What’s coming up

This chapter provides an introduction to Geography and the importance of understanding people and places in the world. Students will study a broad overview of the types of environments that can be found in Australia and the world.

This chapter also allows students to develop the skills and tools needed to use and understand maps. Students will:

• study various types of maps
• learn why BOLTSS is important
• acquire skills such as area and grid referencing
• discuss latitude and longitude
• learn how to read a topographic map
• become familiar with spatial technologies.

Using the image

The chapter opening photograph shows a NASA image of the Susitna Glacier, Alaska. Students look carefully at the image and respond to these questions.

1 Which two colours are shown? What do you think the colours signify?
2 Can you identify any features in the image, such as rivers, valley or lakes?
3 What questions would you ask to find out more about the photo?

Students share their questions with classmates, either in pairs or as a class.

Question 2 will help you gain an understanding of students’ prior geographical knowledge.

Pre-quiz

Students respond to the following questions.

1 Where in the world have you been?
   Students list five locations they have visited in their state, in Australia or in another country.

2 Name one of the seven continents of the world.
   Australia, North America, South America, Asia, Africa, Antarctica or Europe

3 List three different types of environments.
   Natural, managed and constructed

4 Explain why Geography is more than just ‘learning about the earth’.
   Geography is the study of the patterns formed by people and places on earth, and how people and places are interconnected.
Geography’s tools and skills

Geographers use many different tools and skills to investigate the world in which we live. Maps are among the most important of these tools. A map is a representation of the whole, or a part, of the earth’s surface. Increasingly, maps are stored in electronic form and can be read on computer monitors, mobile phone screens and in-car navigation systems. People who make maps are called cartographers.

In this chapter we reflect on the nature of geography and the elements that make up the biophysical, managed and constructed environments. We also learn how to use maps.

**INQUIRY QUESTIONS**

- What is Geography?
- What are the distinguishing features of the biophysical, managed and constructed environments?
- What types of maps, photographs and satellite images are used by geographers and what are the conventions used in their construction?
- What are the key skills involved in the interpretation of maps?

**GLOSSARY**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>aspect</td>
<td>the direction that a slope faces</td>
</tr>
<tr>
<td>biophysical environment</td>
<td>those environments that are dominated by natural features such as landforms and vegetation, includes the earth’s soil, water, air, sunlight and all living things</td>
</tr>
<tr>
<td>cartographer</td>
<td>a person who draws maps</td>
</tr>
<tr>
<td>change</td>
<td>a transformation brought about by environmental, economic, political, social and/or cultural factors</td>
</tr>
<tr>
<td>constructed environment</td>
<td>human-altered landscapes, including all those features that are normally associated with settlements, industries and agriculture</td>
</tr>
<tr>
<td>contour interval</td>
<td>the difference in height between two contour lines on a map</td>
</tr>
<tr>
<td>contour lines</td>
<td>lines on a map that join places of equal height above sea level</td>
</tr>
<tr>
<td>distribution</td>
<td>the population or number of objects per unit of area</td>
</tr>
<tr>
<td>elevation</td>
<td>the height of a point or place above sea level</td>
</tr>
<tr>
<td>environment</td>
<td>our total surroundings, including the living and non-living features of the earth’s surface and atmosphere as well as those features that are altered or created by people</td>
</tr>
<tr>
<td>Geography</td>
<td>a structured way of exploring, analysing and understanding the characteristics of the places that make up our world</td>
</tr>
<tr>
<td>location</td>
<td>the position of a feature or place on the earth’s surface</td>
</tr>
<tr>
<td>managed environment</td>
<td>human-altered landscapes dominated by elements of the natural environment, including crop and grazing lands, plantations and planted forests</td>
</tr>
<tr>
<td>meridians of longitude</td>
<td>imaginary lines drawn around the earth from north to south</td>
</tr>
<tr>
<td>parallels of latitude</td>
<td>imaginary lines drawn around the earth from west to east, parallel to the Equator</td>
</tr>
<tr>
<td>population density</td>
<td>a measure of the number of people per unit of area</td>
</tr>
<tr>
<td>relief</td>
<td>a general term describing the shape of the land, including height and steepness</td>
</tr>
<tr>
<td>scale</td>
<td>the relationship between the distance on a map and the actual distance on the earth’s surface</td>
</tr>
<tr>
<td>spot height</td>
<td>the exact altitude or height above sea level of a point on the earth’s surface</td>
</tr>
<tr>
<td>thematic map</td>
<td>a map designed to illustrate a particular theme; for example annual rainfall or the location of oil resources</td>
</tr>
<tr>
<td>topographic map</td>
<td>a detailed, large-scale map illustrating selected features of the physical environment</td>
</tr>
<tr>
<td>topography</td>
<td>the study of the land</td>
</tr>
</tbody>
</table>

