

Landscapes and landforms

Landscapes comprise the physical elements of the earth's surface and the cultural overlay of human activity, some of which stretches back thousands of years. Landscapes reflect the interactions of place and people over time and are important in shaping national identity. Landscapes contribute to our 'sense of place' and form the dynamic (ever-changing) backdrop to our lives. Landforms are the natural features of the earth's surface.

In this chapter we are introduced to the concepts of landscapes and landforms, the processes responsible for their formation and the ways in which people value them. A particular focus is the relationship between indigenous peoples and landscapes and landforms, and the ways in which landscapes help shape national identity.

INQUIRY QUESTIONS

- What are the processes responsible for the formation of landscapes and landforms?
- In what ways are landscapes and landforms valued?
- How is national identity shaped by landscapes?
- What is special about the ways in which indigenous peoples value landscapes and landforms?

GLOSSARY

aesthetic value	the value of a landscape based on its beauty or attractiveness
crust	the thin outer layer of the earth (the lithosphere)
deposition	the accumulation of sediment by the action of erosional agents, such as water and wind
Dreaming	a key spiritual belief of Australian Aboriginal people; describes both the period of creation (the Dreaming) and the stories that come from this period (Dreaming stories)
earthquake	a sudden movement of the earth's crust
erosion	the wearing down, transportation and deposition of material by water, wind and ice
faulting	the fracturing of rock along lines of physical weakness
folding	the buckling of rock due to pressure
landform	a natural feature of the earth's surface, for example a mountain, valley, lowland or volcano
landscape	the overall appearance of an area resulting from the interaction of landforms, vegetation and soils with human elements of the environment, such as transport networks, settlements, farms and factories
mantle	the layer between the earth's core and its crust
mid-ocean ridge	an underwater ridge formed when continental plates move apart, allowing molten material to fill the gap created
national identity	a person's sense of belonging to a nation
ocean trench	an underwater depression created when the edges of oceanic plates are forced down into the earth's mantle
plate	a segment of the earth's crust that is slowly moving due to convection currents in the mantle
plate margins	the areas where the earth's plates meet
plate tectonics	the study of the movement of the earth's plates by currents deep within the earth's liquid mantle
rift valley	a large, elongated depression with steep walls formed by the downward movement of a block of the earth's surface between nearly parallel faults
rock cycle	the recycling of material in the earth's crust
sacred sites	places of significant cultural and spiritual meaning to Aboriginal and Torres Strait Islander people
seafloor spreading	the separation of oceanic plates
volcano	an opening in the earth's surface through which molten rock, lava and ash erupt

Landscapes and landforms explained

Landforms

Landforms are the natural features of the **landscape**. They include valleys, plateaus, mountains, cliffs, plains, hills, dunes and glaciers.

Landscapes

Landscape is the term used to describe the features of an area. It includes the biophysical elements of landforms, the living elements of land cover, the human elements and changeable elements such as weather conditions.

Culture and landscapes

Landscapes combine physical features with an ‘overlay’ of human activity, as shown in Figure 2.1.1. This overlay may have accumulated over thousands of years and can often easily be identified as elements of managed and constructed environments. Sometimes, however, evidence of human activity is hard to see. Geographers seek to explain how and why places have changed over time.

Landscapes are the product of the interaction of people and **place**, and play an important role in creating what geographers refer to as ‘sense of place’—the qualities that distinguish one place from another. Landscapes also play a role in shaping people’s personal, local and **national identities**.

Types of landscapes

The earth has a vast range of biophysical, managed and constructed landscapes. The earth’s biophysical landscapes are those largely unaffected by human activity. They include its icy polar regions; its great mountain ranges (Figure 2.1.2) and vast deserts; the savanna grasslands (Figure 2.1.3); coastal and reef landscapes (Figure 2.1.4); and the tropical and boreal forests. There are also a number of managed and constructed landscapes. These include the world’s various agricultural landscapes (Figures 2.1.5 and 2.1.6) and its industrial and urban landscapes (Figures 2.1.7 and 2.1.8).

2.1.1 Elements of landscape



Natural elements



Human elements



Living elements



Changeable elements

Landscape



2.1.2 A mountain landscape, New Zealand



2.1.3 Savanna grasslands, Africa



2.1.4 Whitehaven Beach, Australia



2.1.5 Agricultural landscape, Bali



2.1.6 Agricultural landscape, Switzerland



2.1.7 Industrial landscape, China



2.1.8 Urban landscape, Vancouver, Canada

ACTIVITIES

Knowledge and understanding

- 1 State what is meant by the following terms:
 - a landscape
 - b overlay of human activity
 - c sense of place.
- 2 Identify the elements of landscapes and give examples of each.
- 3 Explain why human activity can be difficult to observe. Give an example.
- 4 Define the term 'landform'.
- 5 Explain why geographers study landscapes.

Applying and analysing

- 6 Study Figures 2.1.2 to 2.1.8.
 - a Describe the differences between biophysical, managed and constructed landscapes.
 - b Rank the landscapes from the one you find most appealing to the one you find least appealing.
 - c Write down the criteria you used when determining your ranking.
- 7 Identify the typical 'Australian' landscape. What are the elements of the landscape that make it uniquely Australian?

The changing earth

Destruction and formation

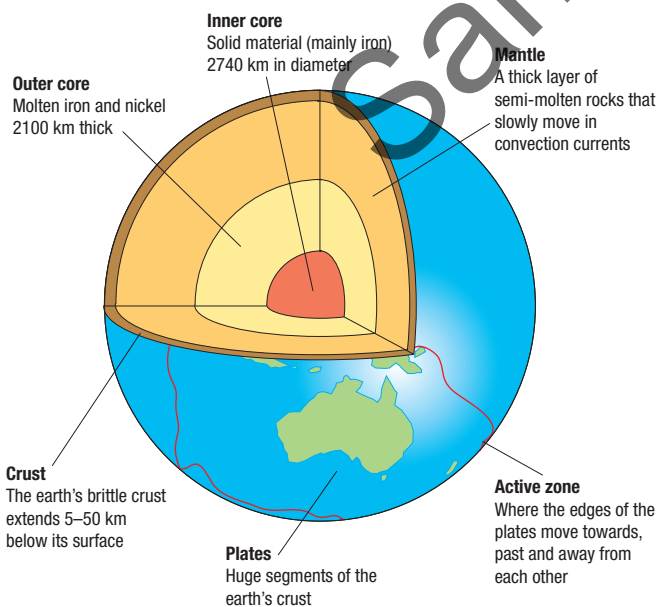
Forces deep within the earth cause the movement of tectonic plates, which in turn creates new landforms. Without these new landforms, the earth's surface would have long ago been reduced to a flat, featureless plain—worn down by the processes of weathering and **erosion**.

Plate tectonics

The earth's thin **crust** is broken into eight vast segments or **plates** (and several smaller plates) that travel slowly across the face of the planet at a rate of about 15 centimetres per year. This movement is caused by currents deep within the earth's liquid **mantle** (shown in Figure 2.2.1). This process is known as **plate tectonics**, or continental drift.

Continents on the move

Scientists believe that all the earth's continents were once part of one large supercontinent, known as Pangaea (a Greek word meaning 'all lands'). Pangaea consisted of two main areas: Gondwanaland (Australia, Antarctica, Africa, India and South America) and Laurasia (Asia, Europe, Greenland and North America). These two main areas began to move apart and break up about 200 million years ago. Over time they 'drifted' to their present locations.



2.2.1 The internal structure of the earth

Types of plate movements

Each of the earth's plates moves in a different way. Two plates may meet at:

- a convergent plate boundary (where one plate moves towards another plate)
- a divergent plate boundary (where one plate moves away from another plate) or
- a transform plate boundary (where one plate moves past another plate).

The places where the plates meet are known as **plate margins**. These are often areas of great stress and activity. Many of the earth's earthquakes, volcanoes and fold mountains are located at the plate margins. Figure 2.2.2 shows the location of the earth's plates and the directions in which they are moving.

