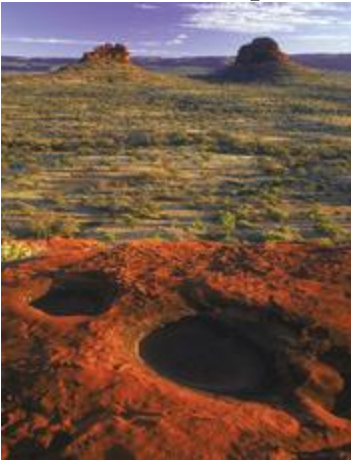


Chapter 33: Absolute and Relative Location- What Makes Australia Unique?



1. Introduction

Try to picture how Australia must have looked to European explorers when they first arrived on that continent more than 200 years ago. It probably seemed a very odd place. Winter came in July, and summer heat peaked in January. Animals were hopping around, carrying their young in pouches. The land was generally flat and very dry. Even the patterns of the stars in the night sky looked strange.

As you have read, the **absolute location** of a place describes its exact position on Earth. Canberra, the capital of Australia, is located at 35°S latitude and 149°E longitude. The letters S and E refer to **hemispheres**. The latitude reveals to us that the city of Canberra is in the Southern Hemisphere. This location explains why the seasons in Australia are the opposite of those in the United States. The longitude tells us that Canberra is in the Eastern Hemisphere, which means that it is on the opposite side of the world from the United States.

In contrast, the **relative location** of a place describes where it is in relation to other places. Relative location can affect a country's history and way of life in unexpected ways. Australia's nearest neighbors are South Pacific islands, but its language and culture came from quite far away: Great Britain.

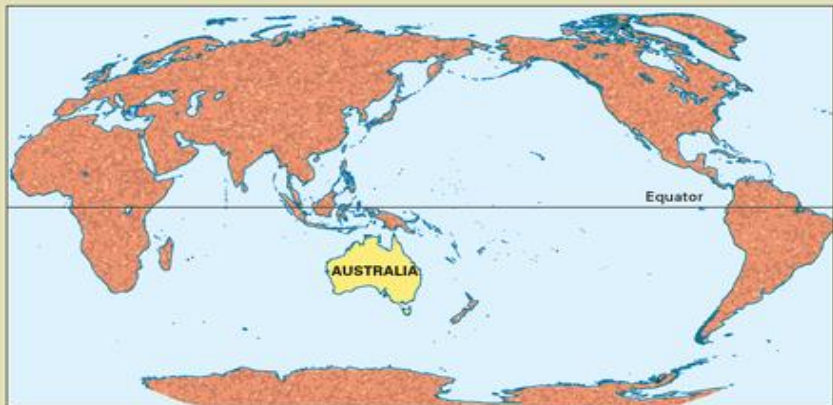
In this chapter, you will learn how Australia's location has shaped life there. You will also explore how location has helped make Australia such an interesting place to live and to visit.

Essential Question

How does a country's location shape life within its borders?

This map puts Australia at the center of the world. It is colored yellow to make it stand out. Notice where Australia is relative to the equator. Also notice how far it is from the other continents. Keep this map in mind as you try to answer the Essential Question.

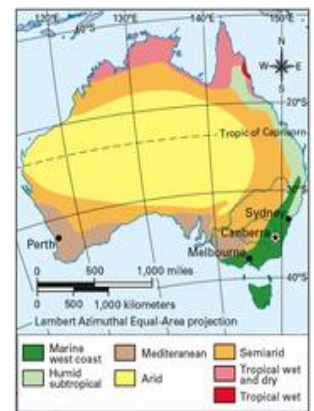
Graphic Organizer



2. The Geographic Setting

Australia is the only country that is also a continent. It is set off from the rest of the world by the vast Pacific and Indian oceans. Australia gets its name from the Latin word *australis*, which means “southern.” Australians also call their country “Down Under” because on maps it lies “under” the equator.

Australia is not quite as large as the United States. Much of it is **desert**, and only the continent of Antarctica is more **arid**. It also has one of the most diverse collections of **flora** and **fauna** in the world. Scientists trace the origins of these unusual plants and animals to Australia's formation as a continent.



