GT.1 Concepts for geographical understanding

Geographers use seven concepts to help investigate and understand the world. At times you will use several of these at once, while at other times you may focus on just one. As you learn to use each of the key ideas you will begin to think like a geographer. The seven key concepts in geography are:

- place
- sustainability
- space
- scale
- environment
- change.
- interconnection

Place

Places are parts of the Earth's surface that are identified and given meaning by people. Your home and your school are important places for you because they are the places where you live and spend most of your time. A place can be as small as your bedroom or as large as the entire planet!

Places play an important role in the lives of every person on Earth. Places can be natural (that is, shaped by the environment and largely unchanged by humans) or built (that is, constructed by humans).

The life of every person and animal on Earth is influenced by place. Places determine our relationships with one another. Our closest relationships are likely to be with people in the same place. The environmental and social qualities of a place all influence the way we live. Climate, landscapes, types of plants and resources, transport networks, entertainment venues and workplaces all have a major impact on the way we live.

For Indigenous Australians, place also has a deeper spiritual meaning. Their sense of identity comes from their relationship with place. Aboriginal people have lived in the Kakadu region of Northern Territory for over 50 000 years. The region contains approximately 5000 rock art sites, some of which are over 20 000 years old. They represent the longest historical records of any group in the world. This was one of the reasons Kakadu National Park was World Heritage listed. Aboriginal people refer to their place as 'Country' and believe that they have a responsibility to look after it.

Source GT.2 An aerial view of Manhattan Island, New York City – an example of a built environment

Geographers use the concept of **place** when conducting any geographical inquiry. For example, a geographer visiting New York City in the United States (Source GT.2) would use the concept of place to help understand why people originally settled there, how the city was built and how it has changed over time.

They would also use place to investigate the important role the city plays in the lives of New Yorkers, Americans and people all over the world.

Just as place influences people, people also influence place. The ways in which we live, and the actions we take, change the places in which we live. Geographers investigate the outcomes of these changes. For example, by investigating the way in which human actions have altered the Brazilian Rainforest, geographers can learn how to better manage and care for our natural resources.

Space

To most people **space** means the empty universe but to a geographer it has a different meaning. Geographers investigate the way that things are arranged on the Earth's surface. They look for patterns and try to explain them. The concept of space helps them to do this. It has three main elements:

- location – where things are located on the Earth's surface
- spatial distribution – the shapes and patterns in which things are arranged on the Earth's surface
- organisation – how and why things are arranged and managed on the Earth's surface by people.

The concept of space can also be used to investigate some other important aspects of the world around us. Geographers investigate the way that people use and change the space in which they live. They recognise that different groups of people use space in different ways and that this changes over time. They also investigate the ways that improvements in transport and communication have made links between places quicker and easier and the ways that this is changing the world.

Source GT.3 An aerial photograph showing the path of the hot ash and rock that flowed to the sea from Mount Unzen, an active volcano on the island of Kyushu in Japan. Part of the city of Shimabara (shown in the foreground) has been buried by the eruption.

The city of Shimabara in the south of Japan (Source GT.3) illustrates the concept of space well. The city has been built on a flat coastal area at the foot of an active volcano, Mount Unzen. Houses, schools and office buildings in Shimabara are linked by roads leading to nearby farms closer to Mount Unzen. The volcano clearly presents a danger to people living in the town. As Source GT.3 shows, the flow of superheated ash and rock from the volcano has buried part of the city as it makes its way to the sea. At first glance it may not be clear why anyone would risk living this close to a volcano, but closer analysis of the area reveals that the fertile volcanic soil in the area makes it ideal for growing crops.

The concepts of place and space can be difficult to separate, but it will help if you remember that places can be divided into spaces. For example, a small place, such as your school, has different spaces. Each of these spaces has its own purpose. There are spaces for learning (such as classrooms and computer rooms), playing (such as playgrounds and play equipment), eating (such as the cafeteria or canteen) and running the school (such as staffrooms and administration buildings).

Larger places (such as your suburb, town or city) are also organised into different spaces. There are spaces for housing (such as homes for families), businesses (such as shops and offices), industry (such as factories and warehouses), entertainment (such as concert halls and theatres) and sport and recreation (such as stadiums, parks and gardens).

Our understanding of the location, patterns and planning of spaces helps geographers to make sense of our world.