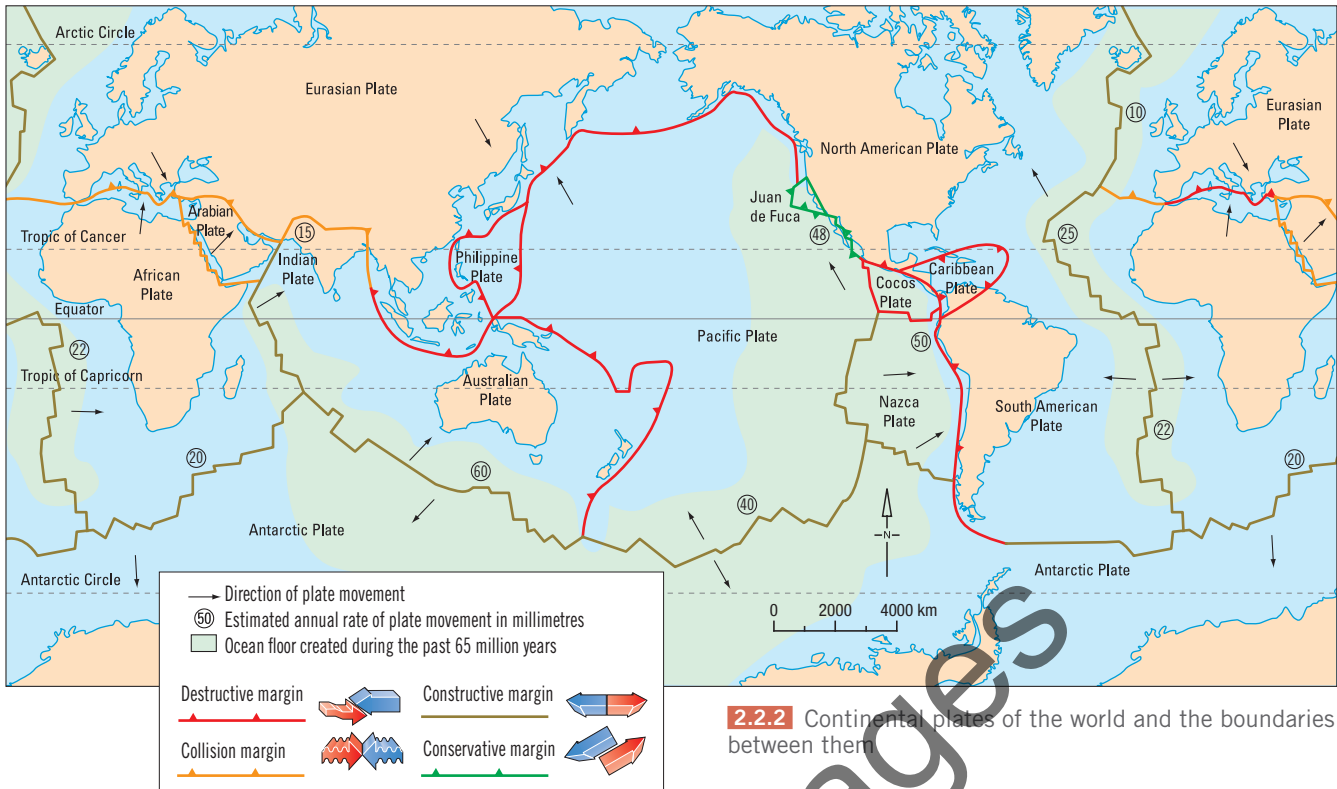
Convergent plate boundary

Collision plate margins

When two plates made of continental crust move towards one another they create a collision zone, as shown in Figure 2.2.3. Because neither plate can sink beneath the other, their crusts crumple upwards to form fold mountains. The Himalaya (see Figure 2.2.4), formed as a result of the collision between the Indian and Eurasian plates, is an example of a fold mountain system. Sometimes pressure builds up over time. Eventually the crust breaks, sending out shockwaves in the form of an **earthquake**.

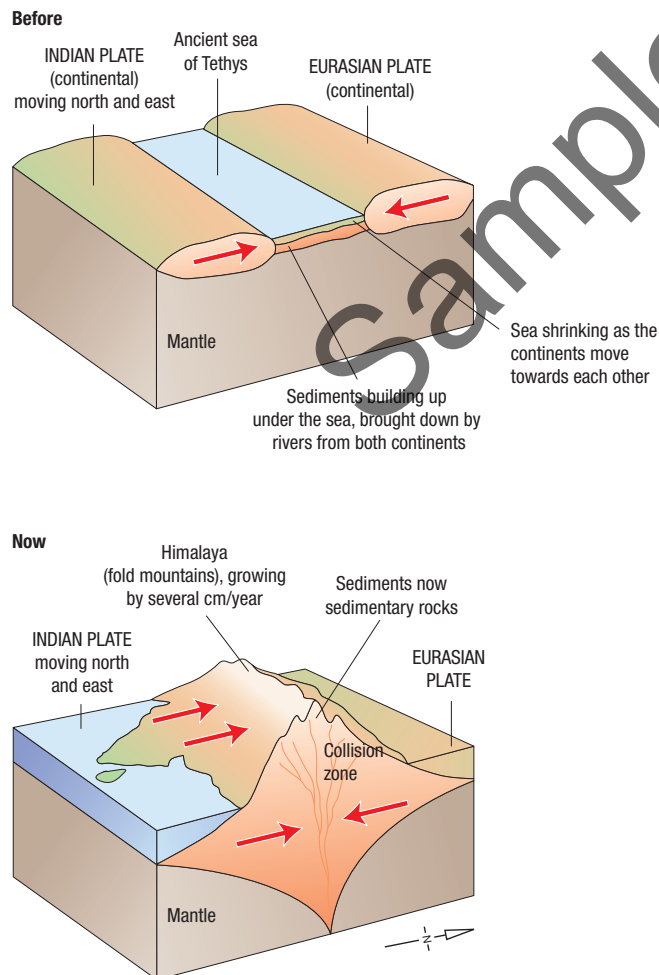
DID YOU KNOW?

At 8850 metres above sea level, Mt Everest is the highest point on the earth's surface. It is not, however, the world's highest mountain. From base to peak, Mauna Kea on Hawaii measures 10 023 metres, 5818 metres of which is below the surface of the Pacific Ocean.



2.2.2 Continental plates of the world and the boundaries between them

2.2.3 A collision plate margin



2.2.4 The Himalayan Mountains are still increasing in height as the Indian Plate moves into the Eurasian Plate at a rate of about 5 centimetres a year.



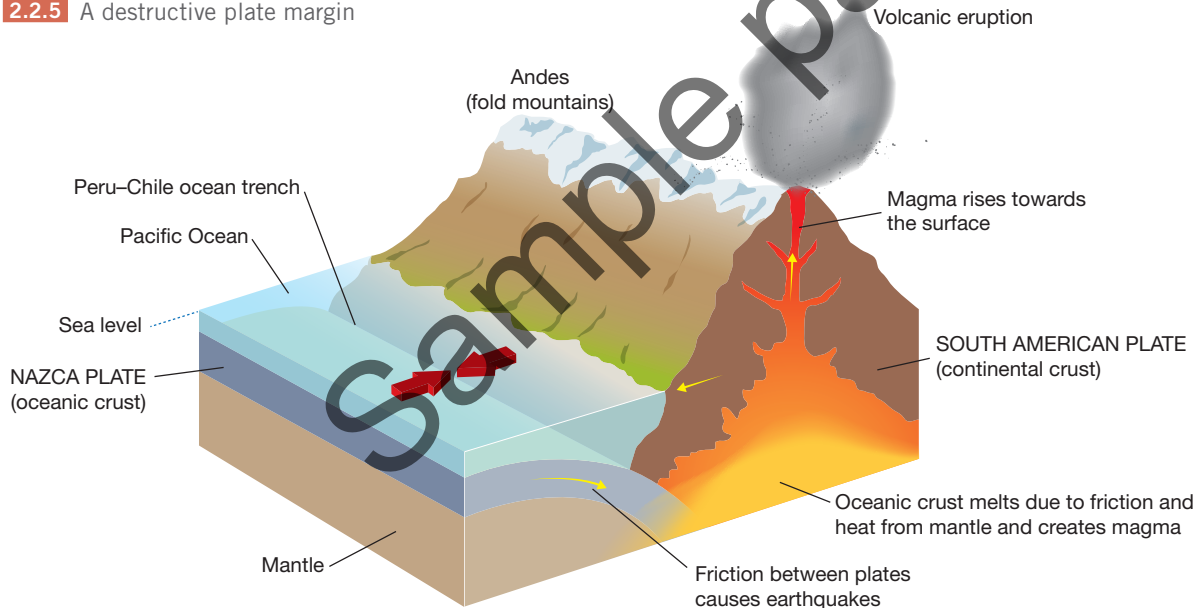
Destructive plate margins

Destructive plate margins occur where a plate made of heavy (dense) oceanic crust moves towards a plate consisting of lighter (less dense) continental crust. The heavier oceanic crust is forced down under the lighter continental crust, forming a deep-sea trench (shown in Figure 2.2.5).

