INSIDE OREGON'S FORESTS

A high school forestry curriculum

RESOURCES

- Glossary
- Supplies
- OFRI Publications and Videos
- Student Pages
- Field Investigations
- Oregon Standards Connections
- Oregon Forest Literacy Plan Concepts

Oregon Forest Resources Institute

Introduction

Inside Oregon's Forests is a high school curriculum developed by the Oregon Forest Resources Institute (OFRI) to help students build a deep understanding of Oregon's forests. The seven modules are loosely organized around topics and concepts from the *Oregon Forest Literacy Plan*, a forest-education conceptual framework developed by OFRI and available at learnforests.org.

Curriculum Goals and Objectives

The overall goal of this curriculum is to provide engaging, standards-based lessons that help high school students understand the environmental, economic and social importance of Oregon's forests, as well as the principles behind forest management. Through the lessons, students will be able to:

- explain basic tree biology
- identify the forest types in Oregon
- describe the environmental, economic and social benefits Oregon's forests provide
- explain scientific and economic principles involved in managing Oregon's forests
- describe current issues facing Oregon's forests
- identify actions they can take to help ensure the sustainability of our forests

Curriculum Overview

Following is a description, as well as a suggested sequence and time frame, for each of the seven modules in the curriculum.

Sequence & Time Frame	Module	Description
Weeks 1-2	Oregon's Forest Heritage	Students are introduced to Oregon forests and their history, and examine some changes in our state's forestland over time.
Week 3	Forest Basics	Students gain an understanding of both tree biology and the forest types in Oregon, and practice identifying and measuring trees.
Weeks 4-5	Environmental Importance of Oregon's Forests	Students explore the environmental importance of forests: for example, how they protect our water resources, provide habitat and store carbon.
Week 6	Economic Importance of Oregon's Forests	Students examine Oregon's forest economy, including the products, energy and jobs that come from forests.

Weeks 7-9	Forest Management	Students learn about forest management and practice forest management skills, such as surveying a forest tract, analyzing forest soil and developing a management plan.
Weeks 10-11	Forest Management Issues	Students explore the impacts of fire, forest pests and climate change on Oregon's forests, and conduct an opinion survey related to a forest management issue.
Week 12-13	Our Responsibility to Oregon's Forests	Students learn about certification as a way to achieve forest sustainability, and plan and carry out a service-learning project.

How to Use the Curriculum

The curriculum is designed to be flexible. Teachers may select modules or lessons that fit their educational goals, as each lesson can either stand alone or build on prior lessons. This curriculum may be used:

- as the basis for a 13-week or semester-long course on forestry
- to teach a single unit on forestry within other high school courses, such as agricultural science and technology, or environmental science
- to help prepare students for the FFA Career Development Event (CDE) on Forestry, or for Envirothon

Curriculum Resources

The following Resources (available at learnforests.org) support teaching the curriculum:

- Glossary
- Supplies
- OFRI Publications and Videos
- Student Pages
- Field Investigations
- Oregon Standards Connections
- Oregon Forest Literacy Plan Concepts

About OFRI

The Oregon Forest Resources Institute supports and enhances Oregon's forest products industry by advancing public understanding of forests, forest management and forest products.

GLOSSARY[1]

Abiotic – relating to or resulting from a nonliving factor in the environment; e.g., light, water, heat, rock and gases.*

Active management – attaining desired forest objectives and future conditions using silvicultural operations and forest management practices.

Bearing (as in compass) – the direction of a point with respect to another point or to the compass.

Biotic – relating to or resulting from living organisms.*

Broadleaf – a plant with wide, flat leaves, such as an oak or maple.

Canopy – a forest layer formed by the leaves and branches of trees or shrubs.*

Carbon cycle – the circulation and recycling of carbon atoms, especially through the processes of photosynthesis, respiration and decomposition.*

Carbon sequestration – the long-term storage of carbon in trees and other organisms, soil and oceans.

Conifer – a plant that bears its seeds in cones.*

Conservation – using natural resources in a way that ensures their continuing availability to future generations; the intelligent use of natural resources for long-term benefits.

