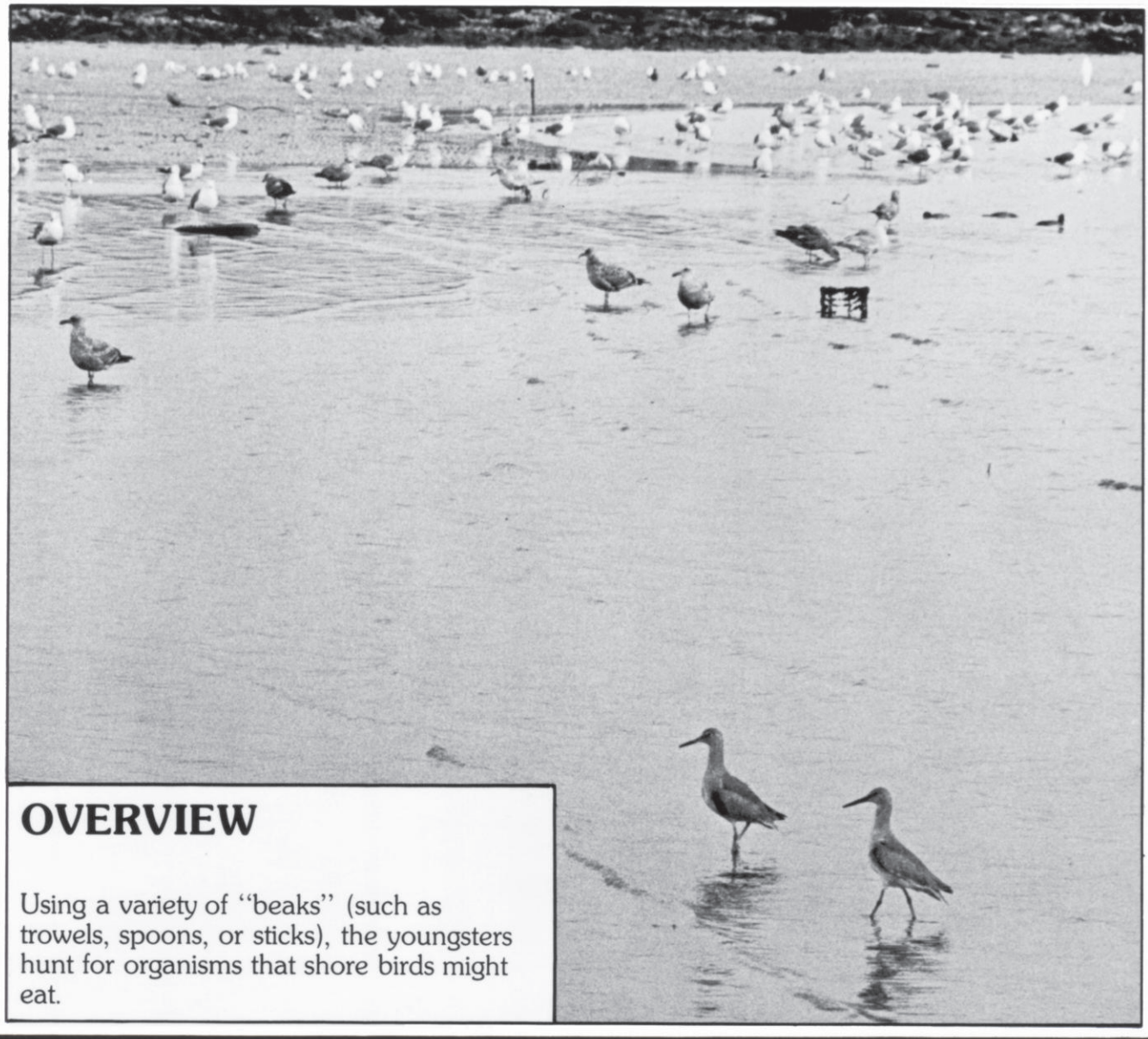
FLOCKING TO FOOD

BIO KEY

Plant/Animal Investigation
Organism Search
Feeding Adaptations



OVERVIEW

Using a variety of "beaks" (such as trowels, spoons, or sticks), the youngsters hunt for organisms that shore birds might eat.

