



Chapter 11

Australia

Learning Outcomes

- Locating Australia on the world map
- Identifying countries in Australia
- Locating major physical features of Australia on the map
- Understanding the importance of sheep rearing in Australia



21st critical thinking

Thinking Cap

The continent of Australia is isolated from the rest of the world. Do you think this affects its economic growth? How?

Australia is also known as the 'island continent' because of its large size and isolation from other parts of the world. Its name is derived from the Latin word *Terra Australis* meaning

SVID



'Southern Land'. It is the only nation that occupies an entire continent and a few islands. The official name of the country is the 'Commonwealth of Australia'. It is the sixth-largest nation and the smallest continent in the world by area. Australia is a very flat continent, and the driest after Antarctica.

Australia: Main Features

Capital:	Canberra
Largest city:	Sydney
Total area:	76,92,024 km ²
Latitudinal extent:	10° 41'S–43° 38'S
Longitudinal extent:	113° 09'E–153° 38'E
East-west extent:	4,000 km
North-south extent:	3,860 km



The national flag of Australia



Location of Australia on the world map

Australia was discovered very late. The **seafarers** of Europe were amongst its early explorers. In 1770, British naval officer and explorer **Captain James Cook** landed on the eastern coast of Australia and named the new-found land as New South Wales, which is one of its provinces today. From then onwards, Australia became an English colony. Until then, Australia was inhabited by indigenous tribes, who are known today as the aboriginal Australians.

Location

The continent of Australia is located entirely in the southeastern quadrant of the globe, extending between $10^{\circ} 41'S$ and $43^{\circ} 38'S$, and $113^{\circ} 09'E$ and $153^{\circ} 22'E$. The Tropic of Capricorn runs almost halfway through it.

New Zealand and the other islands in the Pacific Ocean surrounding Australia are together called Oceania. Oceania is a region, while Australia is a continent. Together, Australia and **Oceania** are called **Australasia**.

Boundaries

Australia does not have any land boundary. It is bounded by the South Pacific Ocean in the east, the Indian Ocean in the west, the Arafura Sea in the north and the Southern Ocean in the South. As it is bounded by oceans on all sides, it is called an island continent. Its neighbouring countries include Indonesia, Papua New Guinea, the Solomon Islands, Fiji and New Zealand.

Political Divisions

Australia's formal name is the Commonwealth of Australia. It is a federation with six states and two territories. The states are administered by the respective state governments and the territories are centrally-administered.

21st century skills
Information literacy

Did you know?

The island of Tasmania is named after the Dutch sailor, Abel Tasman, who discovered it in 1642.

Political Divisions		Capital
	State	
1.	Western Australia	Perth
2.	South Australia	Adelaide
3.	Queensland	Brisbane
4.	New South Wales	Sydney
5.	Victoria	Melbourne
6.	Tasmania	Hobart
Federal Territories		
1.	Northern Territory	Darwin
2.	Australian Capital Territory	Canberra

The Eastern Highlands

ANM



The Eastern Highlands is the highest region of Australia, consisting of a series of hills, mountain ranges and plateaus. It is also known as the **Great Dividing Range** comprising smaller ranges, such as the **New England Plateau**, the **Australian Alps**, the **Snowy Mountains**, the **Blue Mountains** and the **Grampian Mountains**. The Great Dividing Range is the longest mountain range in Australia.

The main characteristics of the Eastern Highlands are as follows:

- The mountain ranges are old and residual with an average altitude altitude between 600m and 900m.
- The mountain ranges run parallel to the East Coast stretching for a distance of 3,700 km (2,300 miles) from the tip of Cape York Peninsula in Queensland to Victoria.
- The mountain ranges slope steeply on the eastern side, towards the Pacific Coast, and gently on the western side, towards the Central Lowlands.
- They act as watershed to the rivers flowing down its slopes. East flowing rivers flow faster and are used for generation of hydel power.
- The highest peak of the Eastern Highlands is **Mount Kosciuszko**, which is 2,228 m above sea level and located in the Snowy Mountain Range.



