1.1 Overview

1.1.1 Work and careers in Geography

As a student of Geography, you are starting to build the knowledge and skills that will be needed by you and your community now and into the future. The concepts and skills that you will use will not only help you in Geography but they can also be applied to everyday situations, such as finding your way from one place to another. Studying Geography may even help you in a future career here in Australia or somewhere overseas.

Throughout the year you will be studying topics that will give you a better understanding of the world around you — both the local and global environment. You will be investigating issues that need to be addressed now and also options for the future.

Explore: skills you need for a job

Many questions come up during a typical Geography class, such as the ones below in table 1. These questions need to be answered in the real world by people in a wide variety of occupations. They all have links with Geography.

<table>
<thead>
<tr>
<th>Question</th>
<th>Occupations/organisations that try to answer these questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How high is Mount Everest? How do we know?</td>
<td>Surveyor, Cartographer</td>
</tr>
<tr>
<td>• How can we protect our parks and wildlife?</td>
<td>Park ranger, Planner, Environmental manager</td>
</tr>
<tr>
<td>• Where should we establish a new suburb for our future population?</td>
<td>Urban planner, Demographer</td>
</tr>
<tr>
<td>• How can we prepare for future droughts and floods?</td>
<td>Civil engineer</td>
</tr>
<tr>
<td>• Does our town really have enough water? Where should we build a new dam? Should we build a new dam?</td>
<td>Coastal engineer, Hydrologist, Cartographer</td>
</tr>
<tr>
<td>• Should a boat marina be built at location X or at location Y?</td>
<td>Oceanographer</td>
</tr>
<tr>
<td>• Do we have good quality drinking water?</td>
<td>Chemist, Hydrologist</td>
</tr>
<tr>
<td>• How do countries such as India and China deal with their air pollution problems?</td>
<td>Environmental scientist/Manager</td>
</tr>
<tr>
<td>• How do we provide aid to other countries?</td>
<td>Air Force, Navy, Army Officer, Red Cross, World Vision and other aid agencies</td>
</tr>
<tr>
<td>• How do we build sustainable housing?</td>
<td>Architect, Landscape architect, Civil engineer/Construction manager, Town planner, Real estate salesperson</td>
</tr>
</tbody>
</table>

Think: who are you and what is your position in the world?

Do you know much about the occupations mentioned in table 1? Are any of interest to you?

The first step in thinking about your future is to consider questions such as:
• Who am I?
• What are my interests?
• What do I enjoy doing?
• What am I good at?
• When I leave school I would like to …
1.1.2 Geography careers on the move
A great part of studying Geography is being able to explore the many occupations and areas that it opens up. In table 2 below are some occupations that you may not have thought studying Geography could lead you into.

**TABLE 2** Would I enjoy …

<table>
<thead>
<tr>
<th>... working indoors?</th>
<th>... working outdoors?</th>
<th>... helping people?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land economist</td>
<td>Surveyor</td>
<td>Park ranger</td>
</tr>
<tr>
<td>Landscape designer</td>
<td>Mining engineer</td>
<td>Paramedic</td>
</tr>
<tr>
<td>Real estate salesperson</td>
<td>Geologist</td>
<td>Navy officer</td>
</tr>
<tr>
<td>Geoscience technician</td>
<td>Landscape architect</td>
<td>Fireman</td>
</tr>
<tr>
<td>Travel consultant</td>
<td>Cartographer</td>
<td>Tour guide</td>
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<td></td>
<td></td>
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<tr>
<td>... designing new places to live?</td>
<td>... improving people’s wellbeing?</td>
<td>... doing research?</td>
</tr>
<tr>
<td>Urban planner</td>
<td>Natural resource manager</td>
<td>Meteorologist</td>
</tr>
<tr>
<td>Architect</td>
<td>Demographer</td>
<td>Anthropologist</td>
</tr>
<tr>
<td>Landscape architect</td>
<td></td>
<td>Geophysicist</td>
</tr>
<tr>
<td>Horticulturist</td>
<td></td>
<td>Hydrographer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental scientist</td>
</tr>
</tbody>
</table>

1.1.3 Finding my way as a local and global citizen
A wide range of exciting new jobs are developing in the spatial sciences which use geographical tools such as GPS, GIS, satellite imaging and surveying. These tools help people make important decisions about managing and planning places and resources. Whether it be how to manage water somewhere in the Middle East or how best to design a new housing estate here in Australia, these skills and occupations will be an important part of working as a global citizen.

**ACTIVITIES**

**PREDICT**
1. Consider spatial technologies and work and enterprise careers of the future. Which geographical tools do you predict will be used by:
   - a meteorologist?
   - a naval officer?
   - an airline pilot?
   - a farmer?

