

Let's Explore *teacher guide* History Using Maps!



Inside, you will find interactive activities that will help you explore Oregon's history using maps!

Keep an eye out for me, Sandy, for fun facts and helpful hints along the way!



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Let's Learn [^] All About Maps!

teacher guide!

Geography skills are an essential part of navigating and understanding today's world, and this workbook is meant to help students explore Oregon's history using maps and spatial thinking.

Pages 33-34: Teaching Standards - National Geography Standards (NGS), Oregon Geography Standards (OGS), and Oregon Environmental Literacy Standards (OELS)

Each of the activities in this book includes at least one of the following symbols—which serve as a guide to how the workbook activities connect to the state and national standards:




National Geography Standards (NGS)



Oregon Geography Standards (OGS)



Oregon Environmental Literacy Standards (OELS)

Additional Resources: A red apple () at the bottom of the page indicates additional activity resources for teachers, which are located on **Page 35**.

We hope you find this workbook helpful in improving map and geographic literacy in Oregon!

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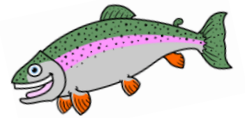
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Maps Tell Stories!

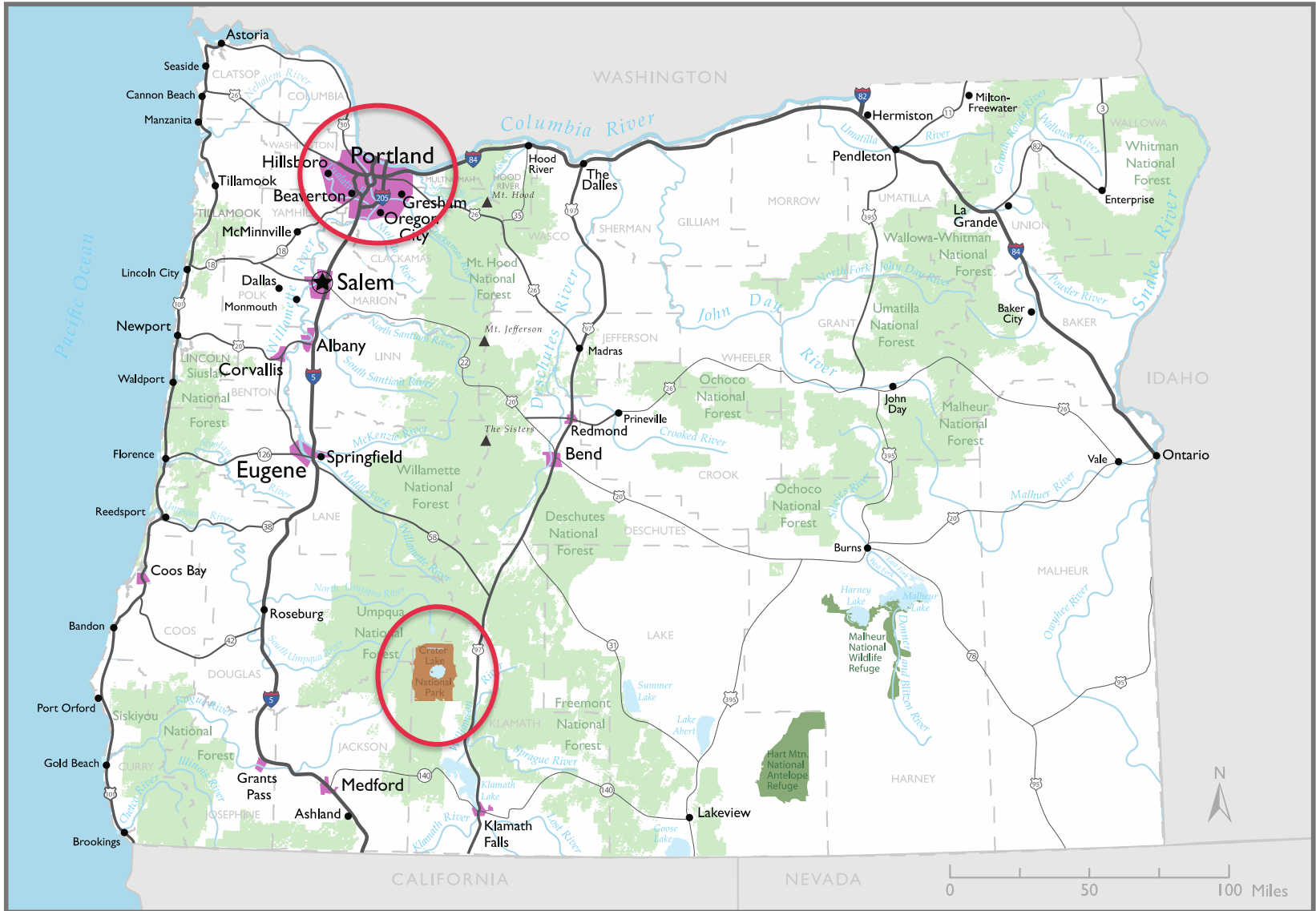
Maps are useful for navigating the world, but did you know that they can also teach us about history? Historical maps can reveal how the physical and cultural landscape has changed over time, and modern maps of historical events can help illustrate what happened hundreds of years ago.

Together, let's explore Oregon's history using maps!

Hi! I'm Sandy the Chinook Salmon, the official Oregon state fish. Keep an eye out for me as you go through the book; I'll be your helpful guide through the activities.



General Reference Map of Oregon



Quick Facts About Oregon

The state of Oregon is located on the west coast, sandwiched between Washington (to the north) and California and Nevada (to the south). To the west, Oregon's coastal range extends along the Pacific Ocean, which is the largest ocean on Earth. To the east Oregon shares a boarder with Idaho. Take a moment to get to know Oregon by exploring the map on Page 2. What features do you see? Can you find the state capital—Salem—on the map?

Below are some quick facts about Oregon. Use the information on this page—and the General Reference Map of Oregon on Page 2—to answer the questions below!

- Oregon was the 33rd state to be added to the United States of America. Oregon achieved statehood in 1859.
- Oregon's biggest city is Portland, which had a population of approximately 610,000 people in 2015. That's enough people to fill the arena where Portland's basketball team "The Trailblazers" play over 30 times!
 - The second largest city in Oregon is Eugene, which has a population of 160,000.
- Oregon's state motto is "She flies with her own wings".
- Oregon is 96,981 square miles (or 251,161 square kilometers) in size.
- Crater Lake in southern Oregon is the deepest lake in the United Sates and the only national park in the state.

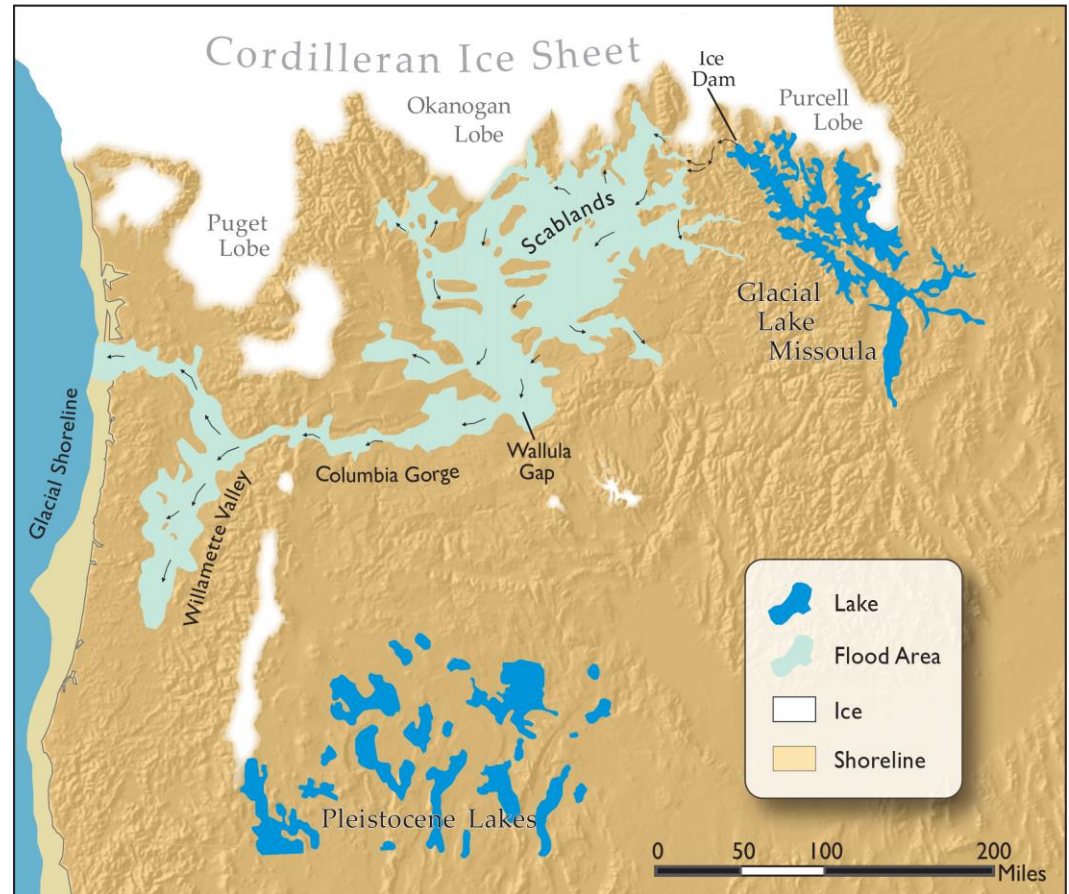
1. Can you find where your live on the map of Oregon? Circle it!
2. Find Oregon's State Capital on the map and circle it. How is it symbolized on the map? **A black star** _____
3. Find Crater Lake on the map and circle it. What color is it on the map? **Brown** _____
4. What town is farthest south in Oregon? **Brookings** _____
5. What four states boarder Oregon? **Idaho, California, Nevada, Washington** _____
6. In what part of Oregon is your hometown? Use the cardinal directions (N, E, S, W, NE, etc.). _____
Various answers possible
7. Do you know your hometown's origins, or some fun facts about where you live? Write them here.
Various answers possible



Oregon's Landscape Over Time: The Lake Missoula Floods

The Earth is over 4.5 billion years old, and the landscape we see today has been shaped by millions of years of earthquakes, floods, and fires. At the end of the last ice age (20,000 years ago), a glacier formed an ice dam in the North Fork of the Clark River in Montana. When the dam broke, it caused a 500-foot-high wall of water to sweep west over Washington, where the waters scraped off layers of soil, leaving behind a landscape known today as "Scablands". The flood continued west and south to Oregon and through the Columbia River gorge. In Portland, the water flooded the Willamette Valley (briefly reversing the flow of the river) and finally headed northwest to the mouth of the Columbia where the flood waters, and the debris they carried, emptied into the Pacific Ocean. This event helped to shape Oregon's landscape, and had a lasting impact on the environment. We can still see the effects of the flood in the landscape today.

The Lake Missoula Floods



1. The bright blue shows areas of land that were flooded 20,000 years ago. Are these areas covered with water today? No
2. Are the areas of ice the same today as they were 20,000 years ago? Why do you think this is? _____
No, they are not. This is due to long term climate change and large-scale glacial retreat.



NGS: 1, 7, 17



OGS: 1, 3

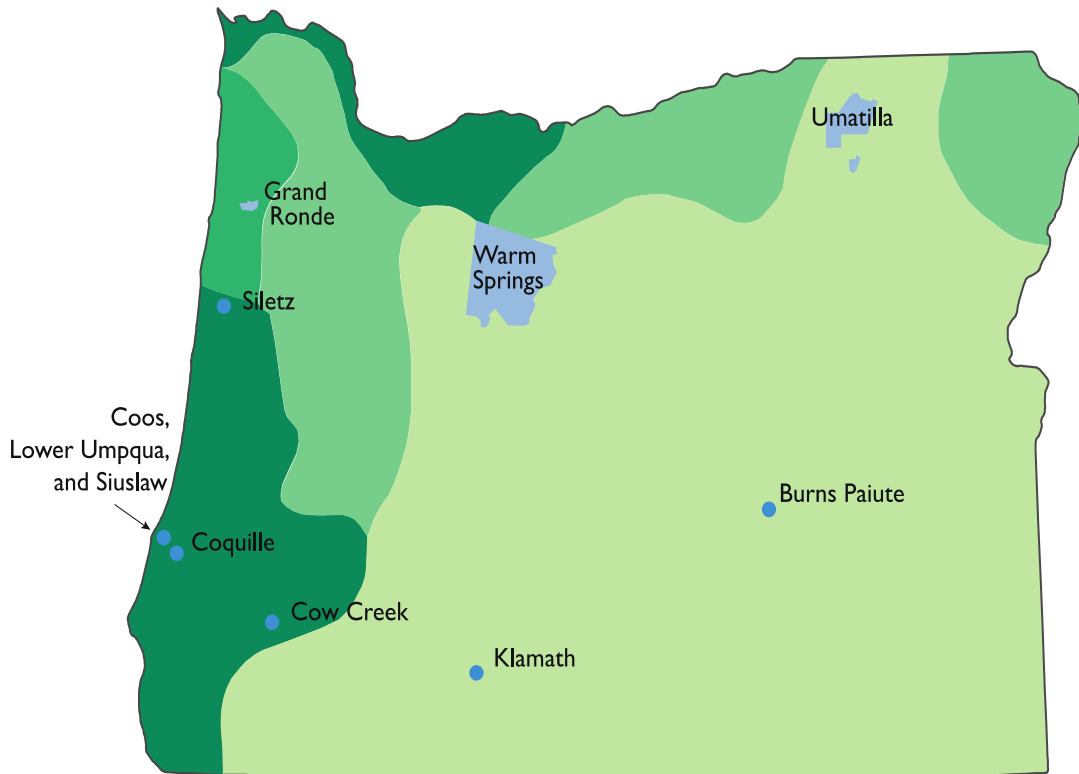


OELS: 2

Native Americans in Oregon: Population

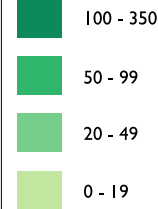
Long before it became a state, the area we now call Oregon was home to Native American people. These tribes included the Chinook, Molalla, Tillamook, and Umpqua. Do those names sound familiar? Oregon, like many other states, used the names of the Native American tribes when naming cities, towns, counties, and natural features such as rivers. Historically, Native Americans lived primarily along the coast, in the Willamette Valley, and along the Lower Columbia River. However, when settlers began migrating west in the mid-1800s (in search of gold, land, and timber), wars and European diseases such as smallpox killed thousands of Native Americans, devastating many of the tribes. As a result, some of the historic tribes were wiped out of existence.