Consumer – (1) an organism that obtains energy by feeding on other organisms and their remains. Usually, consumers are classified as primary consumers (herbivores), secondary consumers (carnivores) and microconsumers (decomposers); (2) any person using goods for his or her own needs.*

Contour – a line on a map joining points of equal height above or below sea level.

[1] Definitions marked with an asterisk (*) came from Project Learning Tree's online glossary at plt.org/glossary and are used with permission from the Sustainable Forestry Initiative. To learn more about Project Learning Tree, see plt.org or contact the Oregon Natural Resources Education Program at 541-737-2128 or onrep@oregonstate.edu.

Crown – the top branches of a tree.*

Deciduous – periodically losing all leaves, typically in autumn. Most North American broadleaf trees are deciduous.

Development – the act of growing, progressing or changing something from a more simple (natural) state to a more complex state (for example, changing farmland into a housing subdivision).

Diameter at breast height (DBH) – the diameter of a tree as measured at breast height. Standard DBH is measured at 4.5 feet (approximately 135 cm) above the ground.*

Distribution – the spatial arrangement of members of any plant or animal population.

Ecology – the scientific study of the relations of living things to one another and to their environment. A scientist who studies these relationships is called an ecologist.*

Economic benefit (or economic value) – a measure of the goods and services provided by an entity, generally measured in terms of money. For example, forests provide employment and a variety of products that offer economic benefits to society.

Ecosystem – (1) the interacting system of a biological community and its nonliving environment; (2) the place where these interactions occur.*

Ecosystem (ecological) services – the benefits humans derive from environmental functions such as oxygen production, photosynthesis (food), water purification and so forth.

Energy flow – the one-way passage or transfer of energy through an ecosystem according to the laws of thermodynamics.*

Environment – the sum of all external conditions and influences that affect the development and, ultimately, survival of an organism or group of organisms.*

Erosion – the wearing away of the land surface by wind or water. Erosion occurs naturally from weather or runoff, but it may be intensified by some human practices.*

Evergreen – a plant that retains its leaves year-round. In temperate zones, these are most often conifers.*

Fire suppression – preventing a forest fire from starting or spreading.

Forest – a large area of land primarily covered with trees, as well as the other organisms, soil, water and air associated with them.*

Forest health – the perceived condition of a forest based on its age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance.*

Forest management – the practical application of scientific, economic and social principles to the administration of a forest.*

Forest product – any item or material derived from forests for commercial use, such as lumber, paper, mushrooms or forage for livestock.*

Forest type – groups of tree species commonly growing in the same stand because their environmental requirements are similar.

Forestland – an area at least one acre in size and containing 10% or more tree cover.*

Forestry – the principles and practices utilized in the management, use and enjoyment of forests. Forestry includes a broad range of activities such as managing timber, fish, wildlife, range, watersheds and recreation.*

"Free to grow" tree or stand – a tree or stand that has a high probability of remaining vigorous, healthy and dominant over surrounding grasses and brush.

Germination – the process by which a plant or fungus emerges from a seed or spore and begins to grow.

Global climate change – the long-term changes in air mass movements, moisture and temperature occurring globally as a result of changes in Earth's atmosphere.

Habitat – an area that provides an animal or plant with adequate food, water, shelter and living space in a suitable arrangement.*

Harvest – see "Timber harvest."

Invertebrate – an animal lacking a backbone, such as an insect. Invertebrates make up about 95 percent of animal species.

Leaf litter – dead plant materials, such as bark, leaves and twigs that have fallen to the ground.

Live crown ratio – the percentage the crown height represents of the total tree height.

Macronutrient – a chemical element that plants need for growth and development, such as nitrogen (N), phosphorus (P) and potassium (K).

Nutrient – a substance required for growth and development. Plants, for example, need water and minerals to grow and reproduce.*

Oregon Forest Practices Act – a comprehensive set of laws and rules governing harvest practices and other forest management operations in Oregon.

Organic – referring to or derived from living organisms; in chemistry, any compound containing carbon.*

Organism – an individual living thing.*

Pacing – a way to measure distance by counting one's steps. In forestry and ecology, a pace is two steps, or the distance one foot travels from the point it leaves the ground until it touches the ground again.

