# **Matter and Its Properties Comprehension Check**

For questions 1-3, match each state of matter to the correct description:

|  |  |
| --- | --- |
| 1. Solid | a. takes the shape of whatever container it is in; molecules move semifreely and with a moderate speed |
| 2. Liquid | b. can expand or contract to fill almost any space; molecules move freely and quickly |
| 3. Gas | c. has a set shape and volume; molecules move slowly |

1. Solid –
2. Liquid –
3. Gas –
4. What is density?
5. Use academic vocabulary to describe what matter contains.
6. What determines the type and size of an atom?
7. Describe the difference between elements and compounds.
8. Provide an example to explain how energy can change matter from a solid to a liquid to a gas.
9. Describe the difference between metals and nonmetals.
10. What is the periodic table and how is it generally organized?

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1. Solid – c
2. Liquid – a
3. Gas – b
4. What is density?
   1. Density describes the amount of matter in a particular volume of a substance. Density can explain why a bowling ball and a balloon that are the same size have different masses.
5. Use academic vocabulary to describe what matter contains.
   1. All matter is made of molecules, which are in turn made of tiny particles called atoms. Atoms have a nucleus that contains protons and neutrons. Electrons are even smaller and move around the nucleus. Electrons carry a negative electric charge.
6. What determines the type and size of an atom?
   1. The type and size of an atom depends on the number of protons it contains.
7. Describe the difference between elements and compounds.
   1. An element is a substance with only one type of atom. Elements are like ingredients. They cannot be broken down into other substances. A compound is a molecule with two or more different types of atoms.
8. Provide an example to explain how energy can change matter from a solid to a liquid to a gas.
   1. Energy has the ability to change the state of matter. Heat is a form of energy. When heated enough, solid rock can melt into liquid lava. When the liquid gets hot enough, the molecules break free from one another and turn into gas. Cooling matter can also cause it to change state.
9. Describe the difference between metals and nonmetals.
   1. Scientists decided to organize and group matter into two main categories: metals and nonmetals.
   2. Metals are the biggest group of elements. They are shiny and reflect light well. All metals are solid at room temperature (except mercury) and have atoms that are close together, causing them to be dense. Metals are useful because they can be used to create tools. Metals make good conductors of heat and electricity, and some are magnetic.
   3. Nonmetals can include solids, liquids, or gasses at room temperature. They usually do not conduct heat or electricity well, are brittle and break easily, and appear dull in color. However, nonmetals have a wider range of colors than metals. People have found many uses for nonmetals, too! For example, plastic makes a great insulator of electricity.
10. What is the periodic table and how is it generally organized?
    1. The periodic table lists all the elements scientists have discovered so far. Metals are listed on one side of the table, and nonmetals (with the exception of hydrogen) are found on the other. Each element has its own atomic symbol, atomic number, and atomic name.