Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #: \_\_\_\_\_\_\_\_\_\_

**Narrative Station:** Read the following narratives and answer the accompanying questions.

**Narrative #1**

Samantha wants to grow sunflowers for her mom. She wants to grow tall sunflowers in the shortest amount of time possible. To grow tall sunflowers fast, she decides to perform an experiment to determine the optimal conditions to grow sunflowers. Samantha learns that fertilizer can help her grow sunflowers quickly. She purchases three different brands of fertilizer. She sets up four pots, planting one sunflower seed in each. She adds one teaspoon of brand A fertilizer to pot #1, one teaspoon of brand B fertilizer to pot #2 and one teaspoon of brand C fertilizer to pot #3. She plants a sunflower seed in a pot #4 which doesn’t receive fertilizer. She places the pots next to each other on a window ledge. She waters each pot with the same amount of water each day. She measures and records the height of the plants each week for four weeks.

**Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week | Pot #1Brand A Fertilizer | Pot #2Brand B Fertilizer | Pot #3Brand C Fertilizer | Pot #4No Fertilizer |
| #1 | 1 cm | 2 cm | 0 | 1 cm |
| #2 | 4 cm | 6 cm | 0 | 3 cm |
| #3 | 8 cm | 12 cm | 1 cm | 5 cm |
| #4 | 13 cm | 18 cm | 2 cm | 8 cm |

Create a bar graph using the results from above. On the x-axis, make a bar for each pot#/fertilizer brand. On the y-axis, number the lines and graph the sunflower height of each pot at week four.

Sunflower Height after Four Weeks with Different Fertilizer Brands

Pot #/Fertilizer Brand

Plant Height (cm)

Pot #4/No Fertilizer

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Pot #3/Brand C Fertilizer

Pot #2/Brand B Fertilizer

Pot #1/Brand A Fertilizer

1. List four variables that Samantha keeps the same (constant) in her experiment. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. According to the data in the table, which fertilizer should Samantha use to help her grow large sunflowers quickly? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Support your answer with evidence. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. Samantha decides to use Brand C fertilizer to grow her flowers. She believes that if she adds two teaspoons of the brand C fertilizer instead of one teaspoon, she will be grow sunflowers the fastest and tallest. Do you think this is a good idea? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain why or why not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Narrative #2**

Jack is a student who loves tomatoes. He wants to grow tomatoes in his backyard. He chooses four locations in his backyard. Each location receives a different amount of sunlight during the day. The first location receives 8 hours of sunlight, the second location receives 6 hours of sunlight, the third location receives 4 hours of sunlight and the fourth location receives no sunlight.

Jack buries the tomato seeds two inches below the surface of the ground at each location. He waters the seeds every day. After six weeks, his tomato plants have grown and produced ripe tomatoes. He records the number of tomatoes each plant produced in a table. He then makes a bar graph to display his findings.



1. Identify the dependent variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and independent variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in Jack’s experiment.

2. According to the graph, how many hours of daily sunlight should his tomato plants receive in order to produce the most amount of tomatoes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Jack did his best to control all variables (except sunlight) in his experiment. What variable(s) might not have been controlled and could have affected tomato plant production?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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