

Mathematics Level 7

Chapter 5 — Doing geography: the inquiry toolkit

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Developing inquiry questions about phenomena, issues and challenges

Victorian Curriculum 2.0, Humanities — Geography, Levels 7 and 8 band.

For the teacher — VC2 codes: VC2HG8S01; elaborations drawn on VC2HG8S01.E01, VC2HG8S01.E02, VC2HG8S01.E03 and VC2HG8S01.E04 (illustrations only — they are not extra syllabus). The content description behind the code is the expectation; this section builds towards the band achievement standard's sentence on question development.

Every map you have made in this book, and every data table you have read, began as a question someone decided was worth asking. In this section you learn how to ask those questions well. That is stage 1 of a geographical **inquiry** — a planned search for answers, shown in Figure 1.

The geographical inquiry cycle



This section is stage 1 (5A). Stages 2 to 7 follow in Sections 5B to 6C.

The seven stages of a geographical inquiry shown as a cycle: 1 ask questions, 2 collect data, 3 represent data, 4 interpret data, 5 conclude, 6 act, 7 communicate. Stage 1 is marked as the work of this section.

Weak questions give weak answers, no matter how good your maps are later. So this section gives you three tests for a question, seven **concepts** to sharpen a question, five **scales** to view it from, and a way to split **causes** into immediate and underlying. Then you will write questions of your own.

Theory

Three starting words: phenomenon, issue, challenge

The curriculum names three kinds of starting point. In this book we use those words in a fixed way, shown in Figure 2:

- A **phenomenon** is something that happens and can be observed. You can see it, count it or map it.
- An **issue** is a topic people disagree about. Different groups argue about what should happen.

- A **challenge** is a hard problem that people must respond to. Something has to be done.

Phenomenon, issue or challenge?

The word	What it means in this book	Example from earlier chapters
Phenomenon	Something that happens and can be observed	Melbourne's water storages fell to 25.5% in June 2009
Issue	A topic people disagree about	Should a city take more water from rivers, or build new works?
Challenge	A hard problem that people must respond to	How can fast-growing suburbs get the services they need?

One topic can be all three at once:
it can be observed, argued about and acted on.

A table of the words phenomenon, issue and challenge, what each word means in this book, and an example of each from earlier chapters.

One topic can be all three at once. Water in Melbourne can be observed (the storages fell), argued about (where should the water come from?) and acted on (the city must keep enough water for a growing population).

Three tests for a strong focus question

An inquiry needs one **focus question** to lead it. A strong focus question passes three tests:

1. It cannot be answered with one word or one number.
2. It points to data you could actually collect.
3. It uses at least one of the geographical concepts.

“How full were the storages in June 2009?” fails test 1 — one number ends it. “Why did the storages fall so low, and what has changed since?” passes all three: it needs explaining, it points to rainfall and storage data, and it uses change.

Seven concepts, seven kinds of question

The Levels 7 and 8 band thinks with seven concepts: place, space, environment, interconnection, sustainability, scale and change. Naming the concept a question uses is like choosing a lens: it tells you what kind of evidence to look for (Figure 4).

Seven concepts, seven kinds of question

Concept	It asks ...	Question starter
Place	What is this place like?	What is it like to live in a suburb with no train station?
Space	Where is it found, and why there?	Where in Melbourne did most new homes go up in 2024-25?
Environment	How do natural systems work?	How does less winter rain affect river flows?
Interconnection	How are people and places linked?	How does growth in one suburb change the suburbs near it?
Sustainability	Can this keep going without harm?	Can Melbourne's water supply keep up with its growth?
Scale	Does it look different at other sizes?	Is water use a local, a city or a national matter?
Change	What is changing, and why?	How has Melbourne's rainfall changed since 1970?

Name the concept your question uses.

A table of the seven geographical concepts. For each concept it shows what the concept asks and a question starter, for example place asks what is this place like, and change asks what is changing and why.

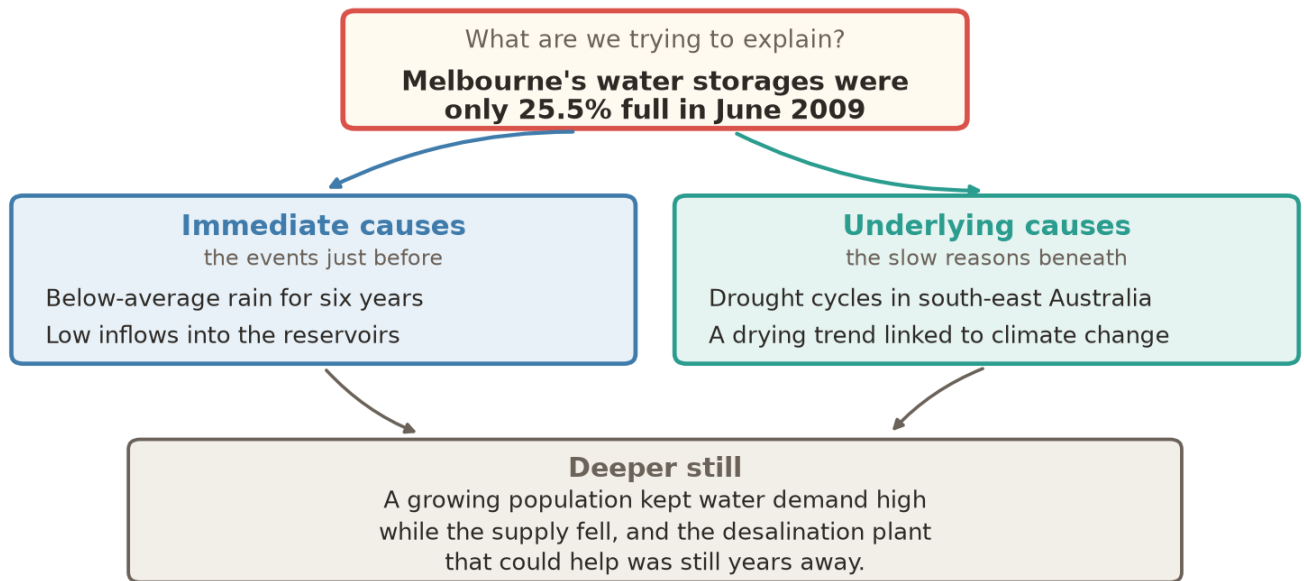
Scale: the size of the lens

Scale is the size of the view you take — a suburb, a city, a state, a nation or the world. The same topic asks different questions at different scales, and needs different evidence. A strong inquiry names the scale it works at.

Immediate and underlying causes

To explain why something happened, ask two kinds of cause question (Figure 5). **Immediate causes** are the events just before — what happened last. **Underlying causes** are the slow reasons beneath — why it could happen at all. A full explanation usually needs both.

Immediate and underlying causes



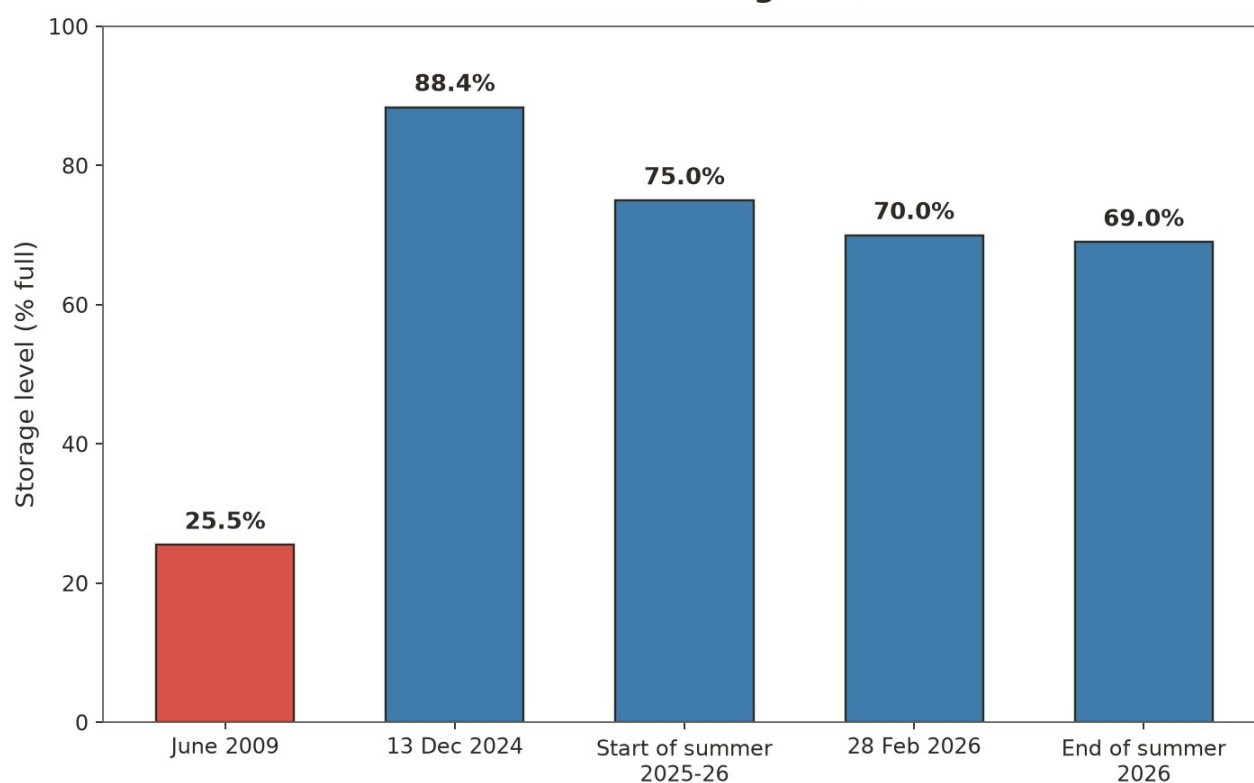
To explain a phenomenon, ask WHAT happened last (immediate) and then WHY it could happen at all (underlying).

A diagram splitting the causes of Melbourne's low water storages in June 2009 into immediate causes, such as below-average rain, and underlying causes, such as drought cycles and a drying trend, with a deeper layer about growing demand beneath.

Worked example 1 — Melbourne's water: from observation to question

Step 1 — Observe the phenomenon. Start with something you can measure. Melbourne Water's own records show the storages at only 25.5% full in June 2009, the low point of the 2000s drought (Figure 7). That is a phenomenon: observed, measured, dated.

Melbourne's water storages at five dates



The coral bar is the record low year of the 2000s drought. The last three bars show one summer's fall: 75% down to 69%.

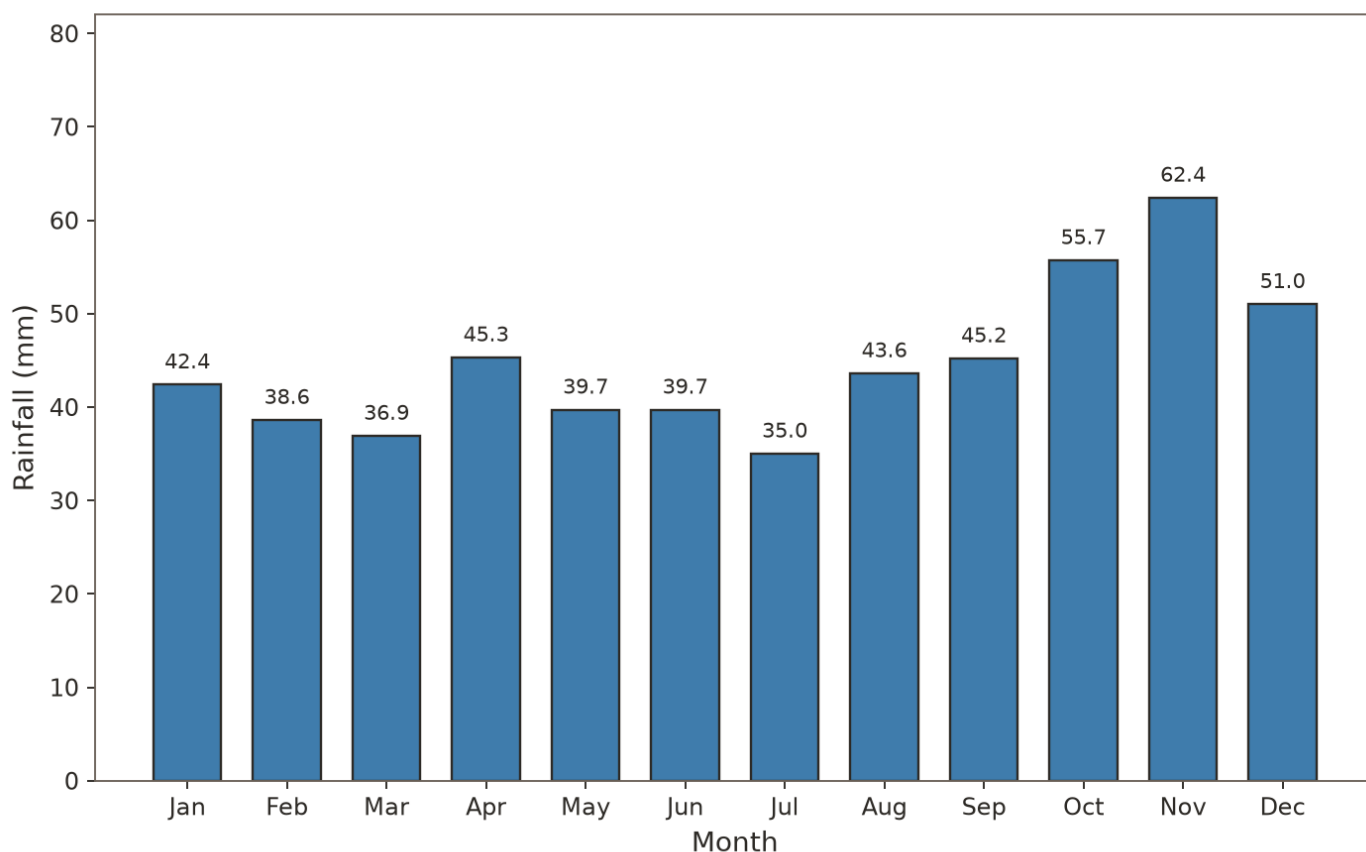
Source: Melbourne Water, water storage reports and history pages, retrieved 25 Aug 2026

A bar chart of Melbourne's water storage level at five dates: June 2009 at 25.5%, 13 December 2024 at 88.4%, the start of summer 2025-26 at 75%, 28 February 2026 at 70%, and the end of summer 2026 at 69%.

Source: Melbourne Water, water storage reports and history pages, retrieved 25 Aug 2026.

Step 2 — Check the data behind it. A question is only as good as the data it points to. Rainfall records at Melbourne Airport show what a normal year looks like: about 536 mm a year, with the driest year on record (1997) at 310 mm and the wettest (1978) at 821 mm (Figure 6). During the 2000s drought, inflows into the storages fell far below normal.

Mean monthly rainfall, Melbourne Airport, 1970 to 2026



Annual mean: 536.2 mm | Driest year on record: 310.2 mm (1997) | Wettest: 820.8 mm (1978)

Source: Bureau of Meteorology, station 086282 (Melbourne Airport), climate statistics, retrieved 25 Aug 2026

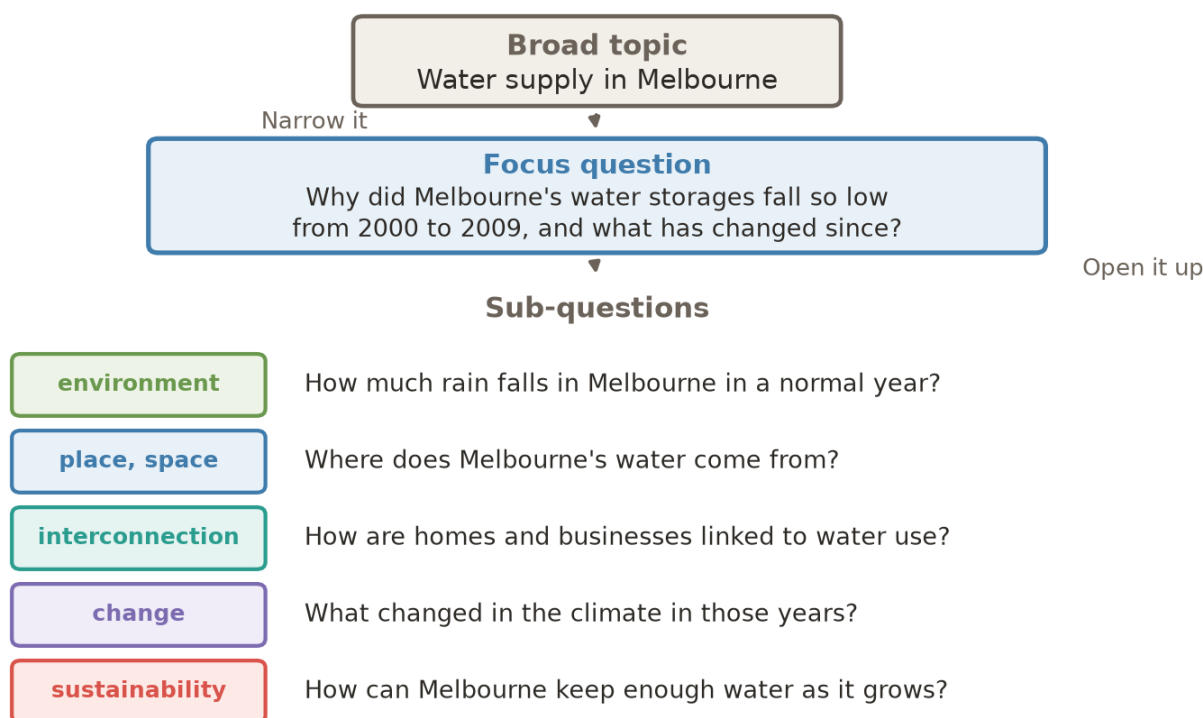
A bar chart of the average rainfall for each month at Melbourne Airport, adding to about 536 mm a year, with a note that the driest year on record was 1997 and the wettest was 1978.

Source: Bureau of Meteorology, station 086282 (Melbourne Airport), climate statistics, retrieved 25 Aug 2026.

Work it out: Melbourne Water reports that over summer 2025-26 the storages fell five percentage points, about 99.5 billion litres. So one percentage point is about 20 billion litres — and the whole summer's fall of six points (75% down to 69%, Figure 7) is about 120 billion litres. Putting a number on a change is what turns “the water went down” into a phenomenon worth asking about.

Step 3 — Build the question with the funnel. Figure 3 shows the move from a broad topic, to one focus question, to sub-questions tagged with concepts.

The question funnel



A good focus question cannot be answered with one number or one word.

Each one points to data you could collect.

The question funnel: the broad topic water supply in Melbourne narrowed to the focus question why did Melbourne's water storages fall so low from 2000 to 2009 and what has changed since, then opened into five sub-questions tagged environment, place and space, interconnection, change and sustainability.

Check the focus question against the three tests. Test 1: no single number answers it — it needs explaining. Test 2: it points straight to the data in Figures 6 and 7. Test 3: it uses change, and its sub-questions spread across five more concepts.

