STUDENT PAGE

NAME _____

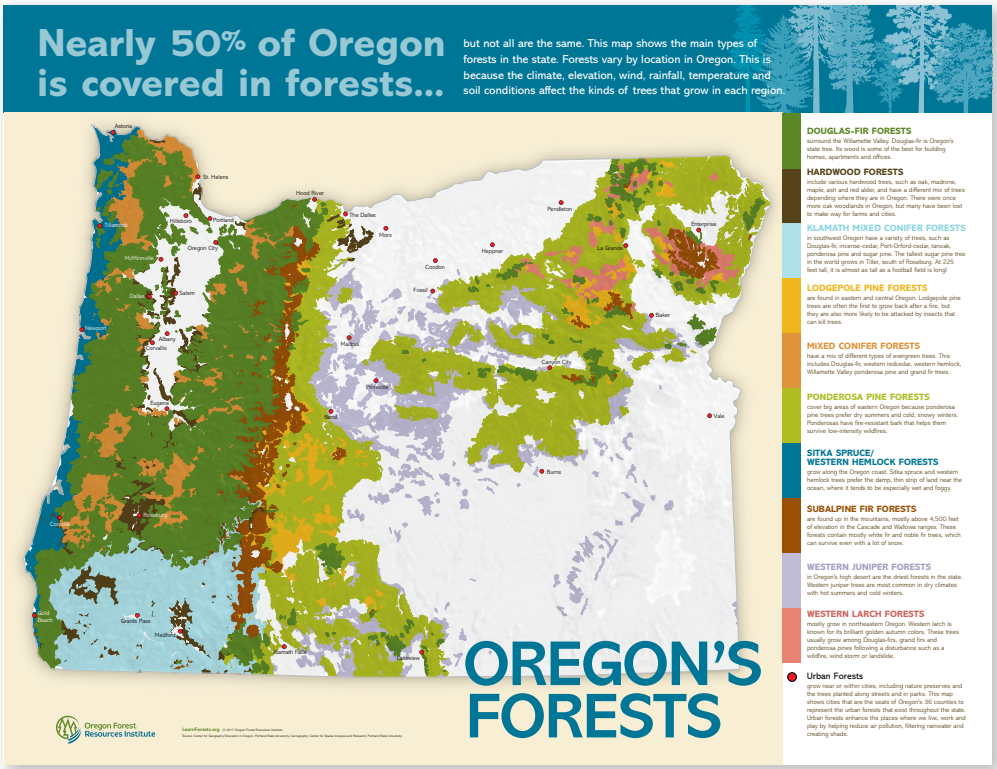
DATE _____

Oregon's Forests Compared

Forest type	Illustration	Ecology	Climate	Elevation range	Precipitation range
Douglas-fir					
Hardwood					
Klamath mixed conifer					
Lodgepole pine					
Mixed conifer					
Sitka spruce/ western hemlock					
Subalpine fir					
Western juniper					
Western larch					
Urban					

OREGON'S FORESTS
Instruction Guide

Grades 6-12



The *Oregon's Forests* poster was created by the Oregon Forest Resources Institute (OFRI) to depict the locations of different forest types in our state.

This instruction guide offers ideas and information for using the *Oregon's Forests* poster in your middle school or high school classroom. It provides background information to support you in presenting this topic to your students, and suggests discussion questions and learning activities to help bring the forest types alive for your students. This guide also identifies standards connections, to assist you in making the necessary links to your school curriculum. We invite you to add your own creative ideas, and hope you will enjoy exploring the *Oregon's Forests* poster with your students.

BACKGROUND

Oregon's forests are diverse, productive and magnificent. They range from the dry, scenic juniper and pine forests east of the Cascades to the wet, majestic old-growth Douglas-fir forests west of the Cascades. They blanket most of western Oregon and all the mountains of central and eastern Oregon. Although most of our forests are dominated by needle-leaf conifers, hardwood species also play important ecological roles.

The *Oregon's Forests* poster illustrates where the various forest types are found in our state. Looking at the map, you may notice how the two major mountain ranges – the Coast Range and the Cascade Range – show different forest types than the areas adjacent to them. In fact, these two ranges greatly influence how and where precipitation falls, affecting the moisture, elevation and temperature around the state.

For more information about the specific forest types in Oregon, see the Resources section.

Questions for Discussion

You may use the poster to spark a discussion about Oregon's forests, using questions such as:

Which forest type is closest to our community?

Looking at the map, what patterns do you notice in Oregon's forest types?

(For example, Sitka spruce/ western hemlock forests are found only along the coast; subalpine fir forests form a backbone along the Cascade Mountains; Douglas-fir forests are mostly west of the Cascades; and ponderosa pine forests are mostly east of the Cascades.)

How does each pattern relate to Oregon's geography?

What might cause these patterns?

What might cause the different forest types to be present in different locations?

What issues might arise from the fact that Oregon's forests are different in various parts of the state?

