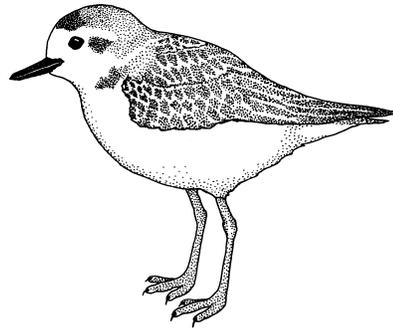


Bird Feeding Strategies



Topics

Birds, Adaptations

Grades

K-2

Site

Indoors

Duration

45-60 minutes

Materials

See page 2

Vocabulary

adaptations, beak

Next Generation Science Standards

Practices

Developing and using models

Core Ideas

LS1.A Structure and function

Crosscutting Concepts

Structure and function

Performance Expectations

See page 4

Focus Question

What might beak shape tell you about how a bird gets food?

Overview

Birds use their beaks to perform many tasks, including catching, gathering and eating food. Students discover how bird beaks are similar to everyday tools. They experiment with different tool “beaks” to explore the relationship between beak shape and the food that a bird consumes.

Objectives

Students will be able to:

- Identify specialized body parts of birds, such as beaks.
- Explain how birds use their beaks for many tasks; including feeding.
- Understand there is a relationship between the shape of a bird’s beak and the kind of food it eats.

Background

Birds use their **beaks** for many tasks. Beaks are necessary not only for eating but also for finding and catching food, filtering food from water, and carrying or killing prey. Birds’ beaks are also adapted for preening, nest building, digging, turning eggs, defending, attacking, displaying, scratching, carrying, hatching and climbing. These **adaptations** help a bird survive in its habitat.

Over time, the beaks of many birds have become specialized for the food they eat and the habitat in which they live. The pelican has a hooked upper beak tip and a pouch for catching fish. Wading birds hunt along the shore with their long, slender forceps-like beaks. Avocets swish their upward-curved beaks through the water to gather food. Oystercatchers have stout beaks for hammering and prying food off rocks. Skimmers forage by flying with the lower part of their beaks slicing through the water. A skimmer’s lower jaw and beak extends beyond that of the upper jaw and beak.



VOCABULARY

Adaptations: body parts and behaviors that help an animal survive

Beak: bill of a bird, mouth

Hummingbirds have long probing beaks they use to gather nectar from flowers. Woodpeckers use their strong beaks for hunting and excavating wood. The woodpecker then sticks its long tongue into the hole to gather food. Whip-poor-wills have wide, bristle-fringed beaks for catching insects while flying. Kingbirds, pewees, phoebes and flycatchers have a hinge-like ligament that causes the jaw to snap tight when it catches an insect. Warblers and creepers have slender beaks for hunting in foliage and under bark for insects. Sparrows, buntings and finches all have short stout beaks for cracking and husking seeds.

Materials

- **Shorebird Beaks** and other images of birds with different-shaped beaks
- Dishpan filled with water, plastic fish and floating pieces of Styrofoam
- Log with leaves, plastic insects and rice
- Tall flower vase with water, flowers
- Bowl of oatmeal with seeds, nuts, plastic insects and worms
- Various tools to represent bird beaks (eyedroppers, straws, nutcrackers, pliers, slotted spoons, strainers, small fish nets, tweezers, salad tongs, dinner knives, hammers, clothespins)

Teacher Preparation

1. Gather the materials to create simulated bird habitats.
 - Pond/Ocean (pelicans, spoonbills, flamingos, some ducks): Fill a dishpan with water. Add plastic fish and floating pieces of Styrofoam to represent fish and other aquatic animals.
 - Forest (warblers, sparrows): Find a decaying log or piece of wood. Add plastic insects, nuts and rice to represent caterpillars, ants and other insects.
 - Meadow/Wetlands (hummingbirds): Fill a tall flower vase with water. Add flowers, rocks and nuts to represent nectar and wetland organisms.
 - Beach (avocets, snowy plover, other shore birds): Fill a large bowl with dry oatmeal to represent sand. Add seeds, nuts, plastic insects and worms to represent sand dwelling organisms.
2. Gather enough eyedroppers, straws, nutcrackers, pliers, slotted spoons, strainers, small fish nets, tweezers, salad tongs, dinner knives and hammers for the class to use as bird beaks.
3. Find bird images. Try to find images illustrating a variety of beak shapes and habitats. You may also want to print **Shorebird Beaks** to share with students.

