



THE CHAIN GANG

BENCHMARKS and TASK

SC.B.1.2.1 The student knows how to trace the flow of energy in a system (e.g., as in an ecosystem).

SC.F.1.2.2 The student knows how all animals depend on plants.

SC.G.1.2.1 The student knows ways that plants, animals, and protists interact.

SC.G.1.2.5 The student knows that animals eat plants or other animals to acquire the energy they need for survival.

- The student creates and analyzes food chains and food webs (sun, decomposers, producers, consumers, carnivores, herbivores, omnivores).

KEY QUESTIONS

How do living things depend upon one another to survive?

How does energy flow through a food chain?

BACKGROUND INFORMATION

Living things need food to give them **energy**. Energy passes from one living thing to another through **food chains**. A **food chain** is a simple way to look at how animals depend upon their **habitats** and other animals to survive. Every food chain begins with the **sun**. Green plants (**producers**) are responsible for making food that animals (**consumers**) eat. An animal that eats the plants is a primary consumer. (A grasshopper is a good example.) A secondary consumer (such as a lizard) eats the primary consumer. This relationship is often referred to as a **predator/prey** relationship, where the predator is the hunter and the prey is the victim.

Herbivores are animals, such as deer, that feed only on plants. **Carnivores** are animals, such as wolves, that feed on other animals. **Omnivores** are animals, such as raccoons, that feed on both plants and other animals. **Decomposers** are **organisms**, such as bacteria, which break down dead organisms and waste, returning important nutrients to the earth.

Food is just one of the things that living creatures need in order to survive. There are other necessities, called components of habitat that animals require for survival. These other components include water, shelter, and space. Without a sufficient amount of each of the four components, an animal may not survive long enough to reproduce and maintain the **population**.

MATERIALS

Per pair of students

1 paper plate (sun)
tape
index cards
crayons or markers

Teacher

magazines or books containing animals pictured in their habitats
25-40 pictures of various animals in a paper bag

TEACHING TIPS

1. Find 25-40 pictures of various animals (e.g., insects, carnivores, herbivores). Use your personal picture file, computer clip art, magazine pictures, etc. Place the pictures in a paper bag.
2. Display books and magazines about the animals represented in the pictures.

ENGAGE

Ask: *Where do we get the food we eat?* Record students' responses. Tell students you will return to the question at the end of the lesson.

EXPLORE

1. Initiate a grab bag activity. One student from each pair draws a picture of an animal out of the bag.
2. Student pairs should then work together to learn what kinds of foods the animal eats and whether or not it is prey for another animal.
3. Next, students should construct a food chain using the paper plate as the sun. The names of the animals or plants in the food chain should be written on index cards, illustrated (optional), and taped together, showing their connection to the original energy source (sun). An example would be: sun-grass-grasshopper–frog-snake. One link in the food chain needs to be the original picture drawn from the bag.
4. Allow time for each group to share the food chain they created.

EXPLAIN

What is the primary source for all food chains? (sun)

Discuss what might happen if sunlight couldn't reach the earth's surface.

Explain what might happen if all plant life were removed from the earth.

Were you able to discover a food chain that did not begin with a plant? Why?

Were there any animals in the food chains that eat only plants? (Explain that animals that eat only plants are called herbivores.)

Were there any animals in the food chains that eat only other animals? (Explain that animals that eat only other animals are called carnivores.)

Were there any animals in the food chains that eat both plants and animals? (Explain that animals that eat both plants and animals are called omnivores.)

What happens to dead organisms (plants and animals) that are not eaten? (Decomposers, such as bacteria, break them down and the nutrients are returned to the earth.)

EXTEND/APPLY

Have students try to combine several of their food chains to create a food web.

ASSESSMENT

Have students respond in their journals explaining how the living things in a food chain depend upon one another.