

CHAPTER OVERVIEW

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?

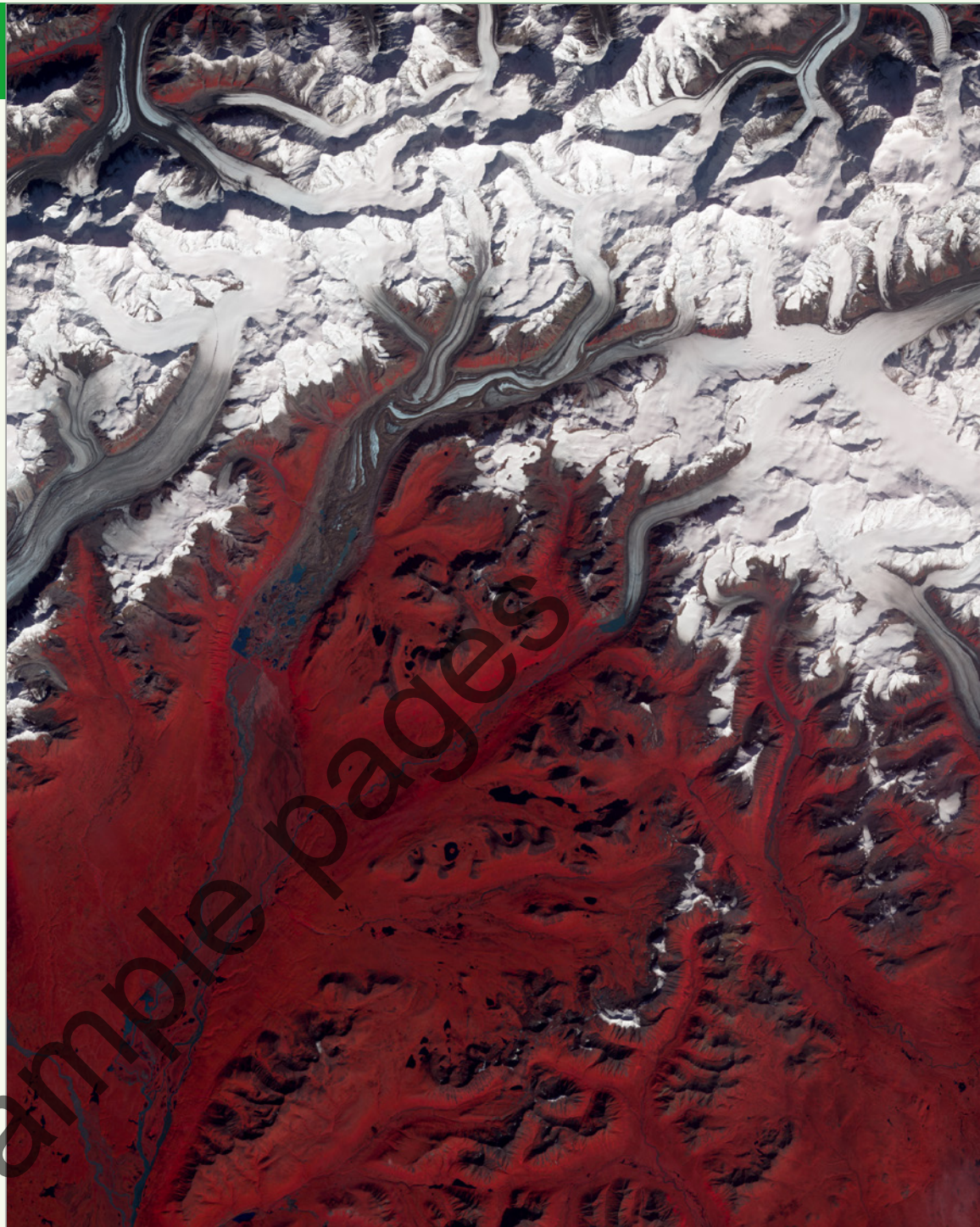
Students share their questions with classmates, either in pairs or as a class.