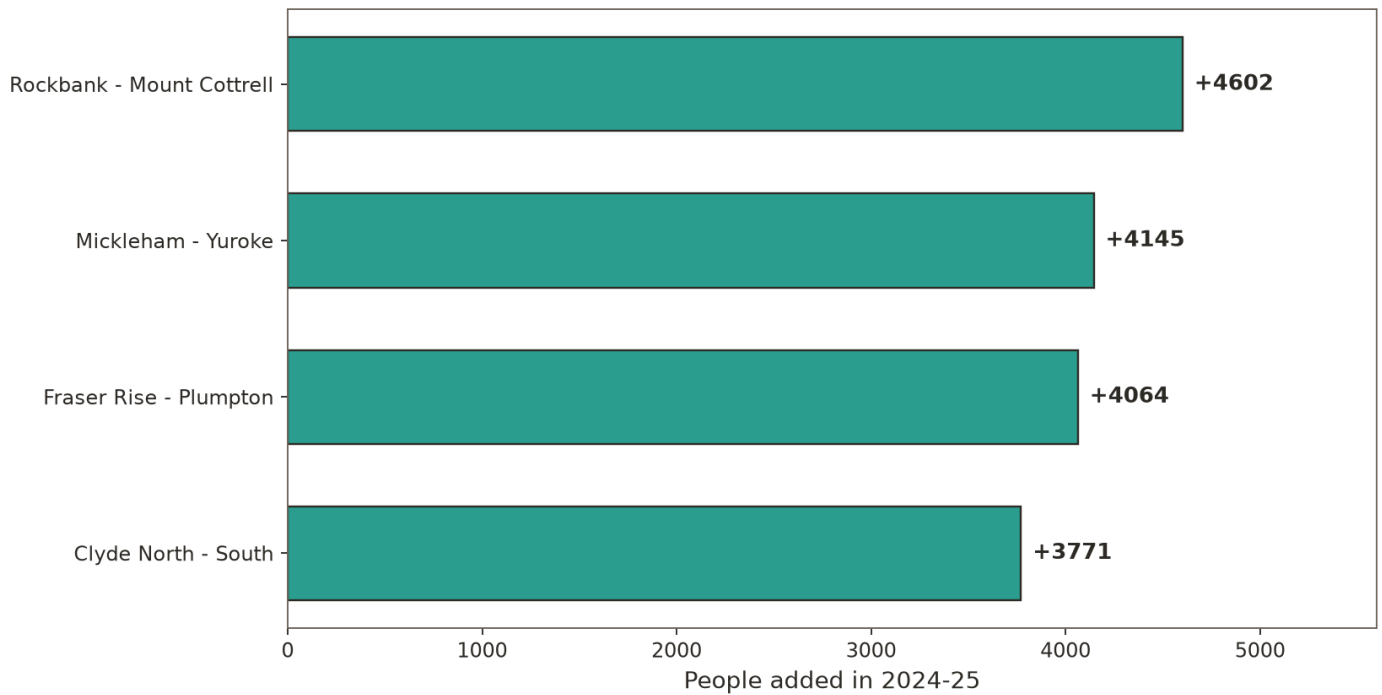
Step 4 — Ask about causes. Figure 5 splits the causes of the 2009 low into immediate (years of below-average rain, low inflows) and underlying (drought cycles in south-east Australia; a drying trend linked to climate change). Deeper still sits a third layer: a growing population kept demand high while supply fell, and the desalination plant — a factory that turns seawater into drinking water — was still years away. Notice how each cause layer suggests its own question: “What happened last?” (immediate) and “Why could this happen at all?” (underlying).

What made this question strong? It began from a measured phenomenon, it named its scales (city for storages, region for climate), it tagged its concepts, and it separated immediate from underlying causes before any data was collected. That is the whole skill of VC2HG8S01 in one worked path.

Worked example 2 — Fast-growing suburbs: a liveability question

Step 1 — Observe the phenomenon. **Liveability** is how good a place is to live in — things like services, safety, transport and green space. You met it in earlier chapters. Now look at the newest parts of Greater Melbourne. In 2024-25, four outer suburbs each added more than 3,700 people (Figure 8), and Greater Melbourne as a whole grew by 105,030 people — about 2,000 a week.

Four of the fastest-growing places in Greater Melbourne



Together, Greater Melbourne grew by 105,030 people in 2024-25, about 2,000 people a week.

Source: Australian Bureau of Statistics, Regional Population, 2024-25, retrieved 25 Aug 2026

A bar chart of four of the fastest-growing places in Greater Melbourne in 2024-25: Rockbank - Mount Cottrell added 4,602 people, Mickleham - Yuroke 4,145, Fraser Rise - Plumpton 4,064, and Clyde North - South 3,771.

Source: Australian Bureau of Statistics, Regional Population, 2024-25, retrieved 25 Aug 2026.

Step 2 — View it at five scales. The same topic asks a different question at each scale, and each question needs its own evidence (Figure 9). At the nation scale the question is one of the band's own key questions: is Australia's population too concentrated into cities?

One inquiry, five scales

Scale	The question it asks	Evidence you could use
Suburb (local)	What services are missing in our own suburb?	Fieldwork: walk, observe, survey.
City	Which suburbs grew fastest, with enough services?	ABS population data, maps.
State	Which Victorian towns are growing? What do they need?	ABS data for all of Victoria.
Nation	Is Australia's population too concentrated into cities?	National statistics, comparison.
World	How does Melbourne's growth compare with cities overseas?	International city data.

**Zooming out changes the question.
A strong inquiry names the scale it works at.**

A table asking the same inquiry about Melbourne's growth at five scales: suburb, city, state, nation and world. Each scale shows the question it asks and the evidence it uses, from local fieldwork at suburb scale to international city data at world scale.

Step 3 — Plan the investigation. A plan is just a set of decisions written down before you start. Figure 10 shows a filled-in plan for the focus question “Does fast growth lower liveability in Melbourne’s newest suburbs?” Planning on a spreadsheet or an online map counts as using digital planning tools. At the suburb scale, the plan uses **fieldwork** — collecting data outside the classroom by walking the streets, observing, and running a **survey** (a short set of questions you ask residents).

An inquiry plan, filled in

Focus question	Does fast growth lower liveability in Melbourne's newest suburbs?
Sub-questions	1. Which suburbs grew fastest in 2024-25? 2. What services do residents say are missing? 3. Where are the closest schools, doctors and parks?
Concepts used	place - space - interconnection - change - scale
Data needed	Population change by suburb (ABS); counts and locations of schools, doctors, parks and transport stops
Sources	ABS Regional Population; Vicmap; local council pages; our own fieldwork survey
Scale	Suburb and city (local fieldwork plus Melbourne-wide data)
Possible causes	Immediate: new homes built before services. Underlying: planning rules, funding, and how fast people arrive.

Copy this shape for your own plan: every row is a decision you must make.

A filled-in inquiry plan with rows for the focus question, three sub-questions, the concepts used, the data needed, the sources, the scale, and possible immediate and underlying causes.

Step 4 — Check the plan against the tests. Test 1: the question cannot be answered with one word — “lower liveability” must be measured and argued. Test 2: it points to data — ABS counts, locations of schools and doctors, survey answers. Test 3: it uses place, interconnection, change and scale. And because “why” sits inside it, the plan already lists possible immediate causes (new homes built before services) and underlying causes (planning rules, funding, and how fast people arrive).

Practice tasks

Part A — with steps to follow

Q1. Use the fixed meanings from Figure 2. Label each statement as phenomenon, issue or challenge, and quote the words that told you. (a) “Melbourne’s storages were 25.5% full in June 2009.” (b) “Some residents say new suburbs need schools before more homes; some builders disagree.” (c) “Melbourne must keep enough water for a growing population.”

Q2. Apply test 1 (cannot be answered with one word or one number). Mark each question strong or weak for a focus question, and fix the weak ones. (a) “How full were the storages in June 2009?” (b) “Why did the storages fall so low from 2000 to 2009?” (c) “Is water important?”

Q3. Use Figure 4. Match each sub-question to the concept it best uses: place, space, environment, interconnection, sustainability, scale or change. (a) “What is it like to live in a suburb with no train station?” (b) “How does less winter rain change river flows?” (c) “Where in Melbourne did most new homes go up in 2024-25?” (d) “Can Melbourne’s water supply keep up with its growth?”

Q4. Use the funnel (Figure 3). Take the broad topic “Heatwaves in Melbourne”. Write one focus question for it, then open it into two sub-questions and tag each with a concept.

Q5. Use Figure 5. Sort these causes of the summer 2025-26 storage fall (75% down to 69%) into immediate or underlying: (a) a hot, dry summer with more water used (b) less rain falling than the average for a year (c) a drying trend in the south-east linked to climate change (d) a growing population keeping demand high

Q6. Use Figure 9. Match each question to its scale (suburb, city, state, nation, world): (a) “Which Victorian towns are growing, and what do they need?” (b) “What services are missing in our own suburb?” (c) “How does Melbourne’s growth compare with cities overseas?” (d) “Which suburbs of Melbourne grew fastest in 2024-25?”

Q7. Rewrite each closed question as an open focus question that passes all three tests. (a) “Does Melbourne get enough rain?” (b) “Are the new suburbs good places to live?”

Q8. A classmate asks: “Why do new homes in the outer west sometimes sit far from schools, doctors and train stations?” Name the two concepts this question uses most strongly, and give one reason for each choice.

Part B — on your own

Q9. Choose one topic: litter at a local park; traffic outside your school; shade and heat in your local area. Write one focus question and three sub-questions. Tag every sub-question with a concept from Figure 4.

Q10. Think of one phenomenon you studied in an earlier chapter (or one you have observed where you live). Write one question about its immediate causes and one about its underlying causes.

Q11. Pick any topic from this section. Write one question about it at the suburb or city scale, and one at the nation or world scale. Say what evidence each question would need.

Q12. Copy the plan shape from Figure 10 (focus question, sub-questions, concepts, data, sources, scale, possible causes) and fill it in for your own question from Q9. Every row is a decision you must make.

Evidence-based response task

Use only the data below (all from the sources named in this section).

Measurement	Value
Storages, June 2009	25.5% full
Storages, 13 Dec 2024	88.4% full
Storages, start of summer 2025-26	75% full
Storages, end of summer 2026	69% full
Mean rainfall each year, Melbourne Airport	536.2 mm
Driest year on record	310.2 mm (1997)

Develop one focus question and two sub-questions for a geographical inquiry about Melbourne’s water. For each sub-question, state (a) the concept it uses, and (b) the evidence you would collect. Then state one immediate cause and one underlying cause your inquiry could uncover. Write about half a page. Your questions will be marked on the three tests from this section, not on your opinions.

Answers and model responses

Q1. (a) Phenomenon — it is observed and measured (“25.5% full”, a date). (b) Issue — “some residents say ... some builders disagree” shows people disagree. (c) Challenge — “must” shows a hard problem people have to respond to.

Q2. (a) Weak — one number ends it. Fix: “Why did the storages fall so low by 2009, and what has changed since?” (b) Strong — needs explaining, points to data, uses change. (c) Weak — one word (“yes”) ends it. Fix: “How does the way Melbourne uses water compare with other growing cities?”

Q3. (a) Place. (b) Environment (change is also acceptable). (c) Space. (d) Sustainability.

Q4. Model: focus — “Why are heatwaves getting more common in Melbourne, and which suburbs feel them most?” Sub-questions — “How has the number of hot days changed since 1970?” (change); “Which suburbs have least shade and green space?” (space, place).

Q5. Immediate: (a), (b). Underlying: (c), (d).

Q6. (a) State. (b) Suburb. (c) World. (d) City.

Q7. Model: (a) “How has Melbourne’s rainfall changed since 1970, and what does that mean for its water supply?” (b) “What makes liveability higher or lower in Melbourne’s newest suburbs?”

Q8. Model: space — it asks where things are and why there (homes here, services far away); interconnection — it asks how homes are linked to the services people need. Change is also acceptable (the suburb is growing faster than services arrive).

Q9–Q12. Check your own work against the three tests, the concept table (Figure 4), the scale table (Figure 9) and the plan shape (Figure 10). A set of questions that passes all three tests, names its concepts and scales, and splits causes into immediate and underlying is working at the standard.

Evidence-based response task — model response. Focus question: “Why did Melbourne’s water storages swing from 25.5% in 2009 to 88.4% in 2024, and is that supply safe for a growing city?” Sub-question 1: “How has rainfall at Melbourne Airport changed from year to year, and do dry years line up with low storages?” — concept: change; evidence: Bureau of Meteorology rainfall records and Melbourne Water storage levels, year by year. Sub-question 2: “How does water demand link to population growth across the city?” — concept: interconnection; evidence: ABS population counts and water-use figures. Immediate cause the inquiry could uncover: runs of dry years lower inflows. Underlying cause: a drying trend linked to climate change, plus growing demand. This response passes the three tests: no one-number answer, clear data targets, named concepts — and it separates immediate from underlying causes.

Teaching sequence (teacher-facing)

1. **Hook (5 min):** Project Figure 7 and ask only “What do you notice?” Collect observations, then reveal the 25.5% datum. Name the observation a *phenomenon* before defining the word.
2. **Define the three words (10 min):** Figure 2. Stress that these are stipulated, fixed meanings for this book (the terms are contested in the literature; we fix them so questions can be marked against them). Quick check: Q1.
3. **Model the funnel (15 min):** Worked example 1, Figures 6–7 first (data before question), then Figure 3. Make students apply the three tests aloud at each step. Quick check: Q2, Q4.
4. **Concepts (10 min):** Figure 4 as a reference table students keep open for the rest of the chapter. Quick check: Q3, Q8.
5. **Causes (10 min):** Figure 5; drill the two cause-questions (“What happened last?” / “Why could it happen at all?”). Quick check: Q5, Q10.
6. **Scale and planning (15 min):** Worked example 2, Figures 8–10. Point out the digital planning tools and the fieldwork/survey row — these are the E02 moves, carried into practice in 5B. Quick check: Q6, Q11, Q12.
7. **Independent practice:** Part B tasks; peer-mark against the three tests.
8. **Assessment:** The evidence-based response task is the summative check of VC2HG8S01; mark against the band achievement-standard sentence on developing relevant questions about the phenomenon, issue or challenge under study. Use a two-point judgement per element (question passes the three tests; concepts named; scales named; causes split) rather than a holistic grade.

Elaboration coverage: E01 (three-kinds definitions and the water/liveability examples), E02 (scale walk, planning, digital tools, fieldwork), E03 (concept tagging throughout), E04 (immediate/underlying cause split). Differentiation: provide the funnel as a scaffold for students who need it; withdraw it for Part B. No First Nations content is included in this section.

Gathering evidence: collecting, organising and processing data from fieldwork and other sources

Section 5B · Chapter 5 — Doing geography: the inquiry toolkit This section owns VC2HG8S02 and draws on elaborations .E01 .E02 .E03 .E04.

Geographers answer questions with evidence. In Section 5A you learned to ask good geographical questions. In this section you gather the information and data to answer them — out in the field, from people, and from published sources — and you turn that raw material into something clear that you can use. Every method you learn here is one you will use again: the fieldwork in Sections 2F, 3C and 3D is done with these methods, and the report you write in Section 6C is built from the data you collect with them.

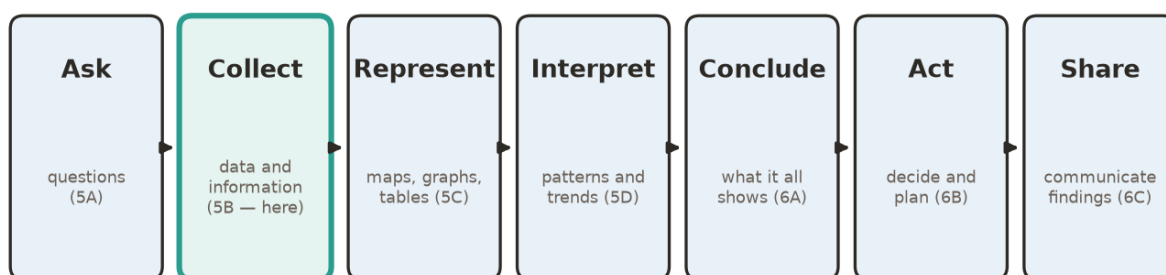
For the teacher — VC2 codes

VC2HG8S02; elaborations drawn on VC2HG8S02.E01, VC2HG8S02.E02, VC2HG8S02.E03, VC2HG8S02.E04. The content description and elaborations behind these codes are the curriculum’s expectation and are not reproduced here (series content policy).

Teaching sequence (teacher). The section runs as one connected arc, and each stage uses working material from Chapters 1–4 so the skills never float free of content: (1) sources — primary versus secondary, with fieldwork as primary; (2) methods — choosing a primary method that fits the question (the liveability survey of 2F, the landform measurement of 3C and 3D); (3) data types — quantitative and qualitative; (4) organising and processing — from a raw tally to a table to a percent and a graph; (5) secondary research — advanced search strings; (6) evaluation — relevance and reliability, capped by comparing a fieldwork count with ABS Census data. Worked demonstration 1 models stages 2–4 on a liveability-flavoured street survey; worked demonstration 2 models stages 5–6. The fieldwork task at the end of the section (R1) is the *same* fieldwork that 2F, 3C and 3D host and 6C reports — design it once, score it once per owning CD, and let each knowledge section reuse the dataset.

Where this section sits

The inquiry cycle: this section is the collecting stage



Inquiry loops: your conclusion can raise a new question to collect more data.

5B gives you the methods for stage 2. You will use them in the fieldwork in Sections 2F, 3C and 3D, and report them in Section 6C.

Seven boxes in a row showing the inquiry cycle: ask, collect, represent, interpret, conclude, act, share, with the collect stage highlighted as the stage this section teaches

Key ideas

A **source** is where information comes from.

- A **primary source** is information you collect yourself, first-hand.
- A **secondary source** is information someone else collected first.
- **Fieldwork** is research you do in the real place you are studying. It is primary research.

