

WHAT'S FOR DINNER?

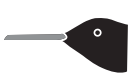





Background Information for Activity Leaders

Overview

Children will use models of a variety of beaks to discover how shape affects function, and how function determines where a bird can live.

Key Concepts

- Birds depend on their physical features to help them obtain food, keep safe, build homes, withstand weather, and attract mates.
- All species of a particular bird will have the same kind of **beak**. Beak shapes and other physical features are called the bird's physical adaptations.
- An **adaptation** is a trait that increases an animal's chance of survival. It does not develop overnight, but rather develops over many generations. Physical adaptations are special body parts of an organism that help it to survive in its natural habitat, such as its skin color, shape and body type. In the case of a bird's beak, adaptations may result in a longer beak or a stronger beak.
- The most important function of a bird's beak is feeding. The shape of a bird's beak can tell you a lot about the bird's behavior. For example, beaks that are long and flat are good for straining small plants and animals from the water. Therefore, it is very possible that a bird with a long, flat beak will be found near lakes, rivers or oceans, looking for its food in the water.
- During this lesson children will use **models** of beaks to learn about the relationship between shape and function. A model is used to illustrate an idea. One can use it to make predictions, such as what kind of food a bird can eat.
- The place a bird lives is called its **habitat**. Habitats provide the food, water and shelter that birds need to survive. The chart below shows information about the types of beaks that are the focus of *What's for Dinner?*

Bird	 hummingbird	 warbler	 crow	 duck	 kingfisher	 parrot
Food	nectar	earthworms, caterpillars	earthworms, caterpillars, seeds	aquatic plants	fish	seeds
Habitat	between woodlands and meadows	wetlands, marshes	open fields	lowlands, near water sources	near fresh water and rocky shores	tropical forest

WHAT'S FOR DINNER?

Background Information for Activity Leaders

What to Expect

- Each beak will be able to collect more than one type of food. The food that the beak collects best is the food the bird is adapted to eat.
- Children at these grade levels may be associating animals with their specific environments for the first time.

Common Misconceptions

- *Children may think: "Physical adaptations can develop during an animal's lifetime."*

Physical adaptations do not develop during an animal's life; it takes many generations. The shape of a bird's beak, shape of its feet, color of its feathers, shape of its body, and length of its wings are all physical adaptations that developed over hundreds, thousands, or even millions of years to help the species survive in a certain habitat.

WHAT'S FOR DINNER?

Bird Food Recipes and Beak Model Instructions

Bird Food Recipes

Land Bird Food:

- Caterpillars: 2- to 3-cm long cut pipe cleaners
- Earthworms: 6- to 8-cm cut rubber bands
- Seeds: lentils or other small beans

Aquatic Bird Food:

- Aquatic plants: Enough packing noodles to cover the surface of the water in the bowl
- Fish: 2 sponges cut into 1-inch squares and then soaked in water

Tongue Depressor Beak Model

- Place one tongue depressor on top of another.
- Wrap a rubber band around one end of the two tongue depressors.
- Break off a .5 cm piece of toothpick. Place it inbetween the two tongue depressors next to the rubber band.
- Open and close the beak by pressing and releasing the short end of the beak model.

WHAT'S FOR DINNER?

Data Collection Sheet





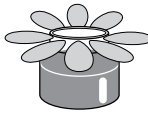
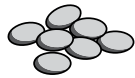
Name: _____

Date: _____

WONDER I think my beak will be best able to pick up:

RECORD How much of each type of food did your beak collect?

Data Table

TRIAL						
A						
B						
C						

CONCLUDE

My bird is a _____

Which is your bird's least favorite food? _____

Which is your bird's favorite food? _____

Which beak is best adapted to eat your bird's favorite food? _____

EXPAND Draw your bird's habitat. Be sure to draw the food your bird can eat, too!

Set Up the Expedition

Materials

For the activity leader:

- *What's for Dinner?* Learning Cards
- *What's for Dinner?* Bird Food Recipes
- tap water to fill bowl and bottles
- (1) nutcracker
- (1-5) walnuts
- (2-3) sheets of color tissue paper
- (1) roll of masking tape

For each group:

- (1) whistle
- (1) stopwatch
- (1) large tray
- land bird food (see page 2-3)
- (1) large bowl filled with water
- aquatic bird food (see page 2-3)
- (1) empty baby food jar

For each child:

- (1) *What's for Dinner?* Data Collection Sheet
- crayons and drawing paper
- dropper
- tweezers
- large clothespin
- small clothespin
- small strainer
- pre-made tongue depressor beak
- paper cup

Prepare the demonstration:

1. Place one of each type of beak and a nutcracker in a place where all the children can gather around and see.
2. Place a walnut on the demonstration table.

Prepare the exploration:

1. Decorate the baby food jars using the tissue paper and the tape so that they look like flowers. Place one decorated baby food jar, half filled with water at each station.
2. Place a tray of land bird food and a bowl of water with aquatic bird food at each station.
3. Give each child one beak and a collecting bowl. Each child in the group should have a different beak.

WHAT'S FOR DINNER?

Activity Leader's Guide

Group Size: 4-6 children

Time: 30 minutes

Engage

- 1 Begin the demonstration by displaying a walnut to the children.

