



## HABITATS AND FOOD CHAINS

**Overview:** In this activity, students will be introduced to habitats and food chains by studying a habitat in the schoolyard, creating a wetland habitat collage, and making food chains using wetland plants and animals.

**Content Standards Correlations:** Science, p. 289

**Grades:** K-6

**Key Concepts:** A habitat provides what living things need to survive: food, water, shelter, and space. Food chains show the way living things depend on each other for food.

**Objectives:**

Students will be able to:

- define “habitat” and describe the plants and animals of a schoolyard and a wetland habitat
- define “food chain” and describe a wetland food chain

**Materials:**

**Part 1: A Schoolyard Habitat (30 minutes)**

- paper
- pencils
- clipboard or folder

**Part 2: What is Your Habitat? (15 minutes)**

- crayons, markers, colored pencils
- paper

**Part 3: A Wetland Habitat (30 minutes)**

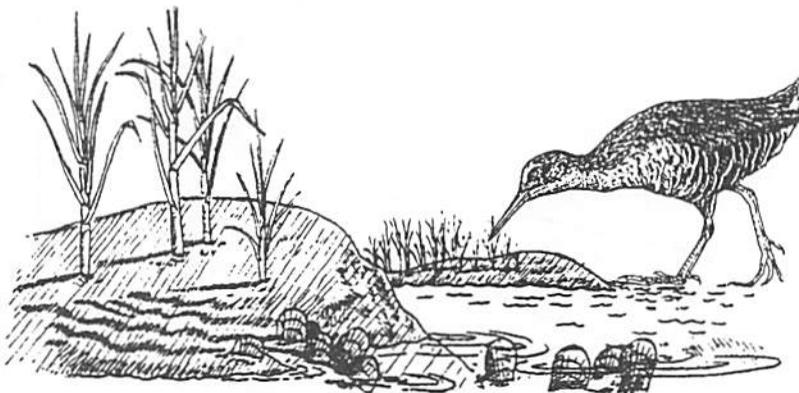
- grades 3-6: copies of p. 100 and 101 (one per 2 - 4 students)
- grades K-2: enlarged copies of p. 100 (one for class) and p. 101 (one per 5 - 6 students)

**Part 4: Food Chain Links (20 minutes)**

- construction paper
- scissors
- glue
- crayons, markers, or colored pencils
- sample food chain - make before class

### SUPPORTING INFORMATION FOR THIS ACTIVITY

- A habitat provides a living thing with everything it needs to survive. Living things require different types and amounts of food, water, shelter, and space. Living things can only grow in suitable habitats that supply all of their needs.
  - For example, the habitat of a California clapper rail would be in a wetland and would include places to find food (mud creatures, insects, salt marsh harvest mice, etc.), a sheltered place in cordgrass and pickleweed to build a nest, and space to find a mate.
- Food chains demonstrate how living things depend on each other for food (energy).
  - All food chains begin with producers, usually plants. Plants produce their own food (energy) by using sunlight. Through photosynthesis, plants absorb energy from sunlight and convert carbon dioxide and water to food in the form of sugars, releasing oxygen as a by-product.
  - Animals are consumers, they cannot produce their own food. Animals that eat plants are known as herbivores and are the first level consumers in a food chain. Animals that form the second, third, fourth, etc. level consumers in the food chain are carnivores (flesh-eating), insectivores (insect-eating), or omnivores (flesh-and-plant-eating).
  - A wetland example of a food chain: pickleweed, is eaten by salt marsh harvest mice, which are eaten by clapper rails, which are eaten by peregrine falcons. Food webs represent the interconnections of many food chains and the fact that animals eat a variety of food.



## TEACHING METHOD

### Part 1: A Schoolyard Habitat (30 minutes)

#### Read

"We will go outside and learn about our schoolyard habitat."

#### Ask

? **What is a habitat?** (A place where a plant or animal lives. A plant or animal's home.)

? **What do all plants and animals need in their habitat?** (Food, water, shelter, and space.)

? **Can you describe a habitat for an animal?**

**For example, what would the habitat for a robin be?** (A robin's habitat could be a forest, a backyard, or a schoolyard. A robin needs a tree for shelter; earthworms and insects for food; a stream or pond for water; and space to find food and water and to build a nest and raise young.)

#### Do

Investigate habitats in the schoolyard. Before going outside, discuss rules for behavior with the students.

#### Ask

? **How can you show your respect for a plant or animal? How should you treat a plant or animal and its habitat?**

#### Read

"You will be observing a plant or an animal in the schoolyard and investigating what the plant or animal needs to survive. Everything that a plant or animal needs to survive is in its habitat."

