask. Q12 has one true hazard row with a source and viewed date, and a pin in the right place on the map.

Fieldwork task. Look for: one clear question; methods that fit; a record sheet filled in on the walk; a survey asked of five people with ticks sorted into a tally table; and a pin marking where the collection happened — all ready for 3C.

Next in Chapter 3: **3C** takes everything we collected and represents it — maps with a title, a north point and a key, tables and graphs — and looks for patterns.

Showing what you find: maps with BOLTSS, graphs, tables and sketches

Geographers are always collecting information — numbers about people, notes about places, lists of what a place sells and buys. But a pile of notes only helps you once other people can read it. In this section you will learn to turn information into shapes people can read quickly: graphic organisers, tables, graphs, sketches and maps. You will also learn the six map rules called BOLTSS, so that any map you make can be read by anyone who picks it up.

Word watch

Word	Meaning
BOLTSS	The six things every good map has: B order, O rientation, L egend, T itle, S cale, S ource.
cartographic conventions	The agreed map-making rules, like BOLTSS. A convention is just the way everyone agrees to do something.
graphic organiser	A diagram that sorts out your thinking — flow charts, consequence wheels, Venn diagrams and more.
flow chart	A graphic organiser that shows steps in order, with arrows.
consequence wheel	A graphic organiser with one decision in the middle and everything that follows spread around it.
flow map	A map with arrow lines. A thicker line means a stronger link between places.
interconnection	A link between places — people, goods, money or ideas moving between them.
export	Something made or grown in one country and sold to another country.
fieldwork	Visiting a real place to watch, measure and collect information yourself.
field sketch	A quick drawing of a place made during fieldwork, with labels doing the explaining.
geospatial technologies	The digital tools that help us find where things are and map them — like satellite pictures and mapping apps.
small-scale map	A map of a big area with less detail, like a map of all of Australia.
large-scale map	A map of a small area with lots of detail, like a map of a city centre.
data	Facts and numbers that have been collected.

Teaching sequence (teacher-facing)

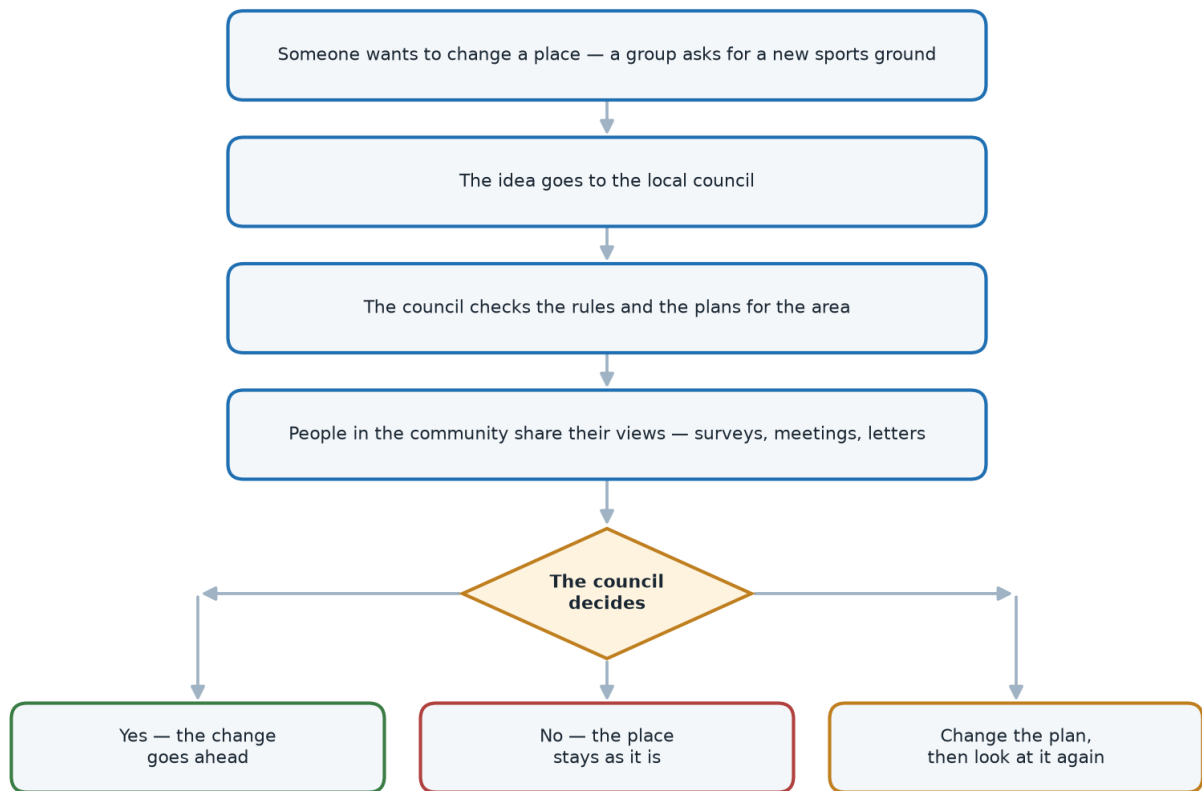
1. Start with sorting, not mapping: flow chart and consequence wheel (Figures 1–2) — organisers as thinking tools before representation.
2. Tables and graphs as “dressed-up data”: model table and column graph, each with notes (Figures 3–4), then a line graph read for change over time (Figure 5).
3. BOLTSS poster (Figure 6) as the checklist every later map is held against; discuss why each convention helps a reader.
4. Scale pair (Figure 7) to fix the large-scale/small-scale mix-up before students build maps.
5. Worked flow map of Australia’s goods exports (Figure 8) — teacher builds it think-aloud with the BOLTSS checklist; students then check it against the checklist.
6. Field sketch model (Figure 9) closes the loop: sketches carry title, date and direction like a mini-BOLTSS.
7. Students construct their own BOLTSS flow map from the Victoria exports table in the task.

Sort it first: graphic organisers

Before geographers draw a map or a graph, they sort out what they know. A graphic organiser is a diagram that does the sorting for you. Two organisers you will use a lot are the flow chart and the consequence wheel.

A **flow chart** shows steps in order. Boxes hold the steps, a diamond holds the decision, and arrows show which way to go next.

Flow chart: how a decision about a local place can happen



drawn for this book

A flow chart showing how a decision about changing a local place happens: four step boxes joined by arrows, a decision diamond reading “The council decides”, and three outcome boxes for yes, no, or change the plan and look again.

Figure 1 — A flow chart turns a long story into steps you can follow.

A **consequence wheel** starts with one decision in the middle and spreads out everything that might follow. It helps you see that one change touches many things.

Consequence wheel: the council plans a new shopping centre

One decision in the middle — many consequences spreading out from it.



A consequence wheel with the decision “The council builds a new shopping centre” in a circle at the centre and six consequence boxes around it, each tagged good, watch or not sure yet, with a key for the three tags.

Figure 2 — One decision, many consequences. Tagging each one (good / watch / not sure yet) is the sorting.

Other organisers do other jobs: a Venn diagram sorts what two places share and do not share; a futures timeline lines up what might happen sooner and later; decision-making matrixes give each choice a score; and a bibliography template keeps your sources in order so you never lose where a fact came from.

Tables: neat rows and columns

A table lines data up so you can compare it with your eyes. Here is real data about **net overseas migration** — the number of people Australia gained from overseas migration in a year — by country of birth.

Net overseas migration to Australia, 2024-25 — top 8 countries of birth	
Country of birth	Net overseas migration (people)
India	57,410
China	35,160
United Kingdom	25,620
New Zealand	24,320
Philippines	19,440
Nepal	16,310
Sri Lanka	12,430
Bangladesh	11,280

Source: ABS, Overseas Migration, 2024-25 financial year, Table 1.1 (released 19 December 2025). Retrieved 25 August 2026.

This is how a table you make should look — neat, labelled, and honest about its data.

A model table titled “Net overseas migration to Australia, 2024–25, top 8 countries of birth” with eight rows from India (57,410) down to Bangladesh (11,280), and five notes pointing out the title, the column headings with units, the rows sorted from biggest to smallest, the same unit in every row, and the source line.

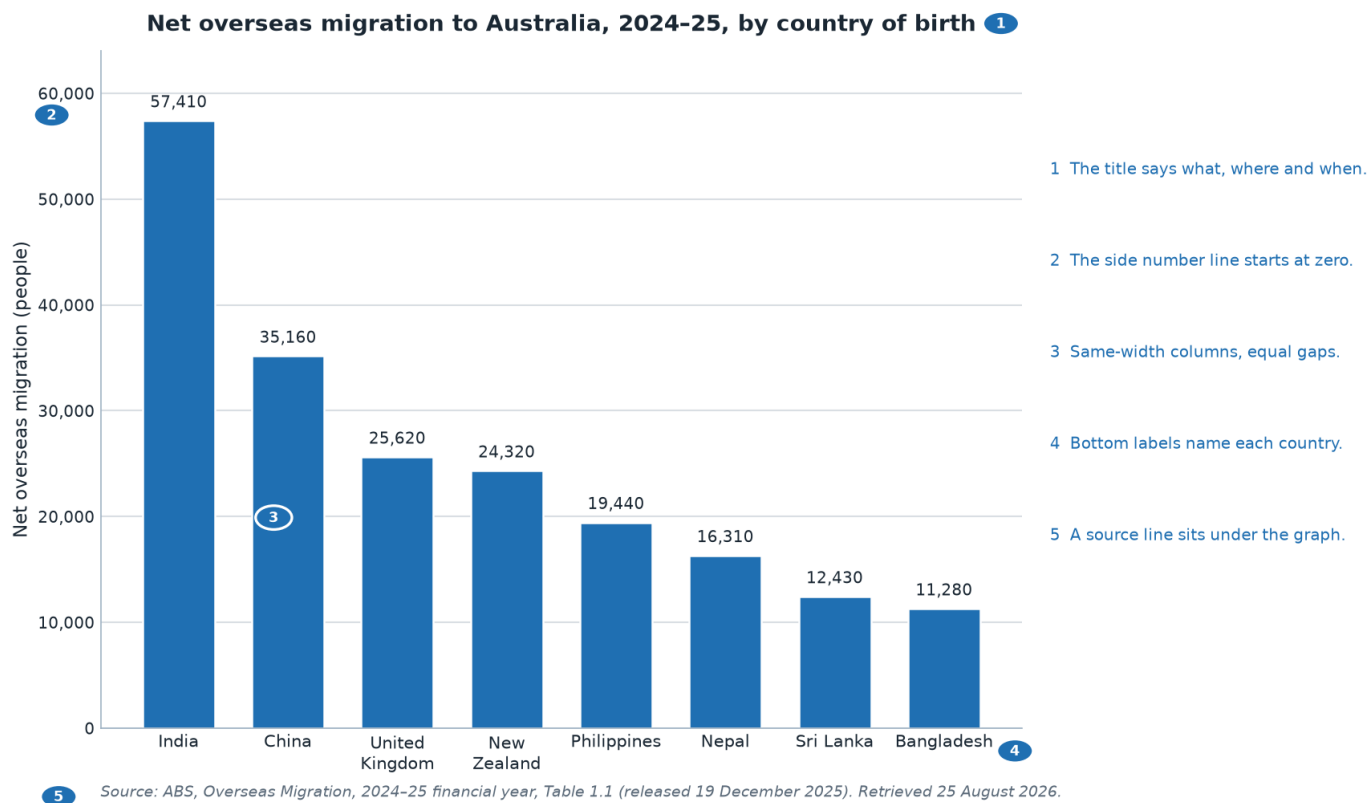
Figure 3 — A model table. The five notes are the checklist for any table you make. Source: ABS, Overseas Migration, 2024–25 financial year, Table 1.1.

