Matter's 3 States

A solid is a state of matter in which particles are closely packed together. The particles are arranged in an orderly fashion and are held in place by strong forces. Solids are the most stable state of matter, meaning that it has the most particles in a fixed position and is the least likely to change. Solids are characterized by a fixed shape and volume. Solids can be firm and rigid, like a rock, or soft and pliable, like playdough. Solids can also be crystalline, such as sugar, or amorphous (not having a clearly defined shape), like wax. To change a solid to a different state of matter, it must be heated or cooled. Heating a solid increases the energy of its particles, which causes them to move faster and further apart. As they move further apart, they take up more space and the solid will become a liquid. Cooling a liquid has the opposite effect, causing the particles to slow down and move closer together. As they move closer together, they take up less space and the liquid will become a solid.

A liquid is a state of matter in which particles are more loosely packed together than in a solid and are free to move past each other. They are still held together by forces, and the particles can move around each other but not too far apart. Liquids are less dense than solids and have a fixed volume but not a fixed shape. Liquids take the shape of their container and can flow easily. To change a liquid to a different state of matter, it must be heated or cooled. Heating a liquid increases the energy of its particles, causing them to move faster and further apart. As they move further apart, they take up more space and the liquid will become a gas. Cooling a gas has the opposite effect, causing the particles to slow down and move closer together. As they move closer together, they take up less space and the gas will become a liquid.

A gas is a state of matter in which the particles are even more loosely packed together than in a liquid. The particles are free to move in any direction and are not held together by any forces. Examples of gases include air, carbon dioxide, and oxygen. Gases are very lightweight and have no fixed shape or volume. Gases can be compressed or expanded, depending on the pressure and temperature. Gases are often invisible, and can fill any space that they are put in. To change a gas to a different state of matter, it must be heated or cooled. Heating a gas increases the energy of its particles, causing them to move faster and further apart. As they move further apart, they take up more space and the gas will become a plasma. Cooling a plasma has the opposite effect, causing the particles to slow down and move closer together. As they move closer together, they take up less space and the plasma will become a gas. ***Gasoline** should not be confused with the state of matter gas, gasoline is actually a liquid.

Matter's 3 States

1. What is the state of matter in which the substance has a definite shape and volume?

2. What is the state of matter in which the substance has a definite volume, but no fixed shape?

3. What is the state of matter in which the substance has no fixed shape or volume?

4. What is the name of the matter that takes the shape of its container?

5. Can a substance exist in more than one state of matter? Give 2 examples.

6. What form of matter is gasoline?

7. Look around your room and identify examples of solids and liquids and gases