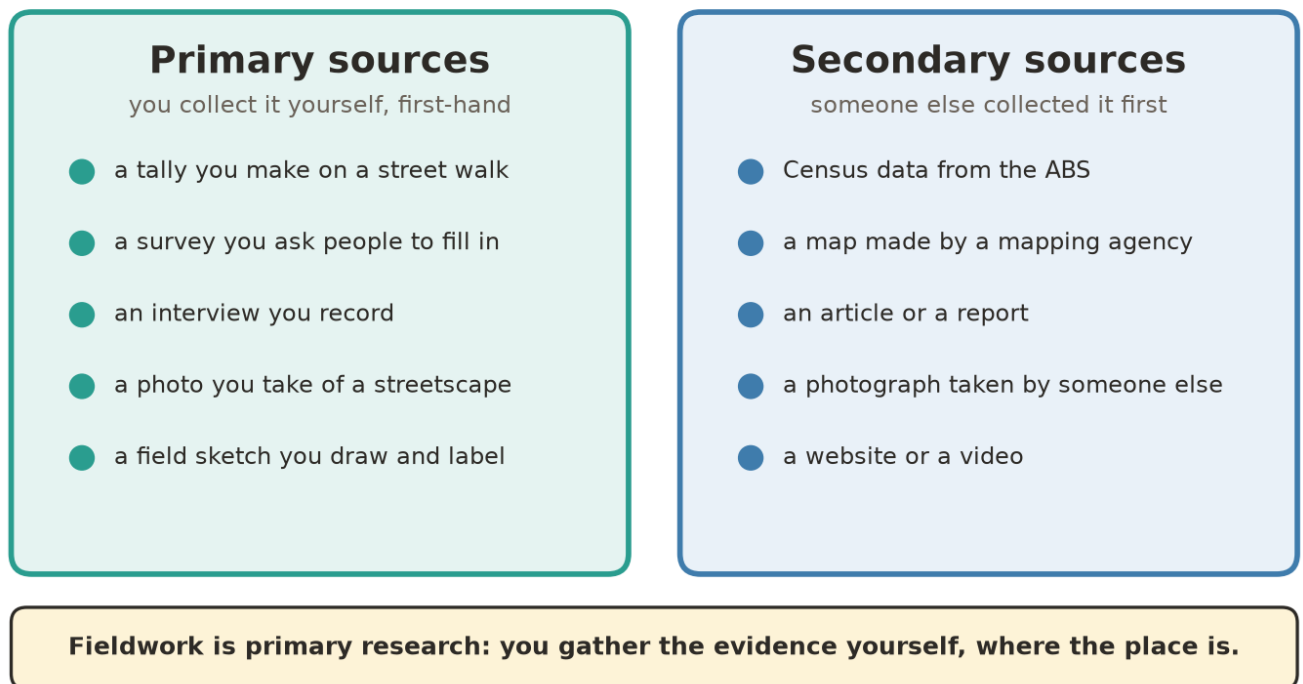
Data is the facts, numbers and words you collect. There are two kinds:

- **Quantitative data** is data in numbers — things you can count or measure.
- **Qualitative data** is data in words — what people say, see or feel.

Some subject words you will meet, defined before you need them:

- **Dwelling** — a place where people live: a house, a townhouse or a flat.
- **Census** — the official count and survey of every person and home in Australia, run by the Australian Bureau of Statistics (the ABS).
- **Streetscape** — what a street looks like: its buildings, shops, footpaths and trees.
- **Geospatial technologies** — digital tools that work with place and location, such as online maps and mapping apps.
- **Reliability** — how much you can trust data or a source.
- **Relevance** — how well a source matches your question.

Where does the information come from?

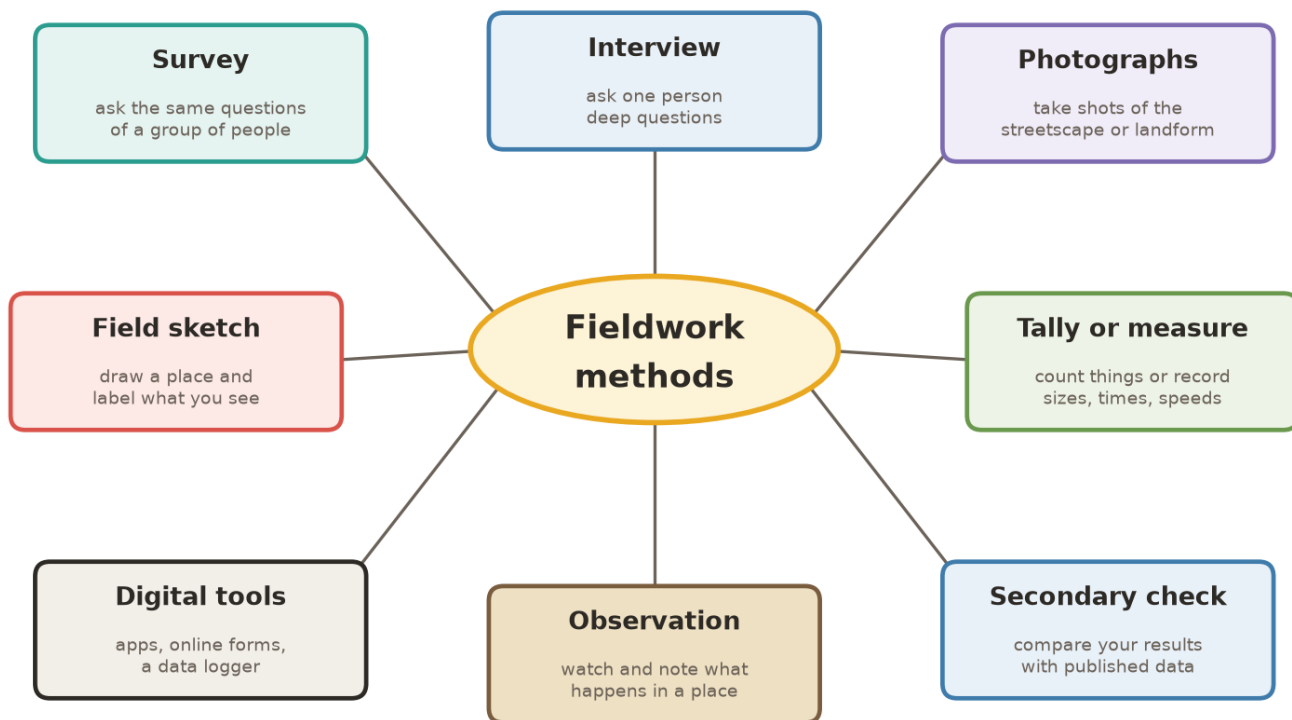


Two labelled panels listing examples of primary sources such as a tally, survey, interview, photo and field sketch, and secondary sources such as Census data, maps, articles and websites

The fieldwork methods toolkit

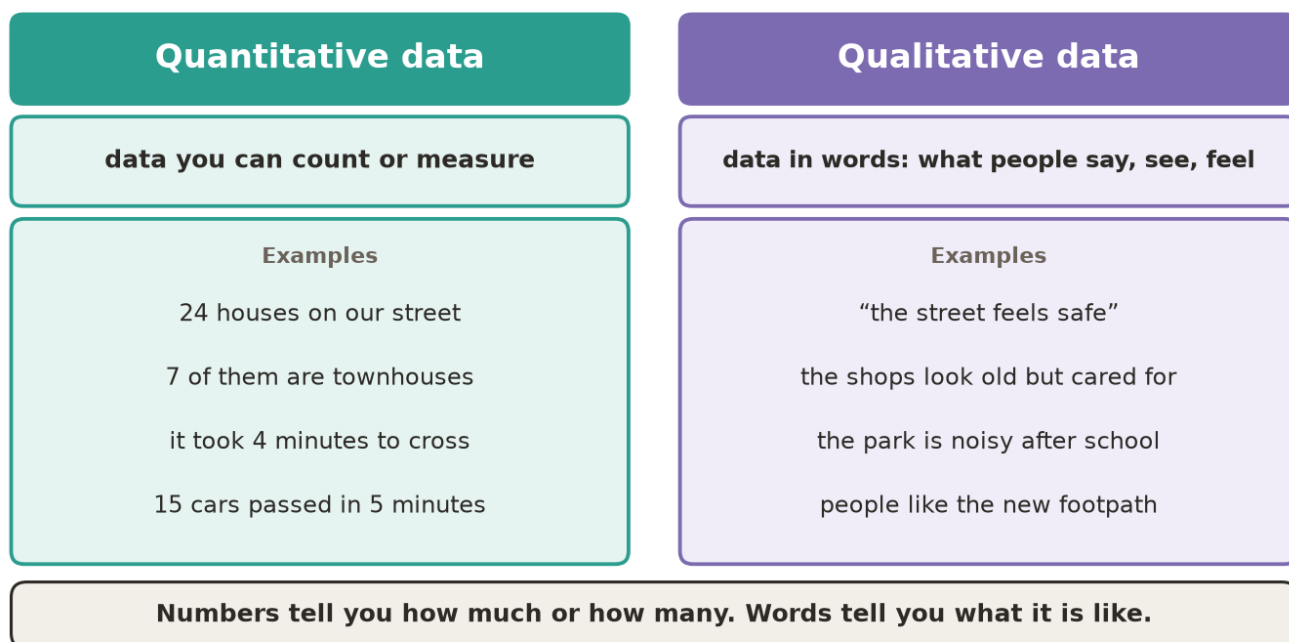
The method must fit the question. If you want to know *how many*, count. If you want to know *what people think*, ask. If you want to show *what a place looks like*, photograph or sketch it. Digital tools can help at every step: an online form for a survey, a mapping app to record locations, a data logger to store measurements.

A toolkit for fieldwork: ways to collect primary data



A labelled diagram with 'Fieldwork methods' at the centre and eight connected cards: survey, interview, photographs, field sketch, tally or measure, digital tools, observation and a secondary check against published data

Two kinds of data you can collect



Two labelled panels contrasting quantitative data (numbers you can count or measure, with examples) and qualitative data (words about what people say, see and feel, with examples)

Worked demonstration 1 — from a raw tally to a checked result (fieldwork)

A class in Leongatha, Victoria, asks: “Is our street like the whole town?” They walk one street and tally every dwelling. This is their collection sheet.

Model: a street-survey collection sheet

Example — a Year 7 class counts dwellings on one street

Street:

Mirabel Street, Leongatha

Date:

Tuesday, 4 August 2026

Time:

11:30 am

Method:

walk and tally

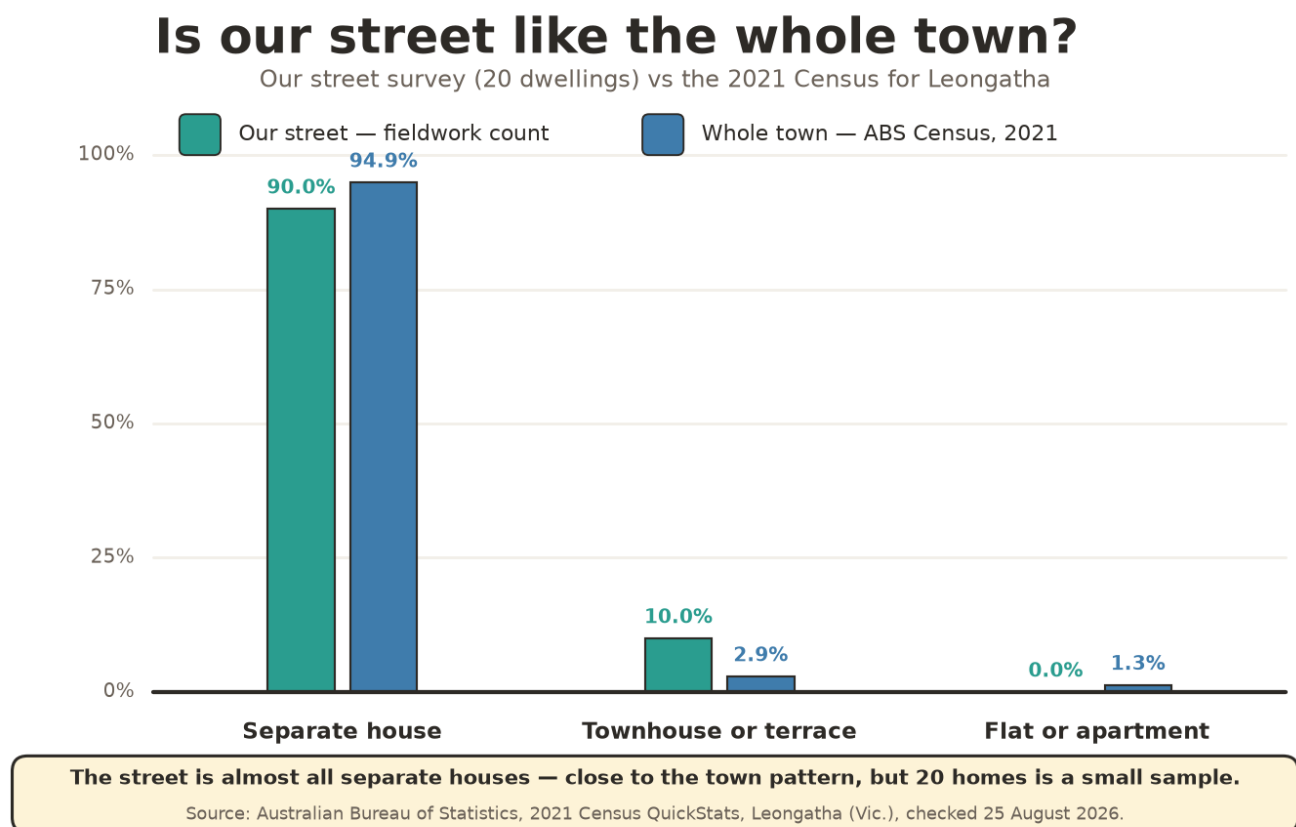
Dwelling type	Tally	Count
Separate house		18
Townhouse or terrace		2
Flat or apartment		0
Other		0
Total dwellings		20

One row per type. Tally marks as you go, then add the count at the end.

A model street-survey collection sheet showing the street name, date, time and method, then a table of dwelling types with tally marks and counts: 18 separate houses, 2 townhouses, 0 flats, total 20 dwellings

Working	Comment
Collect. Walk the street once, put a tally mark for each dwelling type.	Tally in fives: four lines with a cross-line makes five, easy to add later.
Organise. Add the tally into a count for each row; check the total is 20.	$18 + 2 + 0 + 0 = 20$. A neat table is organised data.
Process. Turn each count into a percent of the 20: separate house $18 \div 20 = 90\%$.	Percents let you compare your 20 homes with the thousands of homes the Census counts.

Now the reliability check. The class compares its street with the 2021 Census for the whole of Leongatha.



A grouped bar chart comparing the street survey with the 2021 Census for Leongatha: separate house 90% on the street versus 94.9% in the Census; townhouse or terrace 10% versus 2.9%; flat or apartment 0% versus 1.3%

Working	Comment
Street: 90% separate house. Census: 94.9% separate house.	Close — the street is like the town pattern, so the fieldwork looks sensible.
But the street counted 20 homes; the Census counted 2,420 occupied homes.	One street is a small sample — only a tiny part of the whole town. A close match on one street does not prove the whole town.
Verdict: the data is useful, and the Census is the stronger source for the whole town.	Comparing fieldwork with Census data is exactly how geographers test reliability.

Source: Australian Bureau of Statistics, 2021 Census of Population and Housing, QuickStats, Leongatha (Vic.) (SAL21490): 5,869 people; 2,420 occupied private dwellings; 2,296 separate houses (94.9%); 71 townhouses/terraces (2.9%); 32 flats/apartments (1.3%). Retrieved 25 August 2026.

Worked demonstration 2 — secondary research: search sharp, then check

Question from Chapter 2: “Which is Australia’s most liveable city, and who says so?” A plain search gives thousands of hits. Advanced search tools cut them to the useful few.

Search like a geographer: useful tools

Type these into a search box to get better results

Tool	What it does	Example
" "	finds an exact phrase	"water scarcity in Australia"
intitle:	the word is in the page title	intitle:liveability
site:	search only one website	site:abs.gov.au
filetype:	find a file type, like a PDF	filetype:pdf
-	takes a meaning away	liveability -melbourne

A sharper search finds fewer, better sources — the ones that truly match your question.

A table of advanced search tools with three columns: tool, what it does, and an example; rows for exact phrase quote marks, intitle:, site:, filetype: and the minus sign

Try this

intitle:which Australian city is most liveable
intitle:liveability site:abs.gov.au
"most liveable city" -ranking

Why it helps

The key idea must be in the page's title, so the page is probably about it.
Only pages from the ABS — an official, expert source.
Keeps the phrase but drops pages about commercial rankings, if you want official data instead.

Two results come back. The class checks each one for relevance and reliability.

Before you use a source, ask two big questions

1. Is it relevant? Does it fit my question?	2. Is it reliable? Can I trust it?
☐ Is it about my topic?	☐ Who made it? Are they an expert?
☐ Is it about the right place?	☐ Do they show their evidence?
☐ Is it about the right time?	☐ Do they name their sources?
☐ Is it up to date?	☐ Do other careful sources agree?

**A source can be reliable but not relevant, or relevant but not reliable.
You need it to be both.**

Two labelled checklists: relevance questions (is it about my topic, the right place, the right time, up to date) and reliability questions (who made it, are they an expert, do they show evidence, do other careful sources agree)

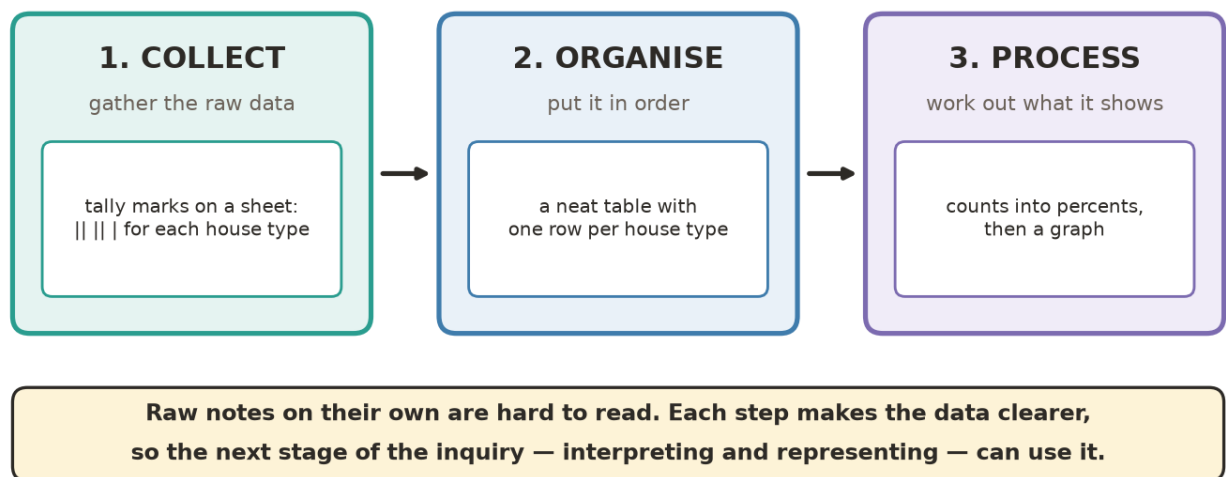
Result	Relevance?	Reliability?	Use it?
A. ABS page, “liveability indicators”, dated 2023, shows its methods.	Yes — about liveability measures in Australia.	Yes — the ABS is the official statistics expert and shows its evidence.	Yes.
B. A travel web page, “my favourite city”, no date, no sources, one person’s opinion.	Not fully — about a city, but not about measures.	Weak — one person, no evidence, no date.	Only as an opinion, never as data.

The same two questions work on any source, including your own fieldwork: *Does it fit the question?* and *Can it be trusted?*

Collect, organise, process

Raw notes on their own are hard to read. Each step makes the data clearer so the next stages of the inquiry (5C representing, 5D interpreting) can use it.

Collect, organise, process — one job in three steps



Geospatial technologies and digital tools can help at every step:

a mapping app to collect locations · a spreadsheet to organise · a graphing tool to process.