The five notes matter:

1. A **title** says what, where and when.
2. **Column headings** name each part and its unit.
3. **Rows sorted** from biggest to smallest help a reader see the order at a glance.
4. The **same unit** in every row makes the comparison fair.
5. A **source line** tells an honest reader where the data came from.

Graphs: pictures of numbers

A graph turns the same numbers into shapes your eye can compare. The table above becomes a column graph:



A column graph of net overseas migration to Australia in 2024–25 for eight countries, with value labels above each column and five numbered notes: the title says what, where and when; the side number line starts at zero; same-width columns with equal gaps; bottom labels name each country; a source line sits under the graph.

Figure 4 — The same data as Figure 3, now as shapes. Source: ABS, Overseas Migration, 2024–25 financial year, Table 1.1.

Column graphs are for **comparing sizes**. Line graphs are for **change over time**. This line graph shows short-term visitor arrivals to Australia for 26 years:



A line graph of short-term visitor arrivals to Australia each year from 2000–01 to 2025–26, rising from about 5 million to 9.34 million, dropping almost to zero in 2020–21, then climbing to 9.1 million in 2025–26, with both of those years labelled.

Figure 5 — Change over time is a line graph’s job. Source: ABS, Overseas Arrivals and Departures, Australia, 2025–26.

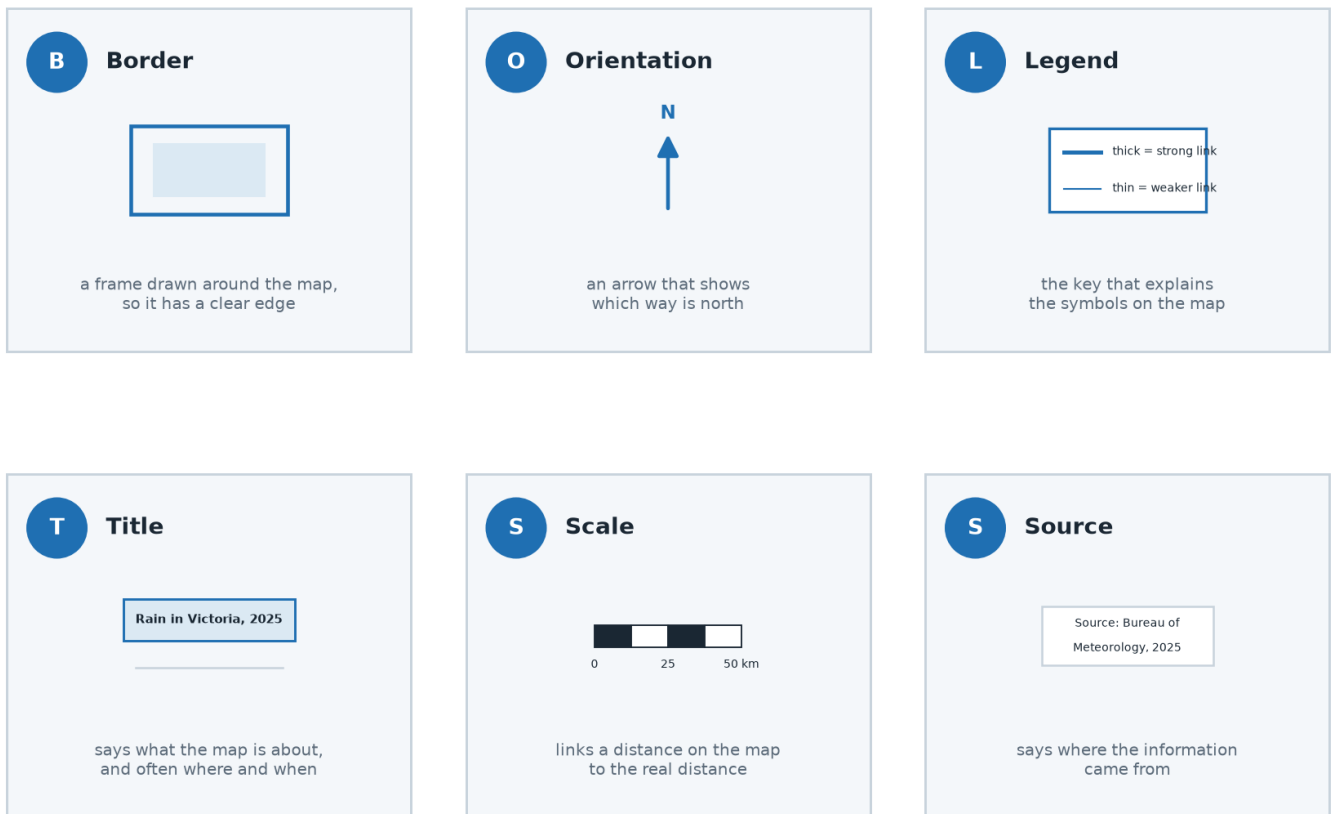
Read the story in the line: arrivals climbed for many years, almost stopped in 2020–21 when the world closed its borders, then climbed back to 9.1 million in 2025–26 — near the old high of 9.34 million set in 2018–19.

Maps: BOLTSS every time

A map is a representation of a place, and like tables and graphs it only works if the reader knows the rules. Map makers around the world agree on six **cartographic conventions**, and the first letters spell BOLTSS.

BOLTSS — six cartographic conventions for every map

Check all six every time you make a map.



BOLTSS = Border, Orientation, Legend, Title, Scale, Source · drawn for this book

A poster of the six BOLTSS cartographic conventions in six tiles — Border, Orientation, Legend, Title, Scale, Source — each tile with a letter badge, a small picture of the convention and a one-line meaning.

Figure 6 — The BOLTSS poster. Check all six every time you make a map.

Why do the conventions make maps easier to read?

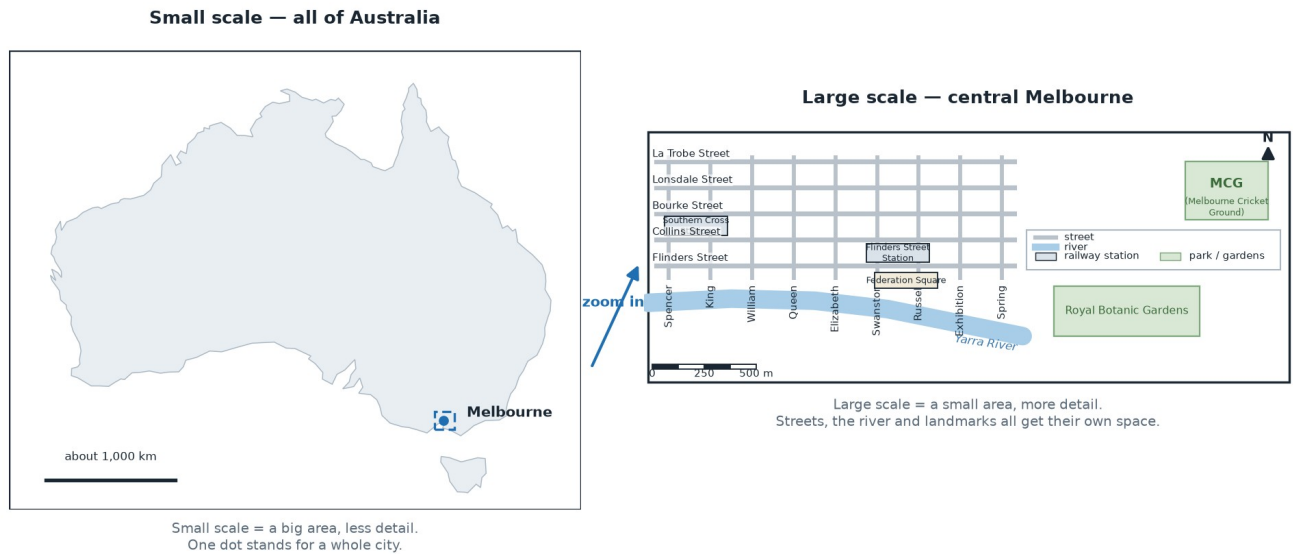
- The **border** tells your eye where the map stops.
- The **orientation** arrow stops everyone guessing which way is north.
- The **legend** unlocks the symbols, so one map can carry lots of information.
- The **title** says what the map is about before you read a single symbol.
- The **scale** links map distance to real distance, so you can tell how big things really are.
- The **source** lets the reader check where the information came from.

Because every map maker uses the same six, a map made in Melbourne can be read by someone who has never been to Australia. That is the whole point of a convention.

Big area or small area? Scale

Scale is the trickiest convention, because the words mean the opposite of what you expect. A **small-scale map** squeezes a big area into the page, so each place is tiny and detail is lost. A **large-scale map** blows up a small area, so there is room for streets and landmarks.