(Examples include that the predominately dry east-side forests are more fire-prone, and west-side forests are closer to large population centers.)

OREGON FOREST LITERACY PLAN CONCEPTS

The *Oregon Forest Literacy Plan*, developed by a diverse statewide stakeholder group, identifies critical concepts for K-12 students in understanding Oregon's forests. Concepts relevant to the *Oregon's Forests* poster include:

- Theme 1, C.7. Oregon's regions vary in soil types, elevation, temperature, wind and rainfall patterns. These variations create the different forest types and residents (plants and animals) that, together with disturbance histories, contribute to that region's biodiversity.
- Theme 1, D.3. Many different forest types exist within a biome, typically named by their dominant tree species. Common forest types in Oregon include spruce-hemlock, Douglas-fir, ponderosa pine, mixed conifer and hardwood.

Activity: Comparing Forest Types

In this activity, students conduct research to learn more about the varied forest types depicted on the *Oregon's Forests* poster.

Materials: *Oregon's Forests* poster, copies of the "Oregon's Forests Compared" student page, access to the Internet.

Procedure:

1. Share the poster with students, asking them to describe what, if anything, they know about the different forest types.
2. Divide students into teams of two to four, giving each team a copy of the "Oregon's Forests Compared" student page. Invite each team to research one of the forest types, focusing on the student page prompts. (See Resources for suggestions of where to start.)
3. Have groups present their results to the class, while the rest of the class takes notes in the relevant cells of the chart.
4. Ask students to write a synopsis of the key characteristics of each forest type.

RESOURCES

Forest Fact Break: Forest Types. This two-minute video from OFRI introduces the reasons for different forest types in Oregon. Available at LearnForests.org.

Inside Oregon's Forests: A High School Forestry Curriculum. This 37-lesson, stand-alone module from OFRI provides an in-depth exploration of Oregon's forests and forestry. Available at LearnForests.org.

"Oregon Forest Types" student pages. Developed as a section of *Inside Oregon's Forests*, this resource describes the different forest types in Oregon. Available at LearnForests.org.

"Trees of Oregon's Forests." This interactive tree guide on the OFRI website includes photos and information on Oregon's most common forest species. Available at OregonForests.org/content/tree-variety.

More Activity Suggestions

Choose one or more activities to deepen your students' understanding of Oregon's forest types:

- Using an overhead projector or transparency sheets, overlay a political or physical map of Oregon on the poster map. Discuss the patterns that emerge. (Students may notice, for example, that the boundaries for many of the forest types follow mountains and rivers, or that the largest cities in Oregon are found in the unforested areas of the Willamette Valley.)
- Invite students to plan a virtual trip to introduce an out-of-state visitor to each of Oregon's forest types. Their written itinerary should include at least one stop on the route for each forest type and should point out contrasts – in addition to the types of trees – between different stops.
- Discuss the importance of urban forests. (For example, mature urban trees clean air, reduce flood risk, lower temperatures and diminish people's feelings of stress.) Direct students to find out what their county or city is doing to encourage more trees in the urban forest.
- Ask students to choose a town or other location within each of the different forest types, and to determine the elevation for each location. Using a weather app or online program, invite students to track the precipitation and temperature in each location over the course of several months. Have them graph and compare the results for the different locations.
- Conduct a lab on tree identification by collecting leaf samples and having students use dichotomous keys to determine what kind of trees they are from. Students may then match the trees to the forest type.
- Challenge students to create a model to show the different types of forests in Oregon. Some possibilities include a diagram, a video, a diorama or a simulation.
- Take students on a field trip to a forest near their school or community. Bring along field guides and help them identify the tree species they observe. Discuss whether their findings match what they would expect from the poster.

Oregon Forest Resources Institute

LearnForests.org

STANDARDS CONNECTIONS

NEXT GENERATION SCIENCE STANDARDS

Performance Expectations

- MS-LS2-2. Ecosystems: Interactions, Energy, and Dynamics. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- HS-LS2-2. Ecosystems: Interactions, Energy, and Dynamics. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Disciplinary Core Ideas

- MS-LS2.A. Interdependent Relationships in Ecosystems. Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.
- HS-LS2.C. Ecosystem Dynamics, Functioning, and Resilience. A complex set of interactions within an ecosystem can keep its numbers and types of organisms relatively constant over long periods of time under stable conditions.

COMMON CORE STATE STANDARDS – ELA/LITERACY

- RST.6-8.1, RST.9-10.1. Science and Technical Subjects. Cite specific textual evidence to support analysis of science and technical texts.
- WHST.9-10.7, WHST.11-12.7. Writing History, Science, and Technical Subjects. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

OREGON SOCIAL SCIENCES STANDARDS – CORE STANDARDS

Geography

- Apply geographic skills, concepts, and technologies (e.g., maps, GIS, Google Earth) to gather, display, and analyze spatial information.
- Locate and examine physical and human characteristics of places and regions, their impact on developing societies, and their connections and interdependence.