Political map of Australia

Major Physical Features

The Australian continent can be divided into five physical divisions:

- Eastern Highlands
- Central Lowlands
- Western Plateau
- Coastal Plains
- Great Barrier Reef



Physical map of Australia

The Carpentaria Lowlands

The Carpentaria Lowlands form a narrow lowland corridor south of the Gulf of Carpentaria, and lie between the highlands in the west and the Eastern Uplands in the east. The region is drained by rivers, like the Flinders and the Gilbert. Near its southern limit, they form broad rolling plains (these have slight undulations).

The Central Lowlands

The Central Lowlands are saucer-shaped depressions located between the Western Plateaus and Eastern Highlands. Latitudinally, they extend from Gulf of Carpentaria in the north to the Great Australian Bight in the south.

From north to the south, the lowlands may be classified as:

- Carpentaria Lowlands
- Lake Eyre Basin
- Murray-Darling Basin



Mount Kosciuszko

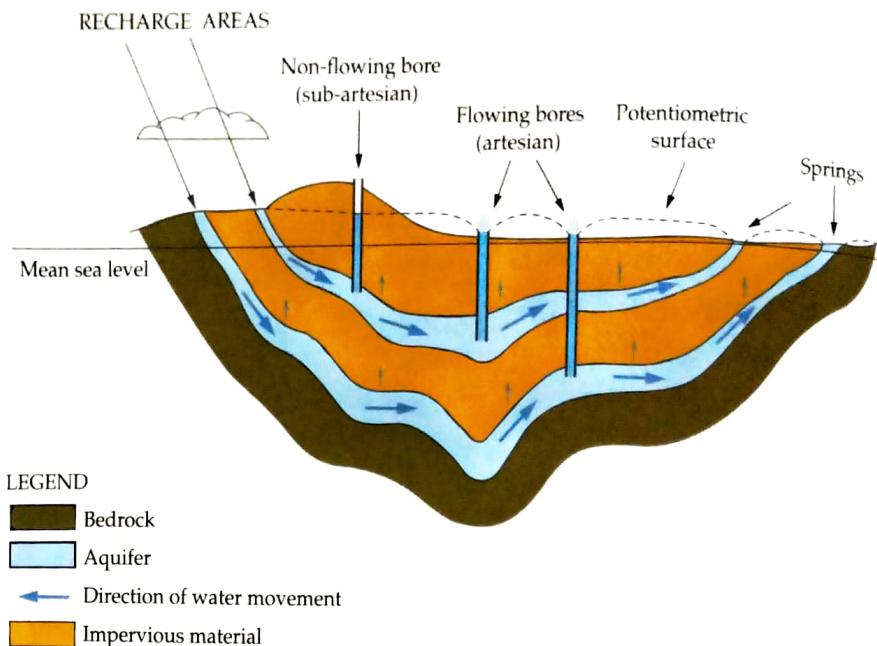
The Great Artesian Basin is located within this region. It is the only source of freshwater in many parts of inland Australia. It provides water for irrigation, livestock and domestic use. The figure on the next page shows a generalised cross-section of the Great Artesian Basin.

An artesian basin is a reservoir made up of a layer of pervious rock sandwiched between layers of impervious rock.



An artesian bore in the Great Artesian Basin

The **potentiometric surface** is the level to which water rises in a well. In a confined aquifer, this **surface** is above the top of the aquifer unit, whereas in an unconfined aquifer, it is the same as the water table.



Generalised cross-section of the Great Artesian Basin

Artesian well

Artesian wells are deep-drilled wells through which water is forced upward under pressure. The water in an artesian well flows from an aquifer, which is a layer of very porous rock or sediment, usually sandstone, capable of holding and transmitting large quantities of water. The geologic conditions necessary for an artesian well are:

- An inclined aquifer sandwiched between impervious rock layers above and below, that trap water in it.
- Water enters the exposed edge of the aquifer at a high elevation and percolates downward through interconnected pore spaces.

