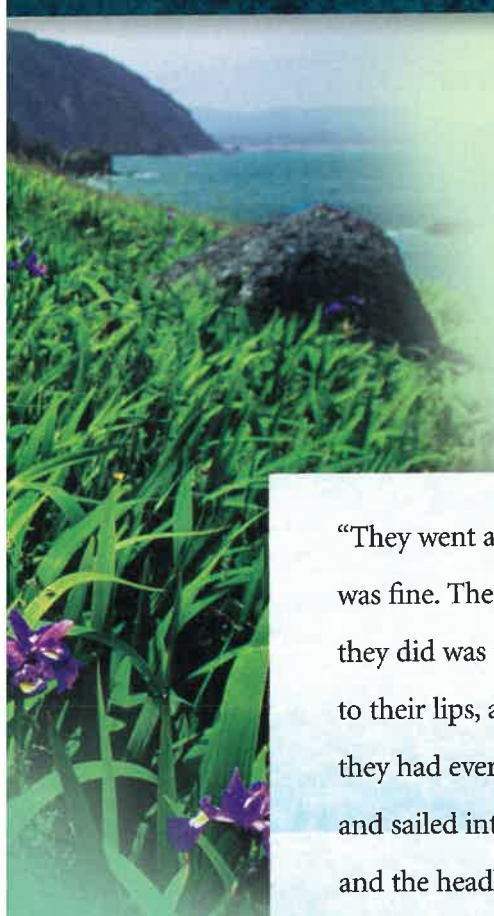
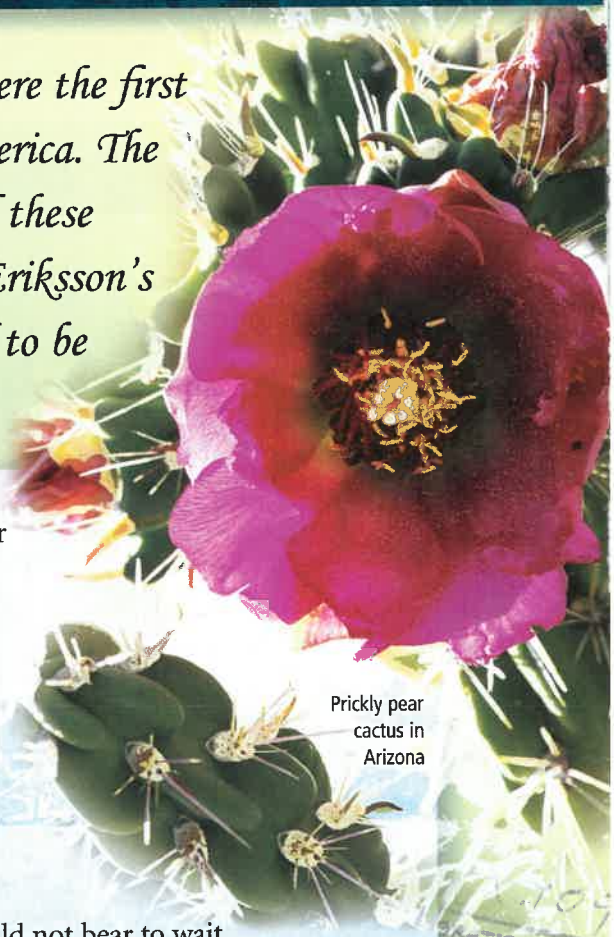
CHAPTER 7

Natural Environments of North America

Historians think the Norse were the first Europeans to visit North America. The "Groenlendinga Saga" tells of these explorations, including Leif Eriksson's voyage to Vinland—believed to be what is now Newfoundland.



Irises in Newfoundland, Canada



Prickly pear cactus in Arizona

"They went ashore and looked about them. The weather was fine. There was dew on the grass, and the first thing they did was to get some of it on their hands and put it to their lips, and to them it seemed the sweetest thing they had ever tasted. Then they went back to their ship and sailed into the sound that lay between the island and the headland jutting out to the north.

. . . But they were so impatient to land that they could not bear to wait for the rising tide to float the ship; they ran ashore to a place where a river flowed out of a lake. . . . Then they decided to winter there, and built some large houses.

There was no lack of salmon in the river or the lake, bigger salmon than they had ever seen. The country seemed to them so kind that no winter fodder would be needed for livestock: there was never any frost all winter and the grass hardly withered at all.

In this country, night and day were of more even length than in either Greenland or Iceland: on the shortest day of the year, the sun was already up by 9 A.M. and did not set until after 3 P.M."

Black bear in Alaska

Section 1

Physical Features

HOLT
Geography's Impact Video Series
Watch the video to understand the impact of wetlands on the environment.

READ TO DISCOVER

1. What are the major landform regions in the United States and Canada?
2. What rivers and lakes are found in the region?

Reading Strategy

READING ORGANIZER Before you read this section, draw a concept map (a circle with rays that attach smaller circles). In the large circle write Physical Features of North America. As you read, write in the smaller circles the information you learn about the physical features of North America. Include key terms and their definitions.

