

The Web of Life

4th grade

Summary: *students will be introduced to the interdependence and intricate web of energy and life.*

Objectives

Students will:

1. Understand that food webs represent possible feeding relationships in an ecosystem
2. Be able to name the consumers and producers within a food web
3. Learn that energy in a food chain flows from the producers to consumers

Background Information

All ecosystems are made up of abiotic and biotic components. The abiotic part of an ecosystem is the nonliving component, but is equally as important as the biotic component. Abiotic factors include water, temperature, soil type, elevation, and length of daylight. These factors determine what can live in a given area.

The biotic or living part of every ecosystem consists of producers, consumers and decomposers. All living organisms need food to survive. How an organism gets its food determines whether it is a producer, consumer or decomposer.

The term “web of life” describes the interaction of two or more food chains linked together. Links in a food web are not specific, but are possibilities based on the variety of organisms found in an ecosystem. Typical food webs include plants, herbivores, carnivores, omnivores and detritus feeders. Plants ‘produce’ energy via the process of photosynthesis, they make their own food. All green plants are producers. Organisms that cannot produce their own food need to eat to get the nutrients and energy they need for survival. Animals are consumers; they ‘consume’ both plants and each other. The consumers also benefit from the energy of the consumed organisms. Detritus feeders and decomposers get their energy from dead animal and plant material. They make quick work of turning this material into nutrients which are in turn quickly taken up by plants.

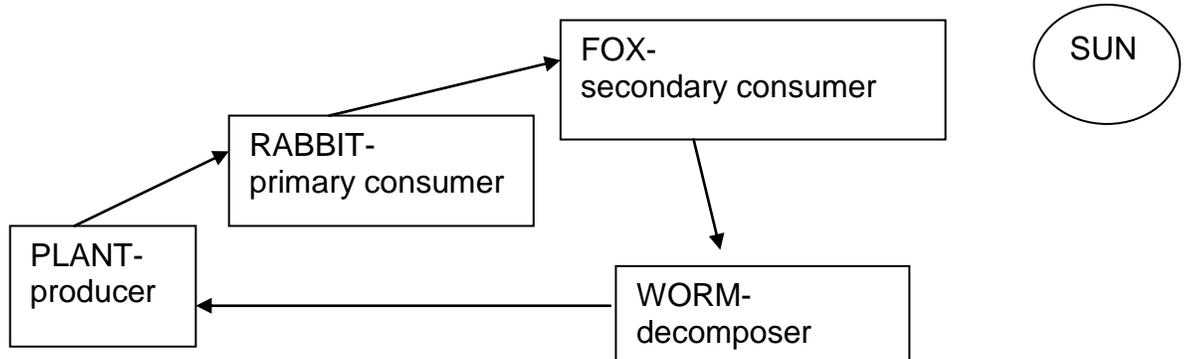
Materials

Copies of the **Food Web Cards** (double side copies and cut apart)
Six pieces of blank large paper (11 X17 inches recommended)
Pencils or markers

Activity Procedure:

1. Begin lesson with describing a food chain and that food chains and food webs depend on the sun and include producers, consumers and decomposers.
2. Explain to students that they are going to create their own food webs representing various ecosystems.

3. Go through a simple food chain on the board to remind students of the components.
 - a. Write on the board: PRODUCERS [plants].
 - b. Ask students to name an animal that eats plants; listen for “rabbit” or other herbivore.
 - c. Add it to the food chain on the board. Remind students that this animal is an herbivore and a consumer. Write PRIMARY CONSUMER next to rabbit.
 - d. Ask students to name an animal that eats the animal that eats the plants (animal that eats the rabbit). Listen for “fox” or other predator. Remind students that this animal is also a consumer, and a predator. Write SECONDARY CONSUMER next to fox.
 - e. Ask students what happens to the fox when it dies, the fox becomes food for the decomposers or detritus feeders (worms). Write this on the board.
 - f. The food chain has lines connecting the links, and always begins with energy from the sun.



4. Divide class into six equal groups. Each group is going to create their own food web using the **Food Web Cards**.
5. Distribute large pieces of paper, one to each group with pencils or markers.
6. The students, working in their groups are going to create food webs based on what the animal eats or how it gets its food.
7. Explain to students that on the front of each card is the name of an organism (in CAPITAL letters) and on the back of the card (*in italics*) is what the organism eats.
8. Distribute a set of cards to each student group. Direct the students to copy all the NAMES of the organisms (those in capital letters- off the front of the cards) to the sheet of paper spaced out across the entire paper.