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

CHAPTER

1

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

aspect	the direction that a slope faces	location	the position of a feature or place on the earth's surface
biophysical environment	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	managed environment	human-altered landscapes dominated by elements of the natural environment, including crop and grazing lands, plantations and planted forests
cartographer	a person who draws maps	meridians of longitude	imaginary lines drawn around the earth from north to south
change	a transformation brought about by environmental, economic, political, social and/or cultural factors	parallels of latitude	imaginary lines drawn around the earth from west to east, parallel to the Equator
constructed environment	human-altered landscapes, including all those features that are normally associated with settlements, industries and agriculture	population density	a measurement of the number of people per unit of area
contour interval	the difference in height between two contour lines on a map	relief	a general term describing the shape of the land, including height and steepness
contour lines	lines on a map that join places of equal height above sea level	scale	the relationship between the distance between two points on a map and the actual distance on the earth's surface
distribution	the population or number of objects per unit of area	spot height	the exact altitude or height above sea level of a point on the earth's surface
elevation	the height of a point or place above sea level	thematic map	a map designed to illustrate a particular theme; for example annual rainfall or the location of oil resources
environment	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	topographic map	a detailed, large-scale map illustrating selected features of the physical environment
Geography	a structured way of exploring, analysing and understanding the characteristics of the places that make up our world	topography	the shape of the land
legend	the part of a map that explains the meaning of the symbols used in the map; sometimes referred to as the key		

1.0 Susitna Glacier, Alaska. The image was taken by NASA's Terra Satellite.

CHAPTER 1 • GEOGRAPHY'S TOOLS AND SKILLS 3

Getting started

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

Create 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.

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.].

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

Geographical knowledge and understanding

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 values and attitudes

Evaluate understanding

Geographical perspective

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

Start a class discussion about how Aboriginal and Torres Strait Islander people view Geography. Students draw on previous historical studies and personal experiences

1.1

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.

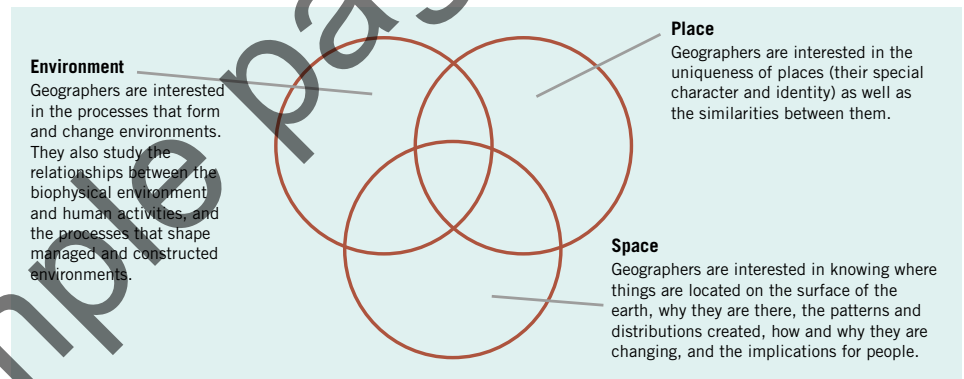
We use the term **constructed environment** when we refer to those elements of the environment that people have created.

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.



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

as evidence for their ideas. Main ideas may include that prior to European settlement, Aboriginal and Torres Strait Islander people relied on their own deep and detailed understanding of the land and its resources. Discuss how the views of Aboriginal and Torres Strait Islander people may or may not have been affected by seeing their land managed and altered by settler developments. This discussion should include the concepts of change, community and how people interact with the environment.

Learning across the curriculum: Aboriginal and Torres Strait Islander histories and cultures, sustainability,

ethical understanding, intercultural understanding, difference and diversity

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



1.1.2 Jim Jim Falls, Kakadu National Park, Northern Territory—an example of a biophysical environment

Physical and Human Geography

Geography has traditionally been divided into two areas, Physical Geography and Human Geography

Physical Geography looks at how the earth was formed and how it continues to change. It includes the study of the atmosphere, hydrosphere, lithosphere and biosphere—the four parts of the biophysical environment.