Passive management – managing a forest area by letting nature take its course.

Perennial – a plant that lives for several years and, when mature, usually produces seeds each year.*

Photosynthesis – the process by which green plants manufacture simple sugars in the presence of sunlight, carbon dioxide and water. Chlorophyll is essential to the series of complex chemical reactions involved.*

Prescribed fire or Prescribed burning – the practice of using regulated fires to reduce or eliminate material on the forest floor, to prepare seed beds or to control competing vegetation. Prescribed burning simulates one of the most common natural disturbances.

Private ownership – ownership of land or other property by individuals or firms.

Producer – an organism that synthesizes organic compounds from inorganic substances via photosynthesis (by green plants) or chemosynthesis (by anaerobic bacteria).*

Public ownership – ownership of land or other property by a government entity.

Reforestation – the restoration (planting) of a forest that had been reduced by fire or cutting.

Regeneration – the renewal of vegetation by natural or artificial means.*

Renewable resource – a naturally occurring raw material or form of energy that has the capacity to replenish itself through ecological cycles and sound management practices. The sun, wind, falling water and trees are examples of renewable resources. The terms “renewable energy” and “renewable” also refer to this type of resource.*

Riparian – of, on or relating to the banks of a river or other natural water course.

Salvage – the removal of timber damaged by fire, storms, flooding or other conditions.

Silviculture – the art and science of managing and regenerating forests to influence their composition, structure and growth.*

Snag – a standing dead tree. Snags frequently provide homes for wildlife.*

Soil – the layer of earth in which plants grow, typically consisting of mineral particles, living and nonliving organic matter, water, air and soil organisms.

Soil pH – a measure of the acidity or basicity of a soil sample.

Stand – a contiguous group of trees sufficiently uniform in species composition, arrangement of age classes and condition to be considered a distinguishable unit.*

Stand density index (SDI) – a measure of the density of a stand of trees based on the number of trees per unit area and the diameter at breast height (DBH) of the average-size tree.

Stand development – the changes in a stand of trees over time. A stand develops as trees grow, compete for resources and die at different times.

Succession – the gradual replacement of one ecological community by another. It may also be called ecological succession.*

Sustainable forest management – managing forests to meet the needs of the present without compromising the ability of future generations to meet their needs.

Terrestrial ecosystem – all living and nonliving elements of a land-based environment, and the relationship between them.

Timber – a forest stand containing trees of commercial size and quality suitable for sawing into lumber.*

Timber harvest – removal of trees from a forest to restore ecological health or to obtain income from the wood products.*

Topographic map – a map showing physical features of a landscape, including altitude contours.

Tree – a woody plant usually 12 or more feet (4 or more meters) tall with a single main stem (trunk) and a more or less distinct crown of leaves.*

Tropical forest – a forest that grows in tropical climates with high year-round temperatures and generally high annual rainfall.

Understory – the layer formed by the crowns of smaller trees in a forest.*

Value – (1) the monetary or relative worth of something; (2) a principle, standard or quality regarded as worthwhile or desirable.

Watershed – the land area that collects precipitation and runoff water and drains it into a common stream or river.*

Wetland – an area that is regularly wet or flooded, where the water table stands at or above the land surface for at least part of the year, and that has a plant community comprising species that require wet soil.*

Wilderness – (1) a natural environment that has not been significantly modified by human activities; (2) land designated by the U.S. Congress for preservation and protection in its natural condition.

Wildfire – a fire out of control.

Wildland urban interface (WUI) – the area where houses and other structures are built in or near woodlands, forests or other wildlands.

Wildlife - all organisms (except humans) that live naturally in an area, including mammals, birds, fish, insects, plants and other life forms.*

Working forest – A forest, either public or private, that is actively and sustainably managed for the production of forest products while protecting natural resources.

SUPPLIES

Following is a list of suggested supplies for each module of the curriculum. Please note that the list does not include copies of student pages, teacher pages, videos or other print or web resources listed in the lessons. Please see OFRI Publications and Videos in the following pages for additional resources identified in the lessons.

