

2 Washington

IN THE PACIFIC NORTHWEST

▶ PLACES TO LOCATE

Pacific Rim
Canada
British Columbia
Washington
Oregon
Idaho
Five Regions:
Coastal Range
Puget Sound Lowlands
Cascade Range
Columbia Plateau
Rocky Mountain
Bitterroot Mountains
Olympic Mountains
Pacific Ocean
Columbia River
Snake River
Grand Coulee Dam
Seattle
Tacoma
Spokane
Tri-Cities

▶ WORDS TO UNDERSTAND

arid
commercial
confluence
finite
formidable
geography
headwaters
hinterland
human characteristics
hydroelectric
physical features
temperate
tributaries



Washington's State Symbols:

Flower: Coast Rhododendron



Bird: Willow Goldfinch or Wild Canary



Tree: Western Hemlock



The Far Corner: Washington's Geography

Mt. Rainier, the Seattle skyline, and houseboats on Lake Union illustrate how people interact with their natural environment.

Photo by Chuck Pefley

Fish: Steelhead



Fruit: Apple



Insect: Green Darner Dragonfly



Geography and History

The study of the natural features of the earth is called **geography**. Geography is also the study of where and how people live on the earth. Washington's coastline, rivers, mountains, deserts, forests, and plateaus have always influenced where people live and what they do for a living. Our geography even influences what people do when they seek recreation or solitude in nature.

The interaction between people and their environment is one of the most useful ways to study history. Consider how **formidable** nature's obstacles were for the people who traveled by boat, foot, and later by wagon. It must have been terrifying to cross wide fast rivers and clear a path through steep mountain passes with rocky cliffs falling hundreds of feet below. It was common for pioneers to view the environment as an obstacle that needed to be subdued.

Trees are planted on a hillside near the Calawah River. Replanting is one of the ways lumber companies and government agencies are preserving the environment.

Photo by Sunny Walter



Physical and Human Characteristics

All locations have **physical features** that make them different from other places on earth. Physical features are natural to the environment and include mountains, rivers, soil, and climate, as well as plant and animal life. Washington has a striking diversity of physical features. If you travel around the state, you will see rocky beaches, beautiful islands, miles of forests, mountains, volcanoes, deep river gorges, deserts, and rich farmland.

A place is also defined by changes made by people. We call these **human characteristics**. What we have built and how we have altered our physical environment in other ways help to define the place we call Washington. Large cities, freeways, dams, bridges, and acres of apple trees seem natural to us, but they have not always been here.

Preserving the Environment

There was so much land and so many forests on the frontier that settlers thought natural resources were limitless. Americans saw in the West a supply of resources they thought would last forever. A careless, wasteful attitude toward the environment was

People change the land by building roads, railroads, and dams. This is Box Canyon Dam on the Pend Oreille River. Photo by Sunny Walter

WHAT DO YOU THINK?

Only in the late twentieth century did most Americans come to recognize that our resources are *finite* and that the environment is more fragile than we had realized. Think about modern development. Think about the vital importance of protecting our environment. What can be done to satisfy both needs?



common. Too many trees were cut down. Too many wild animals were killed. Too many salmon were taken from the water.

Later, rivers were dammed to supply water for irrigation and power to run electric generators. Railroads and highways were built through the mountains. Large parts of the Puget Sound region have actually been paved over by the many buildings, parking lots, and roads of large cities. Water and air pollution

have become serious health concerns.

Today, companies act more responsibly when they cut down forests, build roads, and fish commercially. Laws have been passed that protect our water, land, plant and animal life, and the air we breathe. People are careful not to litter, and they try to conserve our natural resources. We have subdued the environment, but are we responsible enough to live in harmony with it?



One way the people of eastern Washington have changed their dry natural environment is by irrigation. Ditches carry water from man-made reservoirs to farmers' fields. The farms on the right would not be possible without irrigation.



Factories make the things we all want. They can also pollute the air and water if strict guidelines are not followed. *Photo by Shirlee Simon-Glaze*

Location

The location of a place is like an address. Washington is located between the 46th and 49th parallels north latitude. It is between 117 degrees

and 125 degrees west longitude. You can follow these lines around the world.

Some of Washington's boundaries are natural features of the land. Others were decided by people.

- British Columbia, a Canadian province, is north of Washington.



- The Pacific Ocean forms the western boundary.
 - Idaho and Oregon are on the other sides.
- Which river forms our southern border?