Human Geography looks at people and how, individually or in groups or communities, they interact with the environment. It includes:

- the study of urban, industrial and rural land uses
- the development of countries
- population and population movements
- how economic changes affect people
- issues such as global terrorism, human rights, global inequality, child labour and social justice.

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 to draw maps
- vii plants and animals in rainforests
- viii a hailstorm
- ix life on the ocean floor
- x agricultural landuse in Bali
- xi how rivers shape the land
- xii changing job opportunities

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 biospherical 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.

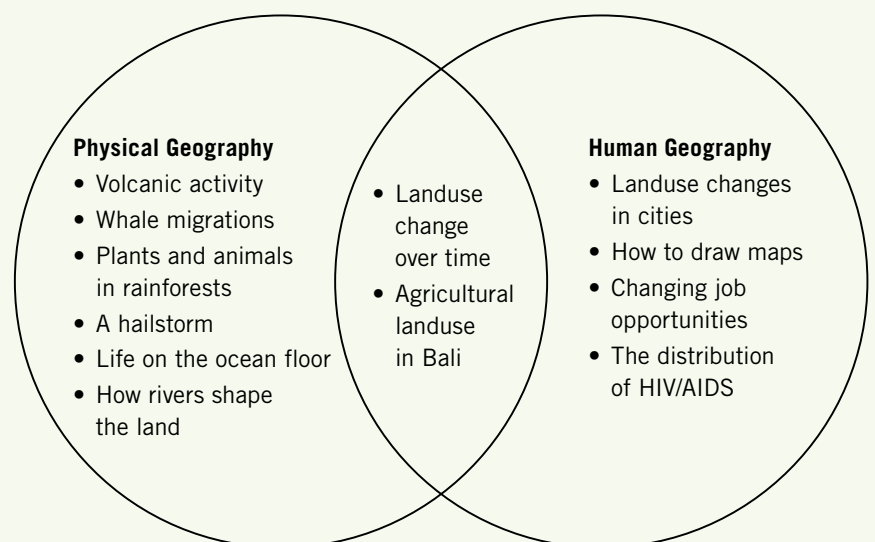
understanding of the fact that the more they learn about the earth and its people, the more they can make informed choices about the use and care of the earth.

Learning across the curriculum:

sustainability, literacy, personal and social capability, difference and diversity, work and enterprise

Geographical concepts and tools:

environment, visual representations



Geographical knowledge and understanding

Extension activity

I love a sunburnt country ...

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

Students write a poem about the part of Australia they love the most. They present their work orally or visually.

For this activity, students try to use some of the geographical language they have learnt, such as: natural, environment, people, place, community, change, coast, river, mountains, managed, care and human.

This goes with that

MI: visual–spatial

Students take a photograph of a part of their school that displays both natural and constructed environments.

They display the photograph in the centre of a page of their exercise book or on poster paper. Students then annotate the features of each type of environment. For example, features of the lithosphere include rocks, soil and dust, and an element of the atmosphere includes clouds.

Learning across the curriculum: critical and creative thinking

Geographical concepts and tools: place, environment, visual representations

Geographical inquiry and skills

Geographical inquiry activity

Image analysis

MI: visual–spatial, verbal–linguistic, interpersonal

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

1.2

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.



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.



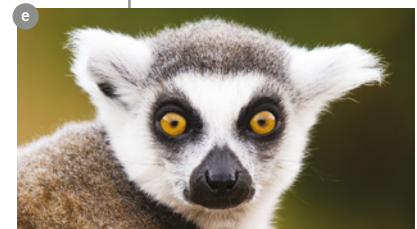
Hydrosphere: the earth’s store of water and how it circulates. Geographers are interested in how people try to control and manage water resources to meet their needs.

Elements of the biophysical environment



Atmosphere: the combination of gases surrounding the planet. 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.

1.2.1 Elements of the biophysical environment

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.



1.2.2 Terraced rice paddies are an example of a managed environment.



a Social



b Economic



c Cultural



d Political

1.2.3 Elements shaping constructed environments

ACTIVITIES

Knowledge and understanding

- 1 Define the following terms: environment, biophysical environment, managed environment and constructed environment.
- 2 List the elements shaping the constructed environment.
- 3 Identify the elements of the biophysical environment and explain what each one is.