A three-step flow diagram: collect (gather the raw data, shown as tally marks), organise (put it in order, shown as a neat table), process (work out what it shows, shown as percents and a graph), with arrows between the steps

Practice questions

Scaffolded

- Q1.** Label each source **primary** or **secondary**: (a) a photo *you* take of your school's front gate; (b) the ABS Census; (c) a survey *your* class runs at lunchtime; (d) a newspaper article about your town; (e) an interview *you* record with a shopkeeper.
- Q2.** Match each question to the best method (survey, tally, photograph, field sketch, interview): (a) "How many cars park on this street at 3 pm?" (b) "What do residents think of the new footpath?" (c) "What does the creek bank look like after the rain?" (d) "How did the oldest shop on the high street start?" (e) "What is the shape of the hill behind the school?"
- Q3.** Label each piece of data **quantitative** or **qualitative**: (a) 15 cars passed in 5 minutes; (b) "the park feels safe"; (c) the crossing took 4 minutes; (d) 7 of 20 dwellings are townhouses; (e) "the shops look tired"; (f) 3 bus routes stop here.
- Q4.** Read the collection sheet in the first worked demonstration. (a) How many separate houses were counted? (b) What was the total number of dwellings? (c) The sheet records the date and the method. Why does a good collection sheet record those?
- Q5.** Read the bar chart comparing the street with the Census. (a) What percent of the town's dwellings are separate houses in the Census? (b) Which source looked at more dwellings — the street count or the Census? (c) Does the street look like the town? How can you tell?
- Q6.** You want secondary sources about how Australians view water shortages. (a) Write one search string using `intitle:.` (b) Explain why `site:abs.gov.au` would be a good choice if you wanted official numbers instead.
- Q7.** Label each checking question as testing **relevance** or **reliability**: (a) "Is it about my town?" (b) "Who made it?" (c) "Is it up to date?" (d) "Do they show their evidence?" (e) "Is it about the right topic?" (f) "Do other careful sources agree?"

Q8. Put these actions in the right order (collect, organise, process): (a) add the tally into counts and make a table; (b) work out the percent for each dwelling type; (c) walk the street and put a tally mark for each dwelling.

Un scaffolded

Q9. Design a collection sheet to survey the dwellings on a street near *your* school. Include the context fields at the top and one row for each dwelling type you expect to see.

Q10. A group's street tally gives 15 separate houses, 3 townhouses and 2 flats. (a) Find the total. (b) Turn each count into a percent. (c) Which dwelling type is the most common on their street?

Q11. Write two different advanced search strings you could use to find secondary sources for the question "Is Australia's most liveable city also its biggest?" Name the tool each string uses.

Q12. A website claims your town's population has doubled in two years. Using the two big questions, write one relevance question and two reliability questions you would ask before using it.

Fieldwork response task

R1. Carry out a short fieldwork study of a street or the school grounds near you (any Victorian locality will work). In one paragraph and one table, with headings: (a) state your question; (b) collect both quantitative and qualitative data using a collection sheet you designed; (c) organise the data into a table and process one result into a percent; (d) compare your result with one secondary source (for example, the ABS Census QuickStats for your locality); (e) conclude which of your two sources is more reliable for describing the whole locality, and why. Refer to your sources. Keep your raw sheet — you will use this same dataset again in the fieldwork of Sections 2F, 3C or 3D, and report it in Section 6C.

Word bank

Word	Meaning
primary source	information you collect yourself, first-hand
secondary source	information someone else collected first
fieldwork	research done in the real place being studied
data	the facts, numbers and words you collect
quantitative data	data in numbers — things you can count or measure
qualitative data	data in words — what people say, see or feel
dwelling	a place where people live: a house, townhouse or flat
Census	the official count and survey of every person and home in Australia (ABS)
streetscape	what a street looks like: buildings, shops, footpaths, trees
geospatial technologies	digital tools that work with place and location
reliability	how much you can trust data or a source
relevance	how well a source matches your question
sample	the small part you actually look at, out of the whole

Every word in this bank is defined again at the place it first appears.

Answers

Q1. (a) primary; (b) secondary; (c) primary; (d) secondary; (e) primary. **Q2.** (a) tally; (b) survey; (c) photograph; (d) interview; (e) field sketch. **Q3.** (a) quantitative; (b) qualitative; (c) quantitative; (d) quantitative; (e) qualitative; (f) quantitative. **Q4.** (a) 18; (b) 20; (c) so anyone can tell when and how the data was collected — it makes the data easier to trust and easier to repeat. **Q5.** (a) 94.9%; (b) the Census (2,420 occupied dwellings against the street's 20); (c) yes — both show separate houses as by far the most common type (90% on the street, 94.9% in the town). **Q6.** (a) e.g. `intitle:how Australians view water shortages`; (b) it only searches the ABS website, the official expert source for Australian numbers. **Q7.** (a) relevance; (b) reliability; (c) relevance; (d) reliability; (e) relevance; (f) reliability. **Q8.** collect = (c); organise = (a); process = (b). **Q9.** Sheet names context fields (street, date, time, method) and has a row for each dwelling type with a tally and a count column. **Q10.** (a) 20; (b) separate 75%, townhouse 15%, flat 10%; (c) separate house. **Q11.** Any two strings using named tools, e.g. `intitle:which Australian city is most liveable (intitle:) and "most liveable city" site:abs.gov.au` (quote marks + site:). **Q12.** Relevance e.g. "Is it about my town's population?" Reliability e.g. "Who made it? Are they an expert?" and "Do they show their evidence / does the Census agree?" **R1.** Answers vary. A strong response states one clear question, collects both kinds of data on a designed sheet, organises into a table, processes one percent, compares with a named secondary source, and gives a reasoned reliability verdict referring to sample size and who made the source.

Representing and describing information and data in maps, graphs, tables and other formats

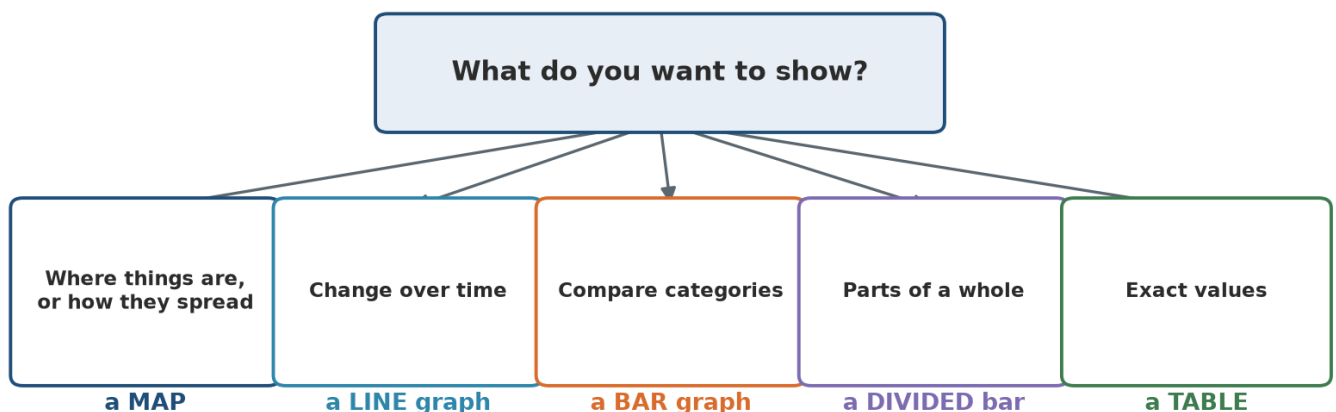
Curriculum link: Victorian Curriculum 2.0, Levels 7–8, Geographical Skills (Geographical inquiry) — VC2HG8S03. This section also works elaborations VC2HG8S03.E01 (maps, graphs, diagrams, tables and BOLTSS), VC2HG8S03.E02 (a liveability survey shown as a table and graph, and an annotated landform diagram), VC2HG8S03.E03 (maps at different scales; population distribution in Australia and in China), VC2HG8S03.E04 (geospatial technologies and choropleth maps) and VC2HG8S03.E05 (ethical research methods).

Teaching sequence (teacher note). 1. Start with the decision chart (Figure 5C.1): the question decides the format. 2. Teach BOLTSS with the model map (Figure 5C.2), then have students fix a “broken” map that is missing parts. 3. Worked example 1 reads a line graph of real urbanisation data (Figure 5C.3) — this links to Chapter 4. 4. Worked example 2 reads a bar graph of real population density data (Figure 5C.4) — this links to the Asia region and to Chapter 1’s world patterns. 5. Show the same survey as a table and a graph (Figure 5C.5, linking to Chapter 2 liveability) and the annotated landform diagram (Figure 5C.6, linking to Chapter 3). 6. Use Figure 5C.7 for scale, then the two distribution maps, Australia (Figure 5C.8) and China (Figure 5C.9). 7. Teach the choropleth method (Figure 5C.10), read a real-data tile cartogram (Figure 5C.11) and meet the geospatial technologies (Figure 5C.12). 8. Set the practice questions; close with the evidence-based response (Q13).

Theory

Choosing the right format. Geographers collect information and data from primary sources (which you gather yourself, like a survey or a field count) and secondary sources (which someone else gathered, like the Australian Bureau of Statistics or the World Bank). The same data can be shown more than one way; the question you are answering decides the format.

Which representation fits your data?



One set of data can be shown more than one way.

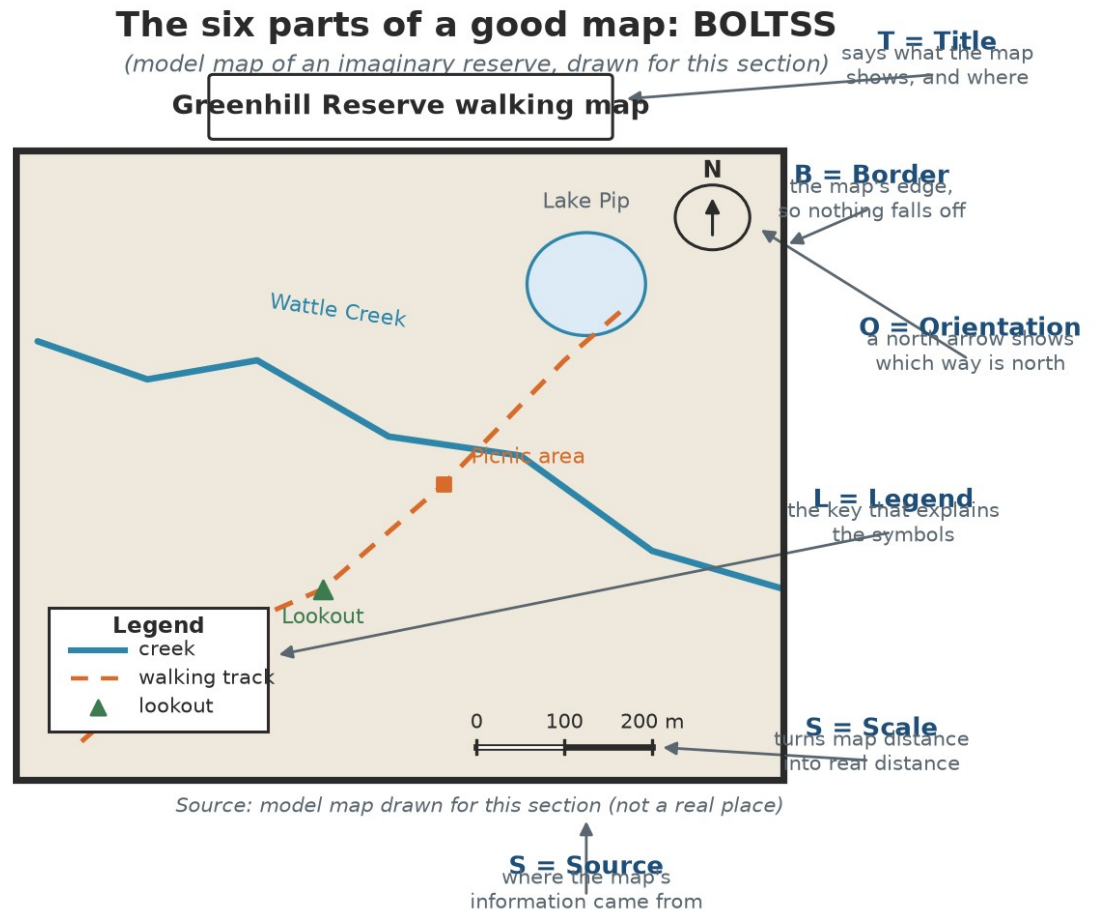
Pick the form that shows the pattern you want your reader to see.

Example: where people live is a map question; how fast a city grew is a line-graph question.

Decision chart: where things are or how they spread suits a map, change over time suits a line graph, comparing categories suits a bar graph, parts of a whole suits a divided bar, and exact values suit a table

BOLTSS — the six parts of a good map. Cartographic conventions are the agreed rules map-makers follow so that any reader can use a map. In this book we use the BOLTSS conventions: Border (the map’s edge, so nothing falls off), Orientation (a north arrow), Legend (the key that explains the symbols), Title (says what the map shows, and where),

Scale (turns map distance into real distance) and Source (where the map's information came from). The first letters of those six words spell the acronym BOLTSS.



Every map you make in this book should have all six parts.

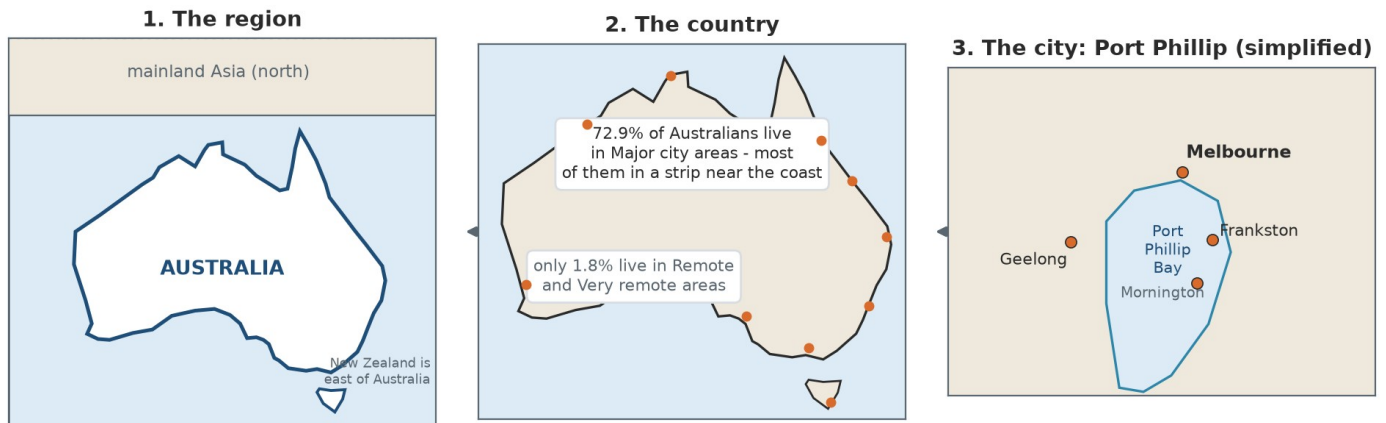
A model walking map of the imaginary Greenhill Reserve with the six BOLTSS parts called out: border, north arrow, legend, title, scale bar and source line

Tables, graphs and divided bars. A **table** holds exact values in rows and columns. A **graph** shows the pattern in the values, so the reader can see it at a glance: a **line graph** for change over time, a **bar graph** to compare categories, and a **divided bar** to show parts of a whole (one bar split into shares, each share drawn as part of the whole bar).

Annotated diagrams. An **annotation** is a short note added to a diagram that points out what changed, where, and by how much. Annotated diagrams are how geographers show a process or a change, such as a landform changing over time.

Scale and maps at different scales. The **scale** of a map is the link between map distance and real distance on the ground. The same question can be asked at different scales — a region, a country, or a city — and each scale shows a different part of the answer. Every map, at every scale, should still follow the cartographic conventions (BOLTSS).

One question at three scales: where do people live?



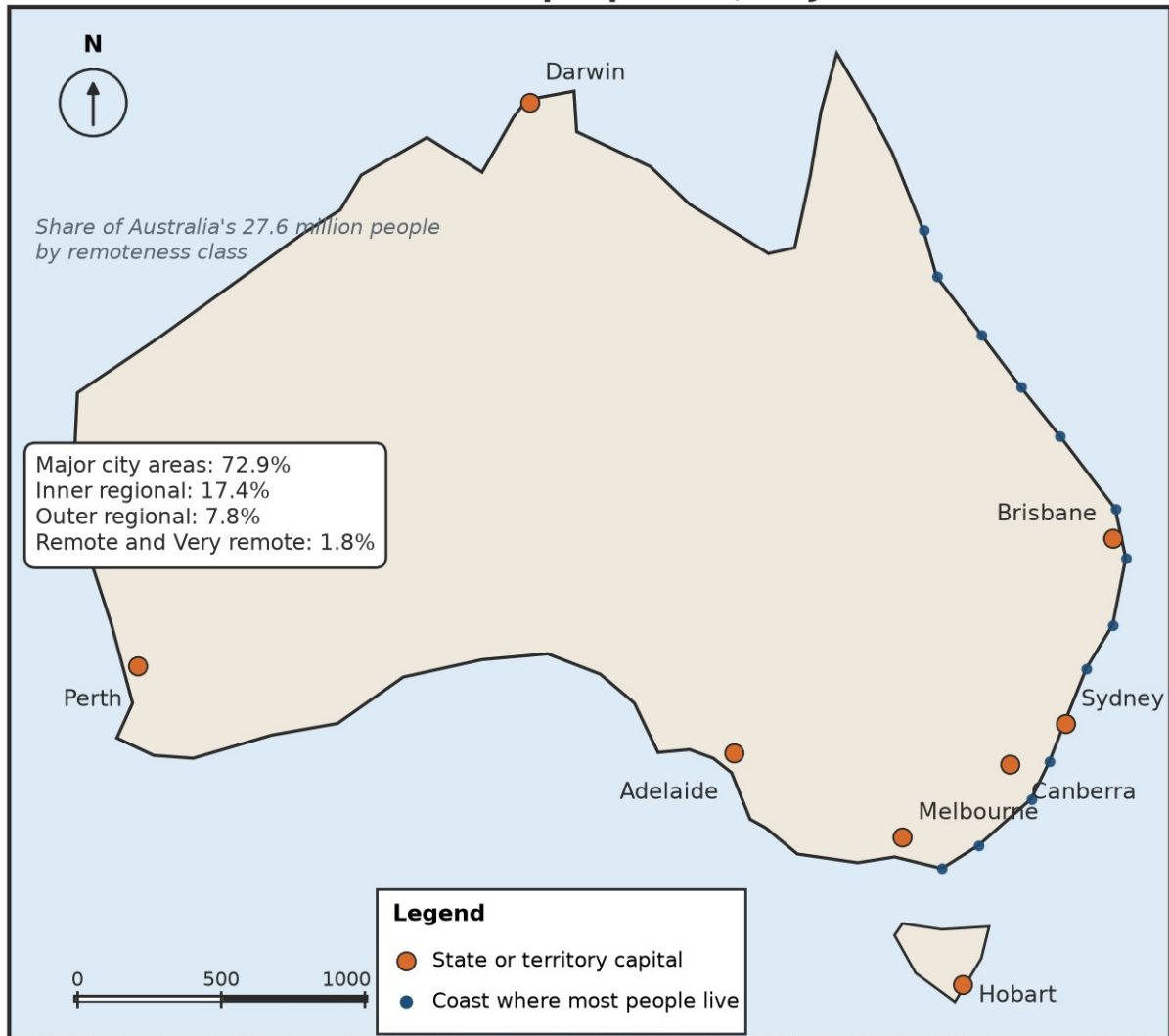
Same question, three scales. Remoteness shares: ABS, Regional population, Australia, 2024-25 (cat. 3218.0), 30 June 2025. City panel is a simplified teaching shape.