How Australia Drifted “Down Under”

Scientists hypothesize that Earth did not always have seven continents. About 200 million years ago, all of the land on Earth was joined together in one huge **supercontinent**. Over time, this enormous **landmass** broke apart into a number of **tectonic plates**, which eventually formed the continents we know today. Australia reached its present location after drifting northward for many millions of years.

This **continental drift theory** is based on the theories of a German geographer named Alfred Wegener. He called his supercontinent Pangaea, which is a Greek word that means “all lands.” Geographers tell us that the continents are still drifting today, with their average rate of movement being less than an inch a year.

Australia's Biodiversity: From Koalas to Kookaburras

One of the first Europeans to study Australia's unusual flora and fauna was a botanist named Joseph Banks. A botanist is a scientist who studies plants. Banks was surprised to find species, or types, of flora and fauna that he had never seen before. One was the small, furry koala, and another was the kookaburra, a bird with a loud laughing call.

► Geotermis

continental drift theory the idea that continents are slowly drifting as the tectonic plates that they sit on move. This idea comes from Alfred Wegener, who proposed that Earth once had one giant supercontinent. This supercontinent broke apart into plates that have slowly drifted to their current locations.

endangered species animals or plants that are in danger of dying out in the immediate future

exotic species animals or plants that are brought into an area from somewhere else

native species animals or plants that occur naturally in an area

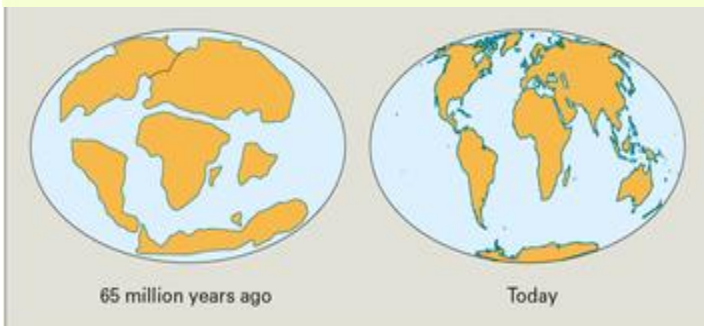
threatened species animals or plants that are likely to become endangered if not protected

The plants and animals that Banks found so surprising are Australia's **native species**, or species that are naturally found in an area. About 80 percent of the continent's plant and animal species are found nowhere else on Earth. This is because Australia broke away from other landmasses about 50 million years ago and slowly, over millions of years, drifted to its present location.

During that extremely long period of time, the plants and animals in Australia developed in isolation. And, until modern times, few species have arrived or have been brought from other continents to contribute to Australia's **biodiversity**.

In the 1800s, Australia became a colony of Great Britain. The colonists brought animals and plants from their homelands to Australia. These introduced plants and animals are called **exotic species**. Many of the imported species had few or no natural enemies in Australia, so their populations quickly multiplied.

In time, exotic species of animals began to compete with native species for food and territory. The result has been a growing number of endangered and threatened species. **Endangered species** are in immediate danger of dying out. **Threatened species** may become endangered if not protected.



3. A Land Far from Great Britain

Australia's first people, who are known as Aborigines, arrived in Australia more than 40,000 years ago. Their way of life may be the oldest culture in the world.

The Aborigines believe in a time long ago that they call the Dreamtime, a time before humans when spirits roamed Earth. These spirits formed the land and created people. They told humans how to keep the land alive. The Aborigines consider land to be sacred. When Europeans arrived much later, they saw the land differently, as something to be owned and used.

An Isolated Place to Send Prisoners

In 1770, a British sea captain named James Cook discovered Australia while exploring the South Pacific. Cook claimed the land for Great Britain. At that time, however, Great Britain was having trouble with its American colonies. Therefore, the British did nothing with Australia until after the Americans won their independence in 1783.

The loss of the American colonies created a problem for British prisons, most of which were overflowing with convicts. Some of these prisoners were criminals, but others were simply poor people who were unable to pay their debts. Until the Americans rebelled, the British government had reduced prison crowding by sending convicts to the American colonies. After 1783, this was no longer possible. Instead, the government decided to establish a prison colony in a place as far away as possible. That place was Australia.

