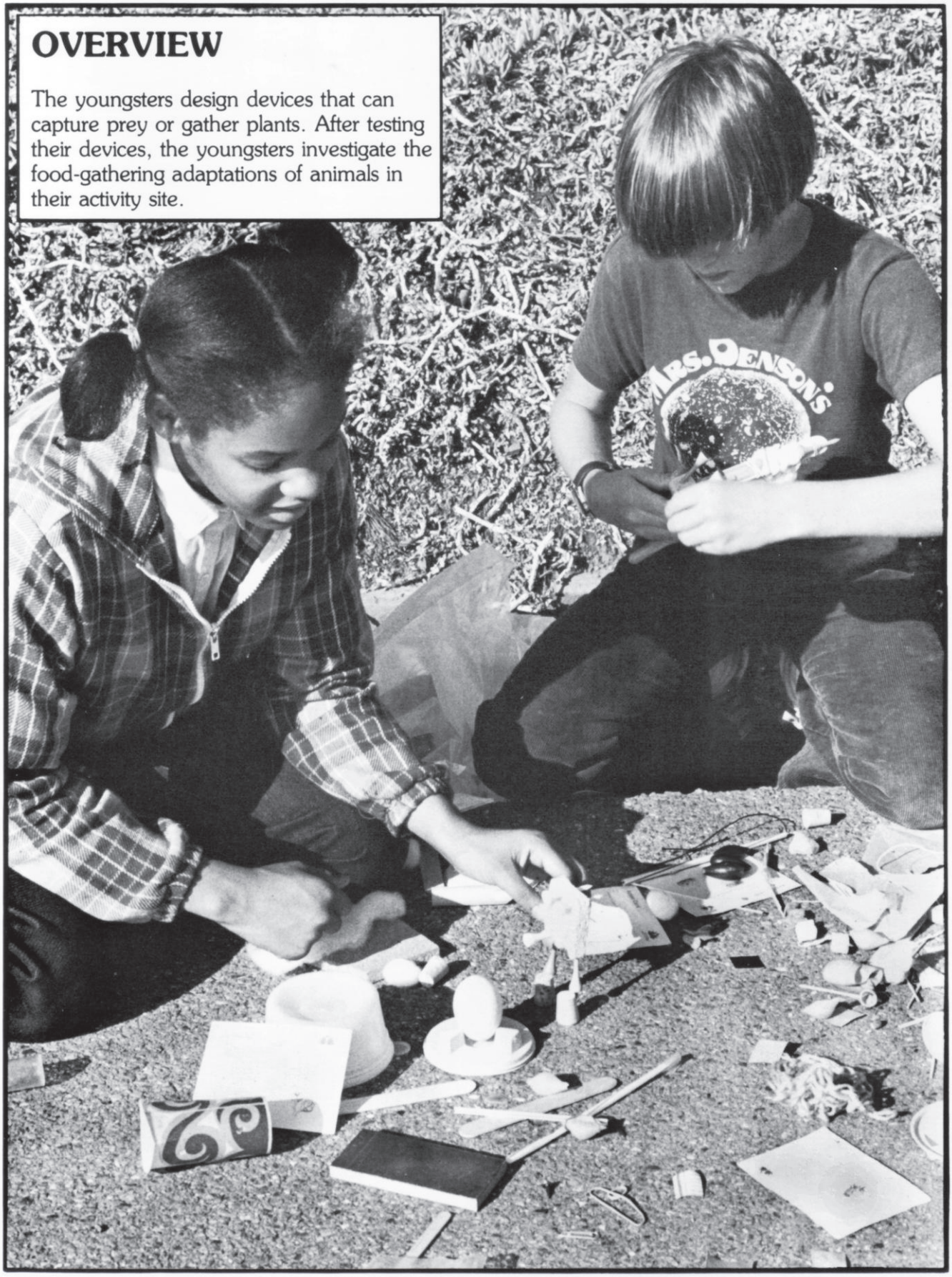
FOOD GRAB

BIO KEY

Arts and Crafts
Simulation
Food-Gathering Adaptations

OVERVIEW

The youngsters design devices that can capture prey or gather plants. After testing their devices, the youngsters investigate the food-gathering adaptations of animals in their activity site.