A Hinterland

Washington is located on the “far corner” of the United States. For much of its history,

Washington’s remote location has resulted in a **hinterland** status. Hinterland is a term used by geographers to describe a region that is far from other settled areas. Hinterland regions are usually the last to be explored and populated. They usually export raw materials and import many manufactured goods.





Gulls hover over the water after a storm on the Olympic Peninsula.

Photo by Sunny Walter

The Mighty Ocean

Our state's western border is the Pacific Ocean. Washington has only 157 miles of ocean coastline, but there are over 3,000 miles of shoreline along the Strait of Juan de Fuca, the numerous bays and inlets of Puget Sound, and around the islands.

Washington has more deep-water harbors than either California or Oregon. Shipping goods in and out of our harbors links Washington to the rest of the world. The Pacific Ocean and Puget Sound are the source of the state's **commercial** fishing industry. Fishing provides less than one percent of the state's income, but it is still significant. Salmon accounts for about one-third of the fishing income, followed by oysters, crabs, and shrimp. Other fish caught in ocean waters are halibut, flounder, tuna, and cod.



A freighter is outbound from Grays Harbor.

Photo by Robert Esposito

A Mild Climate

More important than the beautiful scenery it provides, the ocean has an important influence on our land and climate. Westerly winds from the Pacific give Washington a **temperate** climate. This is because the temperature of large bodies of water does not change as quickly as the temperature of the air. The warmer water of the ocean warms up the air next to it. Winds pick up the warmer air and carry it across the land.

Compare the wet rain forest along the coast to the dryness of the land east of the mountains. What are the two main landforms that cause the differences in climate?

Photo of rain forest by Tom Hill. Photo of sagebrush on the plateau by Mike Green



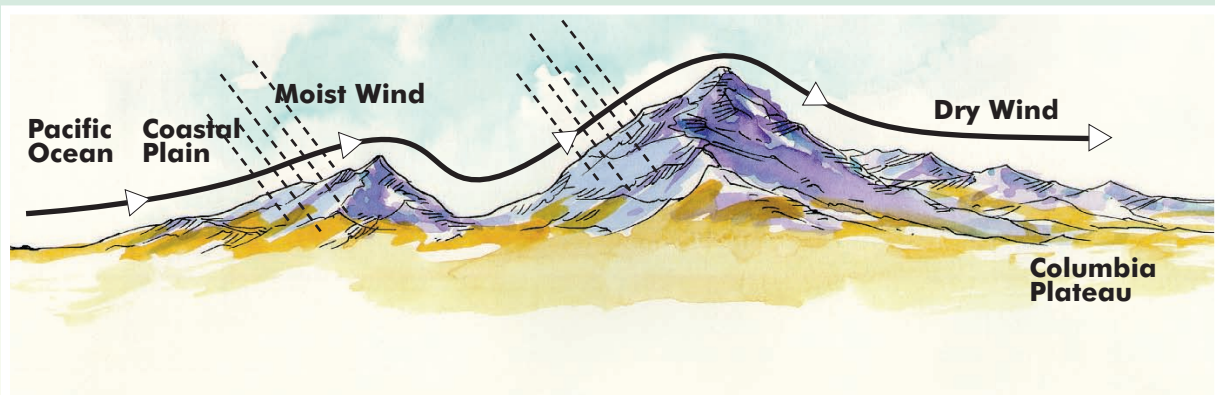
The Rain Shadow Effect

High mountain ranges greatly affect the climate of a place. Here is what happens. Far out over the Pacific Ocean, winds pick up moisture from evaporating ocean water. The moist air blows over the coast and continues east. When the air reaches the mountains, it must rise to get over them. As air rises, it cools. Cool air cannot hold

as much moisture as warm air does, so the moisture falls to the earth as rain or snow.

This means that the land along the coast and on the west side of the Cascade Mountains is rainy. Some parts of western Washington receive over 100 inches of rain per year. It rains almost every day. Washington's west side is often called the "wet side."

By the time the winds go up over the mountains and reach the east side of the Cascades, the air has very little moisture left. The dry winds continue east. This is why the eastern regions of the state are so dry. Some **arid** regions in Washington receive less than six inches of rain each year.



Regions

Regions are places that share common features. There are land regions, political regions, and commercial regions. You live in several different regions at the same time. You might live in a city, a county, a voting district, a school sports region, and the Pacific Northwest.

