Name ________________________
Date ____________
Period ____

Constructing a Graph from Data

1. **Label** the x-axis and y-axis.
   - The x-axis shows the manipulated variable (also known as the "independent variable", it's the one that you control, change, or compare).
   - The y-axis shows the responding variable (also known as the "dependent variable", it's the result, or what you measured, from the test).
2. Determine the **range** of each axis.
   - How high do the numbers go? The values on each axis of the graph must include all of the data collected.
3. Determine the **scale** that you will use for each square on the graph.
   - How much is each square on the graph worth? *Each square should represent the same amount*.
   - *The scale you should use depends on your range, and how much space you have on your graph*. For example, if your graph needs to go up to 50, and you only have 10 squares, then each square should represent 5 units (0, 5, 10, 15, and so on...). If your graph needs to go up to 50, and you have 25 squares, you can count by 2s (0, 2, 4, 6, etc....). If your graph needs to go up to 50, and you have 50 squares, then you can make each square worth 1 (0, 1, 2, 3...)
4. Plot the points.
5. Finally, communicate how the data is related.

   Sometimes you will **connect the dots**, for example, with change over time. On other graphs, you may need to **draw a "line of best fit"** which shows the trend as a line that goes smoothly through where the plotted points lie. And in other cases, you may just **draw a bar** that goes up to each point, comparing different categories.

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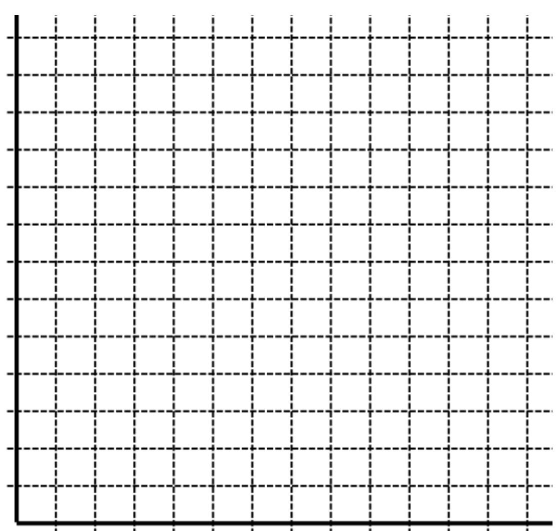
I. Label the x-axis with the independent variable, and the y-axis with the dependent variable. You do NOT need to create the scale or plot the points.

1. What amount of water will produce the tallest bean plant?

Amount of water per day	Height of the bean plant
0 mL	0.4 cm
5 mL	1.3 cm
10 mL	1.6 cm
15 mL	3.1 cm
20 mL	6.8 cm
25 mL	5.4 cm
30 mL	5.6 cm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A student wanted to test how the length of a string affected how it swings. Each time, the student changed the length of the string, and counted how many times it would swing back and forth. Their data is shown in the table to the right.

Construct a graph from this data.

Length of string	Number of swings per minute
0.6 m	36
0.8 m	32
1.0 m	28
1.2 m	26
1.4 m	24
1.6 m	24
1.8 m	20
2.0 m	20

Remember, before you can plot points, set up your graph!

1. Manipulated variable on the x-axis, responding variable on the y-axis.
2. Identify the range of your data: How high do the numbers need to go?
3. Determine the scale of your graph: How much should each square represent?