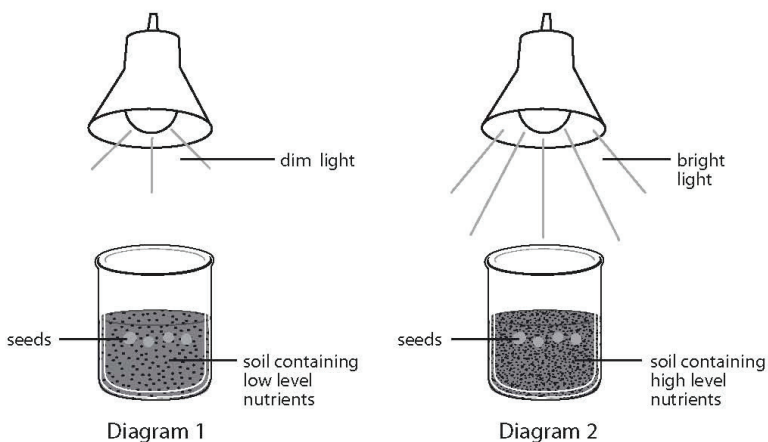


Fred has a packet of pea seeds that are genetically identical.

They are a variety of peas that produce tall stemmed pea plants.

He plants four pea seeds in a container in the conditions shown in Diagram 1.

He plants four more pea seeds in a container in the conditions shown in Diagram 2. He waters the seeds every day.



What can be predicted about the height of the pea plants?

Explain your answer.

TIMSS2007

Science

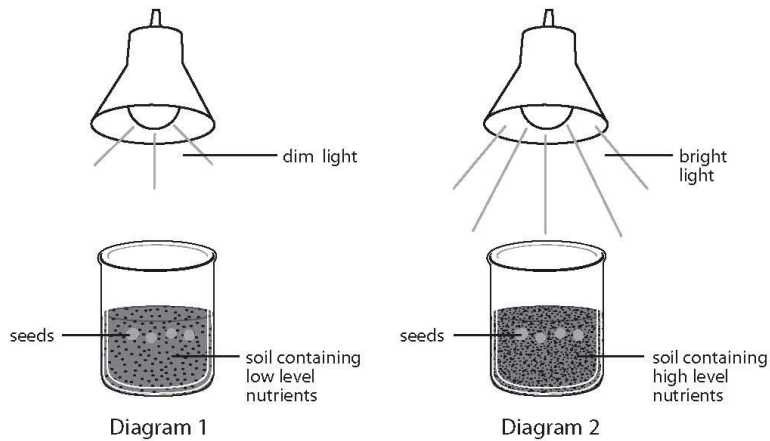
Eighth Grade

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Content Domain

Biology

Cognitive Domain

Reasoning

Maximum Points

2

Key

See scoring guide

S042310

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International Study Center
Lynch School of Education, Boston College

Code	Response	Item: S042310
	Correct Response	
20	<p>Predicts that plants in diagram 2 may grow taller than plants in diagram 1. Explanation refers to BOTH light and nutrients.</p> <p><i>Examples:</i></p> <p><i>The height of the pea plants will be higher in the second container. The bright light will give the plants energy and the nutrients in the soil will help the peas grow.</i></p> <p><i>I predict that the peas in diagram 2 will grow higher. It has more nutrients and more light.</i></p>	
	Partially Correct Response	
10	<p>Predicts that plants in diagram 2 may grow taller than plants in diagram 1. Explanation refers to light OR nutrients OR mentions that diagram 2 has more basic necessities.</p> <p><i>Examples:</i></p> <p><i>Diagram 2 will grow taller. This is because it has more light and plants make food using light.</i></p> <p><i>The pea plants with the bright light shining on them will grow faster than the pea seeds with the dim light.</i></p> <p><i>The peas will grow taller in diagram 2 because there are more nutrients to help with growth.</i></p> <p><i>Diagram 2 has more basic necessities than diagram 1.</i></p>	
	Incorrect Response	
70	<p>Predicts that plants in diagram 1 may grow taller than plants in diagram 2. Explanation refers to a low intensity of light causing spindly (leggy) growth.</p> <p><i>Examples:</i></p> <p><i>The pea plants under dim light grow a long stem because of the dim light.</i></p>	
79	Other incorrect (including crossed out, erased, stray marks, illegible, or off task)	
	Nonresponse	
99	Blank	