The Pacific Rim—a Trading Region

The Pacific Rim is a huge trading region that includes all the countries that border the Pacific Ocean. Each country around the rim makes products that other countries want to buy. For example, the people of the United States buy clothing made in China and the Philippines. We buy cars, televisions, and electronic equipment made in Japan. Washington exports aircraft, wheat, fruit, and computer software to China, Japan, Korea, and many other countries on the Pacific Rim.

Goods in large metal cases are constantly being shipped across the Pacific. The ships move in and out of port cities in Washington, Oregon, and California. Ships from the East Coast and Europe come here too, passing first through the Panama Canal.



In our port cities, goods are loaded onto trucks and trains and moved to other places in the United States and Canada.

The Pacific Northwest

The Pacific Northwest is a region of states that share similar landforms and early pioneer history. Washington, Oregon, and Idaho have tall snowy mountains and rushing rivers. Evergreen forests, dry grasslands, and farming valleys are part of the whole region. The region is divided from the rest of the United States by the Rocky Mountains.

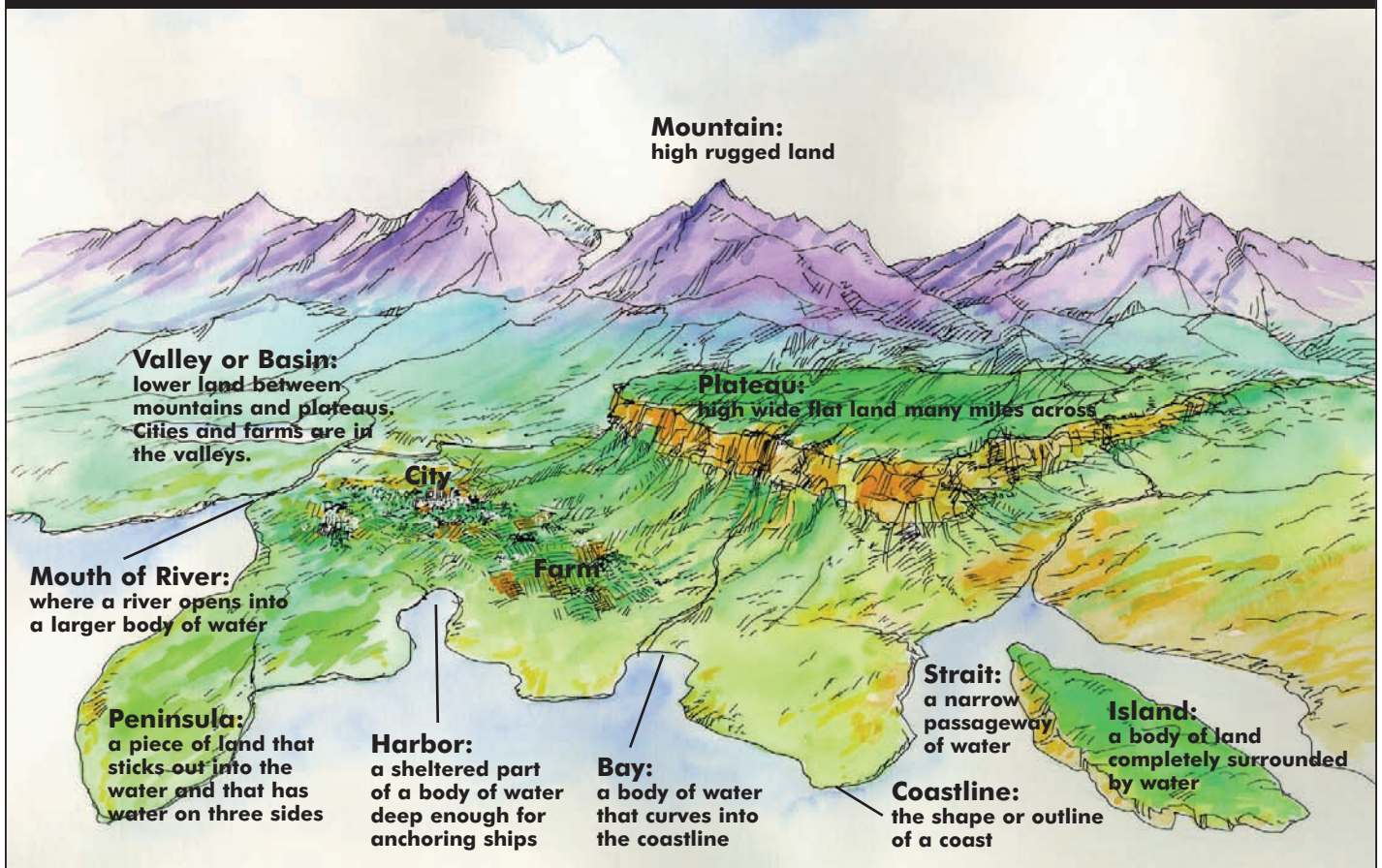
As you read through the chapters of this book, you will notice that our early history is the same as the early history of the other states in the Pacific Northwest. Indians moved freely across the land. Then fur trappers, missionaries, and pioneer settlers came to what was called the Oregon Country. It included today's Idaho, Washington, and Oregon.



