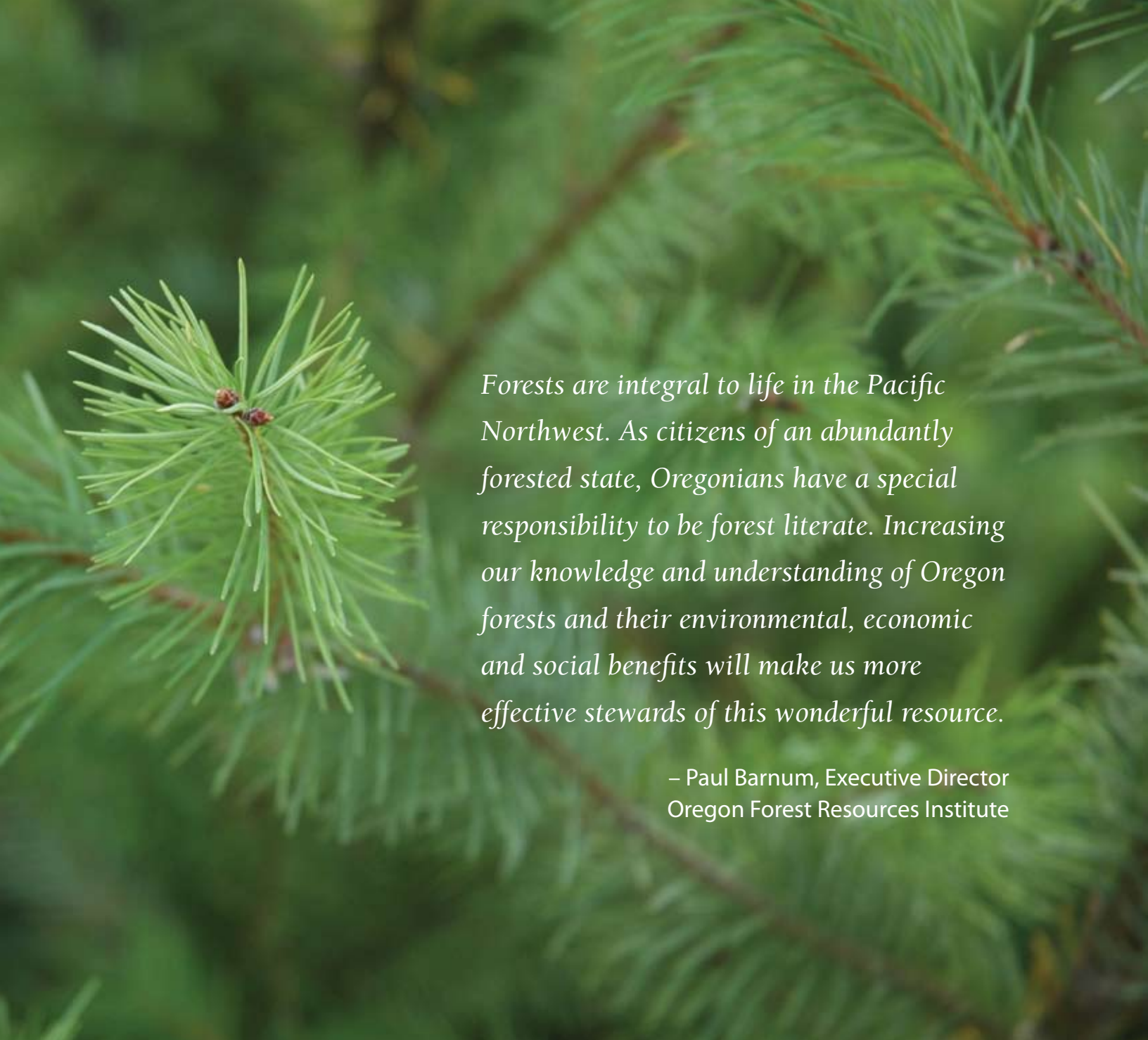




The Oregon Forest Literacy Program

A K-12 Conceptual Guide to
Teaching and Learning about Oregon Forests



Forests are integral to life in the Pacific Northwest. As citizens of an abundantly forested state, Oregonians have a special responsibility to be forest literate. Increasing our knowledge and understanding of Oregon forests and their environmental, economic and social benefits will make us more effective stewards of this wonderful resource.