Published by
Delta Education
5 Hudson Park Drive
Hudson, New Hampshire 03051
(603) 889-8899

Developed by
Outdoor Biology Instructional Strategies
Lawrence Hall of Science
University of California
Berkeley, California 94720

BACKGROUND

All animals and some plants eat other organisms. Animals that eat plants are called ***herbivores*** or ***plant eaters.*** Animals that capture and eat other animals are called ***predators*** or ***carnivores.*** The animals that predators eat are called ***prey.***

Animals have a variety of adaptations that enable them to obtain food. An ***adaptation*** is a feature of an organism that helps it to survive and reproduce. A hawk captures its prey with powerful talons and then tears apart and eats the prey with its sharp, hooked beak. Sharks, such as the Great White, have large, tooth-lined jaws for grabbing and swallowing small prey whole or biting off chunks of larger prey. Pocket gophers, beavers, and other rodents feed on tough plant matter. Although such tough matter rapidly wears down their long incisors (front teeth), rodents have incisors that continue to grow at about the same rate as they wear down. Many snakes have teeth that slant back towards their throats, enabling snakes to hold onto a prey until it can be swallowed. We call adaptations such as a hawk's talons, a rodent's incisors, a shark's tooth-lined jaws, or a snake's backward-slanting teeth *food-gathering devices.*

CHALLENGE: CREATE ANIMAL DEVICES THAT WILL CATCH PREY OR GATHER PLANTS.

MATERIALS

For constructing food-gathering devices:

1 Food-Grab Junk Box* containing: toothpicks, popsicle sticks, rubber bands, construction paper, white glue, transparent tape, string, pins, paper clips, cardboard, wire, pipe cleaners, cotton, and clay
leaves, twigs, rocks, and other natural materials from the site
scissors*
1 duplicated Action Card for each youngster (Two sheets of Action Cards are provided.)

For testing the devices:

6-7 seeds or nuts (such as sunflower seeds, walnuts, acorns)
rubber fishing worms* or cooked spaghetti
hardboiled eggs
1 trowel*
1 tennis ball* or a rock

For observing real animals:

clear plastic cups* and index cards* for capturing insects, spiders, and other small animals
bug boxes* or hand lenses* for observing small animals

*Available from Delta Education.

PREPARATION

Group Size. This activity is suitable for both small and large groups.

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

Site. Any outdoor site with a level area (for the construction part of the activity) and weeds (for use in testing the plant-gathering devices) will work fine. If necessary, obtain permission to dig up weeds and pick weed leaves. The search for real animals will be successful if you select a site containing lots of insects, spiders, or other small animals.

WESTERN GARTER SNAKE

Materials. You can simulate prey for the animal-gathering devices to catch with these setups:

1. Flying Insect: Attach a piece of cotton or tape to the end of a piece of string, and tie the other end of the string to a shrub so that the "insect" hangs free.

2. Worms: Place rubber worms or pieces of cooked spaghetti on the ground.

3. Underground Animals: Bury a rock or a tennis ball about 8 cm in the ground.

ACTION

1. Define the boundaries of the activity site for the youngsters.

2. Ask the kids to spend a few minutes searching the site for plants or animals that might be food for other animals. When the youngsters return, have them report what food organisms they found. Explain that animals that capture and eat other animals are called ***predators*** or ***carnivores***, and animals that eat plants are called ***herbivores***.

3. Tell the youngsters that they will be designing food-gathering devices. Explain that some of the youngsters will be designing predator devices and the others will be making devices for eating plants. Discuss a few examples of food-gathering devices. (See the "Background" section.)

4. Give each of the youngsters one Action Card. Challenge them to use the junk-box materials you brought and any non-living materials in the site to make food-gathering devices (not entire animals) that meet their challenges. Tell the kids that they will be testing their devices to make sure they really work.

5. The Action Card challenges are listed here for your convenience. (Don't read the challenges to the youngsters.)

- Make a predator device that could catch a flying insect.
- Make a device that could dig up roots.
- Make a device that could bite off and grind up leaves.
- Make a device for breaking nuts and eating the meats.
- Make a predator device for getting at animals (gophers or moles) that live underground.
- Make a predator device that could grab or pick up an egg.
- Make a predator device for catching worms.
- Make a device to catch or gather any food of your choice in the site.

6. Set up the prey simulations while the youngsters construct their food-gathering devices.

7. When everyone has finished, set out the seeds and nuts, and point out the weeds and simulated animals that the kids can use to test their devices. Ask the youngsters to explain and demonstrate their devices before the group.

8. After everyone who wants to has demonstrated their food-gathering devices, divide the group into teams of two to three youngsters.