**EAL/D support**

**Starter activity**

EAL/D students connect better with new themes and ideas when they are able to link their own life experiences to the concept. Display a large map of the world in the classroom. Students bring in a photograph or an image from the internet that depicts the place in which they grew up. Attach these images to the relevant places on the map. Each student then tells the class a little about the environment in which they lived during their childhood. Some sentence prompts to assist students are:

- I grew up in [name of town and country].
- Something interesting about the town I grew up in is ...
- The thing I remember most clearly about the people in my town is ...
- Some examples of the environment I remember when I was growing up are [animals, farms, trees, rivers, mountains, deserts etc.].

**Getting started**

Get a mind map around the words ‘Geography is … ’ on the whiteboard or on poster paper. Write down all suggestions from students without editing their ideas. Invite students to make connections between ideas using a different coloured marker. Students should understand that Geography is something that is all around them, including in their local area, and is relevant to their everyday lives.

**P eBook 3.0 resources**

**Documents**
- Test: Geography: It’s all around us
- Test: Maps and mapping

**Interactive activities**
- Introducing Geography
- Human and Physical Geography
- Natural resources
- Using photography
- Types of environments and resources

**Templates**
- Graphic organisers
- Blank outline maps
Evaluate understanding

Prior knowledge

MI: verbal–linguistic, visual–spatial

Students come into Geography in Year 7 with a range of understandings and experiences. Before beginning the chapter, students create a two-column table. In the first column they list everything they know about Geography. In the second column they list everything they would like to learn about Geography. As the year progresses students reflect back on this list and tick off anything they have learnt.

Learning across the curriculum: critical and creative thinking, personal and social capability

Categorising

MI: visual–spatial, verbal–linguistic, logical–mathematical, interpersonal

Categorising terms helps students to understand the metalanguage associated with a particular subject area. Students make a word list of some living and non-living things. (Living things breathe and grow; non-living things do not breathe and grow.) Students then categorise the words into two columns: ‘environments made by nature’ and ‘environments made by people’. They should begin to understand that geographers use a geographical language to explain the world around them.

Learning across the curriculum: literacy

What is Geography?

MI: verbal–linguistic, logical–mathematical, intrapersonal

Students write a poem in response to the phrase ‘I am a geographer in my local area when I...’. Students then read their poem to the class or write their poem on the whiteboard.

Geographical knowledge and understanding

What is Geography?

Geography explained

Geography is the study of the characteristics of the places that make up our world. Geography is concerned with the processes that shape the earth’s surface and the ways in which people interact with environments. It seeks to explain the character of places and the distribution (spread) of people, features and events on or near the earth’s surface.

Geography dimensions

There are three dimensions in Geography: place, space and environment. All three dimensions interact, as shown in Figure 1.1.1.

Defining environment

The term environment refers to our living and non-living surroundings. We usually refer to environments as being either natural, managed or constructed. We use the term biophysical environment to identify an environment dominated by natural features such as landforms and vegetation—for example Jim Jim Falls in Figure 1.1.2. It is important to note, however, that there are no longer any purely ‘natural’ environments—all environments have been changed or altered by human activities. For this reason we use the term ‘biophysical environment’ rather than ‘natural environment’.

Managed environments are those in which elements of the natural environment are manipulated for the benefit of humans—for example farmland or a planted forest.