– Paul Barnum, Executive Director
Oregon Forest Resources Institute

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The Oregon Forest Resources Institute helps connect the classroom to the forest by supporting a wide range of forest education materials and programs, by sponsoring field programs for K-12 students and teachers, and by producing educational publications such as this.

The Oregon Legislature created OFRI in 1991 to improve public understanding of forests, forest products and forest management, and to encourage sound forestry through landowner training. To ensure the objectivity and accuracy of the information used in its educational efforts, OFRI works with the scientific, academic and educational communities.

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The Oregon Forest Literacy Program

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...direct experiences in nature – with students actively involved in their own learning – can improve students’ overall academic performance...



All life, including our own, depends on forests. Forests help filter fresh water, supply oxygen, modulate temperatures and rainfall, provide habitat for diverse animal and plant species, and store atmospheric carbon.

In Oregon, nearly 50 percent of our state's 61 million acres is forestland. Our forests supply renewable resources for lumber, paper and heating, along with jobs that support families and communities. They also provide us with an active playground and a quiet retreat.

Because we depend so profoundly on our forests, being knowledgeable about them is crucial for all Oregonians. We need to understand not only how they work, but also how we are connected to them ecologically, economically and socially.

Using our forests as a context for teaching can enrich student learning and extend it beyond the classroom walls. Studies have found that direct experiences in nature – with students actively involved in their own learning – can improve students' overall academic performance, self-esteem, community involvement and personal health.

Young people in Oregon, as in other parts of the United States, are spending more time indoors with electronic devices and less time connecting with nature. Now more than ever, we must find ways to engage them with the natural world. A good place to start is with the forests in Oregon's own backyard.

This guide presents a conceptual framework for educating Oregon's K-12 students about forests. Its ultimate goal is to help students become forest-literate, so that they:

- appreciate the importance of forests
- understand concepts related to the forests of Oregon
- can communicate about forests in a meaningful way
- are able to make informed and responsible decisions about Oregon forests and forest resources

One instructional strategy that can be used effectively to help students meet these forest literacy goals is service-learning. Service-learning is a teaching and learning strategy that integrates meaningful community service with classroom instruction. Oregon forests offer an array of service-learning opportunities that can help connect students with the natural world.

As we continue to depend on forests in many different ways, Oregonians must play an active role in ensuring the long-term sustainability of our forests. To do this, we need the knowledge and skills to make decisions and understand the impact of our choices. This guide is designed to help K-12 educators provide Oregon students with a comprehensive education about Oregon forests.



“What should every student know about Oregon forests?”

Oregon educators, academic professionals and forest resource specialists met during 2010 to grapple with the question, “What should every student know about Oregon forests?” Coming from different perspectives, they articulated a common vision of forest literacy for Oregon students. The result is the following conceptual framework, which identifies the most important concepts for K-12 students to understand about forests.

Designed as a tool for educators, the conceptual framework presents concepts that help students understand the importance of Oregon forests and the role we all play in sustaining them. It recognizes and builds on the fact that Oregon’s ecology, history and economy are deeply rooted in forests.

The conceptual framework is organized around four themes:

- What is a forest?
- Why are forests important?
- How do we sustain our forests?
- What is our responsibility to Oregon forests?

Each theme is followed by topics and concepts that address the question posed by the theme. Definitions for forest terms used in the framework may be found in the Glossary of Terms on page 19. Individually and collectively, the themes and related concepts help students and educators explore Oregon forests and their connections to them.

Scope and Sequence

The conceptual-framework themes and concepts are arranged so they build upon each other, enabling students to progress from a basic awareness to a deeper understanding of forests. Under each concept, we also have suggested the best grade-level ranges for exploring that concept. Taken together, the order of the concepts and the suggested grade levels provide a scope and sequence for teaching about Oregon forests.

