

## UNIT 10: What a Plant Needs to Grow

Name: \_\_\_\_\_

### Growing Together

Miss Walton's fourth-grade class was like every other fourth-grade class. Well, except for one thing: Miss Walton's class had a beautiful outdoor garden. Every Friday, the students took a short field trip to visit the garden. They were excited to see their growing plants. Some students were competing to see whose plant would grow the fastest! After each visit to the garden, Miss Walton tested her students on their plant knowledge.

"Who knows what plants need to grow?" she asked the class.

"I do!" A student named Sara raised her hand. "Most plants must have water, air, and sunshine in order to grow."

"Good job, Sarah," Miss Walton remarked. "Okay, who can describe **photosynthesis**, the process plants use to make food?"

Sam raised his hand. "I can."

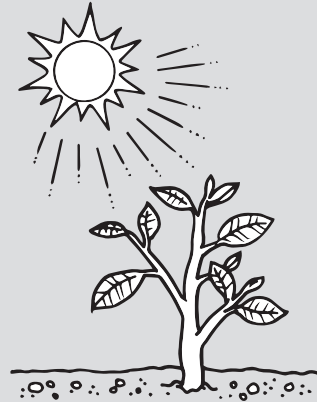
"Go ahead, Sam," Miss Walton said.

"Okay, so the first step in photosynthesis happens when plants **absorb** (take in) sunlight. Plants have a special substance called **chlorophyll**, which absorbs the Sun's energy. Plants also absorb carbon dioxide from the surrounding air and water from the ground. The Sun's energy is used to transform the water and carbon dioxide into sugars. These sugars are used by plants as food."

"Great answer!" Miss Walton cheered. "But we are missing one detail. Does anyone know what it is?"

"Photosynthesis also causes plants to release oxygen," one student called out.

"You got it!" Miss Walton exclaimed.



1. Circle the two causes that match the following effect:

**Effect** A plant releases oxygen into the air.

**Cause 1:** Plants are able to create their own food.

**Cause 2:** Chlorophyll takes in the Sun's energy.

**Cause 3:** Most plants need water to grow.

**Cause 4:** A plant absorbs water and carbon dioxide.

2. What does the word *absorb* mean?

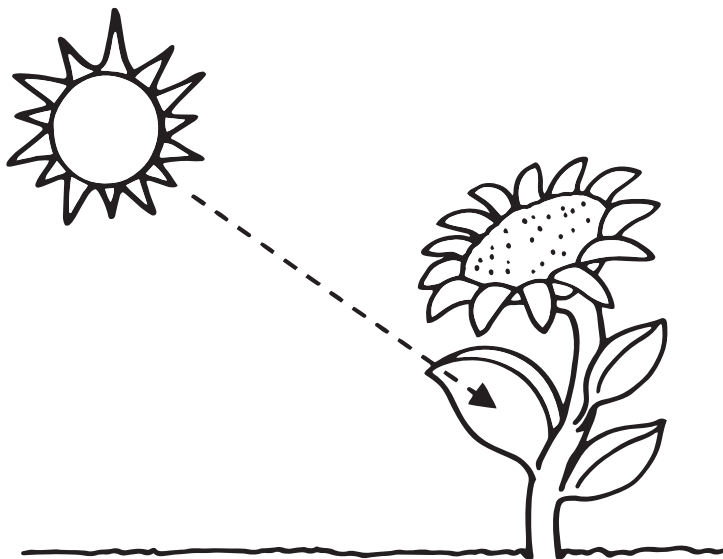
a. to set free      b. to take in      c. to change      d. to become larger

3. What is *chlorophyll*, and what does it do? \_\_\_\_\_

Name: \_\_\_\_\_

# Photosynthesis

**Directions:** Think about how plants grow. Use the pictures below to help you describe the process of photosynthesis.



First, \_\_\_\_\_

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At the same time, \_\_\_\_\_

