

## LAB: THE NATURE OF SCIENCE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

PERIOD: \_\_\_\_\_

PURPOSE: TO OBSERVE THE THREE STATES OF MATTER

PROCEDURE: Work through the first part of the lab as quick as possible so the ice will not melt. Read, do, and check off each line.

1. Weigh a dry beaker on a balance. It weighs \_\_\_\_\_ grams
2. Place an ice cube in the beaker and quickly weigh both on the balance. The ice and beaker weighs \_\_\_\_\_ grams. The ice alone weighs \_\_\_\_\_ grams.
3. Use a small metric ruler to measure the length, width, and height of the ice cube. Return the ice to the beaker as quickly as possible.

Length: \_\_\_\_\_ Width: \_\_\_\_\_ Height: \_\_\_\_\_

4. Multiply the 3 measurements together to get the volume of the ice cube. ( Volume is the space occupied by the ice cube )  
Volume of the ice cube is \_\_\_\_\_ cubic centimeters (CM). Divide the weight of the ice cube by the volume to get the density of the ice cube. The density is \_\_\_\_\_ g/cm<sup>3</sup>.
5. Gently warm the beaker over a flame just until all the ice is melted.

What change of state of matter has taken place?

What determines the shape of the water in the beaker?

6. Weigh the beaker together with the water in it. The beaker and the water weigh \_\_\_\_\_ grams. The water weighs \_\_\_\_\_ grams.
7. Pour the water into a graduated cylinder. The volume of the water is \_\_\_\_\_. The density of water is \_\_\_\_\_ g/cm<sup>3</sup>.
8. Pour the water back into the beaker and heat it until it boils for 1 minute. Does the amount of water remain constant? Describe what happens to the water in the beaker. The weight of the water is now \_\_\_\_\_. The volume of the water is now \_\_\_\_\_. The density of water is now \_\_\_\_\_.

CLEAN-UP:

1. Empty all water into the sink or bucket and dry the beaker.
2. Wipe off all counter surfaces.
3. Dry the beaker.
4. Return all equipment.

**CONCLUSION:**

1. Arrange all of your data into the following table.

	WEIGHT	VOLUME	WEIGHT / VOLUME (DENSITY)
ICE			
WATER			
Water after Boiling 1 minute			

2. What is the state of matter of ice? \_\_\_\_\_ Of water? \_\_\_\_\_ Of steam? \_\_\_\_\_
3. How is the state of all liquids determined?
4. Compare the data for the ice and water and water after boiling in the last column. Explain what these results mean.