Using the Conceptual Framework

The conceptual framework offers educators guidance for developing curriculum or classroom lessons related to forests. It is designed to be flexible and to be used in a wide range of situations to increase forest literacy, including K-12 classroom instruction, informal education and curriculum materials on forest topics.

It may also be used in a variety of content areas. Students may explore forest concepts through the lenses of science, social sciences, mathematics, language arts or the visual and performing arts.

We invite you to use this conceptual framework to develop learning activities appropriate for your students and your setting. For information about service-learning and sample activities related to forests, see pages 15-16.

Connections to Oregon Content Standards

Oregon content standards specify what students should know and be able to do by certain points in their K-12 education. In order to make the conceptual framework as useful for educators as possible, we have correlated each of the concepts to the Oregon content standards, and with materials and activities that can be used in the classroom. These connections can be found at Oregonforests.org.



Theme 1: What Is a Forest?

The concepts within this theme provide students with a fundamental knowledge of Oregon forests as ecosystems. Comprehending these concepts will lead to an understanding of the relationship between forests and humans.

GRADES*

A. Definition of a Forest

Identifying what constitutes a forest provides students with the basis for examining forests in a broader context.

K-12

1. Forests are ecosystems characterized by a dominance of tree cover and the presence of a wide variety of other organisms (e.g., other plants and animals).
2. Forests are comprised of trees that differ in species, age and size and are affected by biotic factors (e.g., plants, animals and humans) and abiotic factors (e.g., soils, nutrients, moisture, sunlight and climate).

B. Trees as Part of the Forest

One of the defining characteristics of forests is the trees in them. The following concepts help students appreciate the uniqueness of trees and comprehend how individual trees function and fit into a forest ecosystem.

K-12

1. A tree is a woody perennial plant usually 12 feet or more (4 meters or more) tall, with a single main stem and a more or less distinct crown of leaves.
2. Trees compete with each other and other plants growing near them for nutrients, sunlight, space and water.
3. Trees have life stages that include germination, growth, maturity, reproduction, decline and death.
4. As part of the forest ecosystem, trees have various roles (e.g., providing habitat, holding soil, moderating temperature, and cycling water and nutrients).

C. Forests as Ecosystems

Trees and forests influence and are influenced by their surrounding environment. Understanding basic ecological principles and how they apply to forests helps students appreciate the characteristics of forest ecosystems.

K-12

1. Forest ecosystems are comprised of biotic and abiotic factors interacting within a given environment, space and time.
2. Forest ecosystems consist of different types of organisms (e.g., producers, consumers and decomposers) that interact with one another and their environment.

*

Boxes indicate the best grade-level ranges for exploring each concept.

- 3. Humans depend on and influence forest ecosystems and are themselves influenced by forest ecosystems.
- 4. Forest ecosystems include processes such as photosynthesis, energy flow and the cycling of nutrients, water, carbon and other matter.
- 5. Forest ecosystems are complex and dynamic, and continuously undergo change or adaptation, ranging from gradual change (e.g., succession and climate) to abrupt change (e.g., wind, fire, insects, disease, landslides and logging).
- K-12** 6. Natural and human-caused events are a critical part of a forest ecosystem, leading to a forest's renewal and adding to forest diversity. Examples of natural events are wind, landslides and volcanic activity, and examples of human-caused events are logging, road construction and development.
- 7. Forests are interconnected with other terrestrial (e.g., rangeland) and aquatic (e.g., estuary) ecosystems.
- 4-12** 8. 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.
- 9-12** 9. Biodiversity varies by forest ecosystem (e.g., biodiversity in older forests differs from that in younger forests). Biodiversity encompasses the variety and variability of all life on earth, and includes three levels: ecosystem, species and genetic diversity.

D. Classification of Forests

Classifying and differentiating forests into biomes and types helps students make connections among the forests in their community, the forests in Oregon and other forests in the world.