One question at three scales: Australia in its region, Australia as a whole with remoteness shares from ABS data, and a simplified city-scale map of Port Phillip, Melbourne

Where people live — distribution maps. The **spatial distribution** of something is where it is found across Earth's surface, and how it is spread. Maps are the best format for distribution. Two real patterns to remember:

- **Australia** — most people live in a strip near the coast, in or near the capital cities. At 30 June 2025, 72.9% of Australia's 27.6 million people lived in Major city areas and only 1.8% lived in Remote and Very remote areas.
- **China** — the population is crowded to the east of the **Heihe–Tengchong Line**, drawn by the geographer Hu Huanyong in 1935. East of the line live about 94% of the people on about 43% of the land; west of it, about 6% of the people on about 57% of the land.

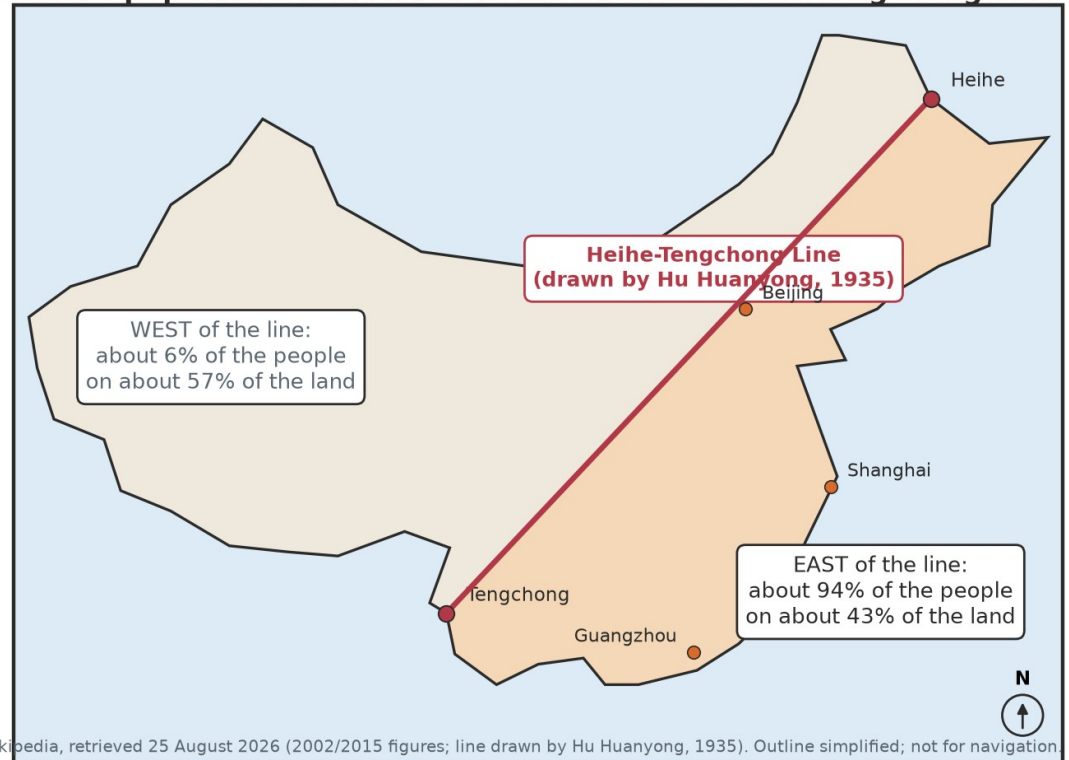
Where Australia's people live, 30 June 2025



Source: ABS, Regional population, Australia, 2024-25 (cat. 3218.0), table 3, 30 June 2025. Outline simplified; not for navigation.

Map of Australia with full BOLTSS: capital city dots, a coastal strip marked where most people live, and a box giving the share of people in each remoteness class from ABS data

China's population is crowded to the east: the Heihe-Tengchong Line



Map of China split by the Heihe-Tengchong Line: about 94% of the people live east of the line on about 43% of the land, and about 6% live west of it on about 57% of the land

Choropleth maps. A **choropleth map** shades each area by the class its value falls in, so darker (or stronger) shade means a higher value. It is built in three steps: count the value for each area, group the values into classes, then shade each area by its class. A **tile cartogram** does the same job with one tile per place, sized the same and placed roughly where the place sits — useful when the real shapes are hard to draw.)

How a choropleth map is made (model data)

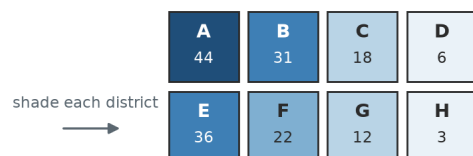
Step 1. Count the value for each district

District	Value
District A	44
District B	31
District C	18
District D	6
District E	36
District F	22
District G	12
District H	3

Step 2. Group the values into classes



Step 3. Shade each district by its class



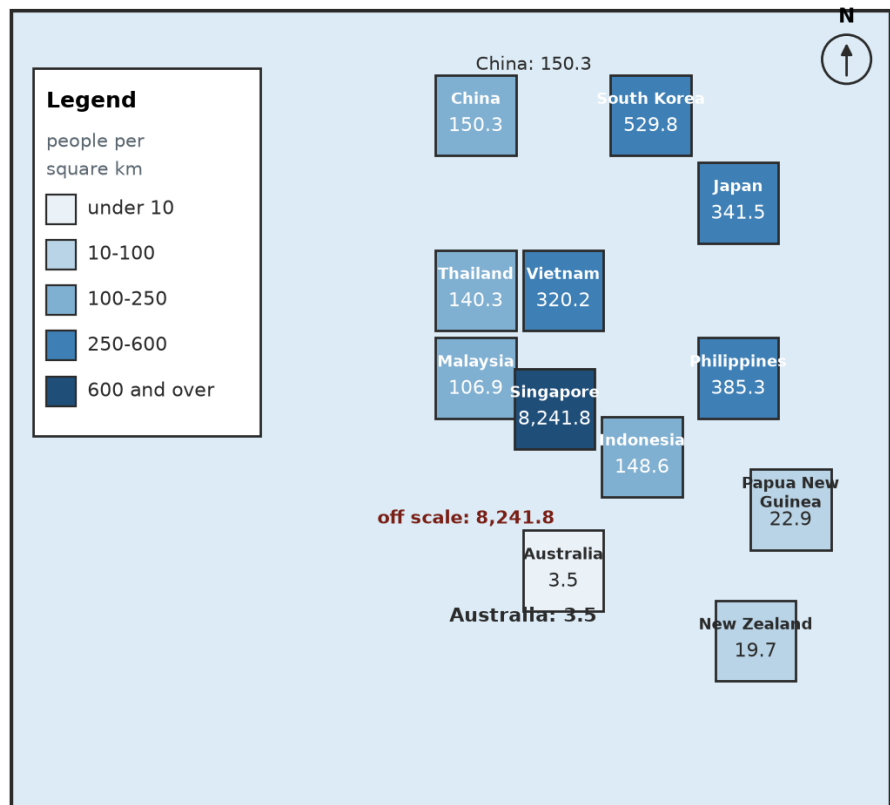
Darker shade = higher value. The map shows the **SPATIAL PATTERN** at a glance.

Example: 'parks per 1000 residents'

Model data drawn for this section to show the method.

Three-step model of how a choropleth map is made: a table of values for eight districts, the values grouped into five classes, and the districts shaded by class

Population density in Australia's region, 2023 (tile cartogram)

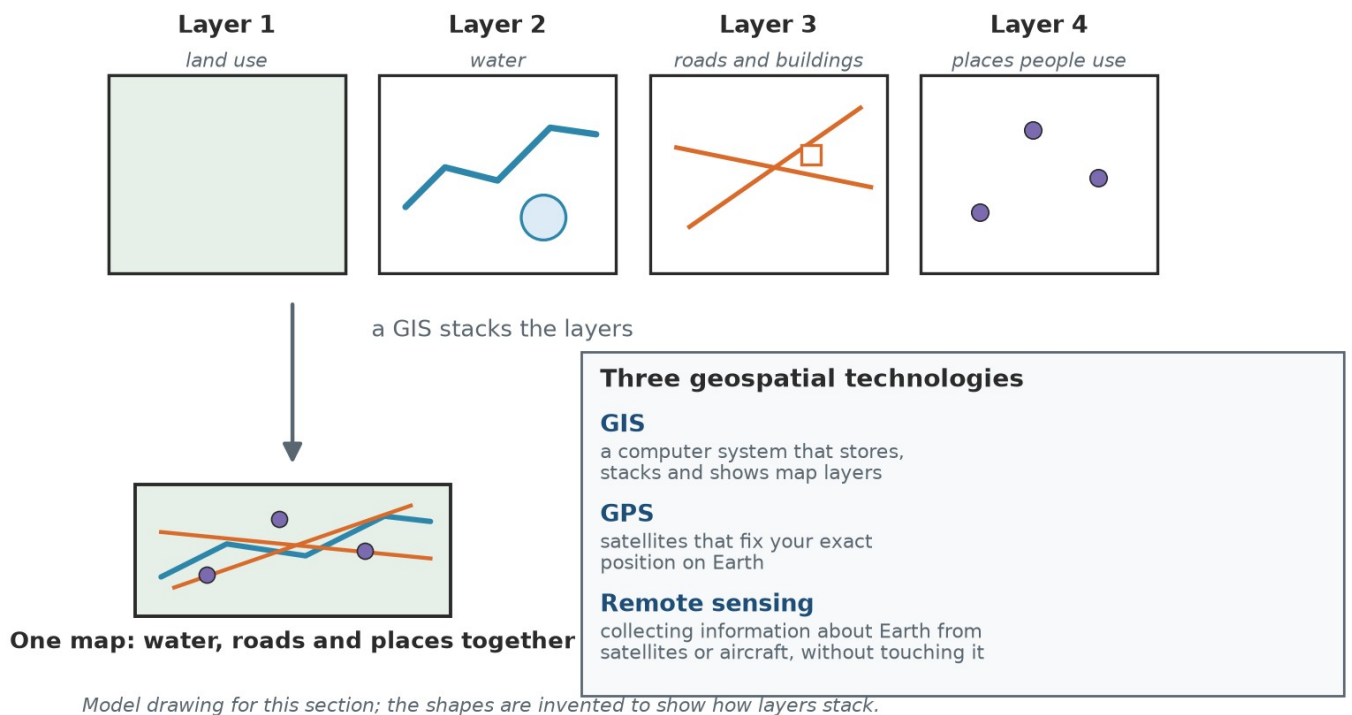


Source: World Bank, World Development Indicators, EN.POP.DNST, 2023 (retrieved 25 August 2026). Tiles are placed roughly, not at exact positions.

Tile cartogram of population density in Australia's region in 2023 from World Bank data: each country is a tile shaded by its density class, with the value written on every tile and Singapore marked off scale

Geospatial technologies. Geospatial technologies are the digital tools geographers use to collect, store and show information about places. The three you should know: **GIS** (a computer system that stores, stacks and shows map layers), **GPS** (satellites that fix your exact position on Earth) and **remote sensing** (collecting information about Earth from satellites or aircraft, without touching it). The web mapping app on a phone is a GIS many people use every day. ABS Census data is often mapped this way, for example as choropleth maps.

How a GIS works: layers of information about the same place



Model diagram of how a GIS stacks four layers about the same place (land use, water, roads and buildings, places people use) into one map, with a glossary of GIS, GPS and remote sensing

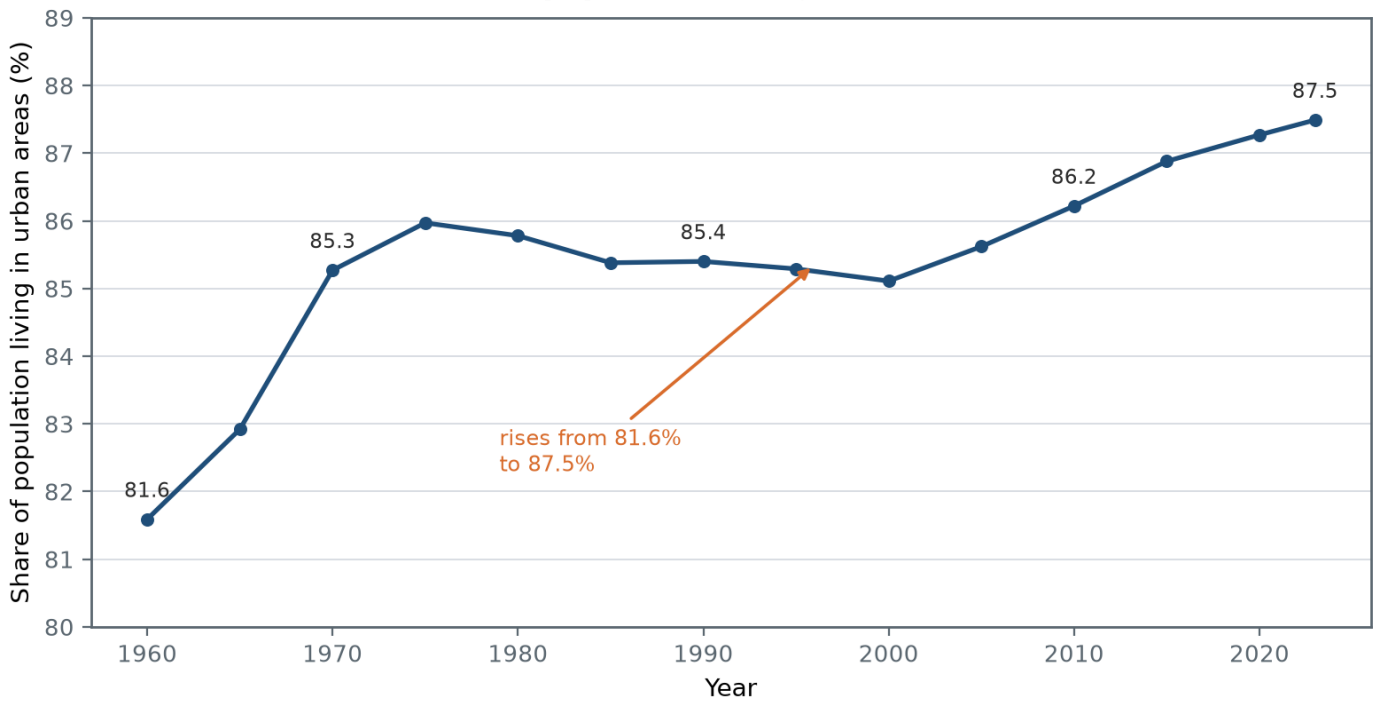
Ethical research methods. Good research is honest and fair. Ask politely before you collect information about people; record answers as given; never make up or change data; and always write your source so your work can be checked. These habits apply to a class survey as much as to a professional study.

Worked examples

Example 1 — scaffolded

Figure 5C.3 is a line graph of the share of Australia's population living in urban areas (cities and towns), 1960–2023 (World Bank data). Read the graph and describe the trend.

Share of Australia's population living in urban areas, 1960-2023



Source: World Bank, World Development Indicators, SP.URB.TOTL.IN.ZS (retrieved 25 August 2026)

Line graph of the share of Australia's population living in urban areas, 1960 to 2023, rising from 81.6% to 87.5%, with World Bank source line

Working

The x-axis is **year** (1960–2023); the y-axis is the **share of people living in urban areas (%)**.

In 1960 the share was **81.6%**; in 2023 it was **87.5%**.

The rise was quick at first (81.6% to 85.3% in ten years), then the line was almost flat from about 1975 to about 2000, then it rose again.

Trend: Australia was already an urban country in 1960 and became more so — an increase of 5.9 percentage points over 63 years.

Comment

Always read both axes first.

Quote the start and end values.

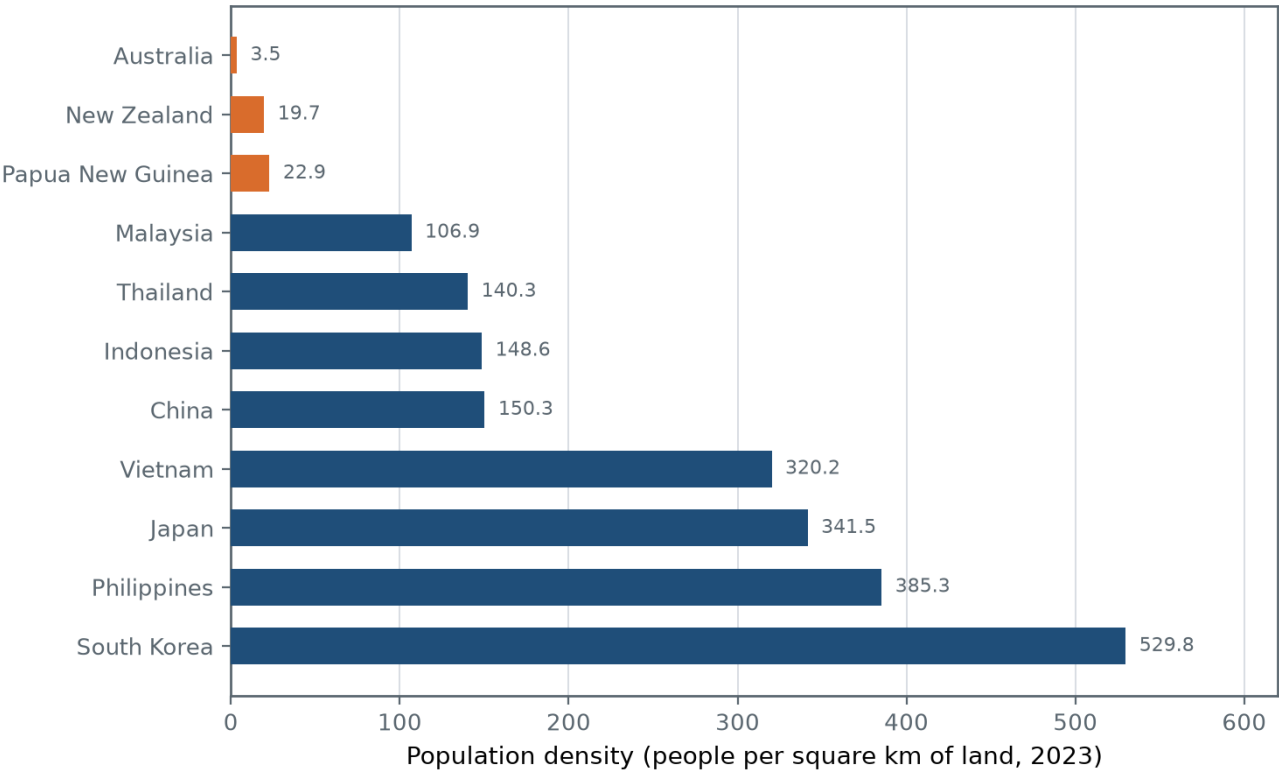
Describe the shape, not just the ends.

A trend is the overall pattern. This is the urbanisation idea from Chapter 4.