As the oceanic crust pushes beneath the continental crust, it melts. This is partly due to the friction that builds up between the two plates and partly due to the increase in temperature as it reaches the earth's mantle. This creates magma, which can escape to the surface along lines of weakness in the earth's crust, called faults, to form a **volcano**. Volcanic eruptions at destructive plate margins can be very violent.

Because the plates do not slide smoothly past each other, there is often an enormous build-up of pressure. If the crust breaks, shock waves are sent out in all directions, causing an earthquake.

2.2.5 A destructive plate margin



Divergent plate boundary

Constructive plate margins

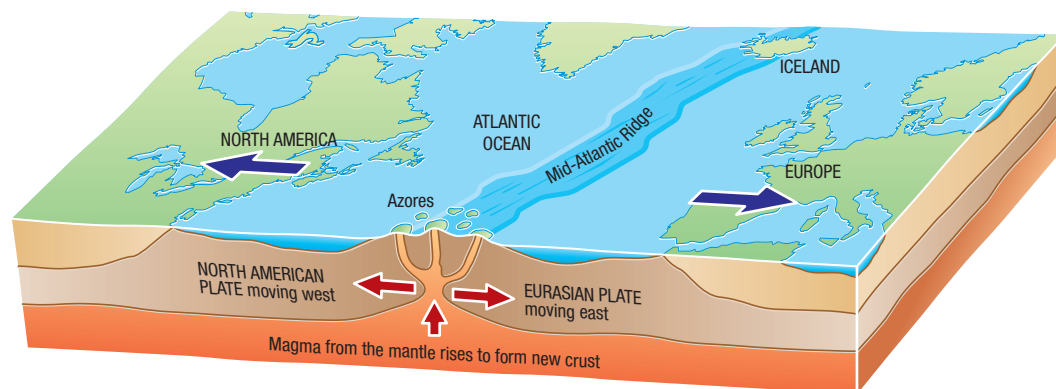
When two plates move away from each other, magma rises from the mantle to form new crust. This creates a line of underwater volcanoes along what is called a **mid-ocean ridge**. Sometimes these volcanoes become large enough to emerge above sea level as volcanic islands. The Mid-Atlantic Ridge (see Figure 2.2.6), which was formed by the separation of the North American and Eurasian plates, is an example of a constructive zone.

Constructive margins can also be found on land. The East African Rift Valley (see Figure 2.2.7) continues to widen, with new land being created on the floor of the valley.

Transform plate boundary

Conservative plate margins

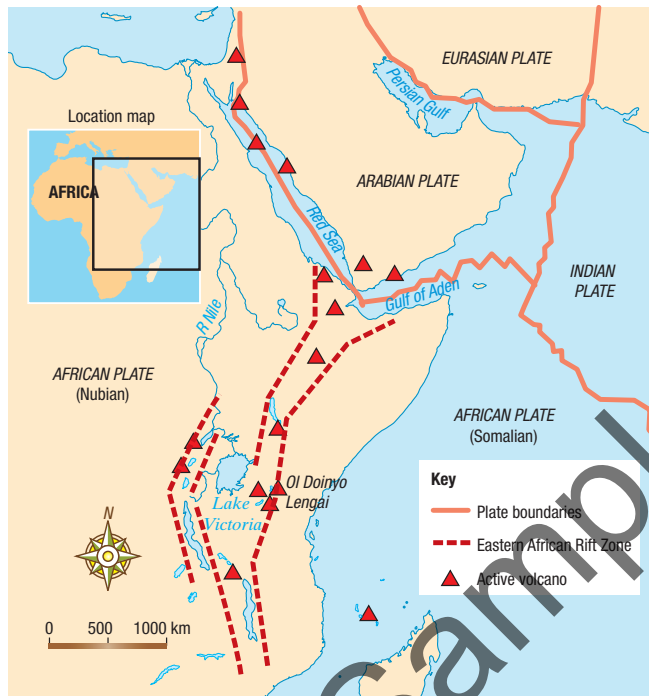
Conservative plate margins occur where two plates move past one another. The San Andreas Fault in California, for example, marks the point at which the North American and



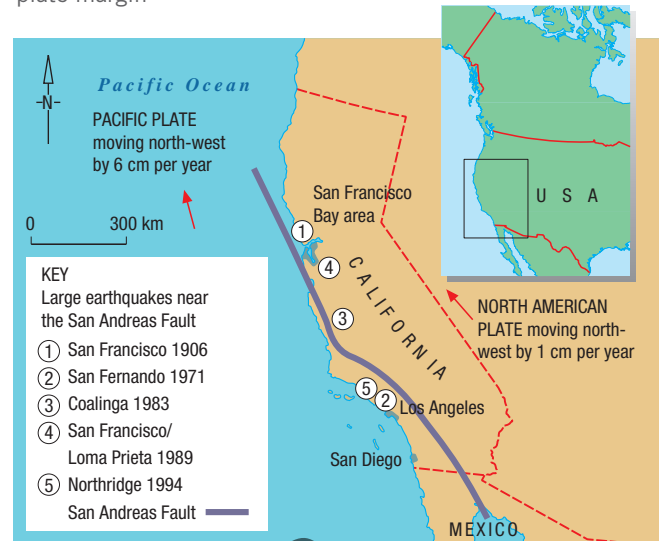
2.2.6 The Mid-Atlantic Ridge was formed by the separation of the North American and Eurasian plates. Each year the Atlantic Ocean widens by about 3 centimetres.

Pacific plates meet. Although the two plates are moving in the same direction, the Pacific Plate is moving faster, causing the plate margins to 'grind' past each other. The tensions between the two plates build up over time. When this tension is suddenly released an earthquake occurs. Minor earthquakes occur almost daily along the fault, but major earthquakes, causing loss of life and destruction of property, are less frequent. The last major earthquake was the 1994 Northridge earthquake. It measured 6.6 on the old Richter scale and killed 60 people (see Figure 2.2.8).

2.2.7 The Great Rift Valley in eastern Africa was formed through the rifting (tearing apart) and separation of the African, Arabian and Indian tectonic plates.



2.2.8 California's San Andreas Fault: a conservative plate margin



ACTIVITIES

Knowledge and understanding

- 1 State the name given to the processes involved in the movement of the earth's crust. Explain the causes of this movement.
- 2 Name the types of plate margins.
- 3 Describe what happens to the earth's crust in a collision zone.

Geographical skills

- 4 Study Figure 2.2.2.
 - a Name two plates that are colliding, moving towards each other, moving away from each other and moving past each other.
 - b Discuss the plate that is moving the greatest number of millimetres per year.
- 5 Study Figures 2.2.3 and 2.2.5. Write a paragraph comparing the formation of the Andes Mountains and the Himalayan mountain range.
- 6 Study Figure 2.2.8. Explain why parts of California experience earthquakes.

Rocks and the rock cycle

Rock types

Rocks are classified into three different types: igneous, sedimentary and metamorphic.

Igneous rocks

Igneous rocks form when molten material (magma) cools and becomes solid, or solidifies. There are two main types of igneous rocks. They have the same chemical composition but differ in structure depending on where the magma cooled. Intrusive igneous rocks are rocks that form slowly in the earth's crust (underground). Extrusive igneous rocks form when the magma erupts from a volcano and then cools quickly above ground. Igneous rocks are distinguished by their crystal-based structure. The crystals present in intrusive igneous rocks are large due to the slow rate of cooling, while those in extrusive igneous rocks are small because of their faster rate of cooling. Granite (which features relatively large crystals) is an example of an intrusive igneous rock. Basalt (characterised by small crystals) is an example of an extrusive igneous rock.

