Sunlight in Storage

Trace how a plant makes, stores, and uses food.

L.5.3A.1 "Research and communicate the basic process of photosynthesis that is used by plants to convert light energy into chemical energy that can be stored and released to fuel an organism's activities."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the three things the plant needs for photosynthesis, circle the food it makes, and write 1 and 2 beside the sentences that explain how energy is stored and then released.

A Tomato Plant's Energy

1. A tomato plant on a sunny porch does not eat a meal. Its leaves take in sunlight, and its roots draw water from the soil. Tiny openings in the leaves let carbon dioxide from the air enter. Inside leaf cells, chloroplasts capture light energy. These materials and this energy give the plant what it needs to make its own food through photosynthesis.

2. During photosynthesis, the plant uses light energy to turn water and carbon dioxide into glucose, a kind of sugar. The light energy is changed into chemical energy stored in the glucose. Oxygen is also made and leaves the plant through tiny openings. Even if the tomato plant has plenty of water and air, it cannot keep making glucose this way without light.

3. The tomato plant can use glucose to grow new stems and make fruit. It can also change some glucose into starch, a stored food for later. When the plant needs energy for its activities, its cells break down glucose and release some of its stored chemical energy. This release is called cellular respiration, and it can happen day or night. Animals can get chemical energy by eating plants, too.

2 ANSWER WITH EVIDENCE

Use the passage

1. What happens to sunlight's energy when the tomato plant makes glucose?

2. How do water and carbon dioxide help the plant make food?

3. Why can the plant not keep making glucose through photosynthesis in a dark room, even if it has water and air?

4. How can food made on a sunny day help the plant carry out activities after sunset?

3 YOUR TURN

Your own words

Imagine a bean plant spends a week beside a sunny window, then a day in a dark room. It has water and air the whole time. Write four sentences explaining how it makes and stores food in the light, how it gets energy for its activities in the dark, and what would happen to its stored food if darkness continued.

ANSWER KEY

Sunlight in Storage

GRADE 5 · L.5.3A.1

PART 1 · READ AND MARK

Underline the three things the plant needs for photosynthesis, circle the food it makes, and write 1 and 2 beside the sentences that explain how energy is stored and then released. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What happens to sunlight's energy when the tomato plant makes glucose?	**The plant changes light energy into chemical energy stored in glucose.**
2	How do water and carbon dioxide help the plant make food?	**The plant uses light energy to turn water and carbon dioxide into glucose.**
3	Why can the plant not keep making glucose through photosynthesis in a dark room, even if it has water and air?	**Photosynthesis needs light energy, which the plant cannot capture in a dark room.**
4	How can food made on a sunny day help the plant carry out activities after sunset?	**The plant can store some food as starch for later. Its cells can break down glucose and release chemical energy through cellular respiration, which can happen at night.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Beside the window, the bean plant uses sunlight, water, and carbon dioxide to make glucose. Light energy becomes chemical energy in the glucose, and the plant can store some food as starch. In the dark, photosynthesis stops, but the plant can release energy from glucose through cellular respiration. If darkness continues, it uses up stored food without making more glucose through photosynthesis.

Accept descriptions that identify glucose as stored chemical energy and cellular respiration as the process that releases energy for the plant's activities. For the marking job, students should underline sunlight, water, and carbon dioxide, circle glucose, and number the energy-storage sentence before the energy-release sentence.