Example 2 — scaffolded

Figure 5C.4 is a bar graph of population density (people per square km of land) in 2023 for countries in Australia's region (World Bank data). Use it to compare how crowded the countries are.

How crowded is each country? Population density in Australia's region, 2023



Source: World Bank, World Development Indicators, EN.POP.DNST, 2023 (retrieved 25 August 2026)

Bar graph of population density in 2023 for eleven countries of Australia’s region, from Australia at 3.5 people per square km to South Korea at 529.8, with World Bank source line

Working	Comment
Each bar is a country (the categories); bar length is people per square km (the values).	A bar graph compares categories.
Lowest is Australia, 3.5 ; highest on the graph is South Korea, 529.8 . (Singapore, 8,241.8, is far off the scale and noted in the figure caption.)	Quote exact values with units.
Australia’s bar is about 1/150 of South Korea’s: $529.8 \div 3.5 \approx 151$.	A comparison is stronger with a ratio or difference.
Pattern: the region’s countries are far more crowded than Australia; Australia has one of the lowest population densities in the world.	End with the pattern in one sentence.

Example 3 — unscaffolded

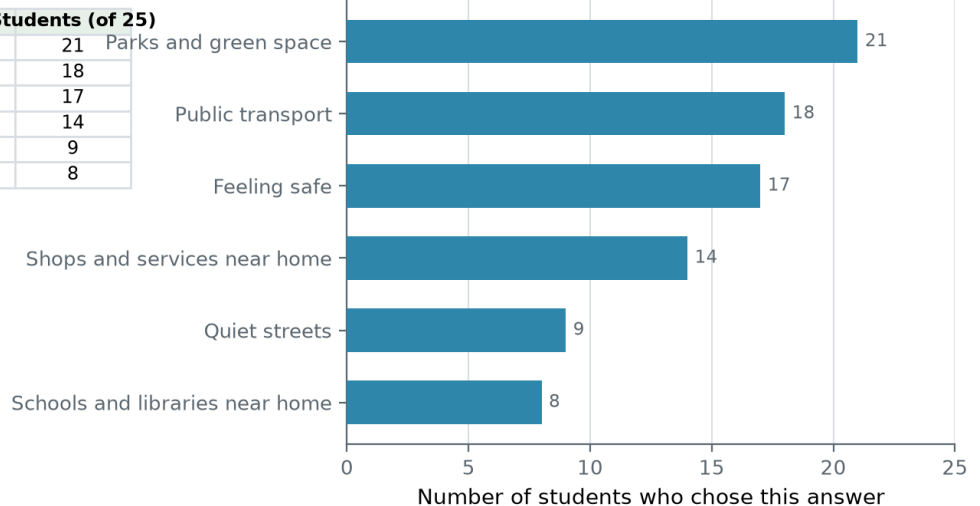
Figure 5C.5 shows a model class survey — “What makes our suburb a good place to live?” (25 students, Melbourne; students could choose up to three answers) — as a table and as a bar graph. Name the most-chosen answer with its exact count, the least-chosen answer, and say which format shows the pattern faster and why.

Model survey: 'What makes our suburb a good place to live?' (25 students, Melbourne)

The results, as a table (exact counts)

Answer chosen	Students (of 25)
Parks and green space	21
Public transport	18
Feeling safe	17
Shops and services near home	14
Quiet streets	9
Schools and libraries near home	8

The same results, as a bar graph (the pattern)



Students could choose up to three answers.

Model data drawn for this section; it shows how survey results can be represented, not how any real class answered.

The same model survey results shown twice: as a table of exact counts and as a bar graph, from parks and green space (21 of 25 students) down to schools and libraries near home (8)

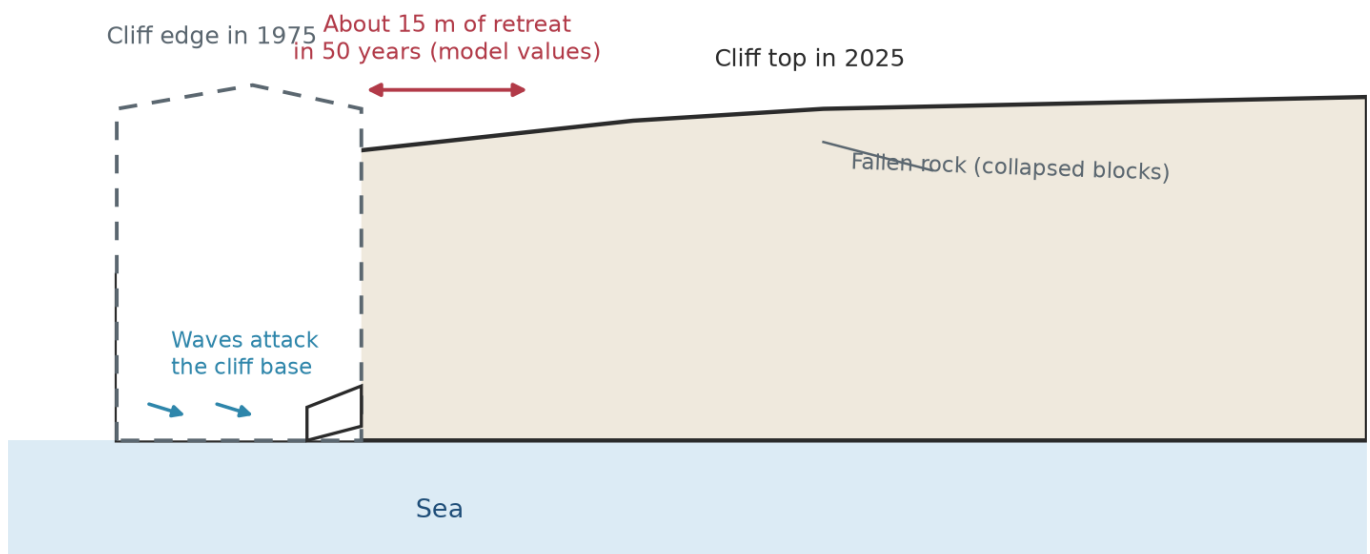
Most chosen: **parks and green space, 21 of 25 students**; least chosen: **schools and libraries near home, 8**. The **bar graph** shows the pattern faster — the bars are already in order, so the eye sees the steep drop from parks (21) to quiet streets (9) without reading a single number. The **table** is better when the exact counts matter. This is the Chapter 2 idea that liveability is measured by asking people what services and features matter to them.

Example 4 — unscaffolded

Figure 5C.6 is an annotated diagram of a soft-rock sea cliff retreating over time (model). List the two dates shown, the size of the retreat, and the process named at the cliff base.

An annotated diagram: a soft-rock sea cliff retreats over time (model)

Annotations (the notes added to a diagram) point out what changed, where, and by how much.



Model drawing for this section: values are illustrative; real cliffs retreat at different rates depending on rock type and waves.

Annotated cross-section diagram of a soft-rock sea cliff: the 1975 cliff edge drawn dashed, the 2025 cliff top behind it, about 15 m of retreat in 50 years, fallen rock at the base, and waves attacking the cliff base

The dashed line is the **cliff edge in 1975**; the solid line is the **cliff top in 2025**. The annotations give **about 15 m of retreat in 50 years** (model values), **fallen rock (collapsed blocks)** at the base, and the process: **waves attack the cliff base**. The diagram combines ideas from Chapter 3 (how waves shape coastal landforms) with the skill of annotating change over time.

Practice questions

Scaffolded

Q1 (BOLTSS). Figure 5C.2 shows the six BOLTSS parts. (a) Write out what each letter of BOLTSS stands for. (b) A student map has a title, a north arrow and a legend, but no border, no scale and no source. Which three BOLTSS parts are missing? (c) Which part tells the reader where the map's information came from?

Q2 (Choosing a format). Use Figure 5C.1. Pick the best format (map, line graph, bar graph, divided bar or table) for each question: (a) "How did Melbourne's population change from 1960 to 2020?" (b) "What are the exact counts from our class survey?" (c) "Where are Victoria's national parks?" (d) "Which suburb scored highest in our liveability survey?" (e) "What share of Australia's people lives in each remoteness class?"

Q3 (Table to graph). Figure 5C.5 shows a model survey as a table and a graph. (a) How many students chose "public transport"? (b) How many more students chose "feeling safe" than "quiet streets"? (c) Explain in one sentence why the total of the column is more than 25.

Q4 (Scale). Look at the three panels of Figure 5C.7. (a) Put the panels in order from the one showing the largest area to the one showing the smallest area. (b) Which panel would you use to answer "Which side of the bay does Mornington sit on?" (c) Name two BOLTSS parts you can find on the full map in Figure 5C.8.

Q5 (Australia's distribution). Figure 5C.8 maps where Australia's people live. (a) Quote the share of people living in Major city areas. (b) Quote the combined Remote and Very remote share. (c) Which BOLTSS part tells you the date of the data? (d) Describe the spatial distribution of Australia's population in one sentence.

Q6 (China's distribution). Figure 5C.9 maps where China's people live. (a) Name the line drawn on the map and the year it was first drawn. (b) Quote the share of people and the share of land east of the line. (c) Is Beijing east or west of the line? (d) Write one sentence comparing China's pattern with Australia's pattern in Figure 5C.8.

Q7 (Choropleth method). Figure 5C.10 shows how a choropleth map is made from model data. (a) Which class does District F (value 22) fall in? (b) Name the two districts shaded darkest and give their values. (c) In one sentence, say what the shaded map shows that the table does not.

Q8 (Geospatial technologies). Match each job to GIS, GPS or remote sensing (Figure 5C.12): (a) logging the exact position of every tree on a school grounds survey; (b) a satellite collecting an image of smoke from a bushfire; (c) stacking a water layer, a roads layer and a parks layer to choose a picnic site; (d) a phone map app routing you to the nearest station.

Unscaffolded

Q9. Draw an annotated diagram, like Figure 5C.6, of a change you have seen or studied at any Victorian locality you know (a creek bank after floods, a beach after a storm, a roadside cutting). Include: the feature before and after, two dated or labelled states, at least two annotations with a size or amount, and a source line for your information.

Q10. The table below is model data for four imaginary Melbourne suburbs. Make a choropleth sketch: draw four boxes labelled A–D, shade them using the classes 0–9, 10–19, 20–29, 30+, add a legend and the other BOLTSS parts, and give your map a title and a source line.

Suburb	Parks per 1000 residents (model)
A	6
B	34
C	15
D	27

Q11. Compare Figures 5C.8 and 5C.9. Write two similarities and one difference in where people live in Australia and China, quoting at least one number from each map.

Q12. Design a short survey of three questions to measure liveability in your school's suburb (link to Chapter 2). For your results, choose either a table or a bar graph and justify your choice in one sentence. Finish by listing two ethical research methods you will follow when collecting and recording your answers.

Q13 — evidence-based response. Using Figures 5C.3 and 5C.4 (and 5C.8 if you wish), write four to six sentences describing where and how Australians live. You must: quote at least three numbers with their units; name the format each number came from (line graph, bar graph or map); use the words *urban* and *population density* correctly; and end with one sentence of trend or pattern. List your sources under your answer.

Answers

Q1. (a) Border, Orientation, Legend, Title, Scale, Source. (b) Border, Scale, Source. (c) Source.

Q2. (a) Line graph. (b) Table. (c) Map. (d) Bar graph. (e) Divided bar (or a choropleth map / table).

Q3. (a) 18. (b) $17 - 9 = 8$ more. (c) Students could choose up to three answers, so counts overlap.

Q4. (a) Panel 1 (region), panel 2 (country), panel 3 (city). (b) Panel 3. (c) Any two of: border, orientation (north arrow), legend, title, scale bar, source.

Q5. (a) 72.9%. (b) 1.8%. (c) The source line (with the title giving the topic). (d) Most Australians live in a coastal strip, most of them in or near the capital cities; the interior is almost empty.

Q6. (a) The Heihe–Tengchong Line, first drawn by Hu Huanyong in 1935. (b) About 94% of the people on about 43% of the land. (c) East. (d) Both countries crowd their people near the east or south-east coast; China's split is a sharp line, Australia's is a coastal strip.

Q7. (a) 20–29. (b) A (44) and E (36). (c) The map shows where the high and low values are, so the pattern is visible without reading every number.

Q8. (a) GPS. (b) Remote sensing. (c) GIS. (d) GIS.

Q9. Check: before/after shown; two labelled or dated states; two annotations with amounts; source line present.

Q10. Check: A shaded 0–9, C shaded 10–19, D shaded 20–29, B shaded 30+; legend matches shades; border, orientation, title, scale and source present.

Q11. Similarities: both countries have most people near the east/south-east coast; both have a large near-empty interior/west (Australia 1.8% in Remote and Very remote; China about 6% west of the line). Difference: China's pattern splits along a named line (about 94% east), while Australia's follows a coastal city strip (72.9% in Major city areas).

Q12. Check: three clear questions about services/features; a justified format choice; two ethical methods (e.g. ask politely, record answers as given, never make up data, write the source).

Q13. See fully-worked solutions for a model response.

Fully-worked solutions

Q3 (c), expanded. The survey allowed up to three answers per student, so one student can appear in two or three rows. That is why the column adds to 87, not 25. A table note ("students could choose up to three answers") is part of honest reporting — a source-style note that stops the reader being fooled.

Q5 (d), expanded. Read the map in this order: title (what and where), legend (what the symbols mean), then the pattern. The dots (capital cities) and the coastal markers sit in a ring around the coast; the remoteness box confirms it with numbers (72.9% in Major city areas; 1.8% in Remote and Very remote). One sentence: *Australia's population is concentrated in a coastal strip of capital cities, with a near-empty interior.*

Q10, expanded. Class each value: A = 6 → 0–9 (lightest); C = 15 → 10–19; D = 27 → 20–29; B = 34 → 30+ (darkest). The legend must list the four shades in order with their class ranges; the title must say what and where ("Parks per 1000 residents, four Melbourne suburbs (model)"); the source line must say the data is model data drawn for this task. Orientation is a north arrow even on a sketch, and the scale can be "not to scale" written honestly in the border note.

Q13, model response. The line graph shows that Australia was already an urban society in 1960, when 81.6% of people lived in urban areas, and that the share rose to 87.5% by 2023 (World Bank, SP.URB.TOTL.IN.ZS). The bar graph shows the country's population density is only 3.5 people per square km, about 150 times less crowded than South Korea's 529.8 (World Bank, EN.POP.DNST). The map adds the detail that most of those urban Australians live in a coastal strip of capital cities, with 72.9% in Major city areas (ABS, cat. 3218.0). Together the three formats show a country that is urban, coastal and lightly populated overall. The trend is slow but steady urban growth on top of an already urban base. Sources: World Bank, World Development Indicators (retrieved 25 August 2026); ABS, Regional population, Australia, 2024-25 (cat. 3218.0), Table 3, 30 June 2025.

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

Curriculum focus — Victorian Curriculum 2.0, Geography, Levels 7 and 8, strand *Geographical Inquiry Skills*. Content description VC2HG8S04. Elaborations drawn on: VC2HG8S04.E01 (interpreting and comparing maps, graphs and statistical methods), VC2HG8S04.E02 (concept maps to explore relationships), VC2HG8S04.E03 (identifying similarities and differences, for example in contrasting Australian places), VC2HG8S04.E04 (explaining patterns and trends using weather maps, satellite images and graphs), VC2HG8S04.E05 (inferring relationships from surveys, interviews and field measurements), VC2HG8S04.E06 (building a liveability index out of several measures). Like all skills sections, this one is taught through the knowledge content of Chapters 1–4.

In this section

Geographers are always being handed information: maps, graphs, tables, surveys, satellite images, field measurements. The skill is what you do with it. To **interpret** a display means to work out what it shows. To **analyse** it means to go further and ask what it means — where the **patterns** are, what the **trends** are, which things show a **relationship**, and what is similar and different between places.

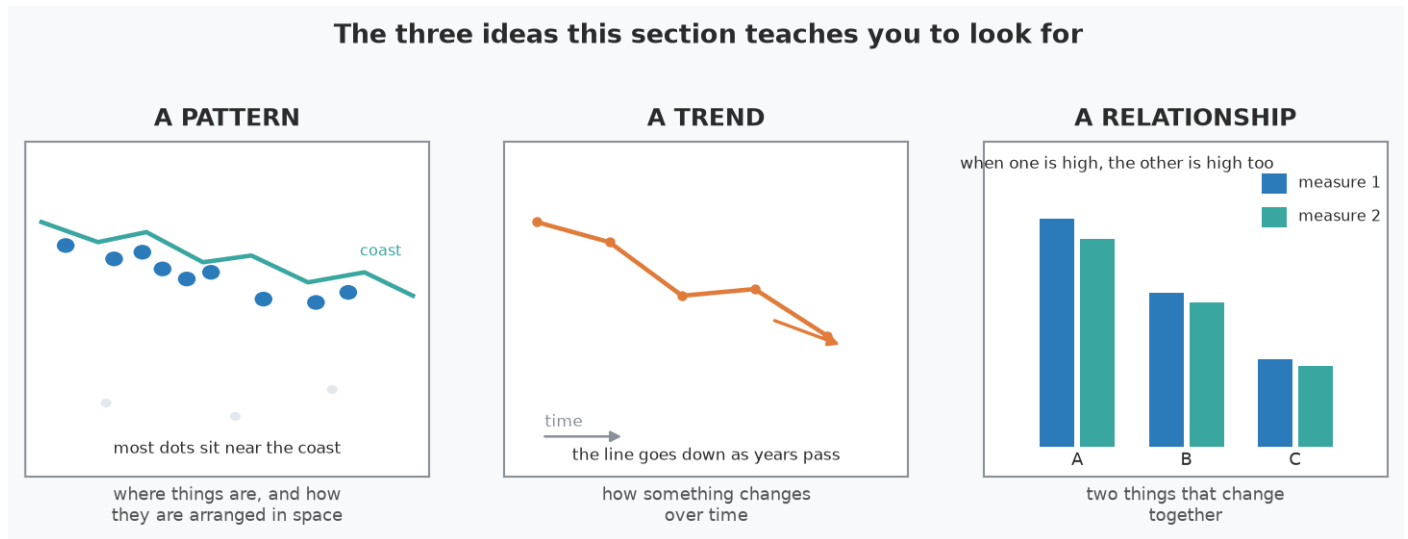
In this section you will learn to:

- tell the difference between a **pattern** (in space), a **trend** (in time) and a **relationship** (two things moving together);
- interpret maps, graphs and tables carefully, using a checking habit;
- describe and explain trends with real data from Australia and the United States;
- describe and explain the spatial pattern of where Australians live;
- **infer** relationships from a controlled comparison of places, and from surveys;
- lay a relationship out as a **concept map** so it can be tested;
- build a **liveability index** that combines several measures into one score.

Key words to learn: interpret, analyse, pattern, trend, relationship, infer, variable, distribution, concentration, survey, concept map, index, liveability.

1. Three ideas to look for: pattern, trend, relationship

Most analysis in Geography comes down to looking for three ideas.



Three small panels. Panel one, a pattern: blue dots clustered along a drawn coastline with a few pale dots inland, captioned *most dots sit near the coast*. Panel two, a trend: an orange line falling as years pass. Panel three, a relationship: paired blue and teal bars for groups A, B and C that rise and fall together, captioned *when one is high the other is high too*

Original model drawing for this section.