2.3.1 Rock pillars (known as hoodoos) in Alberta, Canada. The pillars consist of soft sedimentary rock capped by a piece of harder rock. Hoodoos form in semi-arid regions of sedimentary rock that experience occasional heavy downpours. The rain erodes away the softer material, leaving behind columns of rock under hard caps.

Sedimentary rocks

Sedimentary rocks form when eroded material carried in water settles to form sediment. Over millions of years, successive layers of sediment build up on top of one another. These layers are slowly compressed and bond to form sedimentary rocks. These layers of rocks can be folded and faulted by forces within the earth's crust.

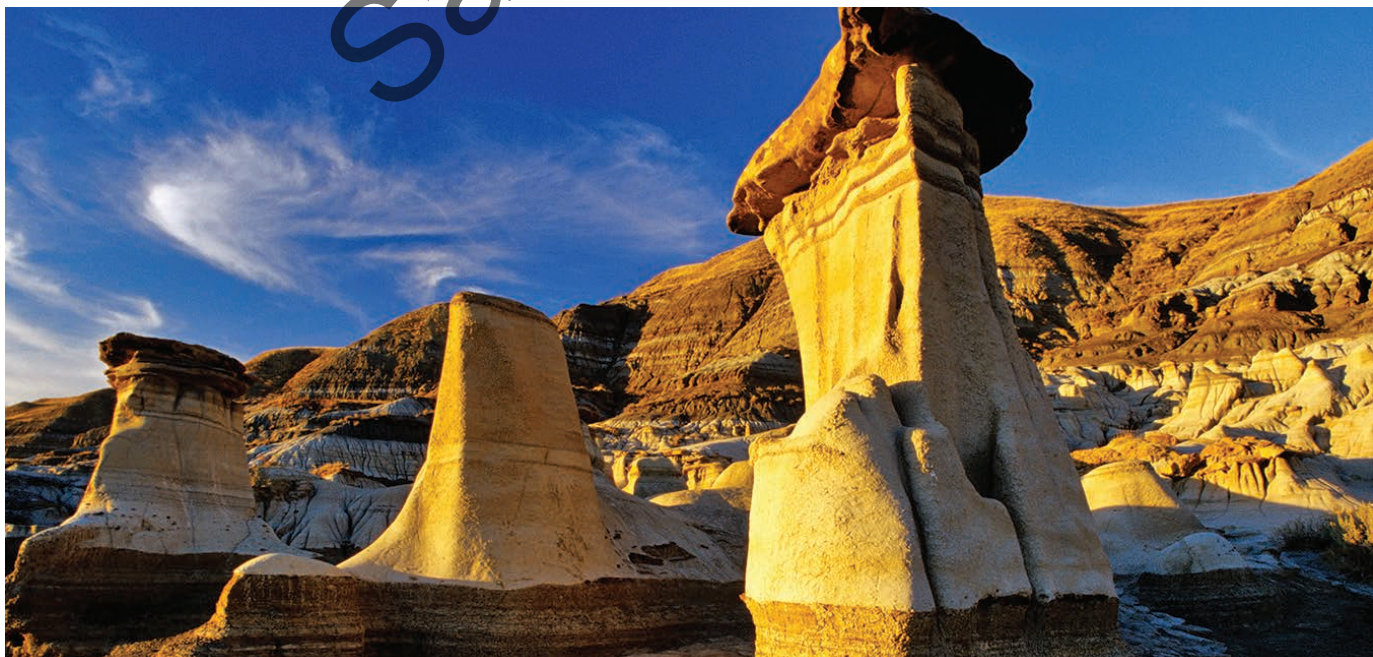
Sedimentary rocks have a layered appearance and often contain fossils of plants and animals that were trapped in the sediment as it was deposited. Sandstone is an example of a sedimentary rock.

Metamorphic rocks

Metamorphic rocks are formed when existing igneous and sedimentary rocks are compressed and heated without melting. They have the same chemical composition as the rocks from which they were made. Metamorphic rocks are often shiny and hard, and sometimes peel off in layers. Slate and marble are examples of metamorphic rock.

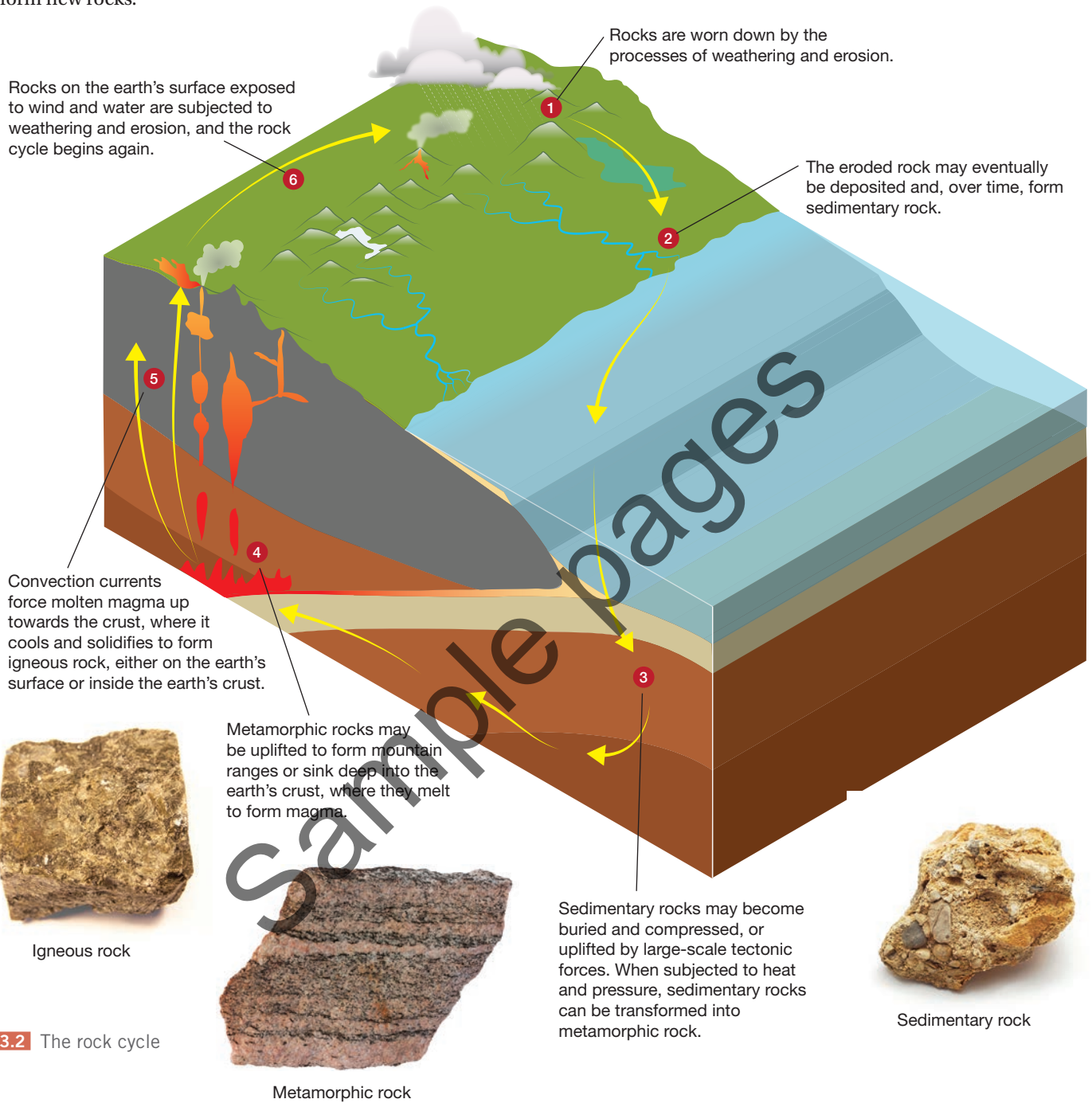
Rate of erosion

Rocks erode at different rates, depending on their hardness. Differential erosion occurs when softer rocks erode faster than more resistant, harder rock. Figure 2.3.1 shows a landform feature characteristic of differential erosion. The softer sedimentary rock has been eroded at a faster rate than the hard caps of these stone pillars.



