

Temperature

How can we measure temperature?

Introduction:

All living things live within a certain temperature range. It is essential that you learn how to measure temperature because temperature is important to life. A **thermometer** is used to record temperature, which is the measure of the amount of heat. The thermometer consists of a glass tube with a bulb at one end. Within the bulb of most thermometers, there is a liquid metal, such as mercury, or alcohol. Both these substances expand in the heat and contract in the cold causing them to rise in the tube in the heat and descend in the cold.

Materials:

Celsius thermometer, graduated cylinder, 250ml beaker, one ice cube.

Procedure:

1. Record the room temperature to the nearest Celsius degree and write it in the space above the data table.
2. Using the graduated cylinder, fill the beaker with 200ml of water.
3. Put the bulb end of the thermometer so that it is in the center of the beaker of water.
4. **Do not remove the thermometer from the beaker of water.** Measure the temperature of the water after 3 minutes and write it for the 0 minutes on the data table.
5. Place an ice cube in the beaker of water
6. Measure the temperature of the water every minute for 20 minutes to complete the data table.
7. Begin to construct a graph so that the x-axis is labeled from 0 to 25 minutes and the y-axis should be labeled 0 to 100 degrees Celsius.
8. Plot each point and connect them by a solid line.
9. **Circle** the point on your graph when the **ice completely melted**.
10. After 20 minutes has elapsed, use the graduated cylinder to remeasure the amount of water in the beaker.
11. Calculate how many ml of water the ice contained and show your work in the space provided.

Room Temperature = _____

Minutes Passed	Temperature C
0 minutes	
1 minute	
2 minutes	
3 minutes	
4 minutes	
5 minutes	
6 minutes	
7 minutes	
8 minutes	
9 minutes	
10 minutes	
11 minutes	
12 minutes	
13 minutes	
14 minutes	
15 minutes	
16 minutes	
17 minutes	

Amount of water in beaker after ice melted = _____ ml

Amount of water in beaker before ice was added = _____ ml

Amount of water the ice contained = _____ ml

Questions

1. Complete each of the statements below by explaining why each of the above events occurred in this experiment.

(a) The temperature first drops because _____

(b) The temperature levels off because _____

(c) The temperature starts to rise again because _____

2. The diagram below represents a portion of a Celsius thermometer. What is the temperature in degrees Celsius indicated on the thermometer?

_____ Degrees Celsius

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