APPENDICES

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Oregon Forest Literacy Concepts
Glossary

Abiotic (adj.) – a nonliving factor or element in the environment; e.g., light, water, heat, rock and gases.\textsuperscript{PLT}

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 or to the compass.

Biotic (adj.) – an environmental factor related to or produced by living organisms.\textsuperscript{PLT}

Broadleaf – a plant with wide, flat leaves, such as an oak or maple.\textsuperscript{PLT}

Canopy – a forest layer formed by the leaves and branches of trees or shrubs.\textsuperscript{PLT}

Carbon cycle – the circulation of carbon in nature. Plants absorb carbon dioxide (CO$_2$) from the air; by photosynthesis, they convert CO$_2$ to carbohydrates, giving off oxygen as a byproduct. Animals then eat the plants and return the carbon to the air by exhaling and through decay.\textsuperscript{PLT}

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.\textsuperscript{PLT}

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.\textsuperscript{PLT}

Consumer – (1) an organism that obtains energy by feeding on other organisms and their remains; (2) any person using goods for his or her needs.\textsuperscript{PLT}

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

Crown – the top branches of a tree.\textsuperscript{PLT}

\textsuperscript{87} Terms marked “PLT” came from Project Learning Tree PreK-8 Environmental Education Activity Guide, © 2019, from Project Learning Tree Global Connections: Forests of the World Secondary Environmental Education Module, © 2008, and from Project Learning Tree Exploring Environmental Issues: Focus on Forest Secondary Environmental Education Module, © 2011, and are used with permission from Project Learning Tree. Educators can receive these guides by attending a PLT workshop. For more details, contact Oregon Natural Resource Education Program at 541-737-9121 or http://onrep.forestry.oregonstate.edu.
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). PLT

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. PLT

Distribution – the spatial arrangement of members of a population. PLT

Ecology – the scientific study of the relations of living things to one another and to their environment. PLT

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

Ecosystem – the interacting system of a biological community and its nonliving environment; also, the place where these interactions occur. PLT

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

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

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

Erosion – the wearing away of the land surface by wind or water. Erosion occurs naturally from weather or runoff, but is often intensified by some human practices. PLT

Evergreen – a plant that has foliage that remains green and functional through more than one growing season. PLT

Fire suppression – preventing a forest fire from burning. PLT

Forest – a large area of land primarily covered with trees, as well as the other organisms, soil, water and air associated with them. Or an ecosystem characterized by a dominance of tree cover and the presence of a wide variety of other organisms (e.g., other plants and animals). PLT
Forest health – the ability of forest ecosystems to remain productive, resilient and stable over time and to withstand the effects of periodic natural or human-caused stresses such as climatic changes, disease, drought, flood, insect attack, resource demands and resource management practices. \textsuperscript{PLT}

Forest management – the practical application of scientific, economic and social principles to the administration of a forest. \textsuperscript{PLT}

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. \textsuperscript{PLT}

Forestland – a portion of land in which forest is the most dominant element.

Forestry – the principles and practices for managing, using and enjoying forests. Forestry includes a broad range of activities: managing timber, fish, wildlife, range and watershed; protecting forests and timber products from diseases, insects and fire; harvesting, transporting, manufacturing, marketing, preserving and protecting wood and other forest products; maintaining water and air quality; and maintaining the well-being of society as it is influenced by forests. \textsuperscript{PLT}

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. \textsuperscript{PLT}

Habitat – an area that provides an animal or plant with adequate food, water, shelter and living space in a suitable arrangement. \textsuperscript{PLT}

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. \textsuperscript{PLT}
Live crown ratio – the percentage that 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.\textsuperscript{PLT}

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.\textsuperscript{PLT}

Organism – any living form of life.\textsuperscript{PLT}

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.\textsuperscript{PLT}

Photosynthesis – the process by which green plants manufacture simple sugars in the presence of sunlight, carbon dioxide and water.\textsuperscript{PLT}

Prescribed fire – or – Prescribed burning – the practice of using regulated fires to reduce or eliminate material on the forest floor, to prepare seedbeds or to control competing vegetation. Prescribed burning simulates one of the most common natural disturbances.\textsuperscript{PLT}

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).\textsuperscript{PLT}

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.\textsuperscript{PLT}

Regeneration – the renewal of vegetation by natural or artificial means.\textsuperscript{PLT}

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.\textsuperscript{PLT}
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 science and art of cultivating forest crops based on the study of the life history and general characteristics of forest trees. PLT

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

Soil – the mixture of organic material and disintegrated rock found on the Earth’s surface, in which plants grow.

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

Stand – a community of trees sufficiently uniform in species age, arrangement, composition and condition to be distinguishable as a group from the forest or other growth on the adjoining area. PLT

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

Succession – the gradual replacement of one community by another. PLT

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

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. PLT

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 perennial plant, usually 12 feet (4 meters) tall or more, with a single main stem and a more or less distinct crown of leaves. PLT

Tropical forest – a forest that grows in tropical climates with high year-round temperatures and generally high annual rainfall.
Understory – a plant layer growing underneath the forest canopy.\textsuperscript{PLT}

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 delivers runoff water and sediment to a major river or stream and its tributaries. \textsuperscript{PLT}

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. \textsuperscript{PLT}

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—a loosely defined term that includes nondomesticated animals, especially birds, fish, and mammals.\textsuperscript{PLT}

Working forest – Forests, either public or private, that are actively and sustainably managed for the production of forest products while protecting natural resources.
Supplies List

NOTE: Please note that this list does not include copies of student pages, teacher pages, videos, or other print or web resources listed in the materials sections. Please see the List of Oregon Forest Resources Institute Publications for a list of print documents identified in the materials sections.

