1 Geographical concepts and skills

LESSON SEQUENCE

LESSON 1.1 Overview

INQUIRY QUESTION

Why is Geography important to study, and what skills do I need to understand Geography?

As a student of Geography, you are building knowledge and skills that will be needed by you and your community now and into the future. The concepts and skills that you use in Geography 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 your study of Geography, you will cover topics that will give you a better understanding of the social and physical aspects of the world around you, on both the local and global scale. You will investigate issues that need to be addressed now and in the future.

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eWorkbook
Customisable worksheets for this topic

Digital document
Key terms glossary

Video eLesson
Concepts and skills used in Geography

SkillBuilder

Use the SkillBuilder activities to develop these Geographical concepts and skills:

- GEOGRAPHICAL INQUIRY
- CONCLUDING AND DECISION-MAKING
- COMMUNICATING

LESSON 1.2 Geographical concepts and skills

LEARNING INTENTION

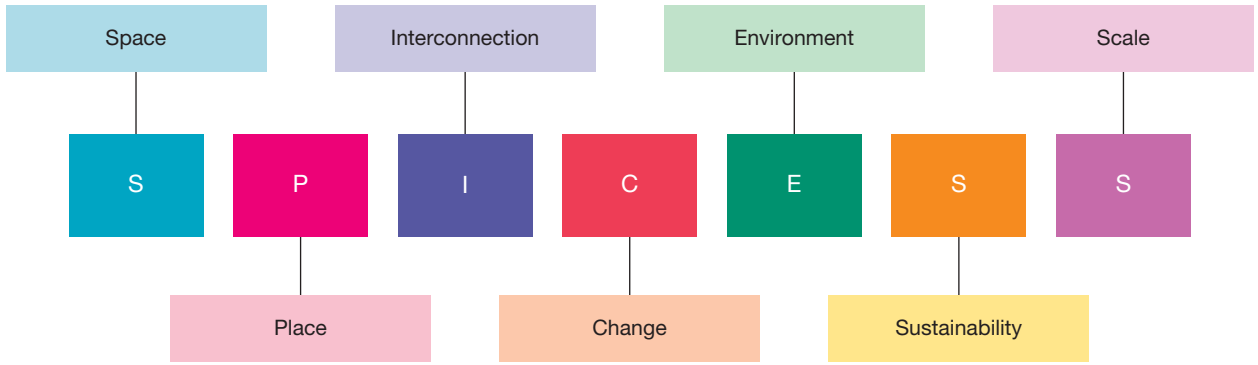
By the end of this lesson you should be able to:

- **identify**, **explain** and **apply** the seven Geography concepts using the acronym SPICESS
- **describe** the three geographical skills.

1.2.1 Introduction

Geographical concepts help you to make sense of your world. By using these concepts you can investigate and understand the world you live in. The concepts help you to think geographically. There are seven major concepts: **space**, **place**, **interconnection**, **change**, **environment**, **sustainability** and **scale**.

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



You will use the seven concepts to investigate two units: *Environmental Change and Management* and *Human Wellbeing*.

The following questions are important in Geography:

- What is space?
- What is place?
- What is interconnection?
- What is change?
- What is environment?
- What is sustainability?
- What is scale?

What is space?

The concept of space relates to where things are located and distributed on the surface of the Earth. When referring to space in Geography, we can refer to absolute or relative location.

Absolute location is the unique location of a site or geographical feature. The absolute location of Shepparton is 36°22' South longitude and 124°24' East latitude.

Relative location is the location of a place or feature in relation to other places. It can be described by direction and distance from other places and features. Shepparton is 189 km NNE of Melbourne.

A site can be described by its absolute location, for example, latitude and longitude, a grid reference, street directory reference, or an address. Or, a place can be described using its relative location: where

it is in relation to another place in terms of distance and direction. A community may be located far from essential services like hospitals or schools, which can affect human wellbeing.

What is place?

A place is any part of the Earth's surface with meaning to people. To understand our world, we study the variety of places, their impact on our lives, and how we shape them.

A place can be a biome like a desert or specific areas such as the Sahara Desert. Places can be natural, like an oasis, or man-made, like Las Vegas. They serve different functions, for example, Canberra as an administrative centre, the MCG for sports events, or the Great Barrier Reef for its coral beauty. People connect to places and each other through movement and technology, linking us to familiar locations like our neighbourhood or favourite vacation spots. Human wellbeing can be influenced by access to clean water, green spaces, healthcare, and safe housing within a place.