The rock cycle

Figure 2.3.2 shows the **rock cycle**. The rock cycle is the process in which material from the earth's crust is recycled to form new rocks.



2.3.2 The rock cycle

ACTIVITIES

Knowledge and understanding

- 1 Distinguish between intrusive and extrusive igneous rocks.
- 2 Explain how sedimentary and metamorphic rocks are formed.
- 3 State what differential erosion is.

- 4 Name the different stages of the rock cycle.

Geographical skills

- 5 Study Figure 2.3.2. Draw your own annotated illustration of the rock cycle.

Mountain building

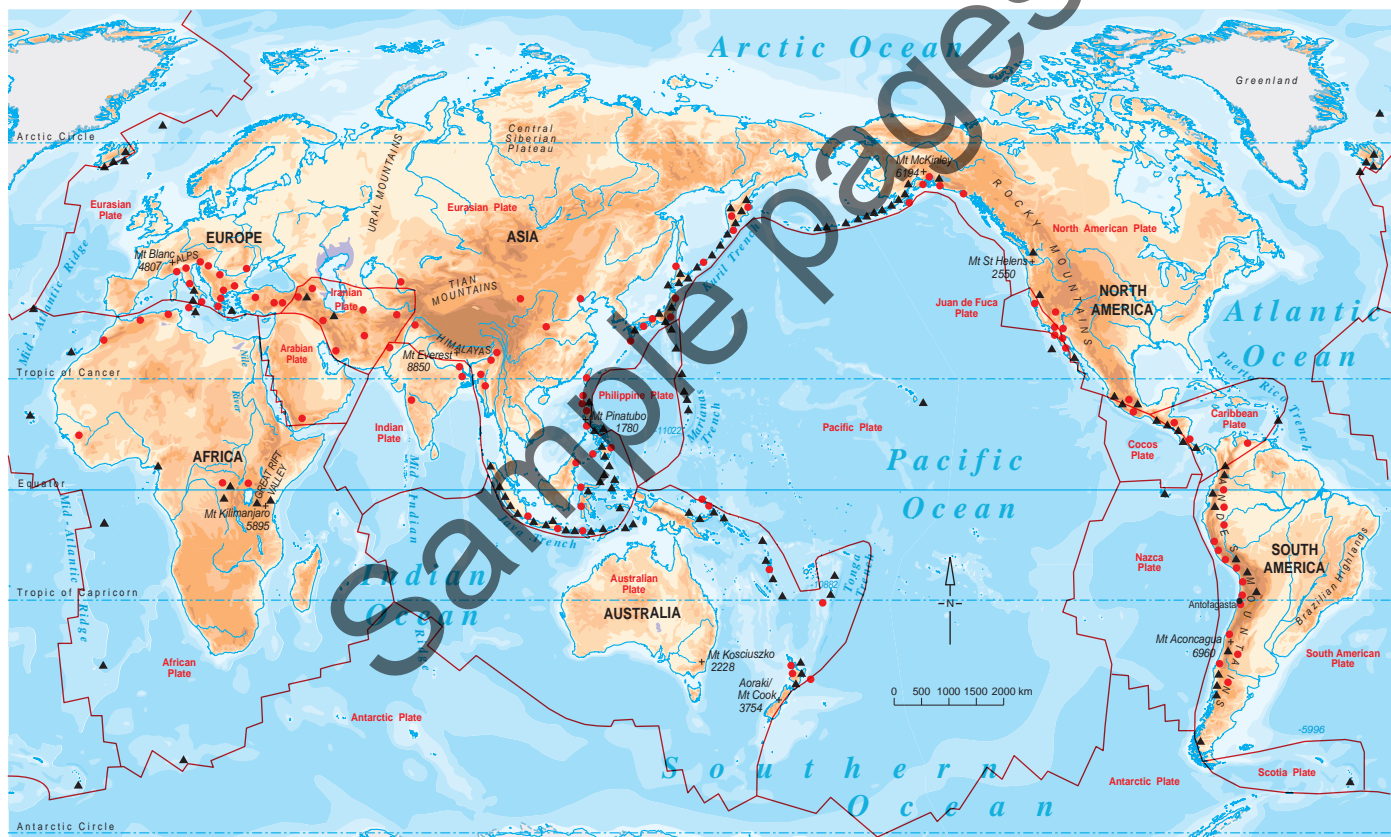
Mountains

Mountains are defined as landform features that, when compared with surrounding landscapes, rise abruptly, and are impressive and noticeable. Factors taken into account when defining such landforms include elevation, relief, steepness and mass.

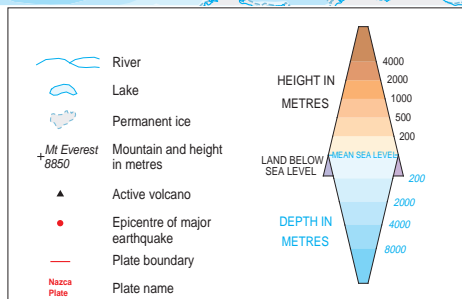
Location and formation

Figure 2.4.1 shows the location of the world's great mountain ranges—the Andes Mountains of South America, the Rocky Mountains of North America, the Alps of Europe and the Himalaya of Asia. These mountains are found along the active margins of the world's tectonic plates. As the plates press against each other, the pressure increases and layers of rock are compressed and forced upwards, folding and faulting as pressure is released.

2.4.1 The Earth's tectonic plates, volcanoes and major mountain ranges

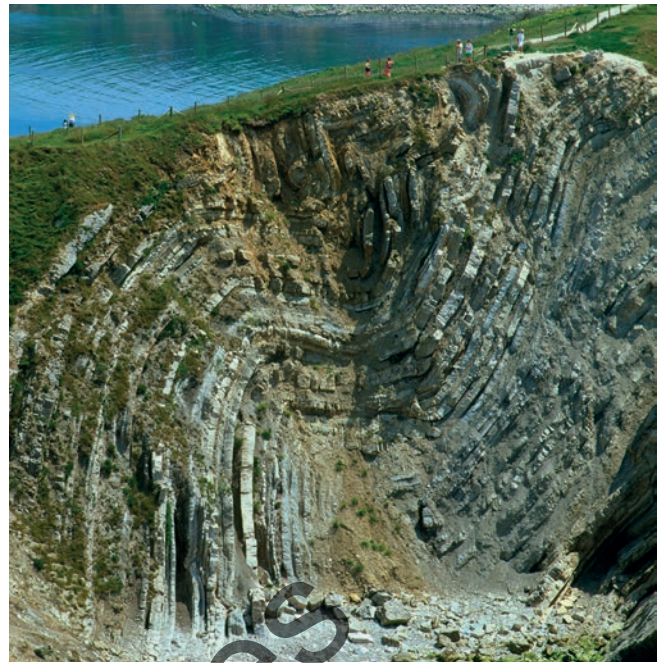


Source: Heinemann Atlas, Fifth Edition



Because the movement of the plates tends to be very slow, the mountain chains they produce are dominated by folded layers of rock. These mountain chains can, however, include landform features that are the result of faulting and volcanic activity. **Folding** results in wave-like patterns in the earth's crust (see Figure 2.4.2). **Faulting** occurs when there are fractures in the rock structure. Figure 2.4.3 shows both these features. **Rift valleys** and block mountains are examples of large-scale landform features associated with faulting.

As oceanic plates move apart (a process known as **seafloor spreading**), molten material fills the gap, forming a mid-ocean ridge. These ridges extend for 65 000 kilometres through all the earth's oceans. **Ocean trenches** are formed when oceanic plates are forced down into the earth's mantle, where they melt.