Overall Curriculum

- Internet access
- Technology for sharing websites, videos, and student and teacher pages with class
- Journals or electronic tablets

Oregon's Forest Heritage

- Tracing graph paper
- Optional: highlighters
- Optional: materials for making a physical timeline (such as index cards and string) or a virtual one (such as word processing, presentation or spreadsheet application)

Forest Basics

- Tree branchlet
- Woodland stick, measuring tape or ruler
- String
- Measuring tape or ruler
- Optional: diameter tape
- Optional: labels for tagging trees

Environmental Importance of Oregon's Forests

- Materials for soil filtration model, one per group:
    - 2-liter plastic bottle
    - 6-oz. can, taller than wide
    - Stopwatch (or stopwatch app for smartphone or tablet)
    - Clear plastic cups or other containers
- Materials for soil filtration model, per class:
    - A variety of soil materials (for example, fine-grained sand, bark chips, topsoil, clay, mulch, dried leaves, pieces of sod)

    - Graduated cylinders
    - Utility knife
- Thermometer
- Markers (such as pencils or wood stakes with ribbon or flagging tape tied to one end)
- Graph paper
- Clipboards
- Measuring tape or string
- Habitat field activity measuring equipment, such as thermometers, armored field thermometers, thermohygrometers, light meters, digital anemometers and compasses
- Flagging
- Optional: transect lines (ropes marked at one meter, five meters or other distance along their length)

Economic Importance of Oregon's Forests

- An assortment of items made from trees (for example, a piece of paper, a swatch of rayon fabric, a piece of cellophane, a disposable diaper and a bottle cork), one each
- Syngas lab equipment, per group:
    - Safety goggles
    - Lab coats
    - Latex or nitrile gloves
    - Fume hood (if possible)
    - 35-55 mL test tube with matching one-hole rubber stopper
    - Two ring stands with metal test tube clamp and clamp for Erlenmeyer flask
    - Three pieces of stainless steel or glass tubing, each approximately 5 cm long
    - 250 mL Erlenmeyer flask with matching two-hole stopper
    - Three pieces rubber or Tygon tubing, two approximately 60 cm long and one just shorter than the Erlenmeyer flask
    - Bunsen burner and lighter
    - Sink with faucet connection for tubing
    - Wood pellets (enough to fill test tube approximately 3/4 full)
    - Regular-sized marshmallow (not mini-size)
    - Skewer for roasting marshmallow
    - One large sealable bag for test tube disposal
- Syngas lab equipment, per class
    - One pair leather gloves
    - Acetone (optional, for cleanup)
    - Additional marshmallows

Forest Management

- 100-foot measuring tape
- Stakes, flags or other markers for course
- Orienteering compasses, one per pair of students
- Graph paper (or gridded lab notebook)
- Soil lab equipment, per class:
    - 12” soil core samples from two or more sites, dried
    - Leaf litter samples from the same sites
    - One-gallon sealable bags and garbage bags
    - Asbestos gloves
    - Tongs
    - Digital balance
- Soil lab equipment, per lab group:
    - Safety goggles
    - Porcelain crucible with cover
    - Needle probe
    - Bunsen burner
    - Ring stand and clamp (for crucibles)
    - Matches
    - Asbestos pad
    - Soil test kit (for testing pH, nitrogen, phosphorus and potassium levels)
    - Large aluminum tray
    - Several screw-cap vials
    - Tweezers or forceps
- 16x16-stud Lego® baseplates, one per individual or pair
- Assortment of different-sized Lego® bricks: 1-stud[2], 2-stud, 4-stud, 6-stud and 8-stud pieces
- Camera, optional
- Flagging tape
- Stakes
- Measuring tapes
- Optional: calculators or calculator app

[2] The “studs” are the extensions on the bricks and the platform that enable them to hold together. The number of studs denotes brick size.

Forest Management Issues

- Index cards (4x6 or other size)
- Sheets of poster paper and colored markers, or access to presentation app
- Strips of paper (approximately 3” x 18”)
- Colored marker pens
- Tape

Our Responsibility to Oregon’s Forests

Any materials needed for the planned service-learning project.

OFRI PUBLICATIONS AND VIDEOS

Following are OFRI publications and videos used in the lessons, listed here in the order they appear in the modules. Unless otherwise indicated, they are available to order or download from OFRI's learnforests.org or oregonforests.org websites.

