
Energy Flow and Food Webs

Introduction

While Paddle was in the beaver pond, a mink caught a fish. Later, Paddle met a moose feeding on water lilies in the marsh. The mink and the moose both found the food energy they needed to survive. The water lilies used the sun's energy to grow. We can draw a diagram that shows who eats what and where energy for life comes from.

Objectives

When students have completed this activity, they will be able to define what food chains and food webs are, and to explain that the sun is the basic source of energy.

Materials

Energy Flow background sheet and worksheet (masters on pages 69-71), drawing paper, markers or crayons.

Terms to Know

Food chain—diagram of who eats what

Food web—several food chains connected together

Organism—living thing

Producer—organism that can make its own food (green plant)

Consumer—organism that can not make its own food

Herbivore—consumer that eats plants

Carnivore—consumer that eats other consumers

Decomposer—consumer that breaks down dead plants and animals

Procedure

1. Read the background sheets. Discuss and give examples of each of the defined terms. Think of other possible food chains using the animals Paddle found in the beaver pond or the marsh.
2. Draw your own energy flow diagram. Remember that the sun is the source of the energy plants need to grow. Each diagram should have at least three food chains connected to make a food web within it. Try to think of food chains you might find in environments other than ponds or marshes.
(*Example: Sun - Grass - Cow - Person*)
3. Complete the Energy Flow worksheet. Discuss the answers with the class.

Extension Activity

Play the Food Chain Tag game described on page 73.

Energy Flow background sheet

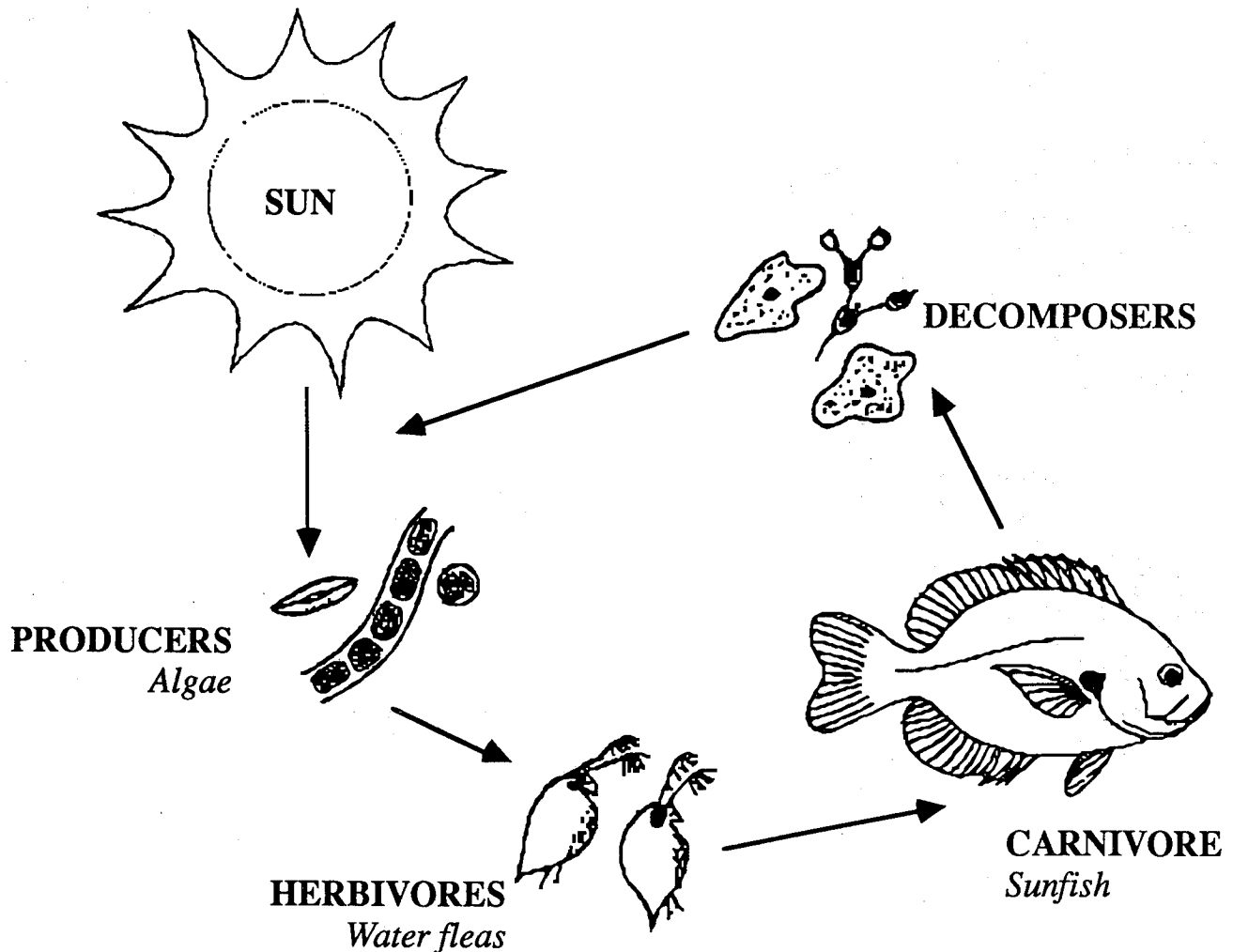
A chain is made of connected parts called links. The terms “food chain” and “food web” describe the paths of energy flow between plants and animals in a natural community. A **food chain** is a simple diagram of who eats what. Each plant and animal stands for a link of energy in a food chain. Several food chains connected together make up a **food web**.

