

Plants Are Food Factories

By Cindy Grigg

Many of the things we use are made in factories. Cars, for example, are made in factories. A factory takes raw materials and turns them into new products. Steel is turned into car bodies. Rubber is turned into car tires. Cloth is turned into car seats.

Photosynthesis: Plants are like factories that make food. How do they do it? The process is called photosynthesis (foe toe SIN thuh sis). Photo means "light." Synthesis means "putting together." Plants use light from the sun to put together raw materials to make their own food in a process called photosynthesis.



Plants need sunlight, water, and carbon dioxide to make food.

Plants use the raw materials of water, nutrients they absorb from soil, and carbon dioxide to make sugars the plant can use. Energy from the sun and chlorophyll are also needed. Plants use about ninety percent of the food they make to grow and reproduce. About ten percent is stored in the plant's tissues. When animals eat plants, they take in the stored energy.

Leaves are the plant's food factories. When you look at a plant, the first things you probably see are the plant's leaves. Almost all photosynthesis takes place in the leaves. Chloroplasts in the plant contain the chemical chlorophyll. This gives plants their green color. Chlorophyll changes the light energy from the sun into chemical energy the plant uses for photosynthesis.

Products of photosynthesis: A plant uses carbon dioxide, water, and energy from the sun. It produces glucose, a type of sugar. It also makes oxygen, which the plant doesn't need. Oxygen is given off as a waste. Small amounts of water are, also.

Photosynthesis is very important to all life on Earth. Almost all animals on Earth depend on plants for food. Plants are the primary producers in the food chain. Animals also need the oxygen that is given off by photosynthesis. In turn, animals give off carbon dioxide as a waste, which is needed by plants.

Plants Are Food Factories

Questions

_____ 1. Plants are like factories that make food. This is an example of _____.

- A. a simile
- B. a metaphor
- C. a synonym
- D. alliteration

2. What raw materials do plants need to make food?

Simple Photosynthesis

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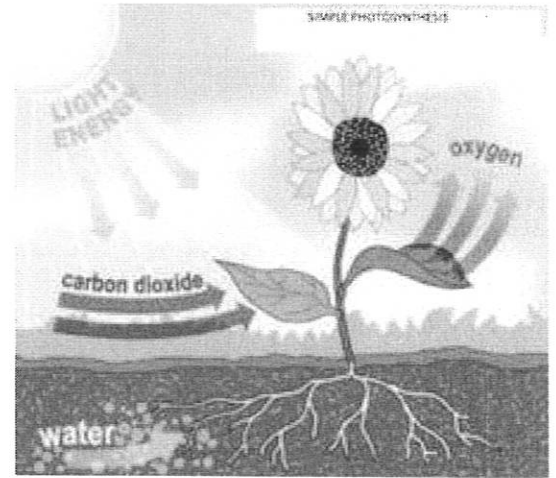
Each part of a plant has its own job. Leaves have the job of photosynthesis. This process lets leaves capture the energy of sunlight and use it to make food. Nearly all plant leaves are green because they contain a chemical called chlorophyll. Chlorophyll is found in chloroplasts inside each plant cell. Chloroplasts absorb the energy of sunlight.

Carbon dioxide is a gas in the air. Tiny openings in the plant's leaves called stomata let carbon dioxide come into the leaf. Water is taken in by the plant's roots. It moves into all the cells of the plant. Chlorophyll, using the sun's energy, changes the water and carbon dioxide into a sugar called glucose. Plants use this food to live and grow.

How do plants change water and carbon dioxide into food? Using the energy from the sun, the water inside the plant's cells is split into its two parts. Water is made of one atom of oxygen and two atoms of hydrogen. Carbon dioxide splits, too. It splits into carbon and oxygen.

The plant uses some of the oxygen and combines it with hydrogen and carbon. These three elements combine to make glucose, a kind of sugar. Some of the oxygen is not needed by the plant. It is sent out of the plant through the stomata. People and animals breathe it in. Then they breathe out carbon dioxide. Plants use it to make more glucose.

Plants and animals are partners. Plants give animals oxygen to breathe. Animals give plants carbon dioxide. When people and animals eat plants, they use the glucose the plants made for their own food. It all starts with energy from the sun.



