

CULTURAL USES OF NATIVE PLANTS

Grade 6-12

Meet At Kīlauea Visitor Center

9:30-12:00 noon



'Ōlelo No'eau

Hahai nō ka ua i ka ululā'au

Rains always follow the forest

What does this 'ōlelo no'eau teach us about the people of Hawai'i and their relationship to the land?

Essential question:

How do *kīpuka* and the native plants that live in them help us sustain the cultural traditions of Hawai'i?

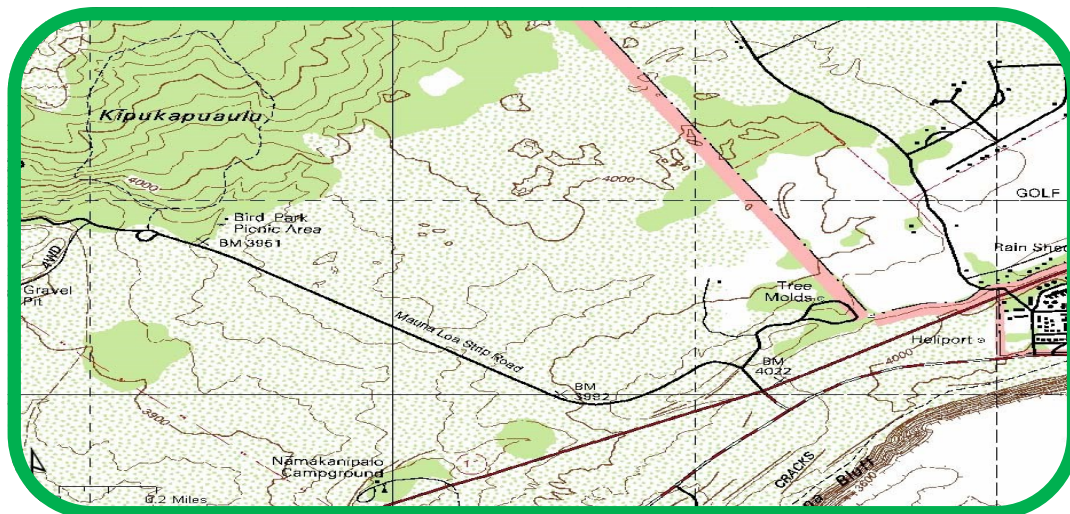
Photo Analysis: Both photos were taken from approximately the same location, but are almost 100 years apart. Cattle, pigs and goats roamed within Kīpukapuāulu until the late 1980's.



- 1)What do you notice about the photos?
BW/Color, forested, cleared
- 2)Why do you think there is a difference in the photos? Land use changed between the early and late 1900's.

Location: Map Inquiry

Divide students into 4 small groups and complete this activity and report out.



Approximate the distance from the intersection of Highway 11 and Mauna Loa Road to the trailhead of Kīpukapuauulu. _____miles

This map provides contour lines that show changes in elevation. Each contour line represents a 20' interval of change. What is the approximate elevation at the Gravel Pit which is seen on the left side of the map? _____feet. What is the elevation of the Bird Park Picnic area? _____feet

This map does not include a symbols key. What symbols are used to show the Kīpukapuauulu Hiking Trail? _____.

What do you think the solid green areas represent?

How about the dotted green areas?

What about the small solid black squares?

(Note: This unique place can be found written either as Kīpuka Puauulu or Kīpukapuauulu.)

Setting the Stage: Linking Science and Culture

How did early human settlers utilize native plant species in the islands of Hawai'i?

(The Polynesians who settled the islands of Hawai'i revered the native plants they found here and knew that they were as important as the canoe plants (less than 40 plants and animals, i.e. niu, mai'a, 'uala, kalo,) they brought with them. Hawaiians understood the need for conservation of these vital resources so that they would always be available. They were also able to create a large knowledge-base about how to use many native plants for religion, food, medicine, building, etc.) (Keen observers, scientists, ingenious)

Scientific Evidence: “Truth or Dare” - prior learning activity

See activity and answer page.

Visual Evidence: “Cultural Uses of Native Hawaiian Plants” Field Exercise at Kīpuka Puaulu.

Students will work together in small groups (4-5) to identify plant species along the trail. Using the Plant ID Cards sets that the ranger will issue, research the cultural and medicinal uses of each one then write them on the chart provided.

Group supplies needed: Plant ID Cards set, clip board, activity worksheets for Truth or Dare and Cultural Uses of Native Hawaiian Plants.

In Closing:

1. Revisit the Essential Question. How do *kīpuka* and the native plants that live in them help us sustain the cultural traditions of Hawai‘i?
2. Why do the native plant species of Kīpuka Puaulu need protection and monitoring? (Eradicate alien species, replant natives and prevent fires from destroying the forest.)
3. What happens in an ecosystem when a plant or animal species becomes extinct or is displaced by an alien species? (Species that depend upon it for food, shelter, or protection for their young will die off. Lose cure for a disease in the future. Invasive species will move in and take over. Surrounding under-story plants will lose moisture and shade without a canopy.)
(Our islands are unique environments that are challenged with a growing list of endangered species and loss of native forests. Hawai‘i also has the potential for numerous natural disasters which are predicted to be stronger and more frequent in the coming decades.)