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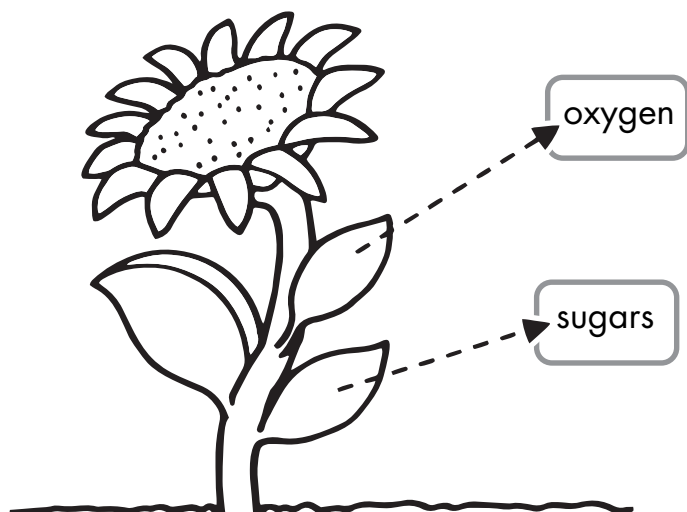
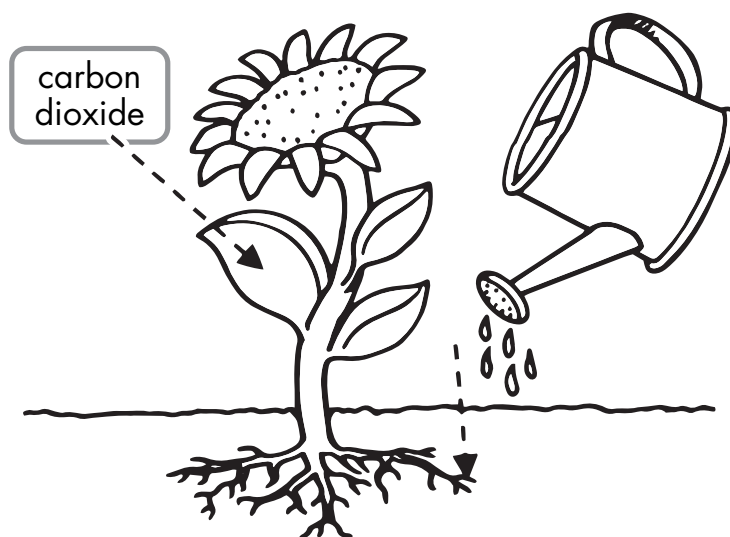
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Finally, \_\_\_\_\_

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Name: \_\_\_\_\_

## Anatomy of a Plant

I was really excited for today's garden field trip! Our plants have grown so much since we first planted our seeds. Today, Miss Walton has promised to teach us the different parts of plants. Miss Walton is my absolute favorite teacher. She always lets us do hands-on projects! When we arrived at the garden, Miss Walton immediately launched into her lecture.

"Let's look at the **roots**, **leaves**, and **stems** of our plants," said Miss Walton. "Everyone, point to a leaf on your plant. Who can tell me about how the leaves of a plant help the plant survive and grow?"

"I can!" Andy volunteered eagerly. "In order to survive and grow, plants need food. Leaves help make food for the plant through the process of photosynthesis."

"Wonderful job, Andy," Miss Walton said. "Okay, now everyone point to your plant's stems. Can someone answer the same question about stems?"

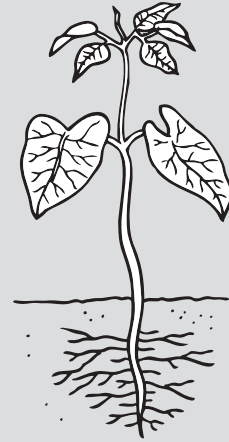
"Plants need water to survive and grow, too! The stem moves water from the plant's roots to the rest of the plant," said Emily.

I really wanted to answer one of Miss Walton's questions. I told myself I would definitely answer the next one.

"One last question—what are the roots of a plant responsible for?"

I raised my hand. "The roots absorb minerals and water from the ground. They also help keep plants stable."

"Fantastic work," Miss Walton happily replied.



1. Which of the following is *not* true about the parts of a plant? Circle your answer.
  - a. Each part of the plant helps it survive and grow.
  - b. The stem is the main part of the plant that absorbs the Sun's energy.
  - c. Roots absorb minerals and water from the soil.
  - d. Leaves are an important part of the photosynthesis process.
2. What did Miss Walton mean when she said that roots "help keep a plant stable"?
 

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3. In your opinion, which part of the plant is most important? Why?
 

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Name: \_\_\_\_\_

## Word Study—What a Plant Needs to Grow

**Directions:** Study the definitions. Then, use each vocabulary word in a sentence that relates to the information from this unit.