- The water held in these spaces is under pressure because of the weight of the water in the portion of the aquifer above it.
- If a well is drilled from the land surface through the overlying impervious layer into the aquifer, this pressure will cause the water to rise in the well.

In areas where the slope of the aquifer is great enough, pressure will drive the water above ground level in a spectacular, permanent fountain. **Artesian springs** can occur in a similar fashion, where faults or cracks in the overlying impervious layer allow water to flow upward. Water from an artesian well or spring is usually cold and free of organic contaminants, making it fit for drinking.

The Lake Eyre Basin

It is one of the largest endorheic (inland) basins of the world and lies to the south of the Carpentaria Lowlands. The southern

part of this basin is around 16 m (62ft.) below sea level, making it the lowest point of the continent.



Lake Eyre Basin

Being an inland basin which experiences intermittent rainfall, it usually consists of thick layers of salt. Being a dry and arid region, the rate of evaporation here is very high. Hence, thick layers of salt (salt pans) and vast stretches of desert (like Tirari Desert) have resulted.

The Murray-Darling Basin

Located in the southeastern part of the continent, the Murray-Darling Basin covers around 14 per cent of Australian land area. The region is drained by the Murray and the Darling rivers.



Aerial view of a portion in New South Wales of the Murray–Darling basin

The region is a flat, low-lying area consisting of 40 per cent of all Australian farms, which produce wheat, wool, cotton, sheep and dairy products, rice, fruits and vegetables. The region produces one-third of Australia's total agricultural produce.

The rivers in this region are long and slow-flowing as they meander across the

vast plains. The major rivers found here are the Darling river (1,472 km), the Murray river (2,508 km) and the Murrumbidgee River (1,485 km). The Murray is the longest river in Australia.

The basin supports a wide range of estuarine floodplains and wetland environments, along with agriculture, tourism and industries.

ACTIVITY

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Find out the states and territories that the Murray-Darling Basin covers.

The Western Plateau

The Western Plateau, also known as the Australian Shield, is composed of the oldest rocks of the Earth, belonging to the Gondwana Age. Geologically, it is as old as the Deccan Peninsular plateau of India.

In terms of area, it is spread over 2.7 million square kilometres, covering large parts of western Australia, south Australia and Northern Territory.

Some important features of the plateau are:

- It has an average elevation between 305 m and 460 m.
- It is made up of ancient crystalline and volcanic rocks, which are between 2.8 billion and 3.5 billion years old. In some places, younger sedimentary rock layers are also found.
- Its surface is rugged and undulating, consisting of uplands, lowlands and basins.
- Lowlands are mainly desert or semi-desert areas, like the Gibson Desert, the Great Sandy Desert and the Victorian Desert.
- The uplands include the MacDonnell Range, the Musgrave Range, the Darling

Range and the Hamersley Range.

- Central Australia comprises a series of 'tors' or isolated outcrops of weathered rocks.

The most spectacular formation is the **Uluru** or **Ayers Rock**, which is one of the largest monoliths of the world. It is also called the 'Great Pebble'. It is oval in shape and is 348 metres in altitude. The rock is primarily composed of arkosic sandstone, which contains a high proportion of feldspar. The rock changes colour according to the position of the Sun. For instance, it appears glowing red at dawn and sunset. The Ayers/Uluru Rock is a World Heritage Site, and one of Australia's most recognisable natural landmarks.



The Ayers Rock

Lying 32 kms northwest of Uluru are the **Olgas**, which is a group of tors (isolated weathered rocks). All these are found in Uluru-Kata Tjuta National Park. **Mount Olga** (1,066 m) is the highest point of Kata Tjuta.



The Kata Tjuta Rock

The Coastal Plains

The coastal plains are flat, low-lying areas of land near oceans. These provide a suitable environment for the development

of a variety of species. The coastal plains of Australia can be divided into the **Eastern Coastal Plain**, the **Western Coastal Plain** and the **Nullarbor Plain**.