#### Ask

? **Where do you think would be good places to find a plant or animal in the schoolyard?** (Areas under rocks; cracks in the pavement; areas along fence lines; places in and under trees, bushes, and grass; areas along buildings.)

#### Do

Divide the students into pairs. Each pair needs paper, pencils, and a clipboard or folder. Walk outside with the students and instruct them to locate a plant or animal and to draw or describe it. They need to answer the questions (either in a written form or in a drawing): Where does the plant or animal find food, water, shelter, and space? What is the plant or

animal's habitat?

Assist the students with locating living things. Allow 10 to 15 minutes for the students to work on the drawings and/or descriptions and then return to the classroom.

Back in the classroom, ask each pair to share their drawing or description of the plant or animal they chose and its habitat.

### Part 2: What is Your Habitat? (15 minutes)

#### Do

Ask students to draw and describe their own habitats and to draw or list what they need to survive. Afterwards, discuss how their habitats are different from and similar to the habitat of a wild animal or plant. Compile a list of all of the students' needs.

#### Ask

? **Are all of the needs listed necessary for survival?** Cross off the needs that are determined to not be necessary for survival.)

? **Where do all of the needs come from?** For example, where does your food come from originally?

### Part 3: A Wetland Habitat (30 minutes)

#### Ask:-

? **What is a definition for a wetland?** (Land that is wet.)

? **What are some plants and animals that may live in a wetland?** (Take a number of responses.)

? **What do all plants and animals need to survive?** (A habitat that provides food, water, shelter, and space. Write the four components of a habitat on the board.)

#### Read

"We are going to visit a wetland on our field trip. The wetland provides habitats for many different plants and animals."

#### Do (Grades 3-6)

Hand out copies of the wetland habitat drawing and of the drawings of wetland plants and animals to each group of 2 to 4 students. Direct the students to cut out the plants or animals and add them to the wetland drawing. For each plant or animal, the students need

to locate what it needs to survive and draw lines from the plant or animal to what it needs (see the list below for ideas). Choose one of the plants or animals from the list to use as an example with the whole class, if necessary.

#### **Do (Grades K-2)**

Enlarge the wetland habitat drawing (or redraw the sketch on a sheet of large paper). Enlarge the drawings of wetland plants and animals. Cut out the plants and animals and give one or two to each student. Place the wetland habitat drawing on the wall and have students place the plants and animals on the drawing. As a group, color the mural. Assign each student or group of students to locate what their plant or animal needs to survive and draw lines from their plant or animal to the things it needs (see the list below for ideas). Choose one of the plants or animals from the list to use as an example.

**Pickleweed** needs: sunlight to produce food, water from Bay, soil to grow in, space to grow, air to breath.

**Salt Grass** needs: sunlight to produce food, water from Bay, soil to grow in, space to grow, air to breath.

**Salt Marsh Harvest Mouse** needs: pickleweed to eat, water from the pickleweed, shelter in the pickleweed to hide and nest, space to search for food and build a nest, air to breath.

**Northern Harrier (Marsh Hawk)** needs: mice and other small animals to eat, trees or poles on which to perch and nest, space to fly, air to breath.

**Phytoplankton (small, drifting plants)** need: sunlight to produce food, water from the bay to live in.

**Snail** needs: phytoplankton to eat, mud for shelter, water from the bay to lay eggs in, air to breath.

**Crab** needs: phytoplankton to eat, mud for shelter, water from the bay to lay eggs in, air to breath.

**Fish** needs: phytoplankton to eat, water to live in and lay eggs in, space to find food and swim, oxygen in the water to breath.

**California Clapper Rail** needs: snails, crabs and other mud creatures to eat, water from the bay, pickleweed and other marsh plants for shelter and to nest in, space to find food and to build a nest, air to breath.

**Great Egret** needs: snails, crabs, and fish for food, water to fish in, space to feed in, air to breath.

**Peregrine Falcon** needs: birds or small mammals to feed on, space to fly, air to breath, rocky cliffs to nest on.

#### **Part 4: Food Chain Links (20 minutes)**

##### **Do**

Refer to the students' wetland drawings to introduce food chains.

##### **Ask**

? **How do the plants (pickleweed, salt grass, and phytoplankton) get their food?** (All green plants use the sun to produce their own food.)

? **What animals in the wetland feed on plants?**

(The salt marsh harvest mouse eats pickleweed, snails, crabs, and fish feed on phytoplankton. These are the first level consumers - they eat plants.)