Two maps of the same place — different scales



Coastline: Natural Earth · drawn for this book

Street layout kept simple · drawn for this book

Two maps side by side: on the left a small-scale map of all of Australia with Melbourne marked as one dot and a dashed box around it; on the right a large-scale map of central Melbourne showing the Hoddle Grid streets, the Yarra River, two railway stations, Federation Square, the MCG and the Royal Botanic Gardens, with a north arrow, legend and 0–500 m scale bar.

Figure 7 — Same place, two scales. The dashed box on the left is the whole of the map on the right. Coastline: Natural Earth; street layout kept simple, drawn for this book.

Choose the scale for the job: to show where Melbourne sits in Australia, use the small-scale map; to walk someone from Flinders Street Station to the MCG, use the large-scale one.

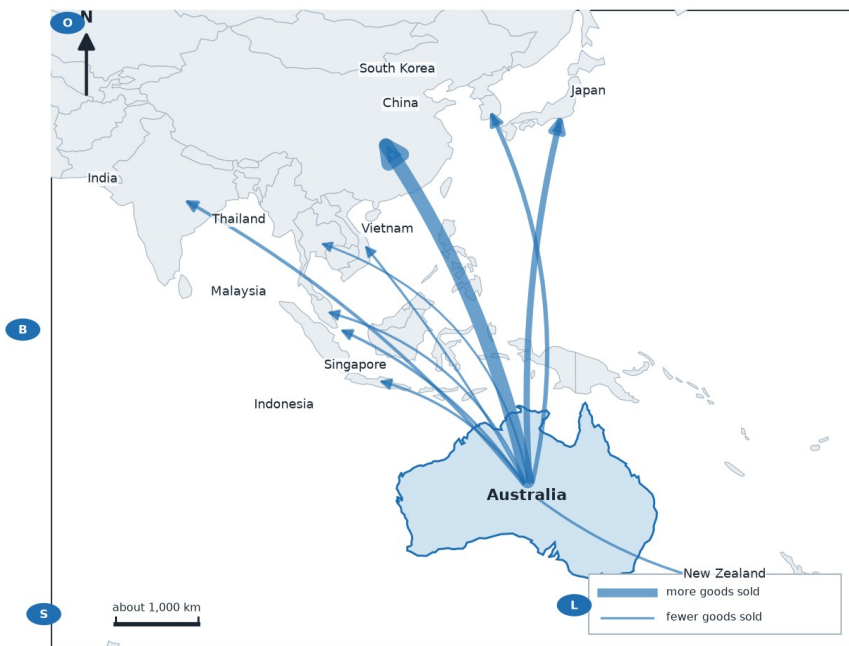
Flow maps: drawing interconnections

Australia is linked to many countries by the goods it sells. A **flow map** draws those interconnections as arrow lines, and the line thickness carries the information: thicker line, stronger link. Here is a flow map built to BOLTSS — find all six parts on it.

T

Flow map: where Australia sold goods, 2024-25

Goods exports to ten countries, July 2024 to June 2025. Line thickness shows how much was sold.



Goods exports by destination, 2024-25 (\$ million)

China	169,907
Japan	64,907
South Korea	38,015
India	23,783
Singapore	15,968
Indonesia	12,908
New Zealand	12,648
Malaysia	11,220
Vietnam	10,193
Thailand	6,824

The United Kingdom (\$14,685 million) is also in the top ten, but it sits far to the west, off this map.

S

Source: ABS, International Trade in Goods (cat. 5368.0), Table 14a, July 2024-June 2025. Coastlines: Natural Earth. Retrieved 25 August 2026.

Thicker line = more goods sold. Can you find all six BOLTSS parts on this map?

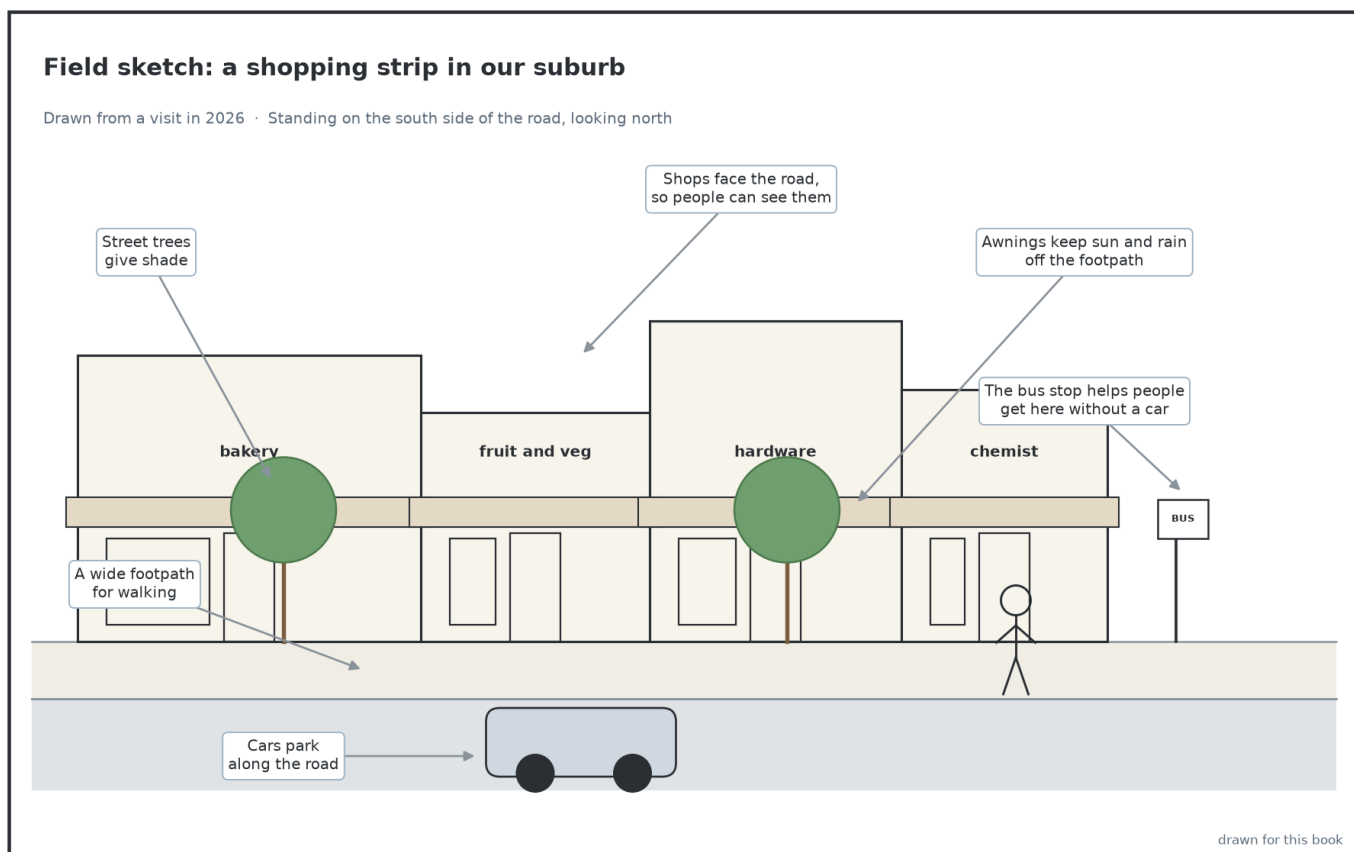
A flow map of Australia's goods exports to ten countries in 2024–25, drawn from Australia to China, Japan, South Korea, India, Singapore, Indonesia, New Zealand, Malaysia, Vietnam and Thailand, with line thickness showing how much was sold, a north arrow, border, legend, scale bar and source line, letter badges marking the six BOLTSS parts, and a side table listing each country's value in millions of dollars.

Figure 8 — A BOLTSS flow map of Australia's goods exports, 2024–25. The thickest line runs to China, Australia's biggest goods customer. Source: ABS, International Trade in Goods (cat. 5368.0), Table 14a.

Geospatial technologies make maps like this faster and sharper: satellites and shipping trackers feed the numbers into mapping software, and the map maker still applies the same six conventions so people can read it.

Field sketches

Not every representation is neat and digital. In **fieldwork** you often draw a **field sketch** on the spot: a quick drawing of what is in front of you. It does not need to be art — the labels do the work. A good sketch carries a title, the date, and the way you were facing, and points labels at the features that matter.



A model field sketch of a shopping strip seen from across the road: a frame, a title, the date and the direction faced, then a row of four labelled shops with awnings, two street trees, a footpath, a parked car, a person and a bus stop, each with a label and arrow.

Figure 9 — A model field sketch. Title, date, direction and labels make a quick drawing into useful data.

Notice the sketcher's choices: only the features that tell the story are drawn (shops, shade trees, parking, the bus stop), and each gets a label.

Worked examples

Example 1 — Building a flow map with BOLTSS, step by step

The job: show how strongly Australia was linked to three countries by goods sold in 2024–25: China \$169,907 million, Japan \$64,907 million, India \$23,783 million. (Source: ABS, International Trade in Goods, Table 14a.)

1. **Border** — draw a frame. The map now has an edge your eye can trust.
2. **Orientation** — add the north arrow at the top.
3. **Title** — “Australia’s goods exports to China, Japan and India, 2024–25”. The title carries the what and the when.
4. **Scale** — this map is small-scale (a big area), so add a rough scale bar, “about 1,000 km”.
5. **Source** — write “Source: ABS, International Trade in Goods, 2024–25” under the map.
6. **Legend** — explain the line code: “thicker line = more goods sold”.
7. **Draw the flows** — the thickest arrow to China, a medium one to Japan, the thinnest to India.

Check: a reader who missed every lesson could still say which link is strongest, which way is north, roughly how far away the countries are, and where the numbers came from. That is what the six conventions bought us.

Example 2 — From messy notes to a table to a graph

The job: a student’s field notes read: “asked the teacher about migration numbers — China 35,160, India 57,410, Philippines 19,440, Nepal 16,310, New Zealand 24,320 (people, net overseas migration, 2024–25, ABS Table 1.1)”. Messy!

