**About the Newton’s Law of Cooling lab**

You will want to get a copy of the lab handout for the lab either online or from me – read that first.

This lab is about how the rate of heat flow depends on the temperature of a beaker of hot water surrounded by ice water. In our experiment, we had a 50 ml beaker in a larger metal pan full of ice and water. I even had a little motor with a paddle stirring the water on the outside of the beaker. We put a Vernier Temperature probe (calibrated to degrees Celsius) in the inner beaker of hot water, and set it to record the temperature every second.

Newton’s law of cooling states that the heat should flow quickly out of a hot object when it is very hot relative to its surroundings, and slowly when its temperature is more near the surrounding temperature. You will see this in the shape of the graph.

Regarding the data files: “Data.txt” is a text (.txt) file that you can import into anything. (It is tab delimited) “Data.xls” is an Excel spreadsheet that you could open in Excel, Google docs or Open Office. The one that says “DataPlusModel” has a model where you can try changing the asymptote (Tf) and the “k” to match the data. As you type in different values in those cells, the graph will change before your very eyes. (No – you don’t have to do this, but remember, I am a computer nerd, and I KNOW that some of you are too)

You should turn in

* A data table with the 6 points we find in the video plus units and uncertainties.
* A graph of at least those 6 points. (You could just use Excel)
* Your calculations of k
* The answers to questions A, B, C, and D in your very own words. Note that D is an IB evaluation of the experiment. Be sure to cite reasons and data to justify your conclusion.