Native Americans: 1780 Population



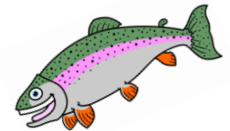
1780:

Estimated Number of People
per 100 Square Miles



Today:

- Blue Square: Native American Reservations
- Blue Dot: Reservations with land too small to display



You can find salmon like me in some of the places Native Americans used to live. Columbia basin salmon are a large part of the culture and religion of many Native American tribes. Salmon are also an important food resource for native peoples, and fishing is still the preferred livelihood for many tribal members.

Native Americans in Oregon: Language and Territory

The map below shows where different Native American tribes lived in Oregon before European settlers arrived. The map also shows the different languages each of these groups spoke. When settlers came West, the Native American tribes who survived were placed on reservations. Today Oregon has three main reservations: Warm Springs, Umatilla, and Grand Ronde.

Native Americans Tribes and Language Groups

“Wy-kan-ush” is the Sahaptin word for the salmon that are used in sacred ceremonies. The Nez Perce word for Snake River Chinook Salmon is “nacoox”.

Ceilo Falls—marked with a red star on the map—was a culturally important fishing and gathering site for many tribes in Oregon on the Columbia River. However, with the opening of the Dalles Dam in 1957 the falls were drowned under the dam’s reservoir.



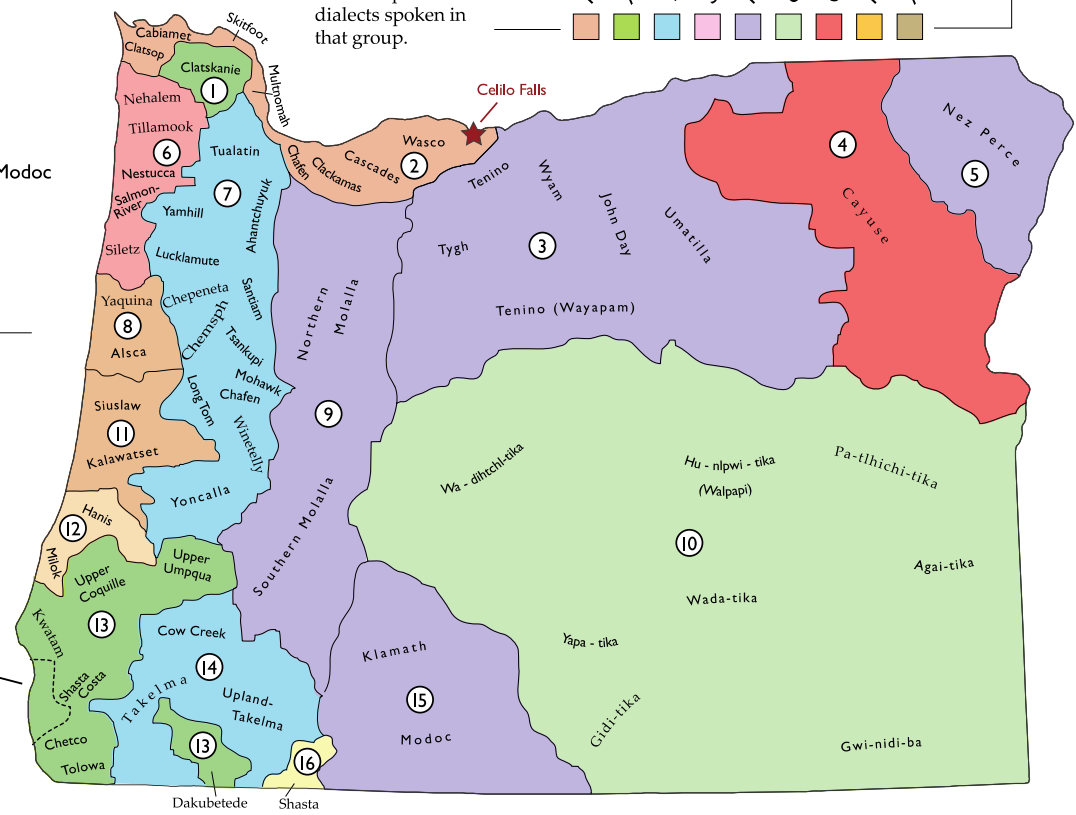
- Tribes**
- | | |
|--------------|-------------------|
| ① Clatskanie | ⑩ Northern Paiute |
| ② Chinook | ⑪ Sluslaw |
| ③ Sahaptin | ⑫ Coos |
| ④ Cayuse | ⑬ Tututni |
| ⑤ Nez Perce | ⑭ Takelma |
| ⑥ Tillamook | ⑮ Klamath/Modoc |
| ⑦ Kalapuya | ⑯ Shasta |
| ⑧ Alsea | |
| ⑨ Molalla | |

Language

The color represents language groups. The names represent the dialects spoken in that group.

- | | | | | | | | | |
|----------|------------|--------------------|--------|------------------|-------------|--------|-------|-----------------|
| Penutian | Athabaskan | Takelman-Kalapuyan | Salish | Plateau Penutian | Uto-Aztecan | Cayuse | Hokan | Alsea & Siuslaw |
|----------|------------|--------------------|--------|------------------|-------------|--------|-------|-----------------|

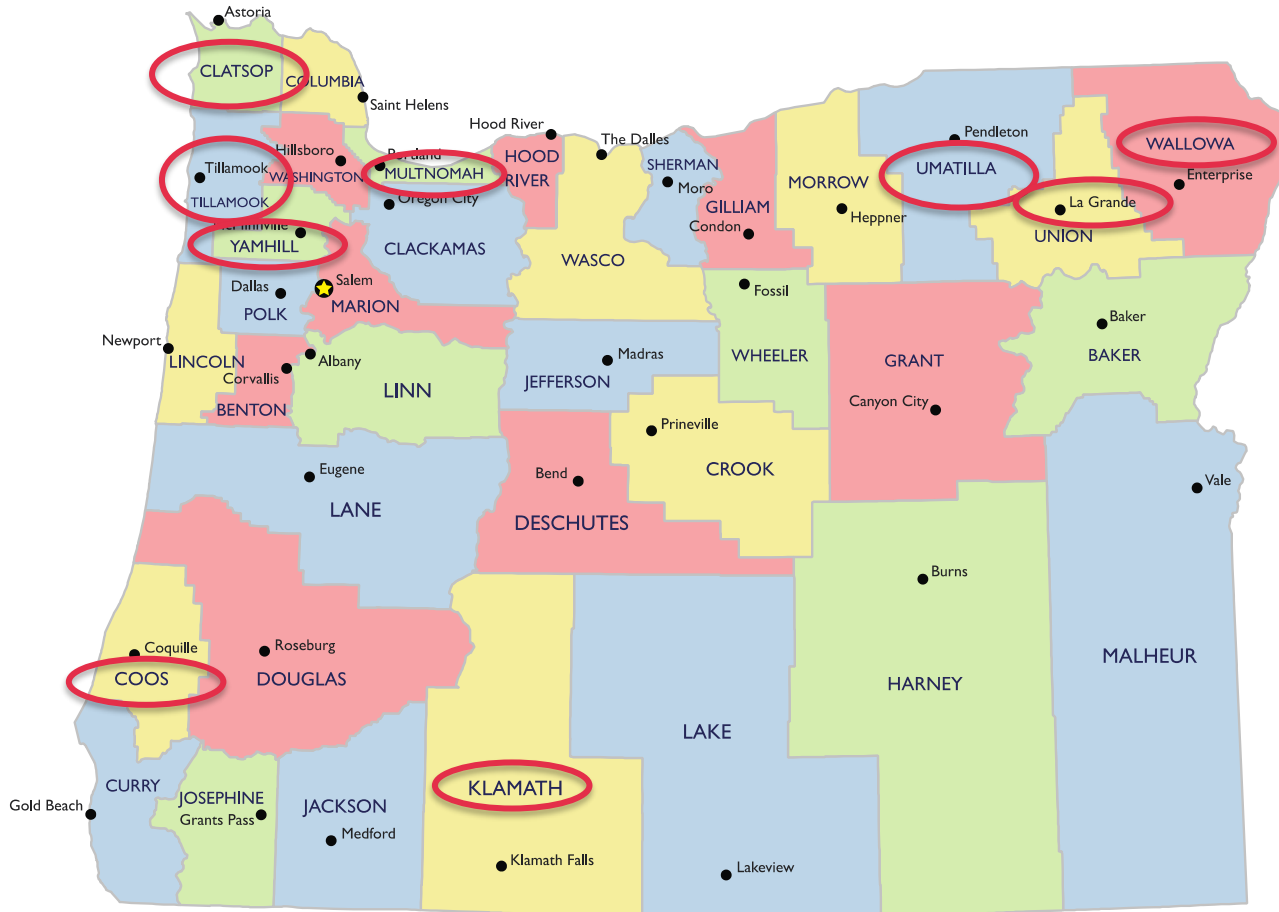
This area inhabited by speakers of: Yukichetunne, Tutuni, Mikonotunne, Chemetunne, Chetleshin, Kwaishtunnetunne



Native Americans in Oregon: Tribal Names and Oregon Counties

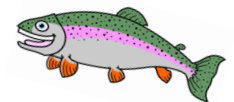
Just as the United States is divided into 50 different states, each state is divided into many different counties, which are geographic and political subdivisions of space. Below is a map of Oregon's counties and county seats. Many of the counties in Oregon were named after the Native American tribes that once lived there. Using the "Native American Tribe and Language Groups" map on Page 6, circle all of the Native American names you see on the map below.

Oregon Counties and County Seats



What county do you live in? What county is the city of Portland located in? What county is home to Salem, the state's capital?

Various answers possible; Portland is in Multnomah county. Salem is in Marion county



Lewis and Clark

Meriwether Lewis and William Clark were explorers from Virginia who went on an expedition to the western part of North America. The journey was commissioned by President Thomas Jefferson in 1803 in order to explore the land, find out what resources existed, and stake a claim to the west before the British did. Accompanied by 32 men, the Shoshone Native American Sacagawea, her baby, and a dog, Lewis and Clark followed a route from St. Louis, Missouri, all the way to the Pacific Ocean off the coast of Oregon. This expedition helped to open up the west to European settlers, who would later come west via the *Oregon Trail*.

Lewis and Clark Trail

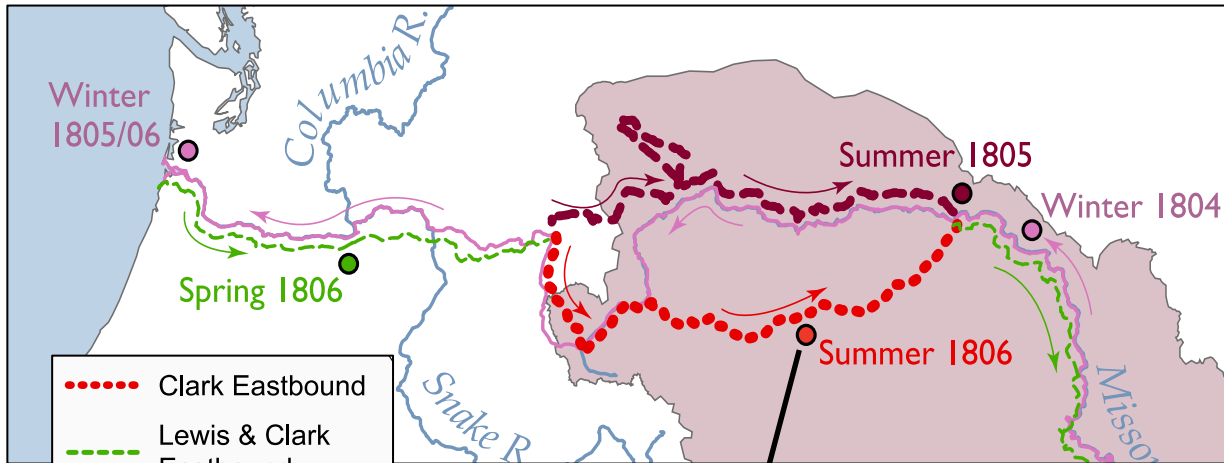


Sacagawea (pictured above standing with Lewis and Clark) played an important role as an interpreter and diplomat for the various Native American tribes that Lewis and Clark encountered throughout the journey. Early in the expedition, Sacagawea gave birth to a baby boy, who accompanied the expedition across the Territory.