IDENTIFY

Continental Divide

DEFINE

barrier islands
piedmont
fall line
basins
hot spot

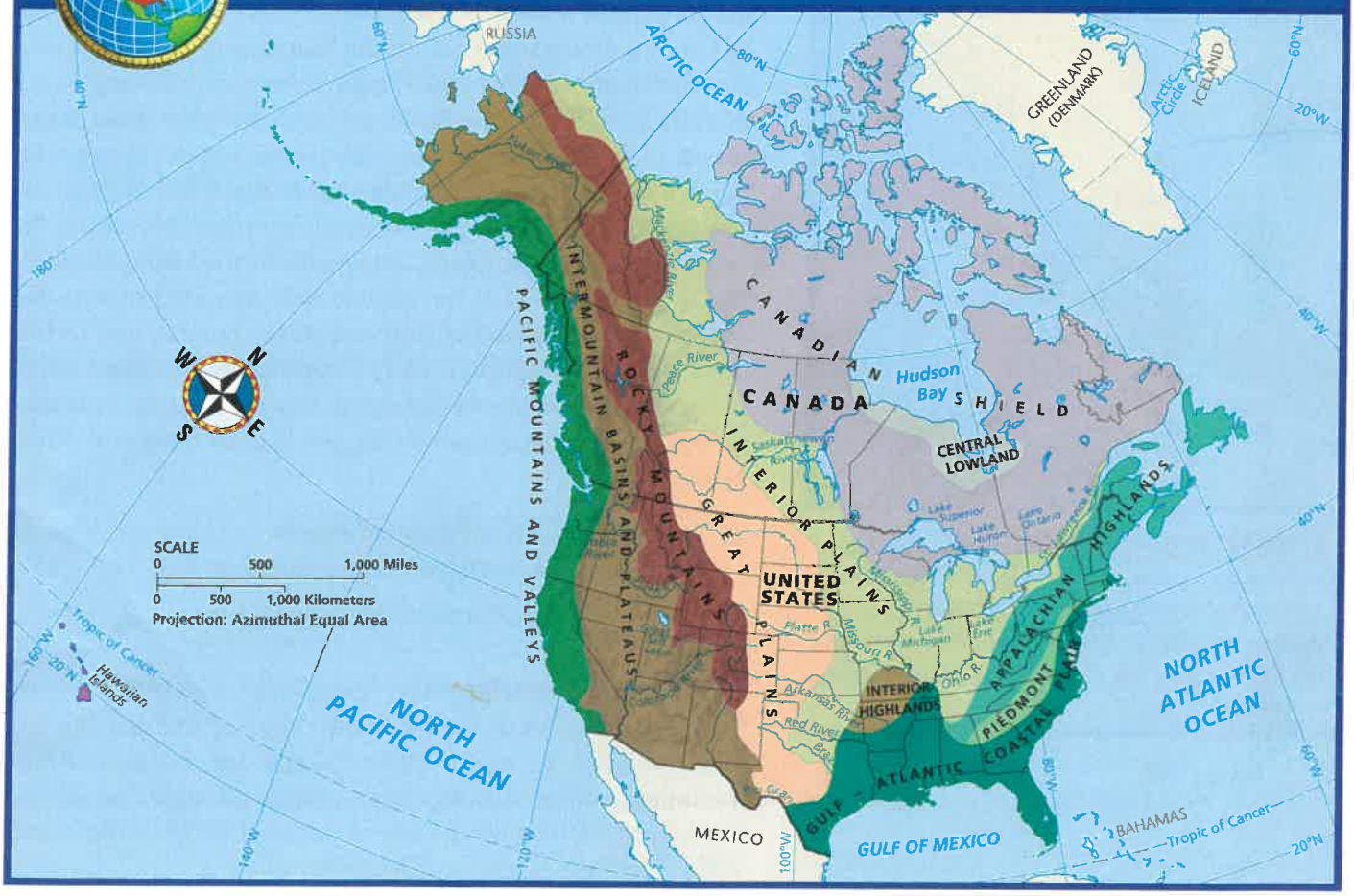
LOCATE

Piedmont
Appalachian Mountains

Locate, continued

Rocky Mountains
Mississippi River
Great Lakes
Great Plains
Canadian Shield
Hudson Bay
Cascade Range
Sierra Nevada
Coast Ranges
St. Lawrence River

Physical Regions of the United States and Canada



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KEYWORD: SW3 CH7
FOR: Web sites about natural environments of North America

Landforms

The United States and Canada make up about 80 percent of the continent of North America. These two countries have some of the world's most spectacular scenery. Landforms range from vast plains to high mountains, plateaus, and volcanic islands. Most major landform regions stretch from north to south across both countries. (See the chapter map.) The landforms of the eastern half of the United States and Canada are older than those of the western half. Eastern mountains have been eroded, and rolling hills and flatlands cover most of the region. In contrast, the west has a younger landscape. There you will find steep mountains, active volcanoes, deep canyons, and high plateaus.

A long coastal plain stretches along the Atlantic Ocean and Gulf of Mexico from New England to Mexico. This low plain lies close to sea level and rises gradually inland. It is narrowest along the northern Atlantic coast but widens south of New York. Along some parts of the coastal plain, **barrier islands** have formed. Ocean waves and currents create these long narrow islands by depositing sand in shallow water.

Inland from the coastal plain lies the Piedmont, an upland region. A **piedmont** is an area at or near the foot of a mountain region. The Piedmont stretches from New Jersey to Alabama.

The Fall Line

INTERPRETING THE MAP *Most cities on the fall line, including the ones shown on this map, mark the head of navigation on rivers. The head of navigation is the point that most ships are not able to sail past.* ***What economic activities do you think these cities were established to provide?***

FOCUS ON GEOGRAPHY

The Fall Line The boundary between the Piedmont and the coastal plain is known as a **fall line**. This natural boundary has had an important influence on the historical geography of settlements in the eastern United States. River waters flowing down from the hard rock of the Piedmont reach the softer rocks of the coastal plain along the fall line. Here these waters plunge over rapids and waterfalls. Early settlers noted that small ships could easily reach the fall line from the ocean but could not sail past it. Partly as a result, many early settlements formed along the line. The tumbling waters of the fall line were also used to turn the waterwheels that powered early industries. Lumber and textile mills were two important early industries here. Inland ports along the fall line, like Philadelphia, Pennsylvania, became important transportation points for goods from these and other industries.

READING CHECK: ***Places and Regions*** Why were many settlements in the eastern United States founded along the fall line?

The East and Interior The Appalachian Mountains rise to the west and north of the Piedmont. The Appalachians stretch from Alabama to southeastern Canada and include several mountain ranges. Among these ranges are the Blue Ridge, Catskill, and Green Mountains. A series of parallel ridges and valleys form the eastern Appalachians.

The collision of eastern North America with Africa more than 300 million years ago created the Appalachians. Erosion has since lowered and smoothed the peaks of these mountains. The highest peaks rise to just above 6,000 feet (1,829 m).

Between the Appalachians and the Rocky Mountains lie the vast interior plains. The Mississippi River and its many tributaries drain most of this region. Glaciers covered the northern interior plains, north of the Ohio and Missouri Rivers, during the last ice age. Today you will find thousands of lakes there, including the Great Lakes. This area has rolling hills, many river systems, and productive soils. The interior plains partly surround a highland region in Missouri, Arkansas, and Oklahoma. Like the Appalachians, these interior highlands are a region of old eroded uplands. They include the Ozark Plateau. Farther west are the Great Plains, a subregion of the interior plains. The Great Plains stretch from south-central Canada into Texas and Mexico and reach to the eastern edge of the Rocky Mountains. Elevations along this edge of the Great Plains reach more than 5,000 feet (1,524 m) above sea level.