- 4-12** 1. Different forest biomes exist around the world. Examples include tropical forests, temperate forests and boreal forests. Oregon is in the temperate forest biome.
- 2. 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 Oak Woodland.



Theme 2: Why Are Forests Important?

The concepts within this theme help students investigate the connection between Oregon forests and their own lives. Recognizing these connections increases students' awareness and understanding of the importance of sustainable forests to humans, and the forces that have shaped today's forests.

GRADES*

A. Historical Importance

Humans value forests for their aesthetic, cultural, spiritual, ecological, economic, educational and recreational benefits. Historical perspectives on forests provide students with an understanding of how forests have been important to humans throughout time.

4-12

1. In Oregon's development toward becoming a state, forests provided basic resources for Native Americans and settlers, jobs for a growing workforce, resources for building the nation and dollars for a new state economy.
2. Historical perspectives, which may include aesthetic, cultural, spiritual, economic and educational factors, aid our current understanding of Oregon forests and inform future generations about their use.

9-12

3. As demands on forests increased, scientific principles were needed to guide forest management that would conserve natural resources and improve society's use of forestlands.

B. Environmental Importance

Examining the ecological services provided by forests helps students understand that forests are one of Earth's major life-support systems, along with fresh waters, oceans and grasslands.

K-12

1. Forests affect air, water and soil quality.
2. Forests provide habitat for fish and wildlife.

2-12

3. Forests provide the opportunity to study ecosystems, conservation and natural resource management.

4-12

4. Forests sequester carbon from the atmosphere.

6-12

5. Oregon forests are important ecological systems, interconnected with other systems not only environmentally but also socially and economically. Changes in the conditions and uses of Oregon forests may affect the conditions and uses of forests worldwide.



*

Boxes indicate the best grade-level ranges for exploring each concept.

C. Social Importance

Understanding how forests shape the economic, social and cultural composition of local communities helps students recognize the value of forests to society.

- K-12** 1. Oregon's forests provide basic resources that people use every day.
- 2-12** 2. Individuals hold different values concerning forests and their use, based on their experience and connection with the forest.
- 6-12** 3. Forests influence the economic, social and cultural composition of both urban and rural communities.

D. Economic Importance

By exploring the products, jobs, government revenue and investment opportunities provided by the forest sector, students understand the importance of working forests for the economic livelihood of Oregon and other parts of the country and the world.

- 2-12** 1. Forest products come from a renewable resource. Most are reusable and recyclable. They store carbon and require less energy to produce than materials such as concrete and steel.
- 6-12** 2. Forests provide multiple economic benefits, including jobs and commodities such as forest products, renewable energy and minerals, financial returns to owners and investors, and ecosystem service benefits such as climate change mitigation, clean water, recreation and tourism.
- 6-12** 3. Forests provide income for local, state, national and international economies. Oregon's forest sector is one of the state's largest economic sectors.
- 9-12** 4. Economic returns to forest landowners are important in preventing the loss of forests to other land uses.



Theme 3: How Do We Sustain Our Forests?

The concepts within this theme help students understand that Oregon forests are sustained through a rich variety of agreements and partnerships that span private and public sectors and all levels of government. For students to become participating members of a society that works toward sustainable forests, they must be able to comprehend the role forest management plays in meeting society's needs.

GRADES*

A. Forest Ownership

Understanding who owns Oregon forests helps students identify the basis for different forest management decisions.

4-12

1. Forestlands cross natural boundaries such as watersheds and administrative boundaries such as city limits and private property lines.

2. The size and scale of forest ownership can vary from hundreds of thousands of acres in a national forest to an individual patch of trees in an urban forest.

6-12

3. Oregon forests are managed under private (e.g., industrial, family and tribal) and public (e.g., city, county, state and national) ownership. Each type of ownership may have different objectives for how to manage forests.

9-12

4. Many forest landscapes are made up of a mix of ownerships, a variety of management objectives and a blend of forest ecosystems.