BACKGROUND

Marshes and tidal flats provide homes for large numbers of surface dwelling and burrowing animals. These animals (worms, clams, snails, and crabs, just to name a few) are preyed upon by many different kinds of shore birds. During low tide, hundreds of shore birds of several different kinds may feed on a tidal flat at the same time.

Shore birds have diversified features (e.g. beak size and shape, body size, leg length, and feeding behavior) that enable each kind of bird to catch and eat prey in certain areas or levels of a tidal flat. Sandpipers, for example, use their short, tiny beaks to pick up small worms and crustaceans on or just under the surface of the mud. Willets thrust their long, tapered beaks down into the mud to probe for deep dwelling worms, mollusks, and other burrowing animals. Because each kind of shore bird specializes in

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feeding on certain organisms in different areas of a tidal flat, competition for food is mainly among birds of the same kind. This is the reason why so many different kinds of shore birds can feed together on the same mudflat.

CHALLENGE: USE YOUR "BEAKS" TO SEARCH FOR ORGANISMS THAT A SHORE BIRD MIGHT EAT.

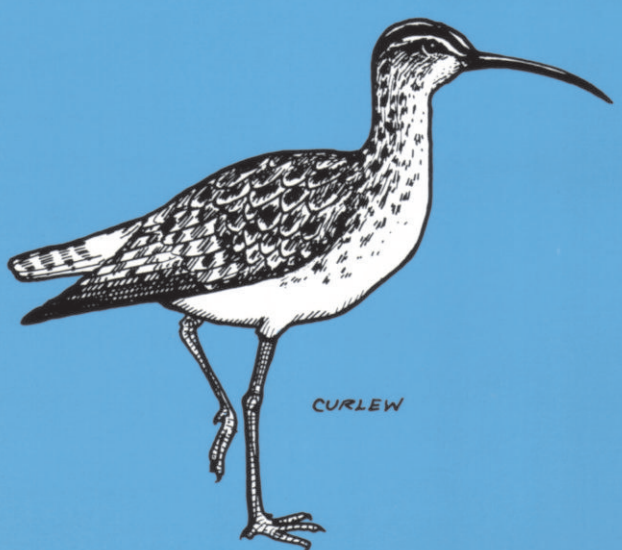
MATERIALS

For each team of two:
2 "beaks" (e.g. trowels*, spoons*, and popsicle sticks*)
2 "stomachs" (half a milk carton or other suitable container)
1 magnifier*
2 large index cards* and pencils

For the group:
1 tide table (for saltwater sites)
1 "Use of the Tide Table" Technique Card*

For optional use:
a guide to local shore birds
binoculars

* Available from Delta Education.



PREPARATION

Group Size. This activity is suitable for any size group.

Time. Plan on forty to fifty minutes for this activity.

Site. Choose any area where shore birds frequently feed, but avoid sites with deep soft mud. Before conducting this activity, check the fish and game regulations for your area to determine if there are any restrictions.

Safety. When working around the water, use the buddy system. (See the "Safety" section of the *Leader's Survival Kit* folio.) Ask the youngsters to wear old clothes and shoes for the activity.

Tide Table. If you are working at a saltwater site, familiarize yourself with the use of a tide table, and choose a low tide for the activity period. (See the "Use of the Tide Table" Technique Card.)

BRING 'EM BACK ALIVE!

Stress the importance of being careful with all living organisms. When organisms are collected for observation, they should be returned after the investigation to the place where they were found. Some organisms, such as mussels, barnacles, and kelp, are firmly attached to solid surfaces. The youngsters can make sketches of the organisms that would be harmed by removal.