The Eastern Coastal Plain

It is a narrow, low-lying stretch of land running between the Eastern Highlands to the west and the Pacific Coast to the east. It is 200 km wide and 300 km in length. The region is drained by many rivers flowing down the eastern slope of the Great Dividing Range. The region is densely populated, with farming, tourism and overseas navigation being the main occupations. Off the shore of Port Campbell National Park, in the state of Victoria, are a collection of limestone stacks, in proximity to one another. These are popularly known as the **Twelve Apostles**. However, due to constant erosion, only eight of these are now left.



The Twelve Apostles

The Western Coastal Plain

It is located between the coastline of the Indian Ocean and the Western Plateau. This plain is narrow and discontinuous, but extremely dry. Hence, agriculture is not possible here.

The Nullarbor Plain

The word Nullarbor is derived from the Latin terms 'null' meaning 'no' and 'arbor' meaning 'tree'. It is a flat, gently undulating, treeless lowland bordering the Great Australian Bight coastline in southern Australia. At its widest, it is 1,100 km wide. It is made up of limestone rocks. The plains are believed to have extensive meteorite deposits, which have been preserved due to its climate.

The Trans-Australian Railway line connects Kalgoorlie to Port Augusta through these plains.

The Great Barrier Reef

The Great Barrier Reef, located in the Coral Sea, off the coast of Queensland in northeastern Australia, is the world's largest coral reef system. It is composed of over 2,900 individual reefs and 900 islands. Spread across an area of approximately 344,400 km², the Great Barrier Reef is the largest living structure on Earth, and even visible from outer space. It is built by small organisms known as coral polyps.



Aerial view of the Great Barrier Reef

The Reef is recognised as a World Heritage Site, since it supports diverse flora and fauna. It is home to the world's largest collection of coral reefs, with 400 types of coral, 1,500 species of fish and 4,000 types of molluscs. It is also the habitat of endangered animal species like dugong or the sea cow, and the large green turtle.

Case Study: Sheep Rearing in Australia

Australia is the largest producer of wool, accounting for about 32 per cent of the world's wool production. Sheep rearing is a part of livestock rearing in Australia. It is the practice of raising and breeding domestic sheep for meat, milk and wool, and for sheep skin and parchment.

Australia is well-known for its high-quality wool obtained from merino sheep. The merino sheep comprises the majority of the national sheep population. This breed is known for its high-volume yield and fibre quality.

Sheep rearing industry is a major revenue generator in Australia. It is widely practised

across the continent. The major sheep rearing states in Australia are New South Wales, South Australia, Queensland and Western Australia.

Sheep rearing is best practiced in cool temperate climate, with high rainfall, and pastoral vegetation comprising of short grass. The two main products of sheep rearing are wool and meat, which form the basis of the woollen textile and food processing industries, respectively.

Despite its contribution to the economy of Australia, the wool industry faces multiple challenges of land degradation, loss of wildlife habitat and soil erosion.



Australian Merino sheep

Australian Sheep Farms

Sheep farms in Australia are called sheep stations. Each sheep station is divided into large sections called **paddocks** for the purpose of processing. A sheep farm is usually spread over a large area of over

7,500 hectares. Each sheep station comprises large pasturelands of alfalfa grass, used to feed the sheep. The sheep are herded to the pastures with the help of Border Collie dogs.

Sheep stations are maintained by farm owners and their families. They are often assisted by skilled workers as trainees, to gain practical experience. They are known as jackaroos (for males) or jillaroos (for females).

Sheep Shearing

The sheep are sheared in summers, when their fleece grows thick. They are sheared with electronic shearing machines. The farm workers clean, sort and bundle the fleece. It is then dispatched for sale to markets, mainly in Sydney and Melbourne, where it is purchased in bulk.