FIGURE 2 A tropical coral reef ecosystem

SkillBuilder discussion

Geographical inquiry

1. What natural and human features can you see, and how might they shape how people view the Great Barrier Reef?
2. How might different groups (e.g. tourists, Traditional Owners, or scientists) value this place differently?
3. What questions could geographers ask to explore how the Great Barrier Reef is changing over time?

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.

Individual geographical features can be interconnected, for example, the climate within a place or biome, such as a tropical rainforest, can influence natural vegetation; removal of this vegetation can affect climate. People can be interconnected to other people and other places via employment, communications, sporting events or cultural ties. The manufacture of a product may create interconnections between suppliers, manufacturers, retailers and consumers. Trade in goods and services creates interconnections across the globe.

These connections also impact human wellbeing, for example, access to imported medical supplies or educational resources. Environmental changes like deforestation in one region can affect rainfall patterns in another, influencing food security.

What is change?

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

From a geographical time perspective, change can be very slow. Think of processes such as the formation of mountains or soil. On the other hand, a volcanic eruption or landslide can change landforms rapidly. It may take some years for the boundary of a city to expand outwards, but in the space of a few weeks

whole suburbs can be demolished to make way for a freeway. Change can also have physical, economic and social implications for people and communities. Consider the effect of the COVID-19 pandemic.

Environmental changes, such as climate change or pollution, can dramatically impact human wellbeing, causing food shortages, water scarcity or displacement due to rising sea levels.

What is environment?

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

The biological and physical world that makes up the environment is important to us as a source of food and raw materials, a means of absorbing and recycling wastes, and a source of enjoyment and inspiration.

People perceive, adapt and use environments in many ways. Three different people could look at a well-vegetated hillside: one might see it as a source of timber for construction, another might see a slope that could be cleared and terraced to produce food, while another might view it as a scenic environment for ecotourism.

Healthy environments contribute to human wellbeing, while degraded environments can lead to health problems, reduced quality of life, and economic challenges for communities.

What is sustainability?

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

Sustainability involves maintaining and managing our resources and environments for future generations. It is important to understand the causes of unsustainable situations to be able to make informed decisions on the best way to manage our natural world.

For example: using renewable energy sources and reducing waste helps ensure future access to clean air, water, and food – all critical to long-term human wellbeing.

FIGURE 3 Wind turbines

SkillBuilder discussion

Geographical inquiry

1. What features in this image show how people are using the environment sustainably?
2. Who might support or oppose wind farms, and why?
3. What questions could geographers ask to find out if wind farms are a sustainable energy choice for the future?

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 enables us to examine issues from different perspectives, from personal to local, regional, national or global. Using scale helps in the analysis and explanation of phenomena. For example, climate is the most important factor in determining vegetation type on a global scale, whereas, at a local scale, soil and drainage might be more important. Different activities can also have an impact at a range of scales; for example, the construction of an international airport in Cairns saw the development of tourism evolve from a local to an international scale, with direct flights between Australia and South-East Asia.

Environmental changes like rising sea levels can be tracked at a global scale, but their impact on individual wellbeing, such as displacement or food availability, is often experienced at a local or personal scale.

1.2.2 Geographical skills

As you become more familiar with geography, there are three essential skills to practise and master. The SkillBuilder lessons in this topic will show you how to apply the geography skills and let you practise with activities related to the topics covered in this subject.

TABLE 1 The skills that you will use in Geography.

Skill	Description
Geographical inquiry	You will develop and respond to a range of questions for a geographical inquiry related to a phenomenon, issue or challenge. This could include developing a range of questions to investigate why a geographical phenomenon has changed or why a challenge may arise; for example, 'How do we measure wellbeing?' or 'What can be done to improve global wellbeing?'. You will complete fieldwork where you will be collecting, processing and comparing information from primary and secondary sources. Fieldwork reports will include geospatial technologies and digital tools as appropriate and you will present and analyse information using a range of formats, including graphs and maps constructed with geospatial technologies
Concluding and decision-making	You will analyse data and perspectives to justify conclusions and propose strategies. You will consider ethical values to explain phenomena using geographical concepts, and assess issues like environmental change, coastal management, global inequality and wellbeing by evaluating environmental, economic and social factors. You will also draw conclusions about sustainable interactions with the environment and explore how NGOs and the UN address poverty. Finally, in Year 10, developing and evaluating strategies to recommend actions, and predict their impacts on environmental management and global wellbeing is crucial.
Communicating	Communicating your ideas and justifying your conclusions are key skills you will develop in Geography. Using geographical concepts and knowledge and a range of digital and non-digital formats, you will seek to express your thoughts on a wide range of concepts and issues. When communicating in Geography, you need to ensure that you consider your audience, acknowledge your sources and choose appropriate methods of communication to ensure your message is clear and well conceived. In Year 10 you will be expected to explore new ways of presenting information.