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. Write a second paragraph describing how people have transformed or changed the area.

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

lithosphere—the earth's solid outer shell

hydrosphere—the earth's store of water

atmosphere—the combination of gases surrounding the planet

biosphere—the surface zone of earth, where all life exists.

Applying and analysing

- 4 Student answers will vary.
- 5 Student answers will vary.
- 6 Student answers will vary.

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.

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?

1.3

Types of maps

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

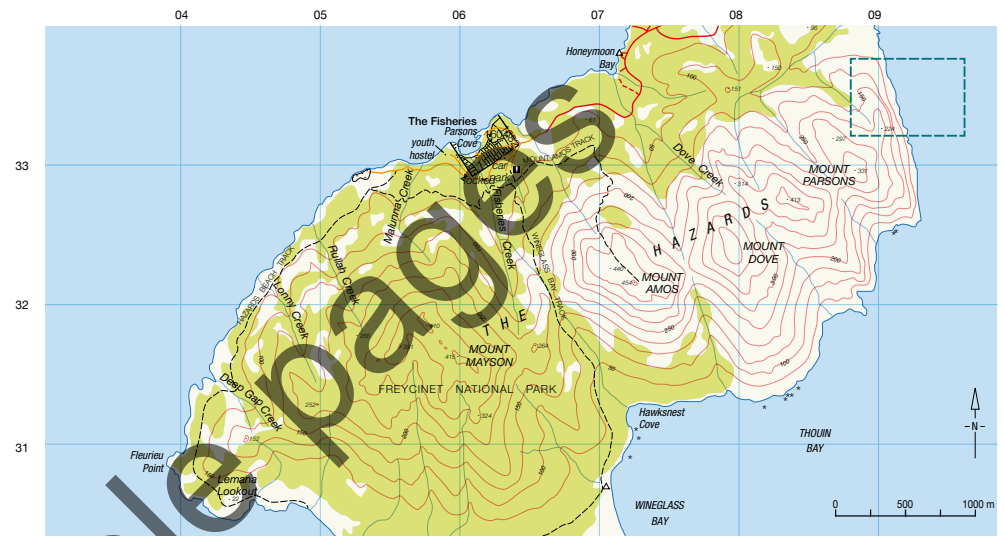
Figure 1.3.1 is a **topographic map** and shows a small area of the earth's surface in great detail. It shows the shape of the land (**topography**) as well as different types of natural

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.

1.3.1 Topographic map extract, Wineglass Bay, Tasmania



Road with bridge; with gate	sealed	unsealed
Walking track (approximate position) with bridge		
Building; Visitor information centre		
Contour with value; Camping; Spot elevation		
Medium forest		
Tidal rocks or ledge; Offshore rock		
Reserve boundary; Land parcel boundary and number		

Base image by TASMAR (www.tasmap.tas.gov.au), © State of Tasmania

8 PEARSON GEOGRAPHY NSW • STAGE 4

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

Learning across the curriculum: critical and creative thinking

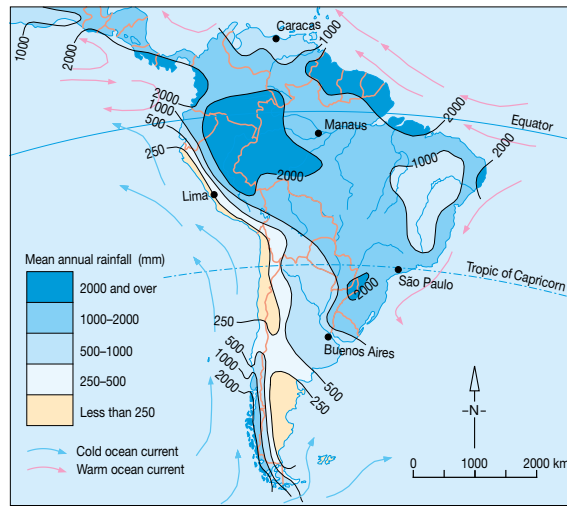
Geographical concepts and tools: place, space, environment, interconnection, maps

