



BIRDS: CHOMPERS AND STOMPERS (K-2)

Overview: In this activity, students will learn how birds use their beaks and feet. They will hear a story about different types of birds and how they use their beaks and feet. Then the children will use photographs to help them categorize different beaks and feet.
Content Standards Correlations: Science, p. 309

Grades: K-2

Key Concepts: Birds have adaptations that enable them to eat certain types of food and live in certain habitats. Two of these adaptations are the shape of the bird's beak and design of the bird's feet.

Objectives:

Students will be able to:

- define adaptation
- describe how birds' beaks and feet are adapted to live in certain habitats and to eat certain types of food
- name one thing they can do to protect habitats for birds

Materials:

Provided by the Refuge:

- 1 Annie the Avocet storyboard
- 1 set of visuals of different bird adaptations.
- 1 set mounted beaks and feet of a variety of bay area birds
- 1 set of photographs of birds
- 1 set beaks and feet questions on index cards



TIME FRAME FOR CONDUCTING THIS ACTIVITY

Recommended Time: 30 minutes

Introduction (4 minutes)

- discuss beaks and feet adaptations

Annie the Avocet Story (8 minutes)

- read Annie the Avocet, using the storyboard to illustrate the story

Beaks and Feet Match-up (16 minutes)

- hand out all of the beaks and feet to the students (at least one per student)
- direct the students to place their beaks and feet next to the pictures of the matching bird
- after all of the beaks and feet are matched to the correct picture, ask the discussion questions

Closing Discussion (4 minutes)

- lead a closing discussion about the refuge

HOW THIS ACTIVITY RELATES TO THE REFUGE'S RESOURCES

What are the Refuge's resources?

- significant wildlife habitat
- endangered species
- migratory birds

What makes it necessary to manage the resources?

- Birds may eat or become entangled in trash such as balloons, fishing line, and styrofoam peanuts.

What can students do to help?

Refuge staff conduct a Coast Clean-Up, however, we need your help!

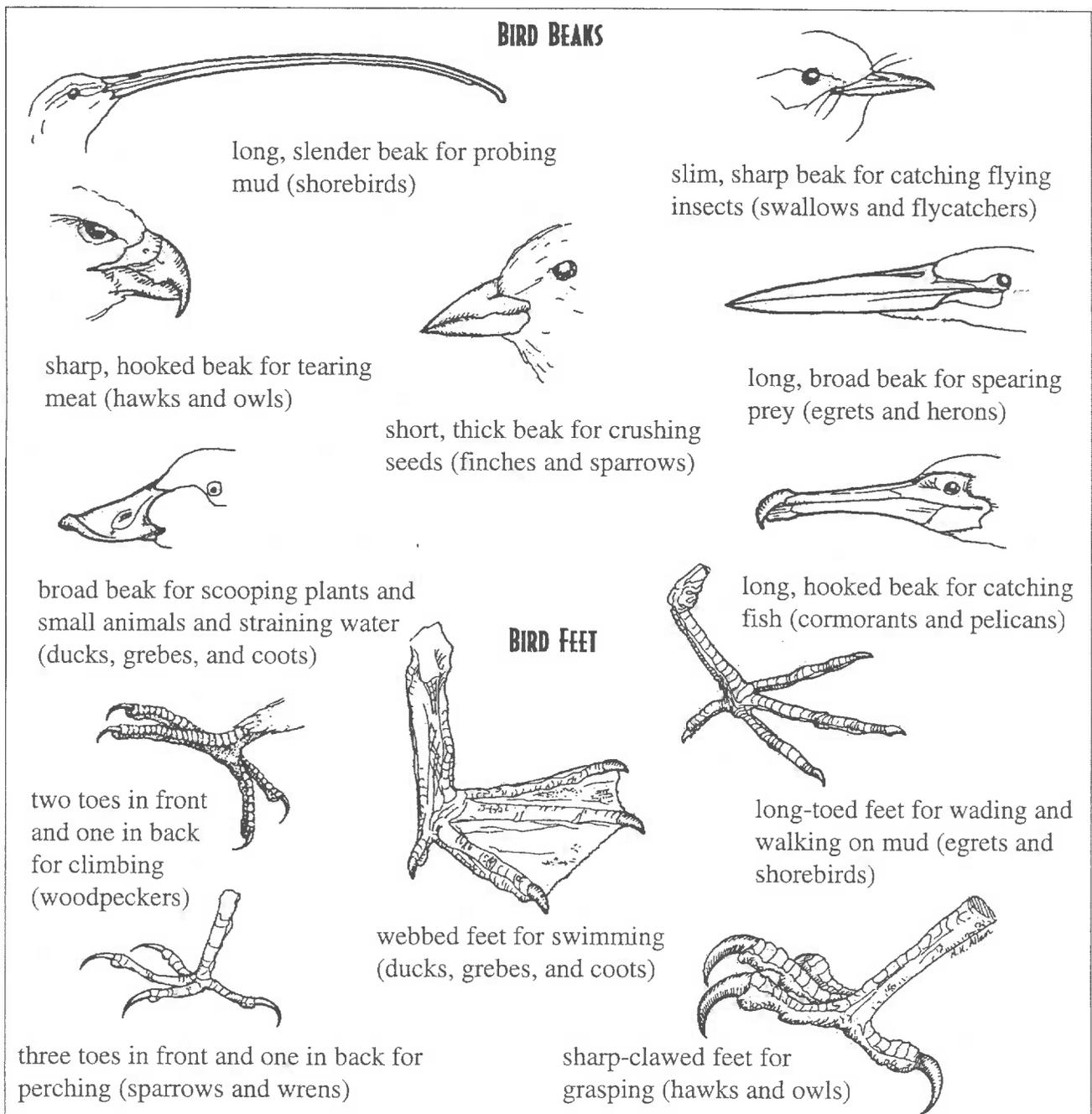
- Be responsible for your own trash
- Participate in a Coast Clean-Up
- Teach others what you have learned about birds

