

Grades K-1



DUCKIE DIET

What does the Koloa maoli eat?

Focus Question: What should a wild native duck eat to be healthy?

Lesson at a Glance: Students will select the healthy, natural food that a Koloa maoli (Hawaiian duck) should eat. Students will work as a group in a participatory game and individually on coloring worksheets.

Key Concepts

- Koloa maoli are ducks that need to gather their food from the wild.
- Wild ducks need natural food like plants and insects to be healthy.
- Unnatural food, especially “people” food given to wild ducks is unhealthy.

Objectives: Students will be able to:

- Sort and identify various food types.
- Distinguish between natural versus unnatural food types for the Koloa maoli.
- Describe the unnatural food that Koloa should not eat.
- Describe the natural food that Koloa should eat to be healthy.

Subject Areas

science, language arts

Time: one to two class periods

Materials

- laminated Koloa drawing
- laminated food pieces
- sticky tape or velcro
- Duckie Diet worksheet (for each student)
- crayons
- DVD video clips of Koloa maoli

DOE Standards and Benchmarks

Science Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent and investigate using the skills necessary to engage in the scientific process

Topic: Scientific Inquiry

Benchmark SC.K.1.2: Ask questions about the world around them

Science Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT: Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment

Topic: Interdependence

Benchmark SC.K.3.1: Identify similarities and differences between plants and animals

Topic: Data Collection and Representation

Benchmark MA.K.11.1: Sort objects or people according to stated attributes

Science Standard 4: Life and Environmental Sciences: STRUCTURE AND FUNCTION IN ORGANISMS: Understand the structures and functions of living organisms and how organisms can be compared scientifically

Topic: Interdependence

Benchmark SC.K.4.1: Identify differences between living and non-living things

Topic: Cycles of Matter and Energy

Benchmark SC.1.3.1: Identify the requirements of plants and animals to survive (e.g., food, air, light, water)

Topic: Classification

Benchmark SC.1.4.1: Describe how living things have structures that help them to survive

Language Arts Standard 5: Writing: RHETORIC: Use rhetorical devices to craft writing appropriate to audience and purpose

Topic: Meaning

Benchmark LA.K.5.1: Add detail to drawings and other products with simple descriptive words

Teacher Background Information

The Koloa maoli is also known as the Hawaiian duck. It is Hawaii's only native duck that lives in the main Hawaiian Islands and it is considered an endangered species, with only about 2,200 birds left. Most Koloa are now found on the islands of Kaua'i, Ni'ihau and Hawai'i. Koloa maoli live in areas where there is freshwater but they also live on land. They gather food from both types of places.

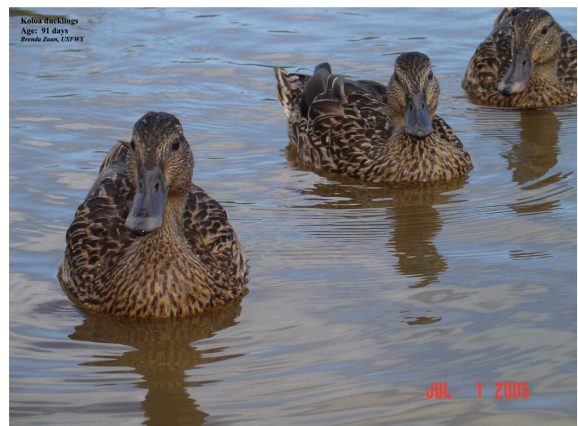


Photo by Brenda Zaun, USFWS



Koloa maoli are dabbling ducks. They are known to be good divers but usually feed by “tipping” rather than submerging. You might see them “bottom up” in the water, with their necks stretched down to gather food (see photo to right). Dabblers also “dabble.” They have bills that are specially designed to strain small invertebrates and plant material from the surface of the water. Koloa maoli eat primarily small invertebrates such as

aquatic insects, snails and crustaceans. They also eat freshwater limu and seeds of grasses, sedges and other plants, and sometimes graze on grasses and legumes (bean-type plants) similar to geese.

People often feed ducks because it’s fun and they think they are helping the ducks. But wild ducks should not be fed by humans. Ducks need to learn to gather their own food or else they will be dependent on humans. People tend to feed ducks things that are not natural in their diet, which is also not good for the ducks. We can help our native ducks survive by protecting the places where they live, which should have enough food and space for them to survive. We can also keep their habitats free from predators like cats, dogs, and mongooses.