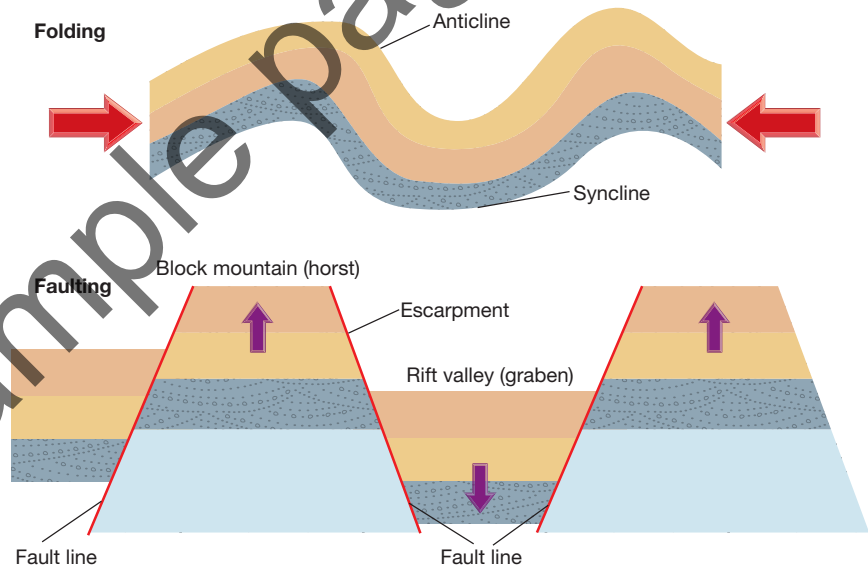


2.4.2 Folded layers of rock

2.4.3 Folding and faulting of rock layers

A **rift valley (graben)** is a long valley area formed by the sunken land between two or more parallel faults. A series of sinkings at different rates may produce a series of step-like landform features.

A **block mountain (horst)** is an elevated area of land that has been uplifted between two or more parallel normal faults. The edges of many block mountains may be distinguished by the presence of an escarpment.



ACTIVITIES

Knowledge and understanding

- 1 Explain the difference between folding and faulting.
- 2 Identify the processes associated with the formation of rift valleys and block mountains.
- 3 Outline the conditions under which ocean trenches develop.

Geographical skills

- 4 Study Figure 2.4.3. Write a paragraph outlining the global distribution of earthquakes and volcanoes.

- 5 Create a pie graph of each continent's share of the world's mountainous areas using the following data:

Asia (43.65%)
 Europe (6.7%)
 South America (8.4%)
 North America (15%)
 Australia and Oceania (1%)
 Africa (8.25%)
 Antarctica (17%).

Weathering, erosion and deposition

Weathering

Weathering involves the physical or chemical breakdown into smaller pieces of rocks that do not undergo transportation from their original position.

Physical weathering

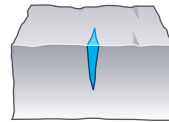
There are three main types of physical (or mechanical) weathering.

- **Temperature change** As rocks are heated by the sun they expand. At night, as temperatures fall, the rocks contract. Over time, this expansion and contraction causes cracks to appear and the rock begins to break down. This process is called exfoliation and is common in deserts in which there are large daily differences in temperature (see Figure 2.5.1).

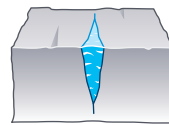


2.5.1 Changes in temperature have caused the outer layer of this rock to crack and break away.

- **Freeze-thaw action** Water collects in the cracks in rocks, and when the water freezes it expands. This places a pressure on the rock and causes the cracks to widen and deepen. The pressure may eventually cause parts of rock to break off, as is illustrated in Figure 2.5.2. The small broken-down rocks are called scree. This type of weathering is common in high mountainous areas where the water freezes.



A crack in the rock fills with water



The water expands when it freezes and makes the crack wider



Eventually the crack gets so wide that the rock splits

2.5.2 Freeze-thaw weathering

- **Organic action** The growing roots of plants can exert a force that causes cracks in rocks to widen (see Figure 2.5.3). Gradually, the rock breaks down into smaller pieces.

2.5.3 Organic weathering





2.5.4 Jenolan Caves in New South Wales

Chemical weathering

When rainwater mixes with carbon dioxide (which is present in the atmosphere), it forms a weak acid that attacks many of the minerals contained in rock. This acid is especially effective in dissolving limestone. Limestone caves (such as the Jenolan Caves in New South Wales, shown in Figure 2.5.4) are a result of this type of weathering.

Rocks that contain iron are affected by a process known as oxidation. When oxygen and water come into contact with the iron in rocks they change the chemical make-up of the rocks, which take on a rusty appearance. The surface of the rock gradually decays and is eroded away.

Organic acids are produced when water mixes with decaying vegetation. These acids help to break down minerals in rocks.

Erosion

Erosion is the transportation of material that has been weathered (worn away) from one place to another by water, wind and ice. Erosion occurs when rivers carve out deep canyons, glaciers grind out massive valleys, and water drips through limestone to create caves and sinkholes.

The processes of erosion are as follows.

- **Attrition** Rocks collide as they are transported and are worn into smoother, rounded stones.
- **Abrasion/corrasion** Material rubs against riverbanks or valley sides as it is transported, or is thrown against cliffs by the sea. This acts like sandpaper on the landscape, gradually eroding it.
- **Corrosion** Some rocks, especially limestone, are dissolved by the natural acids in water and are carried away by the water.
- **Hydraulic action** Riverbanks or cliffs can be worn away by the sheer force of water hitting them, or can be blasted apart as air is forced into cracks.

Agents of erosion

The agents of erosion are water, wind and ice.

Water

Running water is the most powerful agent of erosion, transportation and **deposition**. It is especially effective in very dry areas and where humans have damaged the protective cover of vegetation that binds the soil together. When rain falls on exposed earth it causes deep channels called gullies to form as shown in Figure 2.5.5.



2.5.5 A landscape deeply scarred by running water—Death Valley, United States of America

RIVERS

Rivers shape the land by eroding, transporting and depositing material. In a mountainous area, the river erodes downwards, creating narrow, V-shaped valleys. Away from the mountains, valleys become wider and some of the river's load of sediment is deposited. Closer to the sea, the river weaves, or meanders, across a wide, flat plain, depositing fine particles of soil called alluvium. These alluvial soils are usually very fertile and are often used for agriculture.

WAVES

Coastlines are constantly changing. Some are eroded by storm waves and are dominated by landform features formed by the processes of erosion, such as headlands, cliffs, rock platforms and arches. Other coastlines advance towards the sea as waves deposit large amounts of sand. Such coastlines are dominated by landform features formed by the process of deposition, such as sand dunes, sand bars and spits.

Wind

Wind is a very effective agent of erosion in areas with little or no vegetation, in deserts and in areas where the land has been damaged.

Wind can pick up weathered rock material and, with it, effectively 'sandblast' larger rock features. This process is known as abrasion. It results in sculpted rock formations such as that shown in Figure 2.5.6. On a larger scale, rock-strewn desert surfaces form when strong winds sweep away the finer surface materials. This process is known as deflation.

Ice

Glaciers are slow-moving rivers of compacted snow (glacial ice). They form when compacted snow that has gathered over many years gradually moves downhill under the influence of gravity. Glaciers erode land by transporting rock (see Figure 2.5.7).

Deposition

Deposition is the process by which eroded material is added to a landscape. Water, wind and glacial ice transport weathered and eroded rock. As the speed of water slows, as the strength of a wind declines, or as a glacier melts and retreats, the load it carries is deposited, building up layers of sediment. Depositional landforms include beaches, sand bars and dunes, natural (river) levees and desert sand dunes.

2.5.6 Wind-borne sand grains have worn away the base of a desert rock, leaving this pedestal-shaped feature.





2.5.7 Findel Glacier, Zermatt, Switzerland

Changing landscapes

Weathering is sometimes called the passive, or inactive, agent of erosion because weathered material usually remains in place. Erosion and deposition (the removal and laying down of transported material) are known as active processes because the material is moved from its original position or location. A summary of this process is outlined in Table 2.5.8.

2.5.8 Weathering and erosion in summary

Weathering	
Physical weathering	Chemical weathering
Temperature change Freeze–thaw action Organic action	Weak acids (when rainwater and carbon dioxide mix) Organic acids
Erosion	
Erosional processes	Agents of erosion
Attrition Abrasion/corrasion Corrosion Hydraulic action Deposition	Running water, rivers and waves Wind Ice

ACTIVITIES

Knowledge and understanding

- 1 Explain the difference between physical and chemical weathering.
- 2 Outline the three processes of physical weathering.
- 3 Explain how chemical weathering helps to weaken and break up rock.
- 4 Explain why weathering is described as a passive, or inactive, agent of landform development.
- 5 State what erosion is.
- 6 Explain the following terms:
 - attrition
 - corrosion
 - abrasion
 - hydraulic action.
- 7 Explain what is meant by the term ‘deposition’.