SUPPORTING INFORMATION FOR THIS ACTIVITY

- San Francisco Bay National Wildlife Refuge provides a variety of habitats for many species of birds. Birds rely on the habitats at the refuge to rest, eat, nest, and raise their young.
- The wetland habitats at the Refuge are especially vital to the survival of migratory birds.
- Millions of birds migrate through the South Bay area every year as they follow the Pacific Flyway, stopping at wetland habitats to feed and rest.
- Some birds are flying from their breeding grounds in Arctic Canada and Alaska to their wintering

grounds in Baja California or South America. Others nest here, but migrate to milder climates in the south for the winter. Some birds spend their winters in the marshes and fly north to breed. Other birds do not migrate at all. They remain in the area as “permanent” residents.

- Birds using the habitats around the bay have specialized beaks and feet that determine the type of food they eat and the type of habitat they live in. Look at the Beaks and Feet Identification Chart below to get an idea of the variety of these adaptations.



HOW TO LEAD THIS ACTIVITY BY FOLLOWING THE "DO, READ, ASK" TEACHING FORMAT

Introduction (4 minutes)

Do

Have all the students sit down in front of you.

Read

"The shape of a bird's beak and the design of their feet allow them to eat certain kinds of food. We are going to read a story about a bird and what happens when she changes her beaks and feet. Then we will look at some real beaks and feet and try to match them with the right bird."

Ask

? Do all birds have the same beaks and feet?

(No. Since different types of birds use their beaks and feet in different ways, birds beaks and feet come in a lot of different shapes and sizes.)

? Can you think of some of the ways birds use their beaks and feet?

(Beaks: To probe for creatures in the mud, to catch flying insects, to act like a strainer, to catch fish, and to tear meat.

Feet: for wading and walking on mud, for perching, for grasping, capturing, and carrying prey, and for swimming.)

? What does adaptation mean? (A change in a living thing that helps it survive.)

? Why do birds have different beaks and feet?

(Each type of bird has a special beak and tongue adapted to eating a certain type of food. Just like we use our hands and mouth to eat food, each bird has a beak specially designed for the the kind of food it eats. For example, hawks and owls have sharp hooked beaks for tearing meat.

The same goes for feet. Birds are adapted to living in different habitats. For example, some birds need feet to swim, while others need long legs so they can walk in the mud.)

? Think about a duck. Can you describe a duck's beak and feet? (Webbed feet and wide, flat beak.)

? Think about a shorebird, such as a sandpiper or an avocet or a black-necked stilt. Can you describe a shorebird's beak and feet? (Long, straight, pointed beak and long legs and toes, sometimes with webbing between the toes.)

? Think about a hawk. Can you describe a hawk's beak and feet? (Sharp, hooked beak and sharp-clawed feet.)

Annie the Avocet Story (8minutes)

Do

Hold the Annie the Avocet picture board so all of the students can see it as you read the story and turn the wheels. Turn all three of the circles on the back of the storyboard to #1.

Read

"In a salt marsh of San Francisco Bay, Annie the avocet is munching on her dinner. Annie uses her long beak to swish back and forth in the top layers of water and mud and eat small creatures like brine shrimp."

Ask

? Why do you think she has such long legs? (To walk in the deep water to find food.)

? What do you think the little webs between her toes are for? (Sometimes she swims after food in the slough and the salt ponds.)