Teaching Suggestions

Preparation:

Photocopy and laminate the picture of the duck at an enlarged size (standard poster size if possible). Also photocopy enlarged sizes of the food pieces (three each) and cut them individually and laminate them so that can easily adhere to and be removed from the duck’s stomach. Duplicate Duckie Diet worksheets, one per student.

Part One

- 1) Show video clips of Koloa maoli to familiarize students with what a duck looks like. Talk about what kind of home the ducks shown in the video live in and ask students to think about what ducks need to survive (e.g. shelter, water, air, food, light).

- 2) Ask students if they have ever seen a wild duck before. Have them explain where they have seen these birds and what they looked like. How did they know they were wild and not someone's pet?
- 3) Ask students if they have ever fed the wild ducks or seen someone else do that. What did they feed them? Ask students to think about what wild ducks are supposed to eat and how would they get their food.
- 4) Now talk about different types of food that wild ducks could eat. There are two major types – natural (straight from nature) and unnatural (prepared by humans). Ask students to list foods that they think ducks eat that are natural and unnatural. Chart students' responses in a T chart listing natural foods on one side and unnatural (people) foods on the other. Ask students to determine what is similar and different about items on the lists.
- 5) Show the students the laminated pieces of food. Explain what each item is supposed to represent as it might not be obvious. Then pass out one or two laminated food pieces to each student and have them decide for themselves if they are natural food or unnatural for ducks. Link the concepts of natural to healthy and unnatural to unhealthy.
- 6) Now put up the laminated poster of the Koloa on an easel or board within reach of the students. Explain to students that this is a picture of a native Hawaiian duckling called the Koloa maoli that lives only in Hawai'i. Point out the empty stomach of the Koloa, which students will soon fill with food.
- 7) Ask students to put unnatural food into the Koloa's 'opu (stomach). Use tape or velcro to stick the food pieces in the stomach. Have students analyze what was put in the stomach and discuss if all the pieces are unnatural. (If some aren't, explain and take them out.) Talk about why it is unhealthy for the Koloa to eat all this unnatural food.
- 8) Now ask students to put the natural food into the Koloa's 'opu. Again, have students analyze what was put in the stomach and discuss if all the pieces are natural. Talk about each piece and how the Koloa might gather the food with their bills or "tipping" skills (see background information). Discuss why it's better for the Koloa to gather its own natural food.
- 9) Repeat the game if students are interested.

Part Two

- 1) As a reinforcement activity, pass out the "Duckie Diet" worksheet to each student and provide crayons. Ask students to draw lines from the healthy food to the empty 'opu of the Koloa. They can then write the names of the food types next to the drawings and color the worksheet.

- 2) Review students' worksheets and ask them what they can do to help the Koloa maoli be healthy.

Assessment

You could assess students by:

- differentiation between natural (healthy) and unnatural (unhealthy) foods for the Koloa, as well as what is living and non-living
- explanation of what and how Koloa maoli eat
- transfer of knowledge about habitat needs to other species
- accuracy in completing the worksheet

Extended Activities

- Explore the Koloa maoli's behavior by watching the videos that are provided on the DVD. Have students look for the Koloa as it swims, dabbles (tips into the water and stretches its head and neck into the water to reach submerged plants), walks and stands. Discuss how its bill is designed to remove food from the water, straining small invertebrates and plant material from the surface water. Talk about its body shape and waterproof feathers, how they support the ability for the duck to swim, float, and tip to get food. And discuss how they take flight – they spring straight up into the air instead of running across the water to become airborne (Hawaiian Coots do the latter).
- Play the game “Koloa – Koloa – Mallard!” This game is played like “Duck – Duck – Goose!” in which students sit in a circle and one child runs outside the circle and says “Koloa – Koloa – Mallard!” The child taps the head of another child after the word “Mallard” is said. Then the tapped child chases after the first child, running around the circle, trying to tap the child before he or she reaches the space just vacated. If the child is caught, then the round starts over again with that child tapping the head of another student. If the child makes it to the open space without getting caught, then the tapped child becomes the one saying, “Koloa – Koloa – Mallard!” Repeat until you run out of time or kids become exhausted!