WHAT'S FOR LUNCH?

Objective:
Students will appreciate the interdependence of the **organisms**, including humans, involved in a **food web**. Students will make connection between the importance of **natural resources** and the ways we impact them.

Materials:
Ball of yarn
Signs with these items on them for players to wear: sun, **algae**, **aquatic** plants, **macroinvertebrate**, bluegill, largemouth bass, mouse, mockingbird, snake, beaver, deer, human

Index cards labeled:
Erosion - storm eroded the construction site-clouded water, sunlight blocked, gills clogged
Emission from chemical plant-hot water and chemicals released into river-possible fish kill
Polluted runoff - wide varieties of pollution flow into river after a strong storm-erosion, chemicals, **litter**, and floating **debris** resembling living organisms
(Discuss above possibilities and other possible occurrences)

Background Information:
A **wetland** is a great marketplace of food sources. The vast number of plants growing in a healthy wetland form the basis of this food web. (The food web is a complex system of many food chains.) Resident and visiting animals can find a wide array of food choices in a wetland, whether they eat plants, animals, or both. A wetland with a great diversity of plant life will attract higher numbers and more species of animals.

Plants are called primary **producers** because they supply food at the lowest level of a food chain. It takes an enormous number of individual plants to support the other parts of the web. Wetland **habitats** are extremely productive in terms of plant life.

Primary **consumers** are eaten by secondary consumers, or **carnivores** (meat-eaters). This group includes predators such as birds of prey, some snakes, foxes, wild cats and people. Secondary consumers are eaten by tertiary consumers, which may be **predators** or **scavengers** such as turkey vultures, crabs, and sometimes people.

Any of the food components mentioned above can be broken down by **decomposers**, organisms such as bacteria and fungi that reduce dead plant or animal matter into smaller particles. A decaying plant, for example, will be broken down into **nutrients** that enrich the soil. This process supports the growth of more plants.

People are also part of the wetland food web! Many regional economies depend upon wetland foods. Are you a seafood lover? Oysters, shrimp, bluefish, flounder, and other popular, commercially important fish and shellfish are produced in the wetlands, especially coastal marshes. Waterfowl, deer, and other game species that visit wetlands provide a source of food and income. Wetland mammals such as beaver, mink, and muskrat are valued for their fur. Muskrat is even becoming a popular

gourmet dish. Cattail shoots, wild rice, and many other wetland plants that grow in wetlands are edible. Next time you get the munchies, visit a wetland for a snack!

Procedure:

Have the class discuss the concept of a food web - what animals eat and who eats them. Introduce or review the terms **herbivore**, **carnivore**, **omnivore**, **insectivore**, **predator**, **prey**, **producer**, and **consumer**. Have older students discuss the flow of energy from primary producers through tertiary consumers and decomposers.

Activity:

1. Make a list of plants and animals.
2. Write the name of each plant on signs for students to wear.
3. Have the class stand in a circle. Select the "sun" to begin the web and give that student a ball of yarn. Ask him to wrap the end once around his hand, the pass the ball to a plant. Then have the plant pass the ball to an **organism** that eats his plant, (wrapping the string around his hand), connecting the one who consumed to the consumer. This student should wrap the string around their hand and pass the ball either to an organism or to her own organism's food source.
4. Once the web is complete have students shift around until the web is taut. Have students discuss the fact that sometimes a plant or animal's role in the web may change, or disappear entirely. What effect would this have on the web?

Use the following scenarios to describe what can happen to parts of the web when the **wetland habitat** is disturbed. With each description, have the students decide which organism would be affected by the change first. Have the students wearing this sign tug on the string. Anyone who feels the tug should raise her or his free hand.

Have each of these students tug on the string, and so on. When the third scenario has been covered, have the class sit down and discuss the web.

Scenarios:

1. It is raining. A lawn-care company's truck skids and crashes near the wetland, spilling hundreds of gallons of weed killer. The rain washes the chemicals into the wetland (plants).
2. A stream is blocked by a huge pile of dumped garbage. The part of the stream that usually flows through the wetland dries up. (fish)
3. The wetland is destroyed when someone buys the land and builds a shopping mall there (everything affected).

Ask students to describe ways that the food web might be affected by a change in one of its links. Help students understand that a change in the availability of even one food source could affect many wetland residents. Stress that parts of an **ecosystem** are interconnected and interdependent, and every link is vital to the health of the whole.

Resources:
Adapted from: Wow! The Wonders of Wetlands, Environmental Protection Agency,
Region VIII, U.S. Department of the Interior, Bureau of Reclamation.