Read

"Annie is a very curious bird. She often wonders what it would be like to be another bird. One day, Sammy, the snowy egret flies overhead (**point out the snowy egret on the board**). Annie notices Sammy's beautiful long black legs and golden feet and his long, black beak. She is jealous and tells Sammy that she wishes she could be any bird other than an avocet. "Avocets are boring," Annie says. Sammy, the snowy egret, tells Annie that once he had wanted to be a different kind of bird, too. He had learned that by saying "Shooby Doo Beat, Change My Beak And Feet," he could change into any bird that he wanted to. In the end though, Sammy learned that being an egret was the best for him. "You'll learn that being an avocet is the best thing for you, Annie, but you can spend some time being different birds."

"Annie immediately says, "Shooby Doo Beat, Change My Beak and Feet I want to be a snowy egret."

Let's say it with Annie: "Shooby Doo Beat, Change My Beak and Feet, I want to be a snowy egret (**change the circles to #2**)." Now Annie has black legs, golden feet, and a long, straight, black beak. As a snowy egret, she looks for food in the slough water."

Ask

? **How does she use her golden feet and long legs to get her food?** (She walks quickly through the water, using her golden feet to stir up the water and the creatures in it.)

? **How does she use her long, pointy beak?**

(She pokes it into the water and stabs at crabs, shrimp, fish, and insects.)

Read

"Annie sees a barn swallow surf by on the wind currents and decides she wants to try out being a barn swallow.

"Let's say with Annie: "Shooby Doo Beat, Change My Beak And Feet, I want to be a barn swallow (**change the circles to #3**).” Annie enjoys the first few moments of soaring quickly in the wind. Feeling hungry, she learns how to use her beak to catch flying insects, and occasionally berries and seeds. She lives in a nest built on the wall of a building or under the bridge."

Ask

? **How does she use her feet?** (She uses her feet to hold onto branches, her nest and the walls and ledges of buildings.)

Read

"Being a barn swallow is fun, but Annie wants to try being a bird that is bigger than an avocet or swallow. She remembers that a barn owl is bigger. Let's say with Annie: "Shooby Doo Beat, Change My Beak And Feet, I want to be a barn owl (**change circles to #4**).” As a barn owl, Annie sleeps during the day and hunts at night."

Ask

? **What kinds of food does Annie eat as a barn owl?** (Mice, rats, voles, rabbits, and small birds.)

? **How does she use her feet to catch these small animals?** (She flies over fields and marshes and silently swoops down and grabs the animal with the strong talons (claws) on her feet.)

? **How does Annie digest her food?** (Annie's first stomach digests the parts of her prey that she can use as food and then her second stomach compacts the bones and fur and feathers into a pellet. Annie then regurgitates (spits up) the pellet before the next day's hunting adventure.)

Read

"Annie enjoys the exciting life of an owl, hunting at night and using her sharp talons and beak to tear apart her food, but she begins to miss the thrill of hunting for food in the water."

Ask

? **What's another bird that lives in the water?**

(A duck.)

Read

"Let's say with Annie: "Shooby Doo Beat, Change My Beak And Feet, I want to be a mallard duck (**change circles to #5**).”

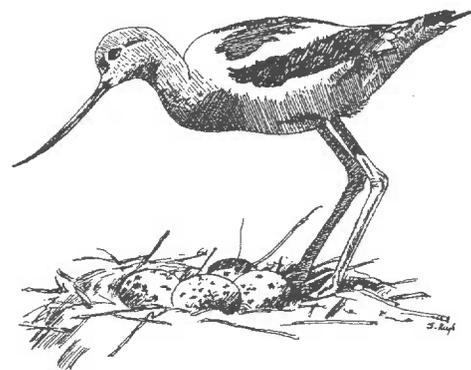
Ask

? **How does Annie use her webbed feet?** (To paddle through the water.)

? **How does she use her beak?** (Like a spoon, skimming it along the top of the water for plankton and algae, or she may tip her rear-end into the air and reach for plants, seeds, and snails found at the bottom of the slough.)

Read

"Annie enjoys being a mallard duck for awhile, but she realizes that she misses being an avocet. All of the other birds lead different lives; they use their beaks and feet differently, eat different foods and live in different niches. Annie realizes that being an avocet is as important as being an owl or an egret or a swallow or a duck. Annie says "Shooby Doo Beat, Change My Beak And Feet, I want to be an avocet (**change circles to #1**).” Annie is finally an avocet again, swishing her beak in the water for food and wading into the water with her long legs. Annie is so happy to be herself again. Sammy the Snowy Egret flies by and waves to Annie the avocet. "Welcome back," he yells."



