



LESSON 2

Corn in the Food Web

Focus: Matter and Energy in Organisms and Ecosystems

Kentucky Academic Standards

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

06-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

06-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

07-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

08-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

BACKGROUND

Almost every *food web* begins with a *plant (producer)* such as corn. The sun helps the plant make food through *photosynthesis*, which places the sun at the top of the web. Some *animals (consumers)* eat plants, some eat other animals, some eat both, and all can be linked into a food web. For example, the sun provides light for photosynthesis, the corn plant produces grain, the mouse eats the grain, the snake eats the mouse, the hawk eats the snake. Another example is the sun growing the corn which is eaten by the pig which is eaten by the human.

Corn is an important ingredient in many of the foods that we eat every day. In addition, corn is an important food source for the livestock we raise for meat, dairy, and eggs. Corn is currently the top livestock feed source, with about 80% of the world's corn production used in feed. This makes corn an important link in the earth's food web!

PREPARATION AND MATERIALS

For Food Web Game:

- popcorn (popped from 2 cups dry popcorn)
- web member name tags (construction paper with yarn to hang around necks)
- plastic sandwich bags

For Mural/Diorama:

- shoebox or paper geometric shape display
- magazines (featuring plant and animal pictures)
- paper, crayons, markers, glue, scissors, clay, etc.

TEACH

Activities:

- 1. Discuss:** What is a food web?
What are some examples of corn eaters?
What are some examples of livestock that eat corn?
What are some examples of meat eaters?
What effect might pollution have on the links in the food web?
How can weather affect the food web?
- 2. Food Web Role Play**
Play the food web game. Students should assume responsibility for as much of the preparation and implementation of the game as possible.
 - Pop a minimum of two cups dry popcorn.
 - Number of students determines roles to play (include 1 sun, 12 - 15 corn plants, 6 - 10 plant/grain eaters, 3 - 6 meat eaters).
 - Students prepare name tags for web members (make tags of construction paper with yarn to hang around necks.)
 - Have students spread out around the classroom (outside or gym would be preferable), wearing name tags for identification.
 - The sun begins by holding the 12 - 15 plastic bags of popped popcorn. To simulate the sun (feeding) the plants, she/he distributes one bag to each corn plant.
 - The plants now eat half the bag of popcorn to produce the energy for growth.
 - Each plant/grain consumer takes a bag from TWO plants and eats half the remaining popcorn.
 - Each meat eater consumer takes a bag from TWO plant/grain consumers and eats the rest of the popcorn.

ASSESSMENT

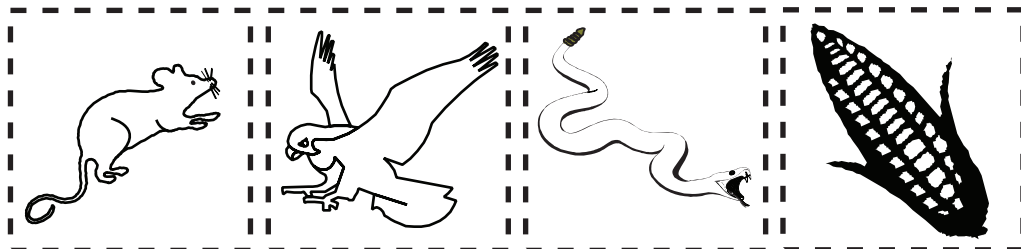
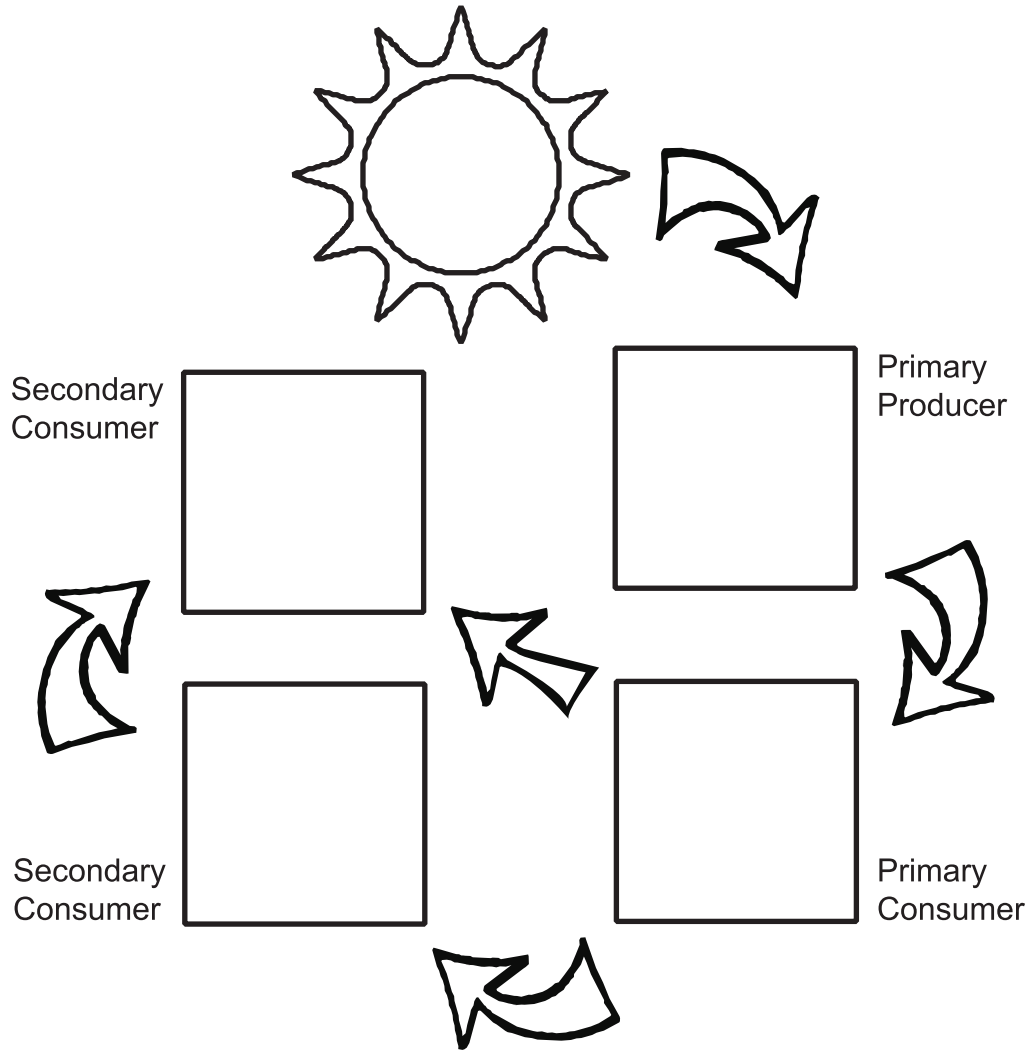
Complete Food Web Activity Sheet

Have students create a visual representation of the food web and the diverse role corn plays in the web. A diorama or mural of the connection between plants, animals, humans, and the sun can be depicted using magazine pictures, student created pictures, or three-dimensional figures of clay, paper, or other materials.



Food Web Activity Sheet

Cut out the pictures below and glue them in the appropriate places to complete a simple food web. On the back of this sheet, see if you can expand the food web by adding additional consumers and producers.





Food Web Activity Sheet

ANSWER KEY

