

Science of Habitat Protection and Restoration

Lesson 3: Restoring Moro Canyon at Crystal Cove State Park

OVERVIEW

Students will work in partners/groups to explore how Moro Canyon was restored to its natural habitat, and they will compare and contrast this project to other habitat restoration projects.

OBJECTIVES

- Students will explore the various stages of habitat restoration that took place at Moro Canyon through the use of an interactive image on thinglink.com.
- Students will compare the habitat restoration efforts at Crystal Cove State Park to other areas of habitat restoration in the world.
- Students will describe coastal sage scrub habitats.

VOCABULARY habitat restoration, restore, Coastal Sage Scrub community

Engage		
Teacher Says/Does	Probing Questions	Student Responses
<p>Teacher instructs groups or partnerships of students to write the word “Restore” vertically down the center of a piece of paper.</p> <p><i>Today we are going to learn a little bit about habitat restoration. First let’s found out what you already know about the word “restore.” Write the word, “restore” vertically down the center of a sheet of paper.</i></p> <p>Teacher will demonstrate this by writing the word “restore” vertically down the board, projector, etc.</p> <p><i>I will give you and your groups/partners 3 minutes to write everything you know about the word restore by branching words off of it on your sheet of paper. For example, if I thought that the word restore had to do with eggs and bacon, I would use a letter “E” in restore to write “eggs and bacon.”</i></p>		

Demonstrate this by writing eggs and bacon, or any other silly example next to a letter on the board.	<i>Do you have any questions about the instructions? Ready? Go!</i>	Students work on their assignment in groups/pairs.
<i>Time's up! Let's see what everyone came up with.</i> Teacher will lead a class discussion on what everyone wrote for each letter. Teacher and class will decide on the best ones to put on the board.	<i>What did everyone put for the letter "R"?</i> <i>Which one should we put on our board?</i>	Answers will vary, but some examples could include "revitalize," "redo," "remake," "breathe new life into," etc.
<i>Let's keep these original thoughts about the word "restore" you had in mind while we discuss what it means to conservation biologists and those that work in California State Parks or other areas with natural resources.</i>		

Explore/Explain		
Teacher Says/Does	Probing Questions	Student Responses
<p>Teacher will instruct students to work in pairs or groups at computers to explore the habitat restoration that took place at El Moro Canyon using the thinglink website: https://www.thinglink.com/scene/649301991025016833</p> <p>Students will fill out the worksheet provided as they go.</p> <p>After exploring the website, teacher will guide a discussion on habitat restoration with the students.</p>	<p><i>What are some things that surprised you about the habitat restoration that took place at El Moro Canyon?</i></p> <p><i>Why do you think it's important to restore habitats?</i></p>	<p>Answers will vary.</p> <p>Answers will vary.</p>

<p><i>Restoring habitats to their natural state can help with a lot of important ecological issues. For example, adding more native plants to the ground close to the ocean can help filter out toxins from the environment before water runs off the ground into the ocean.</i></p>	<p><i>What are some similarities between the restoration projects at Crystal Cove and other restorations projects you found?</i></p>	<p>Answers will vary. (Removal of invasive species, removing human disturbances, etc.)</p>
	<p><i>What are some differences you found between the restorations project at Crystal Cove and the restoration projects you found?</i></p>	<p>Answers will vary. (Different native plants based on areas, different goals, etc.)</p>
<p><i>Different areas will need to change different things based on the levels of human disturbance and the native plants and animals of the area.</i></p>		

Elaborate		
Teacher Says/Does	Probing Questions	Student Responses
<p><i>Let's learn a little bit about Coastal Sage Scrub, the community of plants that was restored at Crystal Cove. There is an image under a yellow circle icon on the Thinglink that shows what it looks like.</i></p> <p><i>Coastal sage scrub is a community of many California native plants.</i></p>	<p><i>Can you recall what a native plant is?</i></p>	<p>A plant that occurred in California originally or occurs in California naturally.</p>
<p><i>That's right! Coastal sage scrub is a group of plants that originally adapted, or adjusted, to life in a climate that doesn't go through very harsh temperature changes.</i></p>	<p><i>What do you think a harsh temperature means?</i></p>	<p>Very cold or very hot.</p>
<p><i>Great! Coastal sage scrub does well in places where it doesn't freeze, and where it doesn't get much above 90°F. The plants in this ecosystem are well adapted to a dry climate that doesn't receive a lot of rain.</i></p>		

	<p><i>What do you think a plant needs to have if it can survive without a lot of rain? Turn to your neighbor to discuss this question.</i></p> <p><i>What did you come up with?</i></p>	<p>Answers will vary (smaller leaves, thick wax covered leaves, taking a break during summer months)</p>
<p><i>Coastal sage scrub often has smaller leaves. This helps reduce water loss because there are less surfaces from which water can exit the plant. Some of the plants even go dormant in the summer. This means they aren't growing above ground. They often spend this time extending their root systems underground. During our videoconferencing lesson, you'll see some examples of the plants that live in the Coastal Sage Scrub community. Keep an eye out for the special adaptations they have.</i></p>		

Evaluate		
Teacher Says/Does	Probing Questions	Student Responses
<p>Teachers instruct students to repeat what they did in the Engage portion of the lesson, except this time the class will use the word "restoration," and they will try to write even more.</p> <p><i>Okay, let's find out what we have learned about the word "restore" now. This time we will use the word "restoration." Write the word "restoration" down the center of your of your papers, and work with your partners to write everything you now know about habitat restoration. As a reminder, if you think restoration has to do with soccer, you could write "soccer" branching off from the letter, "S."</i></p>		

We probably know so much now we can write entire sentences instead of just words. You have 3 minutes! Ready? Go!

Teacher will guide the discussion after the activity just as in the engagement section.

We came up with some questions to ask during our videoconference last time. Do you have any more you want to ask? Let's write them down to prepare for the videoconference lesson.