

Topic

Stewards of the Land: Investigating Ancient Hawaiian Fishponds

Description

Kaloko-Honokōhau National Historical Park is one of the Island of Hawai'i's 5 national parks. It is a special space that is the epitome of ocean sustainability and represents the true cultural values of the ancient Hawaiian people and still exists today. Fishponds and fish traps, coupled with strict laws of raising and harvesting are true examples of how those that preceded us deeply understood the relationship between humans and the ocean ([ocean literacy principle #6 - the ocean and humans are inextricably connected](#)) and serve as examples of how to coexist.

Excerpt from [Park Brochure](#):

“Early on, Hawaiians discovered how to use ponds and bays for catching and farming fish. At Kaloko-Honokōhau they created loko—fishponds and a fishtrap—to collect and raise food. Strict kapu decreed when these fish could be harvested, such as when ocean fish were scarce. With this secure source of food, Hawaiians lived well here. Today fishing continues, using traditional and modern ways—including fish hooks like the one shown above.”



Pictures from visit on 7/5/19

Grade Level

Grades 4-5

Interdisciplinary Standards**Science**

Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1)

Disciplinary Core Ideas

ESS3.C: Human Impacts on Earth Systems

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

Social Studies

Theme 2: Early Hawaiian-Environment Interaction

Content Standard SS.4.2.14.3 - Describe how the original settlers modified their environment

- building of fishponds

Theme 3: Early Hawaiians and the Land

Content Standard SS.4.3.10.1 - Analyze how early Hawaiians used natural resources to meet their needs

Theme 6: Governance in Early Hawaiian Society

Content Standard SS.4.6.9.2 - Analyze how the kapu system maintained natural resources

- Natural Resources: fish, food plants, plant materials

Theme 7: Life in the Ahupua'a

Content Standard SS.4.7.14.1 - Use maps and illustrations to explain how Hawaiians used and modified land in the ahupua'a

- Use of the Land: lowlands (makai): farming, fishing, limu, shellfish
- Modifications of the Land: creating fishponds (loko i'a)

Ocean Literacy Principles

#6b - The ocean provides food, medicines, and mineral and energy resources.

#6d - Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean.

#6g - Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

Time

3 class periods (including a visit from park rangers on Day 2)

Objectives

- Students will have a better understanding of the cultural significance of Kaloko-Honokōhau National Historical Park.
- Students will understand and make decisions needed to sustain life on Earth for now and future generations, based on systems of the past.
- Students will understand why and how Hawaiian fishing technology changed from catching fish to growing fish.
- Students will understand why Hawaiians built fishponds and fish traps (as well as the similarities and differences between both).

Procedure**Day 1: Learn about Kaloko-Honokōhau National Historical Park.**

*For the first day, students will be immersed in information pertaining to Kaloko-Honokōhau National Historical Park. Through the use of books, online website, and background teacher information, students will have the opportunity to learn about the significance of this culturally significant place. At the end of the day, students will create a K-W-L chart about what they learned and what else they wish to learn. **Note - this lesson should be done just prior to inviting the park rangers or representatives from Kaloko-Honokōhau National Historical Park for a classroom visit***

1. Tell students that today we will be taking a closer look at a cultural site we have here in Kona.
2. Begin by showing students [map of Hawai'i Island and drill down to the location of Kaloko-Honokōhau](#) National Historical Park. Show distance to where the school is located, give place markers of where the park is located.
3. Show students a video of Kaloko-Honokōhau National Historical Park to engage students in learning. [Link here](#).

(Teacher should take some time to orient with some background information of the national park to provide some additional information on the park. [Info can be found here](#).)

4. Give students access to this [online compilation of resources for the national park](#). Allow students to work in pairs or individually to read through and watch videos to gather information. Tell students that you will be giving them time for free exploration to learn more about the park. When the group is called back together, each student (or pair of students) should share out about 1 new thing they learned with the class. Allow 15-20 minutes.
5. Bring the group back together and facilitate a sharing out at this time.
6. Direct students to the [K-W-L chart](#) and have students write down some information about what they learned and what they would like to learn more of. During the next class, a park ranger will come to speak to the class about the features of the national park.

Day 2: Park Ranger visits the classroom.

During this class period, a representative from the National Park will come to the classroom to share more about Kaloko-Honokohau NHP as well as answer questions from students. (Students may wish to refer or add to their K-W-L chart.)

Day 3: Learn more about the Loko I'a (fishponds).

During this class period, students will learn about the engineering ingenuity of shoreline fishponds. Students will take a deeper look at why Hawaiians built fishponds and fish traps.

Background info: Teacher read through this [lesson plan resource](#) (pages 1-31), especially background found on pages 1-5.

1. Show the Kāhea loko video. Pose the following questions to students:
Why did Hawaiians build different types of fishponds? (*to cultivate and store fish, and have fish available in times of need*)
What are common/important features of the fishpond? (*the mākāhā, which trapped fish and allowed water to circulate*)

2. Additional discussion questions here:

Discussion Questions

- What features do all Hawaiian fishponds have in common?
(mākāhā, ‘auwai or ‘auwai kai, fed by streams or springs)
- Which fishponds and fishtraps were located near the sea?
(loko kuapā, loko pu‘uone, loko ‘ume iki, umu, and sometimes loko wai)
- Which were located in the uplands?
(loko wai, loko i‘a kalo)
- What would you like to find out about the different types of ponds?

Student Worksheets/Activities

Book making project

Make enough copies of the [following pages](#) so that each student can make his/her own booklet (print one-sided). Mix up the order of the pages so that students will need to decide which image goes with which type of fishpond. After reading through the different types, students should be able to decipher which image is associated with each type.

Students can share out booklets with a partner to ensure that they have selected the correct image. Students should share their thinking on why a particular fishpond was selected.

Assessment/Rubric

Formative Assessment:

When finished with the book making project, distribute the student worksheet [here](#) and ask students to complete either individually or in pairs (answers below).

Answer Key

Type of fishpond or fishtrap	Uses mākāhā	Used only to trap fish	Fed by streams or springs	Used for growing kalo	Has no ‘auwai or ‘auwai kai	Uses the shoreline as one wall	Exists only in Hawai‘i
Loko I‘a Kalo	X		X	X			
Loko Wai	X		X				
Loko Pu‘uone	X		X			X	
Loko Kuapā	X		X			X	X
Loko ‘Ume Iki		X				X	
Umu		X			X		

Field Trip

To be further immersed in the concept of the idea that humans and the ocean are inextricably connected, students will do a service learning project at Kaloko-Honokōhau National Historical Park to help assist with the upkeep of the fishpond there. Students will be cleaning out and remove invasive species and plants that do not support the fishpond ecosystem. Here are some images from the service learning that was done this summer (2019).



