

# DLNR Virtual Field Trips: Kapāpala Koa Canoe Forest

## NGSS, Nā Hopena A'o , and 'Āina Aloha Competencies Alignment for Educators



### Alignment Summary

The Kapāpala Koa Canoe Forest virtual field trip offers an educational experience that explores some of Hawai'i Island's protected ecosystems. The content presented with this field trip aligns with Next Generation Science Standards (NGSS), the Nā Hopena A'o framework from the Office of Hawaiian Education (OHE), and the competencies from OHE's 'Āina Aloha pilot program. The field trip aligns with NGSS listed below, highlighting Earth's complex systems and the relationship between Earth and human activity. The diverse characteristics and adaptations of native (and non-native) species in Hawai'i are elaborated upon. Within the Nā Hopena A'o framework, our field trips align with the goals of strengthening students' sense of Hawai'i and sense of belonging. Further, the videos found throughout the field trip correspond with 'Āina Aloha competencies, as the speakers educate young learners about how systems work, why conservation efforts are important for the 'āina, and human impacts on ecosystems. The tables below provide specific references to standards, goals, and competencies addressed by this field trip.

### NGSS Alignment

The standard codes below have been hyperlinked to direct you to a description of the standard.

NGSS Code and Link	Discipline	Core Idea	Subitem	Relevant DCIs	Field Trip Connections to DCIs
<a href="#">K-ESS3-1</a>	ESS: Earth and Space Sciences	3: Earth and Human Activity	1: Use a model to represent the relationship between	"ESS3.A: Natural Resources Living things need water, air, and resources from the land, and they live in places	The forest of Kapāpala provides native forest birds with the food and habitat they need to survive.

			the needs of different plants and animals (including humans) and the places they live.	that have the things they need. Humans use natural resources for everything they do."	This forest of large koa trees and many smaller plant species is visited by 'io, and smaller forest birds like 'ōma'o.
<a href="#">1-LS1-1</a>	LS: Life Sciences	1: From Molecules to Organisms: Structures and Processes	1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	"LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow."	Students may consider how koa trees grow and why larger koa trees have larger canopies and deep roots.
<a href="#">2-LS2-2</a>	LS: Life Sciences	2: Ecosystems: Interactions, Energy, and Dynamics	2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	"LS2.A: Interdependent Relationships in Ecosystems Plants depend on animals for pollination or to move their seeds around. ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary)"	Found in Level 4 of the Kapāpala forest, native forest birds function as a method of koa seed dispersal.
<a href="#">2-LS4-1</a>	LS: Life Sciences	4: Biological Evolution: Unity and Diversity	2: Make observations of plants and animals to compare the diversity of life in different habitats.	"LS4.D: Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water."	Here we find different collections of species and different growth of koa depending on how old the forest is (as we move upslope from Level 1).
<a href="#">4-LS4-1</a>	LS: Life Sciences	4: Biological Evolution: Unity	1: Construct an argument that plants	"LS1.A: Structure and Function Plants and animals have both	Students may consider how koa trees grow and why larger koa

		and Diversity	and animals have internal and external structures that function to support survival, growth, behavior, and reproduction	internal and external structures that serve various functions in growth, survival, behavior, and reproduction."	trees have larger canopies and deep roots.
<a href="#">MS-ESS3-3</a>	ESS: Earth and Space Sciences	3: Earth and Human Activity	3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	"ESS3.C: Human Impacts on Earth Systems Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise."	The availability of large koa trees suitable for canoes has been impacted by human harvesting and by deforestation. Students may design solutions to monitor or minimize impacts on koa forests.
<a href="#">MS-ESS3-4</a>	ESS: Earth and Space Sciences	3: Earth and Human Activity	4: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	"ESS3.C: Human Impacts on Earth Systems Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise."	The availability of large koa trees suitable for canoes has been impacted by human harvesting and by deforestation. Students may construct an argument about how these impacts are related to human population size in Hawai'i, or to the amount of people/goods arriving in Hawai'i.

**Alignment with [Nā Hopena A‘o Statements](#)**

<b><u>Hopena</u></b>	<b><u>Statement</u></b>
1. Strengthened Sense of Belonging	a. Know who I am and where I am from
	b. Know about the place I live and go to school
2. Strengthened Sense of Hawai‘i	b. Use Hawaiian words appropriate to their task
	c. Learn the names, stories, special characteristics and the importance of places in Hawai‘i
	d. Learn and apply Hawaiian traditional world view and knowledge in contemporary settings
	e. Share the histories, stories, cultures and languages of Hawai‘i
	g. Treat Hawai‘i with pride and respect
	h. Call Hawai‘i home

**‘Āina Aloha Competencies:**

This link will direct you to the Office of Hawaiian Education (OHE) ‘Āina Aloha competencies.

<https://sites.google.com/k12.hi.us/ohehub/hawaiian-studies-program-hsp/%CA%BB%C4%81ina-aloha-a%CA%BBa-choice-board?authuser=0>

<b>Competency</b>	<b>Sub Competency</b>	<b>Competency Highlight</b>
Aina Ulu: Growth Cycle	Kupu	Young and fresh learner
Kuana'ike: Ahupua'a	Pua	Analyzes relationship between systems and aina cycles
Honua: Pono	Hua	Advocates for living pono and contributes to aina well-being
Kuana'ike: Mo'olelo	Hua	Applies mo'olelo to systems thinking to advocate stewardship