

Heat, Temperature and Graphing Lab

Name: _____

This lab will allow you to create your very own heating and cooling curve for water!

Part A. The LAB

1. Follow all lab safety procedures. (goggles on!)
2. Add approximately 300 grams of ice to a 400 mL beaker and suspend a thermometer through a piece of cardboard which will act as a lid for the beaker.
3. Be sure to get an initial temperature for your ice!
4. Place the beaker on a hot plate and turn it on to medium high heat.(6 or 7)
5. Record the temperature every minute for the rest of the class period. Make sure the mixture is stirred and that the thermometer tip does not touch the beaker bottom or sides to get an accurate measurement.
6. Record your data in a chart with time and temperature.

Part B. Making a heating /cooling curve

You must turn in a graph of your data, either computer generated or on graph paper.

Part C- Questions:

1. Did adding heat change the temperature of the ice?
2. What do you suppose had been occurring just before the temperature started to increase inside the beaker of crushed ice?
3. Why did the temperature not increase as heat was added to the boiling water?
4. Identify the areas of your graph that represent phase changes. Why are these areas at a constant temperature? Where is the energy doing at these spots?
5. If you had boiled all of the water into steam, how much energy in joules would you have expended during the lab? (from ice all the way to steam)
6. How much energy will the freezer in the back room have to remove to take the 300 grams of boiling water and turn it back into ice for the next lab period?