Landforms

Landforms are features of the earth's surface. They are the result of powerful forces moving inside and outside the earth's surface. Some of these forces result in volcanoes and earthquakes. Others move oceans and even continents. Landforms are also the result of wind and water wearing away the earth's surface.

LANDFORMS



Washington's Five Land Regions

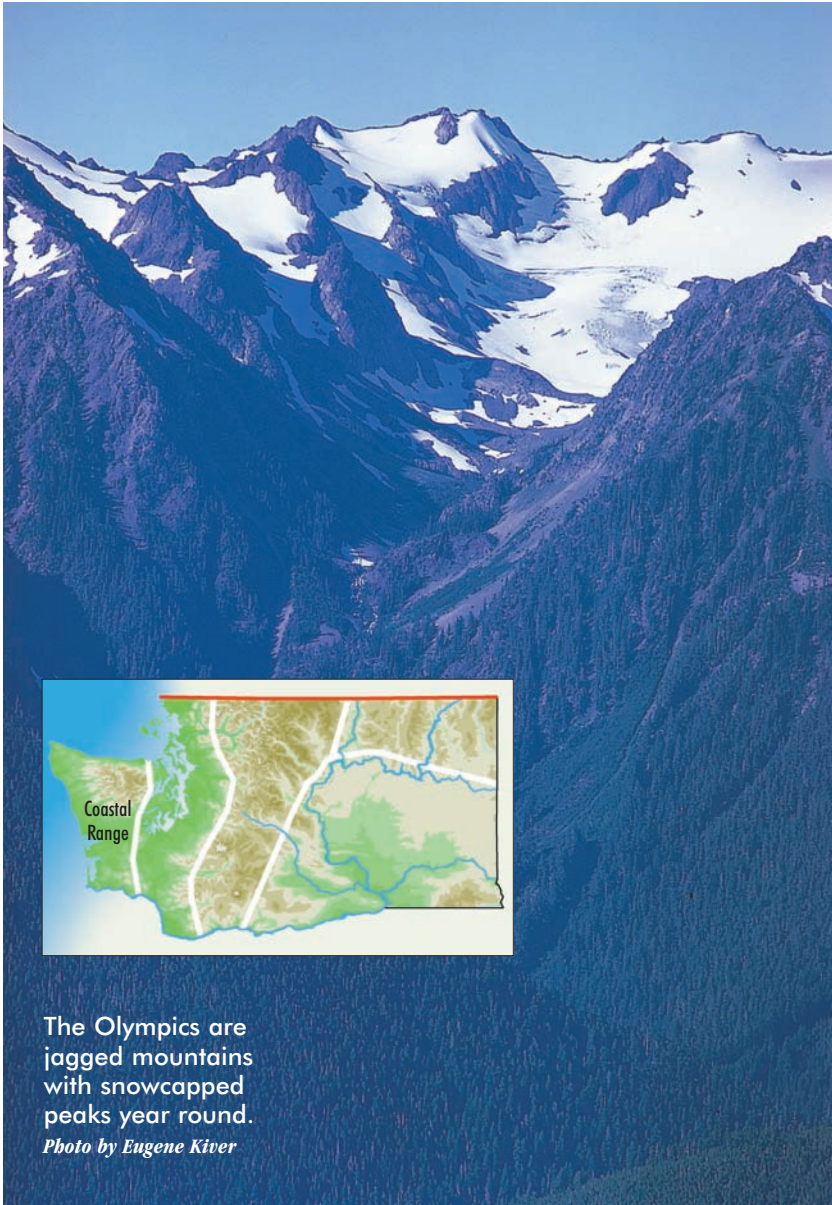
Washington can be divided into five land regions. Each region has at least one main type of landform, but may contain more. Major landforms are **mountains** and hills, **plateaus** (high, wide, flat areas hundreds of miles across), and **lowlands** that stretch to the ocean. **Basins** (wide bowl-shaped areas also called valleys) are surrounded by mountains or plateaus. Rivers, oceans, and lakes are also called landforms because they are natural features of the earth.

