



SOLVE Service-Learning Project Plans

Invasive Plant Removal

Background

- Invasive plants out-compete native trees and shrubs and create mono-cultures, areas dominated by a single species, reducing the habitat available to local wildlife.
- Invasive plants often have shallow root systems which do little to reduce erosion or remove undesirable pollutants from runoff.
- Removal of invasive plants must be followed by planting of native plants in order to keep the invasive plants from returning.

Content Alignments

- Mathematics
- Science
- English Language Arts
- Social Science

Learning Objectives

- Students will learn the ways in which invasive plants can damage native plants, create mono-cultures, increase erosion, and destroy animal habitat.
- Students will learn how to identify invasive plants.
- Students will learn how to properly remove invasive plants using manual techniques.

Service Objectives

- Students will remove any invasive plants present at the site.

Materials Needed

- Gloves
- Shovels
- Loppers

Instructions

1. Provide an overview and definition of invasive plants.
2. Work with Students to identify the invasive plants which are present at the restoration site.
3. Explain ways in which invasive plants damage riparian areas.
4. Explain the benefits of manual invasive removal to Students in comparison with other techniques.
5. Demonstrate proper manual removal techniques for appropriate invasive plants. (Ideal dates for invasive plant removal depends on when the plants go to seed, contact a local watershed restoration professional for specific advice)
 - a. English Ivy – If ivy is on the ground pull up by hand when possible, and cut off vines as necessary. For ivy attached to trees cut ivy in a circle around the tree at shoulder height and then at knee height. Once the ivy is disconnected from the



- ground the plant material higher up will slowly die away. Removing the cut material from the site will reduce chances of the plant re-rooting.
- b. Morning Glory – Pull out by hand. Removing the cut material from the site will reduce chances of the plant re-rooting.
 - c. Himalayan Blackberry – Cut using loppers until about one foot of stem remains. Using a shovel dig up the root under the stem, make sure you get the large woody part of the root known as a root ball.
 - d. Scotch Broom – Cut down stems as low to the ground as possible. Once the majority of the plant material is removed the plant will die away.
6. Supervise Students to ensure proper removal.
 7. If invasive plant removal will not be immediately followed with native planting seed or straw should be spread to reduce the chance of weeds invading as well as decreasing erosion.

Reflection Idea

Have Students survey their site before they begin their work, take a mental “picture” and then look at it again when the work is completed. This activity will give everyone a sense of accomplishment over time. Take time to reflect on the service experience as well as the importance of teamwork in completing the service project.

Additional Resources

- Alien Invasion: Plants on the Move Weed Curriculum
 - http://www.weedinvasion.org/weed_home.php
- Center for Invasive Species and Ecosystem Health
 - <http://www.invasive.org/>
- East Multnomah Soil and Water Conservation District
 - <http://www.emswcd.org/weeds>
- Oregon Department of Agriculture State Noxious Weed List and Quarantine
 - <http://www.oregon.gov/ODA/PLANT/WEEDS/lists.shtml>
- Oregon State University Extension Service
 - 503-655-8631
 - <http://extension.oregonstate.edu/>
- The Silent Invasion Invasive Plant Guide
 - <http://www.opb.org/programs/invasives/guide.php>
- Your Local Watershed Council or Soil and Water Conservation District
 - <http://www.oregonwatersheds.org/>
 - <http://www.oacd.org/>

Invasive Plant Removal - Standards

Elementary	
English Language Arts	<p>Reading: Vocabulary EL.04.RE.09 Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas. EL.05.RE.09 Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.</p> <p>Speaking and Listening: Listening EL.01.SL.08 Listen attentively. EL.01.SL.09 Ask questions for clarification and understanding. EL.02.SL.06 Give and follow three- and four-step directions. EL.03.SL.09 Answer questions completely and with appropriate elaboration. EL.04.SL.07 Ask thoughtful questions and respond orally to questions with appropriate discussion. EL.04.SL.09 Follow detailed directions and instructions. EL.05.SL.07 Ask relevant questions that seek information not already discussed.</p>
Science (2009)	<p>Structure and Function K.1P.1 Compare and contrast characteristics of living and non-living things. K.1L.1 Compare and contrast characteristics of plant and animals. K.1E.1 Gather evidence that the sun warms land, air, and water. 1.1L.1 Compare and contrast characteristics among individuals within one plant or animal group. 1.1E.1 Examine characteristics and physical properties of Earth materials. 2.1L.1 Compare and contrast characteristics and behaviors of plants and animals and the environments where they live. 4.1E.1 Identify properties, uses, and availability of Earth materials. 5.1L.1 Explain that organisms are composed of parts that function together to form a living system.</p> <p>Interaction and Change 1.2L.1 Describe the basic needs of living things. 2.2L.1 Describe life cycles of living things. 3.2L.1 Compare and contrast the life cycles of plants and animals. 4.2L.1 Describe the interactions of organisms and the environment where they live. 4.2E.1 Compare and contrast the changes in the surface of Earth that are due to slow and rapid processes. 5.2L.1 Explain the interdependence of plants, animals, and environment, and how adaptation influences survival 5.2E.1 Explain how the energy from the sun affects Earth's weather and climate.</p> <p>Scientific Inquiry K.3S.1 Explore questions about living and non-living things and events in the natural world. K.3S.2 Make observations about the natural world 2.3S.2 Make predictions about living and non-living things and events in the environment based on observed patterns.</p>
Social Sciences	<p>Civics and Government Understand participatory responsibilities of citizens in the community (voluntarism) and in the political process (becoming informed about public issues and candidates, joining political parties/interest groups/associations, communicating with public officials, voting, influencing lawmaking through such processes as petitions/initiatives. SS.03.CG.03 Identify ways that people can participate in their communities and the responsibilities of participation. SS.05.CG.05 Understand how citizens can learn about public issues. SS.05.CG.05.01 Identify and give examples of resources that provide information about public issues</p> <p>Understand how people and the environment are interrelated. SS.03.GE.05 Understand how peoples' lives are affected by the physical environment. SS.05.GE.07.01 Understand how and why people alter the physical environment. SS.05.GE.07.02 Describe how human activity can impact the environment.</p>