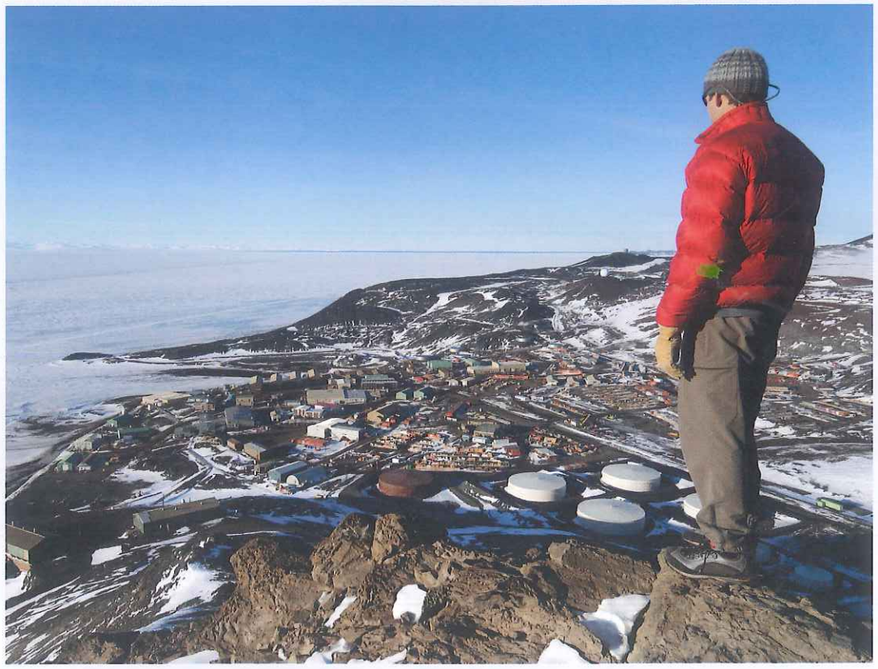
Environment

The world in which we live is made up of many different **environments**. Some environments are natural (or physical), such as deserts, grasslands, mountains, coral reefs, forests, oceans and ice caps. In order for an environment to be considered natural its soils, rocks, climate, plants and animals must remain largely untouched by humans. Today there are very few truly natural environments left on Earth.

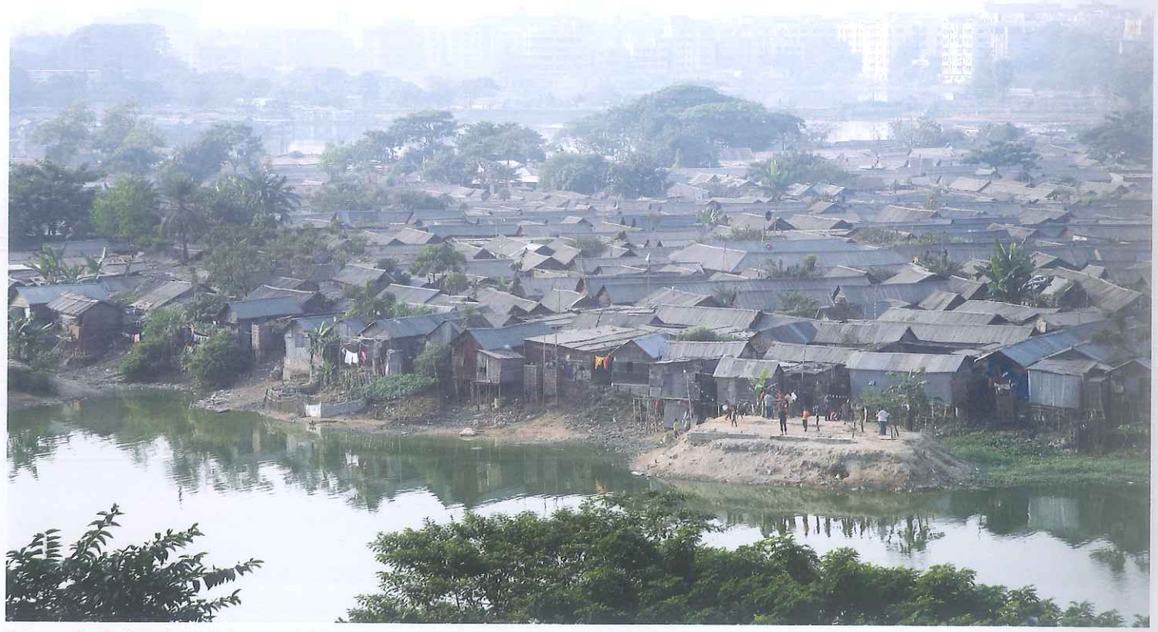
Other environments have been so altered by humans that very few natural features remain. These environments are known as built (or human) environments and include large cities, towns, suburbs and vast areas of farmland. Human environments not only affect natural features (such as soil, plants and animals) they also affect the climate. A large city, such as New York, has its own microclimate. It will often be a few degrees hotter than the surrounding areas because concrete in the buildings traps the Sun's heat. Skyscrapers also catch and funnel the wind, increasing its speed.