Each of our state's land regions is unique. Starting at the western coast and moving across the state, the land regions are:

- Coastal Range
- Puget Sound Lowlands
- Cascade Range
- Columbia Plateau
- Rocky Mountain

WASHINGTON'S LAND REGIONS





The Olympics are jagged mountains with snowcapped peaks year round.

Photo by Eugene Kiver

The Coastal Range Region

On the Olympic Peninsula there is a rain forest that supports such a profusion of plant life that naturalist Roger Tory Peterson proclaimed it “the greatest weight of living matter, per acre, in the world.” This narrow region offers the beauty of the Pacific Coast, the rainforest you can see on page 9, the snowcapped Olympic Mountains, and the thick forests. Olympic National Park is part of this region.

There is little industry in the region since most lumber mills have closed and commercial fishing is in decline. The small towns rely on tourism.

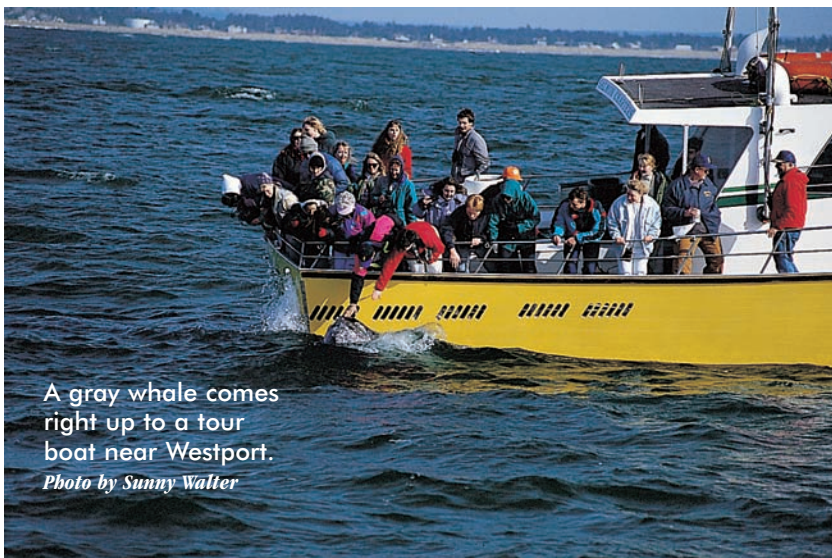
There are five Indian reservations on the coast and one along the strait.

The Puget Sound Lowlands

Large cities such as Seattle, Tacoma, Bellevue, Bremerton, Bellingham, Everett, and Olympia, the state capital, make this region the population center of the state. Seattle is the heart of the region. Home to Microsoft, one of the world’s largest corporations, this region boasts one of the highest per capita income levels in the country. Traffic congestion is considered one of the worst in the country. This is a bustling, crowded, exciting, prosperous region.

Deep-water seaports on Puget Sound and other ports on the Columbia River are important for the shipping industry. The bays, harbors, and San Juan Islands are popular recreation and vacation places.

Not everyone in the lowlands lives in cities, of course. One of the state’s richest farming areas is the Skagit River Valley. Tulips and daffodils are the most famous crop. Peas, carrots, cauliflower, broccoli, and other crops are grown for their seeds or are canned or frozen. The Cowlitz and Chehalis River Valleys are also farming regions. Dairy cattle and chickens are raised for profit.



A gray whale comes right up to a tour boat near Westport.