? **What animals in the wetland feed on snails, crabs, fish and/or salt marsh harvest mice?**

(Northern harriers, great egret, California clapper rail. These are second level consumers - they eat the first level consumers.)

? **What animal might feed on an egret or a clapper rail?** (A peregrine falcon which, along with the northern harrier, is a top level predator. Nothing preys upon them)

? **What is a food chain?** (A food chain shows the order in which plants and animals feed on each other.)

? **Can you name one food chain in the wetland?**

(For example: pickleweed is eaten by salt marsh harvest mice, which are eaten by Northern harriers; or phytoplankton is eaten by fish which are eaten by great egrets.)



**Do**

Hand out construction paper, scissors, glue, and markers, colored pencils, or crayons. Show the sample food chain you made before class. For students too young to use scissors, cut the construction paper into strips beforehand.

**Read**

"You are going to make your own wetland food chains."

**Read (Grades 3-6)**

"First choose (from the wetland drawing) which food chain you would like to make. Remember - it must start with a producer."

**Read (Grades K-2)**

"Make the following food chain: pickleweed → salt marsh harvest mouse → northern harrier."

**Read**

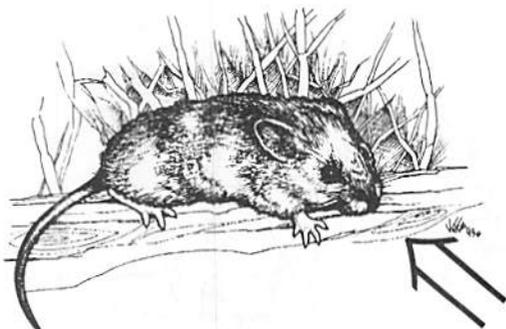
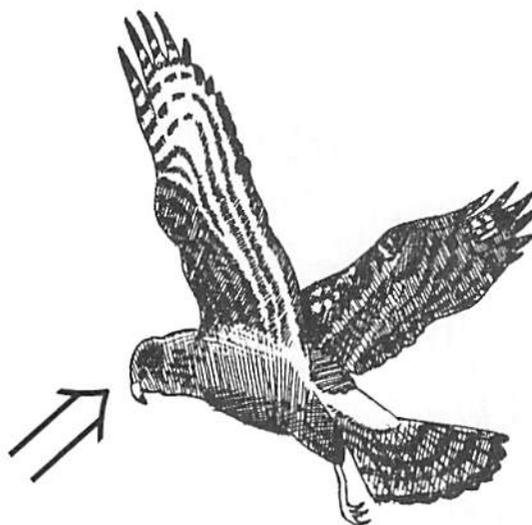
"Cut the construction paper into strips that are about two inches wide and eight inches long. Draw one member of your food chain on each strip of paper. Loop the construction paper into a chain that shows the order of the food chain."

**Do (Grades 3-6)**

Ask a few of the students to present their food chains.

