Species in Danger

Next Generation Science Standards:

- MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Hawai'i Content and Performance Standards III:

- SC.7.3.2 Explain the interaction and dependence of organisms on one another.
- SC.7.4.4 Classify organisms according to their degree of relatedness.
- SC8.5.1 Describe how changes in the physical environment affect the survival of organisms.

Description:
The purpose of this lesson is to introduce students to endangered species of Hawai'i. This lesson will provide a better understanding of how Haleakalā National Park protects endangered species that are found nowhere else on Earth.

Duration: 45 minutes

Objectives: At the end of this lesson, the students will be able to:

- Identify endemic and endangered species in Maui and explain why native habitats are critical to the survival of these species.
- Understand that biodiversity of an ecosystem depends on many interconnected factors and that an effect on one factor can influence all the others.
- Name three reasons why people should care about the loss of endemic species.

Background:
Haleakalā National Park protects the habitat of over 400 native plant species. Over 300 of these species are endemic to Hawai'i, found only here and nowhere else on Earth. Hawai'i is known as the extinction capital of the world. More species have gone extinct in Hawai'i than any other place in the United States. Their uniqueness, interdependence, and critical habitat are all factors that have an impact on a species survival. The U.S. Fish and Wildlife Service maintains a list of endangered species for states and their counties. Endangered species are organisms that are in danger of extinction. Please be aware that this data is ever-changing.

Vocabulary:
Biodiversity: The variety of organisms in a specific environment.
Endangered species: An organism that is in danger of extinction.
Endemic: Native species that have adapted to a specific region over time and are found nowhere else.

Extinct: A condition in which there are no more living members of a species.
Interdependence: The relationship that species have where they depend on one another in the web of life.

Materials Needed:
Endangered Species Worksheet (included)
Endangered Species Teacher Answer Key (included)
US Fish and Wildlife Endangered Species Page http://www.fws.gov/endangered/
Plant Extinction Prevention Movie http://www.fws.gov/endangered/about/vp-144-2014.html

Procedure:

Step 1: Introduction to Endemic, Endangered, and Extinction Definitions

- What is an endemic species? = A species found here and nowhere else on Earth. The endemic species in Maui adapted to Maui's unique native ecosystems.
- What is interdependence? = When species both depend on each other. Ask students for examples.
- What is an endangered species? = An organism that is in danger of extinction. Do you think Maui has any? Name some.
- What does it mean when a species goes extinct? = There are no more living members of a species. Do you think Maui has any? Name some.

Step 2: Explore US Fish and Wildlife Service Endangered Species Page

Ask students to access the US Fish and Wildlife Service Endangered Species page.
Go to: http://www.fws.gov/endangered/
Pass out Endangered Species Worksheet. Ask students to follow the instructions on the worksheet.

Step 3: Plant Extinction Prevention Program Movie

Watch the short 7 minute Film: Preventing Plant Extinction in Hawai'i:
http://www.fws.gov/endangered/about/vp-144-2014.html

Step 4: Discussion and Journal Activity

Discuss:

- How does this film make you feel about endangered plants in Hawai'i?
- Discuss how Maui's biodiversity is important to native Hawaiian culture.

Journal:

- Name three reasons why people should care about the loss of endemic species.
- Would you want a job working to save endangered species? Why or why not?

Name: _____ Date: _____ Period: _____

Endangered Species Worksheet

PART 1

- Access the US Fish and Wildlife Service Find Endangered Species page.
  http://www.fws.gov/endangered/
- Select Hawai'i from the drop down menu.

1. How many endangered species are listed in the state of Hawaii? _____

- Now, go back to the main screen and under "Species in your County" box, type in "Maui", then click on "Maui, HI", and wait for the search to open.
- Answer the following questions:

2. How many endangered birds species are listed? _____

3. How many endangered insects species are listed? _____

4. How many endangered fern species are listed? _____

5. Write the Hawaiian and Scientific name of one endangered plant_____

   _____

6. Because of the isolation of Hawai'i and the variety of different ecosystems present, there were once over 54 different species of honeycreepers. Many have already become extinct. How many honeycreepers are now on the endangered species list? _____

PART 2

7. Endemic species are found nowhere else on Earth. The endemic species in Maui adapted to Maui's unique native ecosystems. Think about the consequences when one of these endangered species becomes extinct. What effect would this have on the other species?

   _____

   _____

   _____

   _____

8. Where are the majority of Maui's endemic and endangered species found today and why?

   _____

   _____

Endangered Species Worksheet Teacher Answer Key

PART 1

- Access the US Fish and Wildlife Service Find Endangered Species page.
  http://www.fws.gov/endangered/
- Select Hawai'i from the drop down menu.

1. How many endangered species are listed in the state of Hawaii? 434

- Now, go back to the main screen and under "Species in your County" box, type in "Maui", click on "Maui, HI",and wait for the search to open.
- Answer the following questions:

2. How many endangered birds species are listed? 13

3. How many endangered insects species are listed? 11

4. How many endangered fern species are listed? 13

5. Write the Hawaiian and Scientific name of one endangered plant. Choose any

6. Because of the isolation of Hawai'i and the variety of different ecosystems present, there were once over 54 different species of honeycreepers. Many have already become extinct. How many honeycreepers are now on the endangered species list? 5

PART 2

7. Endemic species are found nowhere else on Earth. The endemic species in Maui adapted to Maui's unique native ecosystems. Think about the consequences when one of these endangered species becomes extinct. What effect would this have on the other species?
   Because of the interrelatedness of species, when one goes extinct it can cause others to go extinct.

8. Where are the majority of Maui's endemic and endangered species found today and why?
   Haleakalā National Park because of fencing and replanting efforts.