

Mathematics Level 7

Chapter 2 — Australia and the wider world: continents, countries and places

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Why environments matter: vegetation and water on two continents

Subject: Geography · **Band:** Levels 3–4 · **Year level:** 3 (first year of the band)

For the teacher — VC2 codes: VC2HG4K03 (Victorian Curriculum 2.0, Geography, Levels 3–4) · elaborations drawn on: VC2HG4K03.E01, VC2HG4K03.E02, VC2HG4K03.E03, VC2HG4K03.E04

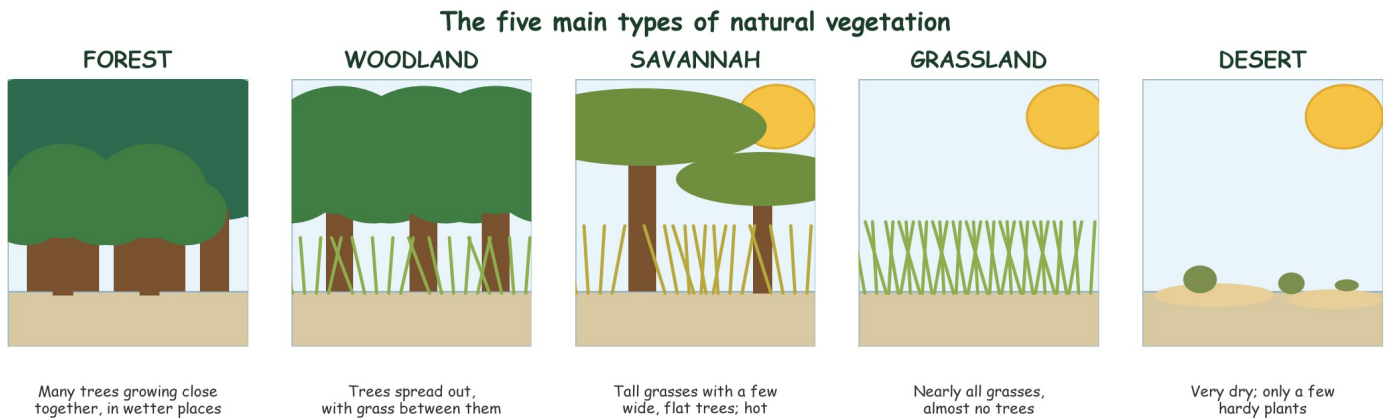
Words we define as we go: *vegetation* (the plants that grow in a place), *habitat* (an animal's home in nature), *reservoir* (a big lake kept behind a dam wall, to store water), *aesthetic* (to do with noticing beauty), *emotional* (to do with our feelings), *spiritual* (a deep feeling that a place is special and that we belong to it).

Theory

What is an environment?

Your **environment** is everything around you: the land, the water, the plants, the animals and the people. **Natural vegetation** means the plants that grow by themselves, without people planting them. This year we explore natural vegetation in **Australia** and on one other continent, **Africa**. (A continent is one of the very big pieces of land on Earth.)

The five main types of natural vegetation

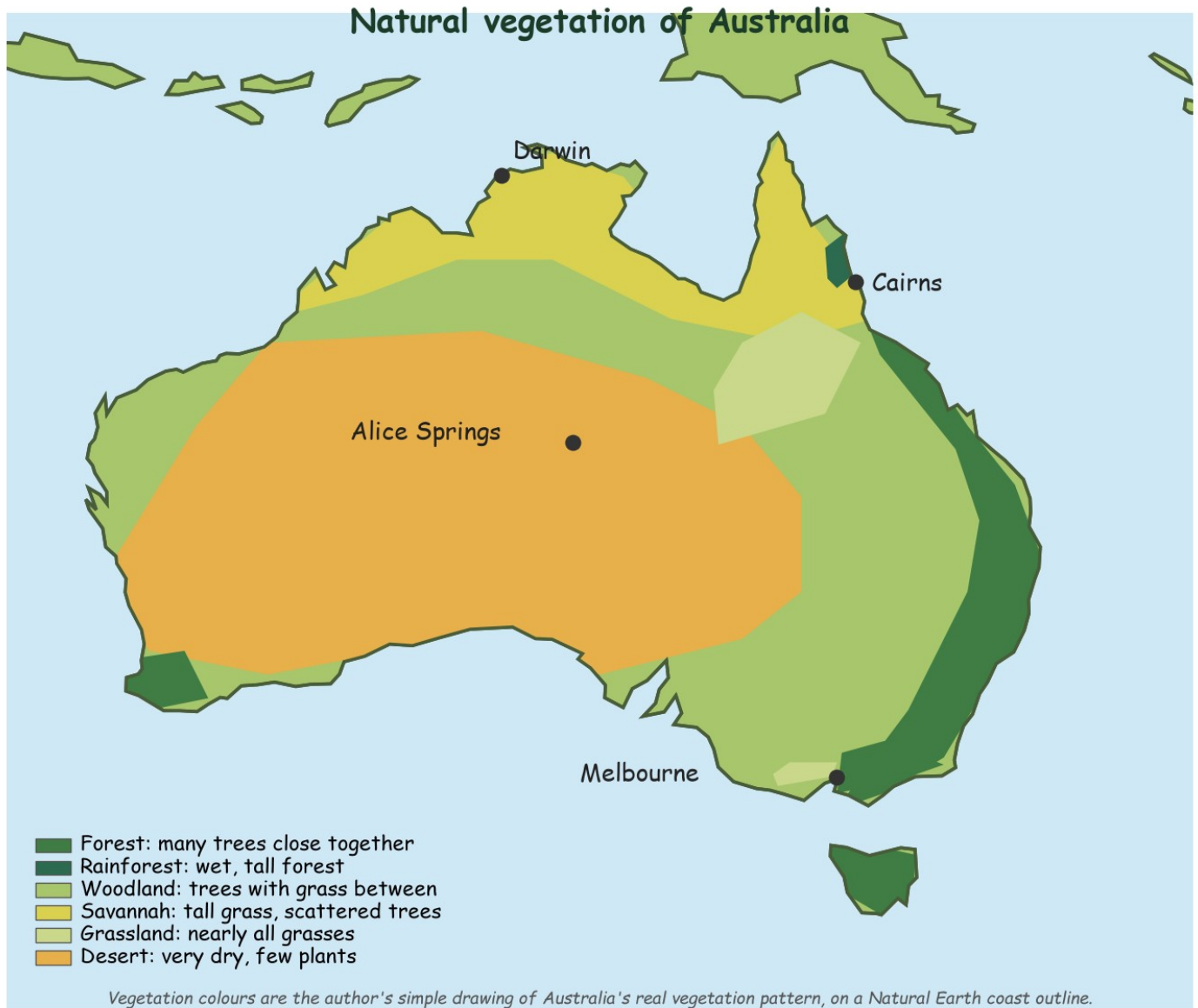


Five little pictures in a row: forest with many trees close together; woodland with trees spread out and grass between; savannah with tall dry grass and a few flat trees under a hot sun; grassland with nearly all grasses and no trees; desert with sand and three small plants

The five main types are **forest**, **woodland**, **savannah**, **grassland** and **desert**.

- A **forest** has many trees growing close together, in wetter places.
- A **woodland** has trees spread out, with grass between them.
- A **savannah** is hot, with tall grasses and a few wide, flat trees.
- A **grassland** is nearly all grasses, with almost no trees.
- A **desert** is very dry, with only a few hardy plants.

Natural vegetation in Australia



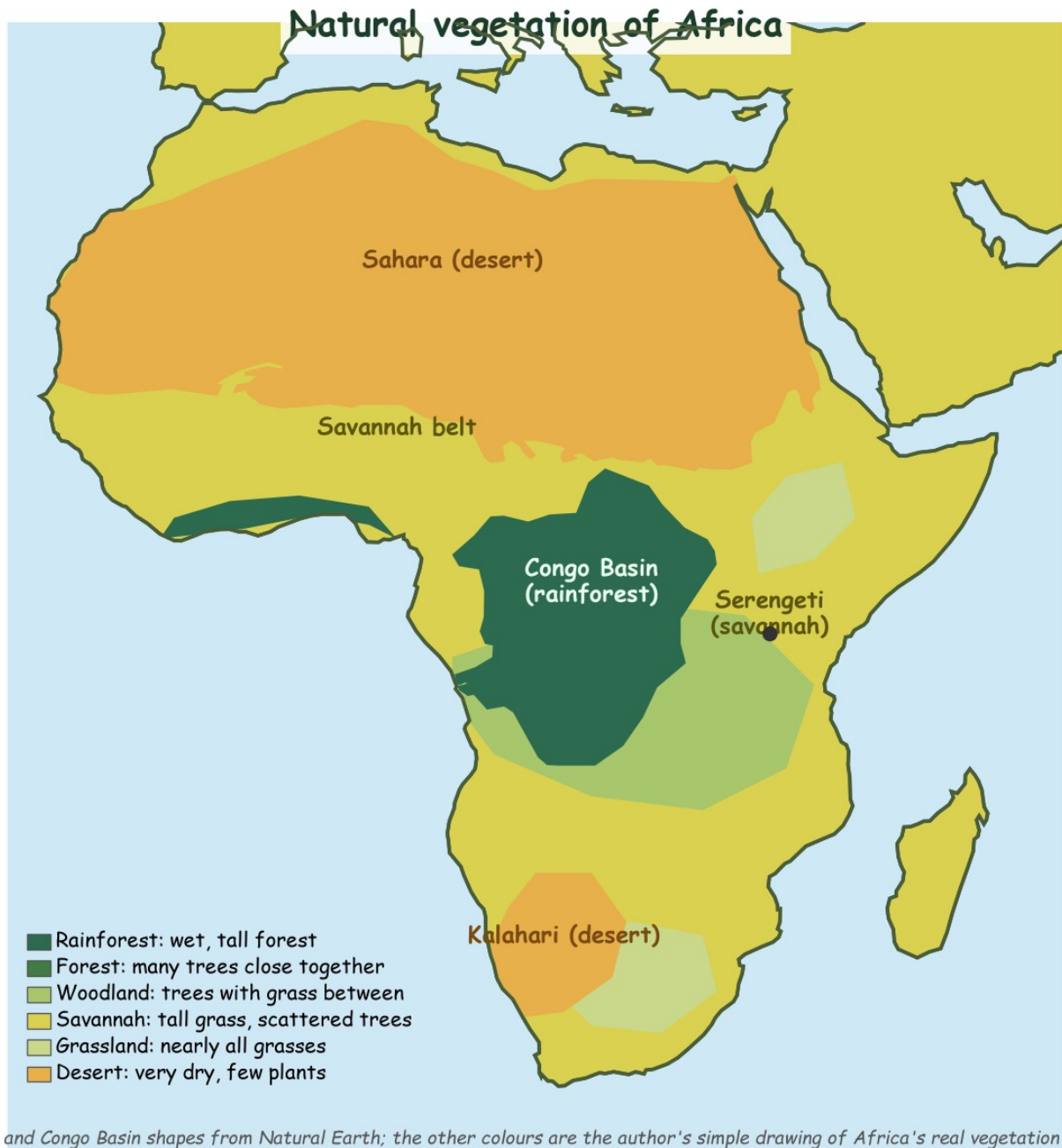
A simple colour map of Australia: savannah in the north; desert in the centre and west; forest on the east coast, in Tasmania and in the southwest corner; a small wet forest patch near Cairns; woodland filling the spaces between; grassland patches in Queensland and near Melbourne; dots mark Darwin, Cairns, Alice Springs and Melbourne

Use the key (the coloured boxes that tell you what each colour means) to read the map.

- In the **north**, around Darwin, the wet season brings heavy rain, so tall savannah grasses grow.
- In the **centre and west**, around Alice Springs, it is very dry, so there is desert.
- On the **east coast**, in **Tasmania** and in the **southwest corner**, more rain falls, so forests grow. A small patch of wet rainforest grows near Cairns.
- **Grassland** grows in patches, like the Mitchell Grass Downs in Queensland and the grassy country near Melbourne.

Every one of these places is a **habitat** — a home in nature for animals.

Natural vegetation in Africa



A simple colour map of Africa: the Sahara desert covers the north; a huge savannah belt runs across the middle; the Congo Basin rainforest sits in the centre; woodland and grassland fill the south and east; the Kalahari desert sits in the southwest; a dot marks the Serengeti

Africa is the other continent we explore this year.

- The **Sahara** in the north is the biggest hot desert in the world — nearly as big as all of Australia!
- South of the Sahara, a huge **savannah** belt runs right across Africa. In the Serengeti, in Tanzania, herds of zebras move from place to place when the rains move.
- In the middle of Africa, the **Congo Basin** is a huge rainforest, wet and green all year round.

- In the southwest, the **Kalahari** desert is dry, with only a few plants.