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

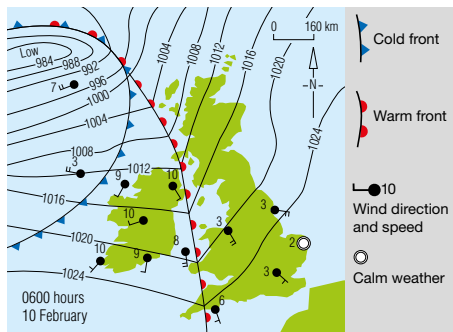
A choropleth map is a special type of thematic map. This type of map uses graduated shades of one colour to indicate the average values of some property or quantity in a given area. Typically, the darkest shade shows the distribution of the highest data category. Figure 1.3.2 is an example of a choropleth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



1.3.2 Mean annual rainfall, South America
Source: Heinemann Atlas Fifth Edition

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.



1.3.3 A weather map of the United Kingdom

ACTIVITIES

Knowledge and understanding

1 Copy and complete the following table.

Map type	What it shows	Purpose
Topographic		
Thematic		
Weather		
Street		

Geographical skills

- Study Figure 1.3.1. List at least three features of each of the biophysical and built environments shown on the topographic map extract.
- Study Figure 1.3.2. Determine the mean annual rainfall for:
 - São Paulo
 - Caracas.
- Pria is a geographer working as a ranger in her local national park. She is researching the impact 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.

Knowledge and understanding

Map type	What it shows	Purpose
Topographic	The shape of the land	For hiking, military, government and commercial industries
Thematic	The pattern of a particular geographical issue or theme	To show distribution of an element, for example climate or vegetation types
Weather	The weather conditions over particular areas of the earth's surface	To anticipate the weather
Street	Important information about streets and the features of a city	To navigate around a city

Geographical skills

2	Biophysical environment	creeks, forest, rocks, mountains, sea
	Built environment	walking track, roads, lookout, youth hostel, information centre, buildings, bridge, gate

- 1000–2000 mm
 - 500–1000 mm
- Pria should use a thematic map to display her research findings on the ways in which feral cats affect native bird populations. Thematic maps show the pattern of a particular theme or issue. This type of map would enable Pria to show the population density of cats and birds in the area.

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.

Geographical knowledge and understanding

Helpful hint

Indigenous dot maps

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

Aboriginal dot paintings often depict a bird's-eye (aerial) view of the landscape, showing any important natural and human-made features such as water sources, camping grounds and animal habitats.

Students observe some examples of Aboriginal dot paintings and describe the features that are similar to those of modern maps. There are many Aboriginal art websites that explain the meaning of many of the symbols used on Aboriginal artworks.

Learning across the curriculum: Aboriginal and Torres Strait Islander histories and cultures

Geographical concepts and tools: place, space, maps, visual representations

Cartography

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

Cartographers design and prepare maps and charts using paper or three-dimensional models. Cartographers also use spatial information programs such as geographic information systems. Some cartographers specialise in particular types of maps, such as those used for topography, town planning, weather forecasting, tourism or geology.

People who enjoy Geography and using technology are often attracted to cartography. People who are able to produce neat, detailed work and have a strong background in mathematics and science find this profession interesting and challenging. Students who would like to read about a career in cartography can visit the websites of the Surveying and Spatial Sciences Institute or the Mapping Sciences Institute, Australia.

Learning across the curriculum: ICT capability, intercultural understanding, work and enterprise

Geographical concepts and tools: maps, graphs and statistics, spatial technologies, visual representations

1.4

Elements of maps

Maps

Maps play a very important role in the study of Geography. They tell us about places and help us to identify patterns and changes in the landscape.

Maps range from the very simple to the very complex. No map can show every feature of the landscape, as it would then be impossible to read. Maps need to be selective in what they show. **Cartographers** (map makers) use symbols, shading and colour to show how the features of the earth's surface are arranged and distributed. These techniques also make maps easier to read and explain.

