

Name: _____

Period: _____

Heating Curve of Water Lab

Purpose: Collect data and plot a heating curve graph for water.

Objectives:

- Observe the phase changes of water
- Use a thermometer to record temperature measurements
- Graph the data collected during the laboratory

Materials:

Ring stand	Thermometer	Ceramic Tile
Ring Clamp	Electronic Timer	Boiling Chip
Iron Wire Gauze	Hot Hand	Ice Cubes
250 mL Beaker	Bunsen Burner Setup	

Procedure – (10 Points)

1. Put on your lab apron and safety goggles.
2. Set up equipment at your lab station like Dr. Schaub has on the front table. (Draw a picture in the Data Section)
3. Fill a 250 mL beaker about $\frac{3}{4}$ full with ice and add a boiling chip.
4. Put your thermometer into the ice in the beaker. **Do NOT let your thermometer touch the side or sit on the bottom of the beaker.**
5. Record the temperature of the ice. This is your Time = 0 minutes measurement. (Your initial temperature should be between 0°C and 4°C). Be sure that your measurements have the correct number of significant figures.
6. Light your Bunsen Burner and adjust it to a small-medium flame with 2 blue cones.
7. Slowly heat the beaker (using a blue flame). Start your timer when you first place the Bunsen burner under the beaker with ice. **CONSTANTLY** stir the contents of the beaker with the thermometer.
8. Record the temperature once a minute. Make an observation about what phases of water are in your beaker.
9. Continue to record data for 5 minutes after your sample has starting boiling.
10. Turn off Bunsen Burner, pour out boiling water using Hot Hand and place beaker on ceramic tile to cool. **DO NOT POUR BOILING CHIP DOWN THE DRAIN!!**
11. Return all equipment to where it belongs (if not your bin) and clean your lab station.
12. Wash your hands

Data: (15 Points Total)

Drawing of Equipment Setup. (5 Points)

(Must be large enough to clearly make out the different pieces of equipment. Label all equipment as needed.)

Data: (Continued)

Data Table: Heating Curve of Water Data (10 Points)

Time (minutes)	Temperature (°C)
0	
1	
2	
3	
4	
As Many as Needed	

Graph: (20 Points)

Leave one entire blank page in lab notebook for graph. Using graph paper, make a graph of your data showing the heating curve of water. Be sure to label your axes and to give your graph a title! (PLEASE WAIT UNTIL DR. SCHAUB TALKS ABOUT GRAPHING DATA IN CLASS BEFORE YOU START!!)

Analysis and Conclusions: (10 Points Total)

1. What are the bubbles that form in boiling water made out of?
2. Are the changes you are observing in this lab physical or chemical changes?
3. Why do you add a boiling chip to your beaker?
4. Why does the temperature of the water no longer increase once it starts to boil?