Animals need vegetation too

Animals and the vegetation they need

Animal	Where it lives	Its vegetation home	What that home gives it
Koala	Australia	Gum tree forest	Gum leaves to eat, branches to sleep in
Red kangaroo	Australia	Open grassland and woodland	Grass to eat, shade to rest in
Platypus	Australia	Rivers and streams	Water to swim in, banks to dig homes in
Elephant	Africa	Savannah and forest	Grass and leaves to eat, water to drink
Zebra	Africa	Savannah grassland	Grass to eat; lives in herds and moves when the rains move
Giraffe	Africa	Savannah with tall trees	Leaves from high up that other animals cannot reach

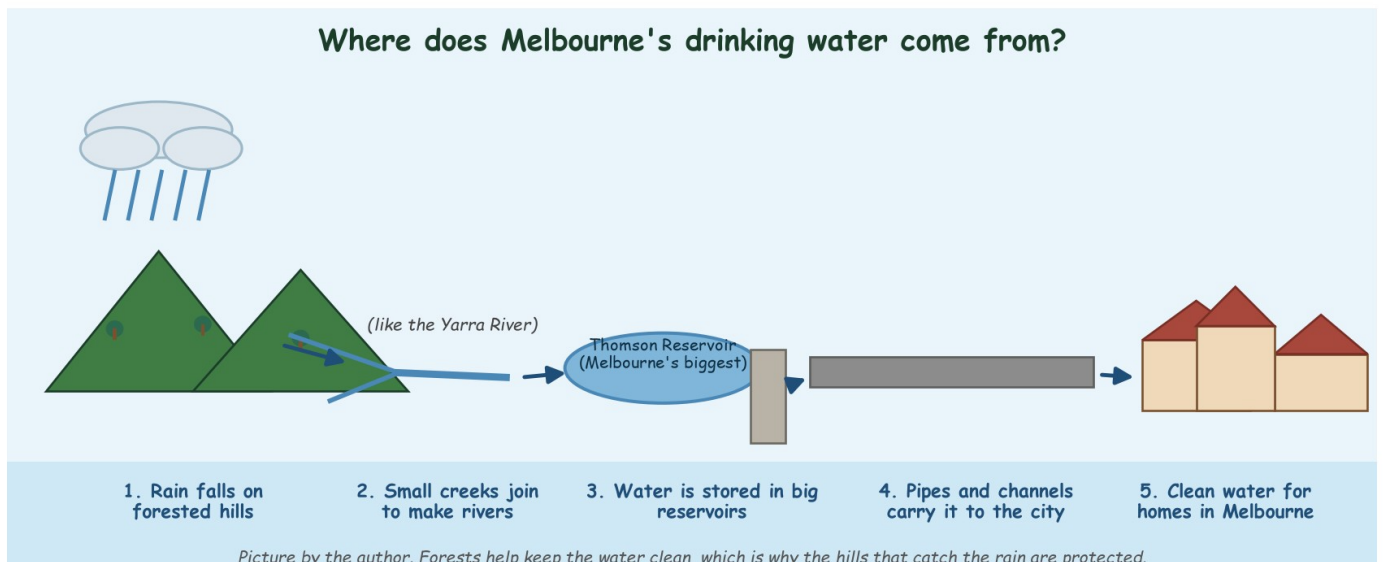
Every one of these animals also needs water to drink.

A table of six animals: koala, red kangaroo and platypus from Australia; elephant, zebra and giraffe from Africa; with the vegetation each lives in and what that vegetation gives it

Animals get food, shade and safe homes from vegetation. Read the table: each animal lives in the vegetation that gives it what it needs. And every one of them also needs **water** to drink.

Why water matters

Water is important to every environment. Plants and animals need water to live, and people need clean water to drink, cook and wash. Rivers and creeks carry rain from the hills down to the sea. **Reservoirs** (big lakes kept behind dam walls) store that water for cities.

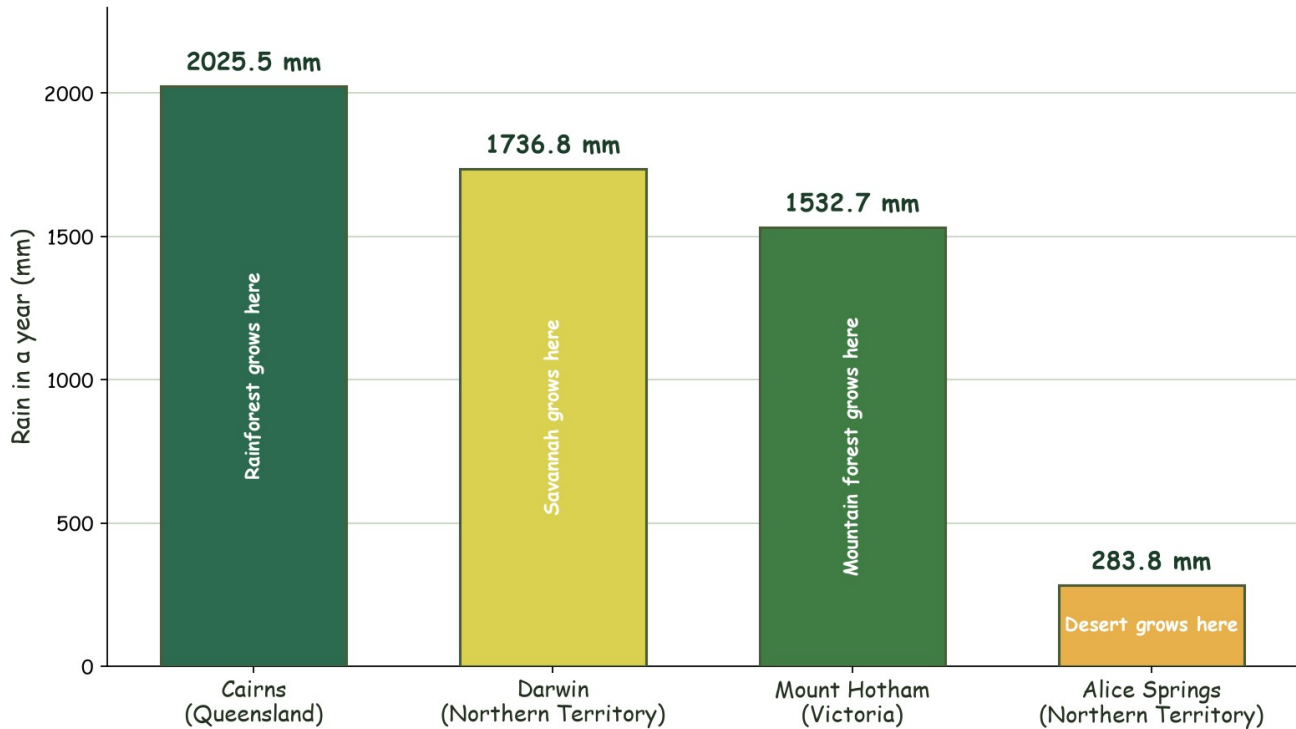


A flow picture in five steps: rain falls on forested hills; small creeks join to make rivers like the Yarra River; water is stored in big reservoirs such as Thomson Reservoir, Melbourne's biggest; pipes and channels carry it to the city; clean water reaches homes in Melbourne

Much of Melbourne's drinking water comes from **Thomson Reservoir**, Melbourne's biggest water storage. The water falls as rain on forested hills, and the forests help keep it clean. Far away, the **Murray River** — the longest river in Australia, 2,508 kilometres long — gives water to farms, towns and animals all along the way.

Does more rain mean more plants? Real numbers say yes:

How much rain falls in a year? Four real places in Australia



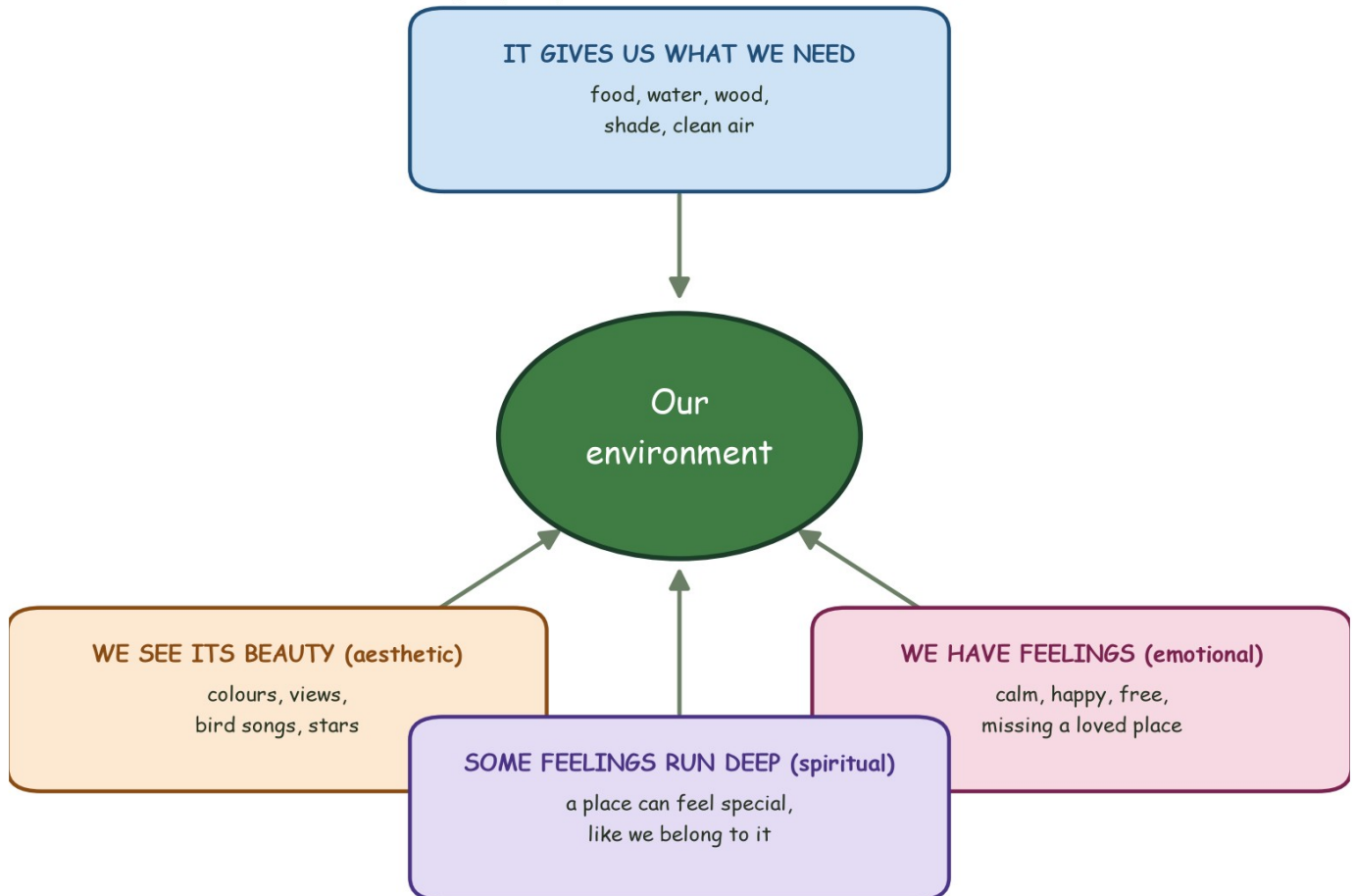
Rain in a year, from Bureau of Meteorology weather data (stations 031011, 014015, 083014, 015590), accessed 25 August 2026. More rain usually means more plants.

A bar chart of rain in a year at four real places: Cairns 2025.5 mm where rainforest grows, Darwin 1736.8 mm where savannah grows, Mount Hotham 1532.7 mm where mountain forest grows, and Alice Springs 283.8 mm where desert grows

Cairns gets lots of rain, so rainforest grows there. Alice Springs gets little rain, so desert grows there. **More rain usually means more plants.**

How people connect with environments

Four ways people connect with environments



Different people feel different things about the same place. All of these feelings are real.

A web diagram with 'Our environment' in the middle and four cards around it: it gives us what we need; we see its beauty (aesthetic); we have feelings (emotional); some feelings run deep (spiritual)

Environments are important to people in more ways than food and water. We connect with them in four big ways.

1. **They give us what we need** — food, water, wood, shade and clean air.
2. **We see their beauty.** This is called an *aesthetic* connection: a sunset over the hills, the colours of parrots, bird song in the morning.
3. **We have feelings about places.** This is called an *emotional* connection: a park can make us feel calm and happy, and we can miss a place we love when we move away.
4. **Some feelings run deep.** This is called a *spiritual* connection: some people feel a place is really special, like they belong to it — perhaps a place their family has always gone, or a place their faith calls holy.