A **pattern** is how things are arranged **in space**. Are they clustered in one place, spread evenly, or strung along a line such as a coast or a river? The left panel shows a coastal pattern: most dots sit near the coast.

A **trend** is how something changes **over time**. Is it rising, falling, holding steady, or changing direction part-way through? The middle panel shows a falling trend.

A **relationship** is a link between two **variables** — two things that can change. If the places that are high in one measure also tend to be high in another (and low goes with low), the two may be related. The right panel shows two measures moving together.

The habit this section builds is a two-step one: **describe first, then explain**. “Most people live near the coast” is a description of a pattern. “...because reliable rain and ports are near the coast” is an explanation. Never skip the first step: if you cannot describe what the data shows, you cannot explain it.

The same two-step habit works with every display type — graphs and tables here, and just as much with weather maps and satellite images: first say what you see, then say why it might be that way.

2. Interpreting displays carefully: a checking habit

Before interpreting any map, graph or table, run this checklist:

1. **What kind of display is it**, and what is its title claiming?
2. **What is being counted**, and how? Definitions matter more than numbers.
3. **What are the units** — people, percent, per person, per square kilometre?
4. **What date or period** does the data cover?
5. **Who collected it**, and where does it come from?

Two countries, side by side

What the numbers say before we start interpreting

Measure	Australia	United States of America
People (2023)	26.7 million	336.8 million
Land area	7.69 million km ²	9.15 million km ²
People per km ² (2023)	about 3.5	about 36.8
Share of people in urban areas (2023)	87.5%	80.1%
Biggest city	Melbourne, 5.3 million (urban area, 2025)	New York, 8.6 million (city boundary, 2025)

Careful: Australia's city figure counts the whole urban area, while the US figure counts only the city boundary.

Sources: World Bank (2023); ABS cat. 3218.0 (30 June 2025); US Census Bureau (2025). Retrieved 25 August 2026.

Comparison table titled *Two countries, side by side*. Rows: people in 2023, Australia 26.7 million, United States of America 336.8 million; land area 7.69 million and 9.15 million square kilometres; people per square kilometre about 3.5 and about 36.8; share of people in urban areas in 2023, 87.5 percent and 80.1 percent; biggest city, Melbourne 5.3 million urban area and New York 8.6 million city boundary. A warning line notes the two city figures count different things

Source: World Bank World Development Indicators (2023); ABS, *Regional population, Australia, 2024–25* (cat. 3218.0), 30 June 2025; US Census Bureau, *City and Town Population Totals: 2020–2025*. Retrieved 25 August 2026.

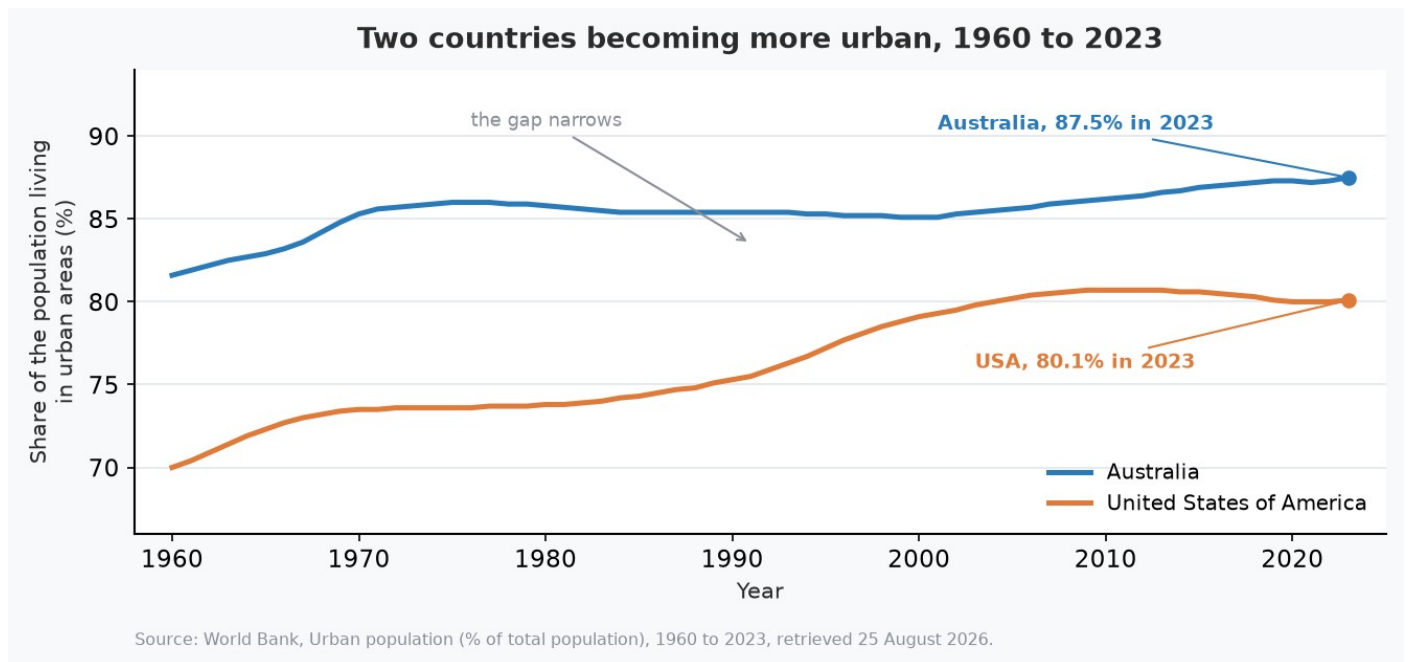
Now interpret the table. **Similarities:** both countries are large, and in both, most people live in urban areas — more than 80 of every 100. **Differences:** the United States of America has about 12.6 times Australia's people, yet only about 1.2 times Australia's land. So its people are about 10.5 times as crowded (about 36.8 people per km², against about 3.5). And, a little surprisingly, **Australia has the higher urban share** — 87.5% against 80.1%.

The last row is a warning about definitions. Australia's "biggest city" figure counts Melbourne's whole **urban area** (the built-up edge, 5.3 million), while the US figure counts only New York's **city boundary** (8.6 million). The two numbers are not measuring the same thing, so ranking cities with them would be unfair. That is checklist point 2: always ask *what is being counted, and how?* A number without its definition is a trap.

Point 3 matters just as much. "People per km²" is not a raw count; it is one number divided by another, which lets us compare countries of very different sizes. Per-person and per-area numbers are how geographers make fair comparisons.

Worked demonstration 1 — Describing and explaining a trend: urban share in Australia and the USA, 1960 to 2023

Let us interpret and analyse a real graph, step by step.



Line graph, 1960 to 2023. Australia's line starts at 81.6 percent, rises to about 86 percent by the mid-1970s, stays nearly level for about 25 years, then climbs to 87.5 percent in 2023. The United States line rises at a steady pace from 70.0 percent to 80.1 percent, with a small dip after 2010. The gap between the two lines narrows over time

Source: World Bank, Urban population (% of total population), indicator SP.URB.TOTL.IN.ZS, 1960–2023, retrieved 25 August 2026.

Step 1 — Interpret (checklist). A line graph of a percentage against years. The variable is the share of each country's people living in urban areas. One line per country, 1960 to 2023, from the World Bank.

Step 2 — Describe each trend. Australia began the period with most people already urban (81.6% in 1960), rose to about 86% by the mid-1970s, then held almost level for about 25 years before edging up to 87.5% in 2023. The United States of America started lower (70.0%) and rose at a steady pace to 80.1%, with a small dip after 2010.

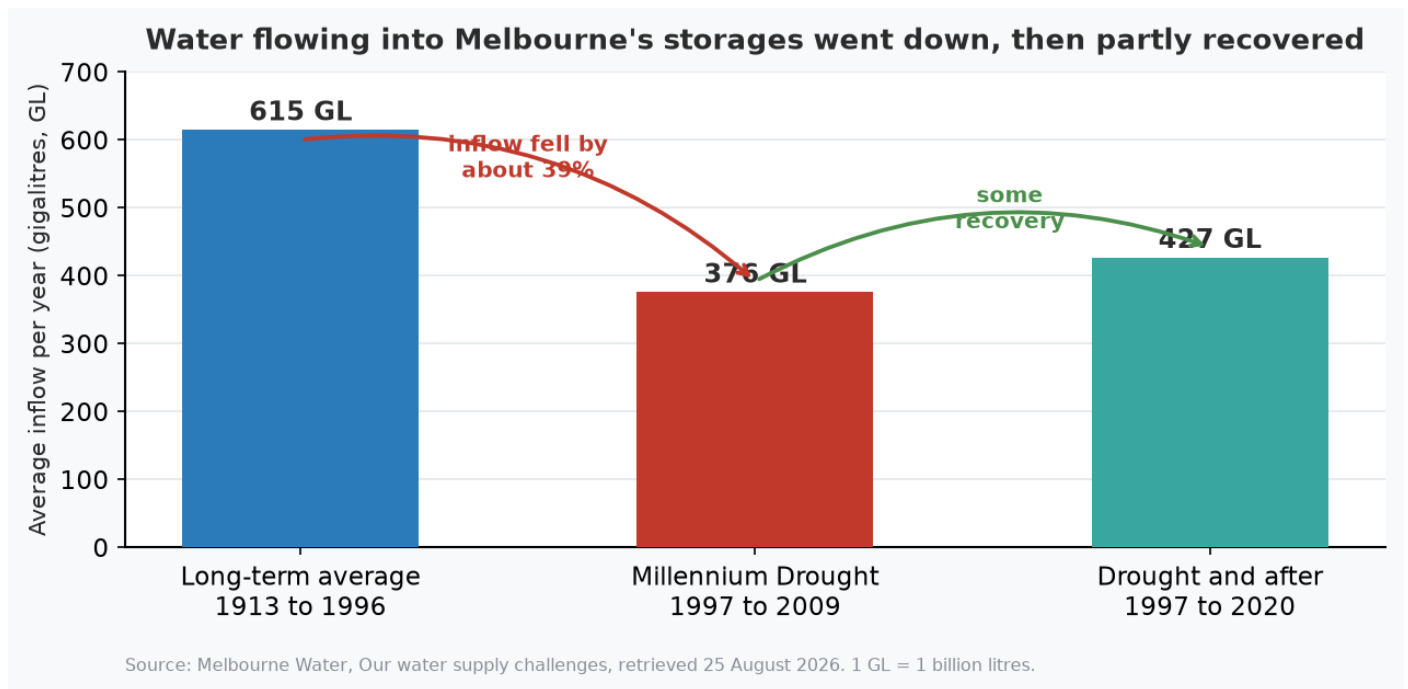
Step 3 — Describe similarities and differences. Both lines rise and both countries end very highly urban — that is the similarity. The difference is that Australia's line sits above the US line for the whole period, yet the **gap narrows**: 11.6 percentage points in 1960, 7.4 in 2023.

Step 4 — Explain. A trend is something to explain, not just report. In both countries, jobs, services and choices concentrated in cities over these decades, pulling people with them (the relationship mapped later in this section). Australia started higher because its inland is dry and its people settled overwhelmingly in a few coastal cities, as the map in section 4 shows. The narrowing gap suggests the US slowly caught up rather than Australia pulling away. Notice the honest wording: the graph *shows* the what; the why is a reasoned explanation that we check against other evidence.

Geographer's conclusion: both countries show a long rise in urban share, Australia's is higher but flatter in the middle of the period, and the gap between them shrank by about four percentage points across 63 years.

3. A second trend: water flowing into Melbourne's storages

Trends are not always smooth rises. This graph shows a trend that falls, then recovers in part.



Bar chart of average inflow per year into Melbourne's storages in gigalitres: 615 GL for the long-term average 1913 to 1996, 376 GL for the Millennium Drought years 1997 to 2009 with an arrow marking a fall of about 39 percent, and 427 GL for 1997 to 2020 marked as some recovery

Source: Melbourne Water, Our water supply challenges, retrieved 25 August 2026. 1 GL (gigalitre) = 1 billion litres.

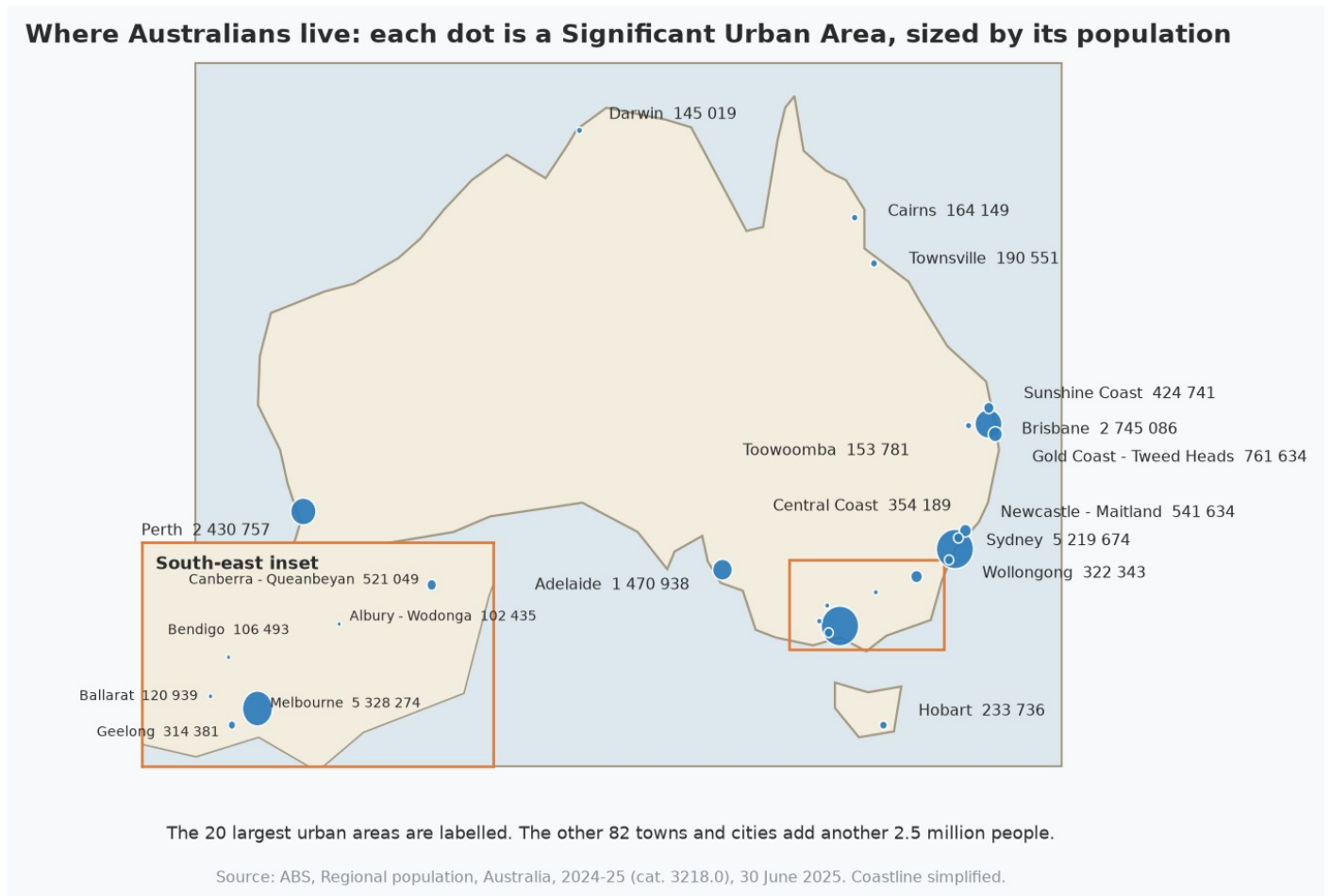
Describe. The long-term average inflow (1913–1996) was 615 GL a year. During the Millennium Drought (1997–2009) the average fell to 376 GL — a drop of about 39%. Over 1997–2020 as a whole the average was 427 GL: some recovery, but still about 31% below the long-term average.

Explain. The same dams, in the same place, received far less water from one period to the next because south-eastern Australia's rain is highly variable from decade to decade (the same idea behind the water scarcity work in Sections 1C and 1D). Dry soil also soaks up rain before it can run off into storages, deepening the dip.

This figure teaches two moves that belong in every analysis. First, a trend can change direction — “fell, then showed some recovery” is a better description than “fell”. Second, comparing **periods** (long-term average vs drought years) is a simple statistical method for spotting a trend when the numbers for each year would be noisy.

4. A spatial pattern: where Australians live

Now a pattern in space, drawn from the same source as the city figures in section 2.



Map of Australia with a simplified coastline and one blue dot per Significant Urban Area, sized by population. Dots cluster along the east, south-east and south-west coasts; the interior is almost empty. The 20 largest are labelled, from Sydney 5 219 674 and Melbourne 5 328 274 down to Albury-Wodonga 102 435, with a south-east inset showing Melbourne, Geelong, Ballarat, Bendigo, Canberra-Queanbeyan and Albury-Wodonga. Caption: the 20 largest urban areas are labelled; the other 82 towns and cities add another 2.5 million people

Source: ABS, Regional population, Australia, 2024–25 (cat. 3218.0), Significant Urban Area estimated resident population at 30 June 2025. Coastline simplified; original schematic map drawn for this section. Retrieved 25 August 2026.

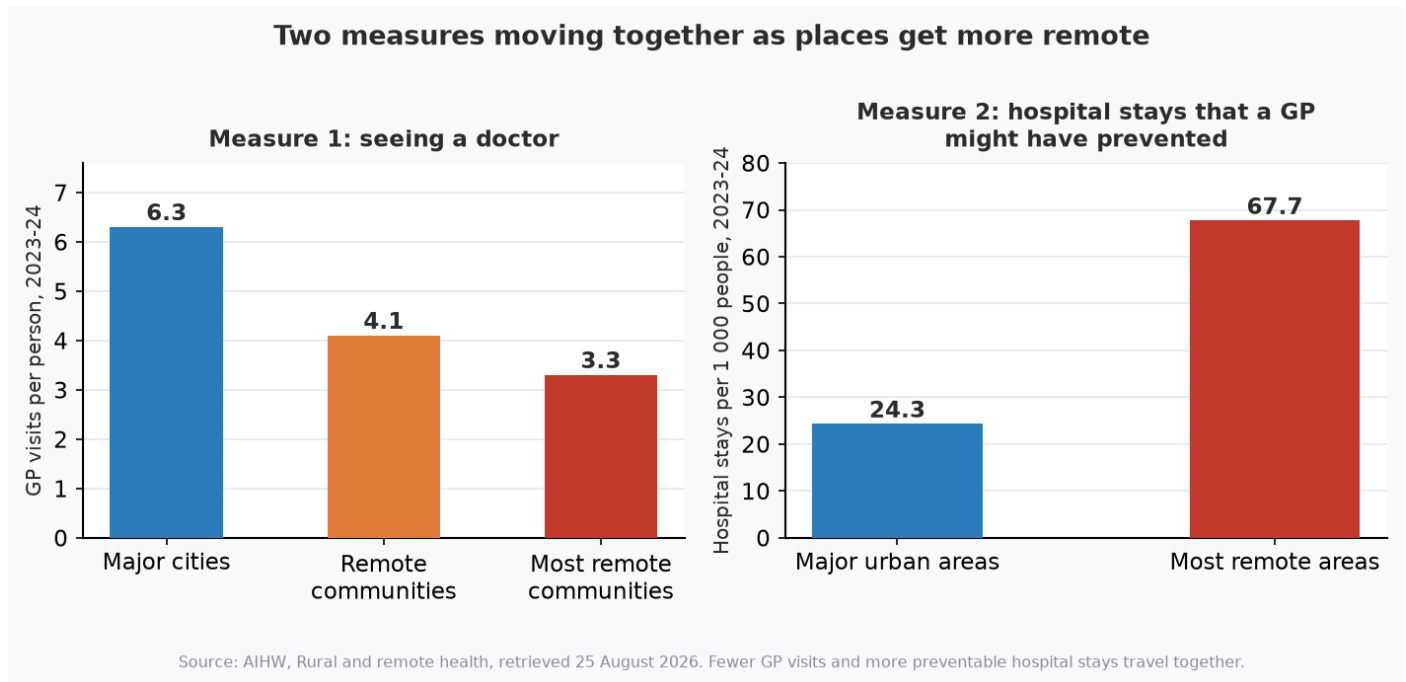
Describe. The dots are not spread evenly. They crowd the coast — above all the south-east (Melbourne, Sydney, Brisbane and the towns between them) and the south-west (Perth) — while the interior is nearly empty. Australia's 102 named Significant Urban Areas hold 24 187 359 of the country's 27 613 654 people: **87.6%**, matching the urban share in the earlier figures. The 20 largest alone hold more than 21.6 million.