Hawai‘i has more endangered species per square mile than any other location on the planet. Not even the environmentally sensitive Galapagos Islands have as many imperiled species. Sadly, climate change will undoubtedly cause and increase the numbers of species that are threatened and endangered as global warming continues. Kīpuka Puaulu is a prime example of how resource managers have minimized alien invasive species to return this special area to a healthy forest.

Resources

Abbott, Isabella Aiona. Lā'au Hawai'i: Traditional Uses of Plants. Bishop Museum Press, Honolulu, HI 1992.

Beyer, D. Hunter & Martin, Franklin D. Permacopia Book I: Plants of the Ahupua'a: Endemic, Indigenous, & Polynesian Introduced Species of Hawai'i. Volcano, HI 2003.

Culliney, John L. & Koeble, Bruce P. A Native Hawaiian Garden: How to Grow and Care for Island Plants. University of Hawai'i Press, Honolulu, HI 1999.

Krauss, Beatrice H. Plants in Hawaiian Culture. University of Hawai'i Press, Honolulu, HI 1993.

Pukui, Mary. 'Ōlelo No'ēau: Hawaiian Proverbs & Poetical Sayings. Bishop Museum Press, Honolulu, HI 1983.

Chun, Malcom Naea (Translator). Native Hawaiian Medicine Volume II. First People's Publications, Honolulu, HI 1998.

Edith Kanaka'ole Foundation. Ulu Mau (CD). 1500 Kalaniana'ole Ave., Hilo, Hawai'i 2005.

Truth or Dare

15 minutes

How much do you already know about plants in a forest such as Kīpuka Puauulu? Let's find out by indicating whether each of the following statements is true or false. Read each statement, then mark a T or F in front of its number. If you mark false on any of the items, you must accept the dare and rewrite it to make the statement true. Use the space below each statement as needed.

_____ 1. The most important functions of plants are to beautify our surroundings and provide shade.

_____ 2. The biggest threats to forest areas like Kīpuka Puauulu are natural forces such as lightning.

_____ 3. A *kīpuka* is an area that has been surrounded by lava, sparing its vegetation and wild life and creating a unique ecosystem.

_____ 4. Most invasive plants are aliens that reach reproductive maturity very quickly.

_____ 5. Roughly ten percent of the endangered species in the entire United States are in Hawai'i.

_____ 6. Native plants are those that arrived in an area without the help of humans.

_____ 7. Kīpuka Puauulu is a prime example of how resource managers have minimized alien invasives to return this special area to a healthy forest.

_____ 8. The terms **endangered species** and **threatened species** mean the same thing.

_____ 9. Modern science no longer depends on plants for medicinal uses.

_____ 10. All plants found in Hawai'i originated from somewhere else on Earth.

Truth or Dare

Answer Sheet

- F** 1. The most important functions of plants are to beautify our surroundings and provide shade.
(The most important functions of plants are that they not only create the oxygen we breathe, they also absorb carbon from the air).
- F** 2. The biggest threats to forests like Kīpuka Puauulu are natural forces such as lightning.
(The biggest threats to forests are human activity and alien invasive plants and animals.)
- T** 3. A *kīpuka* is an area that has been surrounded by lava, sparing its vegetation and wild life.
- T** 4. Most invasive plants are aliens that can reach reproductive maturity very quickly.
- F** 5. Roughly ten percent of the endangered species in the entire United States are in Hawai‘i.
(Sadly, about one third of the endangered species in the United States are found in Hawai‘i.)
- T** 6. Native plants are those that arrived to an area without the help of humans.
- T** 7. Kīpuka Puauulu is a prime example of how resource managers have eliminated alien invasives to return this special area to a healthy forest.
- F** 8. The terms endangered species and threatened species mean the same thing.
“Endangered” means that the numbers are so low that extinction is a strong possibility.
Threatened species have declining numbers and are likely to become endangered.
- F** 9. Modern science no longer depends on plants for medicinal uses.
Like the early Hawaiians, scientists still rely on plant compounds to make many medicines we use everyday and they continue to research and test plants to look for new treatments and cures.
- T** 10. All plants found in Hawai‘i originated from somewhere else on earth.

Nā Ho'ohana Mo'omeheu no ka mea Ulu Hawai'i

Cultural Uses of Hawaiian Plants

Name of plant:	Status:	Inferred Arrival Method	Part of plant used:	Used for..

1. Explain how one of these native plants could benefit you or someone in your family in these modern times.

2. Making the Climate Change connection:

What will happen to some of these special plants if global warming and climate changes occur?

What can humans do to better protect them?