B. Forest Management

Forest management is a long-term process. Understanding the reasons forests are managed helps students develop informed attitudes about forest management.

9-12

1. Forest management embodies the use of natural processes as well as purposeful management activities to achieve desired forest outcomes, including reducing the impacts of destructive disturbances such as unwanted wildfire, insect and disease epidemics, storm damage or vandalism.

2. Forest management ranges from active management to passive management, using silvicultural techniques (e.g., planting, thinning and harvesting) to grow, conserve or alter forests.

3. Management and natural processes can lead to changes in tree-species composition, size and age as well as forest health and resilience.

4. Forests can be managed for a variety of ecological (e.g., water resources and wildlife), economic (e.g., forest products and recreation) and social (e.g., aesthetic appreciation, recreation and wilderness) outcomes. Many of these outcomes are interrelated, and some can be managed for simultaneously.

*

Boxes indicate the best grade-level ranges for exploring each concept.

C. Forest Management Decisions

Understanding why and how forests are managed helps prepare students to participate in forest management decisions. By understanding that many individuals and groups are involved in forest management, students will recognize that the responsibility of forest management is shared.

4-12

1. A variety of agencies, companies and individuals manage forests.

6-12

2. Forest-resource professionals aim to meet individual, societal and environmental needs.

3. The type and intensity of forest management are dependent on the purposes for which the forest is managed, as well as the forest type, ownership, size and location.

4. Oregon foresters and forest managers prepare forest management plans based on landowner goals and objectives, capabilities of the forest site, laws and available tools (e.g., planting, harvesting and using prescribed fire).

9-12

5. The public trust empowers governments to have a role in conserving, maintaining and sustaining forest resources by enacting laws, creating policies, establishing agencies, creating public lands and providing management guidelines for forest landowners (e.g., Oregon forest practices laws).

6. Government has a role in actively engaging organizations, businesses, communities and individuals in forest management and policy decisions, especially for publicly owned forests.

7. Management decisions attempt to integrate the social, economic and ecological dimensions of sustainability.

8. Sustainable management of forests includes maintaining forest health, productivity and diversity, and conserving a forested land base for the needs of present and future generations.

D. Forest Management Issues

Examining management issues and the factors that contribute to them helps students understand the complexity of forest management decisions.

6-12

1. Forest-related issues can be affected by politics, science, emotion, economics, values and perception.

2. Forest management can be controversial because of safety issues, aesthetic impact, differences between past and current practices, and insufficient communication with those affected.

3. Issues that can arise from forest management decisions include: the effects of timber harvest; impacts on water quality, air quality and carbon sequestration; wilderness designation; recreational uses; erosion; salvage; livestock grazing; harvest methods; forest roads; forest taxation; and many others.

Theme 4: What Is Our Responsibility to Oregon Forests?

The concepts within this theme help students identify ways to connect with Oregon forests to help sustain them for present and future generations. Students can be active participants in promoting forest sustainability by studying, observing and experiencing forests firsthand, and by taking appropriate action in their communities.

GRADES* A. Our Role in Sustaining Oregon Forests

Learning to take action to support Oregon forests in a variety of ways gives students pathways to involvement now and in the future. Students’ “connection to place” is a powerful motivator for learning.

K-12

1. Everyone has a responsibility to treat forests with respect and become a conscientious steward of Oregon forests and forest resources.
2. There are many opportunities for individuals to experience and connect with forests in Oregon.
3. Ways individuals play a part in sustaining our forests include volunteering for projects in and around forests, becoming informed and active voters, attending public meetings and making wise consumer choices.

2-12

4. Human value systems drive our use of forest resources.

6-12

5. Science and technology are the basis of our understanding of forests.
6. Managing for sustainable forests requires technical expertise, critical thinking, creative problem-solving and citizen engagement.



9-12

7. Forest research and management involves professionals and skilled workers with background and experience in many fields, including forestry, biology, fish and wildlife management, soil and water conservation, land management, political science, engineering, sociology, geography, information technology, environmental education, chemistry, natural resource law, economics, finance and communications.