**DISCOVER**
2. We can develop a better understanding of work and enterprise by exploring what others have to say about their careers. Use the Geocareers weblink in the Resources tab to help you locate one male and one female geographer working as local or global citizens.
   - What career path did they follow?
   - How did they include their passion for geography into their career journey?
   - What advice did they share about their career journey?
1.2 Geographical concepts

1.2.1 Introduction
Geographical concepts help you to make sense of your world. By using these concepts you can both investigate and understand the world you live in, and you can use them to try to imagine a different world. The concepts help you to think geographically. There are seven major concepts: place, space, environment, interconnection, sustainability, scale and change.

In this book, you will use the seven concepts to investigate two units: Landforms and landscapes and Changing nations.

1.2.2 What is space?
Everything has a location on the space that is the surface of the Earth, and studying the effects of location, the distribution of things across this space, and how the space is organised and managed by people, helps us to understand why the world is like it is.

A place can be described by its absolute location (latitude and longitude) or its relative location (in what direction and how far it is from another place).

FIGURE 1 A way to remember these seven concepts is to think of the term SPICESS.

FIGURE 2 The distribution of the world's deserts.
**ACTIVITIES**

Refer to figure 2.
1. Use an atlas to give the absolute location (latitude and longitude) of Mecca, in the Arabian desert (see the map below).
2. Describe the spatial distribution of the world’s deserts in relation to the tropics.
3. In what direction and approximately how far is the Thar Desert from the Arabian Desert; the Atacama Desert and the Namib Desert?
4. How is the location of the Namib Desert influenced by cold ocean currents?
5. Look at a population map of Australia (see **Interconnection**, figure 5). What is the relationship over space between the location of Australia's deserts and the location of Australia’s population?

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**1.2.3 What is place?**

The world is made up of places, so to understand our world we need to understand its places by studying their variety, how they influence our lives and how we create and change them.

You often have mental images and perceptions of places — rich and poor cities, suburbs, towns or neighbourhoods — and these may be very different from someone else’s perceptions of the same places.

**FIGURE 3** The Paraisópolis favela (slum), home to 60,000 people, is situated next to the gated complexes of the wealthy Morumbi district of São Paulo.

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**ACTIVITIES**

Refer to figure 3.
1. Where in the world is this place located?
2. What effects have people had on this place?
3. List the differences you observe in the way people live on each side of this settlement.
4. How is this place similar to or different from the place where you live?
5. What decisions could be made to improve or change this place?
6. How might the environment of this place affect the people who live there?
7. How does the place where these people live affect their lives?

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**1.2.4 What is interconnection?**

People and things are connected to other people and things in their own and other places, and understanding these connections helps us to understand how and why places are changing.

An event in one location can lead to change in a place some distance away.
Refer to figures 4 and 5.

1. Look at the rainfall map. What is the relationship, or **interconnection**, between the distribution of rivers and the distribution of rainfall?

2. In small groups, think of ways in which the use of water upstream in these rivers could affect environments and people downstream.

3. Write a summary statement that describes the **interconnection** between rainfall in Australia and where people live.

4. Look at an atlas map showing the distribution of vegetation in Australia. How are rainfall and vegetation **interconnected**?

5. Look at an atlas map. What is the **interconnection** between rainfall distribution and Australia’s population density (number of people per census district)?

6. How might these **interconnections** affect how people live?

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### 1.2.5 What is change?

The concept of change is about using time to better understand a place, an environment, a spatial pattern or a geographical problem.

Some changes can be fast and easily observed, but others are very slow. Cities, for example, can expand outwards over a number of years. Similarly, landforms generally change very slowly, as with the formation of mountains. But some landscape change can be very fast, as is the case with landslides, volcanic eruptions and deforestation.

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**FIGURE 4** Distribution of annual rainfall in Australia

**FIGURE 5** Australia’s population distribution

**FIGURE 6** The change in size of the city of Sydney over time.

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**Sydney’s urban area**

- **Before 1917**
- **1917–1945**
- **1945–1975**
- **1975–2005**
- **2031**

*Scenario if the rate of sprawl of the previous 30 years were continued.

**Source:** Provided by Metropolitan Strategy, NSW Department of Planning & Infrastructure.
ACTIVITIES

Refer to figure 6.

1. How has Sydney changed over time? How long has it taken for the city to spread to the furthest areas shown on the map?
2. What main natural feature attracted the earliest settlement?
3. What impact do you think this growth has had on the natural environment?
4. What technological changes in transport have allowed Sydney to spread and grow over time?

Refer to figures 7a and 7b.

5. List the changes that would have caused the slippage to occur.
6. What interconnections are there between:
   a. vegetation cover and soil stability
   b. vegetation cover and infiltration
   c. high run-off and erosion?
7. List all the effects of the landslide on people and the environment.
8. Write a summary statement about the pace of change and the impact on people and the environment in these two examples.
1.2.6 What is environment?

People live in and depend on the environment, so it has an important influence on our lives.

The environment, defined as the physical and biological world around us, supports and enriches human and other life by providing raw materials and food, absorbing and recycling wastes, and being a source of enjoyment and inspiration to people.