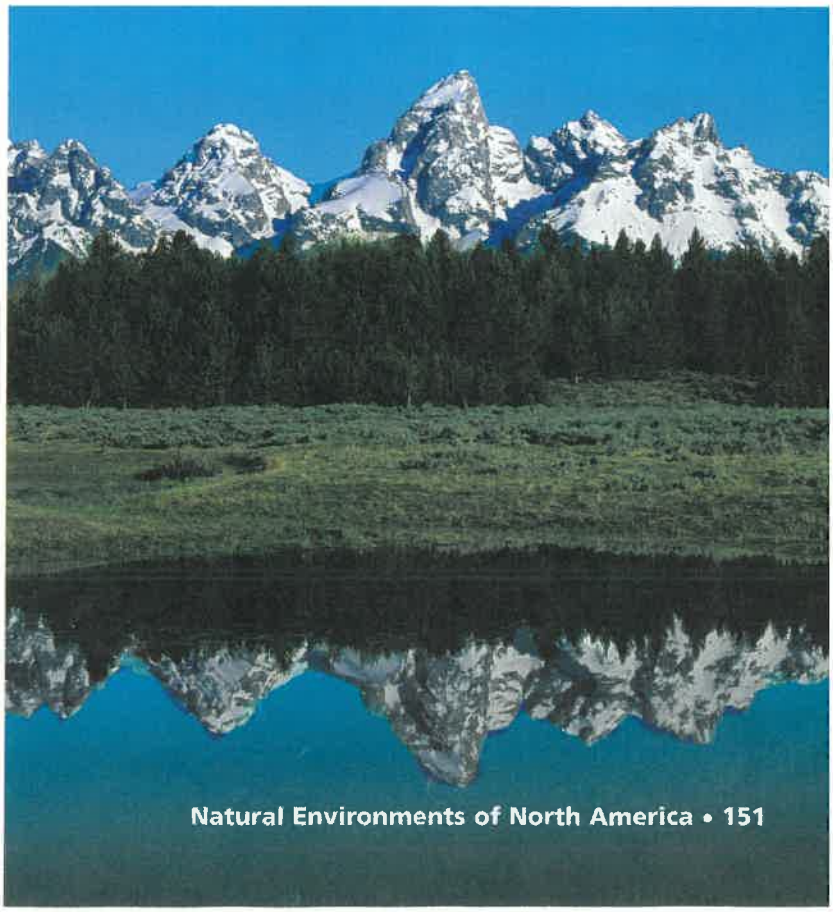
North of the interior plains lies the Canadian Shield. This arc of ancient rocks covers nearly half of Canada. The Canadian Shield is centered on Hudson Bay. It stretches from the Arctic Ocean eastward to the Atlantic coast. This area has been thoroughly scraped by glaciers. This process left a rough rocky landscape with little soil for productive farmland.

The Canadian Shield contains some of the oldest rocks in the world. Some rocks there were formed at least 3.8 billion years ago.

The West The Rocky Mountains stretch from New Mexico to Canada. Many of the highest peaks reach more than 14,000 feet (4,267 m). The Rocky Mountains, or Rockies, are not a single range but several ranges. High plains and valleys separate these ranges. West of the Rockies lie the Cascade Range and the Sierra Nevada, two major mountain ranges located near the Pacific coast. The area between these ranges and the Rockies is called the intermountain region.

High plateaus with deep canyons, isolated mountain ranges, and desert **basins** make up most of the intermountain region. A basin is a lower area of land, generally surrounded by mountains. The Great Basin makes up a large area of the intermountain region in the United States. Most rivers there never reach the ocean. The Colorado River, which flows southward to the Gulf of California, is an exception. Farther west, at the edge of the Great Basin, is California's Death Valley. The lowest point in North America—at 282 feet (86 m) below sea level—is found there.

The Pacific coast region is made up of two major mountain systems and a series of valleys between these mountains. The Sierra Nevada and Cascade Range, or simply the Cascades, lie on the eastern edges of the Pacific coast region. The Sierra Nevada runs along California's eastern border. North of the Sierra Nevada, in northern California, Oregon, and Washington,



The Teton Range in Wyoming is one of the youngest mountain ranges of the Rockies. A combination of tectonic activity and ice age glaciation has created a spectacular landscape of rugged peaks and deep lakes in this area.

are the Cascades. A series of high volcanoes is found in this range. These volcanoes include Mount Rainier, Mount Hood, Mount Shasta, and Mount St. Helens. Along the Pacific Ocean the rugged Coast Ranges stretch from California to Canada. Between the Coast Ranges in the west and the Sierra Nevada and Cascades to the east are three fertile valleys. These are the Puget Sound lowland in Washington, the Willamette River valley in Oregon, and the Central Valley in California.

The rugged western United States is part of the Ring of Fire. The Ring of Fire is a tectonically active region around the edges of the Pacific. It has many active volcanoes and earthquake faults. On the eastern edge of this ring, the North American plate collides with the Pacific plate. All of the continental United States except some parts of California lies on the North American plate. Some areas of coastal California lie on the Pacific plate and are separated from the North American plate along the San Andreas Fault. Major earthquakes occur periodically along this fault.

The two westernmost U.S. states, Alaska and Hawaii, are also geologically active. The Hawaiian Islands are the tops of submerged volcanoes that rise from the ocean floor. They formed over a **hot spot**—a place where magma wells up to the surface from Earth's mantle. Alaska's southern coast is in a subduction zone, and powerful earthquakes sometimes strike there. The volcanic Aleutian (uh-LOO-shun) Islands extend into the Pacific from Alaska. North America's highest peak, Mount McKinley in the Alaska Range, reaches 20,320 feet (6,194 m) in elevation. Except for the Brooks Range, northern and interior Alaska have flat and hilly landscapes.

READING CHECK: ***Physical Systems*** How did glaciers affect the landscape of the Canadian Shield?

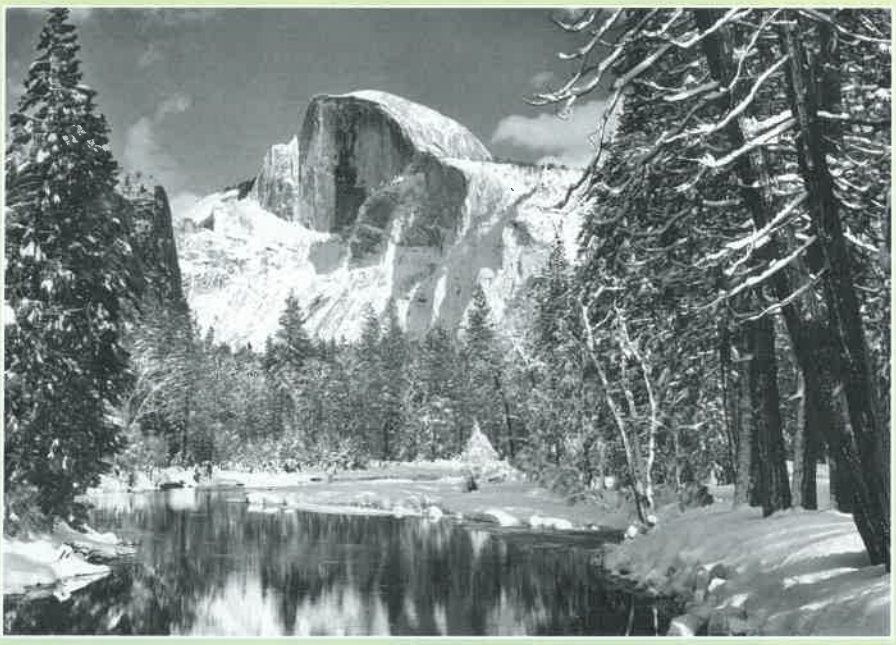
Connecting to THE ARTS

Ansel Adams

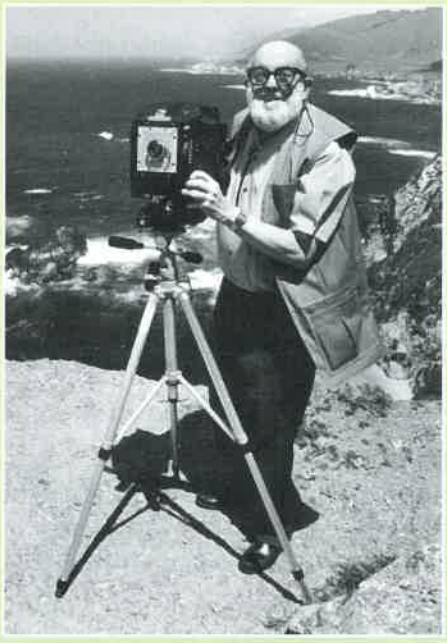
Ansel Adams (1902–84) is famous for his black-and-white photographs of America's beautiful natural landscapes. Growing up in California, Adams visited the Sierra Nevada and Yosemite National Park. He began photographing these places and many others as an adult. Adams published many books of his photographs of America's rugged mountains and national parks.