* Boxes indicate the best grade-level ranges for exploring each concept.

B. The Future of Our Forests

These concepts help students understand the connections between their actions today and the future of Oregon forests.

K-12

1. Choices humans make regarding the use of renewable resources affect our ability to sustain forest ecosystems.
2. The role forestlands play in meeting human needs will change over time.

9-12

3. As human populations and global demand for forest resources increase, forest management and advances in research and technological systems can help ensure forest resources are maintained or improved to produce the desired values and products.
4. Changing demands and expectations for the forest, as well as unexpected events, will affect decisions about forest resource use. Sound management based on scientific research, economic analysis and public involvement will be required.



Service-learning is a teaching method that combines service to the community with meaningful and relevant learning experiences. It can be an effective way to connect students with forests, helping them master subject material while fostering civic responsibility.

Service-learning is designed around meeting curricular objectives or content standards. It helps students build academic skills by providing a way for them to apply what they learn in school to the real world. Activities that invite students to reflect during and after the project further reinforce the links between students' service and their classroom learning.

Service-learning also encourages lifelong civic participation by actively engaging students in meaningful and personally relevant service. It allows students to see the roles they can play in their community, and helps them relate academic learning to real-life experiences.

Through hands-on opportunities and inquiry-based instruction, service-learning can also help build the 21st century skills students need to succeed in their communities and the workplace.

Effective Service-Learning

According to the National Youth Leadership Council, high-quality service-learning actively engages students in meaningful and personally relevant service activities. It is an intentional instructional strategy used to meet learning goals or content standards.

To be effective, service-learning incorporates ongoing reflective activities that prompt deep thinking and analysis about one's relationship to society. It provides students with a strong voice in planning, implementing and evaluating their service-learning experiences. It also gives students the opportunity to demonstrate what they learned from the project or how their service affected them.

Service-Learning and the Conceptual Framework

A variety of service-learning projects related to forests can be used to teach and reinforce concepts detailed in the conceptual framework as well as connect students to the natural world. Even in densely populated areas, the urban forest can be a rich setting for learning about the environment while serving the community.

Three of the framework concepts identify the importance of stewardship, connection and service to forests, and can provide the basis for a wide range of forest-related projects. These are:

- Everyone has a responsibility to treat forests with respect and become a conscientious steward of Oregon forests and forest resources. (Theme 4, Concept A.1)
- There are many opportunities for individuals to experience and connect with forests in Oregon. (Theme 4, Concept A.2)
- Ways individuals play a part in sustaining our forests include volunteering for projects in and around forests, becoming informed and active voters, attending public meetings and making wise consumer choices. (Theme 4, Concept A.3)

Example Projects

In addition to the more general service-oriented concepts listed above, projects may also be developed to teach specific content. The following example projects were developed around particular framework concepts.

- **Guide to Seasonal Changes.** For this project, primary students create a community guidebook to seasonal changes in the trees of a nearby park. In making the books, they learn data collection techniques; study life cycles and habitats; and practice organizing, writing and working in teams.

Framework Concept: Trees have life stages that include germination, growth, maturity, reproduction, decline and death. (Theme 1, Concept B.3)

- **Forest Species Lab.** For this project, intermediate-grade students design an outdoor forest species lab for their school community. Students research Oregon native plants and what they need to thrive; organize fund-raising efforts for suitable plants and needed supplies; create planning maps of the lab site; and then plant and care for the plants.



Framework Concept: Forests provide the opportunity to study ecosystems, conservation and natural resource management. (Theme 2, Concept B.3)

- **Forest Interpretive Trail.** For this project, middle school students develop an interpretive trail for the community that goes through a local forest. Students learn about the local ecosystem; research interesting facts about plants, animals or historical figures; work with government agencies and businesses; and create signs or a brochure for the trail. The students gain an understanding of their local forest and community processes, and practice research, writing and communication skills.
- Framework Concept:** Forest ecosystems consist of different types of organisms (e.g., producers, consumers and decomposers) that interact with one another and their environment. (Theme 1, Concept C.2)

- **Forest Stream Monitoring.** For this project, high school students monitor a nearby forest stream and riparian zone for the local watershed council. As part of the project, students map the area using GPS units, take ongoing water quality samples, keep photo journals, analyze their results and develop a PowerPoint presentation of their findings. They hone sampling techniques and technical and communication skills while learning about their community's water supply.

