

Lesson 12

Water Webs

What is a food web and a food chain?
How are animals and plants interconnected in an ecosystem?
How can natural or man-made impacts affect the balance of an ecosystem?

GOAL To understand that food chains and food webs are essential to an ecosystem

OBJECTIVES Students will:

- ✓ identify animals and plants in a food chain and food web
- ✓ create food webs
- ✓ conduct research on a type of wildlife

MATERIALS butcher block paper, markers, pencils, web chart copies

CORE CURRICULUM CONTENT STANDARDS

- Language Arts 1(4,10), 2(3)
- Science 3(1-4), 5(3)
- Social Studies 9(1), 10(2,3), 13(5)

VOCABULARY producer, primary consumer, secondary consumer, tertiary consumer, trophic levels, decomposer, food chain, food web

PROCEDURES

1. Explain to students that they will be examining food chains and food webs. Food chains demonstrate how energy can be passed through the *trophic* levels of an ecosystem. For example, a food chain begins with the sun. Plants, or *producers*, use the sun's energy to make food through the process of photosynthesis. Herbivores, or *primary consumers*, eat plants, carnivores, or *secondary consumers* eat plant eaters and *tertiary consumers* are at the top of the food chain. Animals eat a variety of items and not just one, as a food chain depicts. Food webs, therefore, more closely demonstrate the interconnectedness of animals and plants in an ecosystem.
2. Have students use the words in the web chart (at end of lesson) to create food chains and food webs.
3. Break students into groups, distribute paper, and have them create as many food webs as possible.
4. Have them connect the words with arrows to demonstrate the flow of energy.
5. Have students create one food chain from the animals on the list and determine habitat requirements for the plant(s) and animals. Ask students if there are areas along the Farmington River that are more suitable for particular species than other areas.
6. Have students research one type of aquatic insect, fish, mammal, bird or other type of animal found on the Farmington River. List its adaptations and habitat requirements. Ask if it is an endangered species and if it is, what is being done to protect its habitat.

EXTENSIONS

1. Discuss with students that beaver were abundant before the settlers arrived in the area. Have them determine reasons for their decline in the 1700's.
2. Discuss why it is important to maintain a diversity of plants and animals. Discuss naturally and unnatural occurrences that have an impact on animals and plants.

WEB CHART

Mammals	Fish	Birds	Insects	Plants	Microscopic org.s
Fisher	Trout	Kingfisher	Mayfly nymph	Algae	Algae
Black Bear	Salmon	Merganser	Dragonfly	Grasses	Plankton
Beaver	Smolts	Cormorant	Caddisfly larva	Leaves	Bacteria
Muskrat	Parr	Heron	Caterpillar	Trees	Larvae
White-tailed deer	Eggs	Osprey	Water strider	Reptiles	Amphibians
Mink	Alevin	Bald eagle		Wood turtle	Wood frog
Bobcat	Perch	Vireo		Hog-nosed snake	Salamander

GLOSSARY

decomposer - an organism, often a bacterium or fungus, which feeds on and breaks down dead plant and animal matter, thus making organic nutrients available to the ecosystem

food chain - a succession of organisms in an ecological community that constitutes a continuation of food energy from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member

food web - a complex of interrelated food chains in an ecological community

primary consumer - an animal that eats grass and other green plants in a food chain; an herbivore

producer - a photosynthetic green plant or chemosynthetic bacterium, constituting the first trophic level in a food chain

secondary consumer - an animal that feeds on smaller plant-eating animals in a food chain

tertiary consumer - third in place, order, degree or rank

trophic levels - of or involving the feeding habits or food relationship of different organisms in a food chain

FOOD CHAIN

Energy flows from the Sun to the plants (primary producer). The plants are eaten by a mouse (primary consumer) which is then in turn eaten by the hawk (secondary consumer).