NOTE: If a publication is indicated as a teacher or class reference, one copy (or electronic access) is sufficient. Otherwise, plan to have one copy (or electronic access) for each individual or group of students.

Oregon's Forest Heritage

- *Oregon Forest Facts*
- *Rules to Live By*, optional
- *Forest Fact Sheet: Who Owns Oregon's Forests?*, optional
- "Who Owns the Forests"? interactive map, optional
- *Oregon's Forests* poster

Forest Basics

- *Forest Fact Break: Tree Biology* video (2:15 minutes)
- *Forest Fact Break: Forest Types* video (2:09 minutes)
- *Oregon's Forests* poster
- Trees of Oregon's Forests tree guide

Environmental Importance of Oregon's Forests

- *Forest Fact Break: Water* video (1:40 minutes)
- *Speakers Bureau Presentation: Oregon's Forests and Water* video (optional), available on the OFRI YouTube channel
- *Forest Fact Break: Wildlife* video (1:31 minutes)
- *Forest Fact Sheet: Why Do Forest Animals Live Where They Do?*
- *Find Your Path: Wildlife Biologist* video (2:29 minutes), optional
- *A Guide to Priority Plant and Animals Species in Oregon Forests* – for teacher reference
- *Forest Fact Break: Photosynthesis* video (1:20 minutes)
- *Forest Fact Sheet: How Does Photosynthesis Work?*
- *Forest Fact Break: Carbon Capture* video (2:10 minutes)
- *Forest Fact Sheet: Are Forests, Carbon and Climate Change Related?*
- *Where's All the Carbon?* posters, optional

Economic Importance of Oregon's Forests

- County Economic Fact Sheets
- *Forest Fact Break: Wood Products* video (1:31 minutes)
- *Forest Essays (Level 7-12)*
- "*Powered by Oregon*" video (9:02 minutes)
- *Find Your Path* videos (approximately 2 minutes each)

Forest Management

- *Forest Fact Break: Forest Management* video (1:53 minutes)
- *Forest Fact Break: Reforestation* video (1:22 minutes)
- *K-12 Forest Education Opportunities: A Guide to Forestry Education Programs and Materials Available to You and Your Students* – for teacher or class reference
- *Establishing and Managing Forest Trees in Western Oregon*, optional – for teacher or class reference
- *Understanding Eastside Forests* (optional) – for teacher or class reference

Forest Management Issues

- *State of Fire* video (12 minutes), optional
- *State of Fire* report, optional
- *Forest Essays (Level 7-12)*
- Forest Fact Break: Clearcutting video (1:51 minutes)
- Forest Fact Sheet: Why Are Some Forests Clearcut?

STUDENT PAGES

This lists all student pages included in the curriculum, which may be accessed as a set at learnforests.org.

Oregon's Forest Heritage

- Oregon Forests – True or False
- Western Perspectives on Forests
- Indigenous Perspectives on Forests
- Tracing Oregon's Timber Culture
- Creating a Timeline of Oregon Forestry History
- Oregon Land Cover – 1851
- Oregon Land Cover – 2019
- Oregon Land Cover Definitions
- Oregon Land Cover Changes
- Oregon's Forest Resources
- Oregon's Forest Resources – Questions
- Oregon's Forest Landowners
- Who Owns the Forests?

Forest Basics

- Basic Tree Biology
- Tree Biology – Questions
- Oregon Forests Compared
- Oregon Forest Types
- Tree Survey
- Measuring Trees

Environmental Importance of Oregon's Forests

- Soil Filtration Investigation
- Online Watershed Survey
- Wildlife in Oregon's Forests
- Wildlife in Oregon's Forests – Questions
- Wildlife Signs
- Wildlife Inventory
- Edge Effect – Designing Your Investigation

- Edge Effect – Data Analysis
- Plant Food
- How Much Carbon?
- The Carbon Cycle Poster

Economic Importance of Oregon's Forests

- Oregon's Forest Economy
- Analyzing County Economic Fact Sheets
- Wood Products Made from Oregon Trees
- Syngas Lab
- What Does It Take?