Simple Photosynthesis

Questions

_____ 1. In what part of the plant does photosynthesis usually take place?

- A. leaves
- B. stem
- C. roots

2. Chlorophyll is found in _____ in the plant's cells.

_____ 3. What is an effect of photosynthesis?

- A. Oxygen is released into the air for people and animals to breathe.
- B. Food is made for plants and animals.
- C. Carbon dioxide is taken out of the air.
- D. all of the above

The Oxygen-Carbon Dioxide Cycle

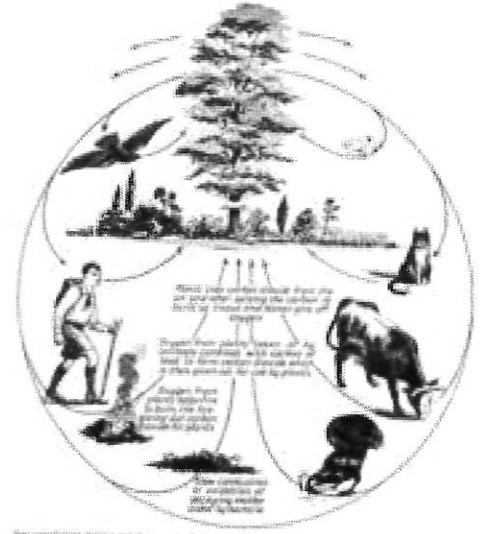
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One element that is very important to nearly all living things is oxygen. Humans and other animals need oxygen to stay alive. Every time you take a breath, you are filling your lungs with oxygen.

If much of the oxygen in the air disappeared, animals would not be able to survive. But animals are breathing in oxygen every day. Why doesn't the air ever run out of oxygen?

Plants help provide the oxygen that animals need to survive. When you breathe out, you release carbon dioxide into the air. Carbon dioxide is made up of two elements, carbon and oxygen. To make their own food, plants use carbon dioxide from the air. Then they release oxygen as a waste product. Humans and other animals breathe in oxygen and release carbon dioxide. This cycle is known as the oxygen-carbon dioxide cycle.

About eighty percent of the oxygen used by animals is replaced by algae. Algae are classified as neither plants nor animals, but as protists. They have chlorophyll and can make their own food by photosynthesis. Algae live world-wide, in oceans, freshwater, and even on land. Plants living on land replace the remaining twenty percent of the oxygen used by animals. Because of the oxygen-carbon dioxide cycle, the amount of oxygen in the air stays fairly constant. As long as there are enough plants on Earth to release oxygen, we will never run out.



The Oxygen-Carbon Dioxide Cycle

Questions

- _____ 1. What two elements is carbon dioxide made of?
 - A. carbohydrate and dioxin
 - B. carbon and dioxin
 - C. carbohydrate and oxide
 - D. carbon and oxygen

- _____ 2. How do plants use carbon dioxide?
 - A. to break down oxygen
 - B. to make their own food
 - C. to get rid of waste products
 - D. to get water

- _____ 3. Which of the following correctly describes the oxygen-carbon dioxide cycle?
 - A. Humans and other animals breathe in oxygen and release carbon dioxide.
 - B. Plants absorb carbon dioxide and release oxygen.
 - C. The oxygen-carbon dioxide cycle keeps the amount of oxygen in the air fairly constant.
 - D. all of the above

Name _____



Date _____

- _____ 4. Which of the following best states the main idea of the reading passage?
- A. Animals breathe in oxygen every day.
 - B. Carbon dioxide is made up of two elements.
 - C. The oxygen-carbon dioxide cycle keeps the amount of oxygen in the air fairly constant.
 - D. Oxygen is an element.
- _____ 5. Plants help keep humans and other animals alive.
- A. opinion
 - B. fact
- _____ 6. We should all grow plants.
- A. fact
 - B. opinion
- _____ 7. Plants take in carbon dioxide from the air.
- A. fact
 - B. opinion
- _____ 8. Humans could not survive without oxygen.
- A. fact
 - B. opinion

Explain why carbon dioxide and oxygen make a "cycle."
