Sunflower Matter Mystery

Use evidence to explain where growing plants get matter.

5.7 "Support an argument from evidence that plants primarily use air and water to process matter needed for growth."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two details that show where the sunflower gets matter for growth, circle both mass measurements, and use your marks to plan an argument.

Where Did the Sunflower's Matter Come From?

1. A tiny sunflower seed can grow into a tall plant with a thick stem. Where does all that new matter come from? A class grew a sunflower in a pot. They added water and kept it in sunlight. Over several weeks, its stem and leaves grew larger. The class wondered whether the extra matter came mostly from the soil.

2. The sunflower's roots took in water from the soil, while its leaves took in carbon dioxide from the air. Using energy from sunlight, the plant combined matter from water and carbon dioxide to make sugars. It used those sugars to build more stem, roots, and leaves. Sunlight supplied energy for this process, but sunlight was not the main source of new matter.

3. The class weighed the dry soil before planting and after harvest. The sunflower gained 80 grams of mass, while the dry soil lost only 2 grams. The soil gave the sunflower minerals, but this small loss cannot explain most of the plant's gain. Together with what we know about its leaves and roots, the measurements support air and water as the main sources of matter for growth.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do the class's measurements challenge the claim that most new sunflower matter came from soil?

2. What happens in the leaves that supports the claim that air supplies matter for growth?

3. How do the roots help supply matter that becomes new plant parts?

4. Why does sunlight help the sunflower grow without being the main source of its new matter?

3 YOUR TURN

Your own words

A neighbor sees a bean plant grow in a pot and says, "All the new leaves came from the soil." Write a 4- to 5-sentence reply that makes a different claim, uses two different details from the passage as evidence, and explains how they support your claim.

ANSWER KEY

Sunflower Matter Mystery

PART 1 · READ AND MARK

Underline two details that show where the sunflower gets matter for growth, circle both mass measurements, and use your marks to plan an argument. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do the class's measurements challenge the claim that most new sunflower matter came from soil?	**The sunflower gained 80 grams, but the dry soil lost only 2 grams. The soil's small loss cannot explain most of the gain.**
2	What happens in the leaves that supports the claim that air supplies matter for growth?	**The leaves take in carbon dioxide from the air. The plant uses matter from it to make sugars that help build new parts.**
3	How do the roots help supply matter that becomes new plant parts?	**The roots take in water. The plant uses matter from that water to make sugars that help build its stem, roots, and leaves.**
4	Why does sunlight help the sunflower grow without being the main source of its new matter?	**Sunlight supplies energy to make sugars. The matter used to make them comes from water and carbon dioxide.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The bean plant's new leaves did not come mostly from soil. In the sunflower study, the plant gained 80 grams while the dry soil lost only 2 grams, so soil could not account for most of the gain. The passage also explains that leaves take in carbon dioxide from the air and roots take in water. Plants use matter from both to make sugars that help build new leaves.

Accept responses that identify air and water as the primary sources of matter and connect at least two passage details to that claim. Students may note that soil supplies minerals without claiming that it supplies most new plant matter.