Procedure

1. **INTRODUCE THE FOCUS QUESTION TO THE CLASS.**
Share the question: *What might beak shape tell you about how a bird gets its food?* You may write it up on the whiteboard or have students add it to their science notebook. Give students time to write their initial thoughts down or discuss with a partner. Depending on their prior knowledge, you may need to spend some time exploring the concept of adaptations first.



ELL TIPS

Birds are a very accessible new topic for English Language Learners since there are birds everywhere. Contextualize the new vocabulary by observing birds in the schoolyard and asking students about their prior knowledge.

2. LOOK AT A VARIETY OF BIRD BEAKS.

As a class, go on a birdwatching walk around your schoolyard. Point out birds and look at their beaks. Back inside, look at various images of birds. Have students look closely at their beaks. *How are the beaks alike? How are they different? How might birds use their beaks in different ways to find, catch or gather food? How does the structure of the beak support or limit what the bird can eat?*

3. COMPARE TOOLS TO BIRD BEAKS AS A CLASS.

Show students the different tools. Use questions to guide students observations. *How might some of these tools be like bird beaks? What kind of food do you think a bird could eat with each beak type?*

4. STUDENTS MATCH THE BEAK TOOLS TO THE DIFFERENT BIRD HABITATS AND FOODS.

Have students choose one beak tool and go to a habitat to gather different kinds of food. *Which food items were easy for the bird to eat? Which food items were hard or impossible to eat? Have students use the beak in another habitat. Were they able to eat the same or different kind of food items? Challenge students to choose another beak. Could the bird eat similar or very different types of food in the habitats? How were the beak models the same? Different?*

5. STUDENTS RECORD FINDINGS AND SHARE RESULTS.

In science notebooks, have students draw and label pictures of the tools used and the foods they were able to pick up. Ask them to explain how and why the beak tool worked and discuss it with a partner.

6. STUDENTS COMPARE TOOLS TO ACTUAL BIRD BEAKS.

Bring out the images of birds. Have students find a real bird whose beak is similar to one of the tools. They can add its name and description next to the tool they illustrated in their notebooks. Also, have them describe how its beak is like the tool and different from the tool.

7. RETURN TO THE FOCUS QUESTION.

Now that students have gone through the activity, have them revisit the question: *What might beak shape tell you about how a bird gets its food?* Students may think on their own or discuss with a partner. Then in their science notebook, have them draw a line of learning under which they add to their original thoughts about the question.

Extensions

- Print the bird beak images on card stock, laminate them and attach them to popsicle sticks. Use them to probe into sand, dirt and water to help students begin thinking about what and how birds eat.
- Trade a bird picture with your partner and try to infer what that bird eats from the shape of its beak.
- Show a type of food and challenge students to draw a bird with a beak that might eat that food.



CONSERVATION TIPS

Bird feeders are a terrific way to attract and observe birds in your schoolyard. However, birds become accustomed to the food source so don't forget to keep up the supply during school breaks.

**THE MISSION OF THE
MONTEREY BAY
AQUARIUM
IS TO INSPIRE
CONSERVATION OF THE
OCEANS.**

Resources

Websites

Monterey Bay Aquarium www.montereybayaquarium.org

Learn about the animals, including birds, on exhibit at the Aquarium.

Aviary Web Cam

www.montereybayaquarium.org/animals-and-experiences/live-web-cams/aviary-cam

Observe birds on the Aviary and Penguin live web cams.

Standards

Next Generation Science Standards www.nextgenscience.org

Performance Expectation

Relates to K-2-ETS1-2: Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem

Common Core State Standards www.corestandards.org

Language Arts, W.1.8

Writing: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question

Acknowledgements

Adapted from "Fill the Bill" in Ranger Rick's *Nature Scope*

Shorebird Beaks