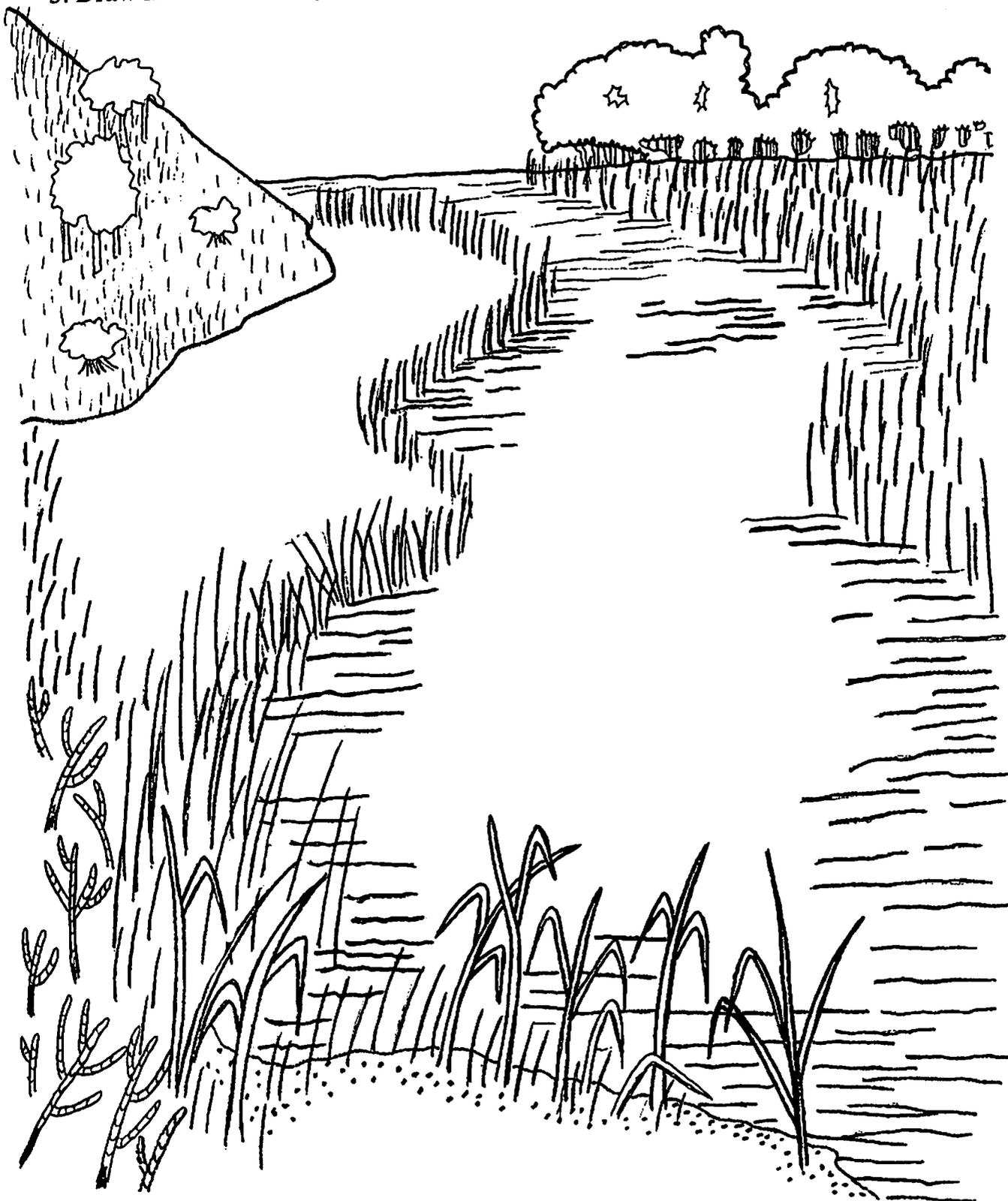
**Extension****(Grades 1-6)*****A Home for Pearl***

Show the video *A Home for Pearl*. The video can be borrowed from the Refuge's video lending library. The program is divided into four 15 to 20 minute parts that cover wildlife and their needs. You can show one part per day and ask the students questions from the Instructional Guide associated with the video. The guide also includes activity ideas.

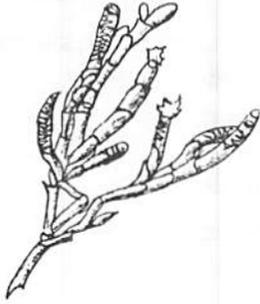


## A WETLAND HABITAT

1. Cut out the plants and animals on the other page.
2. Glue them in the wetland, in a place they might live.
3. Draw lines connecting each plant or animal to what it needs to survive.



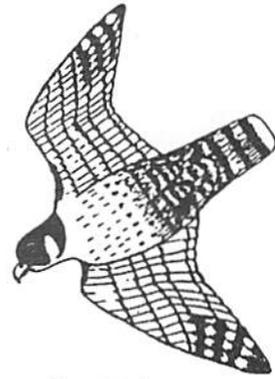
## WETLAND PLANTS AND ANIMALS



Pickleweed



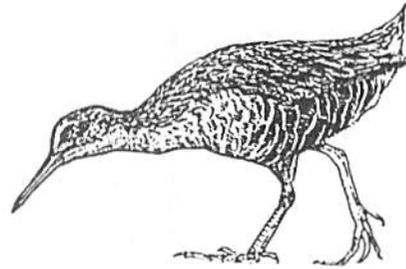
Salt Grass



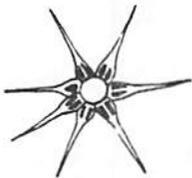
Peregrine Falcon  
(delisted 8/26/1999)



Salt Marsh Harvest Mouse  
(endangered)



California Clapper Rail  
(endangered)



Phytoplankton  
(tiny, drifting plants)



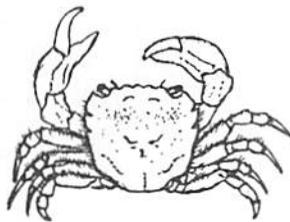
Snail



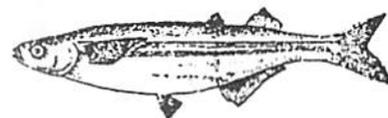
Great Egret



Northern Harrier



Crab



Fish