Ansel Adams not only loved the natural landscapes he photographed, but also tried to help protect them. From 1936 to 1973, Adams was director of the Sierra Club, a California-based conservation group. His work inspired the conservation of America's natural wonders. Through his beautiful photographs, Ansel Adams became one of the most well-known photographers of the 1900s.

Summarizing How were Ansel Adams's life and career tied to America's natural environments?



Yosemite National Park in California



Ansel Adams photographing the California coast

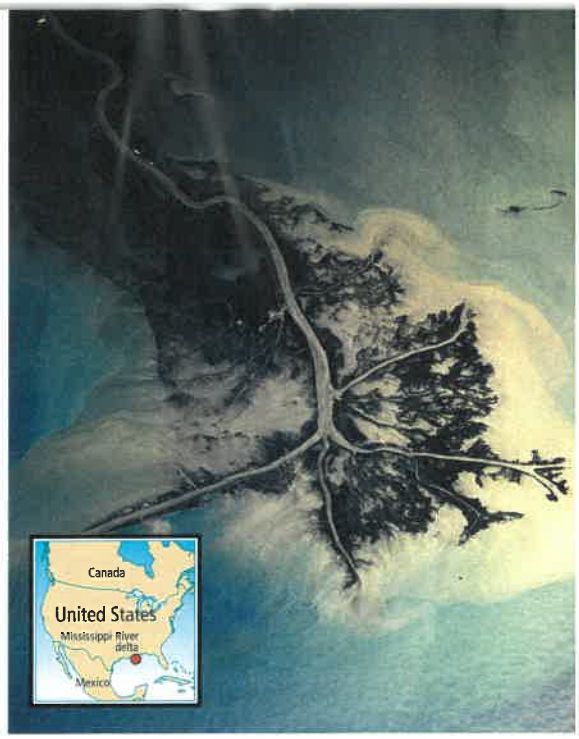
Bodies of Water

The crest of the Rockies marks the **Continental Divide**. This crest divides North America's major river systems into those flowing eastward and those flowing westward. To the east the Mississippi, Missouri, and Ohio Rivers make up the continent's major river system. This system drains most of the interior plains of the United States. It also provides an important network of waterways for trade and transportation. From its delta in southern Louisiana, the Mississippi deposits huge amounts of sediment into the Gulf of Mexico.

The second major river system in the interior plains is the St. Lawrence system. The St. Lawrence connects the Great Lakes to the Atlantic Ocean and drains most of southeastern Canada. In northwestern Canada, the Mackenzie River system also drains the interior plains and part of the Canadian Shield. Three large northern lakes—Lake Athabasca, Great Slave Lake, and Great Bear Lake—drain into the Mackenzie. Water from these lakes flows northward into the Arctic Ocean.

Long rivers like the Colorado, Columbia, Fraser, and Yukon flow west out of the Rockies. The Columbia and Fraser rivers flow into the Pacific Ocean. The Colorado flows southwestward into the Gulf of California. These rivers are important water sources for many people in the western United States and Canada. They are also used to produce hydroelectricity. The Yukon River flows across Alaska to the Bering Sea.

The United States and Canada have many lakes. In fact, North America has more large lakes than any other continent. Continental ice sheets created most of these lakes. During the ice ages, the ice sheets widened and deepened existing basins. Then as the last ice age ended and the ice melted, the basins filled with water. This process formed the Great Lakes and most of Canada's large lakes. In fact, much of the Canadian Shield is a waterlogged landscape covered with lakes and wetlands.



INTERPRETING THE VISUAL RECORD

This image taken from the space shuttle Challenger *shows the delta of the Mississippi River. The Mississippi deposits some 220 million tons of sediment into the Gulf of Mexico each year, forming what geographers call a "bird's foot delta." The shape of the delta is caused by the compaction and sinking of sediment.* ***How do you think this delta changes through time?***

READING CHECK: *Physical Systems* How did glaciers create lakes in this region?

Review

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Identify Continental Divide

Define barrier islands, piedmont, fall line, basins, hot spot

Working with Sketch Maps On a map of the United States and Canada that you draw or that your teacher provides, label the Piedmont, Appalachian Mountains, Rocky Mountains, Mississippi River, Great Lakes, Great Plains, Canadian Shield, Hudson Bay, Cascade Range, Sierra Nevada, Coast Ranges, and St. Lawrence River. Where are the interior and coastal plains?

Reading for the Main Idea

1. *Places and Regions* How are the landforms of the eastern United States and Canada different from those of the western United States and Canada?
2. *Places and Regions* Where is the Great Basin located?
3. *Physical Systems* Which river drains most of the interior plains?

Critical Thinking

4. **Drawing Inferences and Conclusions** How do you think tectonic activity affects life in the western United States?

Organizing What You Know

5. Copy the graphic organizer below. Use it to describe the landforms and bodies of water in the interior plains, Canadian Shield, and Pacific coast region. What physical processes shaped these regions?

Interior plains	Canadian Shield	Pacific coast region

Section 2

Climates and Biomes

READ TO DISCOVER

1. Which climate types are found in the United States and Canada?
2. What are the major biomes of the region, and where are they found?

DEFINE

natural hazards
lichens

LOCATE

Gulf of Mexico
Hawaiian Islands

Reading Strategy

DEVELOPING VOCABULARY Find unfamiliar words in this section. On a sheet of paper, write down what you think each word means. Use context clues to help figure out the meaning. Look each word up in a dictionary to verify its meaning. Then, write an explanation of how the words relate to the section's topics.

Climates

The United States and Canada have a great variety of climates. (See the unit climate map.) For example, every climate type except an ice cap climate can be found in the United States. However, you will find an ice cap climate on some Arctic islands of far northern Canada.

Four major factors influence the distribution of climates in the United States. These factors are a middle-latitude location, prevailing winds, ocean currents, and high mountain ranges. Due to its more northerly location, Canada has mostly colder climates.