We use the term constructed environment when we refer to those elements of the environment that people have created.

By studying Geography, we learn about:

• our changing world
• our place in the world
• the big issues facing humanity
• the impacts that our actions have on the world.

By studying Geography, we are able to:

• lead more enriched lives
• become effective guardians of our future world
• think spatially
• develop a range of skills demanded by employers.

Geography’s dimensions: place, space and environment all interact.

Place

Geographers are interested in the uniqueness of places (their special character and identity) as well as the similarities between them.

Space

Geographers are interested in knowing where things are located on the surface of the earth, why they are there, the patterns and distributions created, how and why they are changing, and the implications for people.

Environment

Geographers are interested in the processes that form and change environments. They also study the relationships between the biophysical environment and human activity and the processes that shape managed and constructed environments.

Geographical concepts and tools: environment, interconnection

Making connections

Geography forever!

MI: bodily–kinaesthetic, verbal–linguistic, musical–rhythmic, interpersonal, intrapersonal

Students write and perform a short monologue, poem or narrative on why sustained learning about Geography will help the earth and its people in future years. Students should demonstrate an
**ACTIVITIES answers**

**Knowledge and understanding**

1. Geography is concerned with the processes that shape the earth’s surface and the way people interact with environments.

2. The term ‘biophysical environment’ is often used in preference to ‘natural environment’ because humans affect all of the earth’s environments.

**Applying and analysing**

3. A biophysical environment is one dominated by natural features such as landforms. A managed environment is a modified environment that is managed for the benefit of humans. A constructed environment refers to built environments related to human settlement.

4. Student answers will vary.

5. a, b Refer to the diagram below.

**ACTIVITIES**

**Knowledge and understanding**

1. Define Geography.
2. Explain why the term ‘biophysical environment’ is used in preference to ‘natural environment’.

**Applying and analysing**

3. Distinguish between the biophysical, managed and constructed environments.
4. Collect two images of each of the biophysical, managed and constructed environments and present the images as an annotated collage.
5. a Create a Venn diagram consisting of two intersecting circles. Label one circle with the heading ‘Physical Geography’ and the other circle with the heading ‘Human Geography’.
   b. Place each of the following topics in the correct circle. You may find that some topics fit into more than one category.
   i. volcanic activity
   ii. landuse changes in cities
   iii. whale migrations
   iv. landuse change over time
   v. the distribution of HIV/AIDS
   vi. how rivers shape the land
   vii. plants and animals in rainforests
   viii. a hailstorm
   ix. life on the ocean floor
   x. changing job opportunities
   xi. agricultural landuse in Bali
   xii. how humans shape the land

**Physical Geography**
- Volcanic activity
- Whale migrations
- Plants and animals in rainforests
- A hailstorm
- Life on the ocean floor
- How rivers shape the land

**Human Geography**
- Landuse change over time
- Agricultural landuse in Bali
- Landuse changes in cities
- How to draw maps
- Changing job opportunities
- The distribution of HIV/AIDS

**Learning across the curriculum:**
- sustainability, literacy, personal and social capability, difference and diversity, work and enterprise

**Geographical concepts and tools:**
- environment, visual representations

understanding of the fact that the more they learn about the earth and its people, the more they can make informed choices about the use and care of the earth.
**Types of environments**

### Defining environment

In Geography, the word ‘environment’ is used to describe our total surroundings. The environment includes the living and non-living features of the earth’s surface and its atmosphere, as well as those features that have been altered or created by people. Geographers divide environments into three kinds: biophysical environments, managed environments and constructed (or built) environments.

### Biophysical

Biophysical environments are those dominated by natural features such as landforms and vegetation. The natural environment includes the earth’s soil, water, air, sunlight and all living things. These are often referred to as the elements of the biophysical environment (see Figure 1.2.1). It is important to note that there are no truly ‘natural’ environments. All environments have, to some extent, been altered by the activities of people.