In 1788, eleven ships from Great Britain arrived in Australia, carrying about 700 convicts. The ships also transported tools, sheep, cattle, and seeds. The convicts built Australia's first European settlement. Eventually, more than 160,000 convicts were sent there, until the practice was formally abolished in 1868.

The new colony grew slowly at first. The convicts supported themselves by farming. After being released from prison, many of them had been given land of their own to farm. Over time, free settlers from Europe also arrived in Australia. Then, in 1851, gold was discovered in the colony, and thousands of treasure hunters flooded in from all corners of the world.

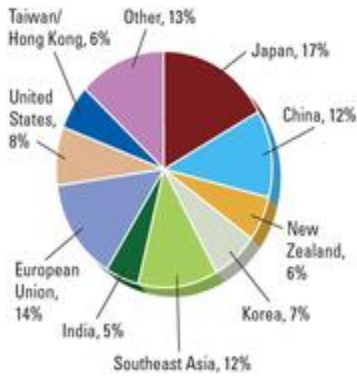
As more settlers came to Australia, Aborigines were often pushed off their land. Many of them also died of diseases that were brought by the Europeans, such as measles and influenza. At least 750,000 Aborigines were living in Australia when the Europeans arrived, but today there may be only about 400,000 Aborigines in the country.

British Influence in Australia Continues

In 1901, the people of Australia gained their independence. The country's new flag, however, showed that Australians still felt connected to Great Britain. In one corner of the Australian flag is a small copy of the "Union Jack," which is the British national flag.

Great Britain's influence is still strong today. English is the country's official language. Almost half of Australians claim British or Irish roots, and Australians still honor the British monarch. Finally, almost 10,000 Britons immigrate to Australia each year, knowing that they will feel right at home "Down Under."





4. New Relationships with Near Neighbors

After achieving their independence, Australians adopted a “white Australia” immigration policy. The purpose of that policy was to keep people of color from entering the country. Any person who wanted to immigrate had to pass a “dictation test.” An official read aloud a 50-word statement in a European language, and the prospective immigrant had to write it down word for word. Those who could not pass this test were turned away. This policy was effective in limiting immigration primarily to white Europeans.

Australia Opens Its Doors to the World

The “white Australia” policy ended in the 1970s. The country then opened its doors to immigrants from anywhere in the world. By 2008, more than 21 million people lived in Australia. About one of every four was born in another country.

Today Australia welcomes approximately 200,000 immigrants each year, with more than half of these newcomers arriving from Asia. People migrate to Australia for both push and pull reasons. Some immigrants are **refugees** who are fleeing wars. Others come seeking an education or a good job.

The opening of Australia to immigrants from the world over has transformed the country. People of color are no longer uncommon. Old ways of life have blended with new cultures. Sometimes this has led to tension between **ethnic groups**, but the main result has been the creation of a lively **plural society**.



New Trading Partners in the Asia-Pacific Region

A century ago, more than half of Australia's exports went to Great Britain. Today few exports head toward Europe.

The country now looks closer to home for trade because the cost of shipping goods to nearby countries is much less than shipping to Europe. By 1950, Japan was Australia's most important trade partner. In recent years, South Korea, China, and Taiwan have also increased their trade with Australia.



5. Australia's Reversed Seasons

Australians are celebrating the New Year. Bondi Beach, near the harbor city of Sydney, is packed with families lounging under beach umbrellas. The sky is a clear blue, and temperatures hover around 98°F. Surfers wait patiently for the next big wave while children make sandcastles on the beach. In the evening, families will picnic around Sydney Harbor while awaiting one of the world's great fireworks shows.

Sunny December in the Southern Hemisphere

As you recall, Australia is in the Southern Hemisphere. Its seasons are the opposite of those in the northern half of the world. Summer there starts in December and runs through March.

In Chapter 1, you learned that the seasons are caused by the tilt of Earth on its **axis**. Because of this tilt, the Southern Hemisphere receives more sunlight between the months of December and March. These are Australia's warm summer months. Those same months are the winter season north of the equator.

