Name _____ Date _____ Section _____ 7/2019

Activity 02-16 Interpreting Your Data (Not LOBF)

Imagine that you are at home taking care of your brother's dog, Sparky. At 7:00 PM, Sparky starts barking. "He must be hungry," you think to yourself. What are some other reasons that Sparky might bark?

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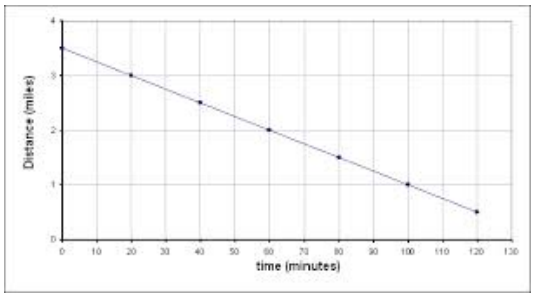
Now suppose that this is the fourth night in a row you've taken care of Sparky. You noticed that every night at about 7:00 PM, Sparkey starts barking. "Ah-ha!" you say to yourself, "There is a pattern here!"

Hidden Patterns

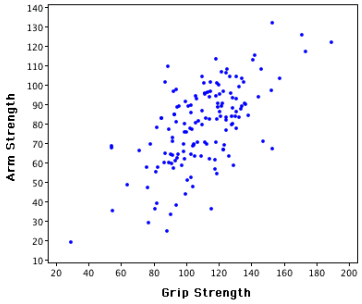
When you collect raw data, patterns are often camouflaged as random numbers. Part of conducting a successful experiment is analyzing your data to find any hidden patterns. Two common data patterns you might see on your graph during an experiment are as follows:

- Linear (Your data tend to form a straight line.)
- No relationship (Your data cycle repeated through the same general points.)

Distance Traveled Over a Period of Time



Arm and Grip Strength



a. _____ b. _____

Graph It!

One of the best ways to identify a pattern is to draw a graph. A graph turns random data into a pattern that gives specific information.

Mary was curious about how long it took blocks of clay to dry. She hypothesized that the volume of the block would be directly proportional to the amount of time it would take to dry. Her hypothesis was, "If I increase the volume of the blocks, then the amount of time it takes them to dry will increase in direct proportion to their size." Mary tested how fast blocks of clay dry under a bright light. She recorded the time it took different sized blocks to dry.

Volume Compared to Time

Volume of block (cm^3)	27 cm^3	8 cm^3	43 cm^3	125 cm^3	16 cm^3	166 cm^3	64 cm^3	91cm^3
Time to dry (min.)	5 min.	3 min.	7 min.	21 min.	4 min.	37 min.	9 min.	14 min.

Graph her data on a sheet of graph paper. Be sure to put her independent variable on the x-axis and the dependent variable on the y-axis.

Describe the shape of the pattern that emerges from Mary's data. Mary hypothesized that the drying time for a clay block was affected by the block's volume. In other words, her research predicted that her data would form a straight line or a directly proportional relationship. Was her research correct? Explain her answer.

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Mary had one additional data point with values of 142 cm^3 and 39 minutes. Because this point was different from her other data points, she decided she had made an error while performing that trial. To understand her thinking, plot that point on your graph above. Explain why she thought this point was a mistake in measuring.

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Should Mary have left this point out of her data set? Why or why not?

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