Use the unit climate map as we look at the distribution of climates across North America. The very southern tip of Florida has a tropical wet and dry climate. However, most of the southeastern quarter of the United States has a humid subtropical climate. This region stretches from the Atlantic coast to about 100° west longitude in western Texas and Oklahoma. Summers are hot

INTERPRETING THE VISUAL RECORD

Average winter temperatures in Toronto, Canada, are just below freezing. Although Lake Ontario does not completely freeze, the city's harbor is generally iced over from December to April. ***How might cycles of freezing and thawing affect this area's environment?***

and humid, and winters are mild. Rainfall is distributed fairly evenly throughout the year, and thunderstorms are common. The warm waters of the Gulf of Mexico and the Gulf Stream influence this climate region. The Gulf Stream is a current in the Atlantic Ocean that moves warm tropical water northward along eastern North America.

The northeastern United States and parts of southern and southeastern Canada have a humid continental climate. This climate region stretches westward from the Atlantic coast to about 100° west longitude in Kansas. The region has four distinct seasons, including a warm humid summer and a cold snowy winter. The nearness of the Great Lakes and Atlantic Ocean moderates temperatures slightly and is a source of increased precipitation.

West of 100° west longitude is the semiarid climate of the Great Plains. This climate supports vast grasslands and scattered trees. Cold air masses from the north meet warm moist air masses from the south over the Great Plains. Where these air masses come into contact with each other, violent storms can erupt. These storms can produce **natural hazards** like floods, hail, lightning, and tornadoes. Natural hazards are events in the physical environment that can destroy human life and property.

INTERPRETING THE VISUAL RECORD

The United States is hit by more tornadoes each year than any other country. Most occur between April and June in the central United States in an area known as Tornado Alley. ***How do you think hazardous environmental conditions such as tornadoes affect the natural environment?***

Because of its mountainous terrain, the intermountain area in the west has a variety of climates. Mountains block prevailing westerly winds that flow over the Pacific. This rain-shadow effect creates arid and semiarid climates on the leeward sides of mountains. For example, areas east of the Sierra Nevada and Cascades are dry. The Rockies have a highland climate. Temperatures and precipitation in the Rockies depend on elevation and local geography.

The Pacific coast region has two main climates, marine west coast and Mediterranean. The mild marine west coast climate dominates the coast from southeastern Alaska to northern California. These areas have cool wet winters and mild sunny summers. A Mediterranean climate is found in parts of southern and central California. This climate is known for its mild winters and long, sunny, dry summers.

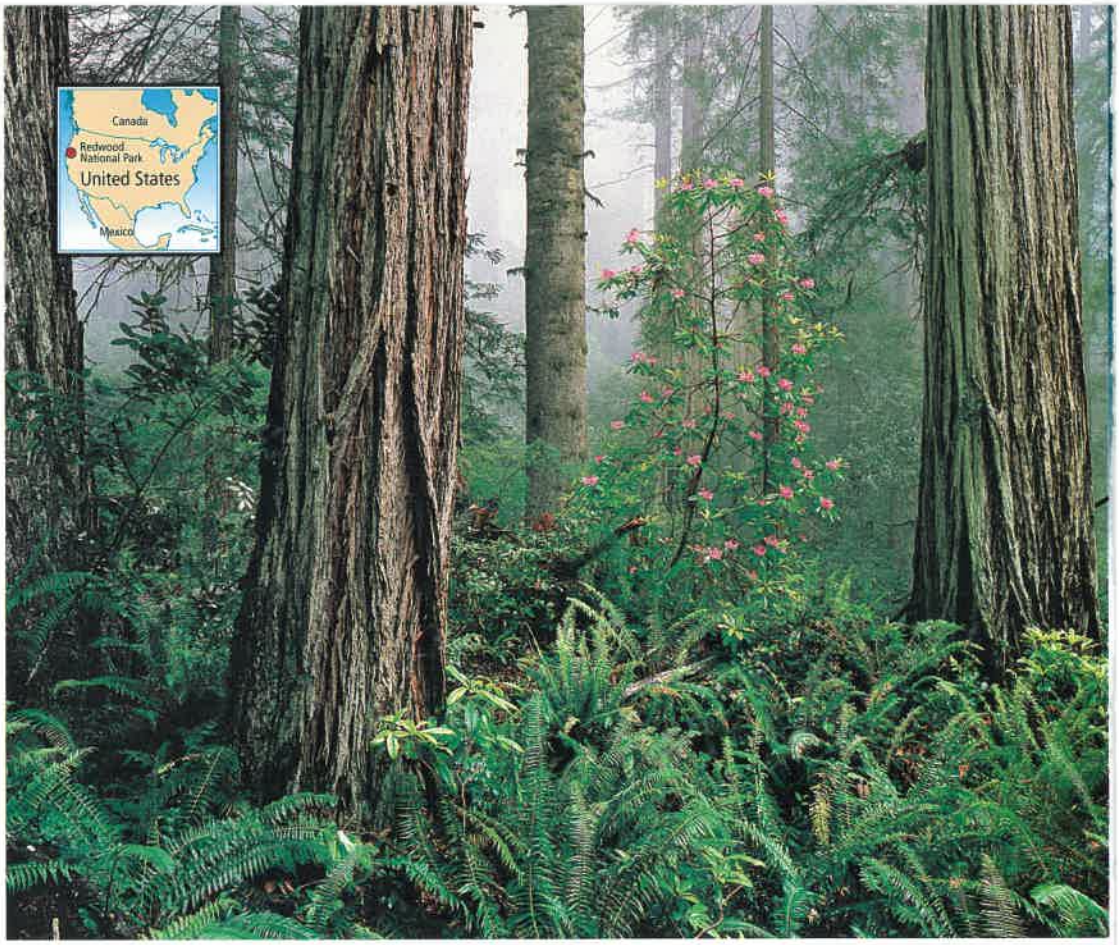
Hawaii lies completely within the tropics. Because the Hawaiian Islands fall in the easterly trade wind belt, they are wetter on the windward eastern sides. These eastern areas have a tropical humid climate. Leeward, western slopes have a drier tropical wet and dry climate.

Far northern North America has a tundra climate. This extremely cold area stretches from northern Alaska across to Quebec and Newfoundland. Permafrost underlies much of the area. To the south, a subarctic climate is found. This large subarctic climate region covers most of Canada and Alaska.