Applying and analysing

- 8 Identify the conditions under which water is the most effective agent of erosion.

Geographical skills

- 9 Construct a series of diagrams like those in Figure 2.5.2 to explain how organic weathering occurs.

Valuing landscapes

Different values

Landscapes are important to us for many reasons. They are a shared resource—they belong to everyone. They are a living record of our past, and an inspiration for our culture. They provide a wide range of social and health benefits. The value placed on landscapes changes over time. Landscapes are said to have aesthetic, emotional, spiritual and economic value.

Aesthetic value

The term ‘**aesthetic value**’ refers to the idea of attractiveness or beauty. The aesthetic value of all landscapes is not the same, as not all landscapes are equally appealing. People can, for example, appreciate and interpret the same landscape quite differently. What may appeal to one person may not appeal to another. For US retirees seeking a warm, sunny climate, California’s Palm Springs is an attractive desert landscape. Others view desert landscapes as hostile places. International tourists travel thousands of kilometres to see the landscapes of Australia’s Red Centre, while many Australians head overseas to see the managed and constructed landscapes of South-East Asia (see Figure 2.6.1), Western Europe and North America.

Whether we find a landscape personally appealing depends on a range of factors. These include our emotions or feelings, our attitudes and personal values, and our preferences, experiences and memories.

Emotional value

People often develop an emotional attachment to a place or landscape. This attachment usually results from a long-term connection with that place or landscape. While this is especially strong for indigenous peoples, it also applies to people more generally. We all remember, often with fondness, places we went for holidays, and we often develop an emotional attachment to the places in which we live or have lived.

DID YOU KNOW?

In 2014, over 1.1 billion people travelled internationally, generating more than US\$1.245 billion in economic activity. This represents 5 per cent of the world’s total gross domestic product and one in twelve jobs.



2.6.1 Singapore

This attachment is different from a simple aesthetic response, such as recognising that a certain landscape or place is special because it is beautiful. For a deeper and lasting emotional attachment to develop, a long-term relationship with a place is normally required. This relationship may be physical or emotional. It might be the place in which we live or a place our mind wanders to from time to time. A snowboarder might, for example, find their thoughts drifting to the mountains on which they snowboard. A bushwalker often develops an emotional attachment to their favourite national park, such as Wollemi National Park, shown in Figure 2.6.2.

Many people find landscapes inspiring. Landscape artists and photographers, for example, seek to capture or portray the beauty of landscapes in their paintings and photographs. These provide an opportunity for people who can't observe the landscapes directly to share the experience.



2.6.2 Wollemi National Park

Spiritual value

Landscapes hold special spiritual significance for some people. Many Aboriginal and Torres Strait Islander people, for example, recognise that features of the landscape such as rivers, mountains and even individual trees have a spiritual value. Through these features, Indigenous Australians connect, by means of song and ritual, to the **Dreaming** and ancestral creator beings. **Sacred sites** are places of special spiritual importance to Indigenous Australians.

Economic value

Landscapes also have an economic value. Some, such as agricultural, industrial and urban landscapes, are in fact the product of economic activity. Others generate economic activity even though they remain in a near-natural state.

Landscapes that are spectacular and/or unique are important tourist destinations. Historic Venice in Italy, for example, attracts nearly 22 million tourists a year; California's Yosemite National Park, more than 4 million; Machu Picchu in Peru, more than 700 000; and Australia's Great Barrier Reef, more than 1.6 million people. Catering for the needs of these visitors creates economic activity and employment. The economic wellbeing of many communities depends on tourism.

Landscapes provide a wide range of opportunities for people to enjoy the outdoors. They vary from the local park through to coastal national parks and remote mountain wilderness areas. All offer relaxation, challenge, inspiration and an opportunity to experience first-hand our natural and cultural heritage.

ACTIVITIES

Knowledge and understanding

- 1 Explain what we mean when we talk about a landscape's 'aesthetic value'.
- 2 Name a place or places that have aesthetic value for you.
- 3 Explain the economic value of landscapes.

Geographical skills

- 4 Construct a photo sketch of Figure 2.6.1 or 2.6.2.
- 5 Annotate the sketch, naming as many natural elements of the landscape as you can. Are there any human elements evident?
- 6 List the possible aesthetic, emotional, spiritual and/or economic value of such a landscape.

Landscapes and national identity

Building a national identity

Landscapes can play a powerful role in the creation of national identities. People connect with an image of a landscape. This has an impact on how they see themselves as a national community. Landscapes also build a sense of belonging that helps define people's attitudes and perspectives.

A national identity is developed over time. The qualities that develop represent the society and its people. These qualities foster a sense of common beliefs and ideas about identity that people feel they share with others in their society.

We are not born with a national identity. A country's history helps to develop the idea of a national identity. Our awareness and understanding of national identity are shaped by the images of our biophysical and built environment that we see in the media and the arts throughout our lives. National identity becomes the collective personality of the people of a country. It is the foundation of the values we take on as our own and it is often expressed in our behaviour.

The importance of landscapes

Landscapes are important to people. Landscapes are not just scenery or interesting views; they have a lot of meaning for people. Apart from being the backdrop for day-to-day living, landscapes link people to nature, and the past to the present. People create and value the concept of landscapes. For example, the Great Barrier Reef is a valued landscape and there are now laws to protect and preserve areas of the reef. Some landscapes are very special because they symbolise a nation, such as the Eiffel Tower in Paris, France (see Figure 2.7.1).

Landscapes and national identities

Landscapes are shared by the people of a nation and often provide a living history of the past. Some national identities based on these landscapes become so popular that they last long after they are truly representative of the nation. For example, Egypt's pharaohs are long dead but the pyramids at Giza are still an important aspect of Egyptian national identity.

2.7.1 The Eiffel Tower in Paris, France



Australia: from the bush to the beach

When the European settlers arrived in Australia, they encountered an environment very different from Europe. The vast expanses of country—from the outback to the forests and farmlands—became collectively known as ‘the bush’. This landscape was uniquely Australian and it evoked many tales of the struggle for survival. Stories of drovers, outback women, bushrangers and even children lost in the bush became legends. By 1900, the landscape of the bush had become the symbol of the new nation, even though the majority of people lived in towns and cities.

The bush may have defined the national identity a century ago, but more recently the beach has become a symbolic landscape. Most Australians live near the coast and the beach culture has become a very important aspect of the Australian lifestyle (see Figure 2.7.2). The character attributes of the bush heroes have been transferred to the lifesavers patrolling surf beaches. They are seen as fit, courageous people who save lives.

Many people consider Australia’s national identity as a work in progress, as we are still a young nation. With the majority of the population living in urban centres and the population itself becoming increasingly multicultural, new layers are being added to the country’s national identity.

2.7.2 Australian beach culture as seen by cartoonist Peter Nicholson



Cartoon by Nicholson from *The Australian* newspaper:
www.nicholsoncartoons.com.au

ACTIVITIES

Knowledge and understanding

- 1 Explain the relationship between landscape and national identity.
- 2 Outline how a national identity is built.
- 3 Explain why there has been a shift in Australia’s national identity.

Applying and analysing

- 4 Study Figure 2.7.2. List the points Nicholson is making in his ‘our home is girt by beach’ cartoon.
- 5 Design an annotated visual display of a landscape that in your opinion characterises Australia’s national identity—for example Uluru, Sydney Harbour, the Great Barrier Reef or the MCG. Your display should include a list of reasons why you chose this landscape to characterise Australia’s national identity.

Indigenous explanations of landscapes

Importance of landscapes

The relationship with landscape is central to the life of indigenous peoples worldwide. Over thousands of years, indigenous peoples have developed deep spiritual links with their traditional lands.

Creation myths

Indigenous peoples have their own stories about the origins of the world, their people and all living things. This can be seen in their paintings and carvings. Stories are told and retold and have been passed down from generation to generation over thousands of years. The stories are also expressed in song and dance. The rich oral and artistic history of indigenous peoples has created a sense of social continuity and harmony, and taught people how to continue the traditions of their ancestors.

DID YOU KNOW?

