



What Can I Eat With This Beak?

Long Version

This activity is adapted from The Shorebird Sister Schools Arctic Nesting Shorebirds Curriculum.

Teacher

Description

Through a simulations activity, students will learn how shorebird beaks are uniquely adapted to eat their prey.

Objectives

Students will be able to:

- Describe how bird beaks are adapted to the foods they eat.
- Explain why several types of birds may live in the same habitat at the same time.
- Explore the relationship between “form” and “function.”

Time Required

Preparation: 30 minutes

Activity: One 40-minute class period

Subjects

Environmental Science, Math

Skills

Critical thinking, Comparison, Evaluation, and Problem Solving

Correlation to National Science Education Standards

K-4: Life Science

- Characteristics of Organisms
- Organisms and environment
- Sciences and Technological
- Abilities of technological design
- Unifying Concepts
- Form and Function

5-8: Life Science

- Diversity and Adaptations of Organisms
- Science and Technology
- Abilities of Technological Design
- Unifying Concepts and Processes
- Form and Function

Materials (for a group of 30)

Bird stomachs: 1 paper cup per student

Bird poster or bird beak chart

Chalkboard/ easel paper

Food items: 50 marbles (snails)

100 toothpicks or cut pipe cleaners (worms)

100 3/16" metal washers or similar (crustaceans)

Beaks: 7 spoons

8 pair tweezers

7 pair scissors

8 spring type clothespins

Older students: copies of worksheet/data sheets

Procedure

1. Discuss with students that there are many different kinds of beak adaptations that relate to the foods that birds eat. What kinds of beaks have they seen? Show examples of beaks by using pictures, study skins, masks, or puppets.
2. Hold up the beak utensils one at a time and ask the students for examples of birds that have beaks similar to the utensil.
3. After the discussion about bird beaks, introduce students to the activity by having them imagine that they are a flock of shorebirds.
4. Have students count off in 4's, with the “ones” being spoon-beaks, the “twos” being scissor-beaks, and so on. Give each student one stomach and one bird beak.
5. Explain the rules: The birds must pick up food using only their beaks and then drop the food into their stomachs. Food may not be scooped or thrown into the stomach, and the stomach must be held upright. The teacher is a hawk that eats birds. Unruly behavior or violation of rules result in the hawk capturing the conspicuous bird and making it sit out for one round. (Unusual behavior of a bird draws attention from a predator that will eat it.)

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Procedure (continued)

- Have students sit in a large circle (their habitat). The leader distributes one food type inside the circle and gives the signal to start feeding. Feeding may occur only when a signal is given. The leader may choose to do this by telling the birds (students) that it is night (lights out) and the birds are asleep. Then turn on the lights and let them feed for a short time (up to 2 minutes). When ready to have all birds stop feeding, turn off the lights as if the sun is setting.
- Have similar beak-types get together and count the combined number of food items collected. Record the data, perhaps on one large paper for the entire class to see. Older students can record averages.
- Repeat steps 6 and 7 for each type of food.
- Next, mix the three food types and let the birds gather food. This is a more natural situation. An area seldom has only one type of food. Record the data. The birds should first eat the food they can gather the easiest (as discovered in the earlier rounds), and then switch to a secondary food item as it gets harder to gather their first choice.

Extensions

- Afterwards, a class discussion may include the questions listed on the following student pages.
- Have students do research contrasting the shorebird feeding techniques of “probing” and “picking.”
- Have students look at bird guides and pictures to find other beak types besides the four involved here. Students can guess what these birds might eat. Older students can do follow-up research and write or present a comparison between their guess and the facts they discovered. They can also consider bill length and its relation to prey items. Younger students can draw imaginary bird beak creations of their own, and show in the drawing or describe with words what their bird eats and how its beak is adapted to its food.
- An additional graphing exercise is suggested below. Below is an example graph for the data collected after testing the tweezer beaks.

Comparison of Beak Type Efficiency

