

'Ewa 'Āina Education Initiative

Unit Plan: Loko Pā'aiāu
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'Ewa 'Āina Site: Loko Pā'aiāu

Hawaiian Culture-Based Lens	Cross Cutting Content	Instructional Design
<ul style="list-style-type: none"> Mālama `Āina: Land stewardship focusing on sustainability and a familiar connection Hō`ike: Performance requiring multi-level demonstrations of knowledge and/or skills 	<ul style="list-style-type: none"> Mathematics (Comm. Core Thread) Food production Engineering (Engineering Design Process) Science Inquiry 	<ul style="list-style-type: none"> Scientific Inquiry Design Engineering

Essential Question/s

1. How were ancient Hawaiian fishponds designed/created?
2. How did ancient Hawaiian fishponds operate?
3. What are the kuleana of kia'i loko i'a (fishpond caretakers/guardians)?
4. How can you be a community contributor for Loko Pā'aiāu and beyond?

Unit Plan Descriptive Title: Loko Pā'aiāu

Target grade: 10th - 11th grade

Target subject: Engineering

Background Information that includes cited use of the `Ewa `Āina Inventory

- [Hālau o Pu'uloa Community](https://www.ksbe.edu/assets/site/special_section/regions/ewa/Halau_o_Puuloa_Full-Ewa-Aina-Invent_ory.pdf) p.16 (Link: https://www.ksbe.edu/assets/site/special_section/regions/ewa/Halau_o_Puuloa_Full-Ewa-Aina-Invent_ory.pdf)
- Loko I'a of Pu'uloa Map/Image Compilation (Hālau o Pu'uloa Community p.21)
- [Loko I'a Pā'aiāu \('Ewa `Āina Steward\) website](https://paiaiu.org/visit) (Link: <https://paiaiu.org/visit>)
- [LOKO I'AA Manual on Hawaiian Fishpond Restoration and Management](https://www.ctahr.hawaii.edu/oc/freepubs/pdf/Loko%20I'a%20Full%20Publication.pdf) (p.6-12; 24-38) (Link: <https://www.ctahr.hawaii.edu/oc/freepubs/pdf/Loko%20I'a%20Full%20Publication.pdf>)

[Loko Pā'aiāu Site Background](https://drive.google.com/file/d/1N5mtlhHC7_Zqsl3wBTIMkybQle1XSZcE/view?usp=sharing) (Link:

https://drive.google.com/file/d/1N5mtlhHC7_Zqsl3wBTIMkybQle1XSZcE/view?usp=sharing)

Sequential Unit Plan Lesson Outline

Lesson Title	Time Estimate in Days
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<p>1) Ahupua'a and Mo'olelo</p> <ul style="list-style-type: none"> - Video resources - Discuss KWL - What is their own ahupua'a? 	<p>2 days</p>
<p>2) Research on Ancient Hawai'i Fishponds and Ancient Hawaiian Engineering of Fishponds EQ: How did ancient Hawaiians design fishponds?</p> <p>Research (Day 1-2)</p> <ul style="list-style-type: none"> • Design engineering of the fishpond from ancient Hawaiians. • How were fishponds maintained? • How do fishponds operate? • Why were fishponds created? • What was the purpose of fishponds during ancient Hawai'i? • Who is Kalanimanu'ia? • Society of ancient Hawaiian engineers/Traditional Hawaiian engineers <p>Area of Irregular Shapes (Day 3)</p> <ul style="list-style-type: none"> - Cut any figure out (not a regular polygon) of a piece of paper (8.5"x11"). - Area of shapes - Area of an irregular shape - Challenge: What if you cut a piece out of your figure? <p>Hawaiian Measurement (Day 4)</p> <ul style="list-style-type: none"> - Demonstrate how the Hawaiian measurement system worked - Practice measuring objects in the classroom 	<p>4-5 days *Depending on how long each activity takes.</p>
<p>3) History of Loko Pā'aiau + Huaka'i Site Visit</p> <p>Show the students the Pu'uloa Map of all of the loko i'a (fishponds) in Hawai'i. (Introduction) Discussion: Why are there more fishponds (loko i'a) in the Pu'uloa area than anywhere else?</p> <p>Prep students for a huaka'i to Loko Pā'aiau.</p> <p>Site Visit: At Loko Pā'aiau, students will learn about the history of this loko i'a, how it was built/constructed, observe its shape, practice measuring various areas/objects around the loko i'a using Hawaiian measurements, and contribute some hana (work) to this site.</p>	<p>2-3 days</p>

Unit Assessment Plan

Formative Assessment Methods Used On a Regular Basis Throughout Unit
Engineering Notebooks will be checked daily on progress of their project.

Summative Assessments

Students will redesign the fishpond to improve the sustainability of the fishpond.