**Figure 8** Uranium mining in Colorado, United States. Many deserts contain valuable mineral deposits.

**Activities**

Refer to figure 8.

1. Describe the environment in which this mine is located. What evidence is there that this mine is located close to a river?
2. Is this a natural or a human environment? Justify your choice.
3. What impact might this mine have on the surrounding environment?
4. What resource or raw material is mined here?
5. How might the local and national economies benefit from what is happening in this environment?
6. How has technology helped change this environment?
7. In your opinion, what are the positive and negative aspects of the way this environment has been used?
1.2.7 What is sustainability?

Sustainability is about maintaining the capacity of the environment to support our lives and those of other living creatures.

Sustainability is about the interconnection between the human and natural world and who gets which resources and where, in relation to conservation of these resources and prevention of environmental damage.

**FIGURE 9** The Vatican is the world’s smallest independent state and is hoping to become the first solar-powered nation in the world. It plans to create Europe’s largest solar power plant, which will provide enough energy to power all of the state’s 40,000 households. The roof of the Paul VI Hall is now covered in photoelectric cells.

### ACTIVITIES

1. What resource is being harnessed by the solar panels? Brainstorm a list of all the ways in which this energy can be used.
2. How is using solar panels an example of sustainable energy use? The use of what other resource will be reduced by using these solar panels?
3. Using the caption, outline the sustainability interests and values that the Vatican City is following by becoming a solar city.
4. What are some examples of other types of sustainable energy? Make a list of these with a partner.

To access videos, interactivities, discussion widgets, image galleries, weblinks and more, go to [www.jacplus.com.au](http://www.jacplus.com.au)
1.2.8 What is scale?
When we examine geographical questions at different spatial levels we are using the concept of scale to find more complete answers.
Scale can be from personal and local to regional, national or global. Looking at things at a range of scales allows a deeper understanding of geographical issues.

FIGURE 11a An urban organic community in Perth

Ways to improve sustainability at the local scale:
- reducing the ecological footprint
- protecting the natural environment
- increasing community wellbeing and pride in the local area
- changing behaviour patterns by providing better local options
- encouraging compact or dense living
- providing easy access to work, play and schools.

FIGURE 10 Perth, Western Australia. Building sustainable communities means we have to work at various scales.
Ways to improve sustainability at the city scale:
• building strong central activities areas (either one major hub, or a number of specified activity areas)
• reducing traffic congestion
• protecting natural systems
• avoiding suburban sprawl and reducing inefficient land use
• distributing infrastructure and transport networks equally and efficiently to provide accessible, cheap transportation options
• promoting inclusive planning and urban design
• providing better access to healthy lifestyles (e.g. cycle and walking paths)
• improving air quality and waste management
• using stormwater more efficiently
• increasing access to parks and green spaces
• reducing car dependency and increasing walkability
• promoting green space and recreational areas
• demonstrating a high mix of uses (e.g. commercial, residential and recreational).

**ACTIVITIES**

Refer to figure 10.
1. What main information is this map trying to show?

Refer to figure 11a and figure 11b.
2. The photo in figure 11a shows a zoomed-in view of the Perth city area. Do you see more or less detail at the zoomed-in scale?
3. Identify two city aims listed above that could not be implemented at the local scale.
4. Identify one local or neighbourhood aim listed above that could not be implemented at the city scale.
5. Describe any local action where you live that tries to improve sustainability. You could talk to your parents about this, or contact your local council to see what they are trying to do about the issue.
1.3 Review

1.3.1 Applying the concepts
For the past 7000 years, the sandy beaches close to Adelaide in South Australia have been eroding and the sand has been moved northwards by the prevailing winds from the south-west. This has resulted in the growth of a peninsula and large dune system at North Haven.

As many people have now settled along this coastline, the sand movement is being managed to stop erosion by trapping the sand or trucking and piping it back to the south. The cost of this action can be very high.

FIGURE 1 Piping sand from north to south along Adelaide’s beaches.
ACTIVITIES

1 Use an atlas to describe the location of Adelaide relative to where you live. What is its absolute location? (space)
2 Is the Adelaide coast a place that you would like to live? Why or why not?
3 How would the perception of coastal erosion differ between people who live in coastal settlements and those living five or more kilometres inland? (place)
4 What are the human natural characteristics of this place? Do you think this coastal environment is natural or human? Justify your answer.
5 What is the length of the coastline shown on the maps in figure 2? (scale)
6 Describe how this environment may have looked 7000 years ago. How has it changed over time?
7 How have people changed this environment?
8 What is the relationship (interconnection) between:
   a prevailing wind and sand movement (the prevailing wind along this coastline comes from the south-west)
   b sand movement and formation of coastal features?
9 Which local management scale is shown in figure 1?
10 How has technology helped manage this coastline? (change)
11 What changes might occur if the sand movement was not managed?
12 Is the movement of sand to stop beach erosion a sustainable activity — that is, is it worth stopping the movement of sand? Explain your answer.