Seasonal Advantages of Living “Down Under”

December means bundling up for winter in much of the United States, but in Australia families are preparing to enjoy their summer vacation. Warm days and beautiful beaches attract tourists from north of the equator. In 2008, more than 5 million people vacationed in Australia, with many of them coming to escape winter where they live. The reversed seasons give Australians another advantage. Countries such as the United States and Japan import out-of-season flowers and fruits from Australia. Cherries, for example, are a summer fruit in the United States, but they ripen “Down Under” during December and January. Many other fruits are also harvested during these two months. These fruits are shipped to supermarkets north of the equator, enabling them to offer fresh produce all year.



6. Australia's Amazing Wildlife

Many unusual animals live in Australia. Miniature penguins waddle ashore each night after dark. The swans gliding across lakes are black, not white. Giant crocodiles are as much at home in the ocean as in **freshwater** ponds. You might even see a very odd animal that looks like a cross between a duck and a beaver. The fairy penguin, black swan, saltwater crocodile, and duck-billed platypus are just a few of the country's curious creatures.

Flora and Fauna Found Only in Australia

There are more than 13 million living species of plants and animals throughout the world. About one million species are found in Australia. Many of them exist nowhere else on Earth.

As you read, Australia was separated from the rest of the continents a very long time ago. Its plants and animals were isolated, developing without contact with other species elsewhere.

Within Australia, however, plants and animals have adapted to a wide variety of **climates**. In the hot and humid northeast, you might find the cassowary, a large flightless bird. The arid center of the country is a perfect place for red kangaroos. Kangaroos are marsupials, mammals that carry their young in pouches.

Exotic Species Endanger Many Native Species

Early settlers from Europe brought many plants and animals with them. One of the animals was the rabbit. Rabbits adapted easily to the new environment but have had a harmful effect on native species. As the rabbits multiplied, they consumed grasses that native animals needed to survive.

Exotic species have disturbed the natural environment in much of the country. As a result, some of the native species have disappeared. Other native species are in danger of becoming **extinct**. A small marsupial called the *bilby* is an example. Because of competition from rabbits, it may die out.

7. Living Under an Ozone Hole

Surf's up, mate! In December, Australia's beaches are usually crowded with sunbathers and surfers. It's a common sight to see young people grabbing surfboards and heading for the water. Today's surfers reach for something else as well: sunscreen. They know that because of a hole in Earth's **atmosphere**, they are at risk of getting more than sunburn at the beach.

Air Pollution Creates an Ozone Hole

Scientists divide Earth's atmosphere into layers. The lowest layer in the atmosphere contains the air we breathe. The next layer begins about six miles above the planet and contains a gas called *ozone*. You cannot see ozone, but without this gas there would be no life on Earth. Ozone prevents the ultraviolet (UV) rays from the sun from reaching Earth. Ultraviolet rays are harmful to living things. In humans, UV rays cause sunburn, eye disease, and skin cancer.

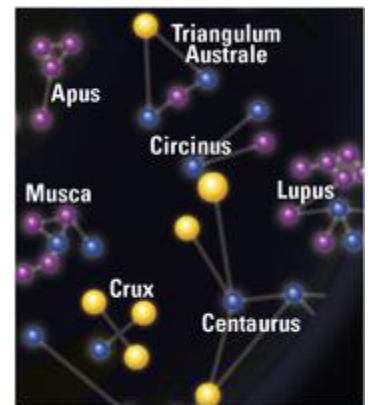
In 1985, scientists discovered that the ozone over the continent of Antarctica was thinning. They called this thin patch an **ozone hole**. At times, part of this ozone hole has moved north far enough to extend over nearby Australia. The loss of ozone in the atmosphere is caused mainly by chemicals known as *chlorofluorocarbons* (CFCs). When the ozone hole was discovered, CFCs were widely used in aerosol spray cans, refrigerators, and air conditioners. When released into the air, CFCs destroy ozone. Since 1985, atmospheric CFC levels have been reduced. As a result of this reduction, the ozone hole should slowly shrink. By 2050, it may be gone completely.

