



What Can I Eat with this Beak?

For the Wetlands Wagon Classroom Program

20 Minutes

Objectives:

1. To explain how and why birds have different types of beaks
2. To identify bird diet by examining beaks
3. To explain how water quality is linked to biodiversity and how that relates to a better food source for multiple birds to coexist together

Materials:

- Blue tarp (small-medium size)
- Green tarp (large)
- Dixie cups (1/student)
- 2 timers
- Variety of tools to represent bird beaks:
 - Forks
 - Knives
 - Spoons
 - Strainers
 - Chopsticks
 - Clothespins
 - Tweezers
 - Scissors
- Bird beaks:
 - Shorebird
 - Raptor
 - Waterfowl
 - Passerine/songbird
 - Wading Bird (Heron)
- Bird images corresponding to beaks and tools that represent the beaks
- Bird Food Items:
 - Corn kernels- seeds
 - Beans- seeds
 - Insect toys- insect variety
 - Bands- worms
- Worksheets (1/student)

Preparation/Set-up:

1. Place a green tarp on the ground to represent land
2. Place a blue tarp on the ground on top of the green tarp to represent the pond
3. Pull out the bird beak tools for one per student to use during the activity
4. In another area, layout the bird images with corresponding bird beaks and tools that represent them.

Key Vocabulary Words:

- ✓ Adaptation- A trait of a living thing's body or a behavior that helps it to survive
- ✓ Biodiversity- the variety of organisms
- ✓ Coexistence- when different species of animals live together in harmony
- ✓ Ecosystem- a community of living and non-living things and how they interact with one another
- ✓ Habitat- the place or area that an animal lives
- ✓ Water Quality- how healthy the water is

Procedures:**Part A: Preparing your groups: (2 min.)**

1. Ask: Do you know what an **adaptation** is?
Answer: an animal's body part or behavior that helps it to survive.
2. Ask: Do you know what a **habitat** is?
Answer: An animal's home
3. Inform them that they will be discovering the different types of bird beak adaptations that wetland birds have to use in their wetland habitat.
4. Split your half of the class into 2 smaller groups: Researchers group and Becoming Birds group.
5. The Becoming Birds group will feed in the pond, role playing as birds while the other group of Researchers observes the bird tools that match the bird beaks and images, recording what they are reading/researching about.

Part B: Bird Research: (9 min.)

6. Hand out worksheets to the Researchers and send them to the line-up of images, beaks and tools to fill out their worksheet. They will have 9 minutes to complete their worksheets, put their name on it, and pile them together to be ready to rotate.

Part B: Feed like a Bird: (9 min.)

7. Have the other group of students sit on the green tarp around the pond.
8. Inform them that each will become a wetland bird with a beak, and they will feed in the pond, the blue area. They will receive a small cup to represent their bird stomach. They will receive a tool to represent their beak and that is what they will use to feed with.
9. Inform them that as wetland birds they are part of an **ecosystem**, a community of animals and nonliving parts of nature and how they interact. They will interact with the water, each other and their food.
10. Scatter one food item across the pond- seeds.
11. Have them collect for 30 seconds using their bird beak tool and placing the food into the cup/stomach.
12. Stop them when time is up and have them put down their beak tool to see what they caught. Have some of them share if it was or was not challenging to feed on seeds with their beak type.
13. Have them put the food back in the pond.
14. Scatter more food variety across the pond. Inform them that is more accurately reflects a pond.
15. Have them feed for 30 seconds again with their beak tool.
16. Have them stop when time is up and put down their beak tool.

17. Have some of them share which food items were easiest to catch with their beak type.
18. Have them give you back their beaks, help clean-up the pond food items in the bag, and give you back their stomach cups.
19. Ask: In which pond were more birds able to feed, the one with one food item, or the one with many food items? Why?
Answer: The pond with more food because there were more options for the different types of beaks.
20. Explain that we call this **Biodiversity**- when there are more variations or different forms of life. The more biodiverse the pond is, the healthier it is because it can support lots of different life. The health of the pond is called **water quality**. When animals share a food source or ecosystem, they are **coexisting** together there.
21. Swap your 2 groups and repeat the 9 min. stations.

Bird Beak “Tool” List: Birds and Food Items

Tweezers:

- Shorebirds (Avocets, Stilts, Yellowlegs, plovers, etc.)--insects, invertebrates, weed seeds
- Marsh Wren--insects, snails
- White-faced Ibis--aquatic invertebrates (especially crayfish), insects, earthworms, fish, small vertebrates, occasionally aquatic vegetation

Clothespins:

- Sparrows--insects, seeds
- House finches--seeds, fruit, buds, tree sap
- California quail—Mainly seeds, but also, grains, berries, acorns, leaves, flowers and insects.

Spoons:

- American White Pelican-- fish

Scissors:

- American Coot--mostly aquatic vegetation, algae; but also fish, tadpoles, crustaceans, snails, worms, aquatic and terrestrial insects, eggs of other marsh-nesting birds

Spears/chopstick:

- Herons and Egrets—aquatic and terrestrial invertebrates and vertebrates

Strainers:

- Ducks-- aquatic vegetation, small aquatic invertebrates, seeds

Knife and fork: beak and talons

- Raptors such as:
 - Red-tailed Hawk--rodents, birds, reptiles, insects
 - Great Horned Owl--rodents, birds, small invertebrates

Science Standards

Third Grade:

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment also affects the traits that an organism develops. (3-LS3-2)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)

LS4.D: Biodiversity and Humans

- Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Fourth Grade:

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

Fifth Grade:

LS2.A: Interdependent Relationships in Ecosystems

- The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)