To further develop your Geographical skills see bonus SkillBuilders from lessons 1.6 to 1.13.

1.2 SkillBuilder activity GEOGRAPHICAL INQUIRY

1. Look at an image of a community affected by environmental change (e.g. drought, pollution, deforestation, or urban development).
2. **Discuss** the types of data you might be able to collect in this location (e.g. air quality, access to clean water, changes in vegetation, availability of healthcare).
3. **Explain** why this data would be useful in studying human wellbeing or environmental change.

4. Think of a question you could use to investigate how environmental change is impacting people's lives. Write down your question and explain how you might find out the answer. For example: How does air pollution affect students' health in an urban area? To find out the answer you could conduct surveys on respiratory symptoms, measure air quality with sensors, compare data to health records.
5. **Explain** what patterns you might notice in your data. For example: Are health issues more common near roads or factories? Do people in greener areas report higher wellbeing? How could this information help the local community or influence decisions by planners or governments?

1.2 Exercise

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Learning pathways

LEVEL 1	LEVEL 2	LEVEL 3
1, 2, 4	3, 6, 8	5, 7, 9

REMEMBER AND UNDERSTAND

1. Which of the following most accurately defines the concept of 'space' in geography?
   - A. The arrangement of objects and people on the Earth's surface
   - B. The physical distance between two locations
   - C. An area with defined boundaries
   - D. The atmosphere surrounding the Earth
2. What is meant by the geographical concept of 'place', and how does a place's liveability impact its residents?
   - A. A physical location with a specific address
   - B. A location that holds meaning and significance for individuals or groups
   - C. An area characterised by a particular climate
   - D. A space used for human activities
3. How does interconnection influence geographical phenomena and the overall wellbeing of a population?
   - A. It separates regions from one another
   - B. It shows how features and processes are related and affect each other and people
   - C. It identifies isolated geographical locations
   - D. It maps the boundaries of continents
4. Which of the following is an example of a natural environment, i.e. one that promotes wellbeing and liveability?
   - A. A city park
   - B. A rainforest
   - C. A shopping mall
   - D. A residential neighbourhood
5. What does sustainability aim to achieve in geography, and how is it essential for ensuring the liveability of places for future generations?
   - A. Unlimited consumption of resources, which disregards the need to maintain ecological balance and fails to support long-term prosperity for populations.
   - B. Preservation of resources for future generations, ensuring that environmental, economic, and social systems can sustain themselves and support human wellbeing over time.
   - C. Economic growth without environmental concerns, which prioritises immediate financial gains at the expense of long-term environmental health and societal stability.
   - D. Expansion of urban areas without considering the ecological footprint, leading to habitat destruction and reduced quality of life for both current and future inhabitants.

ANALYSE AND APPLY

6. **Explain** the concept of scale in Geography and discuss how different scales can impact the understanding of geographical phenomena and the wellbeing of populations.
7. **Outline** how local, regional, national and global perspectives might alter the way we assess issues like housing, infrastructure, or access to clean water.
8. **Describe** the concept of 'change' and its importance in understanding geographical processes, particularly in terms of liveability and place. You may wish to explore how urbanisation, climate change, or economic shifts transform environments and influence human wellbeing.

EVALUATE AND COMMUNICATE

9. **Discuss** how different geographical inquiry methods (such as fieldwork, satellite imagery, interviews, or census data) can help you collect and interpret information about a real-world issue.

Answers and sample responses for this topic are available online.

LESSON 1.3 SkillBuilder: Geographical inquiry

online only

What is a structured and ethical approach to research?

A structured and ethical approach to research involves organising your work clearly and meeting research standards without pressuring anyone into providing material and without damaging environments while gathering the data. In this lesson you will consider the collection, processing and comparison of information and data from primary and secondary sources.

LESSON 1.4 SkillBuilder: Concluding and decision-making

online only

What are alternative responses?

