



The world around us is made up of matter, your chair, your pencil, the juice you drank with breakfast, even you! All matter has mass and volume and takes up space. The four states of matter are solid, liquid, gas, and plasma. Matter is made up of tiny particles called atoms. Atoms are the basic building blocks of matter. They are made up of three elements: protons, neutrons and electrons. Protons carry a positive charge. Neutrons carry no charge and electrons carry a negative charge and they circle the nucleus. Solids are matters that have their own shape. They are found in many different shapes and sizes. Atoms in solids are formed very tightly together and make a neat and organized pattern. The closer they are packed together the harder the solid is. Examples of solids are bricks, rocks, and cooking pots. Liquids have no shape of their own, like water or blood. It can flow freely or take the shape of its container. When poured into a cup the liquid will fill the bottom due to gravity. Liquids are an in between state of matter. Atoms found in liquids are close together, but not as tightly as in a solid. They are allowed to move and flow freely. Some examples of liquids are juice, water, and soda. A gas has no shape of its own. It can be held inside a container, or it can escape into the air, where it is often invisible. The atmosphere is a big layer of gas surrounding the earth. The atoms found in gases are random and constantly moving about. They are full of energy. Gases can be held inside a closed container and when they are they fill the entire container evenly, unlike liquids. Examples of gases are air, water vapor, and helium. Plasma, like gas, does not have a definite shape or a definite volume unless it is also held in a container. It is electrically conductive and is by far the most common phase of matter in the universe. There are three types of plasma: artificially produced plasma, terrestrial plasma, and astrophysical plasma. Examples of plasmas are stars, lightning, neon signs, fluorescent lights, and The Northern Lights. Everything around you is made up of matter. Matter is made up of tiny particles called atoms. There are four states of matter: solids, liquids, gas, and plasma.

**STATES OF MATTER** are natural conditions that materials exist in, and for which we use to identify them. We know that all matter has mass and takes up space. But all matter does this in four different ways. The four ways are called "states". The four states; **solid, liquid, gas, and plasma**.

**SOLIDS** are materials which have a definite shape and volume. Under normal conditions they will not change their own shape. They will not grow or shrink in size.

**LIQUIDS** are materials that have no definite shape but do have a definite volume. Under normal conditions they can change their shape depending on their container. Like solids they also will not grow or shrink in size.

**GASSES** are materials that have no definite shape or definite volume. Under normal conditions gasses are always changing their shape and volume.

**PLASMA** is a gas that has the properties of every other gas, However it has very special abilities. When it is heated or charged with electricity, it may glow in different colors. It may form "strings" of light.

**FLUID** is not a state of matter. Because gasses, liquids, and plasma are always changing their shape, they are called "fluid".

Use the information above to write the word that best fills the blank to make the statement true.

1. All matter has \_\_\_\_\_ and takes up \_\_\_\_\_.
2. Liquids take up a \_\_\_\_\_ amount of space.
3. Solids have a \_\_\_\_\_ shape.
4. Gasses and plasma are called \_\_\_\_\_ because their shape is always changing.
5. Solids have a \_\_\_\_\_ volume.
6. Liquids have a \_\_\_\_\_ volume.
7. Why are solids, liquids, plasma and gas considered matter? Write to explain your answer.
8. Can two (or more) types of matter occupy the same space at the same time? Why or why not?