Talk About Trees Intermediate Classroom Programs - Connections to Oregon Science and Social Studies Standards

Program	Program Topics	Oregon Science Standards Next Generation Science Standards (NGSS)*			Oregon Social Studies Standards
		Science and Engineering Practices ("Doing" Science)	***Disciplinary Core Ideas (Content)***	***Performance Expectations (Standards***	
Tree Program (Grades 3-5)	Classification of trees Photosynthesis What trees need to grow and stay healthy Forest health Need for restoration Benefits of trees	**Planning and Carrying Out Investigations.** Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (Grades 3-5) **Developing and Using Models.** Develop a model to describe phenomena. (Grades 3-5) **Analyzing and Interpreting Data.** Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (Grades 3-5) **Engaging in Argument from Evidence.** Support an argument with evidence, data, or a model. (Grades 3-5) **Obtaining, Evaluating, and Communicating Information.** Obtain and combine information from books and other reliable media to explain phenomena. (Grades 3-5)	**LS1.A: Structure and Function.** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. **LS1.C: Organization for Matter and Energy Flow in Organisms.** Plants acquire their material for growth chiefly from air and water. **LS2.A: Interdependent Relationships in Ecosystems.** The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. **LS2.B: Cycles of Matter and Energy Transfer in Ecosystems.** Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.	**4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] **4-ESS3-1.** Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. [Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; nonrenewable energy resources are fossil fuels and fissile material.] **5-ESS3-1.** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. **5-LS1-1.** Support an argument that plants get the materials they need for growth chiefly from air and water. **5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Emphasis is on	**Geography – 4th Grade** 4.12. Explain how people in Oregon have modified their environment and how the environment has influenced people's lives. 4.13. Describe how technological developments, societal decisions, and personal practices influence Oregon's sustainability (dams, wind turbines, etc.). **Geography – 5th Grade** 5.10. Describe how physical and political features influence events, movements, and adaptation to the environment. 5.11. Describe how technological developments, societal decisions, and personal practices influence sustainability in the United States.

			ESS3.A: Natural Resources. Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. **ESS3.C: Human Impacts on Earth Systems.** Human activities in agriculture, industry, and everyday life have had major effects on land, vegetation, streams, oceans, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.	the idea that matter that is not food is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.]	

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Paper Making Program (Grades 3-5)	Paper as a way to record the spoken word. The idea for modern paper came from wasps nests made from wood. Oregon is an important supplier of wood for paper pulp. Paper has different properties that can be tested and measured.	**Planning and Carrying Out Investigations.** Test two different models for the same proposed object, tool, or process to determine which better meets criteria for success. **Planning and Carrying Out Investigations.** Make predictions about what would happen if a variable changes.	**ESS3.A: Natural Resources.** Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. **ETS1.B: Designing Solutions to Engineering Problems.** Testing a solution involves investigating how well it performs under a range of likely conditions.	**5-PS1-3.** Make observations and measurements to identify materials based on their properties. **3-5-ETS1-1.** Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints on materials, time, or cost. **MS-ETS1-1.** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	**Geography – 3rd Grade** 3.12. Identify and analyze Oregon's natural resources and describe how people in Oregon and other parts of the world use them. **Economics/Financial Literacy – 4th Grade** 4.18. Identify key industries of Oregon.

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Outdoor Program (Grades 3-5)	Oregon forests include broadleaved and conifer trees. Trees can be classified and identified. To learn about forests, we can take measurements, collect data, and make other observations.	**Planning and Carrying Out Investigations.** Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (Grades 3-5) **Modeling.** Develop a model to describe phenomena. (Grades 3-5)	**LS4.D: Biodiversity and Humans.** There are many different kinds of living things in any area, and they exist in different places on land and in water. **LS1.A: Structure and Function.** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. **LS4.C: Adaptation.** For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. **LS2.A: Interdependent Relationships in Ecosystems.** Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life.	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats. **3-LS4-3.** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. **4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] **5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	**Geography – 3rd Grade** 3.10. Identify and compare physical features of Oregon and other Northwestern states. **Geography – 4th Grade** 4.8. Use geographical tools (e.g., maps, GIS, Google Earth) to identify absolute and relative locations and physical characteristics of places in Oregon.

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Forest Careers Program (Grades 4-5)	Oregon's forest sector provides many different jobs and careers. Careers include: forest engineer, wildlife biologist, field forester, logging crew and mill worker. Different careers use different tools and require specific education, training, and skills to be successful.		**ESS3.C: Human Impacts on Earth Systems.** Human activities in agriculture, industry, and everyday life have had major effects on land, vegetation, streams, oceans, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. **[The following could be emphasized more as students explore the tools.]** **ES1.A: Defining and Delimiting Engineering Problems.** Possible solutions to a problem are limited by available materials and resources (constraints). **ETS1.A: Developing Possible Solutions.** A solution needs to be tested, and then modified on the basis of the test results, in order to improve it.	**5-ESS3-1.** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. **[The following could be emphasized more as students explore the tools.]** **3-5-ETS1-1.** Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints on materials, time, or cost. **MS-ESS3-3.** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. **MS-ETS1-1.** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	**Geography – 3rd Grade** 3.10. Identify and compare physical features of Oregon and other Northwestern states. **Geography – 4th Grade** 4.8. Use geographical tools (e.g., maps, GIS, Google Earth) to identify absolute and relative locations and physical characteristics of places in Oregon.

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