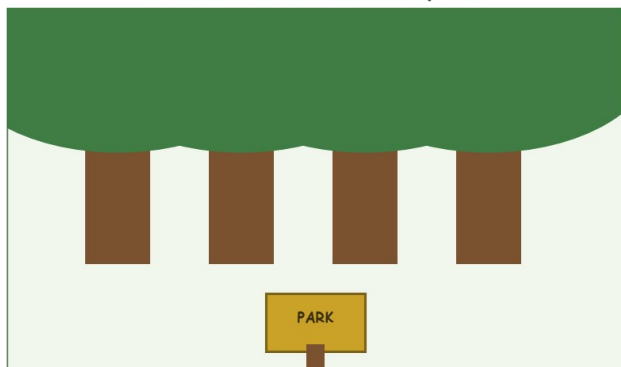
Different people feel different things about the same place. All of these feelings are real, and people can feel more than one at the same time.

Protecting habitats

Here are four ways people protect habitats.

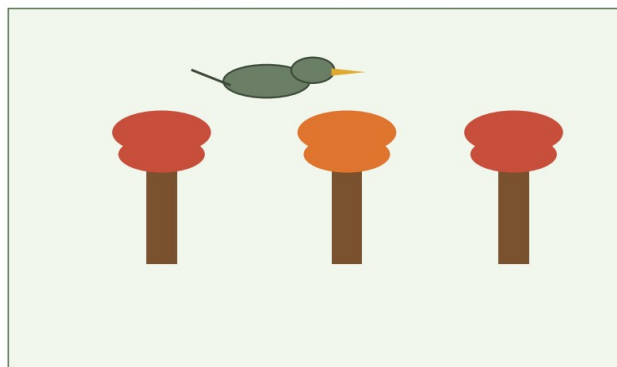
Four ways people protect habitats

1. Make it a national park



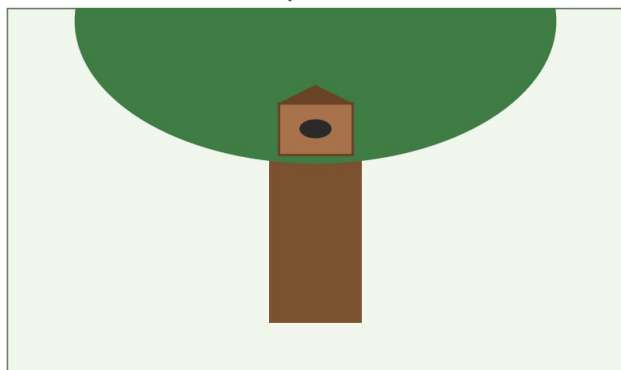
Land kept safe and protected by law, like Wilsons Promontory National Park in Victoria (since 1898)

2. Plant food for birds



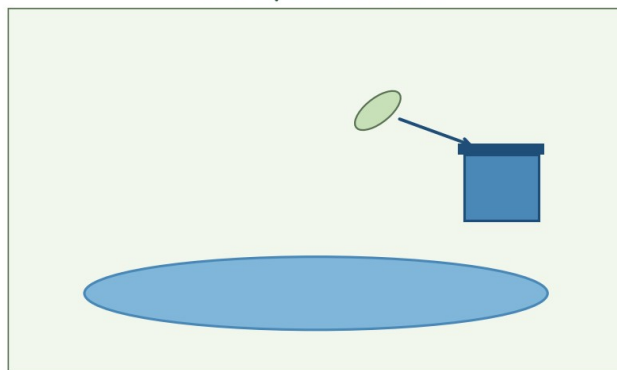
Native flowers like banksia and bottlebrush give birds nectar to drink, and bushes give them safe nests

3. Put up nest boxes



A nest box gives birds, possums and other animals a safe home in a tree

4. Keep water clean



Rubbish goes in the bin, not the drain, so rivers and creeks stay clean for animals

Four pictures of ways to protect habitats: a park sign in a forest like Wilsons Promontory National Park; banksia and bottlebrush flowers with a small bird; a nest box in a tree; a bottle going into a bin, not a drain, beside a clean creek

1. **National parks.** Wilsons Promontory National Park, in Victoria, has been kept safe and protected by law since 1898, so its forests, beaches and animals are still there today.
2. **Plant bird-attracting plants.** Flowers like banksia and bottlebrush give birds nectar to drink, and bushes give them safe places to nest.
3. **Put up nest boxes.** A nest box gives birds, possums and other animals a safe home in a tree.
4. **Keep water clean.** Rubbish goes in the bin, not the drain, so creeks and rivers stay clean for animals.

Worked examples

Example 1 — Why does rainforest grow near Cairns but desert near Alice Springs? (with help)

Use the bar chart of real rain numbers (from the Bureau of Meteorology) and the Australia map.

Working

Step 1: Read the Cairns bar: 2025.5 mm of rain in a year.

Step 2: Lots of rain means many plants can grow.

Step 3: Read the Alice Springs bar: 283.8 mm of rain in a year.

Why?

That is a lot of water!

Wet places grow forests. Near Cairns the forest is rainforest.

That is much less water — about one-seventh of Cairns' rain.

Working

Why?

Step 4: Little rain means few plants can grow.

Dry places grow desert.

Answer: Cairns gets lots of rain, so rainforest grows there. Alice Springs gets little rain, so desert grows there.

Water helps decide which vegetation grows in a place.

Example 2 — What does the savannah give the zebra? (with help)

Use the animals table.

Working

Why?

Step 1: Find the zebra row. It lives in Africa.

The table has one row for each animal.

Step 2: Its vegetation home is savannah grassland.

The vegetation home is the third part of the row.

Step 3: The savannah gives the zebra grass to eat, and open grass to run in and see danger coming.

The last part of the row says what the home gives.

Step 4: The zebra also needs water to drink, which is not vegetation.

Every animal in the table needs water too.

Answer: The savannah gives the zebra food (grass) and a safe open home — and the zebra also needs water.

Vegetation and water together make a habitat.

Practice questions

Practice with help

Q1. Look at the five types of vegetation. Which type is “trees spread out, with grass between them”? (*Hint: match the words to the pictures.*)

Q2. Look at the Australia map. Put your finger on Alice Springs. Which type of vegetation grows around it? (*Hint: match the colour to the key.*)

Q3. Look at the Africa map. What is the name of the big desert in the north of Africa? (*Hint: it is the biggest hot desert in the world.*)

Q4. Look at the top of the Australia map. Which type of vegetation grows around Darwin? (*Hint: tall grasses and a few flat trees.*)

Q5. A child says, “The beach makes me feel happy.” Which way of connecting with environments is this: aesthetic, emotional or spiritual? (*Hint: it is to do with feelings.*)

Q6. Name one way people protect habitats, from the protect figure. (*Hint: any one of the four pictures.*)

Practice on your own

Q7. Look at the bar chart of real rain numbers. Put the four places in order, from the most rain in a year to the least.

Q8. Explain in one or two sentences why rainforest grows near Cairns and desert grows near Alice Springs. Use the numbers from the bar chart.

Q9. Koalas eat gum leaves and sleep in gum trees. If all the gum forest near a town was cut down, what would happen to the koalas? Give one reason.

Q10. Name two ways people connect with environments, and give an example of each.

Q11. Pick one way people protect habitats. Explain how it keeps a habitat safe for animals.

Inquiry task

Q12. Read the real bar chart (Bureau of Meteorology rain numbers) and the Australia vegetation map, then answer:

- **a)** Which of the four places on the chart gets the most rain in a year?
- **b)** Which gets the least?
- **c)** Find Cairns and Alice Springs on the vegetation map. How does the vegetation at each place match the rain it gets?
- **d)** Write one question you still have about water or plants in Australia, and say where you could look for the answer (a book, a website, a teacher).

Answers

Q1. Woodland.

Q2. Desert.

Q3. The Sahara.

Q4. Savannah.

Q5. Emotional.

Q6. Any one of: make a national park; plant bird-attracting plants; put up nest boxes; keep water clean.

Q7. Cairns (2025.5 mm), Darwin (1736.8 mm), Mount Hotham (1532.7 mm), Alice Springs (283.8 mm).

Q8. Cairns gets 2025.5 mm of rain in a year, so lots of plants can grow and rainforest lives there; Alice Springs gets only 283.8 mm, so few plants can grow and desert lives there.

Q9. The koalas would lose their food and their homes, because koalas need gum leaves to eat and gum trees to sleep in. (They would have to move or would not survive.)

Q10. Any two with a matching example, e.g. aesthetic — “I love the colours of a sunset”; emotional — “Our old park makes me feel happy”; spiritual — “That place feels special, like I belong to it”; or “it gives us what we need” — water to drink.

Q11. Any one, e.g. a national park keeps the trees and animals safe by law, so the habitat is not lost; or planting banksia and bottlebrush gives birds food and nests; or nest boxes give animals safe homes; or keeping rubbish out of drains keeps creeks clean for animals.

Q12. a) Cairns. b) Alice Springs. c) Cairns gets lots of rain and the map shows rainforest and savannah there; Alice Springs gets little rain and the map shows desert there — more rain, more plants. d) Any good question and a place to look, e.g. “Which river is nearest to our school? — I could look on a map or a website.”

Worked solutions (every step shown)

Q7. Read each bar and write its number: Cairns 2025.5 mm; Darwin 1736.8 mm; Mount Hotham 1532.7 mm; Alice Springs 283.8 mm. Now order them from biggest to smallest number: $2025.5 > 1736.8 > 1532.7 > 283.8$, so the order is Cairns, Darwin, Mount Hotham, Alice Springs.

Q8. Step 1: Cairns’ number is 2025.5 mm — lots of rain. Step 2: Lots of rain means many plants can grow, so the wet rainforest grows near Cairns. Step 3: Alice Springs’ number is 283.8 mm — little rain. Step 4: Little rain means few plants can grow, so the dry desert grows there. So the big difference in rain explains the big difference in vegetation.

Q9. Step 1: From the animals table idea, a koala’s habitat is gum forest: it eats gum leaves and sleeps in gum trees. Step 2: If the gum forest is cut down, the koalas lose both their food and their safe sleeping places. Step 3: So the koalas would have to move to find new gum trees, and if there is nowhere to go, they would not survive. That is why protecting the forest protects the koalas.

Q10. Step 1: Remember the four ways: gives us what we need; aesthetic (beauty); emotional (feelings); spiritual (deep feelings). Step 2: Pick two and match a true example to each, e.g. aesthetic — noticing the colours of parrots; emotional — feeling calm and happy in a park. Step 3: Check the example matches the way: colours are beauty (aesthetic), and calm and happy are feelings (emotional).

Q11. Step 1: Pick one way, e.g. planting bird-attracting plants. Step 2: Say what it does: banksia and bottlebrush flowers give birds nectar to drink, and bushes give safe places to nest. Step 3: Say why that keeps the habitat safe: with food and safe nests, the birds can stay and raise their young, so the animal life of the place is kept safe.

Q12. Step 1 (a): The tallest bar is Cairns, 2025.5 mm — the most rain. Step 2 (b): The shortest bar is Alice Springs, 283.8 mm — the least rain. Step 3 (c): On the map, Cairns sits by rainforest and savannah (wet vegetation), and Alice Springs sits in desert (dry vegetation); the vegetation matches the rain — more rain, more plants. Step 4 (d): A good

question names one thing to find out and one place to look, e.g. “Where does our town’s water come from? — I could ask a teacher or look on a website.”

Sources (checked 25 August 2026)

- **Natural Earth** (free public map shapes), *ne_110m_land.geojson* and *ne_110m_geography_regions_polys.geojson*, saved in this project’s `_data` folder: the coast outlines on both maps, and the Sahara and Congo Basin shapes on the Africa map. The coloured vegetation areas are the author’s simple drawing of the real vegetation pattern.
- **Bureau of Meteorology**, weather data pages for Australian places — stations 031011 (Cairns Racecourse), 014015 (Darwin Airport), 083014 (Mount Hotham) and 015590 (Alice Springs Airport) — saved in this project’s `_data/bom` folder; the bar chart uses these numbers.
- **Parks Victoria**: Wilsons Promontory National Park, in Victoria, protected by law since 1898.
- **Melbourne Water**: Thomson Reservoir is Melbourne’s biggest water storage; the forested hills above it help keep the water clean.
- **Australian Museum** and park service fact guides from Africa: the animal facts in the animals table (koala, red kangaroo, platypus, elephant, zebra, giraffe) and the Serengeti zebra herds.

The world's big pieces: continents, oceans, hemispheres, compass directions and map projections

Curriculum trace — teacher reference. Do not read this box to the children.

Owens (one CD, D1)

VC2HG4K05. Strand: Geographical Knowledge and Understanding. Levels 3–4 band, taught in the first year of the band (Level 3 pitch, D1). The band achievement standard is stated at the end of Level 4; this section builds its first rungs.