AT A GLANCE

Australia			
Location	Boundaries	Political Divisions	Major Physical Features
<p>It is located entirely in the southern hemisphere.</p> <p>The Tropic of Capricorn passes almost mid-way through it.</p> <p>It comprises the mainland of the Australian continent, the island of Tasmania and many smaller islands.</p>	<p>It is bounded by the South Pacific Ocean in the east, the Indian Ocean in the west, the Arafura Sea in the north and the Southern Ocean in the south.</p>	<p>Australian states are Western Australia, South Australia, Queensland, New South Wales, Victoria and Tasmania.</p> <p>The federal territories are Northern Territory and Australian Capital Territory.</p>	<p>The major physical features of Australia are the Eastern Highlands, the Central Lowlands, the Western Plateau, the Coastal Plains and the Great Barrier Reef.</p>



EXERCISE



INT



A. Fill in the blanks.

1. The capital of Australia is _____.
2. The _____ is the longest mountain range of Australia.
3. The _____ is the world's largest inland drainage basin.
4. Mount _____ is the highest point of the Kata Tjuta.
5. The _____ plain is composed of limestone.

INT



B. Choose the correct answer.

1. Which is the largest city of Australia?
 Canberra Hobart
 Sydney Darwin
2. What is the capital of Victoria?
 Brisbane Perth
 Melbourne Adelaide
3. What is the highest peak of the Eastern Highlands?
 Mount Kosciuszko Mount Augustus
 Mount Woodroffe Mount Bruce
4. Which basin is located in the Carpentaria Lowlands?
 The Great Artesian Basin The Murray-Darling Basin
 The Lake Eyre Basin The Copper River Basin
5. Where is the Kata Tjuta rock located?
 The Eastern Highlands The Great Barrier Reef
 The Western Plateau The Central Lowlands

C. Match the following.

State		Capital	
1.	Western Australia	a.	Hobart
2.	South Australia	b.	Brisbane
3.	Queensland	c.	Adelaide
4.	New South Wales	d.	Perth
5.	Tasmania	e.	Sydney

INT



D. State whether true or false.

1. The island of Tasmania is named after Dutch sailor Abel Tasman.
2. An artesian basin is made up of a layer of pervious rock sandwiched between layers of impervious rock.
3. The Darling River is the longest in Australia.
4. The Nullarbor Plains has lush vegetation.
5. The male skilled workers at Australian sheep farms are known as jackaroos.

INT



E. Answer in one or two sentences.

1. Why is Australia referred to as the 'island continent'?
2. Name the neighbouring countries of Australia.
3. What are the important mountain peaks in the Western Plateau?
4. What are the Twelve Apostles?
5. Which breed of sheep is reared for wool in Australia? What are the major sheep-rearing states in Australia?

F. Answer in a paragraph or two.

1. Describe the important characteristics of the Eastern Highlands.
2. What are the geographical conditions essential for the formation of artesian wells?
3. Explain the extent and features of the Western and Nullarbor Coastal plains.
4. What is the Great Barrier Reef? Which species are found in the Great Barrier Reef?
5. Write a note on the Ayers rock.



Map work

Mark and label the following on the map of Australia.

1. The longest mountain range of Australia
2. The longest river in Australia
3. The plateau that is as old as the Deccan peninsular plateau of India
4. The plain that borders the western coast of Australia
5. The world's biggest structure made by living organisms



Since its separation from Gondwana 99 million years ago, Australia exists in a geographic isolation. This has significantly affected the evolution of Australian fauna. In Australia, there are a number of animal species that are unique to this land. The continent shows the lack of native placental mammals. Marsupial mammals that raise their young in a pouch are the dominant mammalian group. Describe the features of the Tasmanian tiger, that was once the top predator in Australia.



Life Skills

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environmental literacy

Information literacy

The Great Barrier Reef is a popular destination for tourists. It helps Australia to generate over AUD 3 billion of income annually. However, environmental threats such as climate change, pollution and fishing, have negatively affected the health of the reef.

List the different conservation efforts that the Government of Australia has launched to protect the Great Barrier Reef.



Project



respect for diversity and the local context

21st

Information literacy



- A. Aboriginal people have been living in Australia for more than 50,000 years. Find out more about their habitat, culture and history and how they are coexisting, despite wide disparities between them and non-Aboriginal Australians in areas such as education, housing, health and employment.
- B. Mark and label any two states on a political map of Australia.
- C. Mark and label any two physical divisions on a physical map of Australia.