9. Send the teams out with clear plastic cups, index cards, and hand lenses to capture small animals. Explain that the index cards can be used to scoop small animals into the cups. When the youngsters capture small animals, they should examine the animals with hand lenses for any obvious food-gathering devices and try to figure out what the animals' food might be.

GREAT WHITE SHARK AND SEAL

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BRANCHING OUT

1. Observe a variety of animals around your neighborhood capturing prey and eating plants. Spiders, birds, grasshoppers, and cats are usually easy to find and observe.

2. Design devices that would protect animals or plants from predators; e.g. the porcupine's spines are a defense against predators.

CATCHY IDEAS

1. Why do you think there are so many different kinds of food-gathering devices?

2. What would happen if every animal had the same food-gathering device or devices?

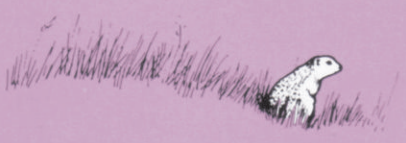
3. Explain that a food-gathering device is only one type of adaptation. Define ***adaptation*** as a feature of an organism that helps it to survive and reproduce.

4. What adaptations do prey have to avoid being eaten by predators?

5. What adaptations do people have for getting and eating food?

6. What adaptations (changes to your body) would you like to have if you were an animal that mainly fed on pine cone seeds? On frogs? On turtles?

7. Let the youngsters suggest prey that might be difficult to catch or eat. Ask the group to suggest some adaptations for catching and eating those prey.



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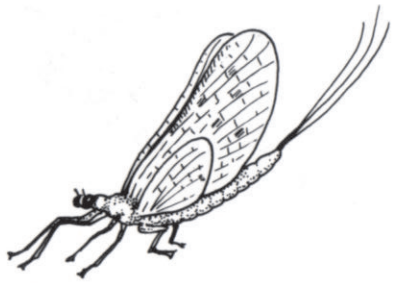
Food Grab
Action Card

Make a predator device that could catch a flying insect.

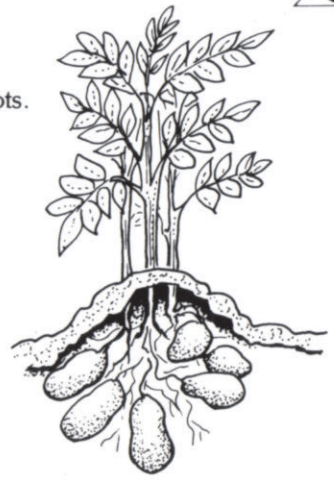


Food Grab
Action Card

Make a device that could bite off and grind up leaves.

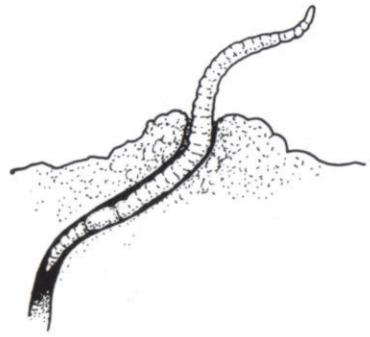
Food Grab
Action Card

Make a device that could dig up roots.



Food Grab
Action Card

Make a predator device for catching worms.



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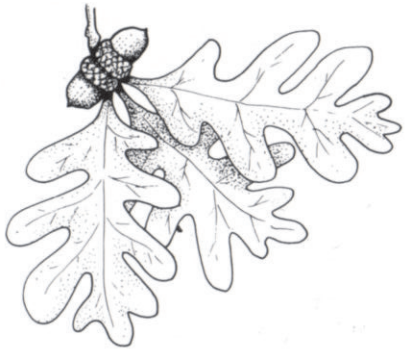
Food Grab
Action Card

Make a device for breaking nuts and eating the meats.



Food Grab
Action Card

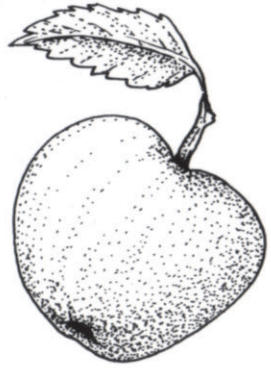
Make a predator device for getting at animals (gophers and moles) that live underground.

Food Grab
Action Card

Make a predator device that could grab or pick up an egg.

Food Grab
Action Card

Make a device to catch or gather any food of your choice in the site.



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