**Introduction to Matter Study Guide**

1. What is the difference between mass and weight? What is the unit of measurement for mass? How is the mass of an object found?
2. Which of the following units would be used to express the volume of a solid, such as a marble?

a. Liters (l) c. Cubic centimeters (cm3)

 b. Millimeters (mm) d. Newtons (N)

1. You poured 3 liquids into a beaker. Explain how could you tell which one is the densest?
2. What is the equation for finding density? What are the (metric) units? Be able to solve density equations.
3. What is Matter?

1. What is density? Note the density of water 1gm/cm3 and be able to compare it to whether objects/liquids will sink/float/or suspend (same as density) water.
2. Define physical property. Give 2 examples.
3. Define a chemical property. Give 2 examples.
4. Define a physical change. Give 2 examples.
5. Define a chemical change. Give 2 examples.
6. Mass and volume are used to find what property of matter?
7. Density c. Reactivity
8. Ductility d. Weight
9. Boiling water is an example of a:

a. Physical property c. Chemical property

b. Physical change d. Chemical change

1. Define Solubility, Solute and Solvent:
2. List the steps to find the volume of an object using a graduated cylinder and the displacement method.
3. Does the sample size matter when finding the density of a pure substance?

**Atoms, Elements and Compounds**

1. Define atom, element and compound. Give an example of each. Draw a picture of each.
2. All Atoms have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. What is the main difference between the atoms of two different elements on the periodic table?
4. Explain the difference between matter and energy.

**States of Matter**

1. Solids: Explain the energy and motion of the molecules. Understand why shape and volume do not change for solids. Draw the particle arrangement.
2. Liquids: Explain energy and motion of the molecules. Understand why shape of a liquid changes, but volumes of liquids do not change. Draw the particle arrangement.
3. Explain and motion of the molecules. Why do shape and volume can always change for gases? Draw the particle arrangement.
4. Solve: What is the density of an object has a mass of 500 grams and a volume of 250 cm3? (use the correct units and show your work)
5. What is the smallest building block of matter?