Forest Management

- Managing Forests for Specific Goals
- Pacing
- Teacher page: Compass and Pacing Instruction Cards
- Topographic Map Symbols
- Soil Lab Procedures
- Soil Lab Data Sheet
- Key to Soil and Leaf Litter Invertebrates
- Determining Stand Density
- Forest Thinning Tally Sheet
- Timber Harvest Systems
- Timber Harvest Systems Compared
- Reforestation in Oregon
- Reforestation in Oregon – Questions
- Silviculture in Practice

Forest Management Issues

- Fire: Comparing Oregon Forests
- Teacher page: Oregon Wildland Urban Interface, 1990
- Teacher page: Oregon Wildland Urban Interface, 2020
- Wildfire Safety Checklist
- Analyzing the Reporting of a Forest Topic
- Article Analysis
- Damaging Forest Pests
- Pest Report

- Key Resources on Climate Change and Oregon's Forests
- Research on Climate Change and Forests
- Climate Change Infographic
- Sample Forest Management Opinion Survey

Our Responsibility to Oregon's Forests

- Forest Certification Systems Compared
- Forest Landowner Interview
- Teacher page: Service-Learning Planning Template
- Teacher page: Sample Service-Learning Projects

FIELD INVESTIGATIONS

While most of the lessons in this curriculum can be conducted in the classroom or on the school grounds, the following require a visit to a forest or other field location. If necessary, you may want to combine several of them into one field trip.

Environmental Importance of Oregon's Forests

- 3: Forests as Habitat
- 4: Habitat Edges

Forest Management

- 2: Surveying a Forest Tract
- 5: Forest Thinning
- 8: Silviculture Tour

Field Investigation Resources

Forest Education Opportunities
OFRI's *K-12 Forest Education Opportunities* guide, available at learnforests.org, describes a number of field-based programs, field trip destinations and other Oregon resources to support field investigations. Most of these programs are free.

Oregon Envirothon
In this hands-on environmental problem-solving competition, teams of five students compete in five categories – aquatic ecology, forest ecology, wildlife ecology, soils and land use – and one current environmental issue. Training, student field trips and study equipment are available to prepare teams. See Oregon Envirothon at learnforests.org.

FFA Forestry Career Development Event (CDE)
This event provides students an opportunity to demonstrate their skills in diagnosing forest disorders, managing forests and forest inventory, and applying approved silviculture practices. See Oregon FFA at oregonffa.com for more information.

OREGON STANDARDS CONNECTIONS

The following table indicates which lessons teach toward the Oregon State Standards.

See oregon.gov/ode for more information.

Lesson:	Oregon's Forest Heritage					Forest Basics					Environmental Importance					Economic Importance					Forest Management									Forest Management Issues						Our Responsibility		
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	1	2	3
Oregon Science Standards																																						
Standards																																						
HS.LS2.2. Ecosystems: Interactions, Energy, and Dynamics							X					X										X	X															
HS.LS2.5. Ecosystems: Interactions, Energy, and Dynamics														X																								
HS.ESS3.1. Earth and Human Activity	X	X	X																				X															
HS.ESS3.3. Earth and Human Activity																													X									
HS.ESS3.5. Earth and Human Activity																																			X			
Discplinary Core Ideas																																						
HS.LS1.A. Structure and Function						X		X	X																							X						
HS.LS2.B. Growth and Development of Organisms														X																								
HS.LS2.C. Organization for Matter and Energy Flow in Organisms			X				X						X	X										X									X				
HS.LS4.D. Biodiversity and Humans		X			X																															X	X	X
HS.ESS3.A. Natural Resources	X	X	X	X												X	X	X	X																			
HS.ESS3.C. Human Impacts on Earth Systems																					X	X			X	X	X	X					X	X	X			
Science and Engineering Practices																																						
Developing and Using Models															X									X														
Planning and Carrying Out Investigations									X					X																					X			
Analyzing and Interpreting Data	X		X					X		X	X													X														
Using Mathematics and Computational Thinking					X																	X	X			X												
Constructing Explanations and Designing Solutions																									X				X				X					
Engaging in Argument from Evidence		X																																				
Obtaining, Evaluating, and Communicating Information				X		X								X					X								X						X	X			