1. **Sort into a table.** Title on top; headings “Country of birth” and “Net overseas migration (people)”; rows sorted biggest to smallest: India 57,410; China 35,160; New Zealand 24,320; Philippines 19,440; Nepal 16,310. Source line underneath.
2. **Turn it into a column graph.** Number line up the side starting at zero; one column per country, same width, equal gaps; labels under each column; title on top; source underneath.
3. **Read it back.** The graph shows India clearly ahead of China — the gap you had to calculate in the notes is now something you can *see*.

The information never changed. Only its clothes changed — and now it can be read in five seconds.

Practice questions

Questions with help

Q1. Spell check! BOLTSS is six words. You have the first letters: B = Border, O = Orientation, L = Legend, T = ?, S = ?, S = ?. Finish the last three.

Q2. Match each convention to its job. (a) Legend, (b) Orientation, (c) Scale, (d) Source. Jobs: (i) stops you guessing which way is north; (ii) says where the information came from; (iii) unlocks the symbols; (iv) links map distance to real distance.

Q3. These flow chart steps are out of order. Number them 1–4: (a) The council decides; (b) Someone asks for a change to a place; (c) The council checks the rules and plans; (d) People in the community share their views.

Q4. Look at the consequence wheel (Figure 2). Add two consequences of your own for “the council builds a new shopping centre” and tag each one good, watch or not sure yet.

Q5. A student’s table has no title, no unit in the headings, and rows in a random order. Use the five notes from Figure 3 to say what to fix.

Q6. Read Figure 4. (a) Which country had the most net overseas migration in 2024–25, and how many people? (b) How many more people than China is that?

Q7. Read Figure 5. (a) Which year had the most short-term visitor arrivals, and how many? (b) What happened in 2020–21, and how can you tell from the line?

Q8. Choose the right map: (a) showing a friend where Melbourne is in Australia; (b) walking from Flinders Street Station to the MCG. Which panel of Figure 7 fits each job, and why?

Questions on your own

Q9. Pick three BOLTSS conventions and, for each, write one sentence on why maps are harder to read without it.

Q10. Use the flow map (Figure 8). Name the strongest link shown and the weakest link shown. Is Australia’s goods trade with China more or less than double its trade with Japan? Show your thinking with the numbers in the side table.

Q11. Choose the better organiser and say why: (a) sorting the good and bad effects of a new sports ground; (b) setting out the steps for a class clean-up day.

Q12. You field-sketch the street outside your school. List four features you would label, and write the title, date and direction you would put at the top.

Task — make your own BOLTSS flow map

Victoria sells goods to countries all around the Pacific. Here is the real data for the 2024–25 financial year, in millions of dollars:

Country	Victoria’s goods exports (\$ million)
United States	6,901
China	5,981
New Zealand	2,726

Country	Victoria's goods exports (\$ million)
Japan	2,425
South Korea	1,588
Indonesia	1,276
Malaysia	1,195

Source: ABS, International Trade in Goods (cat. 5368.0), Table 36b, July 2024–June 2025.

T1. Copy the table data into your own neat table, sorted from biggest to smallest, with a title, headings with the unit written in, and the source line.

T2. On a blank map of the Asia–Pacific (or one you draw), construct a flow map from Victoria to these seven countries. Line thickness must show how much was sold. Give the map all six BOLTSS parts.

T3. Swap with a partner and check their map against the BOLTSS checklist. For each missing part, write one sentence on how it would make their map harder to read.

T4. Under your map, write two or three sentences saying what the map shows about Victoria's links with the region, using at least two numbers from your table as evidence.

Answers

Q1. Title, Scale, Source.

Q2. (a)–(iii), (b)–(i), (c)–(iv), (d)–(ii).

Q3. 1 = (b), 2 = (c), 3 = (d), 4 = (a).

Q4. Answers will vary. A good answer names a consequence that really follows from the decision and tags it sensibly — for example, “more litter around the centre on weekends” (watch) or “a new meeting place for the community” (good).

Q5. Add a title (what, where, when); put the unit in the column headings (people); sort the rows from biggest to smallest. (The student already had a source line and one unit throughout.)

Q6. (a) India, 57,410 people. (b) $57,410 - 35,160 = 22,250$ more people.

Q7. (a) 2018–19, with 9.34 million arrivals (2025–26 ran close at 9.1 million). (b) Arrivals almost stopped — the line falls nearly to zero, because borders closed and travel shut down.

Q8. (a) The small-scale map (left) — the job is “where in Australia”, so a big area with less detail is right. (b) The large-scale map (right) — the job is a walk, so streets and landmarks matter.

Q9. Example of good reasoning: without a legend the symbols are a secret code; without orientation north is a guess; without a source the reader cannot check the information.

Q10. Strongest link: China (\$169,907 million). Weakest shown: Thailand (\$6,824 million). Double Japan is $64,907 \times 2 = 129,814$, and 169,907 is bigger than that — so yes, more than double.

Q11. (a) Consequence wheel — the job is spreading effects out and tagging them. (b) Flow chart — the job is steps in order.

Q12. Answers will vary. A good answer labels features actually visible (for example: crossing, bus stop, oval, shops, trees) and puts a title that says what and where, the date, and the way faced (for example, “looking north”).

Task checks. T1: sorted rows, unit written in, title, source. T2: seven flows with matching thicknesses plus Border, Orientation, Legend, Title, Scale, Source. T4: a claim plus at least two numbers used as evidence (for example, “The United States is Victoria’s biggest goods customer at \$6,901 million — ahead of China at \$5,981 million”).

Model answers

Model for Q9 (one convention, one sentence): “Without a scale, the reader cannot tell whether the place is as big as a paddock or as big as a state — the map shows shape but not size.” A strong sentence names the convention, then says exactly what the reader loses.

Model for T4 (evidence-based writing): “The map shows that Victoria’s strongest goods link in 2024–25 was with the United States at \$6,901 million, just ahead of China at \$5,981 million. The links get quickly weaker after the top two — Malaysia’s \$1,195 million is less than a fifth of the United States figure. So most of Victoria’s goods flow to a few big customers around the Pacific.” Notice the move: claim → evidence (numbers) → what it means.

Model BOLTSS self-check for the task map: border drawn and neat · north arrow present · legend explains line thickness · title says what, where, when · scale bar gives a rough distance · source line names the ABS table. Tick all six before you call the map finished.

Curriculum traceability (teacher-facing; not student text)

Content description owned: VC2HG6S03 (Geographical Skills, Geographical inquiry).

Elaborations drawn on (illustrative, per TOC decision D10):

- VC2HG6S03.E01 → taught: flow chart and consequence wheel (Figures 1–2, Q3–Q4, Q11); futures timelines, Venn diagrams, matrixes and bibliography templates named as tools with their jobs.

- VC2HG6S03.E02 → taught: Figure 8 worked flow map, Example 1, the BOLTSS discussion list, Q9–Q10; constructed by students in the Task (T1–T4).
- VC2HG6S03.E03 → taught: large-scale/small-scale pair (Figure 7), flow map (Figure 8), geospatial technologies paragraph; migration and trade data used throughout.

Achievement Standard: shared with 3D (TOC §2 maps the sentence) → exercised in Q6–Q8 and Q10 (reading graphs and maps) and T4 (writing with evidence).

Section decisions honoured: one CD per section (D2); elaborations as illustrations, not syllabus (D10); skills taught through real content (D11); en-AU spelling and no level tags in student text (D12); no Aboriginal and Torres Strait Islander content required or included here (D5, per TOC §2A).

Sources (retrieved 25 August 2026):

- ABS, *Overseas Migration, Australia, 2024-25 financial year*, Table 1.1 (released 19 December 2025) — Figures 3–4, Example 2.
- ABS, *International Trade in Goods* (cat. 5368.0), Table 14a (national exports by destination) and Table 36b (Victoria exports by destination), July 2024–June 2025 — Figure 8, Example 1, Task.
- ABS, *Overseas Arrivals and Departures, Australia, 2025-26* (released 14 August 2026) — Figure 5.
- Natural Earth, 1:110m cultural vectors (coastlines in Figures 7–8).
- All nine figures are original, generated by `src/gen_3c_*.py` in this build tree.

Reading the data: patterns, trends, relationships and thematic maps

Geography 5 · Chapter 3 (Geographical inquiry) · Section 3D Strand: Geographical Skills · Sub-strand:

Geographical inquiry **This section owns:** VC2HG6S04 **Draws on:** .E01 .E02 .E04 .E05 .E06 (.E03 is not used in this section — see the book’s §2A register)

For the teacher — teaching sequence

1. **Hook (5 min).** Display Figure 3.1 with no explanation. Ask “What do you notice? What does the line tell you?” Record student noticings as a class list of data statements; keep the list for the evidence task at the end.
2. **Name the tools (15 min).** Teach Learn 1 and Learn 2: the three graph-reading steps, then the four thematic-map checks (Figure 3.6). Students then work Q1–Q4 (practice with help) in pairs, one graph each, reporting back with one pattern or trend sentence per graph.
3. **Model interpreting (10 min).** Run Demonstration 1 as a think-aloud over Figure 3.1, labelling each move (“title first... axes next... now the trend”). Introduce *infer* with the detective analogy in Learn 3.
4. **Thematic maps (20 min).** Teach Learn 4 and Learn 5 with Figures 3.5–3.7. Drill the four checks until automatic, then Q5–Q7 (practice with help). Point out that every map in this section carries a source line, and why (evidence you cannot check is evidence you cannot trust).
5. **Compare maps (10 min).** Learn 6 with Figures 3.8–3.9: lay the two maps side by side and ask “What lines up?” Q8 (with help) and Q12 (on your own) practise turning a match into a stated relationship with evidence from both maps.
6. **Assess.** Q9–Q12 (on your own) individually, then the evidence task (Q13) as the section’s writing assessment; use the look-for notes under Answers.

Working material: every dataset and map here is drawn from the Chapter 1–2 contexts (Australia’s population and where people live, rainfall and drought, birthplaces, life expectancy in the Asia-Pacific), as the section design requires. All values are real and carry source lines with retrieval dates. .E03 (maps of First Nations language groups) is excluded by the book’s content register; all contexts are neutral.