Elements of maps

Map essentials include a **Border**, a direction symbol (**Orientation**), a **Legend**, a **Title**, a **Scale** and a **Source**—commonly referred to as BOLTSS.

Border

The border of a map can be described as the 'frame' that surrounds it.

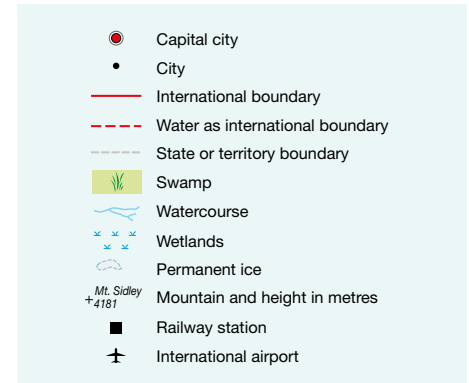
Orientation

To use a map, you need to know where the compass directions are on the map. An arrow shows which way is north. Once you know where north is, you can work out other directions. This process, known as 'orientation', makes it easier to describe the location of places.

Legend

The **legend** of a map is also called the key. It lists all the symbols that are used on the map and shows what each of them means.

Map symbols are used to show the location of features on a map. Many symbols look like the features they represent (see Figure 1.4.1). The colour used for a symbol may also provide a clue to its meaning (blue for water and green for vegetation). The importance of a feature may be shown by the size of the symbol, the thickness of the line or the size of the font used to label it.



1.4.1 Some common map symbols

Title

A title tells us the purpose of a map. Usually the title has two parts: the name of the place, and what is being shown on the map.

Scale

A map is a graphic representation of part of the earth's surface, drawn to **scale**. The amount and type of detail shown on a map depends on its scale and purpose. For example, a street map of Melbourne with a scale of 1:20 000 (see Figure 1.4.2a) can show a lot more information about the city than a map of Europe with a scale of 1:20 000 000 (Figure 1.4.2b). The street map shows a smaller area in greater detail.

Source

If you use information from other sources when you create your own maps, you need to indicate where that information came from. It is important to correctly cite other work.

Quick five

Mapping your bedroom

MI: visual-spatial, logical-mathematical

At the end of the lesson, students take 5 minutes to draw a 'mental map' (from memory) of their bedroom on an A4 sheet of paper. They should include the location of their furniture in the map. They then complete the following tasks for homework.

- 1 Draw a scale map (a detailed map of a small area) of your bedroom. Your map must include the furniture in your bedroom, which should also be drawn to scale.

- 2 Use the scale 1:25. This means one centimetre on the map converts to 25 centimetres in your bedroom (4 centimetres on the map is equal to 1 metre in your bedroom).
- 3 Your map must include all BOLTSS elements. Tip: to check the orientation of a room without a compass, work out when the sun hits your bedroom or other parts of the house. Your room will be facing east if it gets morning sun and west if it gets afternoon sun.

1.4.2 Compare these (a) large-scale and (b) small-scale map extracts.



Source: Transport Sydney



Source: Heinemann Atlas Fifth Edition

Using scale

The scale on a map shows how much smaller the map is than the actual area. Using a scale, you can measure distances on the map and calculate the distances they represent on the earth's surface.

The scale on a map can be expressed in three different ways, as shown in Figure 1.4.3:

- as a statement; for example, '1 centimetre (on the map) represents 1000 metres (on the ground), or 1 centimetre represents 1 kilometre'
- as a ratio or representative fraction; for example $1:100\,000$ or $\frac{1}{100\,000}$
- as a linear scale.

Statement
For example, '1 centimetre on the map represents 1000 metres, or 1 kilometre, on the ground'. This is a statement in words comparing distances on the map with what they represent.

Linear scale
On a linear scale, a line or bar is marked in units that represent real distances—usually kilometres.

Ratio scale
For example 1:100000. This tells you that 1 centimetre on the map represents 100000 centimetres (1000 metres or 1 kilometre) on the ground.

