

HUNGRY BIRDS

Topic

Adaptations, Change

Duration

One session

Vocabulary

adaptation
beak (bill)
carnivore
forage
lower mandible
omnivore
shorebird
upper mandible

STANDARDS

Practices

Developing and Using Models

Core Ideas

Structure and Function

Crosscutting Concepts

Cause and Effect

OCEAN LITERACY PRINCIPLES

OLP 5

FOCUS QUESTION

Why do shorebirds have beaks that are shaped differently?

OVERVIEW

Students examine photos of a herring gull (*Larus smithsonianus*) and a spotted sandpiper (*Actitis macularius*). Students use manmade tools that are similar to the shapes of these shorebirds' beaks to attempt to pick up objects of various sizes. Students predict what types of food these shorebirds eat and how they catch their prey based on their photo examinations and tool experiment. Students discover and record how each bird hunts and what each bird eats.

OBJECTIVES

Students will be able to

- ★ Identify the “beak” of shorebirds and their specific functions
- ★ Explain how different shorebirds use their beaks for different tasks
- ★ Compare and contrast the herring gull (*Larus smithsonianus*) and spotted sandpiper (*Actitis macularius*)

MATERIALS NEEDED

- ★ Herring Gull Photo Page and Spotted Sandpiper Photo Page (one per group, pages 75, 76)
- ★ Salad tongs or whisk tongs and needle-nose pliers (two per group)
- ★ Four different-sized objects the size of a fish, egg, blue mussel, and small insect (one set of objects per group—see Teacher Tips)
- ★ Hungry Birds activity sheet (one per student, page 74)

TEACHER PREPARATION

1. Each student will need a copy of the Hungry Birds activity sheet.
2. Each group will need a copy of the Spotted Sandpiper Photo page and Herring Gull Photo page.
3. Prepare salad tongs or whisk tongs, needle-nose pliers and different-sized objects for each group.
4. Teachers will need easy access to a whiteboard or interactive whiteboard to record facts to assist with completing the Hungry Birds activity sheet.





Teacher Tips

- ★ Suggestions for objects for the manmade tool experiment include one bottle of water, one tennis ball, one pink eraser, and a small marble or pom-pom.
- ★ Use a Venn Diagram to further demonstrate the similarities and differences between the herring gull and spotted sandpiper.



Extension Suggestions

- ★ Take a walk with students outside of the school and have them observe the birds and take notes on their characteristics. Use this as either a starter for this lesson, or as an extension to further discuss the concept of adaptations and specialized body parts of birds.

BACKGROUND

Birds, including those found at the rocky shore, have beaks that are different shapes and sizes. A bird's beak has two parts—the upper mandible and the lower mandible. The upper mandible grows out of the skull and does not move independently from the skull. The lower mandible can move independently like a human jaw because it is hinged. A bird's beak is covered with skin that produces a substance called keratin. The keratin helps make the beak hard and durable.

Birds' beaks have many different functions. They can be used for catching and eating prey, grooming, making nests, protection, courtship, and feeding their young. Two specific birds found at the rocky shore are the herring gull (*Larus smithsonianus*) and the spotted sandpiper (*Actitis macularius*). These two shorebirds have distinctively shaped beaks. The herring gull's beak is a large, slightly hooked yellow bill with a red spot on the end. The spotted sandpiper's beak is a straight and slender orange bill with a black tip.

The herring gull is an omnivore and eats almost anything including mussels, crabs, sea urchins, small mammals, insects, birds, eggs, carrion, and garbage. They obtain their food in many ways such as diving into the water for food or taking it from the surface of the water, scavenging for food on land, dropping prey such as clams and mussels on rocks to break them open, and they also steal from other birds.

The spotted sandpiper is a carnivore and eats insects, crustaceans, worms, mollusks, and more. They obtain their food by foraging along the edge of the ocean, lakes, and streams. They walk back and forth and then dart at their prey. Sometimes they catch insects in the air. While hunting for food, spotted sandpipers will often bob their tail up and down which has earned them the nickname of “teeter-tail.”

PROCEDURE

Part One

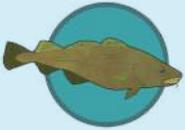
1. Ask students what types of birds they see on the playground or in their yard.
2. Ask students to recall the differences they have seen in the types of birds they mentioned.
3. Inform students that shorebirds—birds that reside or frequently visit the ocean's shore—have similar differences such as size, color, shape, and behavior.
4. Emphasize that one major difference between shorebirds is the size and shape of their beaks, and an example of shorebirds with different-sized beaks are the herring gull (*Larus smithsonianus*) and the spotted sandpiper (*Actitis macularius*). Inform students of the Latin form of the names as well.





Books

- ★ *Salty Seagull: A Tale of an Old Salt* by Suzanne Tate
- ★ *Shorebirds* by Melissa Stewart



Websites

- ★ Check out photos and videos of the American herring gull and the spotted sandpiper at the Internet Bird Collection website!
- ★ Watch a BrainPOP video on birds and take the quiz! (Subscription required.)



Scientist Notebook

- ★ Students can record the definitions of shorebirds, forage, omnivore, and carnivore. Students can paste the Hungry Birds activity sheet into their notebook.

PROCEDURE (CONTINUED)

5. Ask students why they think birds have different-sized beaks.
6. Inform students of the various functions of birds' beaks.
7. Inform students that they are going to look at photos of the two shorebirds mentioned, as well as use manmade tools to pick up objects that are similar in shape and size to these shorebirds, in order to predict 1) what types of prey these shorebirds hunt, and 2) how these shorebirds hunt for food.

Part Two

8. Have students get into groups of three or four to examine the Spotted Sandpiper Photo Page and the Herring Gull Photo Pages (pages 75, 76).
9. Have each student in each group take turns picking up objects with the manmade tools (salad tong or whisk tong and needle-nose pliers).
10. Have each student fill out the Hungry Birds activity sheet (page 74).
11. When students complete their predictions, have them share their predictions with the class and record them for everyone to see.
12. Share the facts of what each shorebird eats and how each shorebird hunts using the information in the "Background" section and have students record the answers on their Hungry Birds activity sheet.

WRAP-UP

- ★ Ask students to identify the different functions of a bird's beak.
- ★ Ask students to recall the similarities and the differences of the herring gull and the spotted sandpiper.
- ★ Remind students that adaptations are the body parts or behaviors that organisms use to live or survive easier in their ecosystem, and that shorebirds have adaptations, too—including their beaks.
- ★ Students may bring their own sheets home, or paste them into their science notebooks (if applicable).



HUNGRY BIRDS

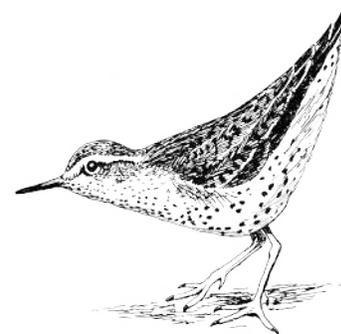
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Date: _____



DIRECTIONS

Look at the photos of the Herring Gull and the Spotted Sandpiper. Attempt to pick up objects using the tongs and the pliers. Make predictions below of how you think each bird hunts and what each bird eats.



	Herring Gull (Larus smithsonianus)		Spotted Sandpiper (Actitis macularius)	
	Your Predictions	What is Fact	Your Predictions	What is Fact
How do they hunt?				
What do they eat?				



HERRING GULLS



SPOTTED SANDPIPERS