Learn 1 — What geographers look for

Data is information we collect: numbers, facts, maps and pictures. Geographers study data to find three things.

- A **pattern** is how something is arranged *across space* — where things are clustered together, spread out, or lined up.
- A **trend** is how something changes *over time* — rising, falling, or staying about the same.
- A **relationship** is a link between two things. When a pattern on one map lines up with a pattern on another, geographers ask *why*.

Three verbs do the work in this section. To **interpret** means to work out what the data means. To **analyse** means to study the data and ask “what is going on here?” To **infer** means to work out something the source does not say in words, using its evidence — the way a detective works from clues. (The thing you work out is called an **inference**.)

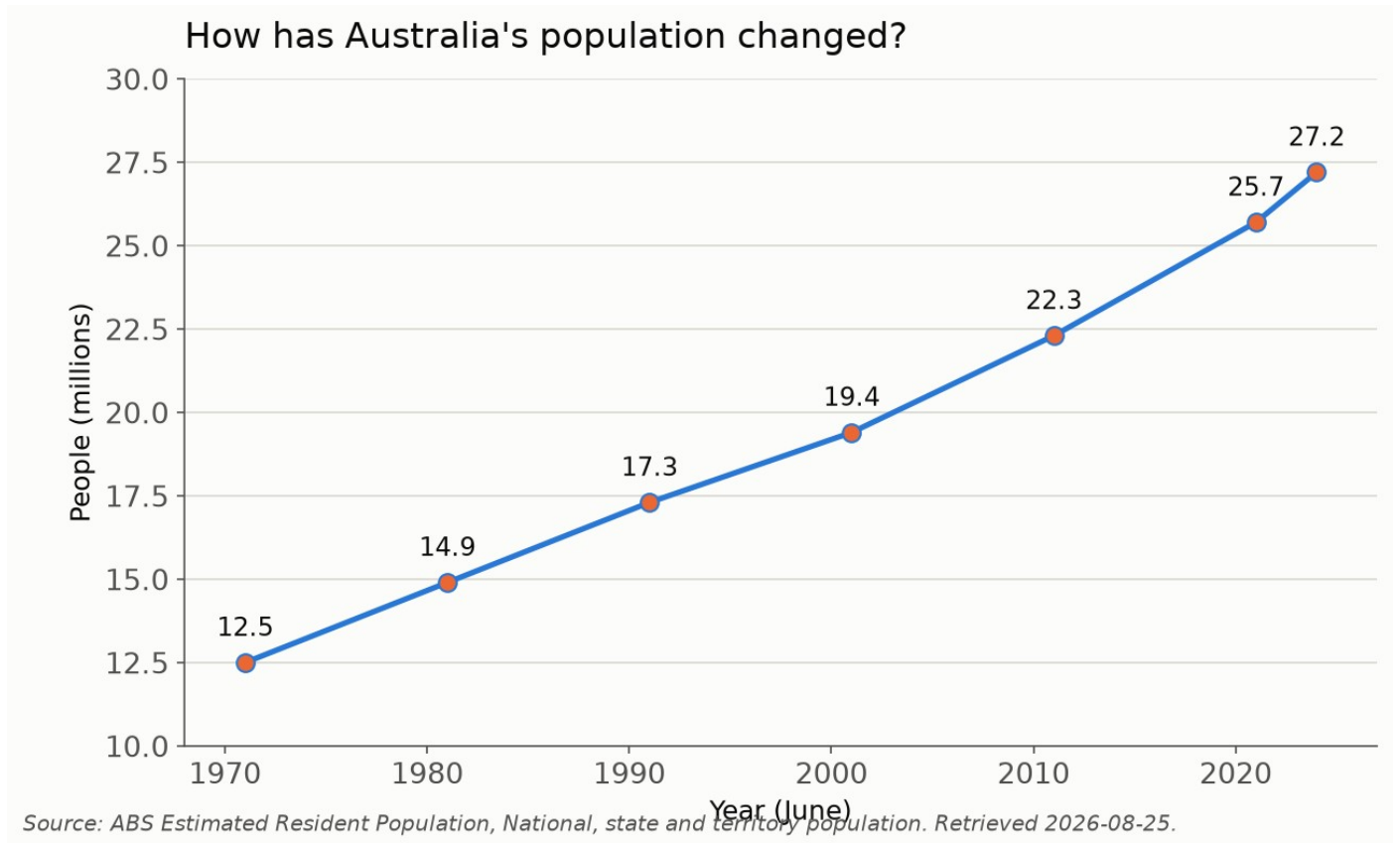
Learn 2 — Reading graphs: the three steps

Geographers meet data in four common shapes: a **line graph** (change over time), a **column graph** and a **bar graph** (comparing groups), and a **pie chart** (parts of a whole).

The three reading steps.

1. Read the **title**, the **key** and the axis labels (the words along the bottom and up the side of the graph) — what is shown, and in what units (years? millions? percent?).
2. Read off the values you need.

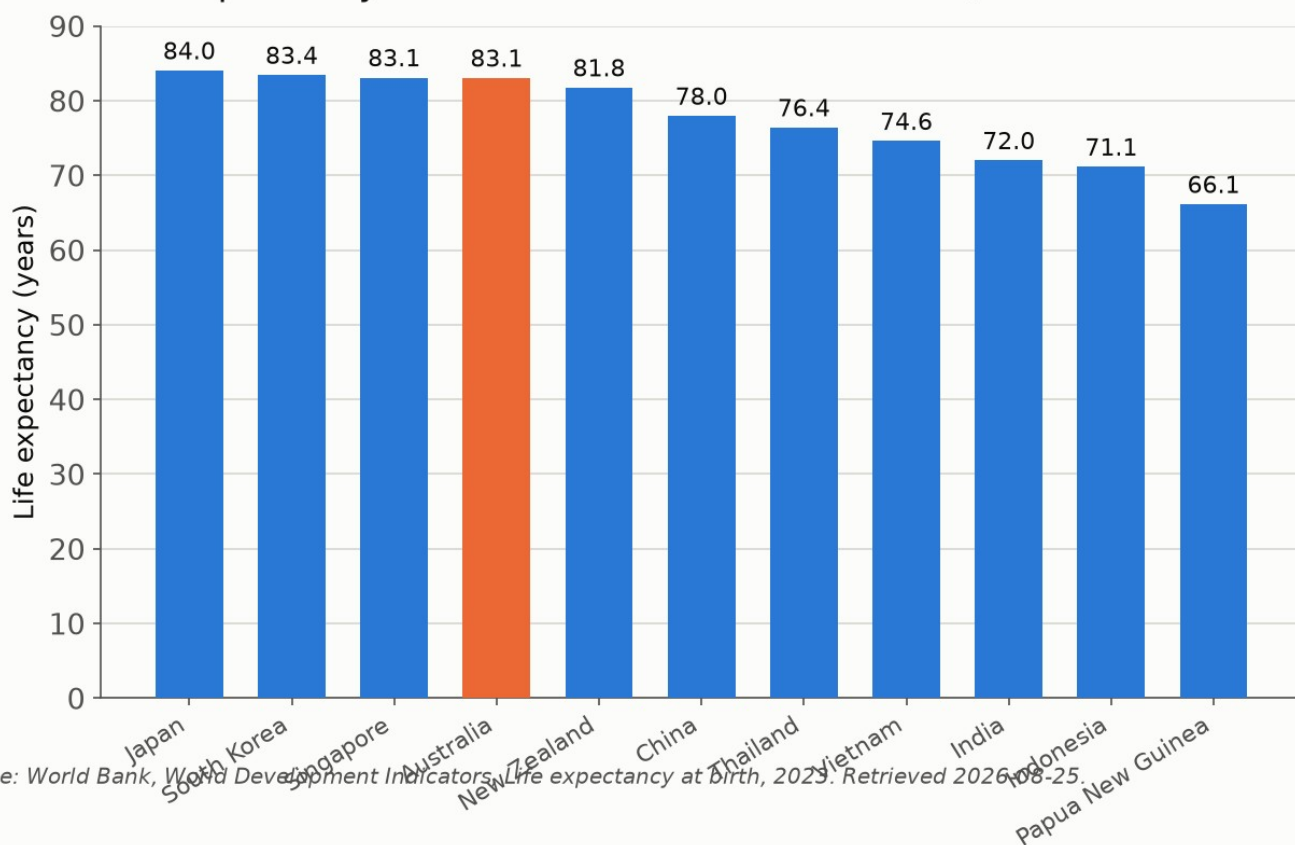
3. Describe the **pattern** or **trend** in one full sentence.



Line graph titled 'How has Australia's population changed?' with a point for each census year: 1971 (12.5 million), 1981 (14.9), 1991 (17.3), 2001 (19.4), 2011 (22.3), 2021 (25.7) and 2024 (27.2); the line climbs at every step.

Figure 3.1 — A line graph shows change over time. Australia's population climbed at every step from 1971 to 2024: a rising trend. (Source: ABS Estimated Resident Population. Retrieved 2026-08-25.)

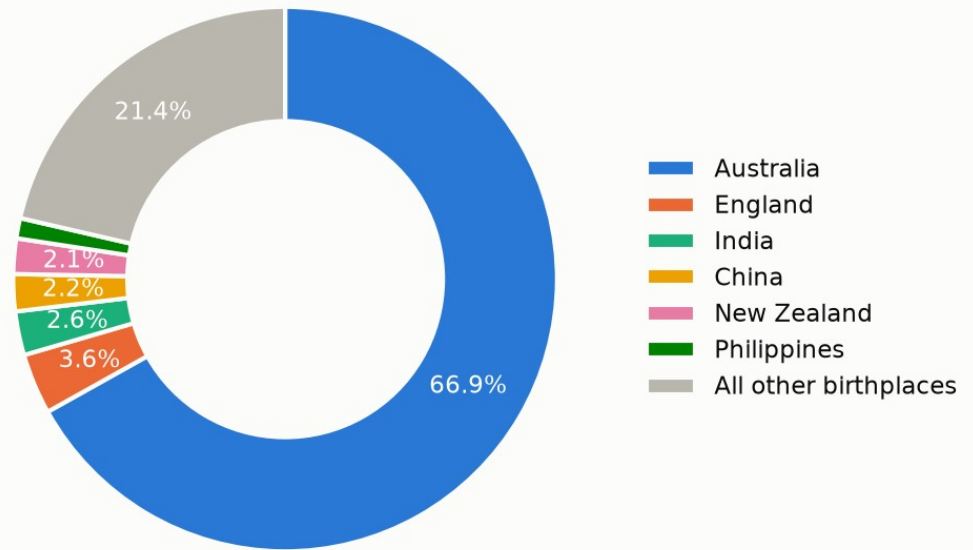
Life expectancy in selected Asia-Pacific countries, 2023



Column graph of life expectancy in 2023 for eleven Asia-Pacific countries, from Japan (84.0 years) at the top down to Papua New Guinea (66.1 years); Australia's column is picked out in orange at 83.1 years.