Alternative responses are a range of different ideas/opinions on an issue. These ideas may have advantages or disadvantages, be positive or negative, have strengths or weaknesses and costs or benefits. You may or may not agree with the alternative responses. Evaluating the effectiveness of a strategy involves weighing up and interpreting your research to reach a judgement or a decision based on the information. In this lesson you will evaluate a tourist strategy.

LESSON 1.5 SkillBuilder: Communicating

online only

What is a description of change over time?

A description of change over time is a verbal or written description of how far a feature moves, or how much it alters, over a given time period. In this lesson you will examine the impact of an event over a time period. In this lesson you will examine the impact of an event (a tsunami) and consider the importance of appropriate communication in your response.

LESSON 1.6 SkillBuilder: Reading topographic maps at an advanced level

online only

What are the defining features of topographic maps?

Topographic maps are more than just contour maps showing the height and shape of the land. They also include local relief and gradients and allow us to calculate the size of various areas. In this lesson you will read a topographic map.

LESSON 1.7 SkillBuilder: Comparing an aerial photograph with a topographic map

online only

What can we learn from aeriel images when compared to topographic maps?

Comparing an aerial photograph with a topographic map enables us to see what is happening in one place. Photographs and maps may be from the same date but they may also be from different dates and will show different information. In this lesson you will make comparisons between an ariel photograph and a topographic map.

LESSON 1.8 SkillBuilder: Using geographic imaging systems

online only

What can the special features of GIS systems convey?

GIS is a computer-based system of layers of geographic data. Just as an overlay map allows you to interchange layers of information, GIS allows you to turn layers on and off to make comparisons between pieces of data. In this lesson you will use a GIS to view an area.

LESSON 1.9 SkillBuilder: Constructing and interpreting a scattergraph

online only

How can sets of data be constructed as a scattergraph?

A scattergraph is a graph that shows how two or more sets of data, plotted as dots, are interconnected. This interconnection can be expressed as a level of correlation. In this lesson you will construct and interpret a scattergraph based on information provided.

LESSON 1.10 SkillBuilder: Using multiple data formats

online only

What are the most effective methods to convey different sets of data?

Multiple data formats are varied forms of data presentation, used when a range of data needs to be shown. All the information must be read before the data can be interpreted. In this lesson you will use a variety of data formats including maps, pie charts, population pyramids and graphs.

LESSON 1.11 SkillBuilder: Constructing and describing complex choropleth maps

online only

What are the features of chloropleth maps?

A complex choropleth map is shaded or coloured to show the average density or concentration of a particular feature or variable, and it shows an area in detail. The collected areas of data are smaller, so they show the mapped information more precisely. The key or legend shows the value of each shading or colouring. In this lesson you will construct a choropleth map.

LESSON 1.12 SkillBuilder: Comparing aerial photographs to investigate spatial change over time

online only

What can be learned from two different aerial images of the same location?

Aerial photos are images taken above the Earth from an aircraft or satellite. Two images taken at different times, from the same angle, and placed side by side, show change that has occurred over time. In this lesson you will compare aerial photographs to show changes in spatial patterns about a specific place at a particular time.

LESSON 1.13 SkillBuilder: Building a map with GIS

online only

How is a GIS map created and what can it show?

A geographic information system (GIS) is a computer-based system that consists of layers of geographic data. Just as an overlay map allows you to interchange layers of information, GIS allows you to turn layers on and off to make comparisons between data. In this lesson you will use an appropriate GIS system to apply layers and build a picture of an area.

LESSON 1.14 Review

1.14.1 Key knowledge summary

Use this dot point summary to review the content covered in this topic.

1.2 Geographical concepts and skills

- The acronym SPICESS helps you remember the seven geographical concepts: space, place, interconnection, change, environment, sustainability and scale.
- The three Geographical skills that you will develop throughout your course are:
  - *Geographical inquiry:* This involves developing and refining geographical questions to investigate places and phenomena by collecting, recording and interpreting data from various sources, including fieldwork and maps. It also involves analysing information to identify patterns, trends and relationships.
  - *Concluding and decision-making:* This involves drawing conclusions based on evidence from geographical data and research; evaluating different perspectives and solutions to geographical challenges; and making informed decisions about environmental, social and economic issues.
  - *Communicating:* This involves presenting geographical findings using maps, graphs, reports and digital tools; using geographical terminology and data to support explanations; and sharing findings in different formats to inform and engage audiences.

