Chemistry: *Graphs*

Reading Graphs

Being able to read a graph is a very important skill. Many fields of endeavor, including science, politics, and economics often use graphs to quickly and effectively relate a large amount of information.

Look at the graph on the right and answer the questions.

1. What is the **label** on the x-axis?

        …the y-axis?

2. What **units** are used to describe these labels?

        …x   …y

3. Describe in detail what you think the experimenter did to get the data for this graph.

4. Over what time interval(s) does the temperature remain constant? Include units.

5. Over what time interval(s) is the temperature rising? Include units.

6. What is the temperature of the water after four minutes? Include units.

7. At what time is the temperature $10^{o}C$? Include units.


Temperature (^{o} Celcius)

Time (minutes)
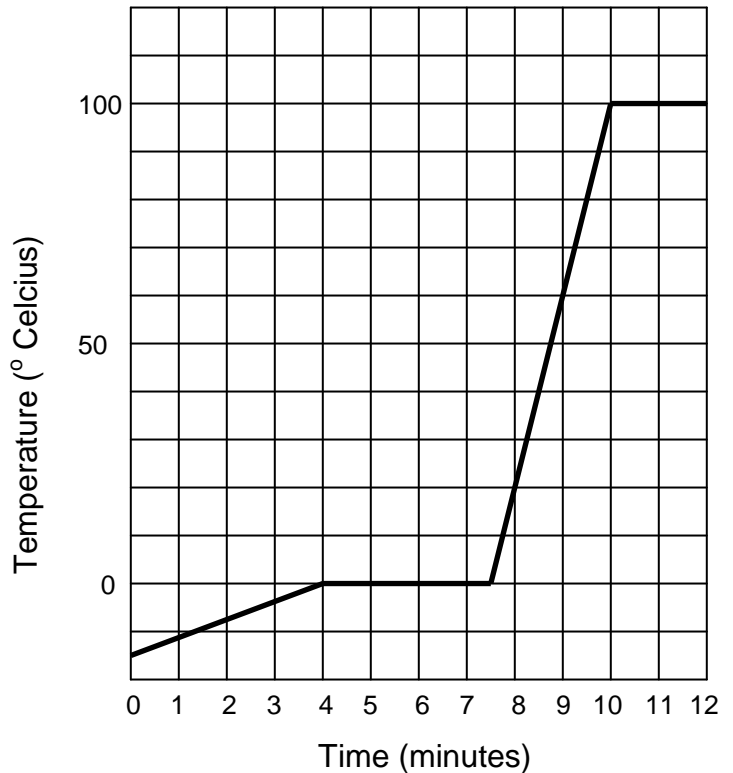
Creating Graphs

All good graphs have several items in common. All good graphs…
1. have a title at the top.
2. have axes that are labeled, with proper units.
3. are neat, and easy to read.
4. use most of the available space.

Mass(g)	Volume(cm^3)
14.5 g	2 cm^3
43.5 g	6 cm^3
72.5 g	10 cm^3
101.5 g	14 cm^3
130.5 g	18 cm^3
	20 cm^3

Using the table on the previous page, prepare a graph that illustrates this data .
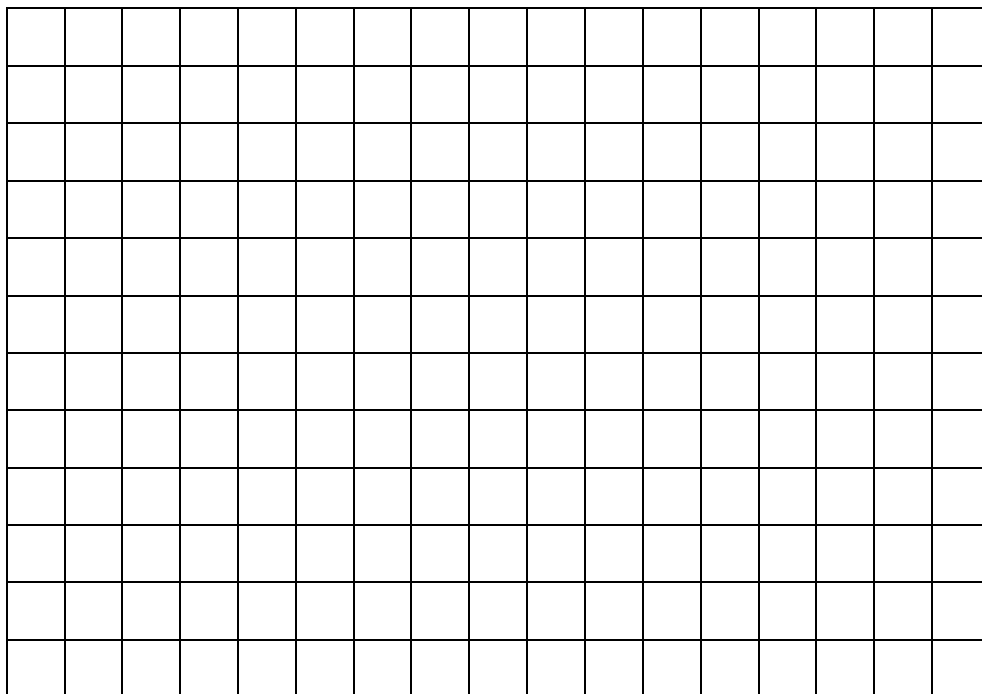
8. As mass increases, what happens to the volume? _____

9. As volume decreases, what happens to the mass? _____

10. Is the relationship between mass and volume direct or inverse? _____

11. Interpolate means to find a data point between the actual experimental data points. How many grams would occupy $7cm^3$? _____

12. What volume would 90 g occupy? _____

13. Extrapolate means to extend the line beyond the data collected. After you graph the data, extend the line and find the mass at 20 cm^3 and **fill in the table.** What mass occupies a volume of 20 cm^3? _____

Teacher notes: Use the phase Dry Mix to teach dependent and manipulated. The manipulated (independent) variable is the variable that is changed by the scientist and is placed on the x-axis **(MIX)**. In this lab the volume is the manipulated variable. The responding (dependent) variable is the variable that changes if the manipulated variable is changed and is placed on the y-axis **(DRY)**.