Overall Curriculum

• Internet access
• Equipment for sharing websites, videos, and teacher pages with class
• Journals or electronic tablets

Section 1 – Oregon’s Forest Heritage

• Tracing graph paper
• Highlighters, optional
• Materials for making physical timeline (such as index cards and string), optional

Section 2 – Forest Basics

• Tree branchlet
• Labels for tagging trees, optional
• Woodland stick
• String
• Measuring tape or ruler
• Labels for tagging trees, optional

Section 3 – Environmental Importance of Oregon’s Forests

• Soil filtration model materials, per group:
  o 2-liter plastic bottle
  o 6-oz can taller than wide
  o Stopwatch (or stopwatch app for smartphone or tablet)
  o Clear plastic cups or other containers
• Soil filtration model, per class:
  o A variety of soil materials (for example, fine-grained sand, bark chips, topsoil, clay, mulch, dried leaves, pieces of sod)
  o Graduated cylinders
  o Utility knife
• Thermometer
• Markers (such as pencils or wood stakes with ribbon or flagging tape tied to one end)
• Graph paper
• Clipboards
• Measuring tape
• Flagging
• Transect lines (ropes marked at one meter, five meters, or other distance along their length), optional

Section 4 – 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:
  o Safety goggles
  o Lab coats
  o Latex or nitrile gloves
  o Fume hood (if possible)
  o 35-55 mL test tube with matching one-hole rubber stopper
  o Two ring stands with metal test tube clamp and clamp for Erlenmeyer flask
  o Three pieces stainless steel or glass tubing, each approximately 5 cm long
  o 250 mL Erlenmeyer flask with matching two-hole stopper
  o Three pieces rubber or Tygon tubing, two approximately 60 cm long and one just shorter than the Erlenmeyer flask
  o Bunsen burner and lighter
  o Sink with faucet connection for tubing
  o Wood pellets (enough to fill test tube approximately 3/4 full)
  o Regular-sized marshmallow (not mini-sized)
  o Skewer for roasting marshmallow
  o One large sealable bag for test tube disposal
• Syngas lab equipment, per class
  o One pair leather gloves
  o Acetone (optional, for cleanup)
  o Additional marshmallows

Section 5 – 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:
  o 12" soil core samples from two or more sites, dried
  o Leaf litter samples from the same sites
  o 1-gallon sealable bags and garbage bags
  o Asbestos gloves
  o Tongs
  o Digital balance

• Soil lab equipment, per lab group:
  o Safety goggles
  o Porcelain crucible with cover
  o Needle probe
  o Bunsen burner
  o Ring stand and clamp (for crucibles)
  o Matches
  o Asbestos pad
  o Soil test kit (for testing pH, nitrogen, phosphorous and potassium levels)
  o Large aluminum tray
  o Several screw cap vials
  o Tweezers or forceps

• 16x16-stud Lego® baseplates, one per individual or pair

• Assortment of different-sized Lego® bricks: 1-stud88, 2-stud, 4-stud, 6-stud, and 8-stud ones

• Camera, optional

• Flagging tape

• Stakes

• Measuring tapes

• Calculators, optional

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


Section 6 – Forest Health and Forest Management Issues

- Index cards (4x6 or other size)
- Sheets of butcher paper and marking pens, optional
- Strips of paper (approximately 3” x 18”)
- Colored marking pens
- Tape

Section 7 – Our Responsibility to Oregon’s Forests

- Any materials needed for the planned service-learning project
List of Oregon Forest Resources Institute Publications

NOTE: This list includes all the print publications listed in the materials sections that are available to order or download from Oregon Forest Resources Institute websites at learnforests.org or oregonforests.org. If a publication is indicated as a teacher/class reference, one copy is sufficient. Otherwise, plan to have one copy for each group of students.

Section 1 – Oregon’s Forest Heritage

- Oregon Forest Facts
- Rules to Live By (optional)
- Forest Fact Sheet: Who Owns Oregon’s Forests? (optional)
- Oregon’s Forests poster
- Federal Forestland in Oregon: Coming to Terms with Active Forest Management of Federal Forestland – for teacher/class reference

Section 2 – Forest Basics

- Oregon's Forests poster

Section 3 – Environmental Importance of Oregon’s Forests

- Forest Fact Sheet: Why Do Forest Animals Live Where They Do?
- A Guide to Priority Plant and Animals Species in Oregon Forests – for teacher reference
- Forest Fact Sheet: How Does Photosynthesis Work?
- Forest Fact Sheet: Are Forests, Carbon and Climate Change Related?

Section 4 – Economic Importance of Oregon’s Forests

- Forest Essays (Level 7-12)
- Find Your Path booklet

Section 5 – Forest Management

- Establishing and Managing Forest Trees in Western Oregon (optional) – for teacher/class reference
- Understanding Eastside Forests (optional) – for teacher/class reference
Section 6 – Forest Health and Forest Management Issues

- *Forest Fact Sheet: Why Are Some Forest Fires More Intense?*
- *State of Fire* report
- *Forest Essays (Level 7-12)*
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