9. Then each student reads the back of his/her card (*names in italics*) to the rest of their group and draws a line linking their organism what it eats (as listed on the back of the card). This is shown by an arrow indicating the direction of the food energy transfer (arrow points to organism getting the food energy, for example, mouse → cat)
10. Once all food webs are completed, ask each group to “show and tell” their food web to the rest of the class. (Food webs will have many links connecting the organisms).
11. Ask students to identify the habitat their food web represents.
12. Ask students: “What would happen if we took away one of the organisms?” For example- What if all the plants are gone from a food web? Or What if there were no more fish in a food web?
13. Review that food webs are comprised of many animals and plants, and that they are interconnected. The food webs that the students created represent only a part of the intricate food web of that ecosystem or habitat.

Florida’s Next Generation State Standards

- SC.4.L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.
- SC.4.L.17.3 Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.
- SC.4.L.17.4 Recognize ways plants and animals, including humans, can impact the environment.

Food Web Cards 1 (double side copy with Food Web Card 2)

HARPY EAGLE	FROGS
TREE BOA	RODENTS
CAPUCHIN MONKEY	INSECTS
OPOSSUM	SMALL BIRDS
LIZARDS	PLANTS

Food Web Cards 2 (double side copy with Food Web Card 1)

<i>insects</i>	<i>tree boa, lizards, capuchin monkey</i>
<i>plants</i>	<i>rodents, frogs, small birds</i>
<i>plants</i>	<i>lizards, insects, small birds</i>
<i>plants</i>	<i>insects, rodents, plants</i>
<i>produce own food</i>	<i>insects</i>

Food Web Cards 3 (double side copy with Food Web Card 4)

ANACONDA	INSECTS
CAIMAN	TURTLES
CAPYBARA	BIRDS
AGOUTI	FISH
FROGS	PLANTS

Food Web Cards 4 (double side copy with Food Web Card 3)

<i>plants</i>	<i>caiman, fish, birds, turtles, agouti, capybara</i>
<i>fish</i>	<i>fish, turtles, frogs</i>
<i>plants</i>	<i>plants</i>
<i>insects</i>	<i>plants</i>
<i>produce own food</i>	<i>insects</i>

Food Web Cards 5 (double side copy with Food Web Card 6)

HYENA

LION

HUNTING DOG

GIRAFFE

ZEBRA

WILDEBEEST

PLANTS

IMPALA

INSECTS

OSTRICH

Food Web Cards 6 (double side copy with Food Web Card 5)

<i>zebra, impala, ostrich</i>	<i>leftovers of giraffe, impala, wildebeest</i>
<i>plants</i>	<i>impala, zebra, ostrich, wildebeest</i>
<i>plants</i>	<i>plants</i>
<i>plants</i>	<i>produce own food</i>
<i>plants, insects</i>	<i>plants</i>

Food Web Cards 7 (double side copy with Food Web Card 8)

FLORIDA
PANTHER

RACCOON

FROGS

INSECTS

DEER

AMERICAN
ALLIGATOR

FISH

BIRDS

TURTLE

PLANTS

Food Web Cards 8 (double side copy with Food Web Card 7)

<i>birds, frogs, plants</i>	<i>deer, raccoon</i>
<i>plants</i>	<i>insects</i>
<i>fish, turtles, frogs, birds, raccoon</i>	<i>plants</i>
<i>fish, frogs, insects, plants</i>	<i>plants</i>
<i>produce own food</i>	<i>fish</i>

Food Web Cards 9 (double side copy with Food Web Card 10)

EMU

BLACK SNAKE

SINGING DOG

SMALL BIRDS

KOALA

LIZARDS

SMALL
MAMMALS

INSECTS

CASSOWARY

PLANTS

Food Web Cards 10 (double side copy with Food Web Card 9)

<i>small birds, small mammals, lizards</i>	<i>insects, plants</i>
<i>insects, lizards, plants</i>	<i>small mammals, small birds, lizards,</i>
<i>insects</i>	<i>plants</i>
<i>plants</i>	<i>plants, insects</i>
<i>produce own food</i>	<i>plants, insects</i>

Food Web Cards 11 (double side copy with Food Web Card 12)

RIVER OTTER	FISH
TURTLES	FROGS
SMALL BIRDS	MICE
INSECTS	SKUNK
BURROWING OWL	PLANTS

Food Web Cards 12 (double side copy with Food Web Card 11)

<i>insects</i>	<i>fish, turtles, frogs, mice, small birds</i>
<i>insects</i>	<i>plants, insects</i>
<i>plants</i>	<i>plants, mice</i>
<i>frogs, mice, insects</i>	<i>plants</i>
<i>produce own food</i>	<i>insects, mice</i>