#### Elements of the biophysical environment

- **Solar energy:** the energy (light and heat) produced by the sun. All life on earth depends on solar energy.
- **Lithosphere:** the earth’s solid outer shell. Geographers study the processes shaping the earth’s crust and how these processes affect people.
- **Hydrosphere:** the earth’s store of water and how it circulates. Geographers are interested in how people try to control and manage water resources to meet their needs.
- **Atmosphere:** the combination of gases surrounding the earth. Geographers are particularly interested in weather and climate. They investigate:
  - how climate affects people, plants and animals
  - how the activities of people affect climate.
- **Biosphere:** the surface zone of the earth, in which all life exists. Geographers are particularly interested in how living things interact with each other and with the non-living parts of the environment.

### Geographical inquiry activity

#### Image analysis

**MI:** visual–spatial, verbal–linguistic, logical–mathematical, musical–rhythmic, interpersonal, intrapersonal

Students look carefully at the images on pages 6 and 7 of the Student Book. They choose two images and use them to respond to the following questions.

1. **What do you see in these images?**
   - Write down all the physical elements you can see.

2. **What do you think about these images?**
   - Write down the geographical questions you have about them.

   Students share their ideas with classmates, either in pairs or orally as a whole class. Key ‘thoughts’ can be displayed in the classroom and act as stimuli for learning more about this unit.

**Learning across the curriculum:** critical and creative thinking

**Geographical concepts and tools:** environment, visual representations
Managed
The managed environment includes human-altered landscapes dominated by elements of the natural environment. Examples are crop and grazing lands (see Figure 1.2.2), plantations and planted forests.

 Constructed
The constructed (or built) environment is best defined as those features of the environment that have been created by people. These include all the features normally associated with settlements, industries and agriculture. Features of the built environment include buildings and transport infrastructure (for example roads, railways, airports). The managed and constructed environments are a product of the social, cultural, economic and political systems created by humans (see Figure 1.2.3).

It is important to note that the biophysical, managed and constructed environments always interact. The biophysical environment is affected by the activities of people, and the managed and constructed environments are affected by events within the biophysical environment.

EAL/D support
Reading strategy
Read the information on these pages aloud with the class. Ask students to underline any unfamiliar words. Define each of the unfamiliar words in a brief class discussion and then paraphrase the definitions of the three types of environments, using simple language that is accessible to EAL/D students. Some sample definitions are provided below.

- Biophysical environments are areas that include a lot of natural objects, such as the land and how it looks (for example mountains, valleys and rocks) and the plants that grow on the land (for example trees, bushes and flowers).
- Managed environments are areas where humans have changed the way the land looks. Some examples of this include when trees are cleared away to plant crops, or trees are planted to create forests.
- Constructed environments are areas that have been built by humans, such as buildings, roads, railways and airports.

Sample pages
ACTIVITIES answers

Knowledge and understanding
1 Environment: someone’s total surroundings
Biophysical environment: surroundings dominated by natural features
Managed environment: human-altered landscapes dominated by the natural environment
Constructed environment: surroundings dominated by human-made features

2 Elements shaping the constructed environment include buildings and transport infrastructure (such as roads, bridges and railways).

3 The elements of the biophysical environment are:
   - Solar energy — the energy produced by the sun
   - Atmosphere — the earth’s solid outer shell
   - Hydrosphere — the earth’s store of water
   - Biosphere — the surface zone of earth, where all life exists.

Applying and analysing
4 Write down as many features of the biophysical environment as you can think of.
5 Describe how you interact with the biophysical environment, the managed environment and the constructed environment in an average day.
6 Write a paragraph describing how your local area might have looked before people settled there.
7 Write a second paragraph describing how people have transformed or changed the area.
Geographical knowledge and understanding

Vocabulary builder

Glossary

MI: verbal-linguistic

Students create a glossary of selected geographical terms introduced throughout the chapter. They can use the key terms and definitions found in the glossary on the chapter opening spread. For appropriate terms, students can also add their own illustrations or photos sourced from the internet.

This glossary will provide a ready reference for students when they need to refresh their memory about new terms and concepts covered in class. It will also help more visual learners to remember key terms.