The sun is the first source of energy. Green plants use the sun’s energy and nutrients in the soil to make their own food by the process of photosynthesis. Because green plants make their own food, they are called **producers**.

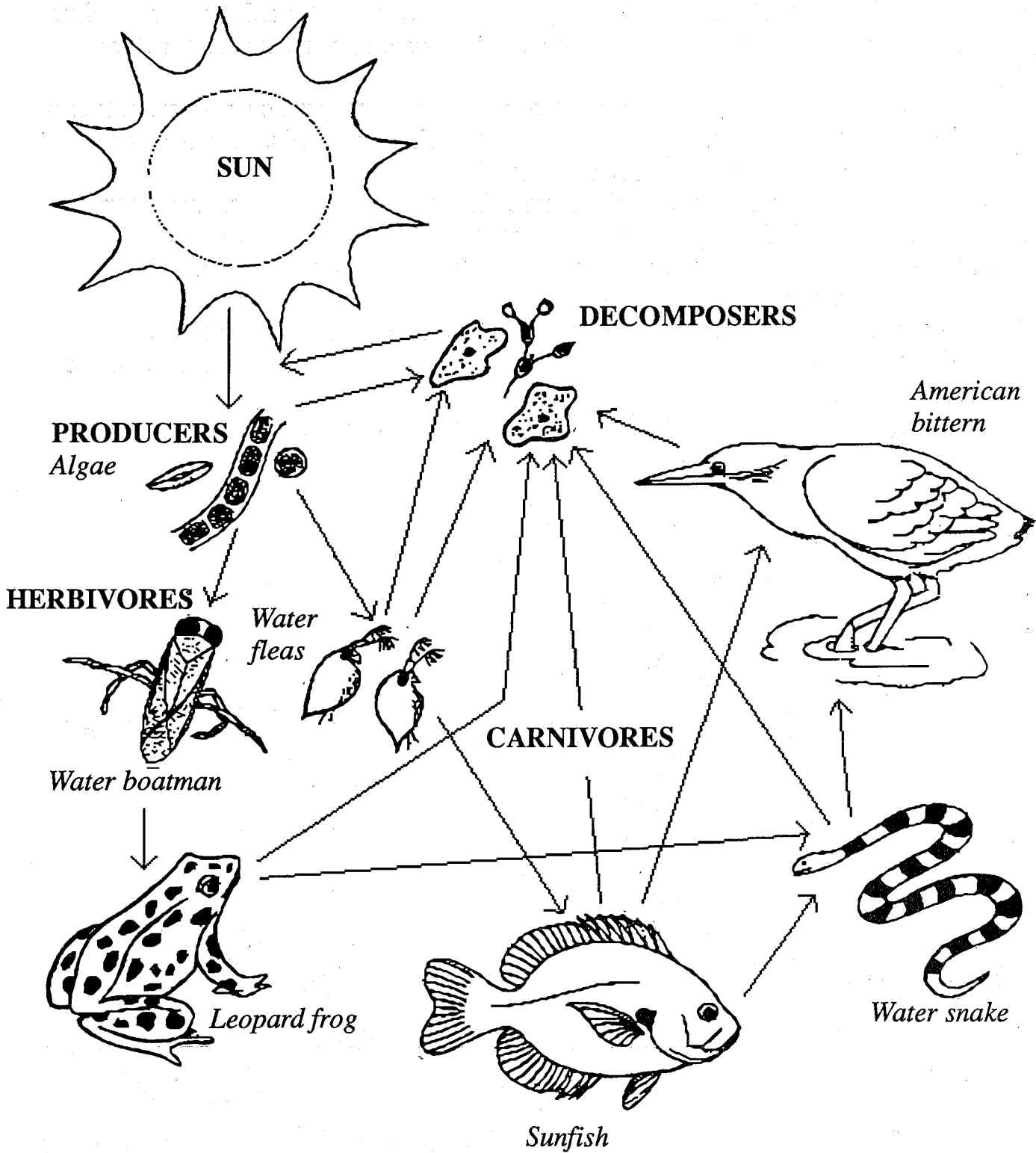
All other living things in a food chain are called **consumers** because they cannot make their own food. Consumers that eat plants to get their energy are called **herbivores**. Consumers that eat other consumers to get their energy are called **carnivores**, or meat-eaters.