Beaks and Feet Match-up: (16 minutes)

Read

“Now that you have learned about beaks and feet, we are going to try to put the beaks and feet of actual birds into groups.

You must figure out how the bird uses its beaks and feet. You must look at the description of the beak and determine whether your beak or foot is best for that job. You will then place your beak or foot under the image of the group it matches with.”

Do

- Pass out all of the beaks and feet models. Give each student at least one.
- Point out the visuals of the birds laying on the table and assist the students as they put their beaks and feet into groups. The names of the birds are on the backs of the mounts and visuals.
- (Note: all of these beaks and feet came from birds that were found dead on the refuge.)
- Once the students have put the beaks and feet in the correct groups have them stand next to the visual that they placed it under.

Read

“Let’s try to answer some questions about these birds and their beaks and feet.”

Do

Using the question cards supplied, ask the following questions about the beaks and feet. Answers are also on the backs of the cards.

Question Cards

Ask

? Describe what a beak that is used for probing in the mud looks like. (Short to long, slender, mostly straight beaks. This beak discovers food through its sense of touch.)

? Can you name some birds with this kind of beak? (plover, black-necked stilt, willet, yellowlegs, curlew, sandpiper)



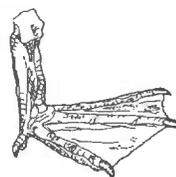
? Describe what a beak that is used for fishing looks like. (A short to long, sharp-edged beak for holding fish.)

? Can you name some birds with this kind of beak? (tern, egrets, herons, cormorant)



? Describe what feet that are used for swimming look like. (Large feet with webbed toes.)

? Can you name some birds with these kinds of feet? (ducks, geese, gulls, cormorant, pelicans)



? Describe what a beak that is used for tearing into the flesh of an animal looks like. (A strongly hooked beak, with knife-like edges for tearing into prey.)

? Can you name some birds with this kind of beak? (herons, eagles, shrike, owls, kites)



? Describe what a beak that is used for scooping, grasping, and straining looks like. (A flat, wide beak with tooth-like edges for straining and sifting food in the water. This beak has a sensitive lip to identify food textures.)

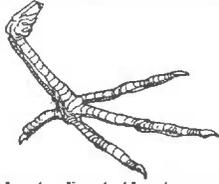
? Can you name some birds with this kind of beak? (coots, geese, ducks)



? Describe what feet that are used for wading and walking in the mud look like. (Wading birds)

usually have long legs and long slender toes without webbing.)

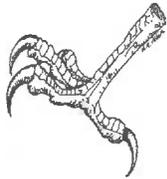
?Can you name some birds with these kind of feet? (willet, yellowlegs, sandpiper, egrets, clapper rail)



? Describe what feet that are used for grasping, capturing, and carrying prey look like.

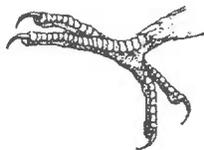
(Powerful legs and strong feet that can grasp prey with sharp, hooked talons (claws).)

?Can you name some birds with these kinds of feet? (northern harrier, kestrel, eagles, owls, kites, hawks)



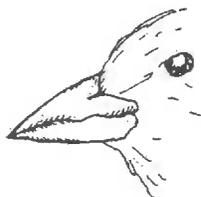
? Describe what feet that are used for perching look like. (Feet with 3 toes in front and 1 long toe behind. Feet automatically lock bird to its perch while sleeping.)

?Can you name some birds with these kinds of feet? (western meadow lark, heron, swallows, sparrows, red-winged blackbird, hummingbirds, marsh wren, owls, hawks, egrets)



? Describe what a beak that is used for eating seeds and insects looks like. (Short, sharp, pointed beaks.)

?Can you name some birds with these kinds of beaks? (western meadowlark, red-winged blackbird, ring-necked pheasant, swallows)



Closing Discussion (2 minutes)

Read

“One reason this refuge exists is to protect migratory birds. Don Edwards San Francisco Bay National Wildlife Refuge provides habitats for many birds to rest, eat, nest, and raise their young.”

Ask

? What happens to birds when habitats around the San Francisco Bay are destroyed? (The birds don't have anywhere to feed or nest or rest while migrating.)

? Can the birds that are adapted to live in the marshes move to the forests? (No. They are not adapted to live and feed in the forest.)

? Can birds that usually feed on mud creatures start eating grasses? (No. Their beaks are not designed to eat grasses.)

? How does trash in Refuge habitats harm birds? (Birds may eat or become entangled in trash, such as fishing line, styrofoam peanuts, or balloons.)

? How can you help the Refuge protect birds from trash? (Don't pollute; help pick up trash; participate in a Coastal Clean-Up; and learn about the habitats and birds and tell others.)