Photo by Sunny Walter

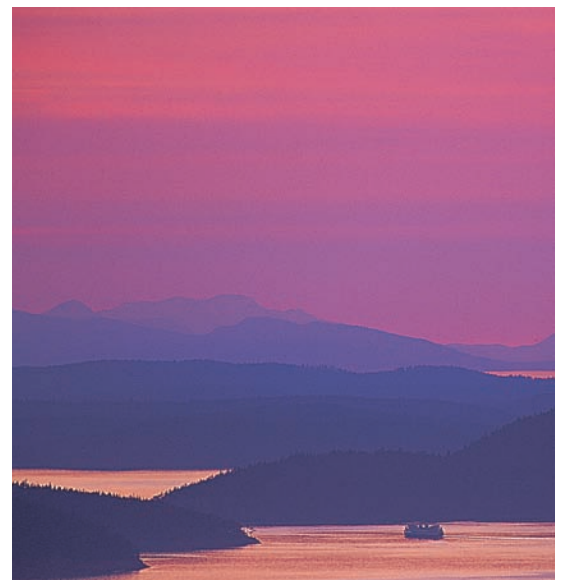


Miles of daffodils and tulips are grown in the Skagit Valley near Mt. Vernon. Selling the flowers and bulbs brings income to the people there. *Photo by Chuck Pefley*

Seattle shines at sunset. *Photo by Chuck Pefley*

Tacoma and Commencement Bay on Puget Sound are seen from the air. Seattle is in the distance. *Photo by Chuck Pefley*

A ferryboat glides between islands on the Strait of Juan de Fuca. *Photo by Chuck Pefley*



The Cascade Range Region

The Cascade Mountain range, with its high volcanic peaks and many glaciers, is considered Washington's most prominent geographic feature. These rugged mountains cut across the state, dividing the land sharply. They are a barrier to commerce and travel.

The mountains are sometimes called the "Cascade Curtain." This term recognizes the very different interests of the large seaport and manufacturing cities in the west and

the less-populated agricultural regions in the east.

The mountains also contribute to the startling differences in climate and rainfall between the eastern and western sections of the state. The land to the west of the mountains is rainy. Hemlocks, firs, and cedar forests grow in the damp climate. The forests of the western slopes are thick with mosses, ferns, and bushes growing beneath the trees. The eastern mountain slopes get

Glacier Peak towers in the North Cascades.



much less rain, so sparse ponderosa pine forests flourish there.

Five famous mountains are part of this region—Mt. St. Helens, Mt. Rainier, Mt. Adams, Mt. Baker, and Glacier Peak. Lake Chelan is also part of the region.

Two national parks, the North Cascades and Mt. Rainier, bring thousands of visitors to view the breathtaking beauty of the mountains. You will read more about Mt. St. Helens in Chapter 2.



Mountain Travel

The Cascades are not the great obstacle to travel they were in past years, though two of the five mountain passes are closed in the winter. Early wagon roads across the mountains were a dangerous adventure. Railroad access came only late in the 1800s. Now the four-lane Interstate 90 traverses the mountains through Snoqualmie Pass. When winter snows pile up and the threat of avalanches is great, however, Snoqualmie Pass can be closed for days at a time. Travelers just have to wait.



Photo by Barbara MacNulty



Travel over Snoqualmie Pass was quite different in 1919 than in 2000. The trip from Seattle to Spokane took three days in 1919. It takes four or five hours today. *Photo by Mike Green*



The Columbia Plateau

On the other side of the Cascades is the Columbia Plateau region. The high flat plateau covers most of eastern Washington and parts of Oregon and Idaho. It includes some of the driest land in the Pacific Northwest. Natural vegetation ranges from grassland to desert sagebrush.

The region includes the wheat growing area of the Palouse and the huge Columbia Basin Irrigation Project made possible by Grand Coulee Dam. These irrigated lands grow a large variety of crops, including apples, cherries, grapes, corn, and alfalfa.

Spokane is the metropolitan center of the Columbia Plateau. Spokane is the commercial, financial, and medical center of a

large region covering parts of surrounding states and southern British Columbia. Other cities on the plateau are Yakima, Moses Lake, Wenatchee, Walla Walla, Pullman, and the Tri-Cities (Richland, Pasco, and Kennewick).

The climate and soil of the Columbia Plateau prove ideal for growing grapes. Washington's wine industry has flourished in recent years.
Photo by Otto Stevens



Moving water has cut deep canyons and river gorges through the rock at Palouse Falls. *Photo by Barbara Murray*

Wheat and peas as far as the eye can see are harvested in the Palouse Hills. *Photo by Otto Stevens*

WHAT DO YOU THINK?

Why do you think the cities on the Puget Sound Lowlands attract more people than places on the Columbia Plateau? What factors of geography affect where people start cities, where industry thrives, and where farming is successful?



