

Light Pattern Detectives

Organize plant data to find a possible relationship.

5.1.c.ii “interpreting, analyzing, and evaluating data organize simple data sets to reveal patterns that suggest relationships”

NAME _____

DATE _____

1

READ AND MARK

Read it twice

YOUR JOB In the table, number the rows 1 through 4 from the fewest to the most average leaves, then underline the sentence that states the relationship suggested by the data.

Bean Seedling Light Test

- 1
- A science club tested how daily light affects bean seedlings. They used four groups of six similar seedlings, the same soil, pots, water, and temperature. For 14 days, each group received a different number of hours of light. Then the club counted leaves and found the average number for each group. Their organized results appear below.

BEAN SEEDLING RESULTS AFTER 14 DAYS

Daily light	Average number of leaves
0 hours	1
4 hours	3
8 hours	5
12 hours	6

- 2
- The table is ordered from the least light to the most light. As daily light increased from 0 to 8 hours, the average number of leaves rose from 1 to 5. At 12 hours, the average was 6 leaves, so the increase became smaller. The data suggest that more daily light was linked to more leaves in this test.
- 3
- This pattern does not prove that light alone caused the change. Even with careful controls, groups of plants can differ by chance, and scientists measured only 14 days. Repeating the investigation with more seedlings would make the evidence stronger. The club could also test light levels between 8 and 12 hours to learn whether leaf growth keeps rising.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Which two columns should you compare to decide whether daily light and leaf number are related? Explain what each column measures.

2 How did the average number of leaves change from 0 hours of daily light to 8 hours of daily light?

3 What does the 12-hour result show about the pattern of leaf increase?

4 Why would repeating this investigation with more seedlings make the evidence stronger?

3 YOUR TURN _____ Your own words

A second test recorded these pairs: 25 mL water, 9 cm height; 5 mL water, 4 cm height; 35 mL water, 9 cm height; and 15 mL water, 7 cm height. Organize the data from least to most water in the table, then write one sentence that tells the relationship the data suggest.

WATER EACH DAY	AVERAGE HEIGHT AFTER TWO WEEKS

PART 1 • READ AND MARK

In the table, number the rows 1 through 4 from the fewest to the most average leaves, then underline the sentence that states the relationship suggested by the data. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which two columns should you compare to decide whether daily light and leaf number are related? Explain what each column measures.	Compare Daily light, which shows hours of light each day, with Average number of leaves, which shows the average leaves after 14 days.
2	How did the average number of leaves change from 0 hours of daily light to 8 hours of daily light?	It increased from 1 leaf to 5 leaves, an increase of 4 leaves.
3	What does the 12-hour result show about the pattern of leaf increase?	The average rose to 6 leaves. From 8 to 12 hours, four more hours of light added only 1 more average leaf, so the increase became smaller.
4	Why would repeating this investigation with more seedlings make the evidence stronger?	More seedlings and repeated trials would make chance differences between plant groups less likely to affect the results.

PART 3 • YOUR TURN (SAMPLE ANSWER)

5 mL | 4 cm 15 mL | 7 cm 25 mL | 9 cm 35 mL | 9 cm Claim: More daily water was linked to taller seedlings up to 25 mL, but 35 mL did not increase the average height.

Accept correctly matched water and height pairs in ascending water order. Accept a cautious claim that identifies the increase through 25 mL and the unchanged height at 35 mL.