The Physical Geography of Australia, Oceania, and Antarctica
Chapter Objectives

- Describe the diverse landforms and natural resources of Australia, Oceania, and Antarctica.
- Discuss the wide range of climates and vegetation throughout the region.
The Land

Section 1
Objectives

• Describe how mountains, plateaus, and lowlands differ in Australia and New Zealand.
• Explain how volcanoes and continental shelves formed the islands of Oceania
• Discuss why the physical geography of Antarctica attracts scientists
Terms to Know

- artesian well
- coral
- atoll
- krill
- lagoon
A Geographic View

Termite mound, Australia
Geographic Literacy

- Rock climbing and mountain climbing are popular sports in Australia, even though most of the landscape is flat. The Great Dividing Range and the craggy island of Tasmania, among other places, provide many climbing opportunities. Even the city of Sydney boasts a rock climbing club and over 140 crags in its immediate area, ranging from breathtaking ocean cliffs to crags tucked into the suburbs. Within a two-hour drive of the city are more spectacular world-class climbing locations such as the Blue Mountains, Nowra, and Point Perpendicular.
Australia: A Continent and a Country

- Australia is the only country in the world that covers an entire continent. Surrounded by water, Australia is really an island, but it is called a continent because of its tremendous size.
- **Mountains and Plateaus** The Great Dividing Range is a chain of hills and mountains along the eastern coast of Australia’s otherwise flat landscape.
- The Western Plateau, or outback, covers almost two-thirds of the continent.
- This area includes three deserts.
- South of the deserts lies the barren Nullarbor (“no tree”) Plain, which ends in cliffs overlooking the Indian Ocean.
Australia: A Continent and a Country
Australia: A Continent and a Country (cont.)

- **Central Lowlands** This expanse of grassland and desert separates the Great Dividing Range from the Western Plateau.
- Infrequent rains are heavy and fill the area’s usually dry lakes and rivers.
- Below the surface lies the Great Artesian Basin, a source of underground water that ranchers use for livestock.
- **Great Barrier Reef** Lying off the eastern coast of Australia, this string of about 2,500 coral reefs has been designated a national park and World Heritage Site.
- The Great Barrier Reef provides a home for many species of tropical fish and sea creatures.
Australia: A Continent and a Country (cont.)

- **Natural Resources**  Only 10 percent of Australian land is arable, but farmers use their resources efficiently.
- The country’s major agricultural crops are wheat, barley, fruit, and sugarcane.
- Arid areas are home to a livestock-ranching industry.
- Mineral resources include bauxite, coal, iron ore, lead, zinc, gold, nickel, and petroleum.
- Australia is also a major producer of opals.
Oceania: Island Lands

- Oceania is a group of thousands of islands, some separated by great distances, that were formed by colliding tectonic plates millions of years ago.

- Island Clusters  The three main island clusters are Melanesia to the north and east of Australia; Micronesia to the north of Melanesia; and Polynesia, extending from Midway Island to New Zealand.

- Island Types  High islands such as Fiji and Tahiti feature volcanic mountains, some still active, and coastal plains.
Oceania: Island Lands

• Low islands such as the Marshall Islands are atolls—each a ring of land around a lagoon, the result of the buildup of coral reefs on a submerged volcano.

• Continental islands include Papua New Guinea and New Caledonia.

• They feature rugged interior mountains and plains, swamps, and rivers along coastal areas.
Oceania: Island Lands
New Zealand: A Rugged Landscape

• New Zealand’s two largest islands are called North Island and South Island.
• Both islands feature mountains, fertile soil, sparkling lakes, and scenic coastlines.
• North Island includes hot springs and active volcanoes.
• South Island features the Southern Alps and the fertile Canterbury Plains.
• About 55 percent of New Zealand’s land supports crops and livestock.
• The country’s sheep and wool products dominate exports, and its forests yield valuable timber.
• Most power is hydroelectric or geothermal (from water heated underground by volcanoes).
• Several varieties of fish populate the coastal waters.
New Zealand: A Rugged Landscape
Antarctica: A White Plateau

