Fill the Bill

Grade Level: 2-4

Objectives:

Content: Given "food", and three different tools the student will:

1. Determine which type of beak is adapted to each food.

2. Describe the habitat in which the bird would be found.

3. Relate the habitat to the food that the bird eats.

**Science Concept**: Bird beaks are modified in numerous ways - length, shape, and size - to adapt them for obtaining different types of food. Birds, over millions of generations, have adapted very specialized beaks reflecting the type of food that they eat.

Materials: (per group of two students)

Worksheet

3 eyedroppers or straws

4 pairs of chopsticks

3 nutcrackers or pliers

2 large scoops or slotted spoons

3 strainers

3 envelopes or small fishnets

3 forceps or tweezers

3 tongs

small log

popcorn or tiny marshmallows

rice

puffed rice

two large containers

fake worms

oatmeal

stemmed cherries

tall, thin vase

large saucepan

walnuts or other nuts

Styrofoam chunks

string

Teacher Preparation/Procedures:

1. Set up 8 different stations, each with a special type of “food” that fits one of the beaks.

2. Put 3 different tools at each station, one that fits the food and two that don’t fit.

3. At each station have a sign that tells what type of food is represented as follows:

(related birds in parentheses) \* indicates the tool that best fits the food

Station #1: water in a tall, thin vase to represent nectar in a flower (hummingbirds)

Tools: eyedropper or straw\*

envelope or small fishnet

large scoop or slotted spoon

Station #2: large saucepan filled with dry oatmeal, with fake worms on the bottom to represent worms buried in the mud (curlews, godwits, kiwis, snipes)

Tools: chopsticks\*

nutcracker

strainer

Station #3: whole walnuts or other nuts to represent see with hard coverings (sparrows, cardinals, finch)

Tools: nutcracker or pliers\*

tongs

chopsticks

Station #4: Styrofoam chunks floating in water to represent fish and other aquatic animals (spoonbills and pelicans)

Tools: large scoop or slotted spoon\*

eyedropper or straw

chopsticks

Station #5: puffed rice in container of water to represent tiny aquatic plants and animals (flamingos and ducks)

Tools: strainer\*

forceps or tweezers

tongs

Station #6: popcorn or tiny marshmallows tossed in the air – must be caught while in the air (nighthawks and whip-poor-wills)

Tools: envelope or small fishnet\*

forceps or tweezers

chopsticks

Station #7: rice spread on a log to represent caterpillars and other insects (warblers)

Tools: forceps or tweezers\*

envelope or small fishnet

nutcracker or pliers

Station #8: cherries hanging from a string to represent fruit hanging from a branch (toucans)

Tools: tongs\*

eyedropper or straw

strainer

Focus: Talk about some different bird beaks and how they allow birds to survive.

Explore

1. Explain the setup at each station – three different tools each of which represents a different type of bird beak function.

2. Instruct each group to try each tool and decide which tool most efficiently gets the food.

3. Once the group decides on the best tool, write the name of the tool in the appropriate square.

4. Underneath the squares are pictures of different birds and their beaks. In the blank next to the bird, write the number of the square that represents the correct beak.

Reflect

Share results.

Apply

1. Ask the students how specialized beaks help some birds stay alive. (A bird with a specialized beak can often eat a type of food that no other bird can eat.)
2. Ask how a specialized beak might be a disadvantage to a bird. If a bird’s habitat changes and its food is no longer available, the bird might die because it can’t eat anything else.
3. What if a bird has a versatile beak; like a crow, can eat a variety of foods: fruit, nuts, berries, dead animals, fish, and small rodents. (If one type of food is not available, they can always eat something else.)