Name _____

Step 5: Observe, Record, & Analyze Data (Part 3)

Scientific observations need to be recorded in an organized way so the experimenter can analyze the information. All experiments produce data, which are the facts, figures, and other evidence gathered through observations. Making sense of the data is called data interpretation.

Examine the two sets of data below.

Data Set #1

Five pots were planted with pea plants. Pot #1 received no fertilizer and grew to 2 cm. Pot #2 received 5 ml of fertilizer and grew to a height of 10 cm. Pot #3 was given 10 ml of fertilizer and grew to be 17 cm. Finally, Pot #4 grew to a height of 12.5 cm after receiving 15 ml of fertilizer.

Data Set #2 (Data Table)

The effect of different amounts of fertilizer on plant height

Amount of Fertilizer (ml)	Height of Plant (cm)
0	2
5	10
10	17
15	12.5

1. Which data set communicates the information more clearly? _____

   Explain. _____

When you create a data table, you should usually use this form to write a title: "The effect of the independent variable (IV) on the dependent variable (DV)." Place the IV in the left column of the table and the DV in the right column.

On a separate sheet of paper, create a data table for each set of data below. Remember to include a title.

2. Seeds were planted at different temperatures. The height of the plants was measured after one week.
   8°C = 4 cm 12°C = 7 cm 16°C = 9.5 cm 18°C = 11 cm 22°C = 16 cm 24°C = 12 cm

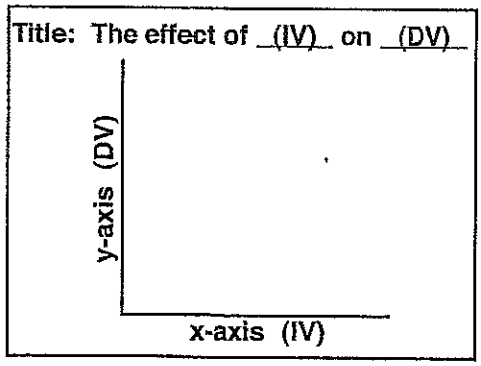
3. Every other month, bears in the state park were counted.
   January = 45 bears March = 50 bears May = 56 bear
   July = 53 bears September = 48 bears November = 42 bears

4. Different kinds of balls were dropped from a desktop. The height of each ball's bounce was measured.
   Baseball = 10 cm golf ball = 60 cm basketball = 48 cm
   Ping-pong ball = 22 cm football = 8 cm

5. A student investigated how the amount of study time affected scores on a math test.
   0 hours = 51 points 1 hour = 68 points 2 hours = 72 points
   3 hours = 75 points 4 hours = 80 points 5 hours = 91 points

After making a data table, scientists look for patterns in their data. Often it is easiest to detect patterns once the data is put into graph form. You must decide whether a line graph or bar graph is appropriate for your data. To decide which type of graph to use, look at your IV. If the IV represents the passage of time or change over time, make a line graph. If the IV represents separate types of things, make a bar graph.

A graph should have a title, usually written in the form "The effect of the IV on the DV." The IV is always written on the graph's x-axis (horizontal axis), while the DV is placed on the y-axis (vertical axis). You must label each axis with its variable.



Use the four data tables you created for items 2-5 above and, on a piece of graph paper, make a graph for each data table. Remember to give each graph a title and label each axis.