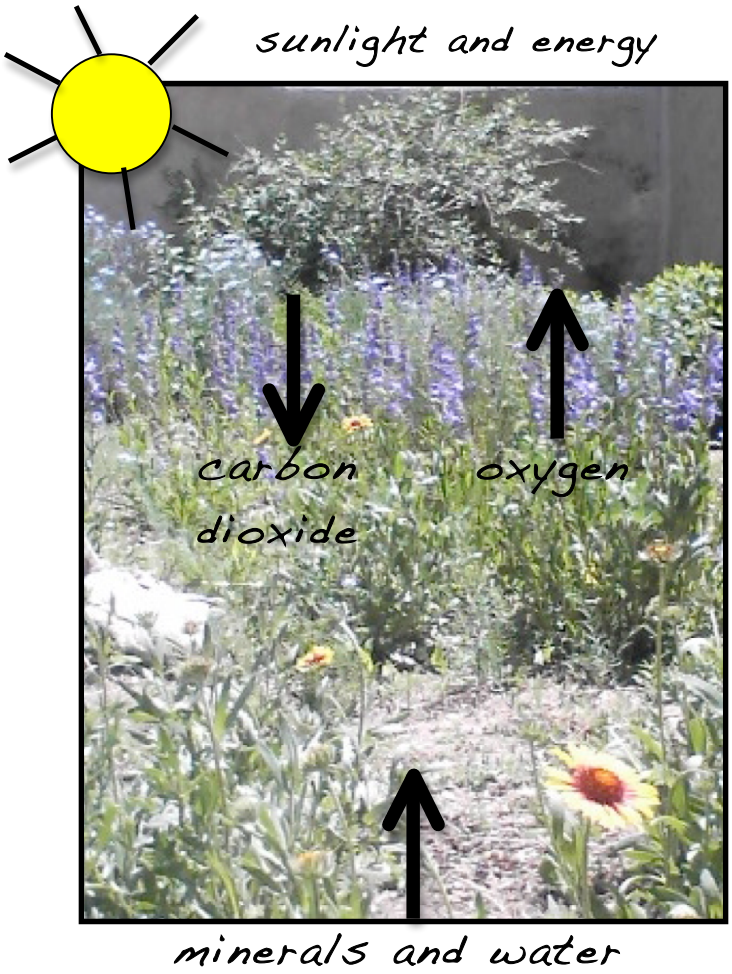


Questions 1 – 4 refer to the following information.

LIVING GREEN PLANTS

Unlike animals, living green plants have the ability to make their own food. Without plants, there would be no food on the Earth. Since animals cannot make their own food, they must eat plants or other animals to survive.

Living green plants make food using a process called photosynthesis.

Photosynthesis is a very basic process. Without photosynthesis, life on earth would not exist.

In the process of photosynthesis, living green plants do two things.

First, they produce glucose. Glucose is a kind of sugar. It is one of the most basic foods on earth.

The second thing that green plants do in photosynthesis is to release oxygen into the air. Without the oxygen made by green plants, animal life on earth would not exist.

Only green plants can carry out the process of photosynthesis. That's because green plants contain a substance that no other kind of plant or animal contains. That substance is chlorophyll.

In the process of photosynthesis, green plants use water, carbon dioxide, a gas in the air, and the energy from sunlight, combined with chlorophyll to produce their own food. The plant takes in carbon dioxide through its leaves.

The first step in photosynthesis is very simple. Sunlight hits the leaves of the green plant. The chlorophyll in the leaves absorbs the sunlight. The plant uses the sun's energy to combine the water and carbon dioxide that the plant has absorbed. By means of chlorophyll, this chemical combination is converted into oxygen atoms and hydrogen atoms.

To form glucose, **the plant combines the carbon dioxide with the oxygen and hydrogen atoms.**

Any oxygen atoms that are left over are released by the plant into the air.

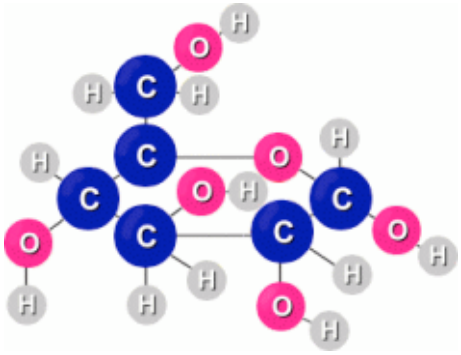
The simplest carbohydrates are simple sugars, the most common of which is a sugar called **glucose**.

Glucose is a MOLECULE that contains the following.

- 6 carbon atoms
- 12 hydrogen atoms
- 6 oxygen atoms

The formula for glucose is written as $C_6H_{12}O_6$.

A glucose molecule looks like this.