Figure 3.2 — A column graph compares groups. Life expectancy means how long a person can expect to live, on average. (Source: World Bank, World Development Indicators, 2023. Retrieved 2026-08-25.)

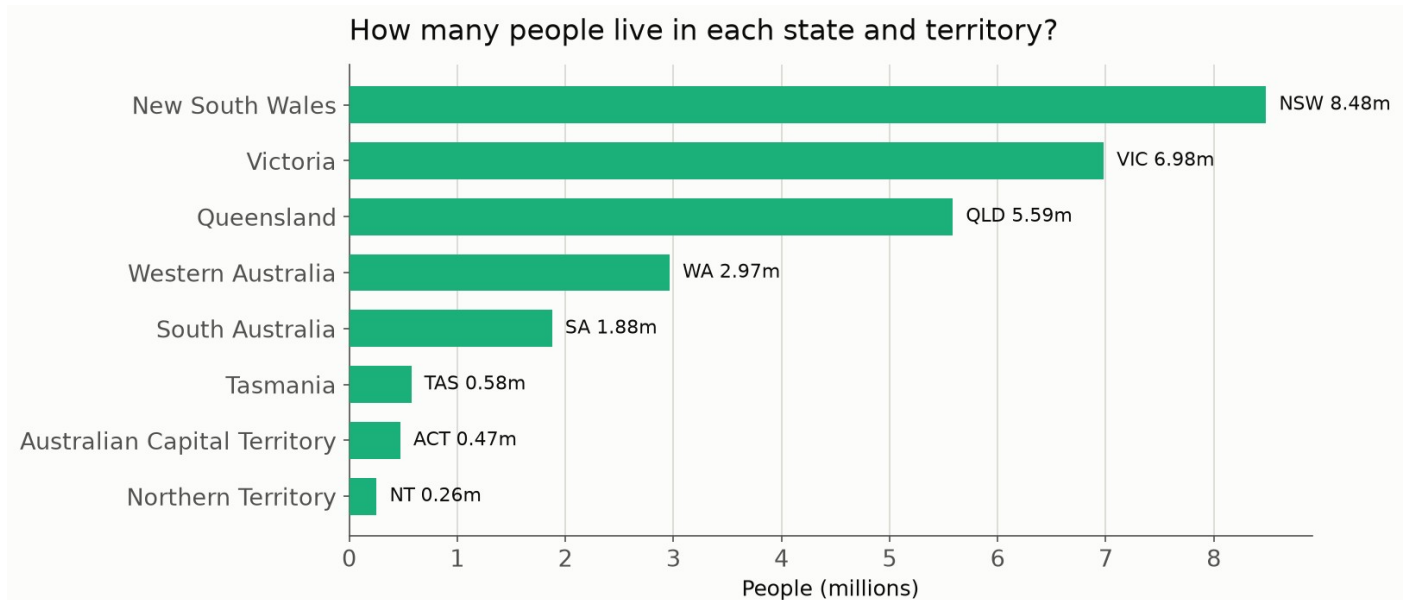
Where were the people counted in the 2021 Census born?



Source: ABS 2021 Census of Population and Housing, QuickStats (Australia), country of birth. Retrieved 2026-08-25.

Pie chart of where Australians were born, 2021 Census: Australia 66.9 percent, England 3.6, India 2.6, China 2.2, New Zealand 2.1, Philippines 1.2, and all other birthplaces 21.4.

Figure 3.3 — A pie chart shows parts of a whole (100 percent). Birthplace means the country a person was born in. The Census is Australia's official count of every person. (Source: ABS, 2021 Census. Retrieved 2026-08-25.)



Source: ABS, National, state and territory population, Jun 2024. Retrieved 2026-08-25.

Horizontal bar graph of the number of people in each Australian state and territory in 2024: New South Wales 8.48 million, Victoria 6.98, Queensland 5.59, Western Australia 2.97, South Australia 1.88, Tasmania 0.58, Australian Capital Territory 0.47, Northern Territory 0.26.

Figure 3.4 — A bar graph also compares groups; here the bars run sideways so the long names fit. (Source: ABS, National, state and territory population, Jun 2024. Retrieved 2026-08-25.)

Learn 3 — Inferring: reading between the lines

A source never says everything. **Inferring** is adding your own thinking to the evidence. A good inference is written as *evidence + thinking*: “The map shows _____, so I infer _____.”

Australia’s rain is very uneven: some places get ten times as much as others, and any place can get a run of much drier years than usual — a **drought**. Maps and photographs of dry country are evidence of how people respond. Farmers and towns in dry regions get through drought in clever ways: big water tanks, pipes that drip water straight onto plant roots, and crops that cope with little rain. The evidence (little rain) plus the thinking (people still grow food there) gives the inference: *people in dry places have found ways to manage with little water*.

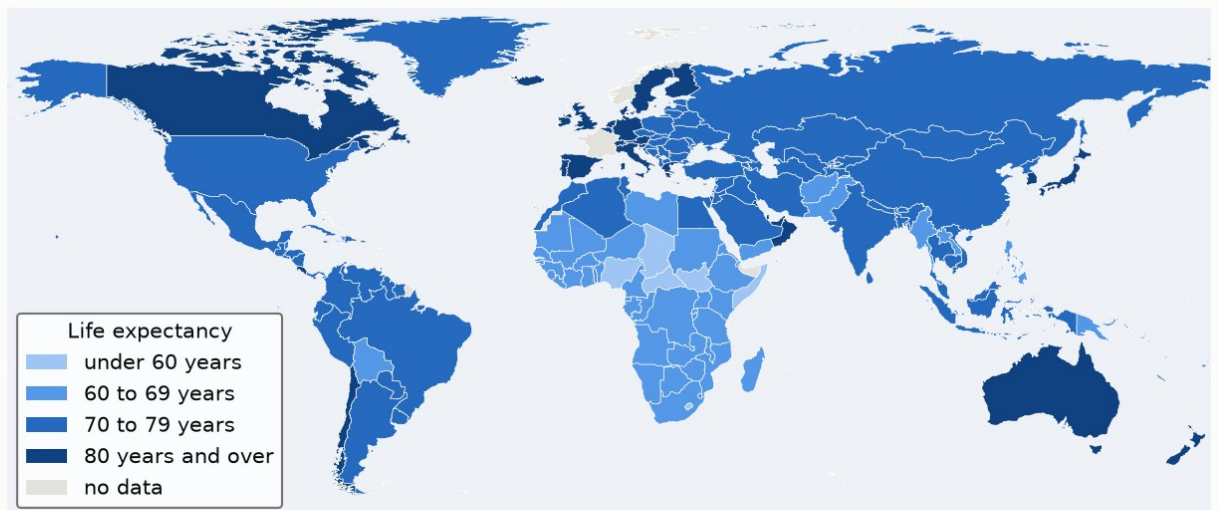
Learn 4 — Thematic maps 1: choropleth maps

A **thematic map** is a map about one topic: it draws data *onto* places. A **choropleth map** (say “KOR-o-pleth”) is a thematic map that shades each area a colour to show its value, with a key telling you what each shade means.

The four checks of a good map reader.

1. **Title** — what is the map about?
2. **Key** — what does each shade mean?
3. **One area** — pick one area, read its shade, and say its value band.
4. **Source** — where did the data come from?

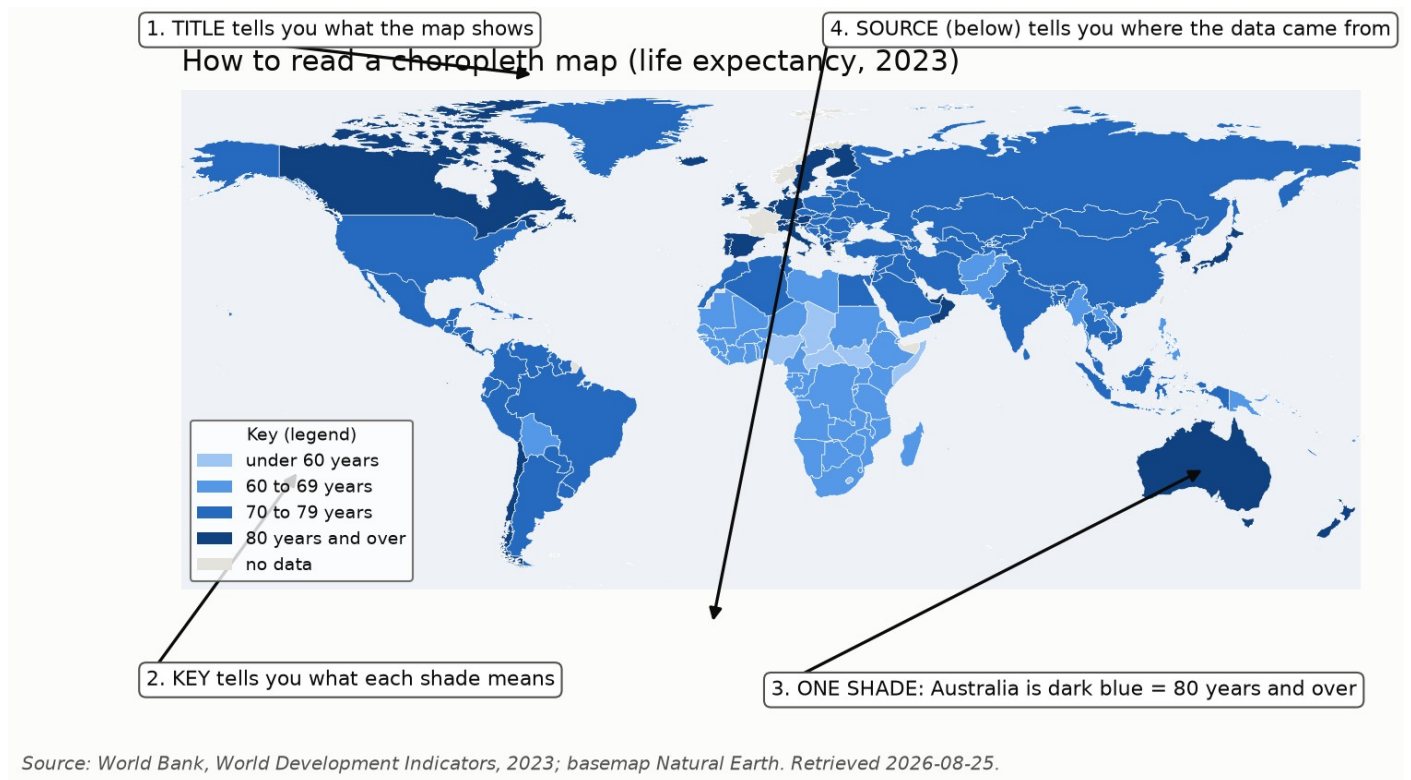
A choropleth map: how long do people live, on average?



