

'Ewa 'Āina Education Initiative

Unit Plan: Restoring Coastal Ecosystems - <https://cutt.ly/BKPj2VZ>

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'Ewa 'Āina Site: One`ula Beach, `Ewa Limu Hui

Detailed Lesson #2

Lesson Title: Coastal Plants of Hawai'i

Essential Unit Questions Addressed

- What is the importance of various native aquatic and terrestrial producers in the One`ula aquatic and coastal ecosystem?
- How have humans impacted the biodiversity in the One`ula area?

Educational Standards that the lesson will help students achieve

[HS-LS4-5.](#) 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.

[HS-LS2-6.](#) 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.

[HS-LS2-7.](#) Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.*

[HS-ESS3-4.](#) Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.*

HĀ framework and/or Hawaiian Culture integrated into this lesson

The [HĀ framework](#) and cultural values are intertwined throughout this lesson. This lesson will increase students' sense of belonging and sense of Hawai'i because they will be learning about an issue that is in their own community (`Ewa Moku) and in an ecosystem that many of them frequent (coastal dunes/beaches), while actively engaging in the preservation of that ecosystem. Students will also gain a sense of responsibility as they become part of the stewards of this area. Hawaiian culture and language in the form of place names, plant names, and the mo'olelo of the plants will be woven throughout the lessons.

Materials needed

Videos, Media, Lesson Presentations/Resources

[Coastal Plant slideshow](https://cutt.ly/OKIYYm) - <https://cutt.ly/OKIYYm>

[Importance of Coastal Plants Slideshow](https://cutt.ly/hKIID3P) - <https://cutt.ly/hKIID3P>

Mo'olelo of Naupaka

<https://www.kaahelehawaii.com/the-story-of-naupaka-and-ohikimakaloa/>

Mo'olelo of Ha'akolea (mentioning pohuehue)

<https://papahanakuaola.org/moolelo-monday-122020/>

Mo'olelo of Pau o Hiiaka

<https://hawaiiannativeplants.com/ourplants/pau-o-hiiaka/>

Student Assessments and Worksheets

Coastal Plant Poster Presentation rubric - <https://cutt.ly/HKIRKqp>

[Poster Progress check ups using Google Forms](#) (This is editable so that teachers can make their own copies.)

Supplies

Access to coastal plants

* Not needed but good for tactile learners

Computers with internet access (1 per pair of students)

Pedagogy (methods) Used

Lesson Introduction

Engagement, Attention Getter: Start class at the plant nursery where coastal plants have already been set aside. Begin with telling mo'olelo of naupaka, pōhuehue, and/or pā`ū o Hi'iaka while holding and passing around those plants.

Instructional Sequence

Teacher Does	Students Do
If available, take students to an on-campus plant nursery with coastal plants. (If no nursery is available, you can see if the campus has native coastal plants in the landscape and visit those plants as many campuses use native coastal plants. Alternatively, you can use the coastal plant slideshow.)	Enter respectfully, put belongings away, and if possible do protocol before entering the nursery.
Gather in shade and bring coastal plants out. Explain that the students will be learning the names of these plants and stress the importance of names in 'Ōlelo Hawai'i because the names give us clues into the mo'olelo of our ancestors.	Listen and circle up
Introduce each plant, each time have the students repeat the name of the plant 3 times. After the third time pass the plant around. Tell them to practice kilo (observation) and look at the plant, touch the plant,	Verbally practice plant names, pass around plant, kilo the plant, record observations, share observations

<p>and to make notes about the plant. Once everyone has got an opportunity to do so, have students share out.</p> <p>Repeat for the other plants</p>	
<p>As students share, connect this lesson to the previous one by directing the discussion to the adaptations of coastal plants. Using phrases like: "If you were a plant living in the harsh sun, salty, dry coastal dunes, what types of adaptations would you wish you had? What adaptations do you see? How would that help you in that environment?"</p>	<p>Students share their ideas and observations</p>
<p>Assign each student or pair of students a plant, introduce a plant poster project and have students start working on that.</p>	<p>Students sign up for a coastal plant and create a poster about that plant (Check materials for handout and rubric)</p>
<p>DAY 2 Next class period:Facilitate plant poster presentations and direct students to make flash cards to help them remember the plants for their summative assessment.</p>	<p>Students present posters while audience watches and creates plant flashcards</p>
<p>DAY 3 Next class period: Virtual huaka'i to Piliokahe and One'ula. Open the slideshow <u>The Importance of Coastal Plants</u> and hype up the virtual huaka'i. Share the slideshow with the students on Google classroom, making a copy for each student.</p> <p>If you can go in person, do it, just make sure you go after a HEAVY rain. Heavy Rains will cause erosion that is more evident in places with less coastal plants. You should not tell the students this as they will discover this on their own during the lesson.</p>	<p>Open slideshow, wait for directions</p>
<p>Engage students: "How many of you have been here before?" "Where is this?" "What do you do here? Introduce Piliokahe- break down name using wehewehe.org</p>	<p>Students share stories about their times at Piliokahe or "Tracks"</p>
<p>Introduce the second site and engage students again: "What about this site?" "How many of you have been here before?" "Where is this?" "What do you do here? Introduce One'ula- break down name using wehewehe.org</p>	<p>Students share stories about their times at One'ula beach</p>
<p>Explain directions for the virtual huaka'i: While watching each video/picture, practice kilo. Write down observations and/or ask questions (5 total). Record your observations in the speaker notes section below the slide.</p>	<p>Students follow the directions and use the next 20 minutes asynchronously. Struggling students work closely with teacher.</p>

Lead class discussion, getting students to share out their questions/observations for the slides.
Encourage participation of all students.

Students share their observations/ ask their questions for the images

Closure (Review, formative/summative assessment)

Part 1: Poster Presentations

Part 2: Slide 22. Discuss and fill in as a class - <https://cutt.ly/hKIID3P>

Accommodations for at least 3 types of diverse learners

- Asynchronous instruction allows students who need more help to work more closely with teacher.
- Students are able to feel the plants (tactile), See the plants/ different sites (visual) and with student choice on the poster project, students can select a type of media that they are most comfortable with (student choice).
- Being on site in the nursery or seeing plants on a campus tour will engage many students simply due to the novelty factor of the location; however if a nursery is not present, the lesson can be run with the attached slideshows in the materials section.

Formative Assessment Methods For This Lesson

[Poster Progress check ups using Google Forms](#) (This is editable so that teachers can make their own copies.)

Coastal Plant Poster Presentation rubric - <https://cutt.ly/HKIRKqp>

3-2-1 exit tickets

On a half sheet of paper the students write: 3 things they learned, 2 specific things they are still curious about, 1 connection to another subject/to another lesson

Explain How This Lesson Relates To the Unit Summative Assessment

Coastal plants help stabilize beaches and dunes. Without them, the sand that makes these ecosystems would be eroded away. This erosion could in turn hurt the neighboring marine life- including the limu species of One'ula. This lesson allows students to learn about how coastal plants are important and can be used for conservation of the coastal ecosystems. Ultimately students will come up with a proposed management plan for One'ula (Unit Summative). This lesson equips students with some ideas to help conserve the One'ula ecosystem.