

Environmental Restoration: Social Studies Lesson

Created By	Grades	Subjects	Duration
Breck Foster	8th, 9th, 10th, 11th, 12th	Social Sciences	90 minutes

Lesson Overview

Essential Questions	<ul style="list-style-type: none"> What is the role of international principles in ensuring accountability for protecting and restoring ecosystems? How can ecosystem restoration benefit people, nature, and the climate?
Learning Outcomes	<p>Students will be able to:</p> <ul style="list-style-type: none"> Describe the interdependent relationship between humans and nature. Identify and evaluate the costs and benefits of ecosystem restoration. Use the UN's Principles of Ecosystem Restoration to analyze and evaluate global and local examples of environmental restoration. Reflect on how ecosystem restoration addresses equity and justice. Develop and defend a manifesto.
Summary	<p>Using case studies, students apply international principles to evaluate human-environment relationships.</p> <p>Inquire: Students brainstorm the potential benefits of environmental restoration on people, nature, and the climate.</p> <p>Investigate: Students learn about the UN's 10 Principles of Ecosystem Restoration and explore case studies from across the globe.</p> <p>Inspire: Students apply their understanding of ecosystem restoration by analyzing efforts in Oregon, and write a manifesto.</p>

Instructions

Inquire ≈ 10 minutes	<ul style="list-style-type: none"> Students brainstorm examples of environmental damage they are familiar with, then discuss the prompts on the Teacher Slideshow to consider the benefits and challenges of ecosystem restoration. Teacher or students record the class' ideas on the board or a shared digital platform.
Investigate ≈ 30 minutes	<ul style="list-style-type: none"> Students explore the benefits of ecosystem restoration. <ul style="list-style-type: none"> Students discuss the prompts on the Teacher Slideshow, noting the similarities and differences between the benefits listed and the class' responses in the Inquire section. For a more in-depth discussion, students can go to page 19 of the United Nations report, Ecosystem Restoration for People, Nature, and Climate, and report back interesting observations and ideas. In groups or individually, students read this article about the 10 principles of ecosystem

	<p>restoration.</p> <ul style="list-style-type: none"> ○ Students answer the questions individually on their Student Document or discuss their answers using the questions on the Teacher Slideshow. For another summary of each principle, students can also access this guide from the UN. ○ Students discuss key takeaways with the class. <ul style="list-style-type: none"> ● Students participate in a jigsaw activity to analyze global case studies of ecosystem restoration. <ul style="list-style-type: none"> ○ Groups are assigned one of the following global case studies: South America's Atlantic Forest, India's Ganges River, or Africa's Great Green Wall Initiative. ○ Students complete the chart on their Student Document with information from their assigned global case study. ○ Students get into mixed groups, share the information from their global case study, and take notes. ● Students discuss how the 10 ecosystem restoration principles relate to the case studies using the prompts on the Student Document.
<p>Inspire ≈ 50 minutes</p>	<ul style="list-style-type: none"> ● Students, in groups of 3-5, are assigned or choose one of six Oregon case studies: Klamath Basin, Bakken Oil Spill, Snake and Columbia Rivers, Black Butte Mine, Portland Harbor Superfund Site, or the 2020 Labor Day Wildfire. ● Students use the sources listed in the Oregon Case Study Resources section of the Student Document to complete the chart on their Oregon Case Study Analysis Document. <ul style="list-style-type: none"> ○ Teacher can decide to assign students the optional sources for each case study for a deeper dive into each event. ○ In their groups, students discuss their answers to the analysis and reflection questions. ● Each group creates a mind map on a large piece of butcher paper using circles, arrows, and lines to create a visual representation of the human-environment interaction they explored in their case study analysis. Individual students can be responsible for being an expert in one or more of the areas (e.g., causes, effects, ecosystem restoration). ● Students participate in a gallery walk of their case study analyses. <ul style="list-style-type: none"> ○ As they walk, students identify patterns or ways in which the different case studies are connected, similar, or different. ○ Students ask questions or make comments using sticky notes. ● Afterward, students go back to their own analysis and respond to the comments on the sticky notes. ● Students debrief and reflect as a class using the prompts on the Teacher Slideshow. ● Individually or as a class, students write a manifesto or resolution in which they commit to principles of ecological restoration that would be most beneficial to Oregon or their local context. <ul style="list-style-type: none"> ○ The manifestos should call for accountability for ecosystem restoration. ○ Students can display their manifesto and discuss ways to put their manifesto into action. This assignment could be used as an assessment with evidence of learning outcomes and understanding of ecosystem restoration, using the rubric on the Student Document.

Accompanying Materials

<p>Teacher Slideshow</p>	<p>Student Document</p>	<p>Teacher Answer Key</p>
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Teaching Tips

Suggestions	<ul style="list-style-type: none"> This lesson can be used to help students make sense of current environmental and ecological disasters by looking at potential ways society can respond positively. This lesson can be taught on its own or within a unit on sustainable development, culture and geography, industrialization and globalization, or rebuilding after a war or disaster.
Prerequisites	<ul style="list-style-type: none"> Teachers should be aware that students may have been personally impacted by ecological disruption and discussing these issues may be difficult. Providing students an opportunity to identify and reflect on their feelings will help them be able to fully participate in the lesson.
Differentiation	<ul style="list-style-type: none"> Students can do the readings from the Investigate section and write the manifesto from the Inspire section for homework. This lesson can be extended by applying environmental or ecosystem restoration to a local event, or a current event in the news. Students can research the event and write a proposal for ecological restoration that identifies who should be held accountable, the costs and benefits of the project, and the relevant ecosystem restoration principles. For example, proposals could include how underrepresented groups from the community will be included in creating the solutions. This lesson ties in nicely with Project Drawdown's three critical principles related to climate change: "reducing sources, supporting nature's 'sinks' for storing carbon, and centering equality in global action." Students can apply ecosystem restoration to the examples of ecocide from SubjectToClimate's 8th-12th grade social studies unit: History Unit Plan: Ecocide and International Law. Below are some helpful related resources: <ul style="list-style-type: none"> The Kakhovka Dam Disaster: Responsibility and Consequences explains the challenges of investigating the incident, assigning blame, and the cost of rebuilding. This NPR article shows satellite images of the damage highlighting the "bruising" effects of war that have left a scar on the Earth and widespread agricultural loss.

Learning Standards

Primary Standards
Oregon Social Sciences

8.34 Analyze how a specific problem can manifest itself at local, regional, and global levels over time, identifying its characteristics and causes, and the challenges and opportunities faced by those trying to address the problem.
HS.52 Evaluate continuity and change over the course of world and United States history.
HS.74 Analyze an event, issue, problem, or phenomenon, critiquing and evaluating characteristics, influences, causes, and both short- and long-term effects.
Supporting Standards
Oregon Social Sciences
HS.40 Use geographic data to analyze the interconnectedness of physical and human regional systems (such as a river valley and culture, water rights/use in regions, choice/impact of settlement locations) and their interconnectedness to global communities.
HS.75 Evaluate options for individual and collective actions to address local, regional, and global problems by engaging in self-reflection, strategy identification, and complex causal reasoning.
Oregon English Language Arts
8-12.SL.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 8-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
6-8.RH.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
6-12.RH.7 Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem.
6-12.WHST.9 Draw evidence from informational texts to support analysis, reflection, and research.