Spokane is seen from the North Hill across to South Hill.

Photo by Chuck Pefley

“If there is magic on this earth it lies in water, and nowhere is water so beautiful as in the desert, for nowhere else is it so scarce. . . . In the desert each drop is precious.”

—Edward Abbey



Washington State University lies in the beautiful town of Pullman. *Photo by Chuck Pefley*

Pefley

THE COLUMBIA RIVER

The Columbia River flows to the Pacific Ocean, forming the border between Washington and Oregon.

Photo by Chuck Pefley

Our southern border is formed by the “Great River of the West,” as it was called by early explorers. The river has its **headwaters** at Columbia Lake, high in British Columbia, Canada. The river enters Washington flowing south, then sweeps around the “Big Bend” to its **confluence** with the Snake River. Carrying the water of both rivers, the Columbia turns

west. Cutting through the Cascades in the spectacular Columbia Gorge, the river continues to flow to the sea.

When summer arrives and mountain snow melts, what happens to all the water? Much of it flows in thousands of tiny streams into larger streams, then into rivers. These **tributaries** eventually become part of the mighty Columbia River, and the water

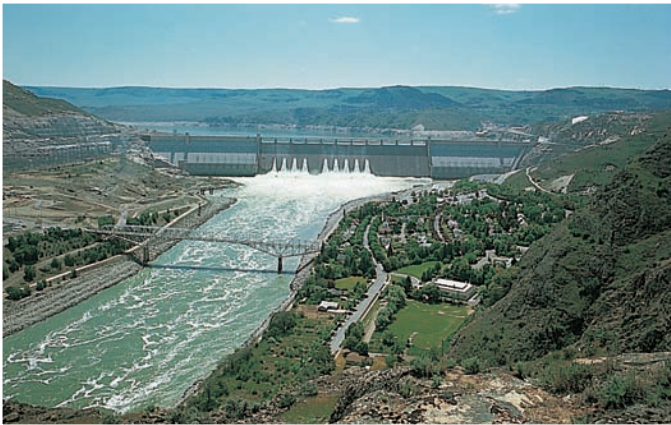


flows into the Pacific Ocean. In this way, the Columbia River drains water from the mountains like the drain in a sink.

The river's course across the state helps to explain much of Washington's history. Early explorers hoped it would provide a waterway all the way across the continent. Indian tribes and early fur trappers relied on it for transportation in their large canoes and as a source of food. The river became the source of a thriving commercial salmon industry. Railroads followed its route through the Cascades, while steamboats braved its wild waters.

The river's huge volume of water, together with its very steep fall in elevation, makes it the most powerful river in North America in terms of **hydroelectric** energy. Major dams on the river produce more electricity than any other state. By the late 1900s, the Columbia had been so altered by dams it was called an "engineered" river. The wild river was tamed. Roosevelt Reservoir behind Grand Coulee Dam and Banks Lake behind Dry Falls Dam are man-made lakes that are welcomed as recreation places in dry regions.

Grand Coulee Dam provides electricity and flood control for the Columbia Plateau.

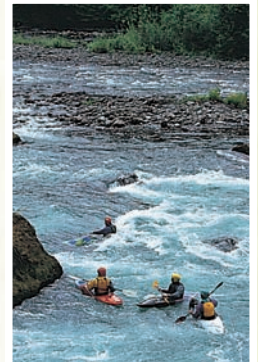


Power lines carry electricity from the dams to the cities.

Photo by Barbara Murray



WASHINGTON'S MAJOR RIVERS



Kayaking is great sport on the rapids of the Elwha River. *Photo by Sunny Walter*

“Round ‘em up!”
Ranchers take cattle from higher pastures to the lower valleys for the winter.

Photo by Jim Oltersdorf



The Rocky Mountain Region

This region in the corner of the state is sometimes called the Okanogan

Highlands. The steep hills are foothills of the great Rocky Mountains.

To make a living in this region, people rely on farming, mining lead and zinc, ranching, and lumbering. A few small towns depend on tourism. Native Americans live on three reservations.

A Generous Uncle Sam

In early United States history, two factors greatly influenced every aspect of this region’s settlement and economic development:

One was the vastness of the land—thousands and thousands of miles of open spaces far from settled areas in the East.