- Antarctica is twice the size of Australia.
- About 98 percent of Antarctica is covered by a massive ice cap that holds 70 percent of the world’s freshwater.
- Activity on Antarctica is limited to scientific research.
- Fishing boats sail coastal waters to harvest krill, a plentiful and protein-rich sea creature that may help alleviate world hunger.
Climate and Vegetation

Section 2
Objectives

- Examine how variations in rainfall affect Australia’s climate and vegetation
- Consider how elevation affects climate patterns in New Zealand.
- Identify what vegetation survives in the cold, dry Antarctic climate
Terms to Know

- wattle
- doldrums
- typhoon
- manuka
- lichen
- crevasse
A Geographic View

Ice shelf, Antarctica
Eucalyptus trees are impressive in size, growing as tall as 300 feet (90 m) in their natural habitat of Australia. Aborigines have used the oil from eucalyptus leaves as an antiseptic to prevent infections and reduce fevers. Europeans began harvesting eucalyptus trees in the 1850s. By the early 1900s, Australia monopolized world trade in eucalyptus oil, used as a medicine (inhalant, antiseptic), in industry (oils, solvents), and in flavorings and perfumes. Today Australia exports only about 5 to 10 percent of the oil on the world market; China dominates production because of its low labor costs.
Australia

- The Western Plateau is scorched by the sun during the day, but temperatures are much colder after dark.
- The area receives less than 10 inches (25 cm) of rain annually, and its sparse vegetation does not support grazing.
- The steppe climate in the area around the desert features more rainfall, so there is more vegetation.
- Annual rainfall during the wet season is between 10 and 20 inches (between 25 and 51 cm).
- The area is ideal for grazing and can support some agriculture.
- Coastal areas of Australia have moister climates.
- These areas include most of the country’s farmland.
Oceania

- Most of Oceania features a tropical rain forest climate.
- Temperatures are always warm except on some high mountain peaks, where the snow never melts.
- Seasons alternate between wet and dry.
- High islands get a lot of rain; low islands get very little. Oceania is vulnerable to typhoons.
New Zealand: A Rugged Landscape

- New Zealand has a marine west coast climate, with cool summers and mild winters.
- and sunny in summer, but mountaintops may be covered with snow year-round.
- New Zealand averages 25 to 60 inches (64 to 152 cm) of rain yearly, but South Island’s Southern Alps receive as much as 315 inches (800 cm) annually.
New Zealand: A Rugged Landscape
Antarctica

- Antarctica is the world’s highest, driest, coldest, and windiest continent.
- Temperatures may drop to −129°F (−89°C) in winter.
- Snowfall varies from 2 to 24 inches (5 to 61 cm) annually.
- Only the hardiest vegetation survives in Antarctica—mosses, algae, and lichens.
- A small area on the Antarctic Peninsula, which is warmer than the rest of the continent, is home to Antarctica’s only two species of flowering plants.
- Antarctica’s ice cap is frozen, but its weight causes it to move toward the coasts.
- As it moves, the ice breaks into pieces.
Section 1 - Summary

• Australia, both a country and a continent, encompasses mountains, central lowlands, and expansive deserts. Rich mineral deposits and productive farms and ranches contribute to the Australian economy.

• Oceania’s thousands of islands extend across the southern Pacific Ocean. The islands of Oceania were formed either directly or indirectly by volcanic activity.

• New Zealand’s main features are two large islands with mountain ranges, rivers, and lakes. The country boasts rich soil and timberland.

• Antarctica is an ice-covered continent. While Antarctica may have important mineral resources, its key resource is the information it offers to scientists.
Section 2 - Summary

- Australia generally has a hot, dry climate. Along the edges of the vast interior desert, the steppe receives sufficient rainfall for raising livestock. Only the coastal climates provide enough rainfall for growing crops without irrigation.
- Oceania enjoys a warm, moist tropical climate. Most islands have wet and dry seasons. The amount of rain during the wet season determines whether shrubs and grasses or dense rain forests will grow.
- New Zealand’s marine west coast climate provides year-round rainfall, with temperatures that vary without being extreme.
- Antarctica’s extremely cold and windy climate supports primarily lichens and mosses.