Originating more than 50 000 years, or 1600 generations, ago, Australia's Aboriginal culture is one of the oldest continuous cultural traditions on earth.

SPOTLIGHT

The Iroquois creation myth

The Iroquois Native Americans (see Figure 2.8.1) believed the world was formed on the back of a giant turtle. The first woman, Sky Woman, dropped out of the sky and the water animals saved her from falling into the ocean that covered the earth. After saving her, the animals built an island for her to live on. Without their help, the Sky Woman might have perished and people might have never existed.

Source: Creation Myths—the Relationships of Animals and People

Supreme beings

Many of the stories passed down from generation to generation involve supernatural beings. This is especially the case in the stories dealing with the creation of the world. They are used to explain the origins of people, plants, animals and even landform features. Supreme beings, in one form or another, appear in ancient myths about creation in most cultures.

Animals

Indigenous peoples see themselves as part of nature and many view animals as their equals. Many ancient stories tell of a time when both humans and animals lived together peacefully, without any fear of each other. Indigenous explanations of the creation of the landscape feature animals in very important roles. In many cases they are credited with saving the human race. Such beliefs reflect the high regard indigenous peoples have for animals. While they may have hunted animals for food and skins, they acknowledged how greatly they relied on animals to support their needs.



2.8.1 The Iroquois

Aboriginal and Torres Strait Islander people

The Dreaming

According to Aboriginal belief, the landscape can be explained by the Dreaming—especially the time known by many Aboriginal people as Tjukurpa. This was when the great Ancestor Spirits roamed the earth. Before this time, the earth was flat and bleak and empty of any life. When the Ancestor Spirits came up from their dwelling places below the ground, they took the form of humans and animals. They created the features of the landscape, such as rivers, waterholes and mountains. By transforming themselves into these landforms they left evidence of their presence in the landscape. These spirits then created all life on earth—the plants, animals and people.

The tracks of the Dreaming cover Australia. The landscape is embedded with evidence of the Dreaming, which remains a powerful spiritual force for many Aboriginal and Torres Strait Islander people. For them, it still exists today and the network of tracks and sacred sites link the physical world to the Dreaming. Dreaming stories map out significant landscape features, the location of waterholes, places to camp, and places to gather food and hunt animals.

The Dreaming Story of Ngurunderi

In the Dreaming, Ngurunderi and his two sons, in search of Ngurunderi's two wives, who had run away from him, followed a massive Murray cod down the Murray from where the Murray and the Darling rivers meet. As the huge fish swam, its tail swept the water aside, creating billabongs and swamps. Long Island, near Murray Bridge, is said to be a spear thrown by Ngurunderi. Ngurunderi eventually speared the giant cod and proceeded to cut it into small portions. As he threw the small pieces into the river they became the many different species of fish now found in the lakes and streams of the Murray–Darling.

When Ngurunderi discovered his two wives cooking a silver bream, a fish forbidden to women, he was very angry. The women sought to escape on a raft they had built. Ngurunderi pursued them down through the Coorong, creating the natural features of the landscape. When he caught up with the women, who were crossing to Kangaroo Island, he caused the sea to rise. The women drowned and became the rocky islands known as the Pages. Ngurunderi crossed to Kangaroo Island, removed his old skin of life and went to heaven. The Dreaming Story is depicted in Figure 2.8.2.

The fate of Ngurunderi was re-enacted in the traditional funeral ceremonies of the Ngarrindjeri People. The skin of the dead was removed before the remains were cremated on a raised platform.

2.8.2 A mural showing a Dreaming Story of Ngurunderi about the origins of the Murray River, Berri, South Australia



The Squamish

The Squamish are the indigenous people of south-west British Columbia, Canada. Their territory extends northwards from north Vancouver up through the Howe Sound to the Squamish Valley and then towards Whistler—an area of 6732 square kilometres.



2.8.3 Squamish people in traditional dress

Oral tradition

Traditionally, the history, culture and customs of the Squamish were passed onto future generations by spoken word rather than writing. This oral tradition describes and explains the Squamish's relationship to the land and provides important insights into the location of resource sites, hunting grounds, cedar-bark gathering areas, rock quarries, clam-processing camps, and the spiritual and ritual places of their ancestors.

Natural environment

Like indigenous peoples worldwide, the Squamish have a very close relationship with the natural environment. Traditionally, they took from it only what they needed to survive. They used it in a way that was sustainable; that is, in a way that would enable them to maintain their traditional way of life for generations to come. They hunted and gathered just enough salmon, herring, shellfish, seals, berries and plant roots to meet their needs. They also managed the forests sustainably. For example, the cedar bark used to make baskets was stripped from trees in a way that did not threaten the survival of the tree. A vertical strip, just two hands wide, was taken from a tree only once in its lifetime. The volcanic landform known as Black Tusk was, according to the Squamish tradition, created from the Thunderbird's lightning.

Plains Indians, USA

For generations, nomadic Indian tribes such as the Sioux, the Comanche and the Crow roamed the Great Plains of the midwest of North America in search of buffalo. Their worship centred on the Great Spirit, or Wakan Tanka, their creator, who reigned supreme over everything that had ever existed, including animals, trees, stones and clouds. The Plains Indians believed that worshipping the Great Spirit would make them stronger.

Relationship with landscape

The Plains Indians believed that all things had spirits. They held deep beliefs about the creation and sacredness of the natural world and saw creation as an ongoing process. Through their guardian spirits they felt joined to the familiar shapes of their land, the sky and the wild animals they depended on for survival. They did not seek to dominate other creatures. They recognised the powers of nature and through their daily rituals they sought connection with the spirits.

The rituals and traditions of the tribes celebrated what was special about their land. On the Great Plains, elaborate ceremonies were held to honour the sun and the big sky, which were so important to their daily lives.

The Sun Dance

The sun was considered to possess great power because of the warmth and light it shed on the earth. The Indians performed the ritual of the Sun Dance to demonstrate love and respect for the Great Spirit. It was their way of showing gratitude for the good things that may have happened to the tribe or the Great Spirit's help in protecting them or healing a sick person.

The Sun Dance ritual would last for four days from dawn to dusk, during which time no eating or drinking was allowed. The men would dance to drums in a circle around a sacred tree that had been cut down and set up as a pole in the middle. Offerings were made to the Great Spirit under the pole. The dancers stared at the sun and whistled through pipes. Some tribes practised self-torture by piercing the skin on their chests with ropes of hair or leather that were tied to the pole (see Figure 2.8.4). This personal sacrifice was made for the benefit of all the tribe.

DID YOU KNOW?

The Plains Indians used their natural resources wisely, especially the buffalo. They killed the buffalo only as needed, and used the whole animal for food, clothing and shelter. However, white settlers hunted buffalo nearly to extinction.



2.8.4 The Sun Dance was the most important group gathering of the Plains Indians.

Guardian Spirits

The Plains Indians believed that a person's success in life depended on the intervention of a spirit being, which could occur only through a vision. A young man would go on a quest to seek this spirit being. He would go to a lonely spot to pray and fast for many days, and would lapse into a trance. Whatever animal or bird he saw in his dreams became his spirit being, who would be his guardian for life

Plains Indians carried medicine bundles, which contained objects suggested by a Guardian Spirit, such as feathers, animal teeth or claws, pipes and tobacco. The Indians believed that the bundle possessed powers that would bring them good luck, protection, successful hunting and even healing when needed. When a person died, their medicine bundle was buried with them.

ACTIVITIES

Knowledge and understanding

- 1 Outline the importance of supreme beings and animals in indigenous explanations of landscapes.
- 2 Explain what the Dreaming is and explain its role in Aboriginal and Torres Strait Islander culture.
- 3 Describe the relationship of the Squamish people with the land.
- 4 Describe a sustainable practice of the Squamish people.
- 5 Explain the role of Guardian Spirits in the life of Plains Indians.

Applying and analysing

- 6 Compare the Iroquois creation myth and the Aboriginal Dreaming.
- 7 Consider how the following aspects of Squamish society compare with your own way of life:
 - a relationship with the natural environment
 - b an oral tradition.

Investigating

- 8 Select a prominent feature of the biophysical environment and look for an Aboriginal Dreaming Story that explains its creation. Present an oral report to the class outlining the Dreaming Story and its connection to the physical environment.