Source: World Bank, World Development Indicators, 2023; basemap Natural Earth. Retrieved 2026-08-25.

World choropleth map shading every country by life expectancy in 2023, in four bands: under 60 years (palest blue), 60 to 69, 70 to 79, and 80 years and over (darkest blue); grey means no data.

Figure 3.5 — A choropleth map of life expectancy, 2023. Darker shade = longer lives. (Source: World Bank, World Development Indicators, 2023; basemap Natural Earth. Retrieved 2026-08-25.)



The same world choropleth map with four numbered callout arrows: 1 points to the title ('TITLE tells you what the map shows'), 2 to the key ('KEY tells you what each shade means'), 3 to Australia ('ONE SHADE: Australia is dark blue = 80 years and over'), 4 to the source line ('SOURCE tells you where the data came from').

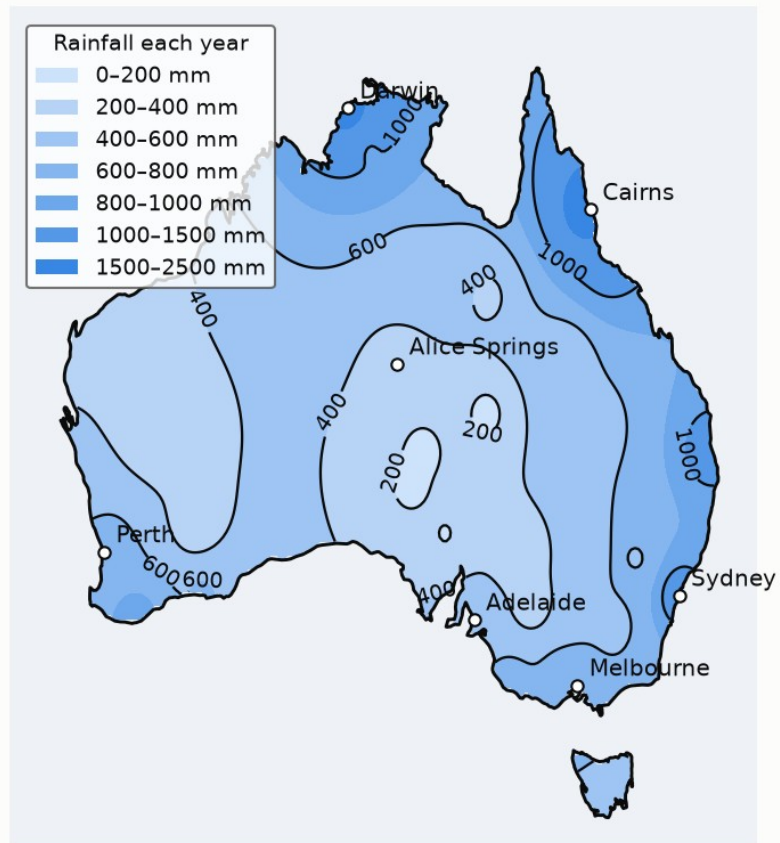
Figure 3.6 — The four checks in action on the choropleth map. Run these checks on every thematic map you ever meet. (Source: World Bank, World Development Indicators, 2023; basemap Natural Earth. Retrieved 2026-08-25.)

Choropleth maps are best for spotting **patterns between countries and continents**: on Figure 3.5 the darkest shade crosses whole continents (most of Europe, and North America), while the palest shade clusters in middle Africa. A pattern like that invites a *possible cause* — for example, places with reliable food, clean water and good health care tend to appear in the darker bands. The map shows the pattern; the cause is an inference, and a good geographer says so.

Learn 5 — Thematic maps 2: isopleth maps

An **isopleth map** (say "EYE-so-pleth") is a thematic map that joins places with equal values using lines called **isopleths**. On a rainfall map the lines are **isohyets** — each isohyet joins places that get the same mean (average) rainfall each year. Read the number on the line, and the colour wash between the lines, against the key.

An isopleth map: mean annual rainfall in Australia



Source: Bureau of Meteorology long-term climate averages (rounded); basemap Natural Earth. Retrieved 2026-08-25.

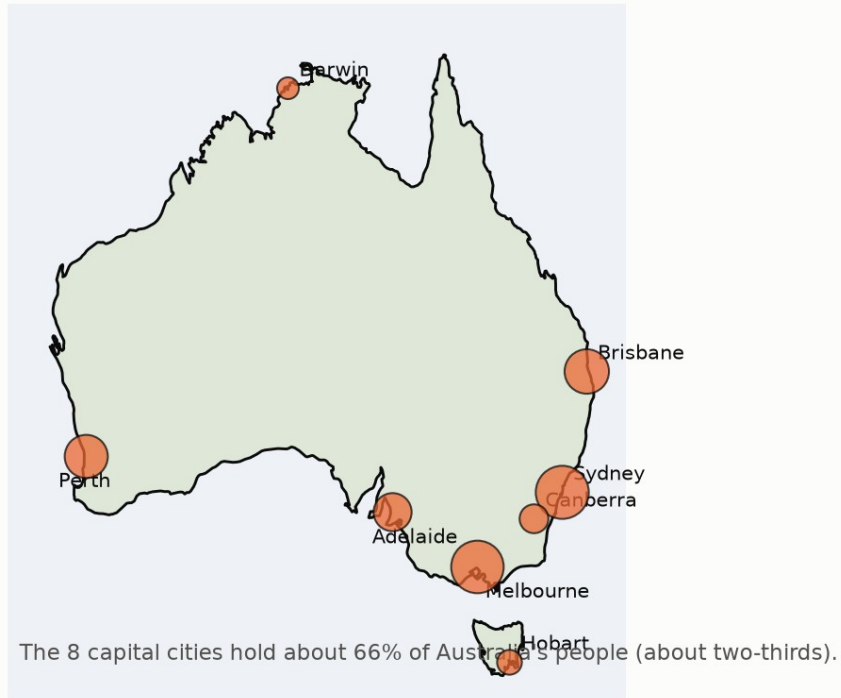
Isopleth map of mean annual rainfall across Australia: colour bands from 0–200 mm (palest) to 1500–2500 mm (darkest), with labelled isohyets at 200, 400, 600 and 1000 mm; wettest along the north and east coasts (Cairns, Darwin), driest in the middle (Alice Springs, Coober Pedy).

Figure 3.7 — An isopleth map of rainfall. The pattern: a wet rim in the north and east, a dry heart. (Source: Bureau of Meteorology long-term climate averages, rounded; basemap Natural Earth. Retrieved 2026-08-25.)

Learn 6 — Comparing maps to find relationships

One thematic map shows a pattern; **two maps side by side can show a relationship**. The **spatial distribution** of something is simply *where it is spread across space* — its pattern on the map. Comparing the spatial distributions of a natural thing (rain) and a human thing (people) is one of geography's most powerful moves. Figure 3.8 is a **proportional-circle map**: a thematic map in which each circle is drawn so its size matches the value at that place — bigger circle, bigger number.

Where do Australians live? Circle size = people in each capital city



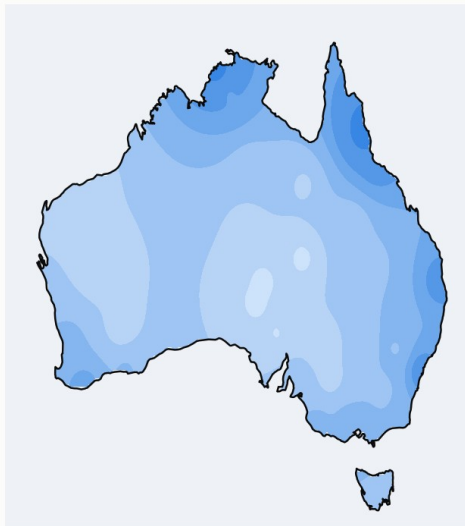
Source: ABS, Regional Population, Australia, 2024 (GCCSA populations); basemap Natural Earth. Retrieved 2026-08-25.

Map of Australia with an orange circle at each of the eight capital cities, the circle size matching the city's population in 2024: Sydney (5.5 million) and Melbourne (5.2 million) largest; a note states the eight capitals hold about two-thirds of Australia's people.

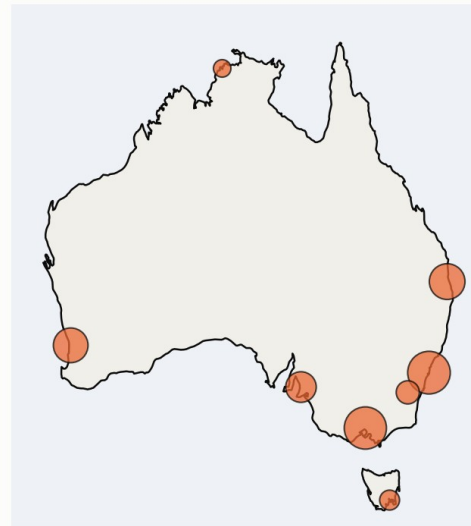
Figure 3.8 — A proportional-circle map: bigger circle, more people. The pattern: people cluster near the coast. (Source: ABS, Regional Population, 2024; basemap Natural Earth. Retrieved 2026-08-25.)

