Legacy Ecology Lesson Plans(Grades 3-5)

THE CHAIN GANG

SUBJECTS: Science, Math

TIME: Two class periods

MATERIALS:

six cards
six pins
tags marked grasshopper, snake, or hawk
colored game markers(25 each of three colors)
small plastic bags
science journal
construction paper for each student
student activity page reproduced for each student
information sheets copied

OBJECTIVES

The student will be able to:

1. Understand the meaning of the term"food chain."
2. Name the components of several different food chains.

BACKGROUND

Plants, animals, and other living things existing in one place make up a community. In communities the food chain begins with plants, which are the producers. Animals eat these producers or some other animal. Even meat eating animals(carnivorous) eat animals that eat these plants. A food chain is the transfer of food energy from the plants through a series of animals with repeated eating and being eaten behaviors. For example, a green plant, a leaf-eating insect, and an insect-eating bird would be a simple food chain. All living things make food chains.Plants need the sun to grow. Many insects eat plants, many toads eat insects, many snakes eat toads, and many hawks eat snakes. This is another example of a food chain. Whenever we eat food, we are members of a food chain.

VOCABULARY

community- plants, animals, and other living things existing in one place
food chain- the transfer of food energy from the plants through a series of
animals with related eating and being eaten behaviors
producer- an organism that makes its own food and is the beginning of a food chain

ADVANCE PREPARATION

1. Make six cards with one of these words on each: sun, plant, insect, toad, snake, hawk.
2. Label tags with grasshopper, snake, or hawk.
3. Instruct students to have science journals on hand.
4. Copy or make an overhead transparency of the information sheets.
5. Copy for each student the"Food Chain Review" page

PROCEDURE

(Setting the stage)

1. Ask students if they are a member of a food chain.
2. Lead students to understand they are a member of a food chain whenever they eat food.
3. Explain to students how every food eaten by them has energy stored earlier by other living things.
4. Ask students on which energy source does every living organism on Earth depend.

• Accept various responses.
• Lead students to understand that the sun is the main source of energy upon which all food chain members depend.
• Display picture of a food chain (see Energy Pyramid Information Sheet). (An overhead transparency of diagram could be made.)

(Activities)

1. Have students perform a food chain simulation to determine what happens when a food chain is broken.

• Pin a card labeled sun, plant, insect, toad, snake, or hawk on six students.
• Stand in a line and hold hands in this order: sun-plant-insect-toad-snake-hawk.
• Ask the following questions;
What animals would die if there were no snakes to eat?(The snake person drops hands.)
What animals would die if there were no toads to eat?(The toad person drops hands.)
What animals would die if there were no insects to eat?(Insect person drops hands.)
What animals would die if there were no plants to eat?(Plant person drops hands.)
What would happen if there were no sun to let plants grow?

2. Play"Where's the Food" simulation

• Put on a tag identifying students as a grasshopper, a snake, or a hawk.
• Play in 30 second turns.(Note: before game begins, distribute colored game markers along the ground.)
On the first turn, grasshoppers collect the colored game markers and place them in their plastic bags.
On the next turn, snakes feed on grasshoppers by taking them and taking their bags.
On the third turn, hawks feed on snakes.
Grasshoppers and snakes can continue to feed.
• Sort and count the markers.
• Determine which animals had the most food when the game ended.
• Explain why this happened.
• Have students record their findings in a tally table.
• Have them graph the collected data in a pictograph.

3. Reproduce the information sheet,"Food Chains."

• Have students cut out the food chain parts.
• Instruct students to glue these in proper order onto a piece of construction paper.

(Follow-up)

1. Have students make up two food chains and display in a diagram of their own creation.
2. Ask student to write meaningful definitions for the vocabulary terms.
3. 3. Complete the Food Chain Review Sheet.

EXTENSIONS

1. Read aloud to class Chipmunk Song by Joanne Ryder.
2. Ask students to work in small groups to write a song or a poem about a food chain.
3. Use the book Biology: Plants, Animals, and Ecology by Ifor Evans to help students better understand the structures of life.

RESOURCES

Bernstein, L. et al.(1996). Environmental Science. Menlo Park, CA: Addison-Wesley Publishing Company.
Bryant, A. Jr. et al.(1995). Science Anytime. Orlando, FL: Harcourt Brace and Company.
Butzon, C.& Butzon, J.(1989). Science through Children's Literature. Englewood, CA: Teacher Ideas Press
Gega, P.(1982). Science in Elementary Education. New York, NY: John Wiley and Sons, Inc.
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