Lewis and Clark: Separate Journeys

Lewis and Clark did not spend the whole journey together. Although their party traveled westward (towards the Pacific Ocean) as one unit, they split up on their return (eastbound) journey in order to explore more land. The explorers separated on July 3rd 1806 at Traveler's Rest, in present-day Montana. Lewis traveled north (depicted in **dark red**) while Clark—along with Sacagawea and her son, Jean-Baptiste—took a southern route (depicted in **bright red**). During this time, Clark was able to map the Yellowstone River. Clark also left the only on-site evidence of the entire expedition: after discovering a large rock formation (which he named "Pompy's Pillar", after his nickname for Sacagawea's son), he signed and dated the stone. You can still see Clark's mark today. The explorers met up again along the Missouri River in August of 1806, in present-day North Dakota. From there they traveled together back to St. Louis, and presented their findings to President Thomas Jefferson.

Lewis and Clark Trail: Separate Journeys



Can you name some of the natural features found in Oregon, such as Haystack Rock? How do you think the features got their names?

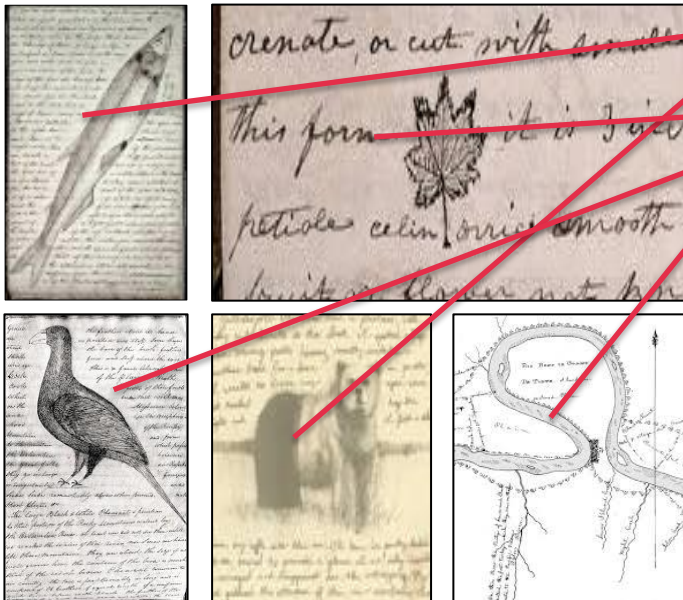
Multiple answers possible

Lewis and Clark: Keeping Good Field Notes

Lewis and Clark were asked by President Jefferson to take good field notes of everything they saw: plants, animals, tools, etc. President Jefferson told them: *"Your observations are to be taken with great pains and accuracy to be entered distinctly, & intelligibly for others as well as yourself."*

President Jefferson understood that Lewis and Clark's field notes would be used by researchers and students for hundreds of years. When you conduct fieldwork (studying in the outdoors), it is important to keep detailed and accurate notes including drawings – even if you think the drawings are not perfect. **See if you can match the Lewis and Clark drawings on the left with the modern-day pictures of the things they discovered along the way to the Pacific Coast. How closely do their drawing match the real object?**

Lewis and Clark's Drawings



Names

1. Fish (salmon)
2. Bear (grizzly)
3. Leaf (maple)
4. Bird (grouse)
5. River (oxbow)

Actual Objects



Multiple answers possible



NGS: 5, 8



OGS: 3



OELS: 2

Lewis and Clark: Mapping an Expedition

In order to share their findings with the President, Lewis and Clark kept detailed maps and drawings of what they saw along their expedition. **Go on a walk around your home or school. Create a detailed map of your path and a map key for points of interest you see along the way.** Lewis and Clark drew pictures of the animals and plants they encountered along their route, so if you see an interesting plant or feature along the way, you should mark its location on the map, and then draw what it looks like on the right-hand side of the map.

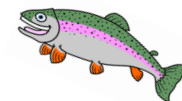
Draw your map here:

Map Key:

Multiple answers possible

Animal, Plant, or
Interesting Feature:

Since I live in a river, my map would have lots of pebbles and stones. I might also draw some other fish, some tasty food, and predators (like bears!) on my map key, and I would include specific river plants in my detailed drawing of interesting features.



The Oregon Trail: Moving West

Between 1841 and 1869 thousands of people migrated to the Western part of the United States by way of the Oregon Trail. The Oregon Trail was a 2,200 mile long path that pioneers traveled from Missouri to Oregon. Many settlers had covered wagons they used to transport all of their belongings and everything they needed for the journey. Settlers had to weigh the promise of gold, land, and abundant resources against a multitude of risks. The harsh climate conditions, diseases, and constant exertion made it a difficult journey, and some pioneers did not make it all the way to Oregon. **Many places along the trail were named for physical (landscape) features or human structures or people. Place the location names on the map in the appropriate columns.**

The Oregon Trail



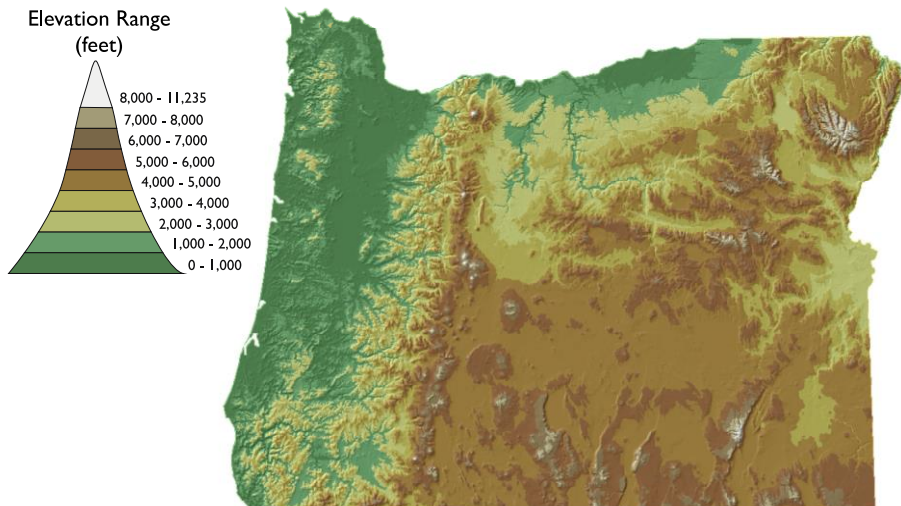
Wagon wheel ruts on the Oregon Trail in Eastern Oregon

Physical Feature	Human Structure
Devil's Gate,	Scott's Bluff,
Council	Shoshone
Bluffs,	Falls
Chimney	
Rock, the	
Dalles	

The Oregon Trail: Navigation, Landscape, and Migration

Why wasn't the Oregon Trail a straight line (the shortest distance) from St. Louis to Oregon? Travelers on the Oregon Trail faced many obstacles on the landscape, such as rivers and mountains. **Using the maps below, identify obstacles which may have caused the Oregon Trail to divert from a straight line. Also, identify physical features which might have helped the migrants move more quickly across the landscape.**

Oregon Topography



Oregon Rivers



“Topo” (topographic) maps show the height of the landscape, allowing you to see where mountains and valleys are located!

Fording the River:

- **Pros:** Access to the fresh water, a way to cool off from the heat, a place to bathe and drink, fish for food
- **Cons:** Hard for the covered wagons to go through, rapids might be dangerous and water might be very deep

Traversing the Forest:

- **Pros:** Shade from the sun, animals to hunt, abundant firewood
- **Cons:** Hard to maneuver wagons, poisonous plants and dangerous animals may be present

Passing Over the Mountains:

- **Pros:** Cooler temperatures, most direct route
- **Cons:** High and strenuous climb, possibility of avalanche or rock slide, not much food on the mountain

Multiple answers possible; students should demonstrate an understanding of the role that topography, rivers, and landscapes play in navigating the Oregon trail.



NGS: 4, 15, 17



OGS: 1, 2, 3



OELS: 1, 2

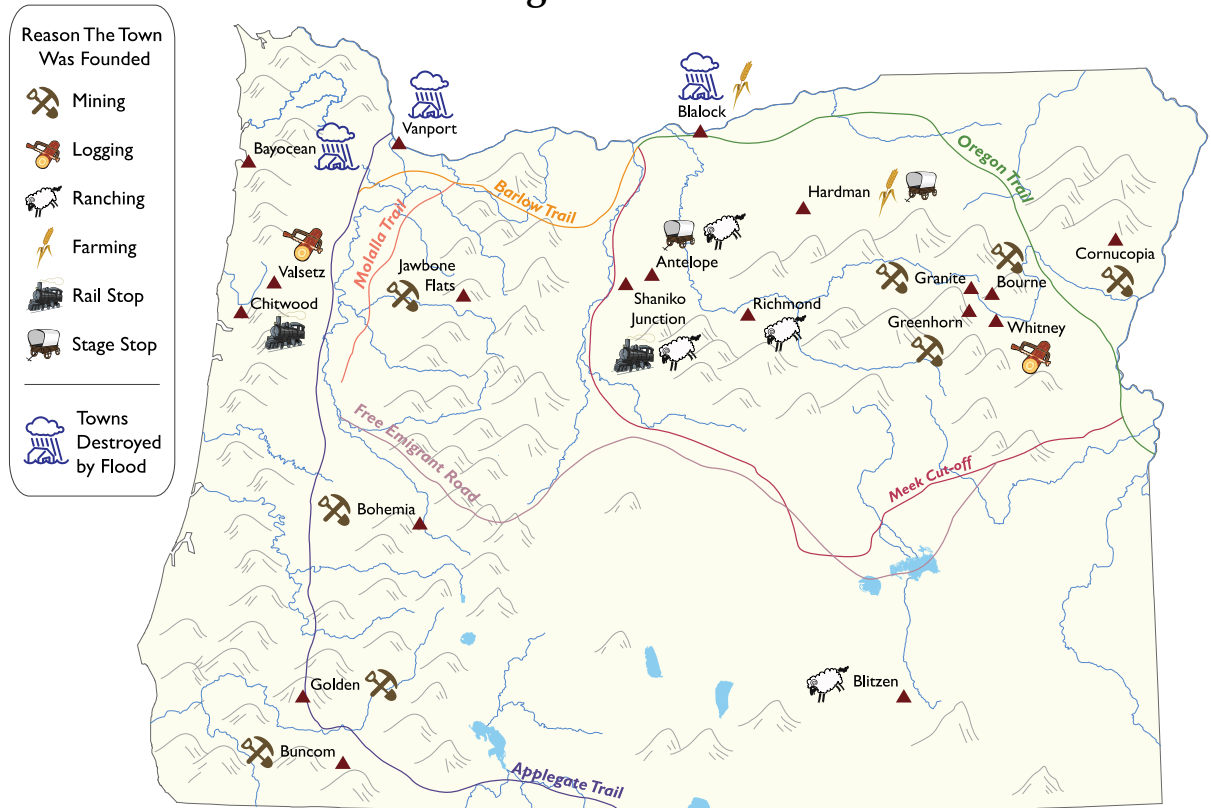
The Oregon Trail: Historic Trails and Ghost Towns

While the Oregon Trail is the most famous, it is not the only historic trail in Oregon. The *Applegate Trail* was started by the Applegate family to find a safer route to the Oregon Territory after they lost two children along the Oregon Trail. Another historic route, *Meek Cutoff* (founded by Stephen Meek), may sound friendly, but the trail was notoriously difficult and many settlers lost their lives along the journey. Some of Oregon's early towns were also abandoned by their original inhabitants. You can still visit "ghost towns such as Jawbone Flats, an old mining camp in the Opal Creek Wilderness Area. Can you find Jawbone Flats on the map below?

Use the map on this page and the map of Oregon on Page 2 to answer the questions below:

1. What modern-day city lies at the fork of the Oregon Trail and the Meek Cutoff Trail? Vale
2. The historic Applegate Trail passes by several large cities in Oregon. Which ones? Medford, Ashland, Eugene, Albany, Salem, Oregon City, Portland
3. Many ghost towns are clustered in the northeast portion of the state. Why might this be? This is where the mineral deposits are available in the landscape.