Draws on (elaboration ids)

.E01 (Our learning, part 1); .E02 (parts 1–4, outline-map practice Q7); .E03 (part 6, Example 1, Q6, Q9, inquiry); .E04 (part 4, Example 2, Q4, Q10); .E05 (part 5, Q5, Q8).

Scope discipline (D12)

Projections are taught **qualitatively only**: no projection mathematics, no graticule construction, and no coordinate system beyond the four compass directions. Student language for distortion is *stretch / squash*; the word “distortion” and the projection names appear only as labelled pictures to compare, never as method.

§2A / Rule 1

No Aboriginal and Torres Strait Islander content sits in this CD; nothing is taught under it here, and no excluded content from other CDs is re-introduced.

House

en-AU spelling; southern-hemisphere-correct (Australia in the Southern and Eastern Hemispheres; seasons never needed here); real, named, sourced referents only (D9).

Assessment

Short written answers plus the copy-and-label outline map (label figure). Q8 is oral/drawn and may be set at the student's own school.

Sources (retrieved 2026-08-25):

- [S1] Natural Earth, *ne_110m_land* coastline file (public domain), downloaded 2026-08-25 — the coastlines behind every map figure in this section; projections and continent tints computed originally in `src/fig_2b_*.py`.
- [S2] Wikipedia, “Continent” (areas of the seven continents), looked at 2026-08-25 — the bar chart ratios.
- [S3] Wikipedia, “Greenland” (2,166,086 km²) and “Australia” (7,688,287 km²), looked at 2026-08-25 — the size facts in Example 1 and the inquiry card.

Vocabulary gate: all student-facing text, figure text and alt text checked at the Year 3 ceiling; exemptions limited to the defined subject terms of D2 (continent, ocean, hemisphere, equator, tropics, poles, map projection, compass direction, and the zone names of E04) and proper nouns.

Look at the world map on your classroom wall. Now look at a globe. On the wall map, a cold island called Greenland looks as big as Africa. On the globe, it is not. Why does flat paper change the world? In this topic you will find out — and you will learn the big pieces of the world too.

Teacher note: this section is the Knowledge section of Chapter 2. Work through “Our learning” with a globe in hand if one is available; every map in the section is an original drawing made from public-domain coastline data [S1], so children may also label and copy the figures. The model school in the compass figure is deliberately generic — for Q8 take the class outside and use your own school's landmarks (E05). “How many continents?” has more than one accepted answer; let the discussion happen (E01) and settle on the seven-name model this book uses. No equipment is needed beyond copies of the outline-map figure.

Our learning

The big pieces of land — continents

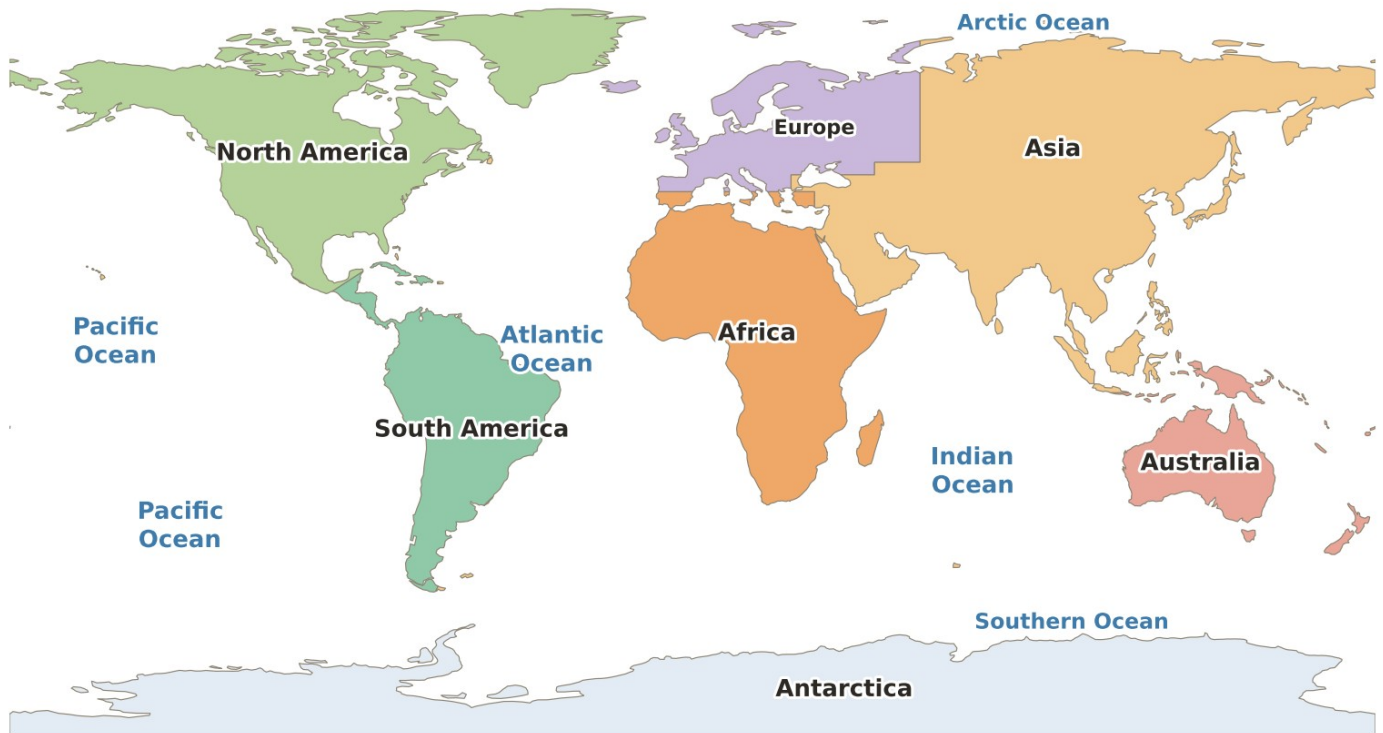
The land of the world is broken into a few very big pieces. A **continent** is one of the biggest pieces of land on the Earth.

Most people count **seven continents**:

1. **Asia** — the biggest continent
2. **Africa** — the second biggest
3. **North America**
4. **South America**
5. **Antarctica** — the coldest continent, at the bottom of the world
6. **Europe**
7. **Australia** — our continent, and the smallest one

Not everyone counts the same way. Some people join Europe and Asia into one big continent, because the land between them is not split by water. Then they count six. Both counts are used in the world today — a continent is a big piece of land that people agree to name, and people do not always agree!

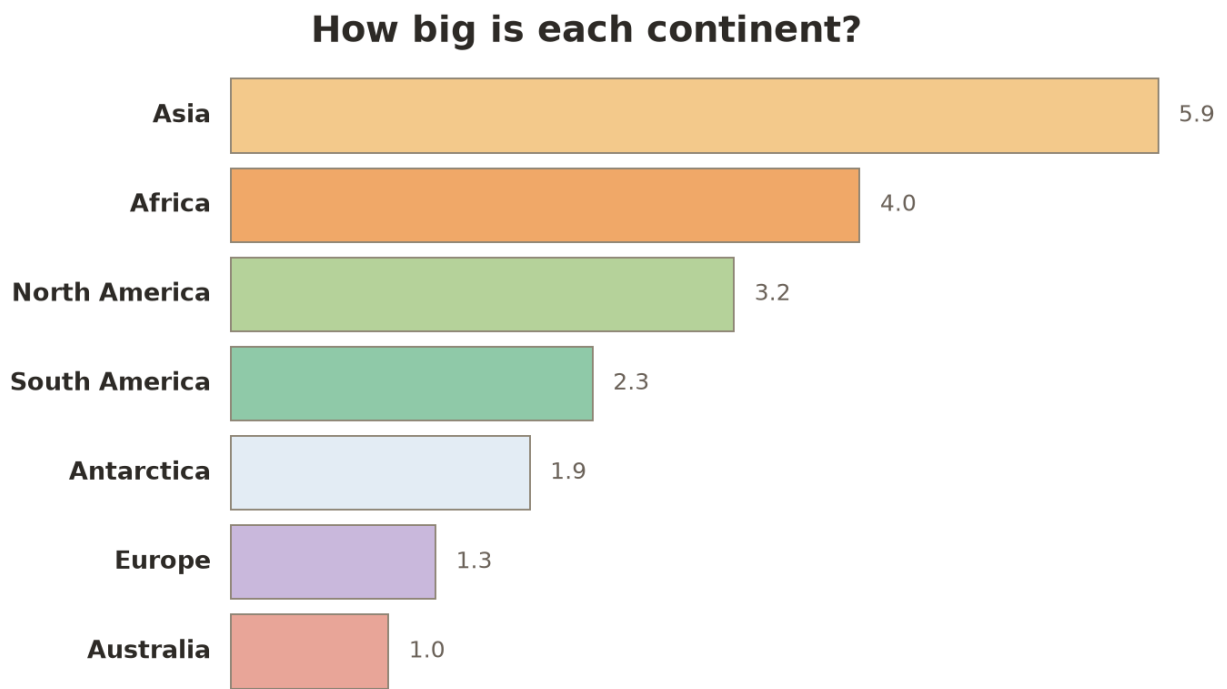
The seven continents and the five oceans



The land is split into seven colours. The blue is ocean water.

A world map with the seven continents each in their own colour and the five oceans in blue, all named

How big is each continent? This chart compares each one with Australia:



Each bar shows how many times the size of Australia that continent is.

A bar chart of the seven continents, each bar showing how many times the size of Australia that continent is, from Asia at 5.9 down to Australia at 1.0

Asia is almost six times the size of Australia. Our continent is the smallest of the seven.

The big water — oceans

An **ocean** is a very big body of salt water. The water of the world is one joined-up ocean, but we give it **five names**:

- the **Pacific Ocean** — the biggest
- the **Atlantic Ocean**
- the **Indian Ocean** — the ocean west of Australia
- the **Southern Ocean** — around Antarctica
- the **Arctic Ocean** — at the top of the world, the smallest

Look at the world map above. The blue is ocean water. There is much more water than land on our world!

Cutting the world in half — hemispheres

The **equator** is an imaginary line around the middle of the world, halfway between the poles. It cuts the world into two halves. A half of the world is a **hemisphere**.

- North of the equator is the **Northern Hemisphere**.
- South of the equator is the **Southern Hemisphere**. Australia lives here!

We can cut the world the other way too, from top to bottom:

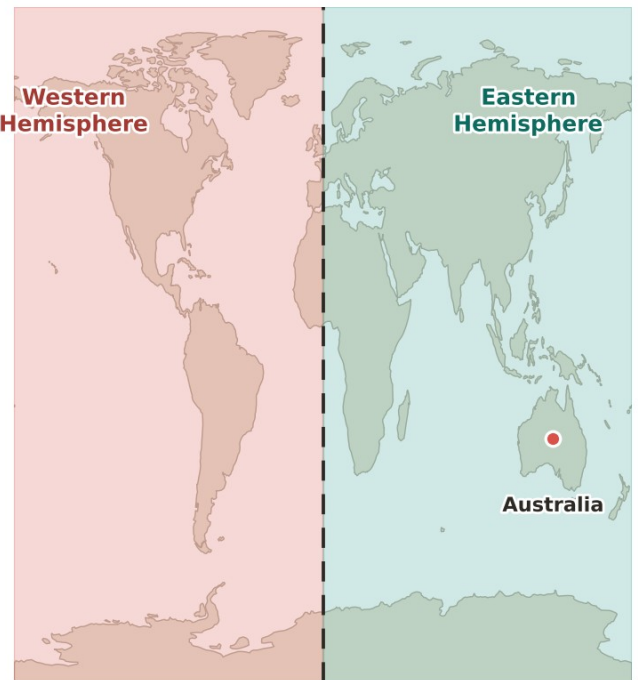
- The **Eastern Hemisphere** and the **Western Hemisphere**.

Australia sits in the Southern Hemisphere and the Eastern Hemisphere.

