

### What a Difference a Beak Makes



Teacher-led Classroom/Activity  
Science/Adaptations/Conducting and Analyzing an Experiment

*What does a bird's beak tell you about what it eats?*

#### Objective:

Students conduct an experiment to determine how what a bird's beak looks like reflects what that bird eats or how it gets food.

#### Students will need:

- To serve as "beaks": tweezers, clothespins, short straws (a set of each of these for each group of three children)
- To serve as "food": uncooked rice, hazel nuts, water tinted with food coloring
- Small cups for students to use to collect "food"
- Larger cups to hold "food" children will collect
- One-minute timer
- "What a Difference a Beak Makes," reproducible data sheet (one for each student)

#### Suggested time:

One class period; additional time for repeated rounds of the experiment

#### What to do:

1. With the whole class, have students look through the *Audubon Adventures* student magazine, "Get to Know Birds," either online or downloaded. Ask them to pay attention to the pictures of birds they see. Help them notice that different birds have different kinds of beaks. Explain to students they are going to conduct an experiment to find out how what a bird's beak looks like is related to what that bird eats.
2. Divide the class into groups of three. Have each group of three stand next to each other at a table. Give the first member of each group a straw, the second a clothespin, and the third a tweezers. Explain that they are going to pretend to be birds and use these tools as "beaks" to get "food."
3. Distribute copies of the "What a Difference a Beak Makes" data sheet, one per student.
4. For each group, place a cup of rice in front of the first student, a cup of hazel nuts in front of the second, and a cup of colored water in front of the third. Explain that this is "food." \*Note: For the students with the straw, demonstrate how to place the straw in the liquid as deeply as possible and cover the end with a finger so that liquid is trapped in the straw. Then place the end of the straw in the cup and take the finger away, which releases the liquid. Let them practice a bit before continuing with the experiment.
5. Tell students they will have one minute to use their "beak" to transfer as much of the "food" in the container in front of them to their own cup.
6. Start a timer and say, "Go!" Students use their "beak" to grab as much food as possible from the container in front of them. Make sure students don't try to "cheat" by pouring "food" out of the container or using their fingers!



7. After one minute say, “Stop!” Have students show and compare how much “food” is in their containers and record their observations on their data sheets. They should then return the “food” they collected to its original container.
8. Next, have students switch “foods” but keep the same “beak.”
9. Repeat the experiment, timing them for one minute and having them record their results.
10. Repeat this procedure one more time, so that each student in the group will have used his/her “beak” with each of the three “foods” and recorded the results on the data sheet.
11. After all students have had a chance to use their “beak” with each kind of “food,” analyze the experimental results. Have a class discussion in which students use the data they collected to determine which kind of “beak” worked best with which kind of “food.” Students are likely to conclude that the tweezers worked best for the rice, the clothespin worked best for the nuts, and the straw worked best for the liquid.
12. Finally, ask students to speculate about what kind of bird might have each kind of beak. Encourage discussion and conjecture. Tell the class that in this experiment, the tweezers represents the beak of a bird that eats seeds and/or small insects—e.g., chickadees, bluebirds, warblers, wrens; the clothespin represents the thick beak of a bird that eats large nuts, seeds, fruits, and insects; the straw represents the beak of a hummingbird, which sips nectar from flowers. The beaks are adapted for a particular kind of food.

### Extensions:

- If time allows, or on another day, repeat this experiment so that each child gets a chance to use each kind of “beak.”
- Show students pictures of a variety of other kinds of birds—herons, birds of prey, ducks, pelicans, for example—and ask them to speculate what those birds eat. Then ask them what kind of tool could be used to simulate that beak.
- As a STEM activity, ask students to design a tool to represent a particular kind of bird’s beak—e.g., duck, pelican, woodpecker.
- Look at pictures of a variety of birds and explore how other body parts of birds display physical adaptations that help birds survive in their habitat—e.g., legs, feet, wings, eyes.