

BEAKS, FOOD AND TOOLS

A series of activities to simulate different types of bird beaks and relate the size and shape of beaks to the food items gathered

ARIZONA SCIENCE

STANDARDS:

SC01-S1C1-02, SC01-S1C3-01, SC00-S1C2-03, SC01-S1C2-04, SC03-S3C1-01&02, SC00-S4C3-02

MATERIALS

- Copies of bird pictures for discussion.
- 1 copy for each student of the *Beaks and Food* coloring handout
- 1 set of the *Matching Picture Cards of Beaks and Tools* for each student or for each group of students.
- Butcher paper
- Paper cups, (stomachs) 1 per student

Representative “food items”:

- Marbles (about 300)
- Round toothpicks (about 500)
- 3/16-inch washers or pennies (about 300)

Representative “beaks”:

- 10 metal or durable plastic spoons
- 10 pairs of chopsticks, tongue depressors, popsicle sticks, or clothespins (spring type)
- 10 pairs of scissors or tweezers

OBJECTIVES

Students should:

- Correlate the design and structure of bird beaks with the type of food items its gathers.
- Compare and analyze the effectiveness of different bird beaks for food gathering.
- Roll play birds grasping food by using a

VOCABULARY

Adaptation

Beak

Prey

Predator

Raptor

SETTING THE STAGE

- 1) Display two or more pictures of birds and discuss ways that birds’ beaks vary. Review the term **adaptation**, then focus on one of the variations that students described and ask how the variation might be an adaptation that helps the bird survive.
- 2) Have students recall examples of the of types of beaks and food discussed previously. Then, have students complete the coloring handout *Beaks and Food*.

GETTING READY

- 1) Gather the materials listed on the left. Find an area to conduct the activity. The area should be about 30 feet by 30 feet or large enough for the entire class to move around. Outside on grass is best so that the marbles don’t roll.
- 2) Prepare 2 sheets of butcher paper to make class data sheets as shown in the illustration below:

ONE FOOD AT A TIME			
FOOD ITEM	SCISSORS BIRD	SPOONBILL BIRD	CHOPSTICK BIRD
toothpick worms			
marble seeds			
washer beetles			

ALL THREE FOODS AT ONCE			
FOOD ITEM	SCISSORS BIRD	SPOONBILL BIRD	CHOPSTICK BIRD
toothpick worms			
marble seeds			
washer beetles			

DOING THE ACTIVITY

- 1) Tell students that today they will be learning about different bird beaks and how these help birds survive. Divide the class into three groups (counting off by threes) and assign a different bird beak - spoons, chopsticks (or tongue depressors, popsicle sticks, or clothespins), and scissors (or tweezers) – to each group. Give each student a paper cup, which will represent his or her
- 2) Distribute one of the food items (marble “seeds,” toothpick “worms,” or washer “beetles”) around the study area. Be sure to spread the “food” over a large area to avoid bumping or crowding. Explain that students are to pick up as many of the food items as possible using their beaks, then drop the food items into their stomachs. Food items may not be scooped up or thrown into the stomach and the stomach must be held upright. At the signal to stop, all birds must stand up at once. Remind students that bumping, shoving, pushing or taking other birds’ food are not allowed.

- 3) Give the signal to start eating. Stop the round after about three minutes (before the food runs too low).
- 4) Have students regroup according to the type of beak they have so that everyone in each group has the same kind of beak. Have each group count the total number of food items in all the stomachs and report the group results to the class. Record the data on the class data sheet that you have prepared entitled “One Food at a Time.”
- 5) Test the other two food items, one at a time, and record the results on the data sheet. Analyze and discuss the data after each test. Which type of bird was able to eat the most of the food item? Which ate the least? How did the type of beak help or not help you eat the food item? Which beak is best at eating toothpick worms? Marble seeds? Washer beetles? With only this one food item available, which type of bird would be most likely to survive? Which bird has the best adaptation for eating this food item?
- 6) Conduct the test again but this time distribute all three food items at once. Record the results on the data sheet you have prepared entitled “All Three Foods at Once.”
- 7) Make copies of the pictures of the *Matching Picture Cards of Bird Beaks and Tools*, one set per student or one set per pair of students. Have children cut out the pictures (or have them already cut) and then match the beak pictures with the tool pictures. Color and mount them on construction paper. Make a bulletin board display.

DISCUSSION

- 1) If only one kind of food is available in a certain area, do you think you would find lots of different kinds of birds there? Why or why not? (Probably only one type of bird would be found. It’s beak would be adapted to use the only kind of available food.)
- 2) What happened when all three food items were available at once? (Different types of birds collected more food.)
- 3) If many different kinds of food are available in a certain area, how might that affect the types of birds found there? (Different types of birds could survive there. Birds with different beaks would be able to find food.)

EXTENSIONS

- 1) Repeat the Beak Food and Tools activity using other beaks, other foods, or other habitats. Compare the results with the results of this activity.
- 2) Study whether distribution of food is a factor in how birds eat the food. Repeat the activity, distributing food items fairly evenly. Then clump each food item a few yards from each of the other food items and allow the birds to feed where they wish. Look for differences in feeding behavior when food distribution is changed.
- 3) Take students on a bird walk. Specifically observe feeding behaviors of birds.