“Slip, Slop, Slap” to Prevent Skin Cancer

The thinning of the ozone layer has created health problems for Australians. They are used to sunbathing and enjoying outdoor activities, so they are often exposed to harmful rays from the sun. In recent years, skin cancer rates have risen sharply, and two out of three Australians are now likely to develop skin cancer in their lifetime. The Australian government is working to prevent new cases of cancer. Posters and advertisements advise Australians to “slip, slop, slap” before they venture out into the sun. This slogan is telling them to “slip” on a shirt, “slop” on some sunscreen, and “slap” on a hat to protect their skin. There are also “no-hat, play-in-the-shade” rules at schools. Students are not allowed outside to play if they are not wearing a hat.

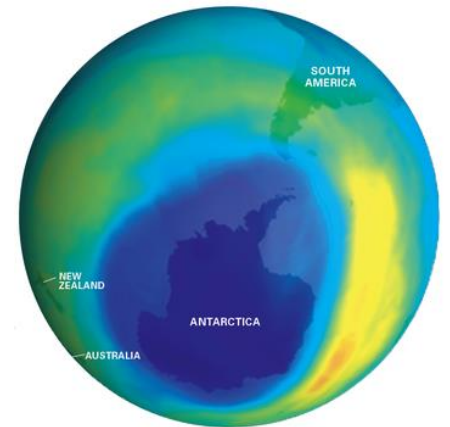
8. Australia's Night Sky

Robert Evans, a retired minister, is an expert on Australia's night sky. With the help of a tiny 16-inch telescope, he has spotted 39 supernovas. A supernova is the explosion of a large star like our sun. Despite having much more powerful telescopes, many professional astronomers have not caught a glimpse of even a single exploding star. How has Evans been able to observe what so many astronomers have missed? His location gives him a significant advantage, because the Australian night sky is clear most of the year.



A Starry Symbol: The Southern Cross

The night sky as seen from the South Pole looks quite different from the view at the North Pole. There are several constellations, or groups of stars, that are visible only in the Southern Hemisphere. One of these constellations is called the Southern Cross, or Crux. Since ancient times, its bright stars have been invaluable to sailors, who have used the Crux to find their way in the South Pacific.



Summary - Beginning to Think Globally

In this chapter, you learned what effects location has had on shaping life in Australia. You read that this island continent drifted to its current location millions of years ago and that it has been isolated there ever since. You also learned about some of the unusual animals that are unique to Australia. You discovered that some of these native species are being threatened by exotic species that were introduced by colonists and, as a result, that some natives have become threatened species. Those most at risk are endangered species. If they are not protected, they are likely to disappear altogether.

Australia is not the only country that has threatened flora and fauna species. The World Conservation Union maintains a list of threatened species around the world. These are plants and animals that are likely to disappear if they are not protected. By 2008, the number of species on that list had increased to almost 17,000. Think about this as you examine the world map in the next section that shows where threatened animals are located.



Global Connections

The map shows the locations of threatened animal species around the world. If nothing is done to protect these species, they could soon become endangered. This means they are in danger of rapid extinction. When a species becomes extinct, it is lost to the world forever.



What do the areas with most of the threatened species have in common?

Tropical **regions** are “hot spots” for threatened species. Because of their absolute location near the equator, these areas can support great biodiversity—which means that tropical regions also have the most species to lose. Islands are also at great risk of losing species. Between the years 1500 and 2000, most extinctions took place on islands. Since 2000, however, about half of all extinctions occurred on continents.



What factors pose the greatest dangers to threatened species?

In the past, exotic species posed the greatest risk to native plants and animals. This was especially true on islands and in isolated locations such as Australia. Today, however, habitat loss is the greatest danger facing most animals. More than 6 billion people live on Earth, and the human population is growing by 85 million each year. As humans take over more and more land, animals are crowded out.



How does relative location affect a species' chances of survival?

Animals that live far from human settlements generally have the best chances of survival. Such places tend to be too hot, dry, cold, or high for people to live in large numbers. In northern Russia, for example, there is only about one person per square mile. This leaves a lot of habitat for wolves, reindeer, and other animals.



Black Rhinoceros

Where threatened:
Africa

Estimated population:
4,200



Long-beaked Echidna

Where threatened:
New Guinea

Estimated population:
less than 300,000



Giant Panda

Where threatened:
China

Estimated population:
less than 2,500