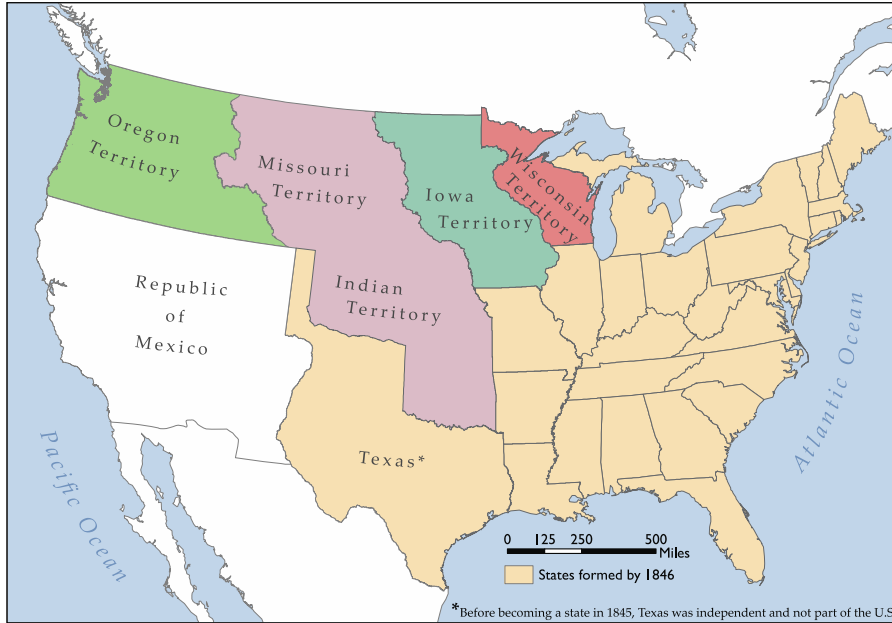
Oregon's Historical Trails and Ghost Towns



Oregon's History: Achieving Statehood

By the mid-1840s the Oregon Trail had brought many settlers West, and Western populations were growing rapidly. In 1848 the area now known as Oregon, Washington, and Idaho (and parts of Wyoming and Montana) was officially admitted to the United States as an "incorporated territory" known as the Oregon Territory. Oregon's boundaries were defined and Oregon was officially admitted to the United States as a state in 1859.

United States in 1846: States and Territories



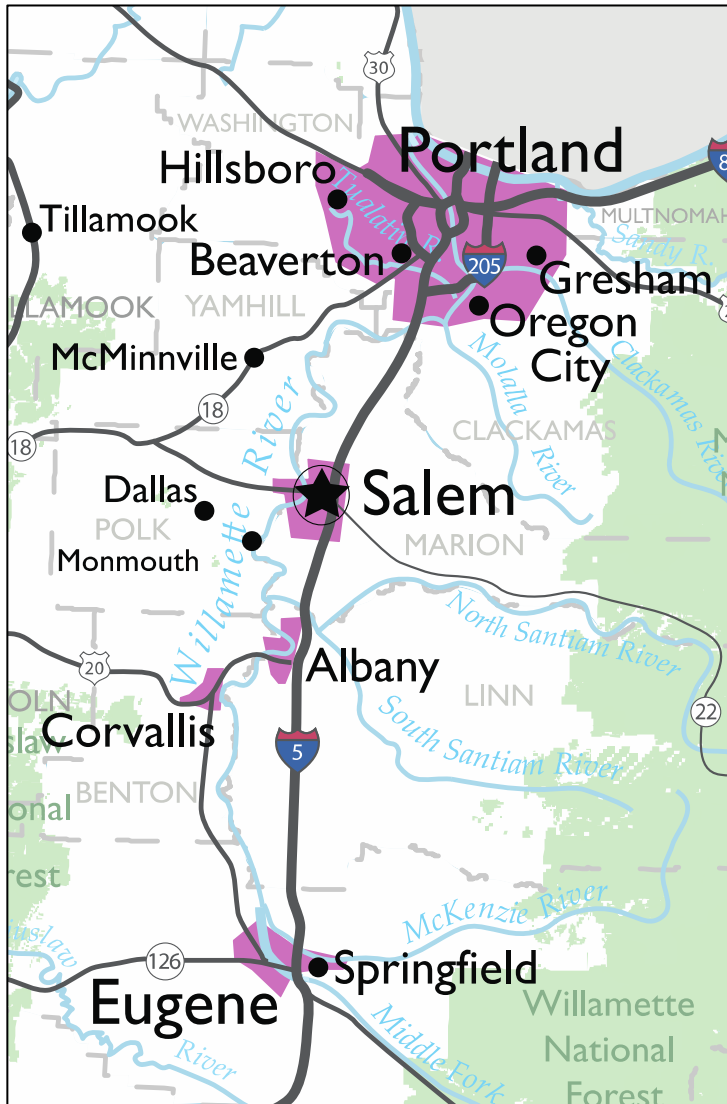
United States in 1859: Oregon Statehood



1. How many new states were added between 1846 and 1859? Five
2. How many new territories, or renamed territories, were added between 1846 and 1859? Seven
3. What year will mark Oregon's 200th anniversary as part of the United States? 2059
4. What year will mark Oregon's 350th anniversary as part of the United States? 2209
1. What modern-day state occupies the 1859 "Indian Territory"? Oklahoma

Oregon's History: Choosing a Capital

Willamette Valley Cities



Did you know Salem has not always been Oregon's state capital? When Oregon initially became an incorporated territory, Oregon City (located just south of the Portland Metropolitan Area) was declared the capital by Governor Joseph Lane. In 1850, the legislature of the Oregon Territory passed an act declaring Salem the capital, and in 1855 the capital was moved again—this time to the city of Corvallis (initially named “Marysville” by the town's founder). Salem was not officially declared the state capital until 1864, five years after Oregon achieved statehood.

Salem is currently the third largest city in Oregon, and as of 2015 the capital had nearly 155,000 residents. The city covers about 48 square miles. By comparison, Portland covers 145 square miles.

Use the map on this page to answer the questions below.

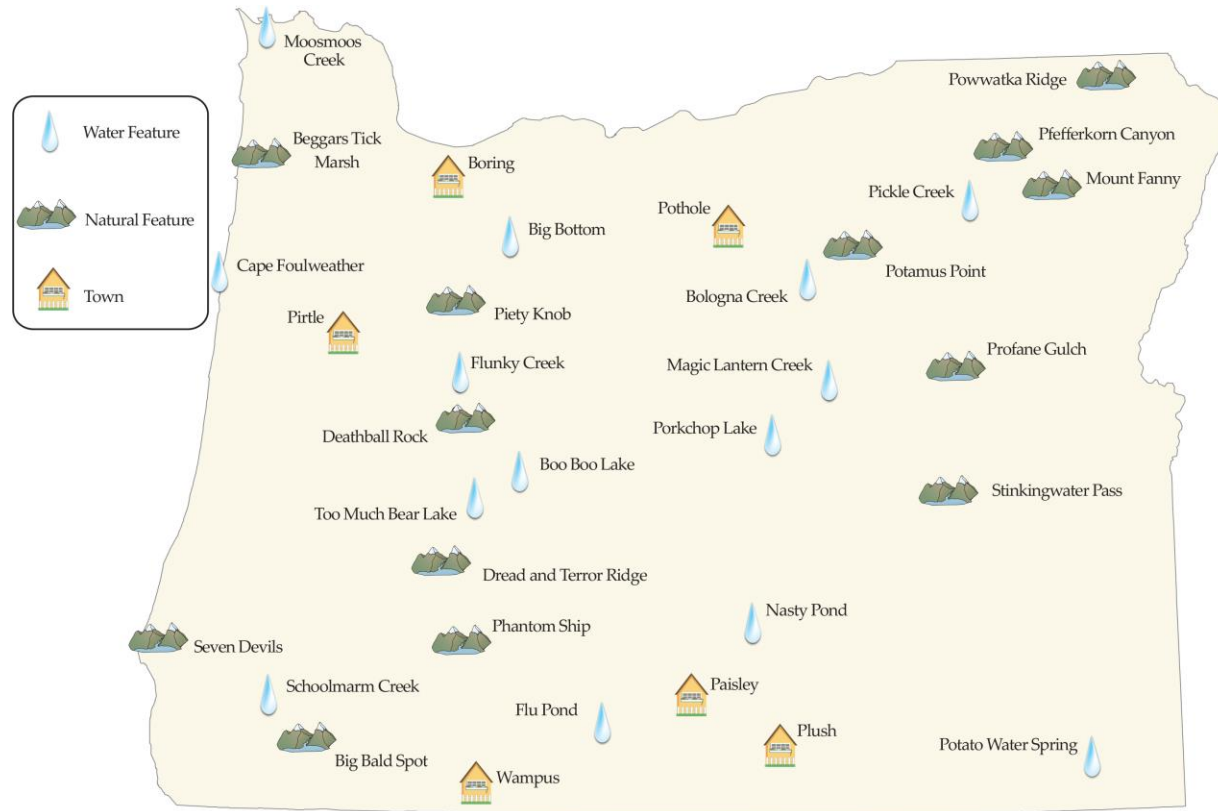
1. What are the three most populated cities in Oregon? (Hint: see Page 3) Portland, Eugene, Salem
2. What three cities were all early contenders for the role of Oregon's capital? Salem, Oregon City, and Corvallis
3. If you wanted to travel by car from the Portland Metropolitan Area to Salem, what highway would you take? What other cities could you get to along this road? You would take I-5, which could also take you to Albany and Eugene (or north to Seattle)
4. What county is Salem located in? (Hint: see Page 7) Marion



Oregon's History: Place Names

The map below shows unusual place names in Oregon, and Page 18 explores the origins and history of place names across the State. Use these maps—along with the General Reference Map of Oregon on Page 2—to answer the questions on this page.

Unusual Place Names



Too Much Bear Lake sounds like a dangerous place for a fish like me to visit. Yikes!

1. On the “Unusual Place Names” map, what places would you most (and least!) want to visit? Why? _____
Multiple answers possible
2. What large Metropolitan area is the city of Boring located near? **Portland**
3. What do you think the natural feature “Phantom Ship” is located near? **Crater Lake**
4. What mountain range is named after the Cree word that means “spotted horse”? **Siskiyou Mtns.**
5. How did Beaverton get its name? **Beaverton got its name from the abundance of beavers that once inhabited this agricultural region**
1. What mountains were originally named Faith, Hope, and Charity? **The Three Sisters**
2. What town is named for John Jacob Astor? **Astoria**
3. What does “Deschutes” mean in French? **Falls**



Oregon's History: The Origins of Place Names

Place Name Origins

Places Named After Natural Features

Cape Foulweather is the place (and weather) of Captain Cook's first landfall in Oregon

Cascade Range was named after the rapids in the Columbia River

The Dalles means "flagstones" in French, and refers to a narrow river bordered by flat ledges

Sandy River is short "Quicksand River", named by Lewis and Clark

Strawberry Mountains are named for the wild strawberries found in the area

Deschutes River means "falls" in French and refers to Celilo Falls on the Columbia River

Warm Springs is named for the local natural



Places with Native American Names

Tillamook is the name of a Salish tribe

Multnomah is the Chinook name for the Willamette River

Wallowa Mountains refers to a Nez Perce word for a type of fish trap

Siskiyou Mountains is a Cree word for "spotted horse" which a fur trader lost in a snowstorm in the mountains

Siletz River refers to a local Native American word for black bear

Umpqua River is a Native American word for the area around that river

Coos Bay was named after the Cook-koo-oose tribe

Places Named for Explorers and Immigrant Settlers

Hillsboro is named after Oregon's first elected governor, David Hill

Three Sisters mountains were originally called Faith, Hope, and Charity by missionaries

Hell's Canyon in the Snake River gorge was named to promote tourism

Columbia River was named by Captain Robert Gray after his ship, the "Columbia Rediviva", with first entered the river in 1792

Beaverton is named for the abundance of beavers that originally inhabited the wetlands of this agricultural region

Burns is named for the Scottish poet Robert Burns

Hood River and Mt. Hood are named for Samuel Hood, a member of Captain Vancouver's expedition

Corvallis is Latin for "heart of the valley"

Steens Mountain is named for the army major who fought the Paiutes in the region in 1860

Summer Lake was named by Captain Fremont to contrast with nearby Winter Ridge

Enterprise was named by the town's first, and optimistic, residents

Rogue River was first called Woodville, but was changed to better advertise the town

