

Soil Signal

Read a bar graph, identify patterns, and judge the strength of a conclusion.

LS.1.c.ii “interpreting, analyzing, and evaluating data construct, analyze, and interpret graphical displays of data”

NAME _____

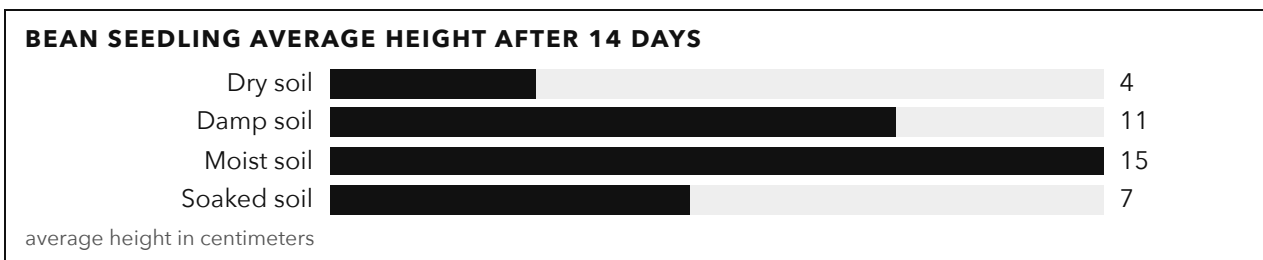
DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the graph title and the words that tell what was measured, circle the tallest and shortest bars, and number two passage statements that help evaluate the conclusion.

Water and Bean Seedlings

- ① In a classroom investigation, students tested how different soil moisture levels affected bean seedling growth. They planted equal numbers of seeds in the same type of soil, used identical containers, and kept all plants under the same lamp. After 14 days, they measured each seedling from soil surface to tip. The bar graph shows the group’s average heights.



- ② The moist-soil bar is tallest, so the seedlings in that condition had the greatest average height. The dry-soil bar is shortest. Height rises from dry to damp to moist soil, then drops in soaked soil. This pattern suggests that bean seedlings grew best with moist soil in this investigation, not simply with the most water.
- ③ However, averages can hide differences among individual plants. A fair comparison also depends on keeping factors such as seed type, pot size, and measurement time the same. The graph does not show how many seedlings were measured or how much the heights varied. Repeating the test with more seedlings would make the conclusion stronger.

2 ANSWER WITH EVIDENCE Use the passage

1 What does the height of each bar represent?

2 Which two soil conditions have the greatest difference in average height? What is the difference?

3 Describe the pattern in seedling height as soil changes from dry to damp, moist, and soaked.

4 Name one missing piece of information that limits the conclusion, and name one way to strengthen the investigation.

3 YOUR TURN Your own words

On the grid, make a bar graph for equal-size soil samples that contained 12 earthworms in compost soil, 7 in garden soil, and 3 in sandy soil. Give the graph a title and labeled axes with an even scale, then write two sentences below it: one claim supported by the graph and one reason to collect more data.



PART 1 • READ AND MARK

Underline the graph title and the words that tell what was measured, circle the tallest and shortest bars, and number two passage statements that help evaluate the conclusion. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What does the height of each bar represent?	It represents the average height, in centimeters, of bean seedlings after 14 days in one soil moisture condition.
2	Which two soil conditions have the greatest difference in average height? What is the difference?	Moist soil and dry soil, with a difference of 11 cm.
3	Describe the pattern in seedling height as soil changes from dry to damp, moist, and soaked.	Average height increases from dry to damp to moist soil, then decreases in soaked soil.
4	Name one missing piece of information that limits the conclusion, and name one way to strengthen the investigation.	The graph does not show the number of seedlings measured or how much individual heights varied. The test could be repeated with more seedlings.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My bar graph is titled *Earthworms in Three Soil Samples*, with bars for compost soil, garden soil, and sandy soil at 12, 7, and 3 earthworms. The data suggest that compost soil had the most earthworms, but repeated samples would show whether this pattern is consistent.

Accept equivalent descriptions of the graph pattern and calculations based on the bar values. For the open task, check for an accurate bar graph with a title, labeled axes, even scale, a data-based claim, and a reasonable need for additional data.