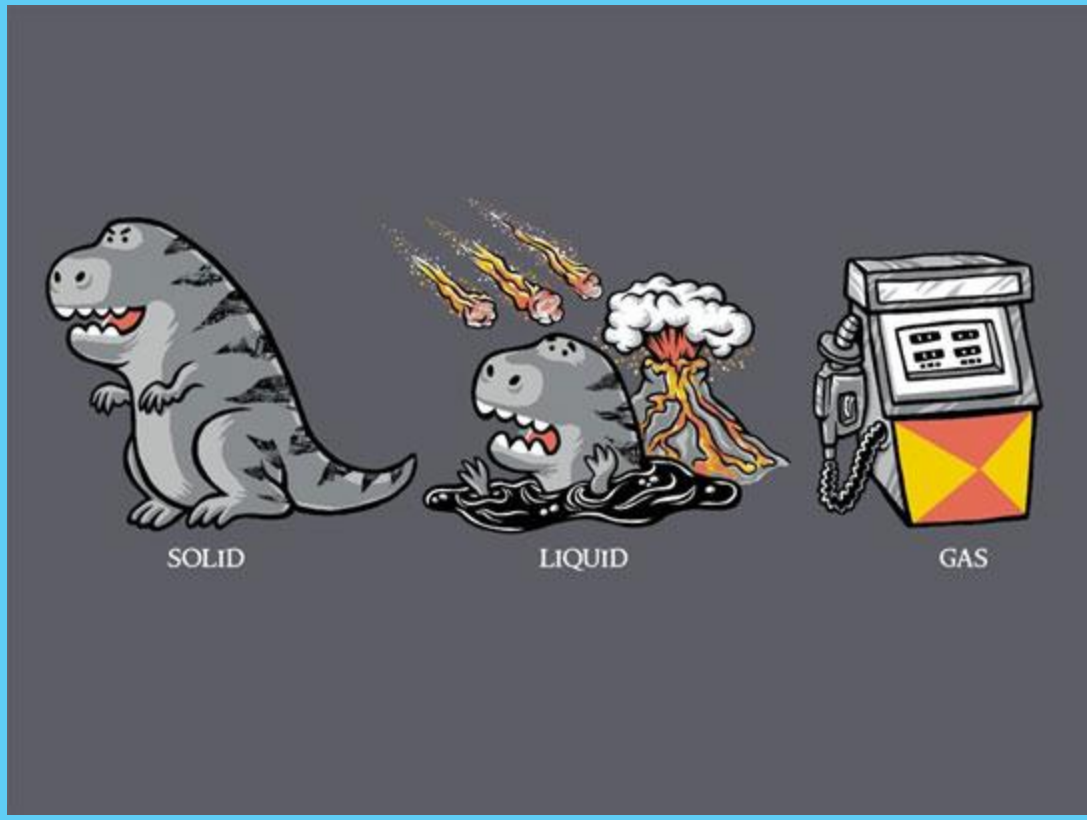
The Three States of Matter

Objectives

- **Describe** the properties shared by particles of all matter.
- **Describe** three states of matter.
- **Explain** the differences between the states of matter.



I. Particles of Matter

A. Atoms and Molecules Matter is made up of tiny particles called atoms and molecules. The picture describes three states of matter—solid, liquid, and gas—in terms of the speed and attraction of the particles.

Particles of a solid do not move fast enough to overcome the strong attraction between them. So, they are close together and vibrate in place.

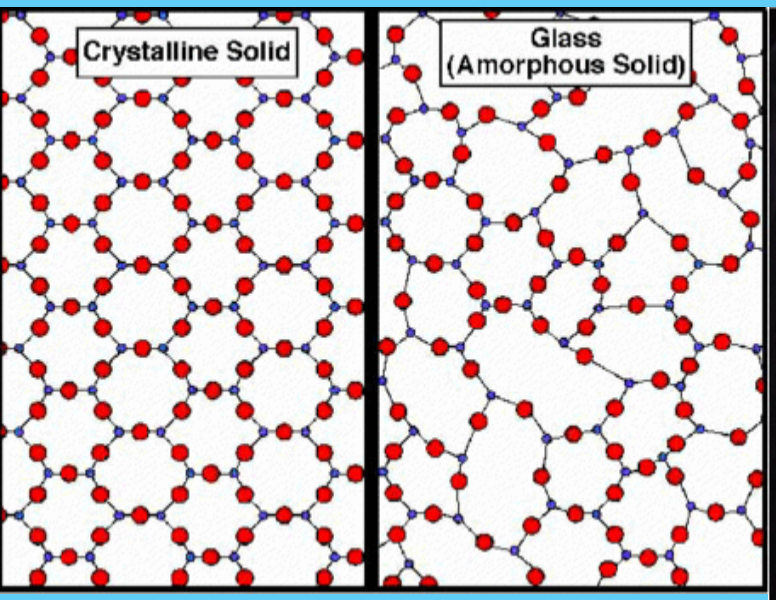
Particles of a liquid move fast enough to overcome some of the attraction between them. The particles are close together but can slide past one another.

Particles of a gas move fast enough to overcome almost all of the attraction between them. The particles are far apart and move independently of one another.

II. Solids

A. Solids Have Definite Shape and Volume: A solid is the state of matter that has a definite shape and volume.

B. **There Are Two Kinds of Solids:** There are two kinds of solids—crystalline and amorphous.



III. Liquids

A. Liquids Change Shape but Not Volume: A liquid is the state of matter that has a definite volume but takes the shape of its container.

B. **Liquids Have Unique Characteristics:** A special property of liquids is surface tension. Surface tension is a force that acts on the particles at the surface of a liquid. Another important property of liquids is viscosity. Viscosity is a liquid's resistance to flow.

IV. Gases

A. Gases Change in Both Shape and Volume: Gas is the state of matter that has no definite shape or volume.