**chlorophyll**—the green substance in plants that makes it possible for them to make food from carbon dioxide and water

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**leaves**—green and flat parts of the plant that grow from stems; makes food for the plant through the process of photosynthesis

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**photosynthesis**—the process by which a green plant turns water and carbon dioxide into food when the plant is exposed to light

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**roots**—the part of a plant that grows underground, gets water and minerals from the ground, and holds the plant in place

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**stems**—the main long and thin part of a plant that rises above the soil and supports the leaves and flowers; moves water from the plant's roots to the rest of the plant

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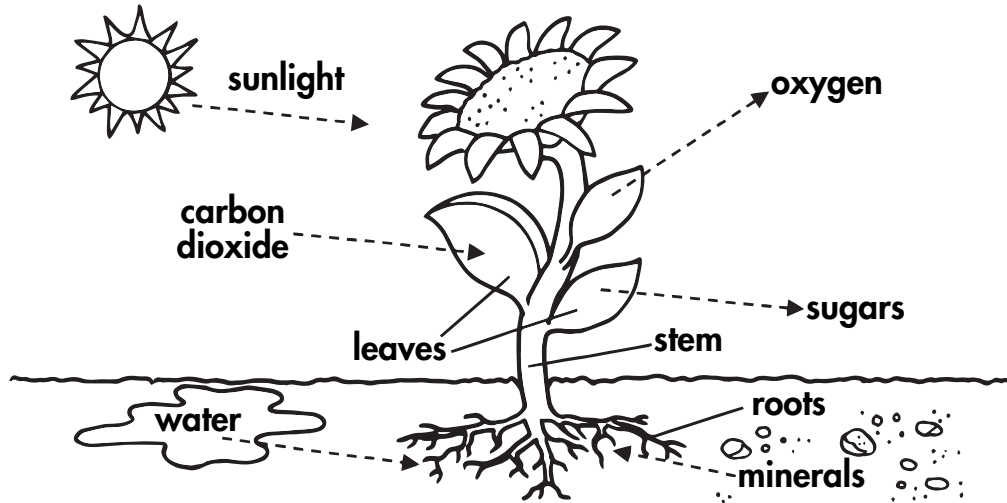
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# The Structure of a Plant

**Directions:** Think about the different parts of a plant. Study the diagram below. Then, respond to the prompt below.



**Prompt** How does a plant's structure help it grow and survive?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

# Answer Key (cont.)

## Word Study—Surviving in the Wild (page 46)

Check for appropriate answers.

## Adapting to the Desert (page 47)

Check for appropriate answers.

## Unit 9—Animal Groups

### Groups in the Wild (page 48)

1. hierarchy
2. b
3. Check for appropriate answers.

### Understanding Animal Groups (page 49)

1. b
2. c
3. a

### Word Study—Animal Groups (page 49)

Check for appropriate answers.

### Protecting the Young (page 50)

1. d
2. predators
3. Check for appropriate answers.

### Writing About Animal Groups (page 51)

Check that students have written about how animals behave in groups and how their behavior helps them survive.

## Unit 10—What a Plant Needs to Grow

### Growing Together (page 52)

1. Causes 2 and 4 should be circled.
2. b
3. Check for appropriate answers.

### Photosynthesis (page 53)

Check that students have correctly described the process of photosynthesis.

### Anatomy of a Plant (page 54)

1. b
2. Students should explain that a stable plant is one that stands firmly and does not fall over.
3. Check for appropriate answers.

### Word Study—What a Plant Needs to Grow (page 55)

Check for appropriate answers.

### The Structure of a Plant (page 56)

Check that students have written about how a plant's structure supports its growth and survival.

## Unit 11—Rock Types

### Let's Rock and Roll! (page 57)

1. b
2. igneous (b), sedimentary (a), metamorphic (c)
3. c
4. Check for appropriate answers.

## Three Kinds of Rocks (page 58)

Check for appropriate answers.

## Reading the Rocks (page 59)

1. c
2. d
3. Check for appropriate answers.

### Word Study—Rock Types (page 60)

Check for appropriate answers.

### Rock Comics (page 61)

Check that student comics include facts about rocks.

## Unit 12—Weathering and Erosion

### Forces of Nature (page 62)

1. a
2. Weathering
3. Check for appropriate answers.

### Three Types of Weathering (page 63)

1. Answers will vary, but students may mention that biological weathering is caused by living things and physical weathering is caused by wind, water, and changes in temperature.
2. Answers will vary, but students may mention that all three types of weathering wear down rocks over time.
3. Check for appropriate answers.

### Carried Away (page 64)

1. erosion
2. b
3. Check for appropriate answers.

### Word Study—Weathering and Erosion (page 65)

Check for appropriate answers.

### Weathering vs. Erosion (page 66)

Check for appropriate answers.

## Unit 13—Fossils

### Blast from the Past (page 67)

1. d
2. fossils
3. Check for appropriate answers.

### A Fantastic Find (page 68)

1. b
2. d
3. Check for appropriate answers.

### Word Study—Fossils (page 69)

Check for appropriate answers.

### Featuring Fossils (page 70)

Check that students have written articles about fossils, including examples of fossils and describing how they are formed.