Compare (map interpretation, map comparison). Lay this map beside the rainfall map from Section 1C. The wet edges of the continent and the peopled edges line up, and the dry middle is empty of both rain and cities. That is map comparison doing real work: two patterns in space, overlaid in your head.

Explain. Reliable water, good farmland, ports for trade and the jobs and services that grew up around them all sit near those coasts, so that is where people concentrated. The pattern and the trend agree: a country whose people already crowd the cities kept becoming more urban (Worked demonstration 1). One careful note keeps us honest: a pattern description says *where*, and the explanation is a claim to be tested — which is exactly what the next demonstration does with a different pair of variables.

Worked demonstration 2 — Inferring a relationship: remoteness and access to health services

A relationship is inferred when two variables move together across places. The Australian Institute of Health and Welfare gives us a controlled comparison: the same two measures, compared across places that differ mainly in how remote they are.



Two bar charts side by side. Measure one, GP visits per person in 2023-24: major cities 6.3, remote communities 4.1, most remote communities 3.3. Measure two, hospital stays per 1 000 people that a GP might have prevented: major urban areas 24.3, most remote areas 67.7. Caption: fewer GP visits and more preventable hospital stays travel together as places get more remote

Source: Australian Institute of Health and Welfare (AIHW), Rural and remote health, 2023–24, retrieved 25 August 2026.

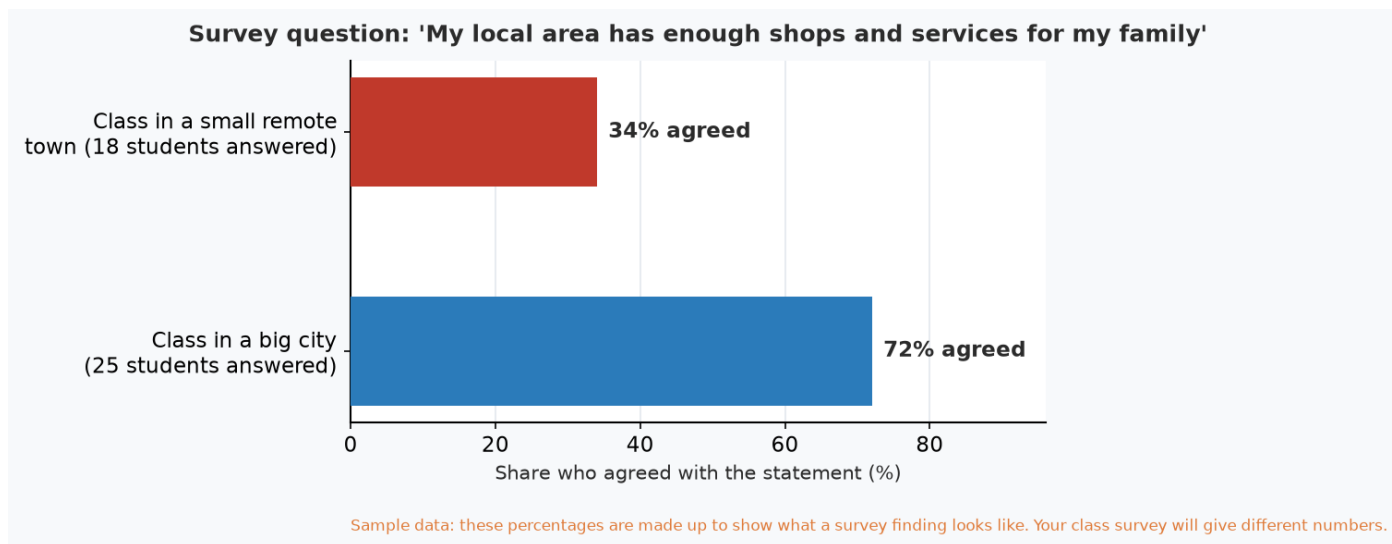
Step 1 — Describe measure 1. GP visits per person fall as remoteness rises: 6.3 in major cities, 4.1 in remote communities, 3.3 in the most remote.

Step 2 — Describe measure 2. Preventable hospital stays move the opposite way: 67.7 per 1,000 people in the most remote areas against 24.3 in major urban areas — nearly three times as many.

Step 3 — Infer the relationship. The two variables move together across the places: the more remote the place, the fewer GP visits and the more hospital stays that good everyday care might have prevented. So we can **infer**: *as remoteness increases, access to everyday health services decreases*. To infer means to reason your way to an idea from the evidence, rather than being told it.

Step 4 — The caution. Moving together is not the same as causes. Distance, the number of health workers willing to live in a place, and how far people must travel are all tangled up in this relationship. The controlled comparison (holding the country and the health system the same, varying mainly remoteness) makes the inferred relationship strong — but it is still an idea to be tested, for example with fieldwork counts of services and travel times (Section 5B).

Surveys are the other main way to collect relationship data (elaboration E05). Ask the same question in two contrasting places and compare the answers:



*Horizontal bar chart of a sample survey result to the statement *My local area has enough shops and services for my family*: a class in a big city, 72 percent agreed; a class in a small remote town, 34 percent agreed. Labelled as sample data made up to show what a survey finding looks like*

Sample data, drawn for this section to show the method — your own class survey will produce its own numbers.

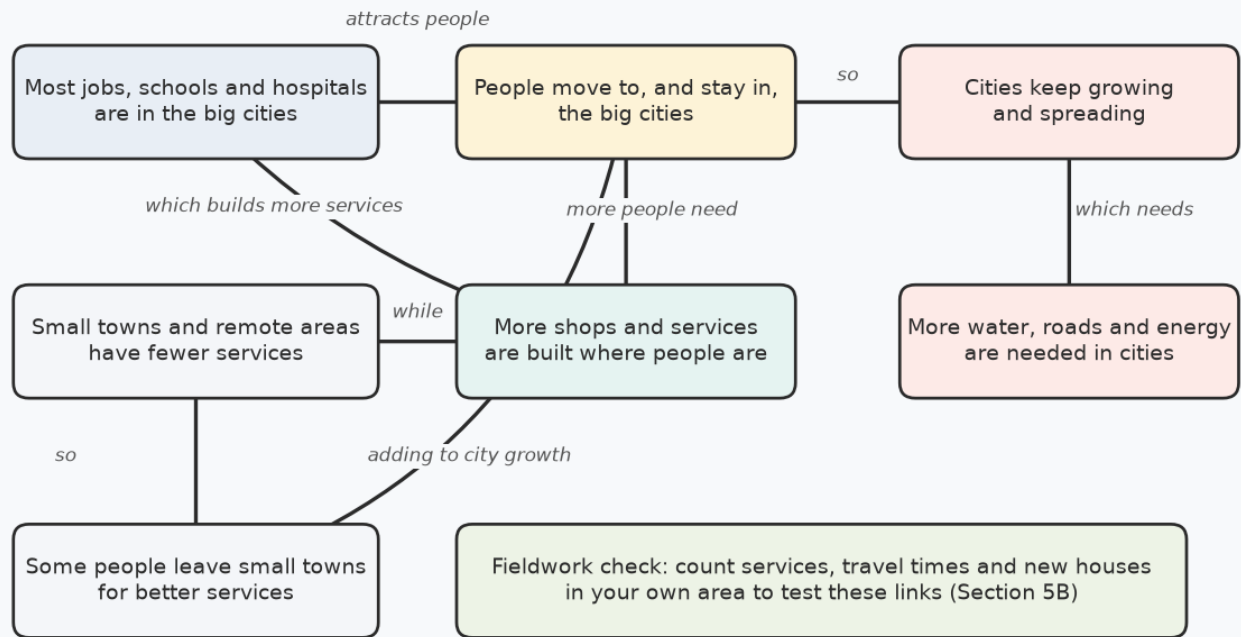
The made-up numbers show the shape of a real survey finding: perception of services differs between a big city and a small remote town. Comparing the two bars is comparing **perceptions** collected the same way in two places — the same controlled-comparison logic as the AIHW figure, with data you collect yourself.

Geographer's conclusion: remoteness and access to services show a clear relationship in the AIHW data, and surveys let you test whether people's perceptions match the official numbers.

5. Concept maps: laying a relationship out so you can test it

A **concept map** is a drawing of ideas joined by labelled arrows. It takes a relationship you suspect and lays it out in the open, arrow by arrow, so every link can be checked. That is what elaboration E02 means by using concept maps to explore links between the data and information that learning activities such as fieldwork collect.

Concept map: why do about 88 of every 100 Australians live in urban areas?



Arrows show how one idea leads to another. A concept map lays a relationship out so you can test it.

Original model drawing for this section.

Concept map titled why do about 88 of every 100 Australians live in urban areas. Boxes joined by labelled arrows: most jobs, schools and hospitals are in the big cities, which attracts people, so people move to and stay in the big cities, so cities keep growing and spreading, which needs more water, roads and energy; more people need more shops and services, which builds more services, feeding back to the first box; while small towns and remote areas have fewer services, so some people leave small towns for better services, adding to city growth. A fieldwork check box says: count services, travel times and new houses in your own area to test these links (Section 5B)

Original model drawing for this section.

Read it one arrow at a time. Each arrow is a claim: jobs and services **attract** people; people staying **so** cities grow; growing cities **need** more water and roads (a link straight back to Chapter 1); and the loop on the left says small towns lose services and people while cities gain them. The map explains both the pattern in section 4 and the trend in Worked demonstration 1 with one connected story.

The point of the drawing is that every link can be tested. Pick any arrow — say “more people need more shops and services” — and ask what you would count in your own suburb to test it (number of shops, travel times, new housing, as in Section 5B). An arrow you cannot test is a rumour; an arrow you have checked against measurements is analysis.

6. Building an index: liveability

One more way to combine information: an **index**, a single score built from several measures. **Liveability** — the term planners and researchers use for how well a place supplies the things people need and want for everyday life, such as clean air, good public transport and open space — is exactly the kind of idea that needs an index, because no single number can capture it. (It is also a **contested** term: which measures count, and how much each is worth, are choices, and different researchers make different choices. Section 2A introduced the idea; here we build one.)

Building a liveability index: one worked example

Three measures, each scored 0 to 5, added into one index score out of 15

Measure (each scored 0 to 5)	Suburb A (inner city)	Suburb B (middle ring)	Suburb C (outer edge)
Clean air	2	4	5
Frequent public transport nearby	5	3	1
Parks and open space within walking distance	2	3	4
Index score (add the three measures)	9 / 15	10 / 15	10 / 15

Suburbs B and C tie on 10. What if public transport counted double?

New scores: Suburb A $2 + 10 + 2 = 14$, Suburb B $4 + 6 + 3 = 13$, Suburb C $5 + 2 + 4 = 11$. The ranking flips:
 Suburb A now leads. The person who builds the index chooses the measures and their weight -
 and those choices change the answer.

Sample data: these suburbs and scores are made up to show the method. Build your own with real measures you can check.

Worked example table titled Building a liveability index. Three measures, each scored 0 to 5 — clean air; frequent public transport nearby; parks and open space within walking distance — for three sample suburbs. Suburb A scores 2, 5, 2 for an index of 9 out of 15; Suburb B scores 4, 3, 3 for 10; Suburb C scores 5, 1, 4 for 10. A box below asks: Suburbs B and C tie on 10 — what if public transport counted double? New scores: A 14, B 13, C 11; Suburb A now leads, because the person who builds the index chooses the measures and their weight, and those choices change the answer

Sample data, drawn for this section to show the method (VC2HG8S04.E06). Build your own with real measures you can check.

Describe the method. Each suburb is scored 0–5 on each measure; the index adds the three scores. Suburb A (inner city) scores badly on clean air but well on transport; Suburb C (outer edge) the reverse; B and C tie on 10.

Analyse the choice. Double the weight of public transport and the ranking flips: A jumps to 14 and takes the lead. Nothing “out there” changed — only a choice inside the index. That is the key lesson: an index is a useful summary, but its ranking always carries the builder’s choices about measures and weights. A good geographer states those choices openly instead of hiding them, and this is true of real liveability studies as much as of this classroom example.

Your turn (class activity). In pairs, choose three liveability measures you can actually check near the school (for example: open space within walking distance, frequency of public transport, and something you count in fieldwork, Section 5B), score two contrasting local places 0–5, build the index, then swap weights with another pair and see whether the ranking flips.

Practice — scaffolded

Q1. Match each question to the idea it is really asking about: (a) “Are the dots clustered or spread out?” (b) “Is the line rising or falling over the years?” (c) “Do the places that score high in one measure score high in the other?” Choose from *pattern*, *trend*, *relationship*.

Q2. Use the two-countries table. (a) Give one similarity and one difference between Australia and the United States. (b) Which country has more people per km², and about how many times more?

Q3. The table’s last row compares Melbourne and New York. Why would it be unfair to use those two numbers to rank the cities? Name the checklist point this matches.

Q4. Use the urban-share graph. (a) What share of Australians lived in urban areas in 2023? (b) What was the US share in 1960? (c) Describe the US trend from 1960 to 2023 in one sentence. (d) Was the gap between the countries bigger in 1960 or in 2023? Show it with the two gap sizes.

Q5. Use the Melbourne inflows graph. (a) Which period had the lowest average inflow? (b) By about what percentage did inflow fall in that period? (c) Does the 1997–2020 average show a full recovery? Justify with numbers.

Q6. Use the population map. (a) Name three labelled urban areas on the east coast. (b) Describe the overall spatial pattern in one sentence. (c) What share of Australians live in the 102 named urban areas?

Q7. Use the health-services charts. (a) What happens to GP visits per person as places get more remote? (b) What happens to preventable hospital stays? (c) Write one sentence inferring a relationship between remoteness and access to services.

Q8. Use the liveability index figure. (a) Which suburb scores highest for clean air? (b) Check Suburb C’s index score by adding its three measures. (c) If public transport counts double, which suburb leads, and why did the ranking change?

Practice — unscaffolded

Q9. Compare the two trend figures (urban share, and Melbourne inflows). How is the *shape* of the two trends different, and what does that tell you about why a single word like “rising” is not enough to describe a trend?

Q10. Lay the population map (section 4) beside what you learned about Australia’s rainfall in Section 1C. Explain the relationship between the two patterns, and give one reason the relationship is not perfect (think of a labelled city whose climate is not especially wet, or a wet area with few people).

Q11. The sample survey found 72% agreement in a big-city class against 34% in a small remote town. (a) What does this difference suggest about perceptions of services? (b) Give two things you would check (about the samples or the question) before trusting the difference as real.

Q12. Choose one arrow from the concept map. Describe exactly what you would measure or count in your own local area (Section 5B methods) to test whether that arrow is true near you.

Extended response

Q13. “Australia’s population is both highly urban and highly coastal.” Use at least **two** figures from this section to interpret and analyse this claim: describe the spatial **pattern** (the map), describe the **trend** over time (the urban-share graph), identify one **relationship** you can infer, and note one similarity or difference between Australia and the United States. About 150–200 words. Refer to your sources.

Tip: a strong response separates description (“the graph shows...”) from explanation (“this suggests... because...”), and it quotes at least two numbers with their source.

Teaching notes (for the teacher)

This section delivers VC2HG8S04 in full, drawing on all six elaborations (E01–E06) as illustrations (D10), and — per D11 — teaches the skill through the knowledge content of Chapters 1–4: water (1C, 1D), liveability (2A), population and urban change (Chapters 2 and 4), and fieldwork methods (5B). **Suggested teaching sequence (one):** (1) hook with the three-ideas figure and have students sort example statements into pattern/trend/relationship; (2) teach the five-point checking habit with the Australia–USA table, deliberately springing the “biggest city” definition trap; (3) model Worked demonstration 1 think-aloud (describe → compare → explain), stressing that explanation is a tested claim, not a leap; (4) students run the same steps on the inflows graph (guided practice Q1–Q5); (5) map work: describe the SUA

pattern, then map-compare it against the 1C rainfall map; (6) model Worked demonstration 2, teaching “moving together $\neq$ causes” and the controlled-comparison logic, then the survey example as a data-collection method students will use themselves; (7) pairs build and test one arrow of the concept map using 5B fieldwork ideas; (8) index-building activity (section 6), swapping weights to surface the choices inside every index, tying back to 2A and to the contested-term framing of liveability; (9) unscaffolded practice Q9–Q12; (10) extended response Q13 as the assessment task. All real data (World Bank, ABS cat. 3218.0, US Census Bureau, Melbourne Water, AIHW) were retrieved 25 August 2026 and carry source lines; the survey and index figures are explicitly labelled sample data so students always know which numbers are real and which model the method. No Aboriginal and Torres Strait Islander content is included, in line with the series content policy.

Glossary

Analyse — to break information down and ask what it means: similarities and differences, patterns, relationships and trends. **Concept map** — a drawing of ideas joined by labelled arrows, laying a relationship out so each link can be tested. **Concentration** — things crowded into a small area, as jobs and people are concentrated in cities. **Distribution** — the way things are spread out over space. **Index** — one score built by combining several measures, such as a liveability index. **Infer** — to reason your way to an idea from evidence, rather than being told it directly. **Interpret** — to work out what a map, graph, table or image shows. **Liveability** — how well a place supplies what people need and want for everyday life; which measures count, and their weight, is a contested choice. **Pattern** — the arrangement of things in space: clustered, spread, or strung along a line. **Relationship** — a link between two variables, so that when one changes the other tends to change too. **Significant Urban Area (SUA)** — the ABS name for a city or town and the urban land around it, used to count urban populations. **Survey** — a set of questions put to a group of people to collect attitudes, perceptions or facts. **Trend** — the general direction of change over time: rising, falling, steady, or changing direction. **Variable** — anything that can differ from place to place or time to time, and so can be measured.