OREGON STANDARDS CONNECTIONS

	Oregon's Forest Heritage					Forest Basics				Environmental Importance					Economic Importance				Forest Management									Forest Management Issues						Our Responsibility		
Lesson:	1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	1	2	3
Oregon English Language Arts Standards																																				
11-12.SL.5. Speaking and Listening																																x				
11-12.SL.1.C. Speaking and Listening																																			x	
9-10.RST.1. Reading Science and Technical Subjects	x																																			
11-12.RST.1. Reading Science and Technical Subjects		x													x				x											x		x				
11-12.RST.7. Reading Science and Technical Subjects												x																		x						
11-12.RST.9. Reading Science and Technical Subjects																																		x		
9-10.WHST.2 and **11-12.WHST.2.** Writing History, Science, and Technical Subjects							x														x						x								
9-10.WHST.4 and **11-12.WHST.4.** Writing History, Science, and Technical Subjects																										x										
9-10.WHST.5 and **11-12.WHST.5.** Writing History, Science, and Technical Subjects																																	x			
9-10.WHST.7 and **11-12.WHST.7.** Writing History, Science, and Technical Subjects		x					x									x		x													x					
9-10.WHST.9 and **11-12.WHST9.** Writing History, Science, and Technical Subjects																x																				
Oregon Mathematics Standards																																				
MP.2. Mathematical Practice					x		x			x	x										x		x				x									
MP.4. Mathematical Practice							x			x	x														x											
HS. NQ.B. Number and Quantity							x																x													
HS.NQ.B.3. Number and Quantity									x											x													x			

OREGON FOREST LITERACY PLAN CONCEPTS

The following table indicates which lessons teach toward specific concepts in the Oregon Forest Literacy Plan, available at learnforests.org.

Lesson:	Oregon's Forest Heritage					Forest Basics				Environmental Importance					Economic Importance				Forest Management									Forest Management Issues						Our Responsibility		
	1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	1	2	3
Theme 1: What Is a Forest?																																				
A. Forest Definition and Classification																																				
1.A.1								X	X					X																						
1.A.3					X		X																													
B. Trees as Part of the Forest																																				
1.B.1						X			X																											
1.B.4																																				
1.B.5						X						X																								
1.B.6						X																														
C. Forests as Ecosystems																																				
1.C.2										X	X																									
1.C.6													X																							
1.C.7							X														X															
Theme 2: Why Are Forests Important?																																				
A. Environmental Importance																																				
2.A.1	X									X	X																									
2.A.2												X	X																							
2.A.3														X																						
B. Economic Importance																																				
2.B.1	X									X	X			X		X	X	X																	
2.B.2															X																					
2.B.3															X	X																				
C. Social Importance																																				
2.C.1		X	X																																	

OREGON FOREST LITERACY PLAN CONCEPTS

	Oregon's Forest Heritage					Forest Basics				Environmental Importance					Economic Importance				Forest Management									Forest Management Issues						Our Responsibility		
Lesson:	1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	1	2	3
Theme 3: How Do We Sustain Our Forests?																																				
A. Forest Ownership																																				
3.A.4					X															X														X	
3.A.5					X																														
B. Forest Management																																				
3.B.1																			X				X		X											
3.B.2		X																	X																	
3.B.3																			X			X	X	X	X	X										
3.B.4																			X			X		X		X										
C. Forest Management Decisions																												X					X			
3.C.3																																				
3.C.4																											X									
3.C.7																											X	X	X		X	X	X	X		
D. Forest Management Perspectives																														X						
3.D.1																												X		X			X			
3.D.2																																				
3.D.3		X																										X			X	X	X			
3.D.4																																				
Theme 4: What Is Our Responsibility to Oregon Forests?																																				
A. Our Relationship with Oregon's Forests																																				
4.A.1				X																																X
4.A.2																																				X
4.A.3																																				X
4.A.4			X																																	
B. Working for the Future of Oregon's Forests																																				
4.B.1																																			X		X
4.B.2																																			X		
4.B.5																		X			X															