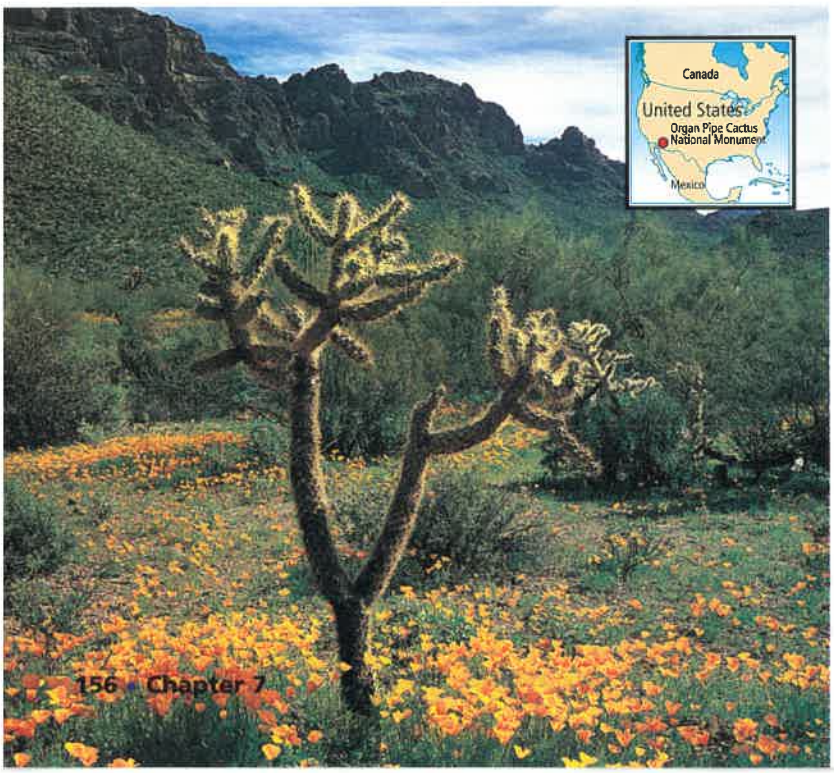
READING CHECK: ***Physical Systems*** What main factors influence the distribution of climate types in the United States and Canada?

The world's largest living organism is a fungus in Oregon. This fungus stretches 3.5 miles (5.6 km) across and covers an area as big as 1,665 football fields. It is about 2,400 years old, lives underground, and spreads slowly from tree to tree.

Coast redwoods are the tallest trees in the world and can grow as high as 385 feet (117 m). Coast redwood forests are found only in a narrow belt along the Pacific Ocean in northern California and southern Oregon, where coastal fog is common. Water droplets from the fog collect on the trees' leaves and then drip down to the ground. This helps provide enough water for the huge trees to survive the dry summers.



Cacti like this cholla (CHOY-yuh) are a common sight in the Sonoran Desert of the southwestern United States. During infrequent rainstorms, wide root systems collect water, which is stored in the plant's stem. The absence of leaves and a waxy coating on the stem help prevent water loss through evaporation.



Plants and Animals

Climate patterns greatly influence North America's plant and animal life. In general, forests dominate humid areas, while grasslands or scrub cover more arid regions. However, human settlement has greatly altered the distribution of plants and animals in the region. For example, people have converted many forests and grasslands to farmland. This human activity has caused major disruptions in the natural vegetation and animal life.

The southeastern United States and much of the U.S. and Canadian west have a temperate forest biome. Different types of forests are found within these large areas. For example, mixed forests of hickory, oak, and walnut are common along the coastal plain in the southeastern United States. Deer, opossum, and raccoon are among the animals that live there. Temperate forests along the Pacific coast differ from those in the southeastern United States. Redwood trees form North America's densest and tallest forests along the coast of northern California. To the north in Oregon and Washington, Douglas fir trees become more common. Even farther north, in coastal southeastern Alaska, Sitka spruce trees are widespread. Wildlife along the Pacific coast includes black bears, eagles, hawks, and salmon.

Much of the southwestern United States has a semiarid and desert biome. Creosote and mesquite bushes as well as many species of cacti cover open areas there. Coyotes, hawks, jackrabbits, and snakes live in this biome. A grassland biome stretches across the interior of North America. These grasslands, or prairies, once supported huge herds of bison. However, American settlers hunted the bison nearly to extinction. Over time farmers have also plowed under almost all of the original prairie. Today farmers use these grassland areas mainly for growing grains.

About half of Canada and Alaska have a boreal forest biome. This vast northern forest is one of the largest in the world. The main trees there are the spruce, fir, and pine. Great herds of caribou live in the forest during the winter. Deer, elk, moose, and wolves also inhabit the area. North of these vast forests is a treeless arctic tundra. Beneath the tundra surface is a layer of permafrost that can be up to 1,500 feet (460 m) deep. Tundra plants include grasses, small shrubs, mosses, and **lichens**—small plants that consist of algae and fungi.

Two smaller areas in the United States have tropical biomes. The tip of southern Florida has a savanna biome. The land there is swampy and covered with tall grasses. Palm trees and pine forests thrive in Florida. Hawaii has a tropical rainforest biome. Seeds carried by birds, ocean currents, and winds sprouted and grew in Hawaii's rich volcanic soils. As a result, a unique collection of plants and animals developed there. The remote location of the islands in the Pacific Ocean also influenced Hawaii's biogeography. Human activities have greatly altered Hawaii's natural ecosystems, however.

INTERPRETING THE VISUAL RECORD

Heavy rainfall and fertile volcanic soils help create a lush tropical environment in the Hawaiian Islands. More than 150 types of ferns and nearly 1,000 types of flowers grow there. Many of these plants do not grow anywhere else in the world. ***What geographic features do you think helped create Hawaii's unique vegetation patterns?***

READING CHECK: ***Places and Regions*** What soil conditions will you find in the tundra biome of far northern Alaska and Canada? Which plants live there?

Section 2 Review

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Define
natural hazards
lichens

Working with Sketch Maps
On the map you created in Section 1, label the Gulf of Mexico and the Hawaiian Islands. Which climate region do the warm waters of the Gulf of Mexico and the Gulf Stream influence?

Reading for the Main Idea
1. ***Physical Systems*** Why do the Great Plains have such violent weather?
2. ***Places and Regions*** How do climate patterns influence the distribution of vegetation in North America?
3. ***Places and Regions*** Why are the eastern sides of the Hawaiian Islands wetter than the western sides?

Critical Thinking
4. **Making Generalizations and Predictions** How might the tropical climates of Hawaii and southern Florida be important to agriculture in the United States?

Organizing What You Know
5. Draw a sketch map of North America. Use it to show the major biomes of the United States and Canada.

Section 3

Natural Resources

READ TO DISCOVER

1. What farming, forest, and water resources are found in the United States and Canada?
2. How rich is the region in energy and mineral resources?

DEFINE

alluvial soils
newsprint

LOCATE

Central Valley
Imperial Valley
Rio Grande valley
Colorado River
Grand Banks

Reading Strategy

PAIRED SUMMARIZING Read this section silently, making notes as you read. Working with a partner, take turns summarizing the material and your notes. Stop to discuss ideas that seem confusing. Include key terms and their definitions.

Farming, Forests, and Water Resources

Abundant natural resources have helped make the United States and Canada very rich countries. The United States is an industrial giant and the world's leading agricultural producer. The country's diverse resources and strong economy help support a high standard of living. Canada also has a high standard of living, but its economy is much smaller. However, Canada is an important producer and exporter of key natural resources.

In both the United States and Canada, only about 3 percent of the population farms. However, both countries easily feed their people and have large food surpluses to export. Much of this success is a result of North America's large area and its wide variety of climates and soils. American and Canadian farmers in the Great Plains grow huge amounts of corn, soybeans, and wheat. They also raise cattle, hogs, and other livestock. In some places, fertile **alluvial soils**—soils deposited by streams or rivers—are particularly productive. These rich soils are found in the Mississippi Valley, California's Central and Imperial Valleys, and in the Rio Grande valley in Texas. With irrigation, these excellent soils support a wide range of fruits and vegetables.