Most environments on Earth are now a combination of natural and human features. For example, Antarctica, the harshest environment on the planet, is considered a natural environment despite humans having altered some areas of it. These changes have included the building of a number of permanent research bases and the carrying out of various scientific studies both on land and sea. The McMurdo research base, for example, operated by the United States (Source GT.4), has three airfields, a harbour and more than 100 buildings. In addition to these built structures other human influences have affected this environment. The warming of the planet has contributed to the increased melting of ice shelves, and pollution of our oceans has had an impact on sea and land animals in Antarctica.

The study of different environments helps geographers to better understand and appreciate natural processes, such as how weather works, how mountains are formed and how rainforests and coral reefs grow. The concept helps geographers to analyse the changes humans make to natural environments and better appreciate their impact so that they can be managed more wisely.



Source GT.4 A scientist looking out over McMurdo Station at Observation Hill in Antarctica. The line between the natural and built environment is clearly illustrated in this photograph.



Source GT.5 Bangladesh is one of the countries most vulnerable to climate change because of a number of interconnected processes that are causing sea levels to rise. It is estimated that 15 million of the poorest people living in Bangladesh, like those living in this slum, will be affected by a 1-metre rise in sea levels.

Interconnection

No place or thing on Earth exists in isolation. All environments on Earth and every living and non-living thing found within them are connected. These connections can be on a local level or a global level.

Geographers use the concept of **interconnection** to better understand the complex links between natural and human processes that shape our Earth. Places and people can be linked in many different ways that can be categorised as:

- natural processes, such as the water cycle and food chain
- human activities, such as the movement of people, the production and trade of goods and the flow of investment and money within and between different countries.

It helps to think of the Earth as a single living organism, much like your body. Your brain, heart, lungs, stomach, arms and legs all work together as a single system to keep you alive and healthy. In much the same way, the Earth's living systems (such as the climate, plants, animals, oceans, soils, and the atmosphere) all function together and are interconnected. Even a slight rise in the Earth's temperature, for example, will have an effect on the oceans (such as damaging coral reefs and affecting the populations of fish and other sea creatures), the land (such as failure of crops and drought) and the polar ice caps (such as increasing sea levels and forcing millions of people to relocate their homes). Source GT.5 shows a slum in Bangladesh, the most densely populated country in the world. Bangladesh is slightly larger than England in size, but is home to 150 million people; this is three times the population of England. Its coastal zone has a very low elevation above sea level, making it one of the countries most vulnerable to climate change through rising sea levels.

Source GT.6 A Minke whale and her one-year-old calf are being dragged on board the Japanese factory ship *Nisshin Maru*. Anti-whaling activists argue that the number of whales hunted by the Japanese each year is unsustainable.

Sustainability

The concept of **sustainability** relates to the ongoing capacity of Earth to maintain all life. This means developing ways to ensure that all resources on Earth are used and managed responsibly so they can be maintained for future generations.

Sustainable patterns of living meet the needs of the current generations without compromising the ability of future generations to meet their own needs. Many of the world's resources (such as oil, coal and natural gas) are non-renewable. This means that if we continue to use them they will one day run out. Other resources (such as wind, forests, solar and water) are renewable. This means that they replace themselves naturally, or can be replaced to meet the needs of society. Sustainability encourages us to think more closely about these different types of resources – the ways in which they are formed and the speed at which they are being used. It also encourages us to look more closely at renewable options and take greater care of the Earth. Actions to improve sustainability can operate at a number of levels:

- Local – Recycling of paper and plastics by individuals, schools and households reduces the amount of trees that need to be cut down and oil that needs to be drilled to produce plastic bottles and bags.
- National – In Australia the government has begun to encourage sustainable use of energy through the establishment of wind farms and hydroelectric power plants and measures to promote the use of solar panels.
- International – Efforts to protect endangered whale species around the world have attracted media attention and focused public opinion on maintaining breeding grounds free of large whaling vessels (Source GT.6).

Sustainability is an important concept for geographers. They use it to investigate how natural and human systems work, and understand how resources can be managed in such a way that they will be sustained into the future.