Learning across the curriculum: literacy

Geographical concepts and tools: environment, interconnection

Geographical inquiry and skills

Geoskills

Finding your way home: street directory

MI: visual-spatial, verbal-linguistic, logical-mathematical

Encouraging students to use a street directory will help enhance many of the geographical skills covered in the Student Book, such as scale, distance, direction, area referencing and identifying both human and natural features.

For this task, use a class set of street directories or a street-directory website. Students locate their local area and complete the following tasks.

1. Create a table listing the human and natural features of the area.
2. List ten symbols used to represent different features. Draw these symbols.
3. Locate your school and your house.

After completing these tasks, students answer the following questions.

1. What is the scale of the map?
2. Starting from the location of your school, in what direction does your house lie?
3. What is the straight-line distance (as the crow flies) from your school to your house?

Using maps

Geographers use many different types of maps. Topographic maps are particularly useful, but geographers also use atlas maps of regions, countries, continents and the world. Atlases, websites, textbooks, magazines, television programs, computer databases and even some advertisements use many different kinds of maps.

Topographic maps

Figure 1.3.1 is a topographic map and shows a small area of the earth’s surface in great detail. It shows the shape of the land (topography) as well as different types of natural features (such as rivers and vegetation) and cultural features (such as land use, settlement patterns and road and rail networks). Topographic maps use a variety of symbols to represent these features.

Physical and human features maps

The maps in an atlas are often labelled with human (cultural and political) features such as boundaries, countries and cities. Physical (natural) maps show features such as rivers, mountains, plains and lakes.

<table>
<thead>
<tr>
<th>Map type</th>
<th>What it shows</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thematic</td>
<td>Shows the distribution of human or natural features, such as population or rainfall.</td>
<td>Helps geographers understand patterns and trends.</td>
</tr>
<tr>
<td>Topographic</td>
<td>Shows the shape of the land (topography).</td>
<td>Useful for understanding the physical features of an area.</td>
</tr>
</tbody>
</table>

4. What is the actual distance, by road, from your school to your house?

Learning across the curriculum: critical and creative thinking

Geographical concepts and tools: place, space, environment, interconnection, maps

Sample pages
**Thematic maps**

Thematic maps are often used to show the distribution of one or more of the following: climate, vegetation types, average rainfall, average temperature, population density, various development indicators (for example population growth rates) and agricultural land uses. Figure 1.3.2 is a thematic map showing average annual rainfall in South America. Thematic maps that use a colour scale or shading to show a pattern are called choropleth maps.

**Choropleth maps**

A choropleth map is a special type of thematic map. This type of map uses graduated shades of one colour to indicate the average values of some property or quantity in a given area. Typically, the darkest shade shows the distribution of the highest data category. Figure 1.3.2 is an example of a choropleth map.

**Weather maps**

Weather maps show weather conditions over particular areas of the earth’s surface at a particular time. In Figure 1.3.3 you see the condition of the atmosphere (including air pressure and wind direction and strength) at a certain time. You also see the location and direction of warm and cold fronts. From this information, forecasts about the weather can be made several days ahead.

**ACTIVITIES answers**

**Knowledge and understanding**

<table>
<thead>
<tr>
<th>Map type</th>
<th>What it shows</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topographic</td>
<td>The shape of the land</td>
<td>For hiking, military, government and commercial industries</td>
</tr>
<tr>
<td>Thematic</td>
<td>The pattern of a particular geographical issue or theme</td>
<td>To show distribution of an element, for example climate or vegetation types</td>
</tr>
<tr>
<td>Weather</td>
<td>The weather conditions over particular areas of the earth’s surface</td>
<td>To anticipate the weather</td>
</tr>
</tbody>
</table>

**Geographical skills**

2. Study Figure 1.3.1. List at least three features of each of the biophysical and built environment shown on the topographic map extract.

3. Study Figure 1.3.2. Determine the mean annual rainfall for:
   a. São Paulo
   b. Caracas.

4. Pria is a geographer working as a ranger in the protection of feral cats on the native bird population. What type of map should Pria use to display her findings? Explain why you chose this type of map.