Forests are another important natural resource. Both the United States and Canada are leading producers and exporters of forest products. Canada's forests provide lumber and pulp for paper. Countries like Japan and the United States look to Canada for lumber, **newsprint**, and pulpwood. Newsprint is an inexpensive paper used mainly for newspapers. About one third of the United States is forested. The country's major commercial forests are located in the southeastern states and the Pacific Northwest. Early logging cleared large forest areas in the Northeast and the Midwest. Today much of the logging there takes place on private tree farms and in national forests.

INTERPRETING THE VISUAL RECORD

Much of the United States has productive farmland, such as this area in Oregon. ***How do you think the use of agricultural technology has changed the American landscape?***

As you have learned, North America has plentiful water resources. Water has been important to the economic development of both the United States and Canada. Many rivers, such as the Colorado, Fraser, and Tennessee, are used for irrigation and hydroelectricity. In fact, Canada and the United States are the world's two largest producers of hydroelectricity. North America's coastal waters also provide marine resources. Canada's fisheries are among the world's richest. However, overfishing and pollution have taken their toll, reducing fish catches in some areas. The Grand Banks area near Newfoundland is one of the most famous fishing areas in the world. Fisheries along the Atlantic coast are home to cod, haddock, lobster, and swordfish. Salmon is the main commercial fish on the Pacific coast. Fishers catch shrimp and shellfish in the Gulf of Mexico.

READING CHECK: ***Places and Regions*** What factors make the Central and Imperial Valleys and the Rio Grande valley productive farming regions?

A fishing crew brings in their catch from waters off the New England coast. New England's waters have long been a major fishing area in the United States.

Energy and Minerals

The United States and Canada are rich in energy and mineral resources. (See the map of resources of the United States and Canada.) The United States has about 25 percent of the world's coal reserves and is a major coal exporter. Most coal is mined in the Appalachians, Rockies, and interior plains. In Canada, coal is mined in Nova Scotia and in the western provinces of Saskatchewan, Alberta,

Resources of the United States and Canada

INTERPRETING THE MAP *Both the United States and Canada have abundant energy resources, including oil, natural gas, and coal.* ***How do you think the location of valuable energy resources affected the growth of cities such as Houston?***

Oil wells dot the coastline of Huntington Beach, south of Los Angeles. California has been a leading producer and refiner of oil since the late 1800s, and petroleum is still the state's leading mineral product.

and British Columbia. These coal deposits are generally very thick and are located in unpopulated areas.

The United States is a major oil producer but uses much more oil than it produces. In fact, the United States has to import more than one half of the oil it needs. Most U.S. oil is produced on the Gulf Coast of Texas and Louisiana and in California and Alaska. These same areas are rich in natural gas, which is often found with oil. About 65 percent of Canada's oil and about 80 percent of its natural gas come from Alberta. Oil and gas deposits have been discovered off Canada's eastern and Arctic coasts as well.

The United States and Canada have a wide range of valuable mineral resources. The rocky Canadian Shield, once considered a wasteland, has many mineral deposits. Canada is a leading source of the world's nickel, zinc, and uranium. It is also a major producer of lead, copper, gold, and silver. Northern Canada even has diamond deposits. In the United States, valuable minerals are mined in the Appalachians, Rockies, and western mountain ranges. Iron has long been mined in Minnesota's Mesabi Range. Today iron is also mined in Michigan and Alabama. Major copper deposits are located in Arizona. Lead and zinc are found in a number of places, including the mountains of Idaho and in Missouri. Nevada has gold and silver deposits.

✓ **READING CHECK:** ***Places and Regions*** Which landform region in northern Canada has many mineral deposits?

Review

go.hrw.com **Homework Practice Online**
Keyword: SW3 HP7

Define

alluvial soils
newsprint

Working with Sketch Maps

On the map you created in Section 2, label the Central Valley, Imperial Valley, Rio Grande valley, Colorado River, and Grand Banks. What ocean area near Canada is one of the most famous fishing grounds in the world?

Reading for the Main Idea

1. ***Places and Regions*** What is the world's leading agricultural country?
2. ***Environment and Society*** What goods are produced with resources from Canada's forests?
3. ***Environment and Society*** What human activities can influence the size of catches in some fishing areas in North America?

Critical Thinking

4. **Making Generalizations** Why might modern technology be particularly important to mining operations in the Canadian Shield?

Organizing What You Know

5. Copy and complete the chart below, identifying U.S. states and Canadian provinces where you would expect to find coal, gas, and oil production. You can use the map of coal, gas, and oil resources in the chapter to help you complete your lists.

State or province	Coal production	Gas production	Oil production

Geography for Life

Wetlands in the United States

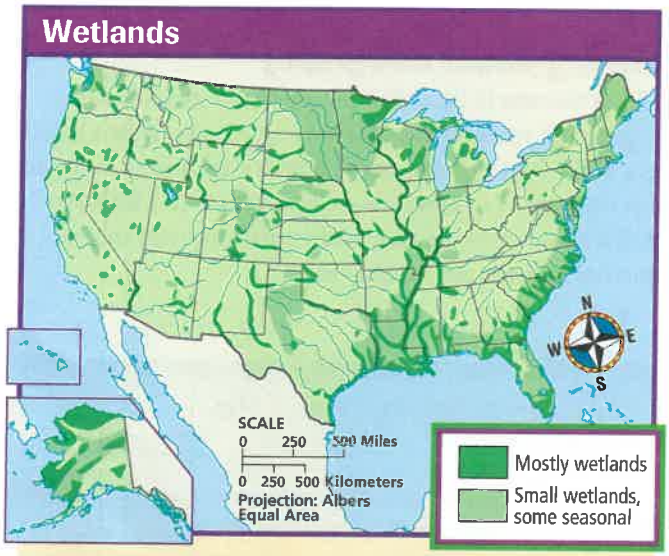
Wetlands are areas that are covered with water for at least part of the year. Many different kinds of wetlands exist. They include marshes, swamps, estuaries, and coastal areas affected by ocean tides. Wetlands in the United States range from the Arctic bogs of northern Alaska to The Everglades of Florida. In fact, wetlands are found in all 50 U.S. states.

Wetlands are important natural resources for many different reasons. They provide habitat for fish and other marine life, birds, mammals, and a great variety of plants. For example, wetlands are a source of food for migratory birds. In addition, wetlands provide important water resources. They hold back and then slowly release floodwaters and snowmelt. They are a source of groundwater and act as filters that cleanse water of pollutants. Coastal wetlands can prevent erosion and protect coastal areas from powerful waves and storms. In addition, wetlands provide recreation for many people. Boaters, birdwatchers, fishers, kayakers, photographers, and tourists all enjoy visiting wetland areas.

