

# '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 #1

**Lesson Title:** Ka 'ano nui o makālae kaiola (The importance of Coastal Ecosystems)

### Essential Unit Questions Addressed

Why are coastal ecosystems important and what factors make coastal ecosystems dynamic?

### 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 a student's 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

- [Kaena Point NARS Interactive notes:](#)  
<https://drive.google.com/file/d/1cSZiYdFJIMoCX5zsDQYjrAq-nXMbr5dW/view?usp=copy>
- [DLNR Kaena Point Webpage](#)  
<https://dlnr.hawaii.gov/ecosystems/featured/kaena-point-ecosystem-restoration-project/>
- [Description of Leina ka 'uhane of Kaena Point](#)  
[https://www.geocaching.com/geocache/GC3P533\\_kaena-point-leaping-place-of-the-souls](https://www.geocaching.com/geocache/GC3P533_kaena-point-leaping-place-of-the-souls)

Student Assessments and Worksheets

- [Coastal Dunes and Beaches](#) Guided notes and collaborative lecture - <https://cutt.ly/iKIT4s0>
- [Flipgrid for student reflections](#)  
<https://info.flipgrid.com/>

Students will need internet access

## Pedagogy (methods) Used

### Lesson Introduction

Attention getter:

Have students open Google maps and turn on Satellite view. Ask them to roam around O`ahu and try to determine which ecosystem on O`ahu is the most threatened by human activity. Students will roam around and say the typical ecosystems that they know like forest, and coral reefs. Give them hints as they get it wrong. Hints: some of you may like to go here on the weekends. Some birds love to nest here. Tourists come to Hawai`i from all around the world to be on this, etc. Reveal that the ecosystem is the Coastal Dunes and beaches and proceed to go around O`ahu revealing how much of this ecosystem has been destroyed.

### Instructional Sequence

Teacher Does	Students Do
Start with engagement/attention getter as described above	Follow along with their own Google maps, answer probing questions from the teacher
Share Guided Interactive Digital Notebook (IDN) file Called: Coastal Dunes and Beaches	Open up the file and let the teacher know that they were able to access and edit the document.
Go over the directions to complete the IDN slides: Watch video on slide 2 about making the Ka`ena point NAR, Go to and introduce the DLNR website on slide 3, and briefly go over directions for remaining slides (directions are also on the slide. Ask students to repeat directions.	Listen, repeat directions
Let students work asynchronously while working more closely with students requiring remediation or who may need extra help	Students work asynchronously. Students who need more help can work with the teacher.
Gather group back together and guide a joint cooperative lecture using students to present what they wrote on various slides. Use P4C (Philosophy for Children) group discussion strategies.	Participate in joint cooperative lecture, listen/present to peers/ invite others, modify their own notes as ideas are brought up in class.
Share Flipgrid "Fencing Ka`ena Point."	Share their opinion on the prompt: Why are coastal ecosystems like Ka`ena Point important? What was the point of the fence erected at Ka`ena Point? Do you think that this was the right decision? Explain why or why not?

**Closure** (Review, formative/summative assessment)

Have volunteers share their Flipgrid reflection, Short discussion, Transition to conservation efforts going on in Piliokahe.

**Accommodations for at least 3 types of diverse learners**

- Asynchronous instruction allows students who need more help to work more closely with teacher
- Information about Ka`ena is presented in a video (visual) and in writing (DLNR website) engaging both types of learners
- Students who are not technologically inclined can choose to present their Ka`ena point reflection live; however, more shy or more technologically inclined students can instead choose to record their reflection for the class to see.

### **Formative Assessment Methods**

Coastal Dunes and Beaches Guided notes and collaborative lecture - <https://cutt.ly/iKIT4s0>

**Create a Flipgrid with the prompt:** Why are coastal ecosystems like Ka`ena Point important? What was the point of the fence erected at Ka`ena Point? Do you think that this was the right decision? Explain why or why not?

### **Explain How This Lesson Relates To the Unit Summative Assessment**

Students will learn about various coastal ecosystems in O`ahu, beginning with Ka`ena point, Piliokahe, and finally One`ula. They will look at the Oahu's coastal ecosystems and observe how many of them have been developed, and they will take a closer look at the ecology of a protected coastal ecosystem (Ka`ena Point). Each site represents varying degrees of protection, with Ka`ena being a NARS or Natural Area Reserve, Piliokahe in its infancy being restored by community volunteers, and One`ula which is not protected and is in jeopardy of being destroyed by proposed development plans for that area.

**In order to excel in the unit summative assessment,** students should first learn about the importance of coastal dunes/beach ecosystems. If they do not understand why they are important, they will not understand why protecting One`ula is important. It also shows students how successful protection can help conserve this ecosystem.