Name _____   Date _____

Graphing Homework # ____

Temperature is a measurement of the average kinetic energy of the molecules of a material. As heat is added to an object, the molecules of the substance begin to vibrate faster. Since the molecules now have more motion they have a greater amount of kinetic energy. Temperature is measured on many different temperature scales. We use Fahrenheit degrees in the United States but most of the world uses the Celsius temperature scale.

Heat is different from temperature because heat describes the total energy of all the molecules of a substance. Heat can be measured in calories. A calorie is the amount of energy needed to raise the temperature of 1 gram of liquid water by 1°C. Temperature does not depend on the amount of material but the heat does. Heat depends on the total number of molecules of the material that are present. A bathtub full of water at 100°F would have more energy than a cup of water at the boiling point (212°F). To illustrate this you can observe that the cup of boiling water would reach room temperature faster than the bathtub would. The bath water has more total energy to lose to reach room temperature so it takes more time even though it has a lower temperature.

The data below represents conversions between Fahrenheit and Celsius temperatures.

What is temperature a measurement of?
_____
_____
What does heat describe?
_____
_____
_____
What is a calorie? _____
_____
_____
Which has more heat, an iceberg at 0°C or a bathtub full of water at 40°C? _____
What is the boiling point in Fahrenheit? _____

Temperature (°F)	Temperature (°C)
0	-17.8
32	0
50	10
104	40
158	70
212	100

Create a line graph from the data table on the attached graph paper. (12 points total)
Temperature in °F should be plotted on the horizontal (x) axis and Temperature in °C should be plotted on the vertical (y) axis.

- • create a uniform scale for Temperature in °F on the x - axis (2 points)
- • label the x - axis with both a label and a unit. (2 points)
- • create a uniform scale for Temperature in °C on the y axis. (2 points)
- • label the y - axis with both a label and a unit. (2 points)
- • plot all six points on your graph (2 points)
- • connect the points to draw your line (1 point)
- • put an appropriate title on top of your graph.(1 point) ©K. Abbott 2005
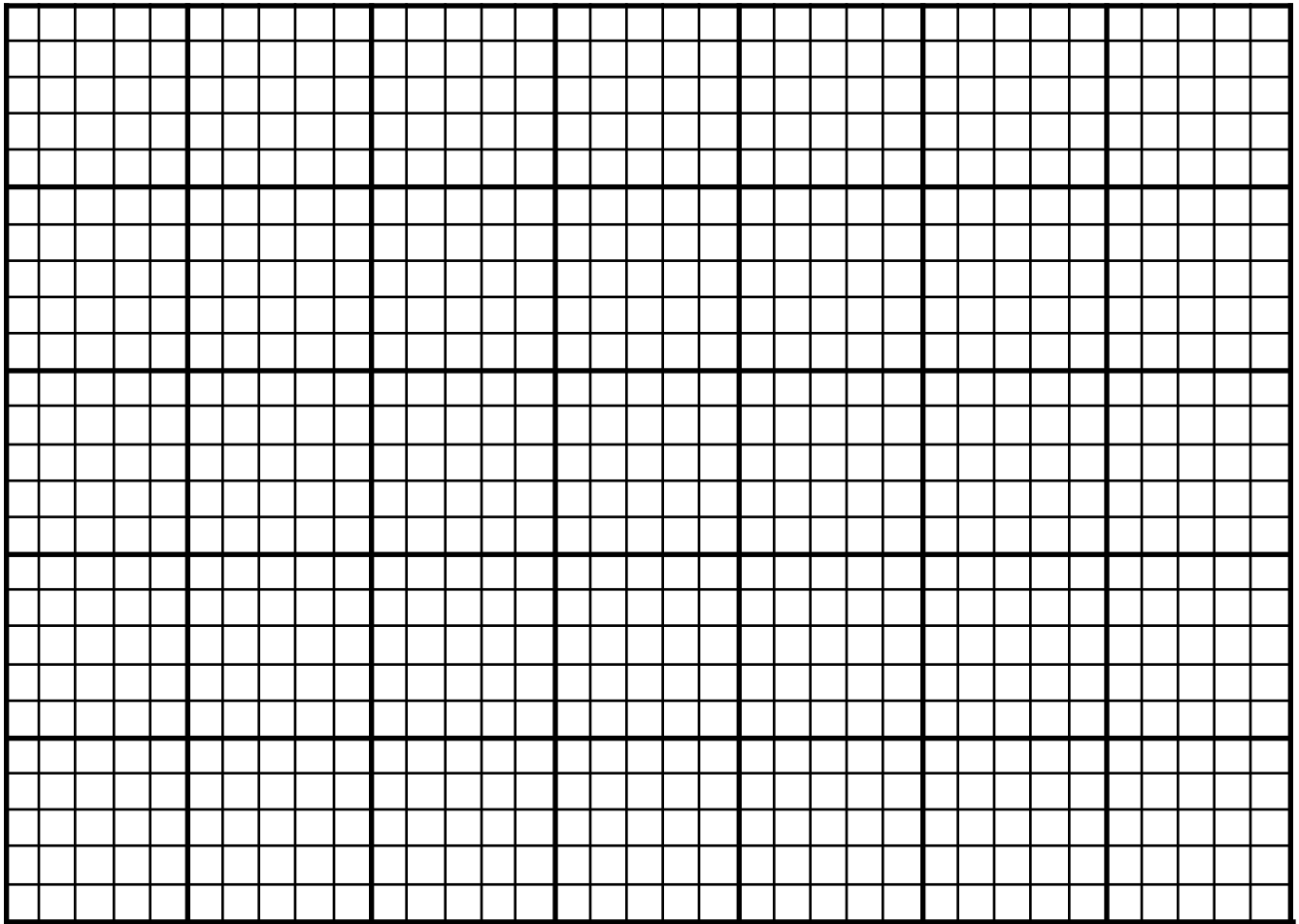
	x - axis	y - axis
Range		
Boxes		
Divide		
Round-up		

Answer the following questions in complete sentences. (2 points each)

1) Body temperature is 98.6°F. What is that temperature in Celsius?

2) What is 30°C in Fahrenheit?

3) Which is a larger change in temperature, an increase of 1°C or an increase of 1°F?

4) What happens to the density of most materials as they are heated?

5) Which is larger 30°C or 90°F?