Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Matter Study Guide

1. Define the following terms:

Mass

Volume

Matter

Atom

Molecule

Density

1. Finish the table below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Solid | Liquid | Gas |
| Volume and Shape |  |  |  |
| Movement of molecules |  |  |  |
| Energy |  |  |  |

1. Draw a picture of the molecules in a solid, liquid, and gas. Show how they are moving and provide a caption for each picture that explains how the molecules are arranged and how they move.
2. Explain what happens to the molecules in a substance as it heats up.
3. Explain what happens to the molecules in a substance as it cools.
4. How does a liquid thermometer work? Use the words molecules, expansion, contraction, move, heat and cool in your answer.
5. Explain why a metal ball that is made to fit through a metal ring will no longer fit through when the ring is frozen and the ball has been heated. Use the words molecules, expansion, contraction, move, heat and cool in your answer.
6. Write each state of matter and connect them all together with arrows. Over each arrow explain the process that occurs to change the matter from one phased to the other. For example, the arrow from solid to liquid would be labeled melting.
7. Explain what density is a measure of and draw a picture of a dense object and an object that is less dense.

**Answer the following on your own sheet of paper. Show all work.**

1. A cube has a length of 3cm and a mass of 180g. What is the density of the cube? Show all work.
2. A rectangular prism has a length of 2cm, a width of 1 cm, and a height of 3 cm. It has a mass of 100g. What is the density of the prism? Show all work.
3. A liquid is placed in a graduated cylinder. The cylinder reads 60mL. The mass of the cylinder is 40g. Together, the liquid and the cylinder have a mass of 100g. What is the density of the liquid?
4. What do you think the liquid in 12 might be? Why?
5. Be SURE you know how calculate the volume and mass of any object we have used in class. Practice. You will be asked to do this on the test.