Compare the two maps: where it rains, and where people live

A: rainfall each year (wetter = darker)



B: people in each capital city



Look across: the big circles in B sit on the darker (wetter) coastal band in A. The dry middle of A has almost no circles in B. That match is a relationship. Rainfall: Bureau of Meteorology long-term averages. Population: ABS, Regional Population, 2024. Basemap Natural Earth. Retrieved 2026-08-25.

Two maps of Australia side by side. Map A: rainfall each year, wetter (darker) along the north, east and south-west coasts, dry in the middle. Map B: circles for the capital cities' populations. The big circles in B sit on the wetter coastal band in A, and the dry middle of A has almost no circles in B.

Figure 3.9 — Comparing two spatial distributions. Where the rain is, the people are. (Sources: Bureau of Meteorology; ABS, Regional Population, 2024; basemap Natural Earth. Retrieved 2026-08-25.)

Worked demonstrations

Demonstration 1 — think-aloud on a line graph

Reading Figure 3.1 with the three steps.

Step	What I do	What I say
1. Title, key, axes	Read the top and the sides.	“The title asks how Australia’s population has changed. The left axis counts people in millions; the bottom axis is years, 1971 to 2024.”
2. Read values	Pick the points I need.	“1971: 12.5 million. 2024: 27.2 million. That is 14.7 million more people — the population has more than doubled.”
3. Describe the trend	One full sentence.	“Australia’s population rose at every step from 1971 to 2024: a steady rising trend.”
4. Infer (bonus)	Ask <i>why</i> , and flag it as an inference.	“A rising trend means more people arrived and were born than left or died. The graph shows the rise; my ‘why’ is an inference.”

Demonstration 2 — the four checks on a choropleth map

Reading Figure 3.5 with the four checks (modelled in Figure 3.6).

Check	What I say
1. Title	“This map shows life expectancy in the countries of the world in 2023.”
2. Key	“Four shades: palest is under 60 years, darkest is 80 years and over. Grey is no data.”
3. One area	“Australia is darkest blue, so Australia is in the 80-and-over band. Japan too. Chad, in middle Africa, is palest blue: under 60.”
4. Source	“World Bank, World Development Indicators, 2023. I can trust and check this.”
Pattern + possible cause	“The dark band sits across Europe, North America, Japan and Australia; the palest band clusters in middle Africa. A <i>possible</i> cause is reliable food, clean water and health care — but I name that as an inference, not a fact.”

Practice questions

Practice with help

Q1. Use Figure 3.1. (a) What was Australia’s population in 1991? (b) How many millions of people were added between 1971 and 2024? (c) Write one sentence describing the trend.

Q2. Use Figure 3.2. (a) Which country had the highest life expectancy in 2023, and what was it? (b) List the countries whose columns reach 80 years or more. (c) What is the difference in years between the top and bottom countries of the graph?

Q3. Use Figure 3.3. (a) What percent of Australians were born in Australia? (b) Add the England and India slices. What percent is that? (c) Why do you think the “All other birthplaces” slice is so big? (One sentence of inference.)

Q4. Use Figure 3.4. (a) Which state or territory had the most people in 2024? Which had the fewest? (b) New South Wales had about how many times as many people as the Northern Territory? (Hint: 8.5 is a bit more than 30 lots of 0.26.) (c) Write one sentence describing the pattern across the states.

Q5. Use Figures 3.5 and 3.6. (a) Run the four checks on Figure 3.5 and write your four answers. (b) Name one country in the 60-to-69 band and one in the 80-and-over band. (c) Which *continent* is almost all palest blue on this map?

Q6. Use Figure 3.7. (a) Which labelled town sits in the wettest band? Which in the driest? (b) Is the east coast or the west coast wetter? (c) The line labelled 600 joins places that get 600 mm of rain a year. What is a rainfall line like this called?

Q7. Use Figure 3.8. (a) Name Australia’s two biggest cities by population. (b) About what share of Australians live in the eight capital cities? (c) Describe the spatial distribution of people in one sentence (where are they clustered?).

Q8. Use Figure 3.9. (a) In Map A, which band of rainfall does the Sydney area sit in — wetter or drier? (b) Name one part of Map A that is dry and has almost no circles in Map B. (c) Complete the inference: “The maps show _____, so I infer that most Australians live _____.”

Practice on your own

Q9. Use Figure 3.2. Describe the pattern in the column graph in two sentences, then suggest one *possible* reason why the top and bottom countries differ. Mark your reason as an inference.

Q10. Use Figure 3.5. Find three countries in the 80-and-over band and three in the palest band. What pattern do you notice about *where in the world* long lives are most common?

Q11. Use Figure 3.7. Pick any two labelled towns. Use the isohyets and the key to estimate each town’s rainfall band (how much rain it gets each year), then say which of the two is wetter and by how many bands.

Q12. Use Figures 3.7 and 3.8 together. Write one relationship between rainfall and where Australians live, with one piece of evidence from *each* map.

Evidence task

Q13 — A geographer’s report. Write five to seven sentences answering: *Where do Australians live, and how is that related to rainfall?* Your report must:

- name and describe one **pattern** (where people are);
- name one **relationship** between your pattern and the rainfall map;
- use at least **three numbers** taken from the figures in this section;
- end with a **source line**, for example: “Sources: ABS Regional Population 2024; Bureau of Meteorology climate averages. Retrieved 2026-08-25.”

Sentence starters if you want them: “The pattern is...”, “The evidence is...”, “This suggests...”

Answers

Q1. (a) 17.3 million. (b) 14.7 million (27.2 – 12.5). (c) Any true trend sentence, e.g. “Australia’s population rose at every step from 1971 to 2024.” **Q2.** (a) Japan, 84.0 years. (b) Japan, South Korea, Singapore, Australia, New Zealand. (c) $84.0 - 66.1 = 17.9$ years (about 18). **Q3.** (a) 66.9 percent. (b) $3.6 + 2.6 = 6.2$ percent. (c) Any sensible inference: many countries each send a small share, so together “all other” is large — Australians were born in many different countries. **Q4.** (a) New South Wales most; Northern Territory fewest. (b) A bit more than 30 times. (c) Any true pattern sentence, e.g. “The eastern states hold far more people than the west and the centre.” **Q5.** (a) Title: life expectancy of the world’s countries, 2023; key: four bands from under 60 to 80 and over; one area: any correctly read country; source: World Bank. (b) Any correct pair, e.g. Papua New Guinea (60 to 69) and Australia (80 and over). (c) Africa. **Q6.** (a) Cairns or Darwin (both sit in the 1500–2500 mm band); Alice Springs is the driest labelled town (200–400 mm band). (b) The east coast. (c) An isopleth (on a rainfall map, an isohyet). **Q7.** (a) Sydney and Melbourne. (b) About two-thirds (about 66 percent). (c) People are clustered near the coast, especially the south-east and south-west; the middle is almost empty. **Q8.** (a) Wetter. (b) Any correct region, e.g. the middle/west of the continent around Alice Springs. (c) “...most people live where rain is reliable, so I infer that most Australians live on the wetter coastal band.” **Q9.** Pattern: most of the listed Asia-Pacific countries sit between 70 and 85 years, with Papua New Guinea well below the rest. Possible reason (inference): differences in health care, clean water and food security. **Q10.** The 80-and-over band clusters in Europe, North America, Japan, Australia and New Zealand; the palest band clusters in middle Africa — long life is most common in the wealthier, well-served parts of the world (inference). **Q11.** Any two towns read correctly against the key, e.g. Adelaide (400–600 mm) and Cairns (1500–2500 mm): Cairns is wetter by four bands. **Q12.** Relationship: Australia’s people are clustered on the wetter coastal band, and the dry interior is almost empty. Evidence: Map A shows 1000 mm or more along much of the east coast while the middle sits under 400 mm; Map B shows the biggest circles (Sydney, Melbourne, Brisbane, Perth) on those wetter coasts. **Q13.** Look-fors: one named and described pattern; one named relationship; three or more real numbers from the figures; a source line with retrieval date; inference language (“this suggests”) kept separate from stated data.

Worked solutions (models for the on-your-own questions and the evidence task)

Q9 (model). The columns cluster between about 70 and 85 years, with Japan on top at 84.0 and Papua New Guinea far below at 66.1. That gap of nearly 18 years is the standout pattern. *Inference:* the top countries can provide reliable health care, clean water and food for most people, and Papua New Guinea cannot yet do so for all its people — a possible cause, not a proven one.

Q10 (model). 80 and over: for example Japan, Australia and Canada. Palest band: for example Chad, Nigeria and Somalia. The pattern groups by continent: the dark band covers most of Europe and North America plus Japan, Australia and New Zealand, while the palest band sits across middle Africa. *Inference:* long life lines up with wealth and services, not with any one continent’s location.

Q11 (model). Alice Springs sits inside the 200–400 mm band. Cairns sits in the 1500–2500 mm band. Cairns is the wetter town, four bands up the key. (Any pair read correctly against the key earns full marks.)

Q12 (model). Relationship: where it rains, people live. Evidence 1 (Figure 3.7): the north and east coasts sit in the 1000 mm-and-over bands while the centre sits under 400 mm. Evidence 2 (Figure 3.8): the largest circles — Sydney (about 5.5 million) and Melbourne (about 5.2 million) — sit on those wetter coasts, and the dry centre has almost no circles.

Q13 (model report). The pattern is that Australians are clustered near the coast: the eight capital cities hold about two-thirds of all Australians, and Sydney (5.5 million) and Melbourne (5.2 million) are by far the largest. The rainfall map shows why this pattern is no accident: the coastal band where the big cities sit gets 600 to over 1000 mm of rain a year, while the middle of the continent sits under 400 mm and is almost empty of people. The relationship is that Australia’s population follows its rain. This suggests water is one of the strongest shapers of where Australians live. Sources: ABS, Regional Population, 2024; Bureau of Meteorology long-term climate averages. Retrieved 2026-08-25.