Despite their value as natural resources, most people viewed wetlands as bug-infested wastelands for much of American history. As a result, they did not think that conserving wetlands was particularly important. In fact, about half of the natural wetlands in the United States have been destroyed. Most were drained, filled, or paved over to make room for farmland or expanding urban areas. Canal construction for irrigation and flood control and the development of coastal highways have also taken their toll. California alone has lost more than 90 percent of its original wetlands. Most of this loss is the result of agricultural and urban growth.

Beginning in the 1970s and 1980s, however, American attitudes toward wetlands changed. Many people began to realize the value of protecting these diverse and useful environments. In 1986 the U.S. Congress passed the Emergency Wetlands Resources Act. This law required the U.S. Fish and Wildlife Service to study the country's remaining wetlands. The Fish and Wildlife Service reports its findings to Congress every 10 years.

According to the most recent Fish and Wildlife report, the United States has made much progress in slowing the loss of wetlands. From 1986 to 1997 the rate of wetland loss fell by 80 percent from the previous decade. Much of this decline was the result of new wetland policies and programs. These policies helped reduce the drainage and filling in of wetlands. They also helped restore wetlands. The country has not yet achieved the goal of reducing the rate of wetland loss to zero. However, Americans are now protecting and restoring more of these valuable environments.



INTERPRETING THE MAP *Although wetlands are found in all 50 states, their distribution is uneven.* ***Which regions appear to have the highest concentration of wetlands? Why do you think that is?***

Applying What You Know

1. **Summarizing** Why are wetlands such important natural resources?
2. **Analyzing Information** What human activities reduced the amount of wetlands in the United States over time? What effects have conservation efforts had on the wetlands since the 1970s and 1980s? What long-term geographic and economic advantages do you think might come from these policies?

CHAPTER 7 Review

HOLT

Geography's Impact Video Series

Review the video to answer the closing question:
How do wetlands contribute to a region's biodiversity and economy?

Building Vocabulary

On a separate sheet of paper, explain the following terms by using them correctly in sentences.

barrier islands	hot spot	alluvial soils
piedmont	Continental Divide	newsprint
fall line	natural hazards	
basins	lichens	

Locating Key Places

On a separate sheet of paper, match the letters on the map with their correct labels.

Piedmont	Great Lakes	Canadian Shield
Rocky Mountains	Great Plains	St. Lawrence River
Mississippi River		

Understanding the Main Ideas

Section 1

1. *Physical Systems* What physical process forms barrier islands? Where are they found in North America?
2. *Places and Regions* What evidence of tectonic forces will you find in western areas of the United States and Canada?

Section 2

3. *Physical Systems* What can happen when different air masses come in contact with one another over the Great Plains?
4. *Places and Regions* What major factors influence climates in the United States? How does nearness to the Great Lakes and the Atlantic Ocean influence the humid continental climate region of the northeastern United States?

Section 3

5. *Places and Regions* About 25 percent of the world's reserves of which energy resource are found in the United States?

Thinking Critically

1. **Drawing Inferences and Conclusions** Which mountain system do you think is older, the Appalachians or the Rockies? How might the physical geographic features of each range provide clues to their relative age?
2. **Analyzing Information** How have people changed the natural environment of the United States and Canada over time?
3. **Drawing Inferences and Conclusions** How do you think the locations of lakes and rivers in the United States and Canada affected the locations of settlements? Why?

Using the Geographer's Tools

1. **Analyzing Maps** Look at the map of coal, gas, and oil resources in Section 3. Which states and provinces appear to have the richest energy resources?
2. **Interpreting Climate Graphs** Study the climate graphs for Sacramento and Washington, D.C., in Chapter 1. Which city appears to have a wetter climate? Note that Sacramento is located in California's Central Valley. How might this location account for the difference in relative precipitation amounts for the two cities?
3. **Preparing Tables** Look at the map of the physical regions of the United States and Canada in Section 1. Create a table that lists these geographic regions and describes the climates and biomes of each.

Writing about Geography

Choose one area of the United States and one area of Canada. Imagine that you went to both areas on a vacation. Write a letter to a friend comparing how people in each place depend on the natural resources there. When you are finished with your letter, proofread it to make sure you have used standard grammar, spelling, sentence structure, and punctuation.

SKILL BUILDING

Geography for Life

Creating Diagrams

Places and Regions Research the watershed, or drainage area, of the Mississippi River. Draw a diagram showing the Mississippi River and its main tributaries. Add other large rivers that flow into the main tributaries. Think of a way to visually represent how each tributary adds volume to the body of water it enters. Add other details, such as the length of the rivers or the areas they drain.

Building Social Studies Skills

Average Precipitation in Selected U.S. Cities

City	Average Annual Precipitation (in inches)
Albuquerque, NM	6.39
Boston, MA	41.07
Chicago, IL	33.92
Houston, TX	59.71
Miami, FL	63.29
North Little Rock, AR	47.42
Reno, NV	7.08

Sources: *World Almanac and Book of Facts 2004*, National Climatic Data Center

Interpreting Tables

Study the table above. Then use the information to help you answer the questions that follow. Mark your answers on a separate sheet of paper.

1. Which city has the highest average annual precipitation?
   a. Albuquerque, NM
   b. Miami, FL
   c. North Little Rock, AR
   d. Boston, MA
2. Which cities are probably located in an arid or semiarid climate region? How do you know that?

Building Vocabulary

To build your vocabulary skills, answer the following questions. Mark your answers on a separate sheet of paper.

3. After crossing the mountains, the pioneers entered a *basin*. In which of the following sentences does *basin* have the same meaning as it does in the sentence above?
   a. Have you seen the sailing ships anchored in the basin?
   b. The settlers had transported a large basin from Virginia to California.
   c. Larry's mother washed the stained shirt in a basin.
   d. Only one of the rivers in that basin reaches the ocean.
4. Earthquakes and volcanic eruptions are deadly *natural hazards*.
   Natural hazards are
   a. the result of warfare between countries.
   b. destructive phenomena in the physical environment.
   c. dangerous obstacles along major roads and highways.
   d. human activities that alter the natural environment.

Alternative Assessment

PORTFOLIO ACTIVITY

Learning about Your Local Geography

Group Project: Research

Plan, organize, and complete a research project about water resources. As a group, determine how your local area acquires, processes, and uses freshwater. Begin planning your project by brainstorming what you know about local water resources. How much rainfall does your area receive? What does the local watershed consist of? Who uses the most water? Where do they get that water? Plan how to find the answers to these and other questions. Divide the research and other tasks among group members. When you have completed your research, communicate your results through a report. Use maps, charts, or other visual aids to support your conclusions.

internet connect

Internet Activity: go.hrw.com
KEYWORD: SW3 GT7

Access the Internet through the HRW Go site to examine the factors that have influenced city growth and economic development along the Great Lakes and St. Lawrence River. Then create a diagram or 3-D model that explains the role of transportation routes, types of economic activities, and resources of the area. Present your diagram or model to the class.