Two ways to cut the world in half



cut at the equator



cut the other way

Two world maps side by side: one cut at the equator into a Northern and a Southern Hemisphere, one cut from top to bottom into a Western and an Eastern Hemisphere, with Australia marked in each

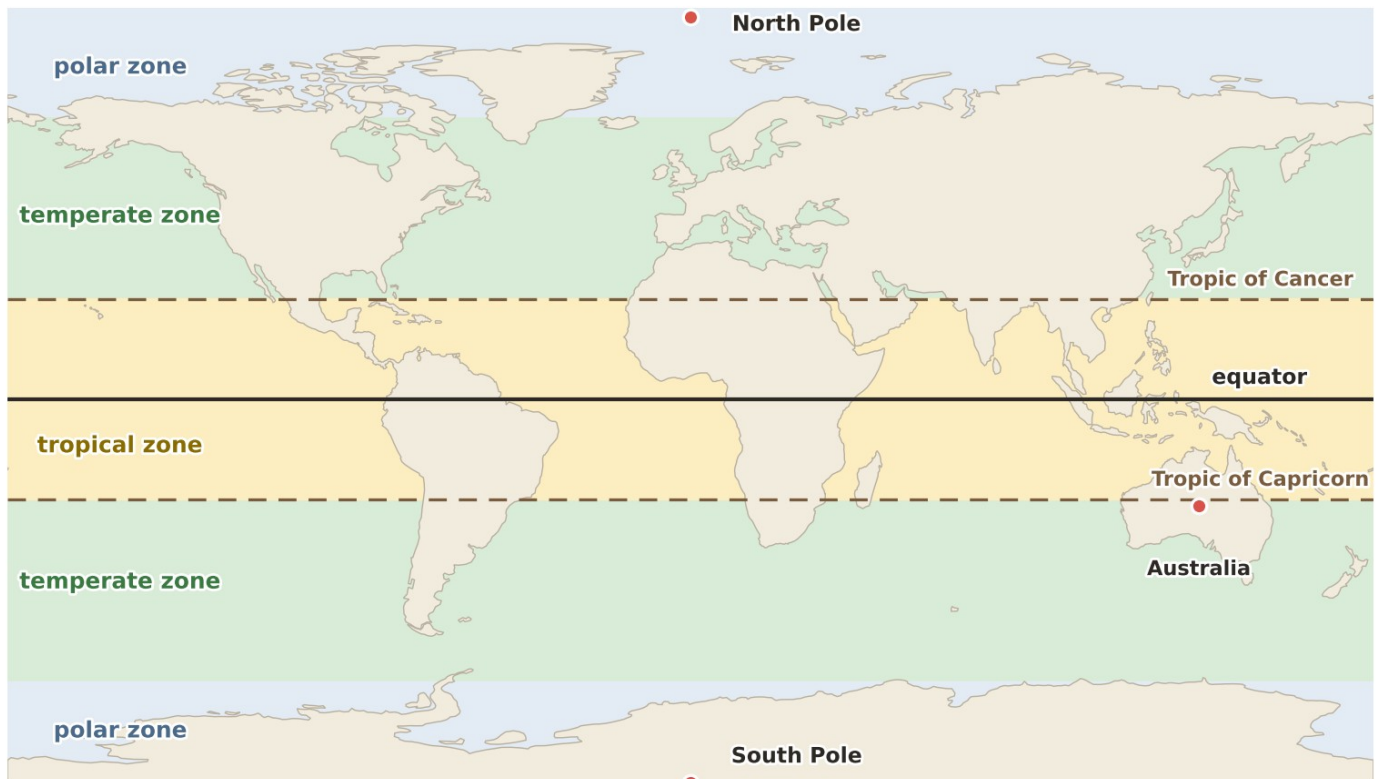
The poles, the tropics and the zones

The very top of the world is the **North Pole**. The very bottom is the **South Pole**. These are real points on the Earth, at the ends of the world.

Between the poles there are more imaginary lines. The **Tropic of Cancer** sits north of the equator. The **Tropic of Capricorn** sits south of it. These lines sort the world into three kinds of zone:

- the **tropical zone** — the hot band around the equator, between the two tropics
- the **temperate zones** — the in-between zones, not too hot and not too cold
- the **polar zones** — the coldest zones, at the poles

The tropical, temperate and polar zones



The hot zone sits around the equator. The cold zones sit at the poles.

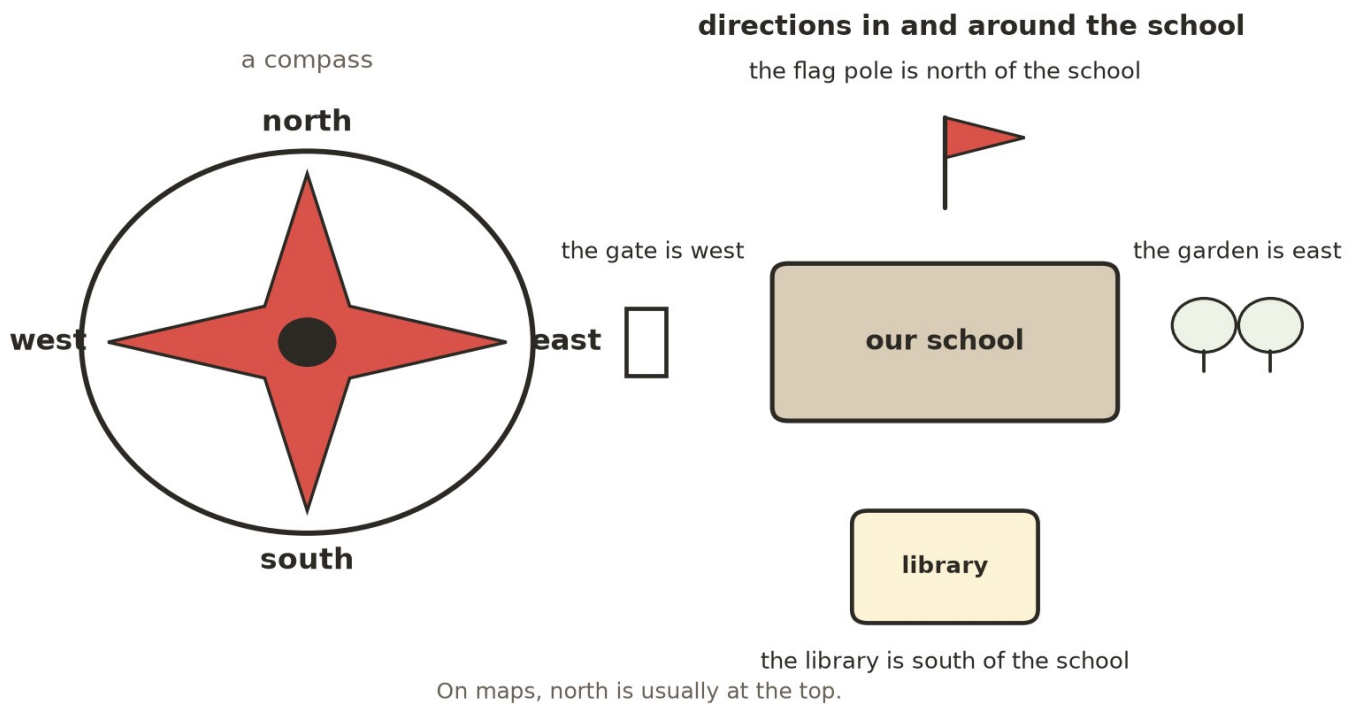
A world map with the tropical, temperate and polar zones in three colours, showing the equator, the Tropic of Cancer, the Tropic of Capricorn, the North Pole, the South Pole and Australia

Look at the map. The top of Australia is in the tropical zone. The rest of Australia is in a temperate zone. No part of Australia is in a polar zone — Antarctica has that!

Compass directions

We describe where things are with four words: **north**, **south**, **east** and **west**. These are the **compass directions**. A **compass** shows them to us.

On most maps, north is at the top, south is at the bottom, east is to the right and west is to the left.



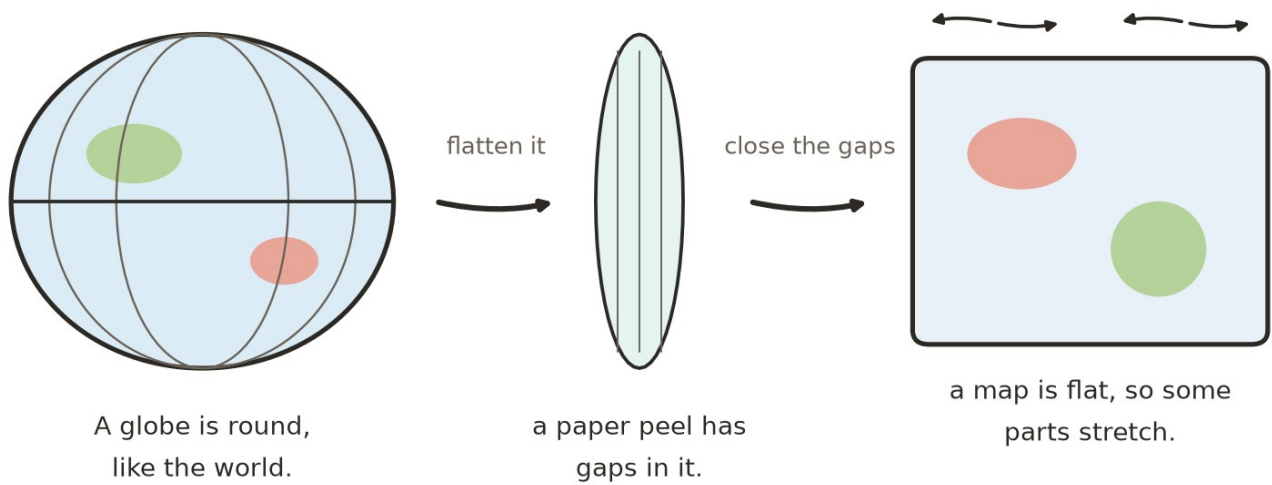
A compass showing north, south, east and west, next to a model school with a flag pole to the north, a library to the south, a garden to the east and a gate to the west

Using the picture: the flag pole is **north** of the school. The library is **south** of the school. The garden is **east**. The gate is **west**.

Round world, flat map — projections

The world is round, like a ball. A page is flat. Try to flatten the skin of an orange and it tears and gaps appear. A **map projection** is a way of drawing our round world on a flat page. To close the gaps, something has to stretch or squash — so every flat map changes the world a little.

Why do flat maps change things?



The round world cannot sit on flat paper without stretching or squashing.

A globe, then a paper peel of the globe with gaps in it, then a flat map with arrows showing parts stretching, explaining why flat maps change things

Here are two famous projections. On each one, Greenland is red and Africa is green.

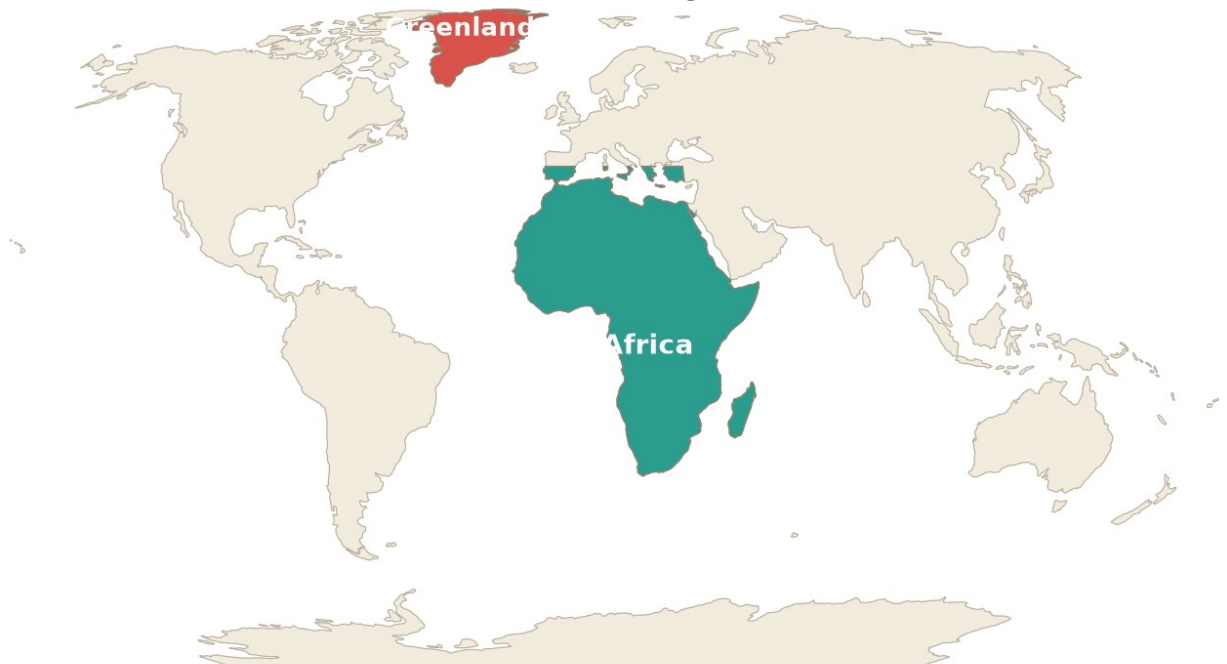
the Mercator projection



On this map, Greenland looks as big as Africa. It is not.