Decomposers, usually bacteria or fungi, are a special group of consumers. They break down dead plants and animals, returning nutrients to the soil where they can be recycled by green plants.

Below is a diagram of the energy flow in a food chain you might find in a pond.



Here is a diagram of the energy flow in a pond food web. Can you identify the different food chains within the web?



NAME _____

Energy Flow worksheet

Answer the following questions.

1. What is a food chain? _____

2. What is a food web? _____

3. Where do green plants get the energy they need to grow? _____

4. What is a producer? _____

Give an example. _____

5. What is a consumer? _____

6. What is a herbivore? _____

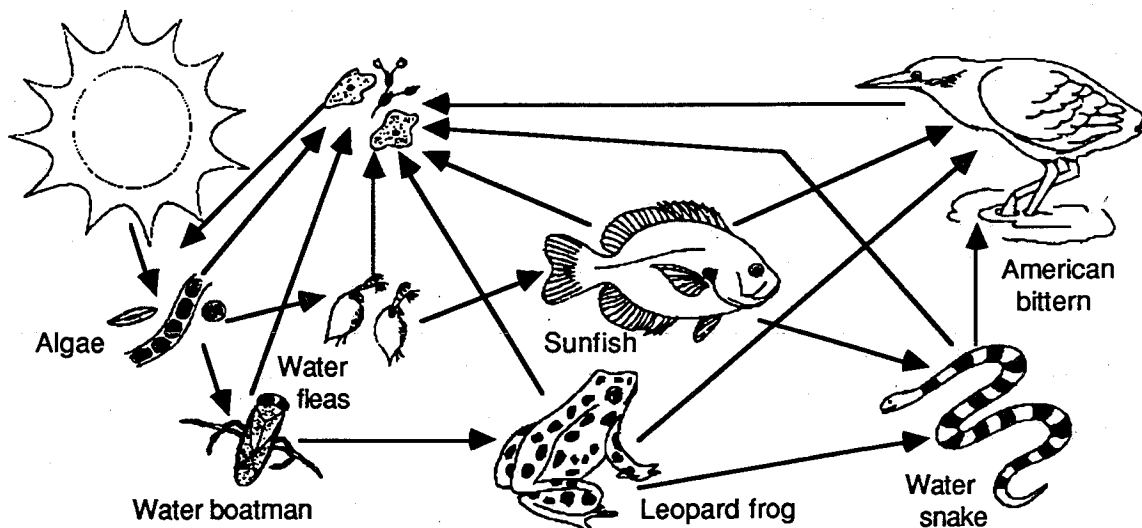
Give an example. _____

7. What is a carnivore? _____

Give an example. _____

8. What do decomposers do? _____

On the diagram below, label the **SUN**, a **PRODUCER**, a **HERBIVORE**, a **CARNIVORE**, and a **DECOMPOSER**. Trace over the lines showing the energy flow in **ONE** food chain.



ANSWER KEY—Energy Flow worksheet

Answer the following questions.

1. What is a food chain? A simple diagram of who eats what.
2. What is a food web? Many food chains connected together.
3. Where do green plants get the energy they need to grow? From the sun.
4. What is a producer? An organism which makes its own food (green plant).

Give an example. Algae is a producer shown in the pond food web. (Accept any green plant.)

5. What is a consumer? A living thing that can not make its own food.
6. What is a herbivore? A consumer that eats plants (producers).

Give an example. Water fleas and water boatman are shown. Also accept any animal that eats only plants (cows, rabbits, or deer, for example).

7. What is a carnivore? A consumer that eats other consumers.

Give an example. Accept any of the carnivores shown or any others (bears, dogs or cats, for example).

8. What do decomposers do? Break down dead plants and animals to recycle nutrients.

On the diagram below, label the SUN, a PRODUCER, a HERBIVORE, a CARNIVORE, and a DECOMPOSER. Trace over the lines showing the energy flow in ONE food chain (only one example is shown).