The other was that the United States government either bought land from other countries, got it by Indian treaties, or won it in war. Then the government gave away, free or at very low cost, large pieces of land to pioneer homesteaders, cattlemen, timber companies, miners, and the railroad.

National Parks

National Park	Date Created
Mt. Rainier	1899
Olympic	1938
North Cascades	1963
Klondike Gold Rush (downtown Seattle)	1976

such as roads and buildings, are kept to a minimum. The parks are a refuge for natural plants and animals.

Washington has three national parks and several national historic parks:

Olympic National Park has a constant wet climate. On the ocean beaches of the park, you can search for interesting rocks and shells and climb on huge driftwood logs that have been carried ashore by the ocean. Just beyond the beaches, a rain forest, thick and green and full of many kinds of plants, is unique in North America. Only trails penetrate this mountain wilderness.

Mt. Rainier National Park was the first national park in Washington and one of the first in the United States. A giant volcano is covered with glaciers. Lower slopes are decorated with dense forests and flowering meadows. Skilled mountain climbers find this highest peak in the state—and one of the highest in North America—a challenge. For other nature lovers, miles of high mountain roads offer splendid views.

Washington’s National Parks

National parks are government-protected places that are unique in some way. They are set aside so everyone can enjoy nature. Changes to the land,



North Cascades National Park is a breathtakingly beautiful place to visit. Jagged glaciated peaks loom above an alpine region of meadows, forests, fast-running streams, and spectacular waterfalls. The park is rich in wildlife.

Klondike Gold Rush National Historic Park is located in downtown Seattle. The park tells the city's historic role as the beginning site for trips to the Alaskan gold fields in the mid-1800s.

San Juan Island National Historic Park is the site of British and American military campsites when the United States and Great Britain both claimed the islands.

Whitman Mission National Historic Site is where Marcus and Narcissa Whitman started an Indian mission and were later massacred. The Whitmans provided education and religious instruction to the native people and assistance to pioneers on the Oregon Trail.

Canada, Our Northern Neighbor

An important feature of Washington's geography is its border with Canada's British Columbia. Relationships between the people in both countries are friendly. Many Canadian "snowbirds" spend winters in Florida or the U.S. Southwest. Vancouver Island and Victoria Island are favorite vacation places for U.S. tourists.

There are, however, complicated trade issues about fishing rights, lumber sales, and pollution problems in shared waters. Since the Columbia River flows through Canada and the United States, both countries are concerned about the use of water for irrigation, shipping, fishing, and the electricity generated at the dams on the river. These issues involve negotiations between both national governments.

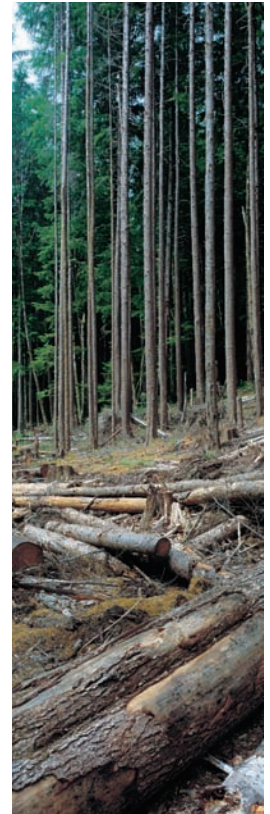


Photo by Chuck Peffley

CHAPTER 1 REVIEW

1. Define geography and describe how geography and history are related.
2. Define and give examples of physical and human characteristics of a place.
3. Why did pioneers often regard the environment as an adversary?
4. What are Washington's most serious environmental problems?
5. What can people do today to preserve the natural environment?
6. Name the country, states, and bodies of water that form Washington's boundaries.
7. List at least two important ways that the Pacific Ocean affects the land and people of Washington.
8. What are the three most common types of landforms in Washington? What bodies of water are also considered landforms?
9. What type of region is the Pacific Rim? How does Washington's place on the Pacific Rim give us an advantage in a global economy?
10. List our state's five land regions.
11. Which two land regions have the highest population?
12. Which land region is mostly at sea level, but also has a rainforest and mountains?
13. Which land region is the driest?
14. Name three large cities in the Puget Sound Lowlands.
15. Name three land features or cities in the Columbia Plateau.
16. The Columbia River has its headwaters in _____.
17. Name a large tributary of the Columbia River.
18. List at least three ways the Columbia and the dams on the river help the people of Washington.