The Mercator projection of the world with Greenland in red and Africa in green, where Greenland looks as big as Africa

the Robinson projection

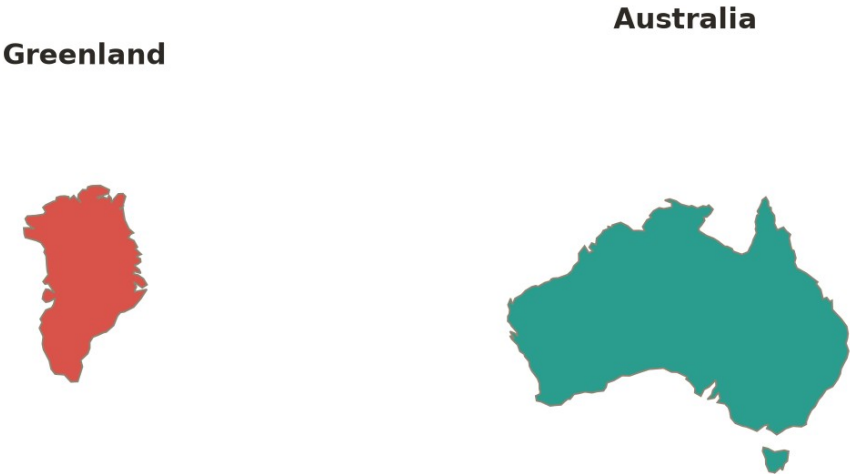


On this map, Greenland looks much smaller — closer to the truth.

The Robinson projection of the world with Greenland in red and Africa in green, where Greenland looks much smaller

The two maps do not agree! Now here is a picture with the true sizes:

True sizes: Greenland and Australia



Australia is more than three times the size of Greenland. Sizes are true in this picture.

Greenland and Australia shown at true size side by side, with Australia more than three times bigger than Greenland

Australia is more than three times the size of Greenland. Africa is about fourteen times the size of Greenland. So on the Mercator map, the land near the poles is stretched until it looks far bigger than it is. The Robinson map is closer to the truth about size. (Size facts: Wikipedia, looked at 2026-08-25.)

This is why a globe is so handy — and why, with any flat map, we always ask, *what is this map stretching?*

Worked examples

Example 1 — with help

Two maps, one Greenland. The class looks at the Mercator map and the Robinson map from Our learning. Which map is closer to the truth about the size of Greenland?

Step	What we do	What we find
1	Look at the Mercator map.	Greenland looks about as big as Africa.
2	Look at the Robinson map.	Greenland looks much smaller than Africa.
3	Check the true-size picture and the fact: Africa is about fourteen times the size of Greenland.	The Mercator map is stretching Greenland.

The maps are both flat drawings of a round world, so one of them must be stretching. The true-size picture shows the Robinson map is much closer to the truth. The Mercator map stretches the land near the poles. (Source: Wikipedia size facts and Natural Earth maps, looked at 2026-08-25.)

Example 2 — on your own

Where in the world is a place? We do one together, then you do one.

We do — Australia.

- Which half, up and down? Australia is south of the equator, so it is in the **Southern Hemisphere**.
- Which half, side to side? Australia is in the **Eastern Hemisphere**.
- Which zones? The top of Australia is **tropical**. The rest is **temperate**.

You do — South America. Use the hemisphere map and the zone map from Our learning. (Maps: Natural Earth, looked at 2026-08-25.)

- Is South America north or south of the equator? Which hemisphere is it in, up and down?
- Is it in the Eastern or the Western Hemisphere?
- Which zones does it sit in?

Check your answers at the end, then try the same three questions for any continent you like.

Practice questions

With help

Q1. Look at the world map in Our learning. Write the names of the seven continents and the five oceans from memory. Then check them against the map and tick each one you got right.

Q2. Match each fact to a continent.

Fact	Continent
the biggest continent	Australia
the coldest continent	Antarctica
our continent	Asia
the second-biggest continent	South America
the fourth-biggest continent	Africa

Q3. Put each place in the **Northern** or the **Southern** Hemisphere. Use the hemisphere map.

1. Australia
2. Antarctica
3. Europe
4. North America

Q4. Use the zone map. Write **tropical**, **temperate** or **polar** for each place.

1. the North Pole
2. the equator
3. most of Australia (the part south of the Tropic of Capricorn)
4. a penguin home on the coast of Antarctica

Q5. Use the compass picture of the model school. Finish each sentence with **north, south, east** or **west**.

1. The flag pole is _____ of the school.
2. The library is _____ of the school.
3. The school is _____ of the library.
4. The gate is _____ of the school.

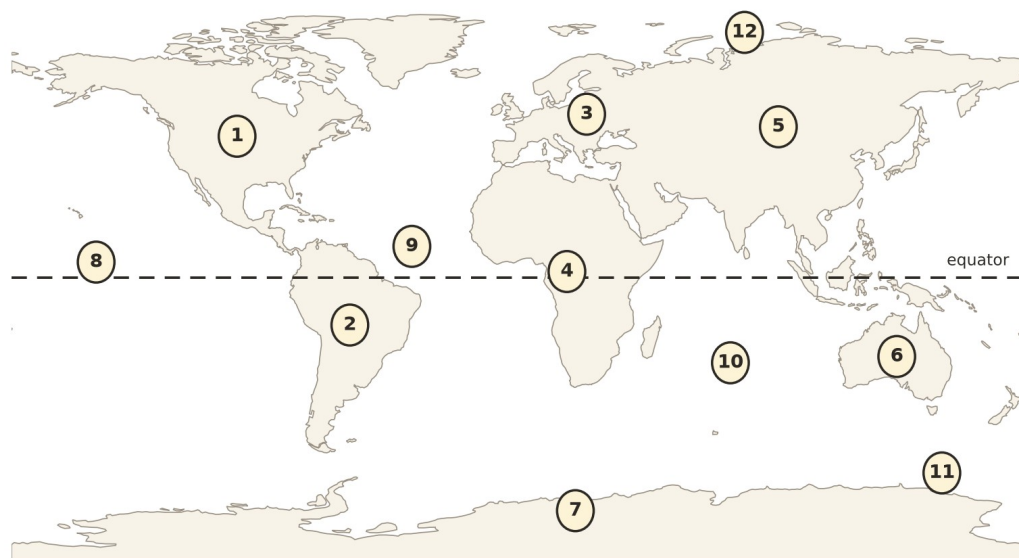
Q6. Tick **true** or **false**.

1. ☐ true ☐ false — A globe is round, like the world.
2. ☐ true ☐ false — A flat map can stretch or squash parts of the world.
3. ☐ true ☐ false — On the Mercator map, Greenland really is as big as Africa.
4. ☐ true ☐ false — The Robinson map is closer to the truth about the size of Greenland.

On your own

Q7. Copy the outline map below (or use a printed copy). Label the seven continents and the five oceans using the numbers and the word bank. Then draw and label the equator on your copy.

Label the continents and the oceans



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

word bank: Pacific Australia Indian Asia Atlantic Antarctica Arctic Ocean Europe Southern Ocean Africa North America South America

Write the right name for each number. The dashed line is the equator.

A blank outline map of the world with twelve numbered tags on the continents and oceans, a dashed equator line, twelve answer blanks and a word bank of the seven continent names and five ocean names

Q8. Draw a simple map of your own school, like the model school in the compass picture. Put in at least three things you know — a gate, a garden, a hall, a play area. Add a compass in the corner. Then write three sentences using north, south, east or west, like: *The hall is north of our classroom.*

Q9. Look again at the Mercator map and the Robinson map.

1. On which map does Greenland look bigger?
2. Which map is closer to the truth about the size of Greenland? How do you know? Use the true-size picture or the bar chart to help.

Q10. Pick one continent (not Australia). Write two sentences about it: one sentence saying which hemisphere or hemispheres it sits in, and one sentence saying which zone or zones it sits in.

Find out — a real fact card

Here is a real fact card.

Place	Size
Greenland	2,166,086 km ²
Australia	7,688,287 km ²

(Source: Wikipedia “Greenland” and “Australia”, looked at 2026-08-25.)

Now look at the Mercator map in Our learning. On that map, Greenland looks bigger than Australia!

1. Ask one geographical question about the map and the fact card. Start it with *Why* or *How*.
 2. Answer your question in one or two sentences, using the fact card and what you know about projections.
 3. Share your question and answer with a partner. Did they answer it the same way?
-

Answers

Q1. Continents: Asia, Africa, North America, South America, Antarctica, Europe, Australia. Oceans: Pacific, Atlantic, Indian, Southern, Arctic.

Q2. The biggest — Asia. The coldest — Antarctica. Our continent — Australia. The second biggest — Africa. The fourth biggest — South America.

Q3. 1. Southern. 2. Southern. 3. Northern. 4. Northern.

Q4. 1. polar. 2. tropical. 3. temperate. 4. polar.

Q5. 1. north. 2. south. 3. north. 4. west.

Q6. 1. true. 2. true. 3. false. 4. true.

Q7. 1 North America, 2 South America, 3 Europe, 4 Africa, 5 Asia, 6 Australia, 7 Antarctica, 8 Pacific Ocean, 9 Atlantic Ocean, 10 Indian Ocean, 11 Southern Ocean, 12 Arctic Ocean. The equator is the dashed line across the middle.

Q8–Q10. Answers will be different for every student. See the worked answers for one good way.

Find out. Answers will be different. See the worked answers for one good way.

Worked answers

Q1. Check your ticks. The seven continents are Asia, Africa, North America, South America, Antarctica, Europe and Australia. The five oceans are the Pacific, the Atlantic, the Indian, the Southern and the Arctic.

Q2. Asia is the biggest continent. Antarctica is the coldest. Australia is our continent and the smallest. Africa is the second biggest, and South America is the fourth biggest.

Q3. Australia and Antarctica are south of the equator, so they are in the Southern Hemisphere. Europe and North America are north of the equator, so they are in the Northern Hemisphere.

Q4. The North Pole is in a polar zone. The equator runs through the tropical zone. Most of Australia is in a temperate zone. The coast of Antarctica is in a polar zone.

Q5. 1. north. 2. south. 3. The school is north of the library — direction works both ways! 4. west.

Q6. 1, 2 and 4 are true. 3 is false: Greenland only *looks* as big as Africa on the Mercator map. Africa is about fourteen times the size of Greenland.

Q7. One good labelled map has all twelve names in the right places and the equator as a line around the middle of the world, halfway between the poles.

Q8. One good way, for a school with a play area, a hall and a vegetable garden: *The play area is east of our classroom. The hall is south of the play area. The vegetable garden is west of the hall.* Your own sentences will name your own school's places.

Q9. 1. Greenland looks bigger on the Mercator map. 2. The Robinson map is closer to the truth. We know because the true-size picture and the fact card show Greenland is much smaller than Africa and smaller than Australia — the Mercator map stretches the land near the poles.

Q10. One good answer, about Africa: Africa sits in the Northern Hemisphere and the Southern Hemisphere, because the equator runs through its middle. Africa sits in the tropical zone and in the temperate zones.

Find out. One good question: *Why does Greenland look bigger than Australia on the Mercator map, when Australia is more than three times bigger?* One good answer: Because the Mercator map stretches land near the poles. Greenland is near the North Pole, so it gets stretched. The fact card tells the truth: Australia is much bigger.

VC2HG4K05 Draws on: VC2HG4K05.E01, .E02, .E03, .E04, .E05

Comparing places: Australia and its neighbouring countries

Owens: VC2HG4K08

Would your town look the same in Indonesia? Some things yes, some things no. Let's find out.