Harney Lake is named after a Brigadier General William Harney

Owyhee River is named for Hawaiian fur trappers killed nearby

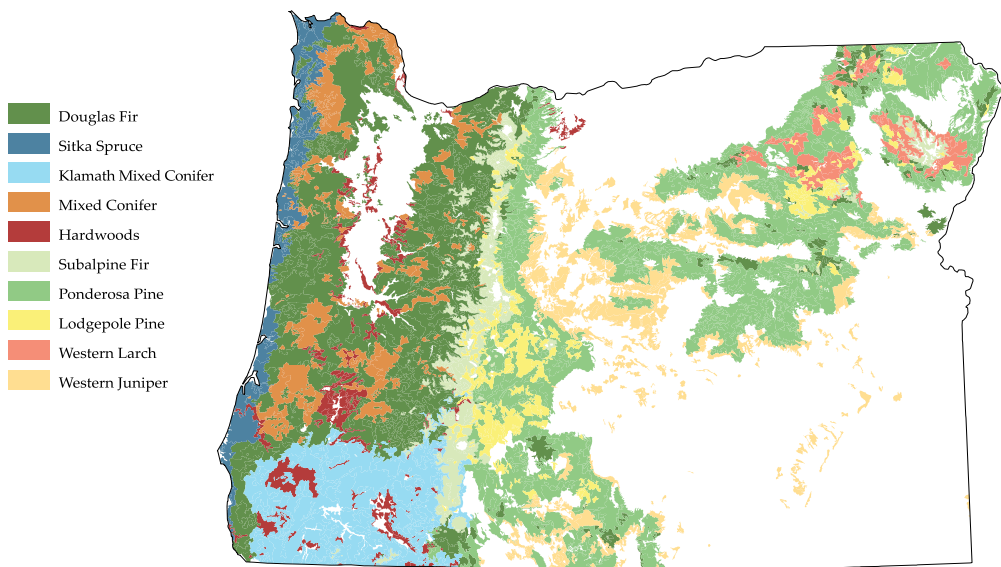
Malheur River Means "misfortune" in French and refers to thefts of furs that hunters experienced in the area

Astoria is named for John Jacob Astor whose fur company had a trading post there

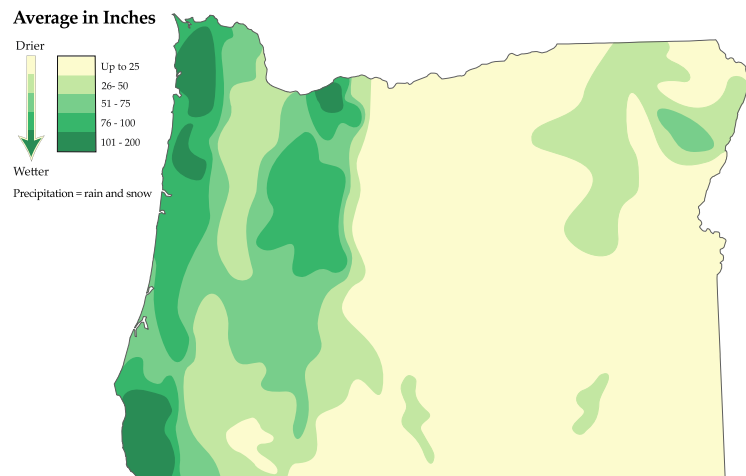
Oregon's Resources: Forests

Oregon's forests are one of its most important resources. Different plant species thrive in different environments; some plants prefer high rainfall, while others grow best in dry and arid environments. Oregon's forest zones are defined by the main types of tree species found in each zone, and many of the tree species are harvested and sold as lumber. Use the maps below to explore trends in Oregon's forest cover and answer the questions on this page.

Oregon's Forest Zones



Average Annual Precipitation



1. Where are most of the Sitka Spruce trees located? Why do you think that is? _____
Along the coast, where there is significant rainfall and moderate temperatures throughout the year
2. Subalpine fir trees are concentrated along a particular natural feature. What is it? Why do you think this is? _____
Along the Cascades, where conditions are cool and relatively moist at higher elevations
3. Compare the average annual precipitation map to the forest zone map. What tree species can withstand relatively dry conditions? Which species are located in areas that get significant amounts of rain? **Douglas fir, Sitka spruce, conifers, and hardwoods prefer wet conditions, while Lodgepole and Ponderosa pine, and western larch and juniper prefer dry**

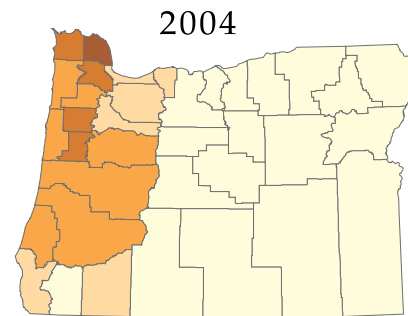
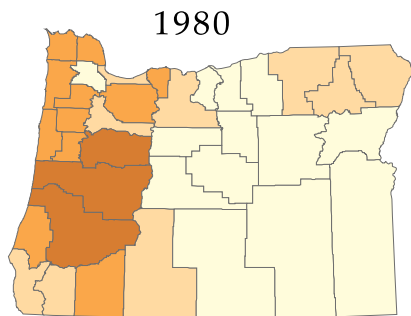
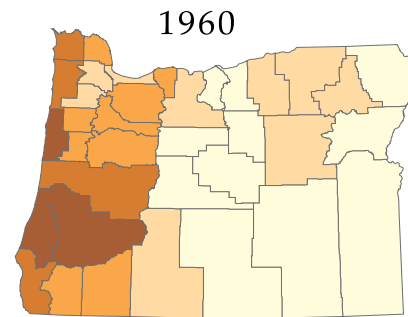
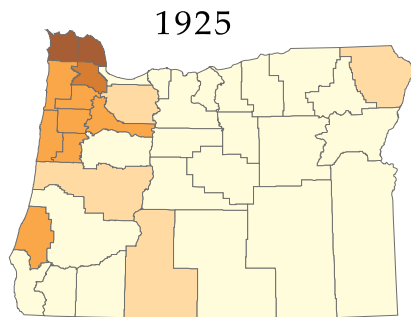
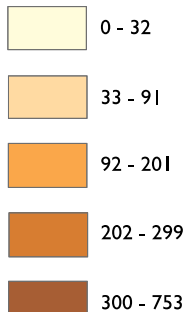


Oregon's Resources: Forests and Timber

Oregon settlers quickly began logging in order to provide the raw materials for building roads, houses, and other infrastructure. The maps below show how much logging was done in each of Oregon's counties from 1925-2004. Today, foresters try to balance our need for timber with the ecosystem's need for forest habitat for animals and fish like Sandy.

Timber Harvest Over Time

Numbers are in thousands of board-feet harvested per square mile



How have trends in forest harvest in Oregon changed over time? Why do you think that is?

Various answers possible. Students should discuss trends in forest harvest, noting a steady increase from 1925, with a spike in the 60s. Harvest levels are now more similar to harvest levels in the 80s. This is due, in part, to growing awareness of sustainable resource management.



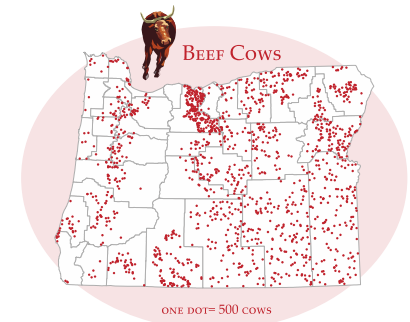
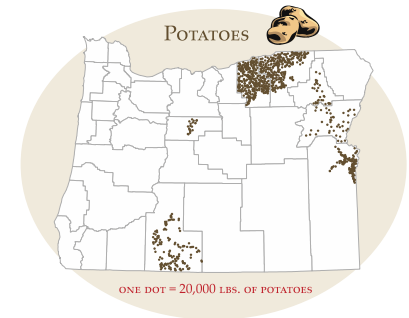
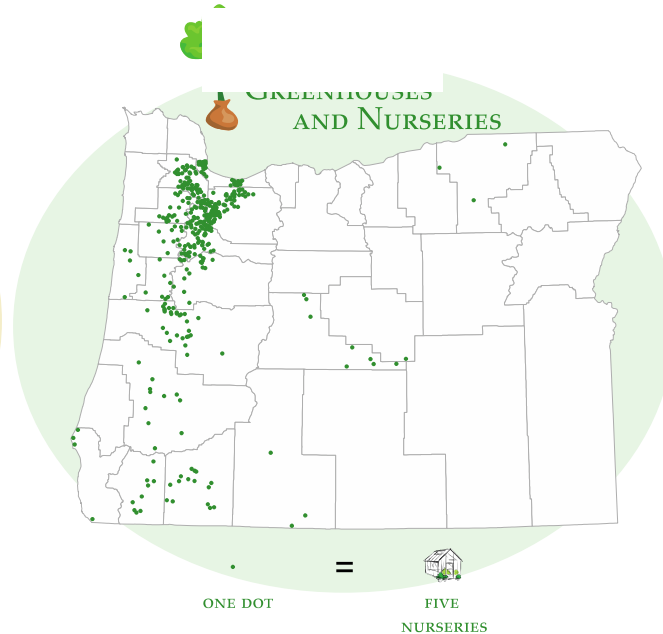
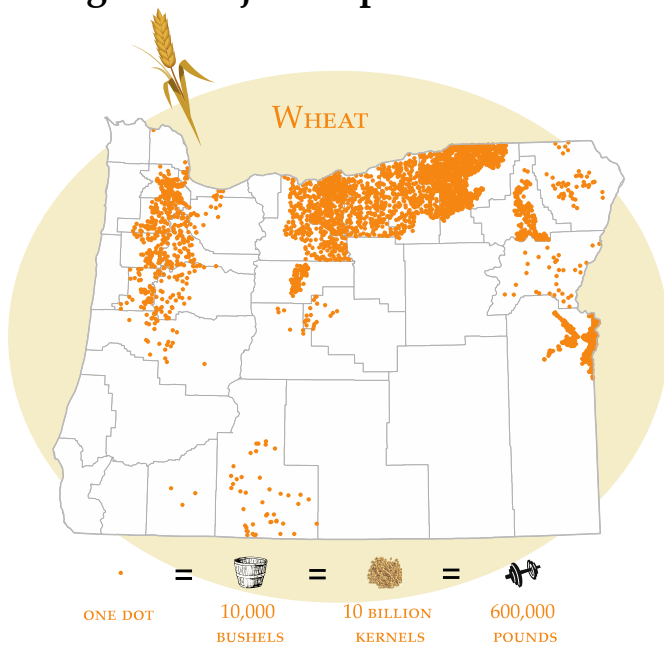
Timber harvest is measured in "board-feet". A board-foot is equivalent to 1 foot long x 1 foot wide x 1 inch thick.



Oregon's Resources: Crops and Farmland

In addition to forest and timber resources, one of Oregon's most valuable natural resources is its farmland and the crops that are produced on that land (and shipped around the world). Wheat is Oregon's largest crop by weight, while greenhouses and nurseries are Oregon's largest crop by total dollar value. Oregon also produces significant amounts of onions, potatoes, and cattle (milk cows and beef cows).

Oregon's Major Crops



1. Where is wheat production in Oregon concentrated? Why? Wheat production is concentrated in the Willamette Valley and NE Oregon, where rainfall is favorable for production
2. Where is greenhouse and nursery plant production concentrated? Willamette Valley
3. Where is potato production concentrated? Why? Potato production is concentrated east of the Cascades and in NE Oregon, where soil conditions are favorable
4. Where is beef cattle production concentrated? Why? Beef production is concentrated east of the Cascades, where there is abundant grazing and farming land



NGS: 1, 4, 7



OGS: 1, 2, 3

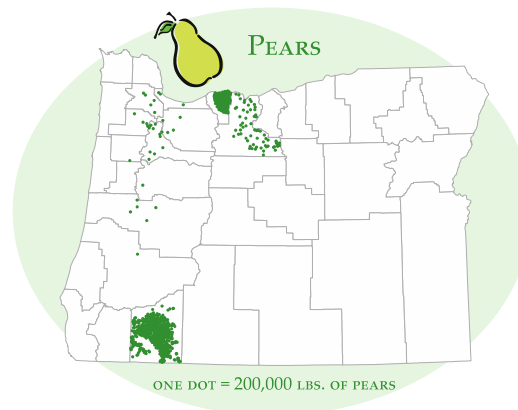
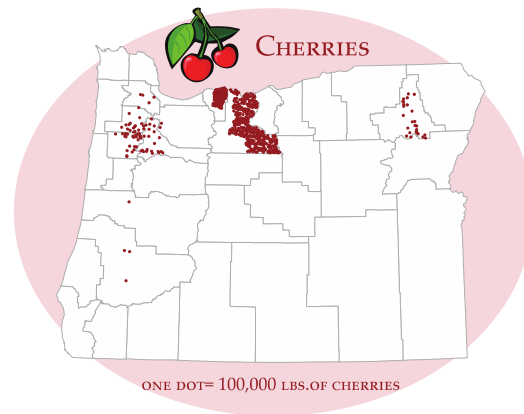
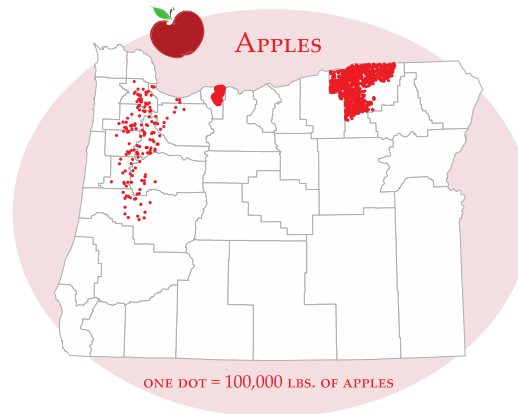
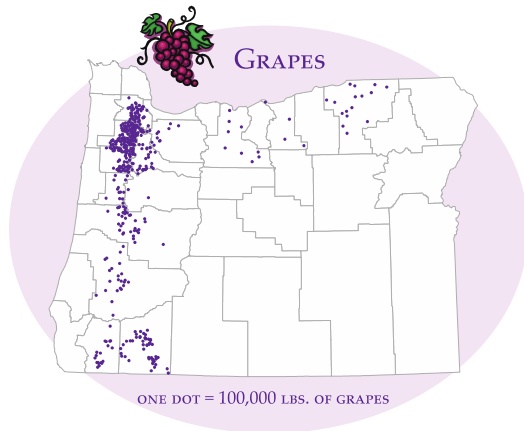


OELS: 3

Oregon's Resources: Crops and Farmland

In addition to meat and potatoes, Oregon also produces a significant amount of fruit. When you buy produce at the grocery store there's a good chance some of it was grown locally. In 2014 Oregon produced over 68,000 tons of apples (that's over 136,000,000 pounds), and over 45,000,000 pounds of blackberries.