Scale

The concept of **scale** is used to guide geographical inquiries. Geographers study things that take place on many different spatial levels – meaning from small areas (such as a local park) to very large areas (such as the use of oil and coal all over the world). They use the concept of scale to look for explanations and outcomes at these different levels. A geographic inquiry of the ways in which people use parks, for example, may be carried out at a range of scales (from smallest to largest):

- local – such as an inquiry into the daily visitors to a neighbourhood skate park, the types of facilities there and whether these facilities meet the needs of visitors
- regional – such as an inquiry into the types of visitors staying at campsites and tourist parks in the Grampians region of Victoria
- national – such as an inquiry into the yearly tourist numbers visiting national parks in Australia (such as Kakadu National Park and Christmas Island National Park), including the impact these visitors have on our National Parks, the way in which these parks are managed, and on what levels Indigenous people are involved
- international – such as an inquiry into animal poaching in national parks and wild game reserves in different countries across Africa (such as South Africa, Kenya, Tanzania and Madagascar)
- global – such as an inquiry into the use of all marine parks around the world and their effectiveness in protecting different species of marine animals.

Source GT.7 Geographical inquiries can be carried out on a number of different spatial levels – local (e.g. at a nearby skate park); regional (e.g. at a campsite in the Grampians region of Victoria); national (e.g. at national parks across Australia); international (e.g. in different countries across Africa); and global (e.g. at marine parks all over the planet).

Change

The Earth is constantly changing. Some changes occur very rapidly and are easy to see, while others take place over millions of years and are almost undetectable to us. The concept of **change** is important in geography because it helps us to understand what is happening around us and see the world as a dynamic place. Over millions of years, the Earth has been shaped and changed by natural forces, such as climate, earthquakes, volcanoes, running water and storms to name just a few. In more recent times humans have shaped and changed the Earth to suit their own needs, but events such as volcanic eruptions and tsunamis are a reminder that powerful natural forces continue to alter the face of the Earth regardless of what humans do.

Changes take place on many different levels, from personal and local right through to national and global. Small local changes that happen quickly, such as a tree falling over on your street or a creek flooding, are often easy to observe and explain. Larger regional or national changes, such as an earthquake or tsunami, can happen quickly and their effects can be widespread and have devastating impacts on places and people (see Source GT.8). Changes that take place on a global scale can take much longer to occur. Global warming, for example, is a long-term change that happens slowly. Global warming has widespread effects that are not easily explained.

Observing and understanding changes that are natural and/or are made by humans and have occurred over time is an important part of any geographical inquiry. Geographers need to look at different types of changes, why they have occurred, over what time period they have occurred and what further changes may take place as a result. Sometimes changes can be positive, such as the conservation of plants and animals in national parks, while other changes can have negative consequences, such as the deforestation of native rainforests in Indonesia. Geographers play an important role in ensuring that change is managed in a sustainable way.

Source GT.8 The changes that took place in a Japanese coastal suburb of Rikuzentakata as a result of a tsunami in March 2011 were devastating and very rapid. The top image shows the area before the tsunami and the bottom image shows the same area after it had struck.

Check your learning GT.1

Remember and understand

1 Examine the photo of Uluru (Source GT.1). Is this a natural or built environment? Give reasons for your answer.

2 New York City (shown in Source GT.2) is one of the world's largest cities. List five ways in which this built environment would affect how people live and work.

3 Look carefully at Source GT.3. Why have people settled in this location? Describe the pattern formed by the houses in the township.

Apply and analyse

4 Here are some examples of changes that may be occurring on Earth at any given time:
- a new supermarket is being built near your house
- trees are being planted on your street
- the polar ice caps are melting
- a tornado is destroying a town in the USA
- the Great Barrier Reef is being damaged by the Crown-of-thorns starfish.

a Conduct some research online in order to rank these changes from the slowest to the most rapid.

b Which of these changes are caused by human activities and which are caused by natural processes?

c Identify the scale at which each of the above changes takes place; that is, local, regional, national, international or global.

5 Using Source GT.5, explain the chain of events that would lead to flooding in this slum area of Bangladesh. Describe how and why slum dwellers would be more affected by this event than the wealthy.

6 List three ways in which your school or household is addressing the concept of sustainability. Which of these do you believe is most successful? Why?

7 Examine Source GT.6. Work with a partner to conduct research on the importance of the Southern Ocean Whale Sanctuary in conserving endangered whale species.

8 Study Source GT.8. Identify the major changes to the Japanese coastal suburb as a result of the tsunami. How might an understanding of the concept of change be useful in guiding the rebuilding or relocation of the suburb?

9 Your class is undertaking research on the Great Barrier Reef. Develop one question for each of the seven geographical concepts discussed in the text.

Evaluate and create

10 Create a diagram, such as a flow chart, to show the interconnection between the natural and built environment at Antarctica's McMurdo Station (Source GT.4). Include information on such aspects as climate, landforms, wildlife and human settlement (especially waste management and change to the natural environment).

11 Choose one of the key concepts that has been discussed. Design a poster for your geography classroom to help you and your classmates remember this concept and use it in geography.