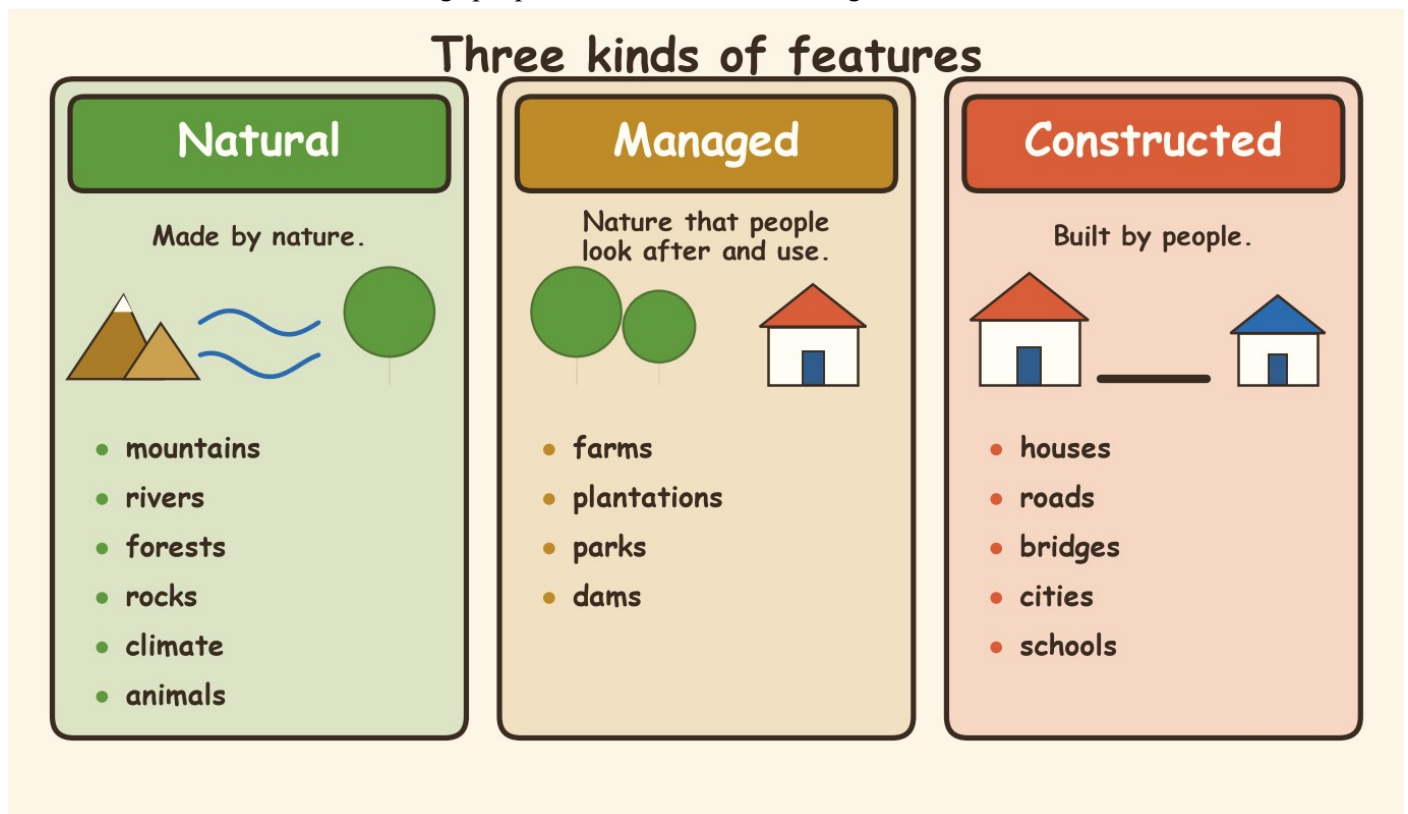
Things you need: a pencil, a ruler, and the maps and pictures in this section.

What we learn

Three kinds of features

Every place has three kinds of features.

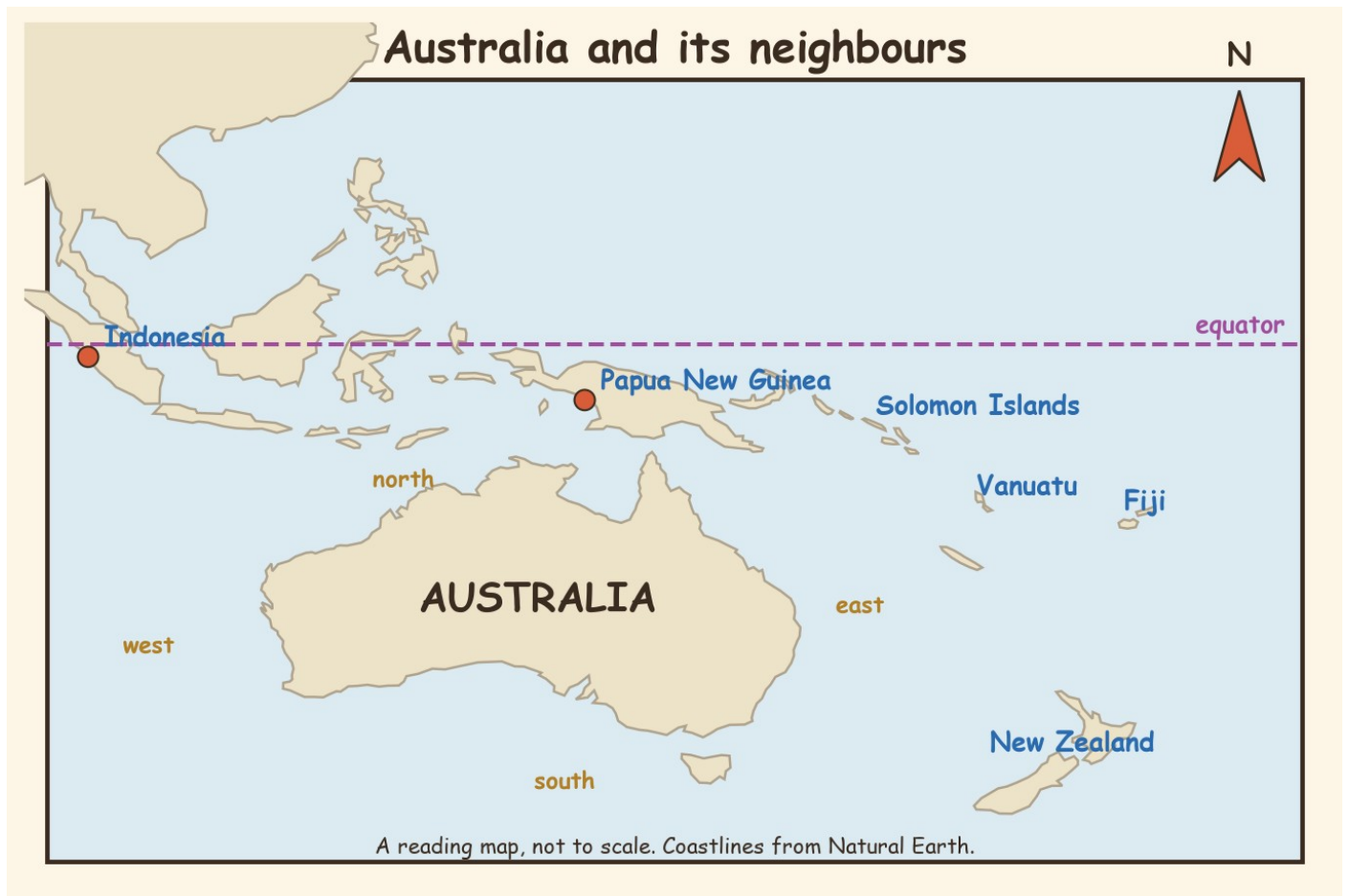
- **Natural features** are things nature made: rocks, landforms, bodies of water, soils, plants and animals.
- **Managed features** are things people look after: farms, forests grown for wood, and parks.
- **Constructed features** are things people built: houses, roads, bridges and schools.



Three kinds of features with pictured examples: natural (a mountain, a river, trees), managed (a farm, a forest), constructed (houses, a road, a bridge)

Where are the neighbouring countries?

Neighbouring means next door. The countries next door to Australia sit to the north, the east and the south-east, near the **equator**. The equator is a line around the middle of the Earth, like a belt around a ball. Australia is a continent — one of the great land masses of the Earth — and it sits south of the equator. We use direction words to read the map: north, south, east and west.

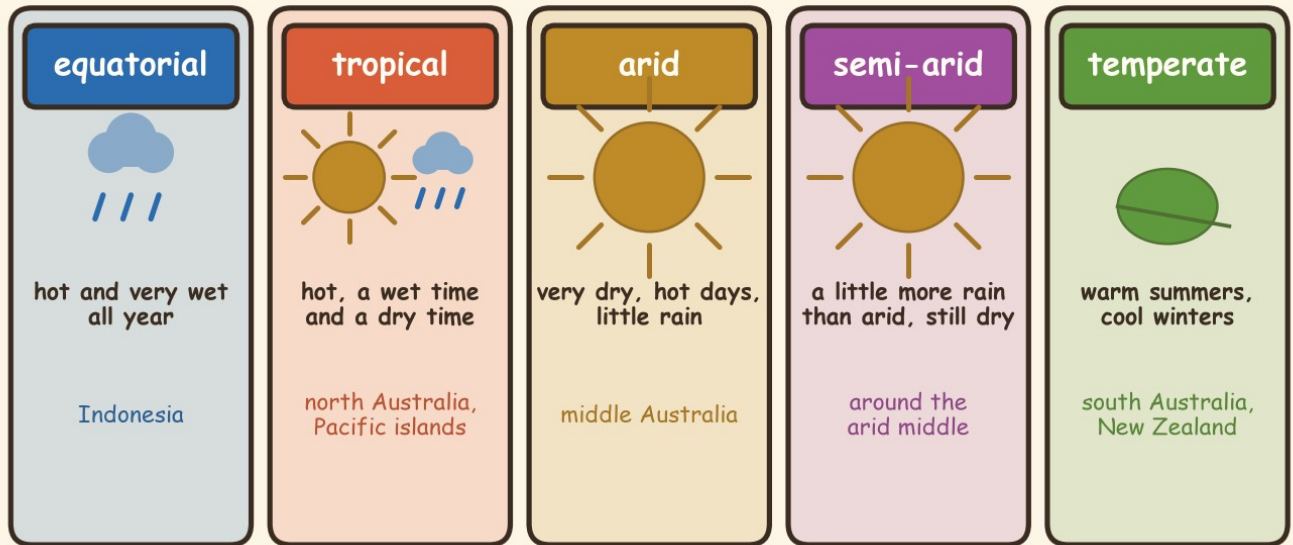


Map of Australia and its neighbouring countries, with direction words and the equator: Indonesia to the north-west, Papua New Guinea to the north, the Solomon Islands, Vanuatu and Fiji to the east, and New Zealand to the south-east

The main climate types

Climate is the weather a place has over a long time. Five main climate types are found in and near Australia: **equatorial**, **tropical**, **arid**, **semi-arid** and **temperate**. Climate changes the other natural features of a place: hot wet places grow thick forests, and dry places have little plants and lots of sand.

The main climate types



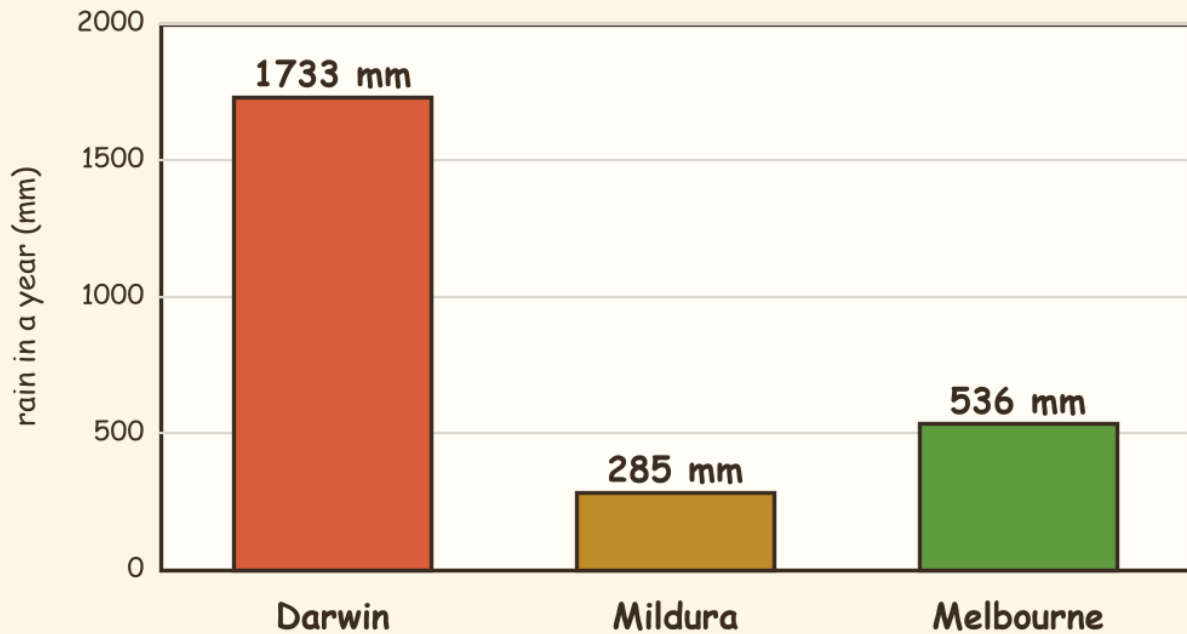
Climate is the weather a place has over a long time.

Five climate cards: equatorial (hot and very wet all year, in Indonesia), tropical (hot, with a wet time and a dry time, in north Australia and Pacific islands), arid (very dry, in middle Australia), semi-arid (still dry, around the arid middle), and temperate (warm summers and cool winters, in south Australia and New Zealand)

Real data: rain in a year

We measure rain in **millimetres (mm)** — a millimetre is a tiny step of length, like the little lines on your ruler. Here are real rain numbers for three Australian places, one place for each of three climate types.

