

# Living Wetland Food Web



## GRADE LEVEL:

3-8

## SUBJECT AREAS:

General Science,  
Ecology, Biology

## DURATION:

20-30 minutes

## SETTING:

Classroom

Outdoors

## LINK TO THE

### UTAH CORE CURRICULUM:

Science –

4<sup>th</sup> Grade:

Standard 1

## VOCABULARY:

food web (or chain),  
producer, consumer,  
decomposer, herbivore,  
omnivore, carnivore,  
prey

## PURPOSE:

Students will gain an understanding of the interdependence of organisms through the visualization of a food web. The connection between the importance of natural resources and human impacts should also be visible to the students.

## SUMMARY:

Students will be constructing a “living” wetland food web by using organism cue cards and string. Each student will be given a role as a primary producer, herbivore, carnivore, omnivore, or decomposer in the food web.

## BACKGROUND:

Wetlands provide the requirements to sustain life; abundant food source, adequate water supply, and habitat. This activity introduces the importance of wetland communities and the interactions of organisms in wetlands, leading to the understanding the importance of our own roles and potential effects on the environment.

Resident and visiting animals can find a variety of food sources in a wetland, whether they eat plants, animals, or both. Wetlands are extremely productive in plant life, forming the basis of the wetland food web. Plants are primary producers because they supply food at the lowest level of the food chain. It takes an enormous number of individual plants to support the other parts of the web.

The next level of the food chain is primary consumers; plant eaters or herbivores. Primary consumers include mice, rabbits, deer, some insects, fish, ducks, and other waterfowl.

Primary consumers are eaten by secondary consumers, or carnivores. This group includes predators such as birds of prey, some snakes, foxes, some fish, wild cats, and people. Secondary consumers are eaten by tertiary consumers, which may include predators or scavengers such as turkey vultures, crabs, and sometimes people.

Many animals fit into more than one group, and there are more complex levels of the web. Any of the food web 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 will be broken into nutrients that enrich the soil. This process supports the growth of more plants.

This activity is adapted from WOW!, The Wonders of Wetlands, an Educator's Guide. Environmental Concern Inc. and The Watercourse. 2003. pgs. 109-111.

### **ADDITIONAL RESOURCES:**

Mock, Gregory. "How Much Do We Consume?" World Resources 2000-2001. June 2000.

[www.epa.gov/wetlands/](http://www.epa.gov/wetlands/)

People also support the wetland food web. Many regional economies depend on wetland foods. Commercially important fish and shellfish are produced in wetlands, especially coastal marshes. 75 percent of the fish and shellfish caught globally are consumed directly by humans, and the remaining 25 percent is reduced to fish meal and oil, which is used for both livestock feed and fish feed in aquaculture (Mock, 2000). Other animals such as waterfowl and deer utilize wetlands for habitat and food, and these animals can provide food and income for human consumption. Beaver, mink, and muskrat are valued for their fur, while many wetland plants such as wild rice are edible. As secondary or tertiary consumers, humans are a part of the wetland food chain.

### **MATERIALS:**

- Laminated organism cards with brief description of the organism with organism type listed (producer, consumer, or decomposer) and the food sources of the organism on each card (see Appendix for examples).
- A large ball of yarn or string.

### **PROCEDURE:**

1. Hand out one organism card to each student. Ask the students to read their card and to determine if they are a producer, consumer, or decomposer. Also, have the students determine if they are a consumer or decomposer what their food sources are.
2. Have the class stand in a circle. Select a "plant" (producer) to begin the web and give that student a ball of string. Ask him to hold the end of the string, and then pass the ball to an organism that may eat this plant, connecting the one who is consumed to the consumer. The "consumer" student should grab the string and pass the ball either to an organism that eats her organism or to her own organism's food source. Stress that the students cannot let go of the string.

Remember that many of the plants and animals should be connected to several others; if a student receives the ball of string a second time (or more), he should pass it to a student he hasn't already passed it to. Continue in this manner to create a "living" wetland food web.

3. Once the web has been completed (all possible connections have been made), have the students shift around until the web is stretched tight. Have the students discuss what might happen to the food web if a plant or animal's role in the web changes, or disappears entirely.

### EXTENSIONS:

Visit a local wetland or natural area. Have the students observe and list all of the possible components of the food web for that wetland or environment. Then ask the students to sketch the food web in a field journal, noting the primary producers, primary, secondary or tertiary consumers, and the decomposers. If wildlife is not visible, have the students look for other clues such as droppings, feathers, footprints, fishing line caught in a tree, etc. Discuss with the students if the area offers resources such as food for humans, or even other benefits such as recreational activities. Are there ways in which the food web in this area might be harmed or changed? What can you do to help sustain a wetland food web?

### APPENDIX:

#### Organism examples:

Primary Producers: cattail, wild rice, smooth cord grass, sweet flag, blue iris, switch grass

Primary Consumers: meadow voles, mice, rabbits, aquatic macroinvertebrates, deer, fish, waterfowl

Secondary Consumers: birds of prey, snakes, foxes, fish, humans

Tertiary Consumers: turkey vultures, ravens, crabs, humans

Decomposers: fungi, bacteria

#### Organism cards examples:

