

2023 MCAS Sample Student Work and Scoring Guide

Grade 5 Science and Technology/Engineering Question 7: Constructed-Response

Reporting Category: Life Science

Practice Category: Investigations and Questioning

Standard: [5.LS.1.1](#) - Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction.

Item Description: Explain why plant height is measured in a certain investigation and explain why one group of plants grew taller than another group in the investigation.

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Scoring Guide

Select a score point in the table below to view the sample student response.

Score	Description
<u>2</u>	The response demonstrates a thorough understanding of the process by which plants use sunlight to produce sugars and plant materials needed for growth. The response clearly explains why the student measured the height of each plant before she separated the plants into two groups. The response also correctly identifies which group of plants most likely grew more in height and clearly explains the reasoning.
<u>1</u>	The response demonstrates a partial understanding of the process by which plants use sunlight to produce sugars and plant materials needed for growth.
<u>0</u>	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Score Point 2**This question has two parts.**

A student investigated the growth of bean plants under different conditions. She had ten bean plants, each in an identical pot, with the same amount of soil in each pot. The student measured the height of each plant. Then she separated the plants into two groups of five plants each. The student placed one group in a dark room and the other group in an area that had light. She gave each plant the same amount of water twice a week. After four weeks, the student measured the height of each plant again.

Part A

Explain why the student measured the height of each plant before she separated the plants into two groups.

The student measured the height of the plants, before she separated them into the two separate groups to see the difference in the growth of the plants after the four weeks.

Part B

Identify which group of plants most likely grew more in height over the four weeks. Explain your reasoning. In your explanation, be sure to include the process that plants use to help them grow.

The group of plants that grew more in height over the four weeks were the plants that were in the area that had light available. My reasoning, is that plants need sunlight to grow. Plants use the sunlight to make food (photosynthesis) which helps them grow bigger and more sturdier.

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Score Point 1**This question has two parts.**

A student investigated the growth of bean plants under different conditions. She had ten bean plants, each in an identical pot, with the same amount of soil in each pot. The student measured the height of each plant. Then she separated the plants into two groups of five plants each. The student placed one group in a dark room and the other group in an area that had light. She gave each plant the same amount of water twice a week. After four weeks, the student measured the height of each plant again.

Part A

Explain why the student measured the height of each plant before she separated the plants into two groups.

The reason she did that is because she wanted to know what plants needed more sunlight and which didn't.

Part B

Identify which group of plants most likely grew more in height over the four weeks. Explain your reasoning. In your explanation, be sure to include the process that plants use to help them grow.

The ones in the sunlight because all plants need sunlight to grow and produce food/oxygen. Also the process that helps them grow is photosynthesis and the main thing in photosynthesis is the sun.

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Score Point 0**This question has two parts.**

A student investigated the growth of bean plants under different conditions. She had ten bean plants, each in an identical pot, with the same amount of soil in each pot. The student measured the height of each plant. Then she separated the plants into two groups of five plants each. The student placed one group in a dark room and the other group in an area that had light. She gave each plant the same amount of water twice a week. After four weeks, the student measured the height of each plant again.

Part A

Explain why the student measured the height of each plant before she separated the plants into two groups.

so they can know withch plant are big and small and not get confused with other plants that they are growing.

Part B

Identify which group of plants most likely grew more in height over the four weeks. Explain your reasoning. In your explanation, be sure to include the process that plants use to help them grow.

I think that the plants in the light grow more than the ones in the dark room over 4 weeks.

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