Rain in a year at three places in Australia



Darwin has a wet and a dry time. Mildura is dry most of the year. Melbourne gets rain all year.

Source: Bureau of Meteorology climate statistics, stations 014015, 076031, 086282, retrieved 2026-08-25.

Bar chart of rain in a year: Darwin 1733 mm (tropical), Mildura 285 mm (semi-arid), Melbourne 536 mm (temperate)

Source: Bureau of Meteorology, Climate statistics for Australian locations, stations 014015, 076031 and 086282, retrieved 25 August 2026.

Darwin has a wet time and a dry time. Mildura is dry most of the year. Melbourne gets rain all year. The climate type tells us why.

Natural features: same and different

Neighbouring places can be the same in some ways and different in others. Australia, Indonesia and the Pacific islands all have bodies of water, but not the same ones. Indonesia has many **volcanoes** — mountains that can send out hot melted rock and ash. Australia has few. The Pacific islands sit on **reefs** — rocky hills under the sea, built by **coral**, tiny sea animals, and full of fish. For animal life, Australia has kangaroos, koalas and emus (big birds that cannot fly), and Indonesia has orangutans (red-haired tree animals), tigers and Komodo dragons (very big lizards).

Natural features: Australia and its neighbours

natural feature	Australia	Indonesia	Pacific islands
rocks and landforms	the Great Dividing Range, Uluru; few volcanoes	many volcanoes and mountains	small islands; volcanoes and coral reefs
bodies of water	Murray River, Lake Eyre; seas around the coast	seas and rivers between the islands	the Pacific Ocean all around; coral reefs
climate	tropical north, arid middle, temperate south	equatorial: hot and wet all year	tropical: warm, with lots of rain
soils	old, and poor in many places	rich soil from the volcanoes	thin and sandy on the low islands
natural vegetation	forests, savannah and desert plants	tropical rainforest	coconut palms and tropical forest
animal life	kangaroos, koalas, emus	orangutans, tigers, Komodo dragons	tropical fish and seabirds

Table of natural features (rocks and landforms, bodies of water, climate, soils, natural vegetation, animal life) for Australia, Indonesia and the Pacific islands

Houses for different climates

People build houses to suit the climate. In hot and wet places, houses sit up on **stilts** — long poles that hold the house off the ground — so air moves under the floor, and a steep roof (a roof that slopes a lot, like a slide) lets heavy rain run off. In hot and dry places, houses have thick walls and small windows to keep the heat out. In temperate places, houses have solid walls, a good roof, and heating for cool winter days.

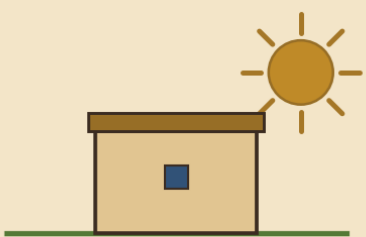
Houses built for different climates

hot and wet



- built up on stilts so air moves under the floor
- a steep roof lets heavy rain run off

hot and dry



- thick walls keep the heat out
- small windows and light walls for the sun

temperate

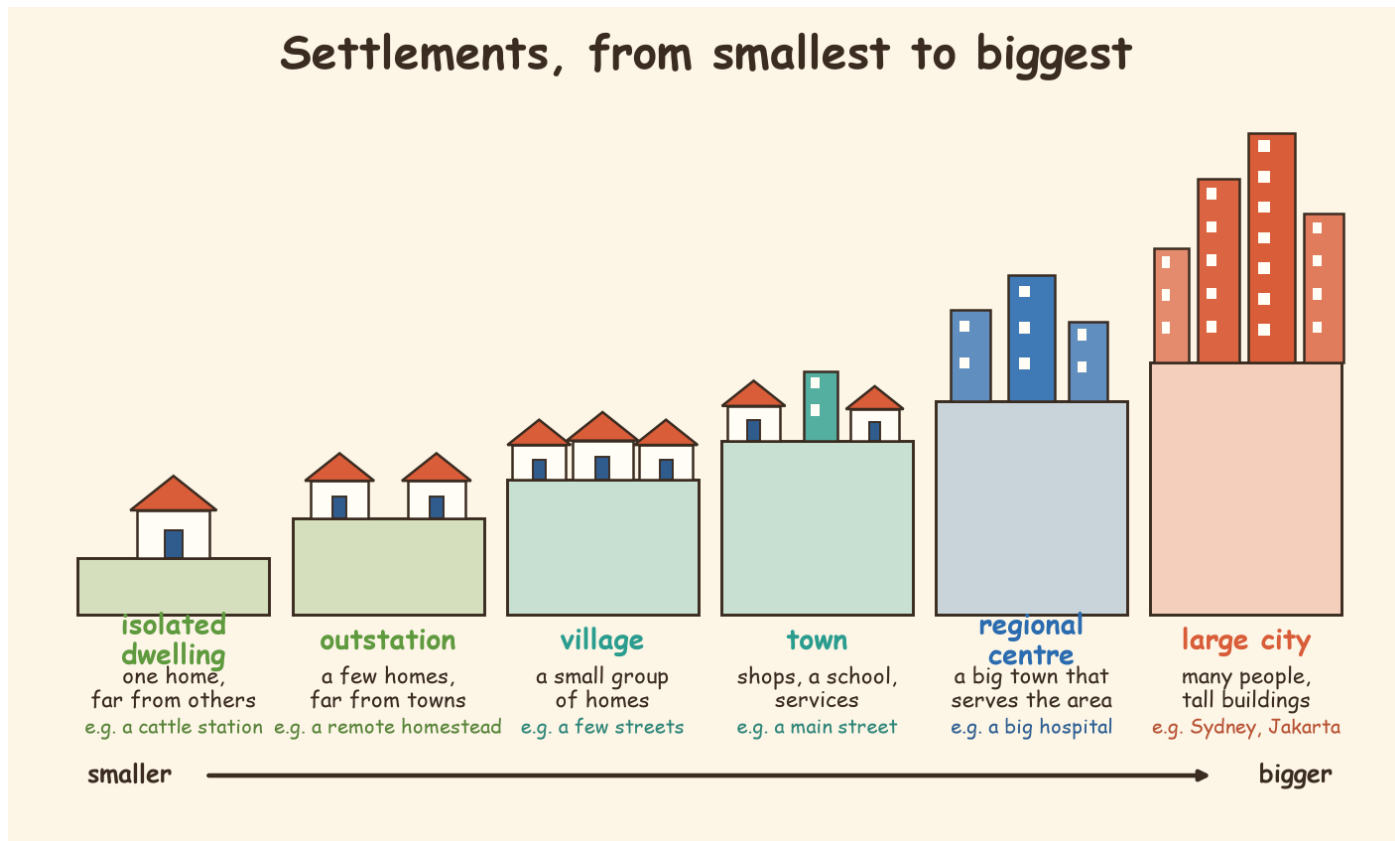


- solid walls and a roof for winter rain
- a heater for the cool winter days

Three houses built for their climate: a house on stilts with a steep roof for hot and wet places, a house with thick walls and small windows for hot and dry places, and a solid house with heating for temperate places

Settlements, small to big

A **settlement** is a place where people live. We can line settlements up from smallest to biggest: an isolated dwelling (one home far from others), an **outstation** (a few homes far from towns), a village, a town, a regional centre, and a large city. Bigger settlements have more of the things people need, like schools and hospitals.



The six settlements in a line from smallest to biggest: isolated dwelling, outstation, village, town, regional centre, large city; each with a little drawing, its meaning and a real example

We try together

Worked example 1 — Use the climate cards and the rain chart. (a) What climate type is Darwin? (b) What climate type is Mildura? (c) Give one way Darwin and Mildura are the same, and one way they are different.

Working	Note
(a) Darwin is in north Australia. The tropical card says: north Australia. So Darwin is tropical.	read the map match the place to the card
(b) Mildura sits around the arid middle. The semi-arid card says: around the arid middle. So Mildura is semi-arid.	read the map match the place to the card
(c) Same: both are in Australia, and both get hot days. Different: Darwin gets 1733 mm of rain in a year, and Mildura gets 285 mm.	one way the same one way different, from real data

∴ Darwin is tropical and Mildura is semi-arid: the same country, but different climates, so different natural features.

Worked example 2 — Compare Cairns (Australia) and Suva (Fiji) with place cards, then give a reason.

Working	Note
Cairns — climate: tropical, warm, with a wet and a dry time.	card row 1
Cairns — natural: a coral reef out in the sea; rainforest behind the town.	natural features
Cairns — managed: sugar cane farms nearby.	managed features
Cairns — constructed: a city by the sea, with an airport and hotels.	constructed features
Suva — climate: tropical, warm, with rain most of the year.	card row 1
Suva — natural: a small island with reefs and hills.	natural features
Suva — managed: sugar cane and coconut farms.	managed features
Suva — constructed: a small city by the sea, with markets and a place where ships stop.	constructed features
Same: both are warm, by the sea, with reefs, farms and a place for ships.	similarities
Different: Cairns sits on a big continent, and Suva on a small island, so Suva is smaller.	a reason for the difference

∴ Same climate and the same kind of place by the sea, so some features match. A continent is one of the great land masses of the Earth, and an island is a small piece of land with sea all around — so the two cities end up different sizes.

Comparing two tropical coastal places

Cairns — Australia		Suva — Fiji	
climate	tropical: warm, wet and dry times	climate	tropical: warm, rain most of the year
natural	coral reef offshore; rainforest behind	natural	a small island; reefs; hills inland
managed	sugar cane farms nearby	managed	sugar cane and coconut farms
constructed	a coastal city: port, airport, hotels	constructed	a small coastal city: port and markets

Why? Both sit near the tropics by the sea, so both are warm with reefs and a port.
But Cairns is on a big continent and Suva on a small island, so Suva is smaller.

Two finished place cards comparing Cairns (Australia) and Suva (Fiji) on climate, natural, managed and constructed features, with a why line

Questions to practise

With help

Q1 Look at the map of neighbouring countries. Name two countries or island groups north of Australia. **Q2** What is the name of the broken purple line on the map? Is Australia north or south of it? **Q3** Look at the climate cards. Which climate type means “very dry, hot days, little rain”? **Q4** Look at the rain chart. Which place gets the most rain in a year? How many mm? **Q5** Look at the natural features table. Name one animal from Indonesia and one from Australia. **Q6** Look at the settlements picture. What is the biggest kind of settlement? Name one real one from the picture.

On your own

Q7 Why do houses in hot and wet places sit up on stilts? Answer in a full sentence. **Q8** Name the six kinds of settlement from smallest to biggest. **Q9** True or false? Fix the false ones. (a) The equator runs near or through Indonesia. (b) Melbourne gets more rain in a year than Darwin. **Q10** Name one natural feature, one managed feature and one constructed feature you would be likely to see near your own home.

Places in real life

Your turn to explore. Choose one place in a neighbouring country (for example Suva in Fiji, or a town in Indonesia or Papua New Guinea) and one place in Australia. Make two place cards like worked example 2, with rows for climate, natural, managed and constructed features. Under your cards, write one sentence that gives a reason for one way they are the same or one way they are different (think about climate, the sea, and whether the place is on an island or a continent). Find one real fact from a real source, and write the source under your work.

Source: write where your fact came from (an atlas or a weather page is fine), and the date you looked.

Answers

Q1 Any two of: Indonesia, Papua New Guinea, Solomon Islands. **Q2** The equator. Australia is south of it. **Q3** Arid. **Q4** Darwin, with 1733 mm in a year. **Q5** Indonesia: an orangutan, a tiger or a Komodo dragon. Australia: a kangaroo, a koala or an emu. **Q6** A large city; Sydney or Jakarta. **Q7** So air can move under the floor to keep the house cool, and to hold the house above wet ground. **Q8** Isolated dwelling, outstation, village, town, regional centre, large city. **Q9** (a) True. (b) False — Darwin gets more rain in a year than Melbourne. **Q10** Answers will be different. A river, a park or a bridge are all fine.

All the working

The working for both worked examples is in the tables under “We try together”.

The rain totals are the BoM monthly means added up:

- Darwin: $432.1 + 372.2 + 310.7 + 102.4 + 20.2 + 1.7 + 1.1 + 4.5 + 16.8 + 69.7 + 146.5 + 255.5 = 1733.4$, about 1733 mm in a year.
- Mildura: $22.7 + 20.3 + 18.7 + 19.5 + 24.7 + 22.4 + 24.5 + 25.1 + 26.2 + 29.4 + 27.7 + 24.0 = 285.2$, about 285 mm in a year.
- Melbourne: $42.4 + 38.6 + 36.9 + 45.3 + 39.7 + 39.7 + 35.0 + 43.6 + 45.2 + 55.7 + 62.4 + 51.0 = 535.5$, about 536 mm in a year.