Framework Concept: Forestlands cross natural boundaries such as watersheds and administrative boundaries such as city limits and private property lines. (Theme 3, Concept A.1)

You may use the Service-Learning Planning Template on page 18 to plan your own forest-related project that supports specific framework concepts and other curriculum goals. Examples of completed service-learning templates can be found at Oregonforests.org.

Resources

For more information and additional resources on service-learning, see Oregon Department of Education Service-Learning at ode.state.or.us, or Learn and Serve America's National Service-Learning Clearinghouse at servicelearning.org.

...in service-learning, students apply what they learn in school to the real world...



Service-Learning Planning Template

Forest-Related Project Idea:

Service

Community Need:

Learning

Connections to Curriculum, Oregon Standards and Conceptual Framework:

- Arts: _____
- English/Language Arts: _____
- Mathematics: _____
- Science: _____
- Social Sciences: _____
- Other: _____

Concept Development:

- _____
- _____
- _____
- _____

Skill Development:

- _____
- _____
- _____
- _____

Project Plan

Timeline:

Preparation:

Action:

Reflection:

Demonstration of Learning:

Community Resources:

Books, Other Resources:

Notes:

Glossary of Terms*

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

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

Administrative boundary – the border of a geographic area under the jurisdiction of a governmental or managerial entity.

Aquatic ecosystem – all living and non-living elements of a water-based environment, and the relationship between them.

Biome – a complex of communities characterized by a distinctive type of vegetation and maintained under the climatic conditions of the region. PLT

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

Boreal forest – the northernmost broad band of mixed coniferous and deciduous trees that stretches across northern North America, Europe and Asia. PLT

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

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. PLT

Crown – the top branches of a tree. PLT

Decomposer – a plant or organism that feeds on dead material and causes its mechanical or chemical breakdown. PLT

Ecological service – a function of forests and other healthy ecosystems that benefits living organisms, such as purifying air and water, maintaining biodiversity, decomposing wastes, generating soil and pollinating plants.

Economic (or financial) return – income or profit from an investment or the sale of land, timber or other property.

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

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

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

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

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

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



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Harvest – see “Timber harvest.”

Natural boundaries – borders of an area that follow natural geographic features such as a river or ridge.

Organism – any living form of life. PLT

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. PLT

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

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

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. PLT

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

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

Stewardship – the concept of responsible caretaking. 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

Temperate forest – a forest with moderate year-round temperatures and distinct seasons that is characterized by both conifers and broadleaf evergreens. PLT

Terrestrial ecosystem – all living and non-living 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.

Tree – a woody perennial plant usually 12 feet or more (4 meters or more) tall, 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.

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

Value system – a set of consistent values and measures.

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.

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



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Collecting relevant data in our local forest and teaching fourth-grade students about the forest has helped my high school biology students get excited about ecology and learning about forests.

– Rima Givot, Sisters School District

Everyone learns outside. It's the ultimate classroom!

– Amber Horn, St. Helens School District

Students thrive outdoors. They want to do real work for their communities that will make a difference. Service-learning gives them this opportunity while addressing the high standards needed for their education.

– Melissa Radcliffe, Tillamook School District

By providing students with meaningful, real-world activities that impact their world and build their knowledge and skills, we help ensure that they are equipped to improve the future quality and viability of our forests and natural-resource-based economy.

– Aaron Miller, Vernonia School District

Service learning offers students an opportunity to experience the “why” of their learning and provides perspective on their lives. It empowers them and creates life-long habits of citizenship, stewardship and learning, while deepening their understanding of content.

– Eric Beck, REALMS Charter School, Bend

