



Activity: Where Would A Bird Be Without Its Bill?

Objective: Students will experiment to see how Iowa's birds are specifically adapted to feeding and living in a particular habitat by using food-gathering tools representing different beaks, and using these "beaks" to gather "food" from different habitats.

Materials: Bird "beaks" made of strainers, straws, tongs, chopsticks, fishnets, letter openers, nutcrackers, tweezers, and knives and forks; "food" items using water in a tall thin vase, oatmeal, nuts, marshmallows, rice, a rubber mouse and rubber fish; clipboards, pencils, and worksheets

Background: Much about a bird's way of life can be told by looking at its adaptations such as bill shape. Iowa birds' beaks vary widely in shape, size, and form. The ruby-throated hummingbird has a long, hollow beak that it uses to probe flowers for nectar. Many sandpipers, snipes, and woodcock have long bills for probing in the mud of an Iowa marsh or lake for soft invertebrates, similar to eating with chopsticks. Cardinals and grosbeaks have heavy, conically-shaped bills with sharp edges (nutcracker) used for splitting open seeds. Many ducks and geese that migrate through Iowa have flat beaks with a fringed edge (strainer or slotted spoon) for straining food from the water. Nighthawks, chimney swifts, and barn swallows have large, gaping mouths with short, pointed beaks (fishnet) for catching insects on the wing. Robins, wood thrushes, red-winged blackbirds, and other insect-eating birds have bills that are sharp and pointed (tweezers) for picking insects from leaves, logs, and twigs. Birds of prey, such as the kestrels, red-tailed hawks, or great-horned owls, have hooked beaks for cutting and tearing, similar to cutting with a knife and fork. Great blue herons that can be seen in Iowa's marshes, lakes, and streams have long, sharp, spearing beaks (letter opener); they also have long necks to reach down into the water while wading and stab fish.

Procedure: Set up eight different stations, each with a special type of food that fits one of the eight different types of beaks that you have discussed with the students. At each station, you will need three beak types and a card identifying the type of food represented. Send groups of three-five students with a clipboard and pencil to visit each station to identify answers matching the correct bird "beak" with the type of "food" displayed.



Stations

- #1 Food: Water in a tall thin vase to represent nectar in a flower
Beaks: strainer, straw, (hummingbirds, for example)

- #2 Food: Bowl with dry oatmeal and sticks on the bottom to represent worms buried in the mud
Beaks: chopsticks, fishnet, letter opener (woodcock, for example)

- #3 Food: Whole walnuts or other nuts to represent seeds with hard coverings
Beaks: nutcracker, straw, (cardinals, for example)

- #4 Food: Marshmallows in a bowl filled with water to represent tiny aquatic plants and animals
Beaks: chopsticks, strainer, tweezers (ducks, for example)

- #5 Food: Marshmallows tossed in the air one at a time (which must be caught while in the air) to represent flying insects
Beaks: fishnet, straw (swallows, for example)

- #6 Food: Rice spread on a log to represent caterpillars and other insects
Beaks: tweezers, strainer, chopsticks (robins, for example)

- #7 Food: A rubber mouse to represent a real one
Beaks: tweezers, knife/fork (hawks, for example)

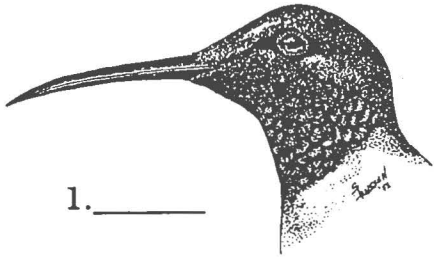
- #8 Food: A rubber fish to represent a real one
Beaks: straw, letter opener, tweezers (kingfishers, for example)

Follow-up: Ask your local county conservation board or local Iowa Department of Natural Resources personnel to present a program with mounted birds so the students can examine the bills and foot types of Iowa birds.

Have students identify the Iowa birds used in this activity by using a field guide. Nature magazines are a good source of pictures of bird beaks and feet. Compare pictures of birds to corresponding feet and beaks. Construct a food chart and match beak and foot types to the chart.



Activity: Match the Type of Food the Bird Eats to the Beak Type.



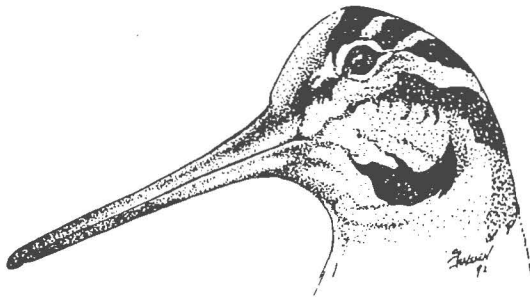
1. _____



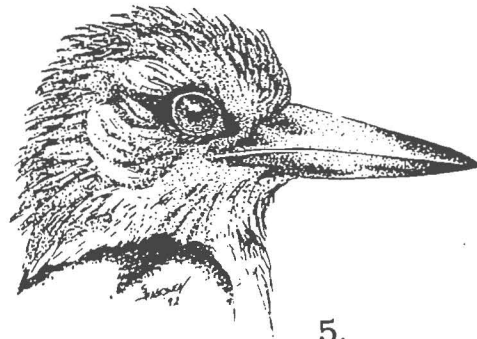
2. _____



3. _____



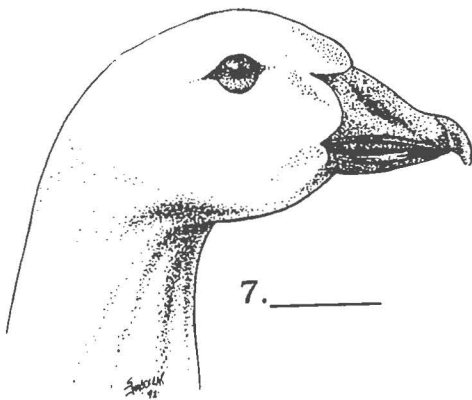
4. _____



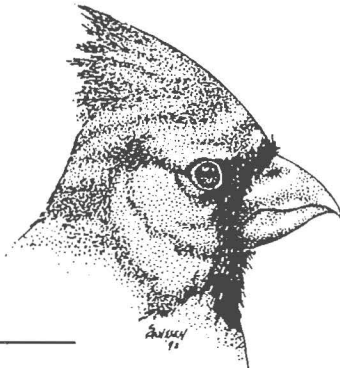
5. _____



6. _____



7. _____



8. _____

- a. caterpillars, beetles, and crawling insects
- b. flying insects
- c. fish
- d. rats, mice, and snakes
- e. small water plants
- f. nectar
- g. seeds
- h. worms and invertebrates in the mud