1.4.3 Ways of expressing the scale of maps

ACTIVITIES

Knowledge and understanding

- 1 Explain what a map is.
- 2 Outline the role maps play in the study of Geography.
- 3 Explain why maps cannot show every feature of the landscape.
- 4 State what is used to show how features of the earth's surface are arranged and distributed.
- 5 List the essential elements of a map.

Geographical skills

- 6 Design suitable map symbols for the following features.

a bicycle track	g swimming pool
b bus stop	h playground
c fast-food outlet	i racecourse
d football field	j school
e tennis court	k skate park
f basketball stadium	
- 7 Draw a sketch map of your school. Make sure it is to scale and has the essential elements of a map.

ACTIVITIES answers

Knowledge and understanding

- 1 A map is a two-dimensional representation of a part of the earth's surface. It can be used to convey a range of information, such as landforms and statistical data.
- 2 Maps are important tools that geographers use to record information about a place. They show the natural features of a landscape, such as mountainous or low-lying terrain, rivers and lakes, and human-made features, such as streets and buildings.
- 3 Maps are unable to show every feature of a landscape because this would require the inclusion of too much information. This would render the map unreadable.
- 4 Maps use symbols, shading and colour to show how the features of the earth's surface are arranged and distributed.
- 5 A map should always include a grid and BOLTSS.

Geographical skills

- 6 Student answers will vary.
- 7 Student answers will vary.

When students have completed their scale map, they compare it to their mental map. Before they submit their maps for marking, students evaluate the process by writing a paragraph that answers the following questions.

- 1 Which map was easier to draw?
- 2 What were the positive and negative aspects of creating each map?
- 3 When might you need to use each type of map again?

Learning across the curriculum: critical and creative thinking

Geographical concepts and tools: place, space, scale, maps

EAL/D support

Starter activity

EAL/D students learn more effectively when visual prompts are incorporated into their learning. To assist these students with the concept of 'orientation', show them a diagram of a compass with the sixteen cardinal points. It may even be possible to conduct a kinaesthetic activity where students walk around the school using compasses to record the direction certain buildings and objects face. Introduce phrases associated with direction to aid students undertaking this activity.

Directional phrases

- Turn right/left.
- Go straight.
- You'll see it on the right/left.
- It's across from ...
- It's next to ...

Prepositions related to direction

- across
- between
- into
- out of
- past
- around
- through
- towards

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.

- Using a world map, find the general location of the latitude and longitude you have been given.
- Turn to a map of the region or continent, and locate the latitude and longitude more accurately.
- 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.



1.9.4 A map extract of Japan, showing latitude and longitude, and features of the biophysical and built environments

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 Eastern and Western 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.

ACTIVITIES

Knowledge and understanding

- Define the terms 'parallel of latitude' and 'meridian of longitude'.
- Explain the difference between parallels of latitude and meridians of longitude.
- Describe the location and significance of the Prime Meridian and the International Date Line.

Geographical skills

- Study Figure 1.9.4. Name the feature of the physical environment located at each of the following sets of coordinates.
 - 36°05'N 133°00'E
 - 42°30'N 132°00'E
 - 35°23'N 138°42'E

- 38°20'N 138°30'E
 - 41°20'N 140°15'E
 - 42°N 129°E
 - 33°30'N 135°45'E
- b Study Figure 1.9.4. Name the feature of the human environment found at each of the following locations.
- 35°40'N 139°45'E
 - 34°23'N 132°27'E
 - 31°00'N 130°30'E
 - 38°15'N 140°52'E
 - 43°05'N 141°21'E
 - 35°02'N 135°45'E

Applying skills

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

- 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.
- 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

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.

Location	Latitude/longitude	Google Earth input
Island of Hawaii	19°35'47.52"N 155°34'06.43"W	19 35' 47.52"N 155 34' 06.43"W

- Oki Islands
 - Peter the Great Bay
 - Mt Fuji
 - Sado Island
 - Tsugaru Strait
 - Mt Kambo
 - Cape Shiono
 - Tokyo/Yokohama
 - Hiroshima
 - Kagoshima
 - Sendai
 - Sapporo
 - Kyoto