

Online Lesson Plan

Course: Biology

Unit	<i>Ecosystems</i>
Topic	<i>Primary and Secondary Succession</i>
Learning Objectives	<p>NGSS Standard:</p> <p>HS-LS2-6 Ecosystems: Interactions, Energy, and Dynamics</p> <p>Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.</p> <p>HS-LS2-8 Ecosystems: Interactions, Energy, and Dynamics</p> <p>Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.</p> <p>HS-LS4-5 Biological Evolution: Unity and Diversity</p> <p>Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.</p> <p>Learning goal:</p> <p>By the end of this lesson students will describe and give examples of how environmental factors and mutations influence the evolution of the species.</p> <p>Objectives:</p> <ul style="list-style-type: none">• I can give examples of how primary and secondary succession differ.• I can explain how human behavior can dramatically

	<p>impact the species in a community and their likelihood to survive.</p> <ul style="list-style-type: none">• I can discuss how changing one species in a forest impacts the rest of the populations of the forest. <p>Lesson Overview: Students will use the Hawaii Forest Succession presentation, a news article, and if needed a scholarly article to participate in class discussion and complete the worksheet.</p> <p>Their data will show how the population of native and nonnative species have changed in clear cut forests of Puna. We will discuss the impact of human activities and the possible future outcomes of those actions.</p>									
Lesson Elements & Instruction	<p><i>In this assignment you will explore the differences between primary and secondary succession. You will then review information from a scientific journal article about primary and secondary lowland rainforests in Puna.</i></p> <p><i>First, please open both the Google Slides and the Google Document. Follow the directions in the Google Document to complete the assignment.</i></p> <ul style="list-style-type: none">• Hawaii Forest Succession presentation• News article,• Scholarly article• Worksheet.									
Assessments & Rubrics	<p>Summative Lesson Assessment: Throughout the Class Discussion students will participate in formative assessments, and record their answers on their worksheet. At the end there are three questions for the summative assessment (questions 17-19).</p> <p>Lesson Rubric:</p> <table><tr><td>Proficient (4 pts)</td><td>Partially proficient (3 pts)</td><td>Novice (2-1 pts)</td></tr><tr><td colspan="3">Classroom Discussion (does not apply to asynchronous students)</td></tr><tr><td>The student</td><td>Student attends,</td><td>Student either does</td></tr></table>	Proficient (4 pts)	Partially proficient (3 pts)	Novice (2-1 pts)	Classroom Discussion (does not apply to asynchronous students)			The student	Student attends,	Student either does
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Classroom Discussion (does not apply to asynchronous students)										
The student	Student attends,	Student either does								

	participates in class discussion and adds value to the lesson.	does not participate in discussion, but does not distract from the lesson.	not attend, or the student attends and causes disruptions.
	Question 1-16		
	Questions 1-16 are answered with 85% proficiency or higher.	Questions 1-16 are answered with 70-84% proficiency.	Questions 1-16 are answered with less than 70% proficiency.
	Question 17		
	The student provides predictions that are consistent with the previous data and follow clear trends.	The student provides predictions that may not follow the trends discussed, but are close.	The student does not provide predictions, or the predictions are contrary to previous trends.
	Question 18		
	The student provides explanations for their predictions that are based on the lesson, and are referenced in the response.	The student provides explanations for their numbers but does not reference the lesson in their response.	The student's explanation does not match their prediction, or is missing.
	Question 19		
	Question 19. Students provide their suggestion to the lawmaker and their argument is supported with evidence from the lesson.	Student provides a suggestion, but not reasoning behind the suggestion.	The student fails to provide a response or feedback.