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ACTION

1. Point out any shore birds feeding at the site, and tell the youngsters that the area is a popular feeding area. Ask the group to watch the birds for a while. (Use binoculars if they are available.) Ask if all the birds are the same. Are they feeding in the same areas and acting the same? Ask the group what they think shore birds eat.

2. Point out limits for the activity site, and ask everyone to stay within those boundaries during the activity. (Fifty to one hundred meters of shoreline should be adequate.)

3. Explain that the youngsters are going to pretend to be shore birds searching for something to eat.

4. Give each youngster a "beak" and a "stomach." Tell the youngsters to be careful when handling organisms. (See the "Bring 'Em Back Alive!" section.) Mention the index cards and pencils for sketching organisms that would be injured by removal.

5. Challenge the kids to use their beaks to dig into the mud and search for organisms that a shore bird might eat. Explain to the kids that they must search with their beaks, but can use their hands to pick up organisms and temporarily place them in their stomachs. (A little salt water and mud in the stomachs will help to keep the animals healthy.)

6. While keeping an eye on the group, grab a beak and stomach and join in the search yourself.

7. After twenty to thirty minutes, call your birds back to compare the contents of their stomachs. By placing the stomachs on the ground, you can easily examine the different organisms.

FOOD FOR THOUGHT

1. While the participants are comparing the organisms in their stomachs, raise some of the following questions:

- Which organisms were easiest to find? Easiest to catch?
- Where were the best hunting areas? Describe the places where you found particular animals or plants.
- Which animals were found above the ground? Beneath the ground?
- Where were most of the plants found?

2. Ask the teams to compare the organisms that were found with different beaks. Were the same organisms found by each team or did the type of beak that a team used make a difference? Ask the teams to explain their answers.

3. Direct each participant to choose one of the organisms from their stomachs. Ask the group what kind of beak would be best suited to capture that organism. Suggest that the kids draw their beak ideas in the mud or sand. Ask some of the kids to explain their beak designs.

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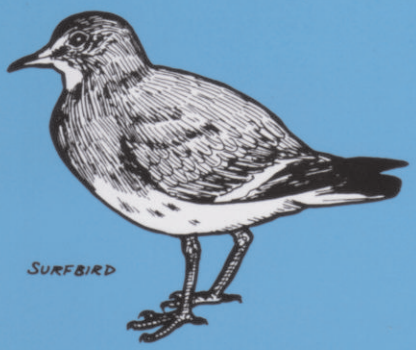
4. Add that each kind of shore bird has a special type of beak that is suited for finding and eating certain organisms. Mention the examples in the "Background" section. Explain that features such as a shore bird's beak that help an organism to survive and reproduce are called ***adaptations***. Ask the group what kinds of adaptations they would want to have to help them survive if they were shore birds.

5. Tell the kids to return the organisms to the places where they were found. Ask the youngsters to watch how the animals dig back into the sand or mud.



BRANCHING OUT

1. Ask the group how shore birds might detect burrowing animals that live beneath the surface. Do the birds appear to see, hear, feel, or smell the organisms? Send the kids into the site to use their senses to pinpoint the location of burrowing animals. (Hint: Search for evidence of bird-feeding activity, such as tracks, droppings, probe holes, and broken shells.) Hand out digging beaks for checking out selected locations.

2. By watching different shore birds' feeding behavior, can you determine what they are eating? Mention that ***behavior*** is a term for "what animals do." Shore birds tend to use their beaks or behave in certain ways when they feed. Feeding behavior is just one of the many behavioral adaptations that help animals to survive and reproduce.

3. Repeat the activity at a different site and compare the organisms that are found.

USE OF THE TIDE TABLE
For Aquatic Activities
Technique Card

In a tide table (available from boating, fishing, and diving shops), you can find the height of the tide in your area for any time of day. Leaf through your table. You may see a range of tides from minus several feet to plus six to ten feet, depending on your area of the coast. Areas may differ, but the range will be consistent for your area month after month.

