

CONSUMERS

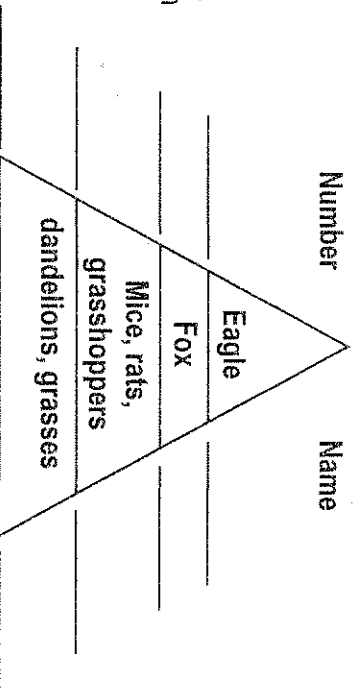
Read the text and answer the questions.

Consumers are organisms that get energy and nutrients by eating other organisms.

Consumers can be classified into three types, based on what they eat. Herbivores are animals that eat plants. Herbivores may eat plant roots, seeds, berries, fruit, or any other part of a plant. Herbivores do not eat animals. Carnivores are organisms that eat other animals. Carnivores do not eat plants. Omnivores are organisms that eat both plants and animals.

Consumers can be classified into three levels, based on where they rank on the food chain. A food chain shows the flow of energy between a select group of organisms. Energy flows to an organism on one level when it eats an organism on a different level. The levels on a food chain are called trophic levels. The first trophic level is Producers. The second trophic level is Primary Consumers. Primary Consumers are animals that eat producers. The third trophic level is Secondary Consumers. Secondary Consumers are animals that eat Primary Consumers. In other words, Secondary Consumers eat animals that eat Producers. The fourth trophic level is Tertiary Consumers. Tertiary Consumers are animals that eat Secondary Consumers. A Tertiary Consumer is an animal that eats an animal that eats an animal that eats a producer.

- Use the text to label the four trophic levels on the diagram. Include each trophic level number and its name.
- Does energy flow up or down on the diagram? Why? Explain your response in a well-organized paragraph.
- Compare and contrast herbivores, omnivores, and carnivores.



DECOMPOSERS

Read the text and answer the questions.



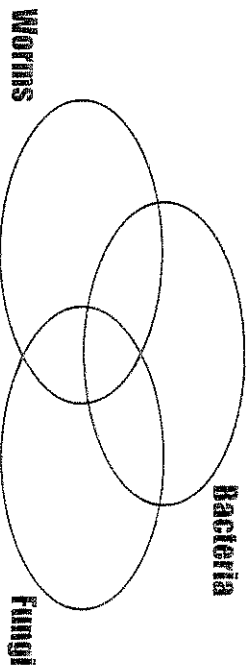
Have you ever wondered why leaves don't just pile up year after year until you can't see the trees anymore? The reason is that after plants and animals die, their remains rot and dissolve. This process of decay is helped along by decomposers.

Decomposers are often called the "recyclers" of life.

Decomposers live on decaying matter. Just as consumers eat plants and animals for their energy, organisms like fungi and bacteria get energy from decaying matter. Decomposers produce chemicals to dissolve the dead or decaying matter into nutrients. They then return the nutrient-filled matter to the soil.

The three types of decomposers are fungi, bacteria, and worms. Fungi often grow on stumps or fallen trees. Fungi have a special chemical that breaks down wood. Bacteria, on the other hand, are microscopic so they cannot be seen. They are found everywhere. Bacteria break down decaying matter. Worms are decomposers because they eat decaying matter and their waste becomes nutrients for the soil. A seasoned gardener surely knows that worms are helpful to the plants in his or her garden!

- Use the text to define decomposer.
 - What purpose do decomposers serve in an ecosystem?
- Explain why decomposers are called the "recyclers" of life. Cite evidence from the text to support your answer.
- Use the text to define microscopic.
 - Which type of decomposer is microscopic?
- Use the text to compare and contrast the three types of decomposers.



What is an Ecosystem?

Read the text and answer the questions.

Take a look outside after a rainstorm, and what do you see? You will most likely find leaves and branches littering your front yard. Puddles have formed. You may even see a tree blown over by the storm. What you may not see is just how the natural balance of the area, or "ecosystem," has changed for the plants and animals living there.

"Ecosystem" is a short name for "ecological system."

Ecosystems are found all over the world and there are many types and sizes. They can be as small as a puddle or as large as an ocean. Ecosystems form in deserts, rainforests, and even cold, snowy Antarctica. But, what *exactly* is an ecosystem?

An ecosystem is a community of living things and nonliving things in a specific area. The living things, such as plants and animals, and the nonliving things, such as the soil, water, and climate, are connected by the flow of energy. All living parts of an ecosystem depend on the other parts of the ecosystem to survive.

The balance between plants, animals, and nonliving things is delicate. Take an animal out of an ecosystem, and its predators might not survive. Remove a plant from an ecosystem, and the animals that eat that plant will be affected. Introduce a new plant or animal into an ecosystem, and this may upset the natural balance for the animals and plants already living there.

- Use the text to define ecosystem.
- What two types of things make up an ecosystem?
 - Give at least two examples of each.
- Name three ways all ecosystems are similar to each other.
- Give three examples of how ecosystems might differ.
- How does the phrase "natural balance" relate to an ecosystem?
- Predict how a storm might affect an ecosystem.

Producers

Read the text and answer the questions.

Living things that produce their own food are known as producers. Producers are essential to all ecosystems. Plants, algae, and bacteria are examples of producers.

How do producers produce their own food? They have help from the sun. They do it through photosynthesis. Photosynthesis is the process by which plants capture sunlight and use it to turn carbon dioxide and water into food. The food and energy created by producers feeds and nourishes other living parts of the ecosystem. The process of photosynthesis also creates oxygen, which animals must have in order to breathe!

The flow of energy starts with the sun. Chlorophyll, a substance found inside the cells of leaves, absorbs the sun's energy. The chlorophyll then combines the sun's energy with carbon dioxide (found in the air) and water (brought up through the plant's roots) to make glucose. Glucose is a type of sugar plants use as food—it gives plants energy they need so they can grow. When the plant makes glucose, it releases oxygen into the air.

- Why are plants considered producers?
- Why are producers important to an ecosystem?
- List three things a plant needs for photosynthesis to occur.
- What two things are created when photosynthesis occurs?
- Use the text to number the following steps in the correct order.
 - _____ Chlorophyll absorbs energy from the sun.
 - _____ The plant uses glucose as energy for growth.
 - _____ Chlorophyll combines water, carbon dioxide, and the sun's energy to produce glucose.
 - _____ The sun produces energy.
 - _____ The plant releases oxygen into the air.
 - _____ The plant absorbs carbon dioxide from the air and water from the ground.
- Predict what would happen if photosynthesis stopped happening. List at least three significant effects.