Oregon's Major Fruit Crops



1. What areas produce most of Oregon's apples? Why might this be? _____

The Willamette Valley and the Dalles, where the soil is extremely fertile, and Umatilla County

2. Do you notice any trends for where all four crops are grown? Why? _____

All of the crops are grown in the Willamette Valley, and most are grown in The Dalles

3. Two areas in Oregon produce a significant number of pears. What locations are these two centers of production located near? _____

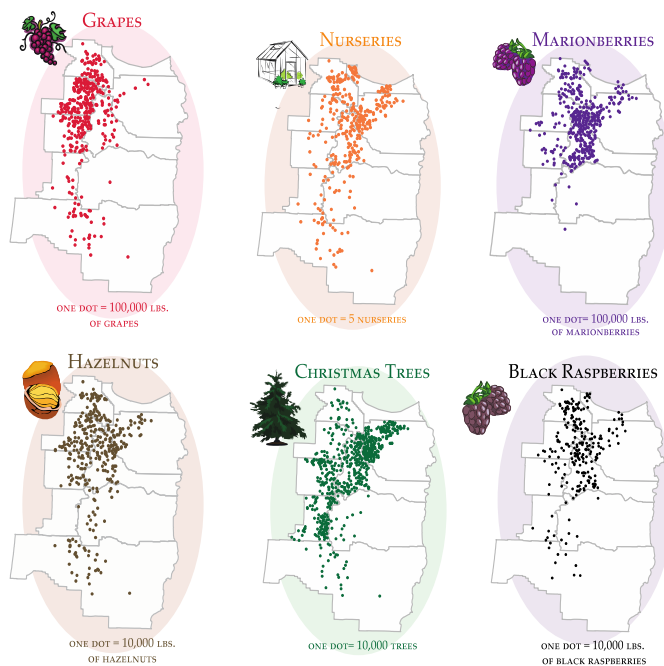
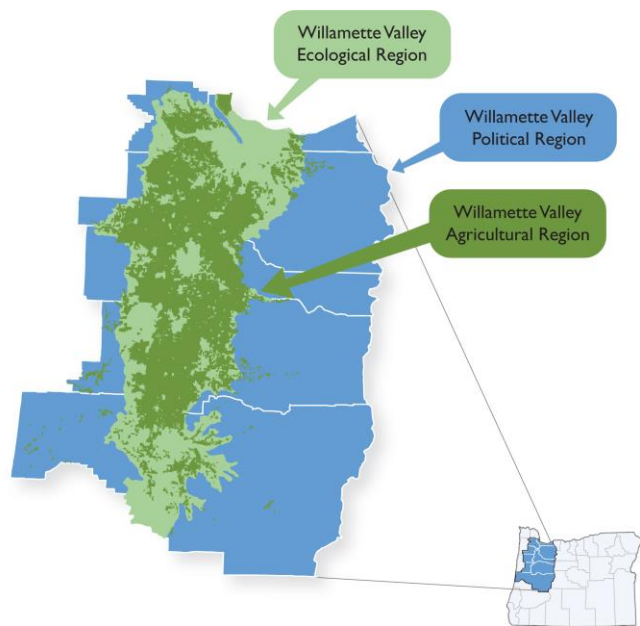
The Dalles, near Portland, and Jackson County, near Medford



Oregon's Resources: Willamette Valley Crops and Farmland

The *Willamette Valley* is an important political (counties), ecological (vegetation), and land use (agriculture) region in Oregon. The valley is home to the majority of Oregon's major cities and human population, and it follows the path of the Willamette River through Northwestern Oregon. At the end of the last ice age, catastrophic flooding (the "*Missoula Floods*" described on Page 4) brought rich sediments to the Willamette Valley. Coupled with prolific rainfall, this has made the Willamette Valley one of the most fertile agricultural regions in the United States, which was one of the many reasons settlers risked their lives to travel West.

The Willamette Valley and Its Crops



As the climate continues to change, what effect do you think this will have on the Willamette Valley and the crops grown there? _____

Various answers possible

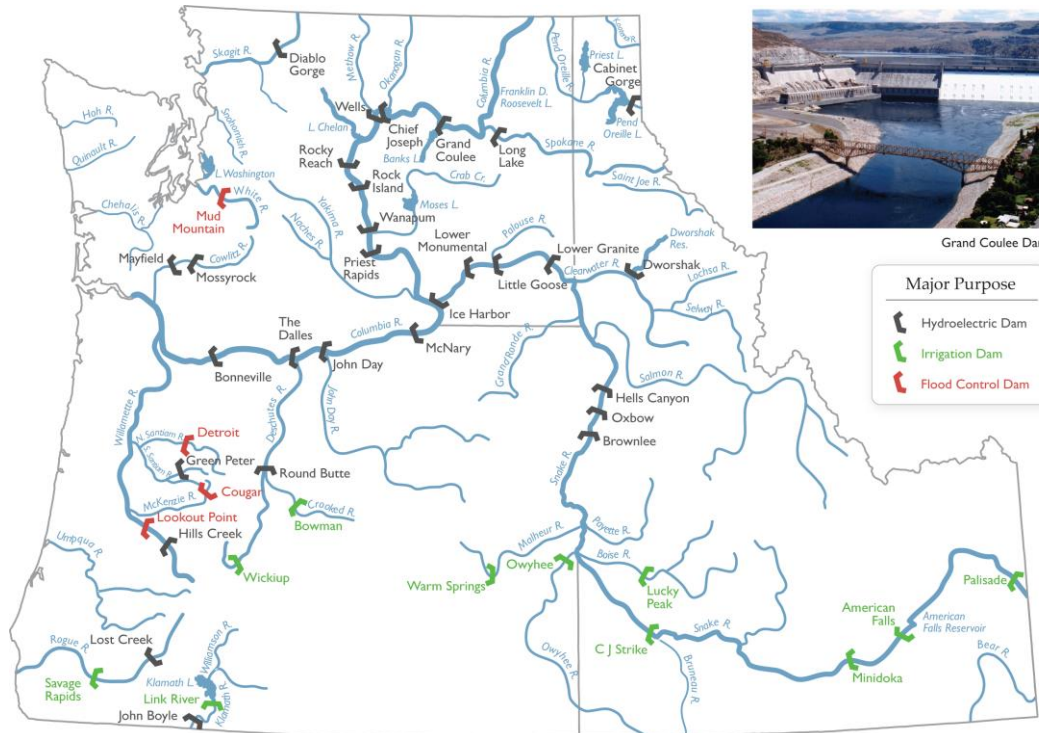


The valley stretches from Portland to Eugene and is over 150 miles long. That sounds like a long way for a fish like me to travel without a car!

Oregon's Resources: Hydropower

Oregon's waterways are also a valuable resource, and they aren't used only for fishing and transportation. Hydropower is also an important source of energy in Oregon, which is the second leading generator of hydroelectric power in the United States (Washington ranks first). "Hydropower" refers to energy derived from water, similar to how "solar power" refers to energy derived from the sun. Oregon has over 1,300 large dams that store water for a wide variety of purposes, and Oregon also has over 10,000 small dams that provide irrigation for crops, and habitat for waterfowl. Dams are useful because they help reduce the risk of floods, provide a reliable power and water supply, and have recreational uses, such as fishing and tourism. However, they also displace people, destroy valuable habitat, and block the passage of fish, such as salmon. Use the map on this page to answer the questions below.

Dams of the Pacific Northwest



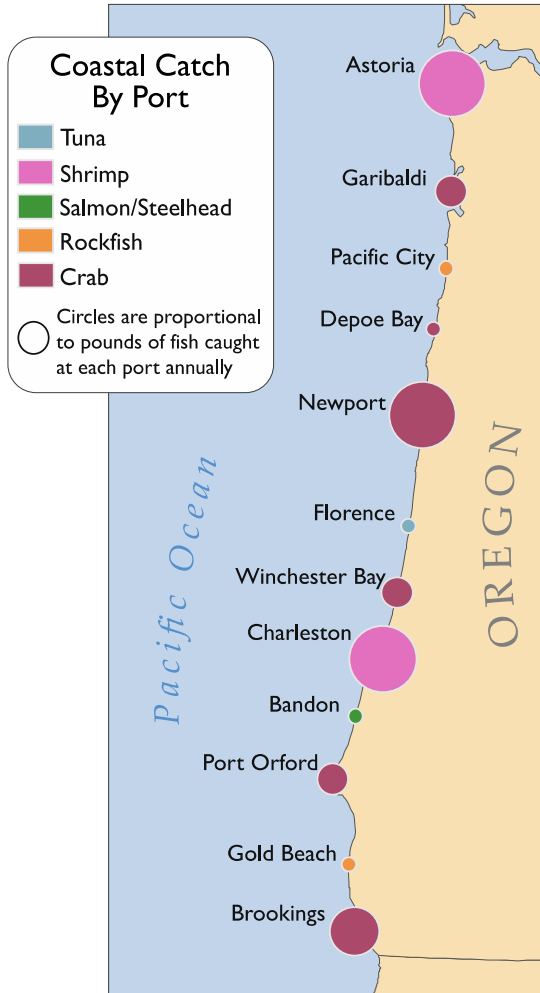
- There are four hydroelectric dams along the Columbia River. What are their names? Bonneville, The Dalles, John Day, and McNary
- What are some positive and negative aspects of dams? Positive: provide hydropower and irrigation, and create habitat.
Negative: displace people, destroy habitat, and block fish passage.
- What state has the most hydroelectric dams? Washington
- What state has the most irrigation dams? Oregon
- What state has the most flood control dams? Oregon

Oregon's Resources: Fish and Hatcheries

When Lewis and Clark came west during their expedition they documented abundant fish and wildlife throughout the area. Many of Oregon's 19th Century settlers made a profit by selling the fur of native animals, such as beaver and wolves. Both European settlers and Native Americans also took advantage of the abundant fish stock in Oregon to feed themselves and provide material for trading, and fish are still an important part of Oregon's economy.

The maps to the right show the modern distribution of fish, hatcheries, and coastal fish catch by port.

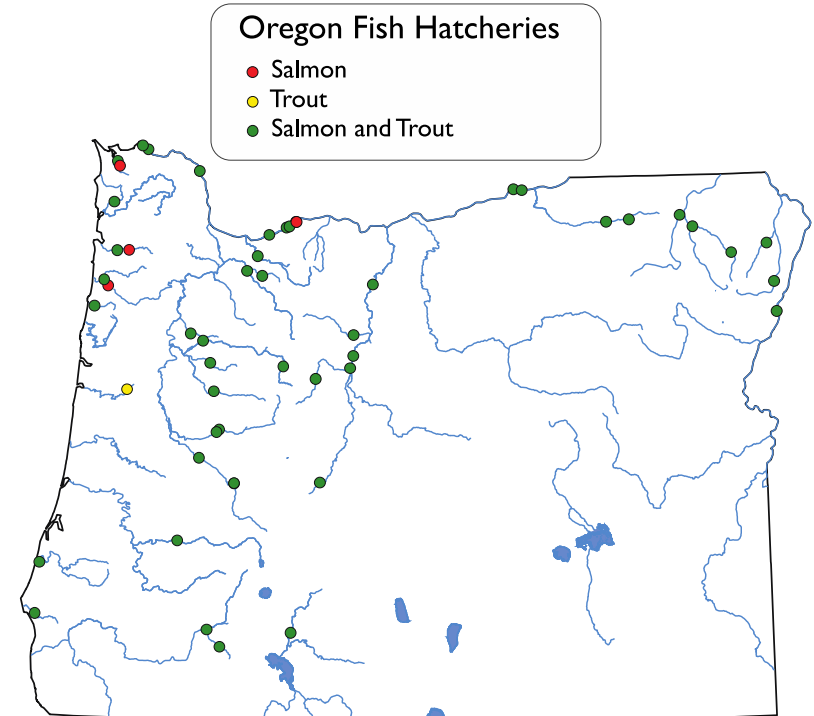
Fun fact: the Cole M. Rivers Fish Hatchery on the Rogue River produces the greatest number of fish annually. You can come to Oregon's hatcheries to see fish like me up close; Oregon has over 1.4 million visitors to its hatcheries each year.