From the information in the table, you can determine the vertical height of the intertidal zone. (Subtract the lowest low from the highest high.) Let us say that in looking in the tide table for the day and time you wish to investigate, you find that the tide is two feet. This means that all but two feet of the intertidal zone is exposed.

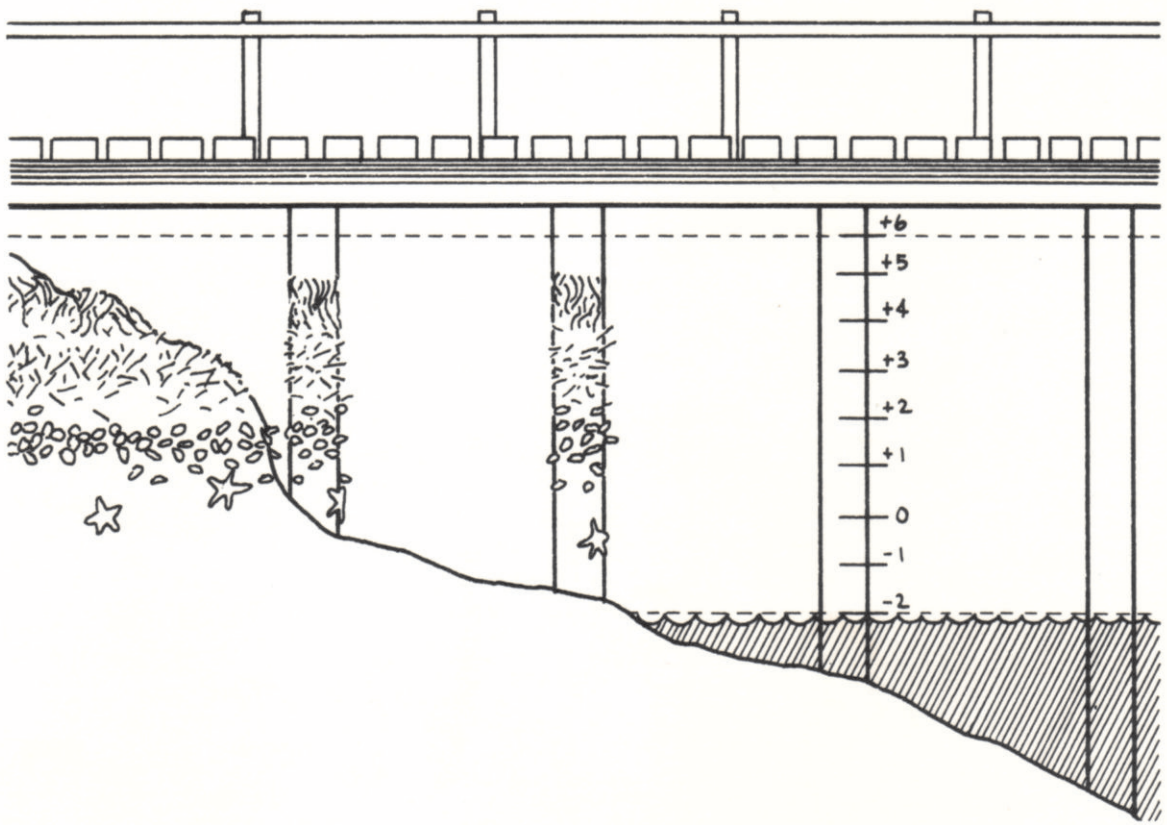
If it is not a high or low tide at the time you want to study your coastal community, you will have to estimate the height of the tide.

Example: You meet your group at 10:00 a.m.

The tide table reports:

Low Tide:	6:53 a.m.	1.5′
High Tide:	1:10 p.m.	5.1′

10:00 a.m. is about half way between 6:53 a.m. and 1:10 p.m., so your tide will be about half way between 1.5′ and 5.1′, or about 3.2′, and coming in (flood tide). After 1:10 p.m. the tide will be going out (ebb tide).



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