Ask:

"If I were a bird and wanted to eat this yummy nut, what tool would I use to get through the hard shell?" Point to the different tools you have placed in front of you. Wait for the children to suggest different tools. Try each one they suggest until one works. Tell the children that these tools function in similar ways to birds' beaks.

Say:

"The tool I am using is not a real beak, it is a model of a beak. Models can be used during an experiment to substitute objects that are impractical to experiment with."

- 2

Say:

"A bird uses its beak as a tool to eat many different kinds of things." Discuss with the children what each "bird food" represents.

wet
sponges



A.
fish

packing
noodles



B.
water
plants

pipe
cleaners



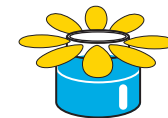
C.
caterpillars

rubber
bands



D.
earthworms

decorated
baby food jar



E.
flower
containing
nectar

beans



F.
seeds

WHAT'S FOR DINNER?

Activity Leader's Guide

- 3** **Say:**
"Today we will pretend to be birds. Each of you is going to get a tool that you will use as a beak. As you explore what kind of food you can pick up with your beak, I will ask, 'Little bird, little bird, what do you eat?' You will answer, 'a yummy (type of food), good as can be.' For example, if you are picking up a rubber band with your beak you will say, 'A yummy worm, good as can be.'"

Explore

- 4** If you are working with more than 4-6 children, divide the children into groups. Distribute the Data Collection Sheets and the Learning Cards. Distribute beaks and cups.

Say:

"Follow the directions on the Learning Card to investigate what food your bird can eat with its 'beak.' I will blow the whistle and you will have one minute to pick up food with your 'beak' and put it in your cup. When the minute is up, I will blow the whistle again, and ask you to stop."

- 5** Allow children enough time to complete the WONDER, EXPLORE, RECORD and CONCLUDE sections of their Learning Card.

Conclude

- 6** Gather the children together to complete the Learning Card. Ask the following questions:

"What food was your 'beak' best able to pick up?"
Allow the children to use their Data Collection Sheets to talk about their results.

"Why was your 'beak' best at picking up this type of food?" Encourage the children to describe the shape of the "beak" and what made it good at picking up a particular food. Discuss how the shape of the "beak" is an adaptation which helps the bird eat certain food.

"How does the shape of the beak give the species of bird a better chance of survival?" Birds are able to gather more food if they try to find the food their beak is best at eating. By specializing on one kind of food, birds don't have to compete with other species of birds for the same kind of food.

Expand

- 7** If time permits, ask the children to follow the EXPAND instructions on their Learning Card.

Ask:

"Where can you find the type of food your bird was able to pick up?"

The focus of the discussion with the children is that the places where birds find food they can eat are the habitats where they will survive best.

In the EXPAND activity children will draw their bird's habitat. Ask the children to share and describe/explain their drawings.

- 8** **Say:**
"Congratulations! You have earned your 'Ask Me About Birds' stamp. You are ready to tell people about birds."

WHAT'S FOR DINNER?

Expedition Learning Card



What kind of food can a bird's beak pick up?



adaptation
beak
model



Explore how the shape of a bird's beak is related to the food it eats.

1

WONDER Examine your "beak." What food do you think your bird beak is best adapted to eat?



Write or draw your ideas on your Data Collection Sheet.

2

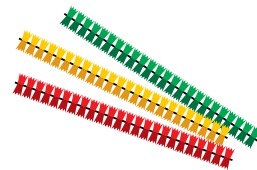
EXPLORE Pretend that you are a hungry bird. The tool in your hand is a model of a bird beak. At your station there are different models of "bird food." Try to pick up each type of bird food with your beak and put it in your cup.



A.
fish



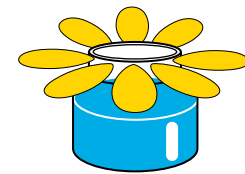
B.
water
plants



C.
caterpillars



D.
earthworms



E.
flower
containing
nectar



F.
seeds

3

RECORD Use the Data Table to tally how much of each type of food you were able to collect.



How much of each type of food did your model beak collect?

WHAT'S FOR DINNER?

Expedition Learning Card

4 CONCLUDE Look at the pictures of birds and what they eat.
Which bird are you?



hummingbird

nectar



warbler

*earthworms
caterpillars*



crow

*earthworms
caterpillars
seeds*



duck

*aquatic
plants*



kingfisher

fish

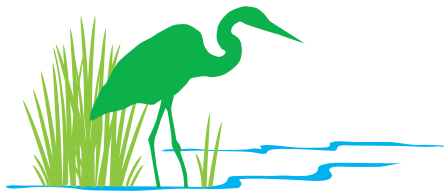


parrot

seeds

5 EXPAND You just learned that the shape of a bird's beak helps to determine the type of food that it can pick up and eat. The place where an animal lives is called its habitat. In order to find food that your bird can eat, what kind of habitat would it live in?

 Draw your bird's habitat on the Data Collection Sheet. Be sure to draw the food the bird can eat, too!



Discovery

Why did we do that?

- Birds use their beaks to collect food.
- There are different beak shapes.
- The shape of a bird's beak can tell you what the bird is adapted to eat.

Congratulations!

You have earned your "Ask Me About Birds" stamp! Now you are ready to tell people about birds.