Modern Fish and Hatchery Distribution in Oregon



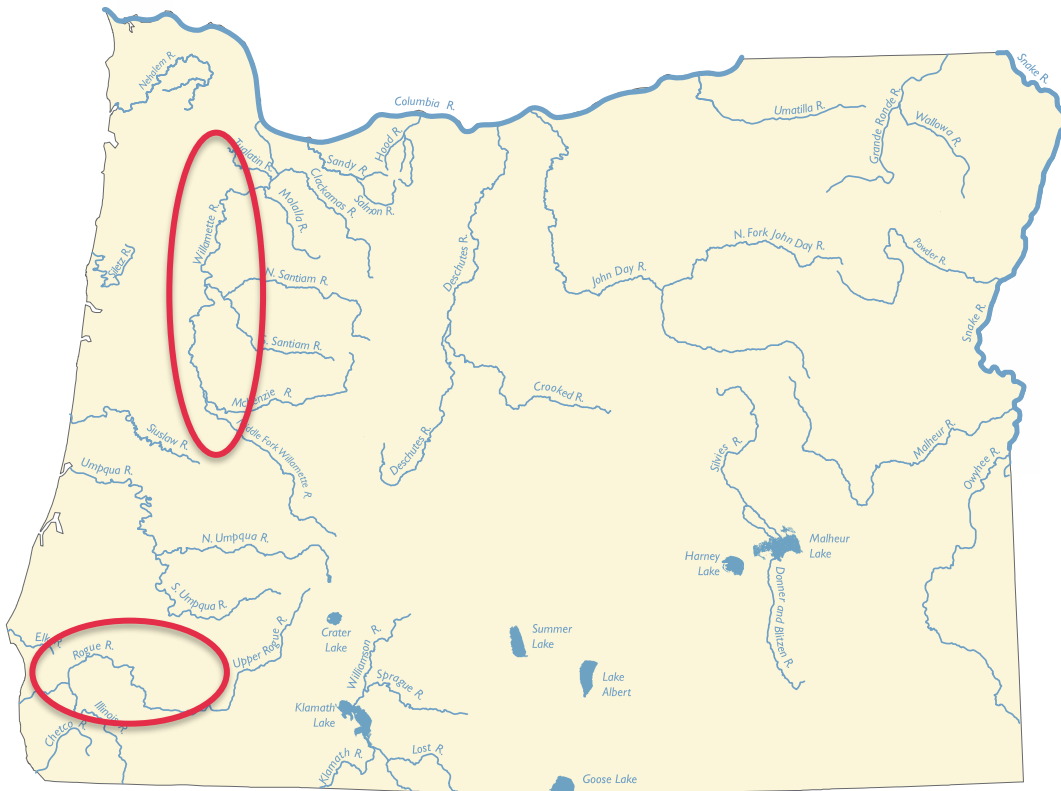
Total catch: Top five fish and shellfish



Oregon's Resources: Water

One of the reasons President Thomas Jefferson commissioned the Lewis and Clark expedition was to find a convenient water route across the country from the east coast to the west coast, which Jefferson wanted to use for trade, transport, and communication. While no continuous waterway to the Pacific Ocean exists, Lewis and Clark *did* find abundant rivers and waterways along their route. These waterways played an important role in early transportation, trade, and settlement, and they continue to play an important role in Oregon's economy today, both as a means of transport and as a source of energy production from Oregon's many dams.

Rivers and Lakes of Oregon



Use the map to the left and the maps on Page 25 to answer the following questions:

1. Find the Willamette River and the Rogue River on the map and circle them.
2. What rivers in Eastern Oregon have salmon and trout fisheries on them? _____

The Umatilla and the Grand Ronde

3. What river serves as part of the border between Washington and Oregon? _____

Columbia

4. What river serves as part of the border between Idaho and Oregon? _____

Snake

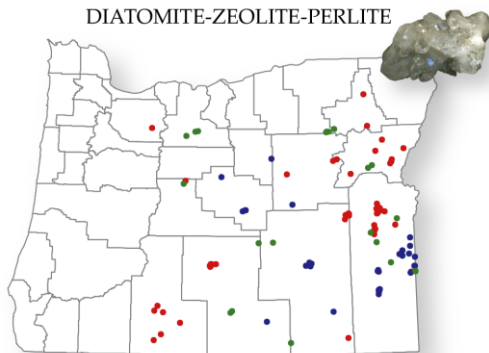
My home (the Columbia River) is over 1,243 miles long. It is the largest river by volume in the Pacific Northwest, and its largest tributary is the Snake River.



Oregon's Resources: Mineral Deposits

Many settlers came to Oregon to mine *mineral deposits*, which are areas where specific minerals can be found in large enough quantities to mine them. In the mid-1800s, silver, gold, copper, and mercury (also known as “quicksilver”) were being actively mined throughout the state. While many of these minerals are no longer mined in Oregon, gemstones, talc, pumice, and diatomite, zeolite, and perlite are all still actively mined. **The maps below show where different minerals were mined in Oregon. The maps also describe what each mineral is used for. How many of Oregon’s minerals do you use everyday? Did any of the mineral’s uses surprise you? Why or why not?**

Oregon’s Mineral Deposits



ONE DOT = ONE MINE

- zeolite
- diatomite
- perlite

Diatomite is a soft chalk-like rock that is crushed and used in insecticides, cat litter, and dynamite.

Zeolite is formed when volcanic rocks and ash react with water. It is crushed and dried to use in concrete.

Perlite is a light volcanic glass that has a high water content and expands when heated. It is used in construction, plaster, insulation, and horticulture.

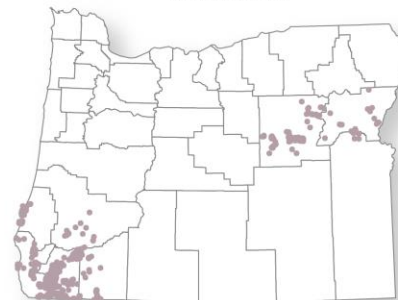
NICKEL



ONE DOT = ONE MINE

Nickel is a silvery white metal used in stainless steel, cast iron, magnets, and coins.

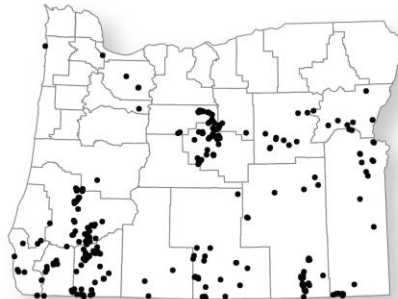
CHROMIUM



ONE DOT = ONE MINE

Chromium is a steel-gray, shiny, hard metal used in stainless steel and in dyes and paints.

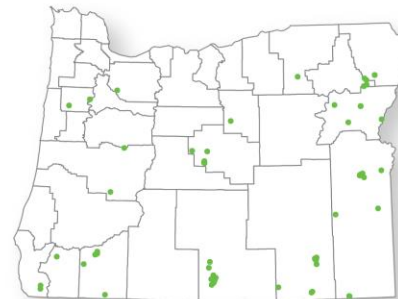
MERCURY



ONE DOT = ONE MINE

Mercury is a toxic silvery metal (also known as quicksilver) and is liquid at room temperature. It is used in thermometers, barometers, and neon lights.

URANIUM



ONE DOT = ONE MINE

Uranium is a dense element that is silvery in color and radioactive. It is used for nuclear energy and military weapons.

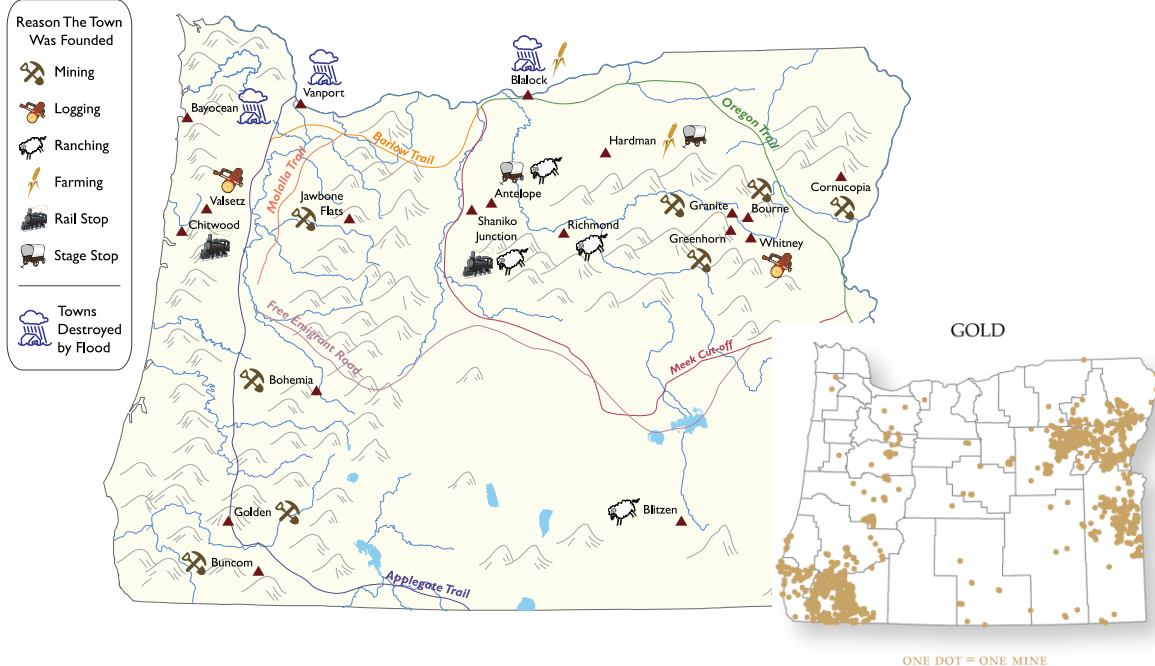
Multiple answers possible



Oregon's Resources: Gold

California is famous for its “gold rush” in the 1840s and 1850s, but did you know Oregon had a gold rush, too? The discovery of gold in California brought miners to Southwestern Oregon, where they discovered gold along the Applegate, Rogue, and Illinois rivers in 1850 and 1851. This brought a flood of European immigrants to Oregon, and inspired many people living on the east coast to make the journey west. In 1861 gold was also discovered in Baker County, which quickly became one of the Northwest’s largest gold producers. Gold can be mined from hard rock, and from river gravels and beach sands. It is used in jewelry, electrical conductors, and dentistry.

Oregon's Historical Trails and Ghost Towns and Inactive Gold Mines



The map to the far left shows Oregon's historic trails, and the map to the right shows Oregon's inactive gold mines. **How do the historic trails in Oregon compare to the location of mines?**

Fun fact: during the gold rush, the term *pay dirt* referred to areas of ground that had enough metals (in this case, gold) to make mining profitable. Today, we use the term to refer to making a profit or discovering something of value. For example, when I find a spot with lots and lots of yummy worms, I've hit “pay dirt”!



The Oregon Trail, Applegate Trail, and Meek Cutoff are both located near a large number of historic gold mines.



How Are Cities Formed?

Many people used to be *nomadic*, meaning they traveled from place to place and did not settle anywhere permanently. Early cities were usually formed based on their proximity to natural resources, such as forests (lumber and hunting), rivers (transport and fishing), and crop land (mostly flat and expansive, with good soil). Oregon has an abundance of these resources, which have allowed people to thrive and human populations to grow.

Why do cities grow? Cities grow when they have an influx of people from other places. Historically, people moved to Oregon because they heard the climate was mild, there was abundant timber for logging, and there was plenty of farmland for agriculture. Today, people are often drawn to cities because of work, family, and the amenities (both natural and recreational) they provide.

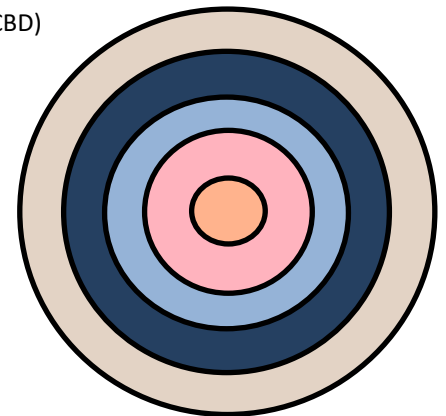
How are cities organized? You can think of many cities as a giant bulls-eye: the heart of the city is the *Central Business District (CBD)*. This is where most commercial and business dealings happen. The next ring is the *industrial area*. The remaining rings are related to where people live. This is called the *concentric ring model* of city structure.