**EAL/D support**

**Starter activity**

EAL/D students use the internet to locate some topographic, thematic, weather or street maps of an area in their home country. They then explain their findings to a partner and discuss the similarities and differences between the maps they have found.
SkillsBuilder

Finding places using latitude and longitude

If you are given the latitude and longitude of a place and asked to identify it, follow the steps below:

1. Using a world map, find the general location of the latitude and longitude you have been given.
2. Turn to a map of the region or continent, and locate the latitude and longitude more accurately.
3. Check your answer by finding the place name in the index of the atlas. Most atlas indexes include the latitude and longitude of each place.

Kobe, Japan (see Figure 1.9.4), for example, has a latitude of approximately 35° north of the Equator and a longitude of approximately 135° east of the Prime Meridian. To be even more accurate, each degree (°) can be divided into smaller units, called minutes (′). There are 60 minutes in each degree. Kobe’s location using degrees and minutes is latitude 34°40′ north, longitude 135°12′ east.

ACTIVITIES

Knowledge and understanding

1. Define the terms ‘parallel of latitude’ and ‘meridian of longitude’.
2. Explain the difference between parallels of latitude and meridians of longitude.
3. Describe the location and significance of the Prime Meridian and the International Date Line.

Geographical skills

4. a) Study Figure 1.9.4. Name the feature of the physical environment located at each of the following sets of coordinates.
   i) 36°05′ N 133°00′ E
   ii) 42°30′ N 132°00′ E
   iii) 35°23′ N 138°42′ E

4. b) Study Figure 1.9.4. Name the feature of the human environment found at each of the following locations.
   i) 35°40′ N 138°18′ E
   ii) 34°57′ N 131°28′ E
   iii) 31°17′ N 130°10′ E
   iv) 18°17′ N 130°02′ E
   v) 23°05′ N 141°21′ E
   vi) 31°23′ N 136°45′ E

Geographical skills

Students enter the coordinates listed in the Student Book into an online GIS tool, such as Google Maps. An example of how to successfully enter coordinates is shown in the following table.

<table>
<thead>
<tr>
<th>Location</th>
<th>Latitude/longitude</th>
<th>Google Earth input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Island of Hawaii</td>
<td>19°35′47.52″N 155°34′06.43″W</td>
<td>19°35′47.52″N 155°34′06.43″W</td>
</tr>
</tbody>
</table>

SkillsBuilder support

Hints and suggestions

Teaching and learning about latitude and longitude can be a fun exercise for students who are beginning to understand this important geographical skill. Thanks to previous units on area and grid referencing, students have already learnt how to pinpoint specific locations on the globe using latitude and longitude. Some tips for teaching latitude and longitude are as follows.

• Take a globe into the classroom. This provides students with a model to reference as you describe how the world is divided into the Northern and Southern hemispheres by the Equator and the Western and Eastern hemispheres by the Prime Meridian and the IDL. Demonstrate how latitude and longitude work together to pinpoint a specific location.

• Use an alphabetical clue to help students remember that the latitude coordinate is read before the longitude coordinate: the ‘A’ in latitude is before the ‘O’ in longitude, therefore latitude is read before longitude.

• When introducing students to degrees and minutes, take things slowly. A useful approach is to show an enlarged map on the data projector or interactive whiteboard, with latitude and longitude lines clearly marked. You could then draw in the 60 minutes that make up each degree.

Applying skills

Direct students to a world map or atlas, which they use to complete the activities below.

1. Name the cities located at the following coordinates:
   - 51°30′N 0°07′W London
   - 35°19′S 149°09′E Canberra
   - 0°19′N 32°35′E Kampala
   - 33°56′S 18°28′E Cape Town
   - 38°54′N 77°01′W Washington D.C.

2. List the coordinates for the following cities:
   - New Delhi 28°37′N 77°13′E
   - Ulaanbaatar 47°54′N 106°52′E
   - Rabat 34°02′N 6°51′W
   - Jakarta 6°08 ′S 106°45′E
   - Suva 18°08′S 178°25′E