1. The main idea of the passage is that photosynthesis is a process by which green plants

① produce glucose and release oxygen
② make chlorophyll and release carbon dioxide
③ grow taller and stronger
④ turn green and flower

2. The three basic ingredients used in photosynthesis are water, sunlight, and

① oxygen
② hydrogen
③ carbon dioxide
④ glucose

3. When sunlight hits the leaves of a green plant, the chlorophyll in the plant

① takes in oxygen atoms
② absorbs the sunlight
③ changes water into oxygen atoms and hydrogen atoms
④ releases oxygen into the air

4. Glucose is formed from

① hydrogen and oxygen atoms
② hydrogen atoms and carbon dioxide
③ oxygen atoms and carbon dioxide
④ chlorophyll and sunlight

Questions 5 – 14 refer to the following information.

1 Chlorophyll has the ability to trap the energy of sunlight, which is used to split molecules of water into their component elements of hydrogen and oxygen.

5 The plant combines the hydrogen from the water molecule with carbon dioxide that has been absorbed through small openings called stomata and converts them into sugars and starches.

10 The plant uses these sugars and starches as a source of energy and combines them with minerals such as potassium, phosphates, and sulfur to build plant tissue.

15 Photosynthesis creates water and oxygen as by products. The plant releases the oxygen and water into the atmosphere through the stomata. Green plants provide most of the oxygen humans and animals need to survive. Air would not be breathable if plants did not *20* continuously replenish it.

Unlike animals, plants have the ability to make their own food. Without plants, there would be no food on the Earth. Since animals cannot make their own food, they must eat *25* plants or other animals to survive.
The less advanced plants found in the **fungus** family, such as mushrooms, are not able to make their own food. Mushrooms cannot make their own food because they *30* have **no chlorophyll in their cells**. They must live off other living things, often things that are dead or decaying.

5. What is photosynthesis?
① the reproductive cycle of flowers
② the food making process in plants
③ the growth of young plants
④ the manufacture of chlorophyll
⑤ the spreading of a plant's root structure

6. The absorption of carbon dioxide and release of oxygen in photosynthesis helps to aid which of the following processes in a human?
① respiration
② digestion
③ reproduction
④ circulation
⑤ elimination

7. When carbon dioxide enters a plant's leaves, it combines with hydrogen. These are converted to
① sunlight and water
② potassium, sulfur, and phosphorus
③ photosynthesis
④ stomata
⑤ sugars and starches

8. Based on what you have read about photosynthesis, a mushroom
① is always poisonous
② produces its own food
③ does not need very much water to grow
④ has an extensive taproot system
⑤ is not capable of producing its own food

9. Mushrooms must live off other living things.
① true
② false

10. Mushrooms cannot make their own food.
① true
② false

11. All plant cells have chlorophyll.
① true
② false

12. Oxygen is given off during photosynthesis.
① true
② false

13. What does a plant that contains chlorophyll <u>need</u> to produce food?
① energy, water, carbon dioxide, and minerals
② water, carbon dioxide, oxygen, and minerals
③ minerals, spores, water, and energy
④ carbon dioxide, oxygen, spores, and energy
⑤ oxygen, water, energy, and minerals

14. What is the main idea of this passage?
① what makes food spoil
② how different plants get or make their food
③ different types of one celled plants
④ the way animals get their food
⑤ pollution created by food factories

Questions 15 refers to the following information.

Photosynthesis and cellular respiration are opposite processes.

Cellular Respiration
The process of cellular respiration takes place in animals and people.

In cellular respiration, energy and oxygen is used, and carbon dioxide is released.

Photosynthesis
The process of photosynthesis takes place in living green plants.

In photosynthesis, energy and carbon dioxide are used, and oxygen is released.

Together, these processes help keep the levels of oxygen and carbon dioxide in the air in balance.

15. Which of the following statements does this information support?

① More green plants means less oxygen in the air.
② More green plants means more oxygen in the air.
③ Fewer green plants means less carbon dioxide in the air.
④ Fewer green plants means more energy is stored in glucose.
⑤ There is more oxygen than carbon dioxide in the air.

Questions 16 refers to the following information.

Researchers have demonstrated that tomato plants grow bigger and produce more tomatoes when the soil is covered with sheets of silver colored reflective plastic.

According to the researchers, when this plastic is used, more photosynthesis takes place and the plants grow larger.

16. Which property of the plastic is likely to cause the increase in photosynthesis?

① its thickness
② its weight
③ its reflectivity
④ its length
⑤ its flatness

Questions 17 refers to the following information.

The energy released by **cellular respiration** is stored in a molecule called adenosine triphosphate (ATP).

A form of **cellular respiration**
that requires oxygen
results in many ATP molecules.

Another form of **cellular respiration**
(lactic acid fermentation)
that does not require oxygen
results in fewer ATP molecules.

17. Which of the following statements is supported by this information?

① Lactic acid fermentation yields more ATP molecules.
② Cellular respiration using oxygen is a more efficient way to release energy than lactic acid fermentation.
③ Lactic acid fermentation uses oxygen to break down glucose.
④ Lactic acid fermentation uses to breakdown energy.
⑤ ATP molecules release carbon dioxide.