Does your hometown fit the “concentric ring” city model shown to the right? Why or why not? Do you think most cities fit this pattern? _____

Multiple answers possible

Concentric Ring Model of City Structure

- Central Business District (CBD)
- Factories / Industry
- City housing
- Inner suburb housing
- Outer suburb housing



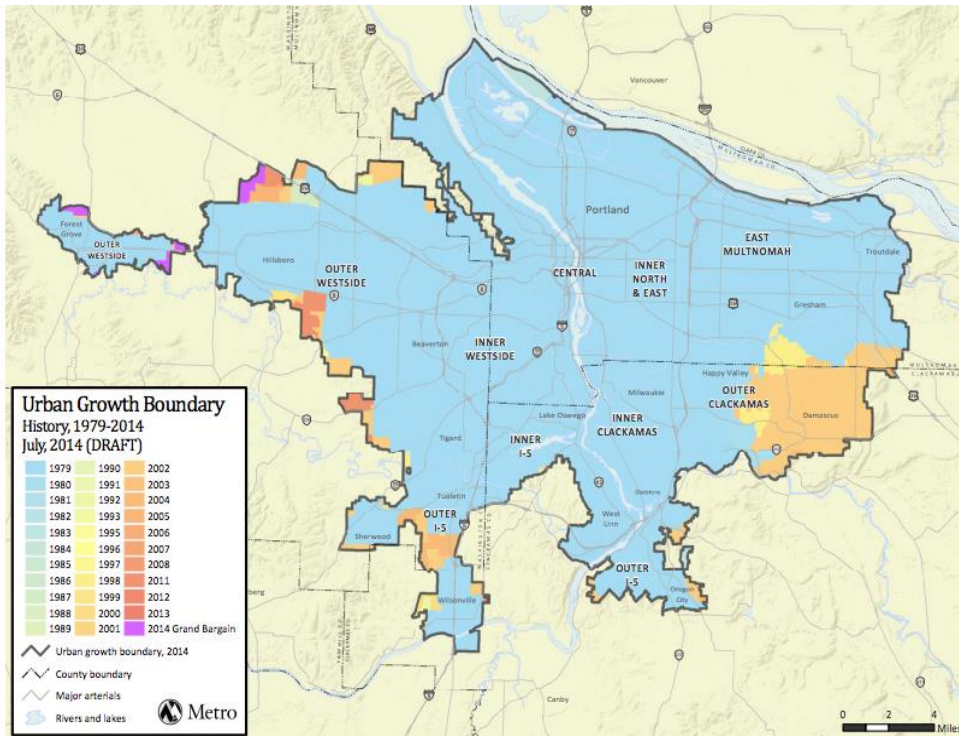
Portland's Expansion Over Time

Portland has what's called an **Urban Growth Boundary (UGB)**. This means there is a limit on how much the city can expand. Over the years the UGB has grown along with the city, but *city planners* (people whose job is to maximize the efficiency and "livability" of a city and its infrastructure) are looking to increase population density *within* the city, instead of continuing to build outwards.



Without the UGB, much of the farmland and animal habitat around the city would have been converted to suburbs and "urban sprawl". Sprawl reduces the land left for critters like me to live.

Expansion of Portland's UGB Over Time

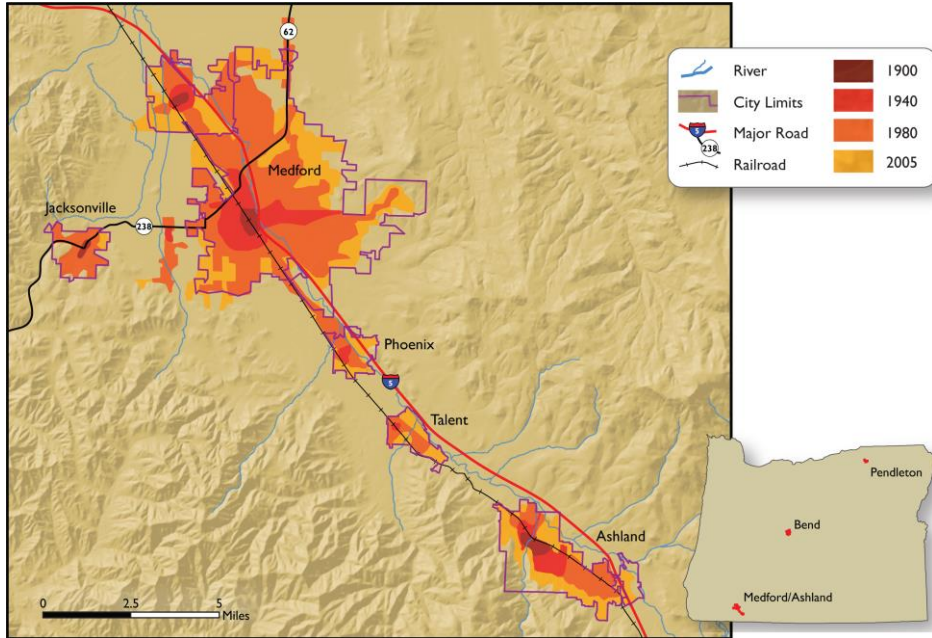


The map shows the urban growth boundary's expansion over time. Where has it grown the most? What are the benefits of an urban growth boundary? What might be some drawbacks?

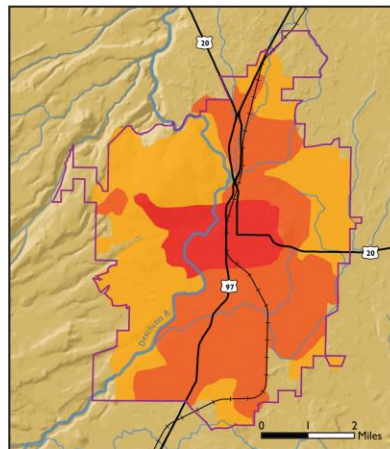
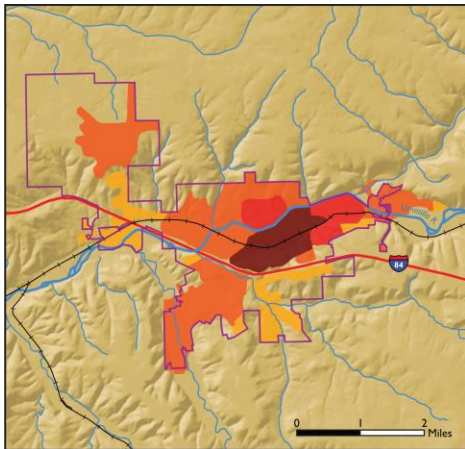
Multiple answers possible

City Expansion Across Oregon

Growth of Ashland and Medford



Growth of Pendleton (left) and Bend (right)



Portland is not the only city that has expanded over time. The maps to the left show the growth of Ashland and Medford (Southern Oregon), Pendleton (Eastern Oregon), and Bend (Central Oregon). Use the maps to answer the questions below.

1. Are these cities similar or dissimilar in the ways they have grown? What factors might influence the growth patterns of each of these places?

Bend, Ashland, and Medford's growth is concentrated along the highways, while Pendleton is more sprawling.

Possible influences might include tourism, industry, agriculture, and when each city was built; much of Bend's development is relatively new, while the other cities are older.

1. In what period of time did each city grow the most? Why do you think this is?

Bend grew the most in the 80s and early 2000s, while Medford and Pendleton grew the most in the 80s. Multiple answers possible as to "why".



Image Sources

The images in this workbook come from the sources listed below. Any images not listed come from the Center for Geography Education in Oregon's *Student Atlas of Oregon (second edition)**.

<u>PAGE</u>	<u>PHOTO</u>	<u>SOURCE</u>
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	Fish	Wikimedia Commons: Kasper Sorensen
	Bird	Wikimedia Commons: Mdf
Page 12	Wagon Wheel Ruts	NPS
Page 25	Fish Species	ODFW
Page 26	Grand Coulee Dam	US Bureau of Reclamation
Page 30	Urban Growth Boundary Map	Oregon Metro

*A free copy of the Atlas can be obtained from <http://studentatlasoforegon.pdx.edu/>.

Educational Standards

National Geography Standards (NGS)

Essential Element: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
2. How to use mental maps to organize information about people, places, and environments in a spatial context
3. How to analyze the spatial organization of people, places, and environments on Earth's surface

Essential Element: Places and Regions

4. The physical and human characteristics of places
5. That people create regions to interpret Earth's complexity
6. How culture and experience influence people's perceptions of places and regions

Essential Element: Physical Systems

7. The physical processes that shape the patterns of Earth's surface
8. The characteristics and spatial distribution of ecosystems and biomes on Earth's surface

Essential Element: Human Systems

9. The characteristics, distribution, and migration of human populations on Earth's surface
10. The characteristics, distribution, and complexity of Earth's cultural mosaics
11. The patterns and networks of economic interdependence on Earth's surface
12. The processes, patterns, and functions of human settlement
13. How the forces of cooperation and conflict among people influence the division and control of Earth's surface

Essential Element: Environment and Society

14. How human actions modify the physical environment
15. How physical systems affect human systems
16. The changes that occur in the meaning, use, distribution, and importance of resources

Essential Element: The Uses of Geography

17. How to apply geography to interpret the past
18. How to apply geography to interpret the present and plan for the future

Educational Standards



Oregon Geography Standards (OGS)

1. Apply geographic skills, concepts, and technologies (e.g. maps, GIS, Google Earth) to gather, display, and analyze spatial information.
2. Analyze economic, social, human migration, settlement, and distribution patterns.
3. Locate and examine physical and human characteristics of places and regions, their impact on developing societies, and their connections and interdependence.
4. Evaluate how human cooperation and competition for resources shape the Earth's political, economic, physical, and social environments.
5. Evaluate how technological developments, societal decisions, and personal decisions and actions influence Earth's sustainability.

For geography standards by grade, please see:

<http://www.ode.state.or.us/teachlearn/subjects/socialscience/standards/adoptedsocialsciencesstandards8-2011.pdf>



Oregon Environmental Literacy Strands (OELS)

1. **Systems Thinking**
Students study systems and issues holistically, striving to understand the relationships and interactions between each system's parts. They use the knowledge gained to assess the effects of human choices on economic, ecological, and social systems, and to optimize outcomes for all three systems.
2. **Physical, living, and human systems**
Students understand the characteristics of Earth's physical, living, and human systems.
3. **Interconnectedness of people and the environment**
Students understand the interdependence of humans and the environment, and appreciate the interconnectedness of environmental quality and human well-being.
4. **Personal and civic responsibility**
Students understand the rights, roles, and responsibilities and actions associated with leading or participating in the creation of healthy environments and sustainable communities.
5. **Investigate, plan, and create a sustainable future**
Students apply civic action skills that are essential to healthy, sustainable environments.



Additional Resources for Teachers

1. Important Places in Your Community

<http://education.nationalgeographic.com/activity/important-places-in-your-community/>

2. Reading a Resource Map

<http://education.nationalgeographic.com/activity/reading-resource-map/>

3. Energy Sustainability in the Klamath Basin

<http://education.nationalgeographic.com/activity/energy-sustainability-klamath-basin/>

Produced by the Center for Geography Education in Oregon (C-GEO)

Principal Contributors: Teresa Bulman, Morgan Josef, and Gwyneth Manser

C-GEO is dedicated to the improvement of geographic education and awareness in the State of Oregon. C-GEO's mission includes: increasing public awareness of the importance of geographic education, increasing emphasis on geography in grades pre-K through 12, and improving geographic teaching methods and materials.

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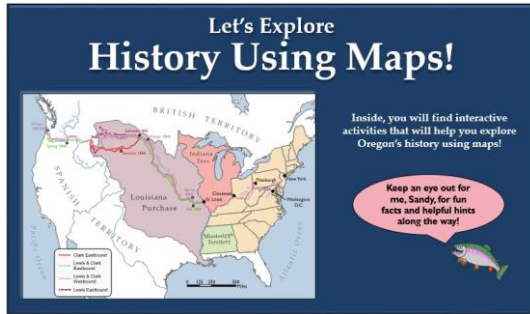


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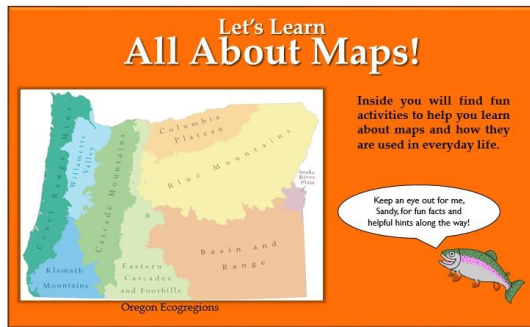
Website: <http://www.pdx.edu/geography-education/>
Telephone Number: 503-725-5864

Free digital copies of these booklets can be found at:

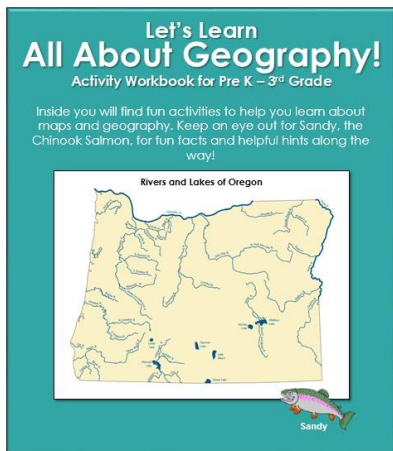
<http://www.pdx.edu/geography-education/instructional-materials-0>



- Let's Explore History Using Maps! Student/Teacher Editions



- Let's Learn All About Maps! Student/Teacher Editions



- Let's Learn All About Geography! (Pre-K-3rd) Student/Teacher Editions

