PHASE CHANGE LAB

INTRODUCTION: When heat is added to ice, it will melt and change to water. As water is heated, its temperature rises. Eventually, the water will boil and change into a vapor (gas). The substance has gone through two changes in phase. The temperature at which these phase changes occur are important characteristic properties. The relationship between the heat energy and the behavior of the substance is also important in understanding the difference between heat and temperature.

In this lab experiment you will be dealing with the relationship between heat energy and changes in phase of matter.

PROCEDURE:
1. Make a data table to record TIME AND TEMP.
2. Fill a 250 mL beaker 2/3 full with ICE and add a little water.
3. Stir carefully with a thermometer until the temperature stabilizes at or about 0 ^{0}C. Record this temperature at 30 second intervals for 2 minutes.
4. Slowly warm the ice water over a bunsen burner and continue to <u>record the temp. at 30 second intervals</u>

    NOTE: Do not let the thermometer bulb rest on the bottom of the beaker. Stir continuously while heating.

    NOTE: once the Bunsen Burner is set, leave it at this setting and make no adjustments to the flame.
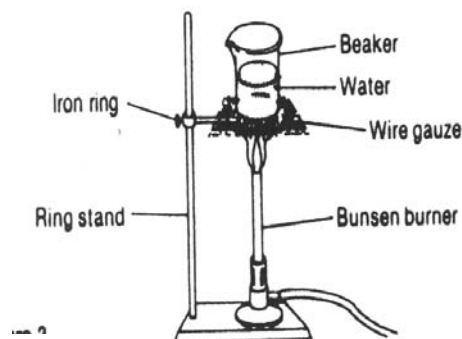
5. Record at what point all the ice has melted and the water begins to boil.
6. Continue to heat the water for at least 3 minutes after the water begins to boil.
7. Draw a best fit line graph with temperature on the Y axis and time on the X axis. Start the graph with −5°C, increasing at 5°C intervals, and 0 time, increasing at 1 minute intervals. Plot all your data. Note on the graph the points where the ice melted and the water boiled.

CONCLUSIONS QUESTIONS:
1. At any time did the temperature seem to rise at or near a constant rate ?
2. When did the temperature change the slowest?
3. When did the temperature change the fastest?
4. Was the heat energy input constant?
5. Explain what was happening to the ice or water when the temperature was changing;   a) the slowest or not at all   b) the fastest