1.14.2 Key terms

change the process by which places, environments or spatial patterns alter over time. In Geography, change can be natural (like erosion or climate change) or human-made (like urban development or deforestation).
environment the natural and human surroundings in which people, plants and animals live, including ecosystems, landscapes, and built environments.
interconnection the way people, places and environments are linked to each other through natural processes, trade, migration, culture and technology.
place a specific location on Earth that has unique physical and human characteristics, making it meaningful to people.
sustainability the responsible use and management of resources to meet current needs while ensuring future generations can also meet theirs.
scale the ratio that shows how much smaller a map is compared to the real world, e.g., one centimetre on a map equals one kilometre in real life
space how features and places are arranged on Earth's surface; where things are located, how they are distributed, and the patterns they form

1.14.3 Reflection

Complete the following to reflect on your learning.

Revist the Inquiry question posed in the Overview.

Why is Geography important to study, and what skills do I need to understand Geography?

1. Now that you have completed this topic, what is your view on the questions? Discuss with a partner. Has your learning in this topic changed your view? If so, how?
2. Write a paragraph in response to one of the inquiry questions, outlining your views.

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eWorkbook Customisable worksheets for this topic
Reflection

Digital document Key terms glossary

1.14 Review exercise

Learning pathways

LEVEL 1	LEVEL 2	LEVEL 3
1, 2, 4, 6, 9, 12	3, 5, 8, 10, 11	7, 13, 14, 15

REMEMBER AND UNDERSTAND

1. What does the acronym SPICESS represent in geography?
   - **A.** Space, Place, Interconnection, Change, Environment, Sustainability, Scale
   - **B.** Space, Population, Interaction, Climate, Ecosystem, Sustainability, System
   - **C.** Soil, People, Integration, Change, Ecosystem, Species, Scale
   - **D.** Space, People, Interaction, Climate, Environment, Sustainability, Scale
2. Which of the following is *not* a geographical concept included in SPICESS?
   - **A.** Space
   - **B.** Population
   - **C.** Place
   - **D.** Sustainability
3. How can Geography help in addressing human wellbeing and environmental change?
   - **A.** By helping us analyse the distribution of resources
   - **B.** By creating strategies to reduce environmental change
   - **C.** By enhancing our understanding of how human actions impact the environment
   - **D.** All of the above
4. The inquiry approach in Geography involves:
   - **A.** Memorising facts
   - **B.** Investigating questions by collecting, analysing and interpreting information
   - **C.** Drawing conclusions from assumed knowledge
   - **D.** Reporting historical data
5. What is the primary tool geographers use to study concepts like environmental change and human wellbeing?
   - **A.** Books
   - **B.** Maps and spatial data
   - **C.** Computers
   - **D.** Cameras
6. Maps are mostly used by geographers to:
   - **A.** Show the distribution of population and resources
   - **B.** Illustrate historical events
   - **C.** Represent global temperatures and rainfall
   - **D.** Depict economic growth
7. As a geographer, how might you use technology to study environmental change in a given location?
   - **A.** By creating models of future changes
   - **B.** By generating real-time climate data
   - **C.** By mapping deforestation or urbanisation over time
   - **D.** All of the above

8. Geographers are most likely to use data from maps to:
   - **A.** Locate tourist spots
   - **B.** Examine patterns of environmental change and impacts on wellbeing
   - **C.** Write travel guides
   - **D.** Develop solutions to conflicts
9. Learning Geography involves mastering practical skills to understand:
   - **A.** Human wellbeing in relation to environmental change
   - **B.** The way we move around the world
   - **C.** How to protect natural environments
   - **D.** All of the above
10. Geography provides us with important insights into how:
   - **A.** People interact with each other through trade and communication
   - **B.** Changes in the environment affect human health and wellbeing
   - **C.** Climate patterns determine food distribution
   - **D.** All of the above

ANALYSE AND APPLY

11. **Explain** how geographical inquiry can be used to address human wellbeing challenges, such as access to clean water or food security, and why it is important.
12. **Describe** the concept of space in Geography and how it relates to the distribution of resources and impacts on human wellbeing in urban and rural areas.
13. **Compare and contrast** the concepts of environment and sustainability.

EVALUATE AND COMMUNICATE

14. **Evaluate** the role of technology in monitoring and managing environmental change. How can tools such as GIS (Geographical Information Systems) or remote sensing be used to improve human wellbeing?
15. **Propose** how geographical skills, such as spatial analysis or environmental monitoring, can be useful when considering the impacts of climate change.

Answers and sample responses for this topic are available online.