NAME: _____ PERIOD: _____ DATE: _____

LAB PARTNERS: _____ LAB #25

CHANGES IN PHASE OF WATER

INTRODUCTION

Water is a substance commonly found on planet Earth. What is unique about water is that it can be found in all three phases of matter (solid – liquid – gas).

OBJECTIVES

You will observe and record the temperature changes of a volume of water as heat is added and water undergoes phase changes from solid to liquid and liquid to gas.

MATERIALS

Hot plate
400 ml beaker
Crushed or chunk ice
Water
Thermometer
Safety goggles
Graph paper

APPROXIMATE TIME 1 – 2 periods

PROCEDURE

1. Fill the 400 ml beaker with crushed or chunk ice and add approximately 100 ml of cold water.

2. Hold the thermometer in the beaker, ***NEVER*** letting it touch the sides or bottom of the beaker. Plug in your hot plate.

3. When the thermometer **REACHES ITS LOWEST READING**, record this temperature under time 0 on the data table.

4. Place the beaker on the hot plate.

5. Read and record the temperature every 30 seconds, continuing for at least 10 minutes after the water reaches a full boil. Remember to keep stirring the contents of the beaker. On the data table, make a note of the times when the ice began to melt, is entirely melted, and the water begins to boil.

6. Graph your data on the graph paper provided.

7. Answer questions 1 – 7.

LABORATORY QUESTIONS

1. What happened to the temperature while the ice was melting? _____

2. What happened to the temperature between the time the ice melted and the water boiled?

   _____

3. What happened to the temperature while the water was boiling? _____

4. During the time of increasing temperature, what change in energy (i.e. potential, kinetic) occurred because of the added heat? _____

5. During the times when the temperature remained constant, what change in energy (i.e. potential, kinetic) occurred because of the added heat?

   _____

6. Which phase change takes more energy the ice to water or water to water vapor?

   _____

7. What are the following phase changes called?

   Ice to water _____

   Water to ice _____

   Water to water vapor _____

   (3 answers) _____

   _____

TIME		TEMP ˚C
MIN	SEC	
0	0	
0	30	
1	0	
1	30	
2	0	
2	30	
3	0	
3	30	
4	0	
4	30	
5	0	
5	30	
6	0	
6	30	
7	0	
7	30	
8	0	
8	30	
9	0	
9	30	
10	0	

TIME		TEMP ˚C
MIN	SEC	
10	30	
11	0	
11	30	
12	0	
12	30	
13	0	
13	30	
14	0	
14	30	
15	0	
15	30	
16	0	
16	30	
17	0	
17	30	
18	0	
18	30	
19	0	
19	30	
20	0	
20	30	

TIME		TEMP ˚C
MIN	SEC	
21	0	
21	30	
22	0	
22	30	
23	0	
23	30	
24	0	
24	30	
25	0	
25	30	
26	0	
26	30	
27	0	
27	30	
28	0	
28	30	
29	0	
29	30	
30	0