

Name:
Physical Science

Date:
Lab: Change of Phase

Problem: What happens to energy and temperature when matter changes phase?

Materials:

250 ml beaker	thermometer	wire screen	graph paper
ice cubes	Bunsen burner	iron ring	goggles
water	stop watch	ring stand	beaker tongs

Procedure:

1. Half fill a beaker with cold water and ice. Allow to sit for 2 minutes.
2. Measure and record the temperature of the ice-water mixture.
3. Continue to record the temperature every minute for **four** more minutes.
4. Place the beaker of ice-water high over the burner and heat very gently
 - (**high** placement over a **low** flame).
5. Read the temperature of the mixture every minute and record.
6. Continue to heat and record every minute until the water boils.
Take **five** more temperature recording while the water is boiling.

Data and Observations:

Time (min.)	Temperature (°C)
0 min	
1 min	
2 min	
3 min	
4 min	
5 min	
6 min	
7 min	
8 min	
9 min	
10 min	
11 min	
12 min	
13 min	
14 min	
15 min	
16 min	
17 min	

18 min	
19 min	
20 min	
21 min	
22 min	
23 min	
24 min	
25 min	
26 min	
27 min	
28 min	
29 min	
30 min	
31 min	
32 min	
33 min	
34 min	
35 min	
36 min	

Analyze your Data:

1. Using the graph paper provided, make a graph of temperature ($^{\circ}\text{C}$) versus time (min.).
 - The **y-axis** (vertical) is temperature and the **x-axis** (horizontal) is time.

2. Describe the shape of your graph.

3. Are any parts horizontal? When?

4. What is happening to temperature during that time?

5. What is occurring in the beaker at that time?

6. What is the difference in particle speed of a substance as a solid, as a liquid, as a gas?

7. Is energy absorbed or released during melting? During vaporization?

Conclude and Apply:

1. Solid water changed phase from a _____ to a _____ at _____ °C. During the change, the temperature _____ and heat energy was _____.
2. Liquid water changed phase from a _____ to a _____ at _____ °C. During the change, the temperature _____ and heat energy was _____.