8th Grade	
English Language	Speaking and Listening: Listening

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Arts	EL.08.SL.08 Analyze oral presentations, including language choice and delivery, and the effect of the speaker's interpretation on the listener. EL.08.SL.09 Paraphrase a speaker's purpose and point of view, and ask relevant questions concerning the speaker's content, delivery, and purpose.
Science (2009)	Interaction and Change 6.2L.2 Explain how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources. 6.2E.1 Explain the water cycle and the relationship to landforms and weather 7.2L.2 Explain the processes by which plants and animals obtain energy and materials for growth and metabolism. 7.2E.1 Describe and evaluate the environmental and societal effects of obtaining, using, and managing waste of renewable and non-renewable resources. 7.2E.3 Evaluate natural processes and human activities that affect global environmental change and suggest and evaluate possible solutions to problems. 7.2E.4 Explain how landforms change over time at various rates in terms of constructive and destructive forces.
Social Sciences	Geography: Understand how people and the environment are interrelated SS.08.GE.07 Understand how human modification of the physical environment in a place affects both that place and other places. SS.08.GE.07.01 Understand how the process of urbanization affects the physical environment of a place, the cultural characteristics of a place, and the physical and human characteristics of the surrounding region. SS.08.GE.07.02 Understand how clearing vegetation affects the physical environment of a place and other places. SS.08.GE.08 Understand how changes in a physical environment affect human activity SS.08.GE.08.01 Understand how changes in the physical environment can increase or diminish capacity to support human activity. SS.08.GE.08.03 Predict how changes in an ecosystem (not caused by human activity) might influence human activity. Geography: Understand the geographic results of resource use and management programs and policies

High School	
English Language Arts	Reading: Vocabulary EL.HS.RE.08 Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas Speaking and Listening: Listening EL.HS.SL.10 Formulate judgments about ideas under discussion, and support those judgments with convincing evidence. EL.HS.SL.11 Follow complex verbal instructions that include technical vocabulary and processes.
Science (2009)	Interaction and Change H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems. H.2E.4 Evaluate the impact of human activities on environmental quality and the sustainability of Earth systems. Describe how environmental factors influence resource management.
Social Sciences	Civics and Government: Understand participatory responsibilities of citizens in the community (voluntarism) and in the political process (becoming informed about public issues and candidates, joining political parties/interest groups/associations, communicating with public officials, voting, influencing lawmaking through such processes as petitions/initiatives). SS.HG.CG.05.01 Identify the responsibilities of citizens in the United States and understand what an individual can do to meet these responsibilities. Geography: Understand how people and the environment are interrelated SS.HS.GE.07 Understand human modifications of the physical environment and analyze their global impacts and consequences for human activity. SS.HS.GE.07.01 Distinguish between renewable resources and non-renewable resources and the global consequences of mismanagement. SS.HS.GE.08.1 Identify and give examples of changes in human activity due to changes in the physical environment, and analyze the impact on both.

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Career-Related Learning Standards

Personal Management

CS.PM.01 Identify tasks that need to be done and initiate action to complete the tasks.
CS.PM.02 Plan, organize, and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
CS.PM.04 Maintain regular attendance and be on time.
CS.PM.05 Maintain appropriate interactions with colleagues.

Communication

CS.CM.01 Locate, process, and convey information using traditional and technological tools.
CS.CM.04 Read technical/instructional materials for information and apply to specific tasks.

Employment Foundations

CS.EF.02 Select, apply, and maintain tools and technologies appropriate for the workplace
CS.EF.06 Demonstrate dress, appearance, and personal hygiene appropriate for the work environment and situation.
CS.EF.07 Explain and follow health and safety practices in the work environment.

Teamwork

CS.TW.02 Demonstrate skills that improve team effectiveness (e.g., negotiation, compromise, consensus building, conflict management, shared decision –making and goal-setting).

Essential Skills

Think critically and analytically

Demonstrate civic and community engagement