

# CLASSIFYING MATTER



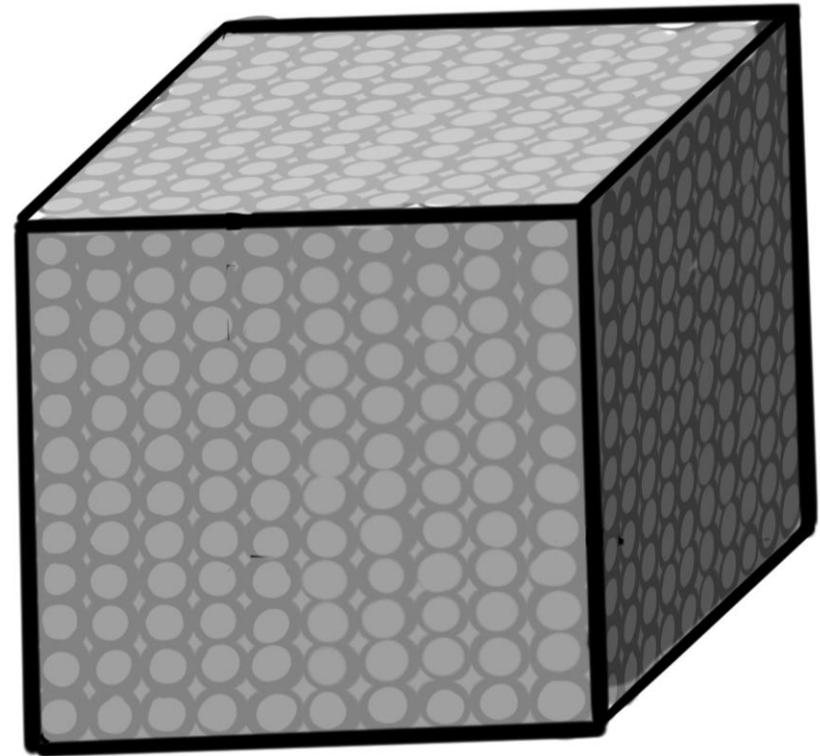
**Matter is anything that takes up space and has mass. Matter has physical properties. A physical property is a term used by scientists to describe characteristics that distinguish one type of matter from another. Matter properties might include shape, color, size, density, solubility, mass, or the ability to attract a magnet.**

**Properties are important to all scientists. For example, geologists look for rock properties such as color, texture, size and magnetism. Using properties as clues, Geologists have determined that El Paso was once underwater, at one time had active volcanoes and had once had plate movement that created our mountains.**



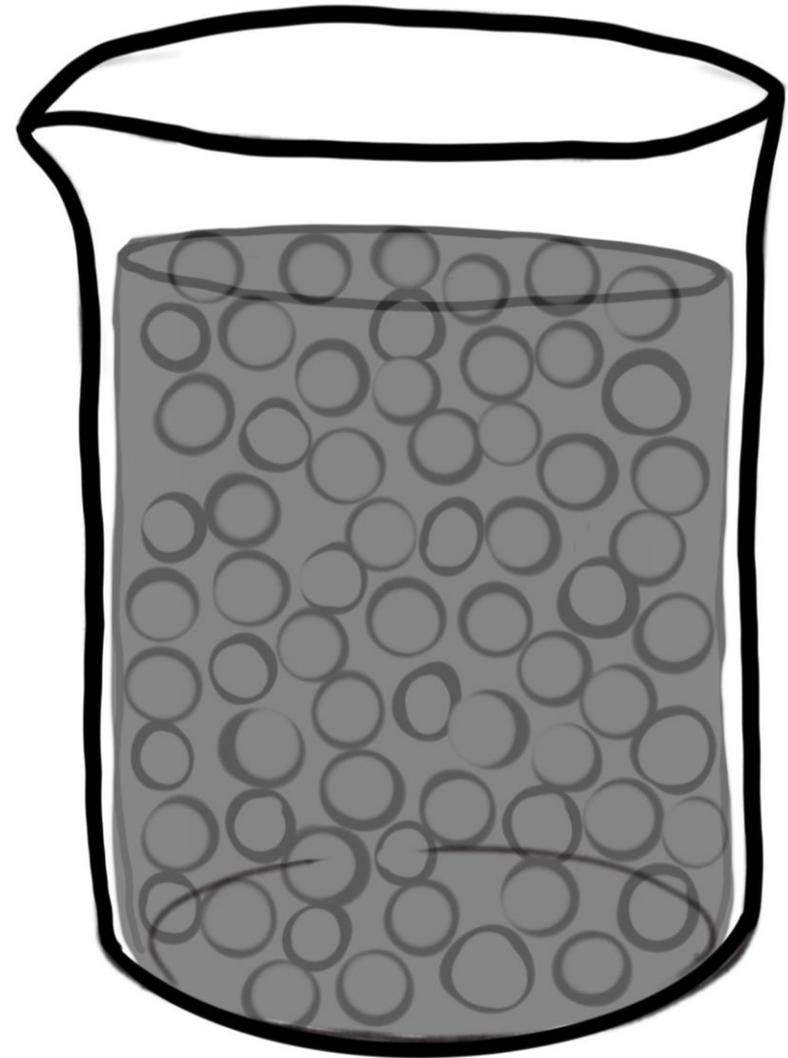
**Physical state is a property of matter that tells us if matter is a solid, liquid or gas. What determines the phase of matter is the arrangement of it's molecules and how those molecules behave. Solids have molecules that are bonded very close together with very little movement. Because the molecules are so close, a solid has a definite shape and does not allow objects to pass through easily.**

**Can you think of some solids?**



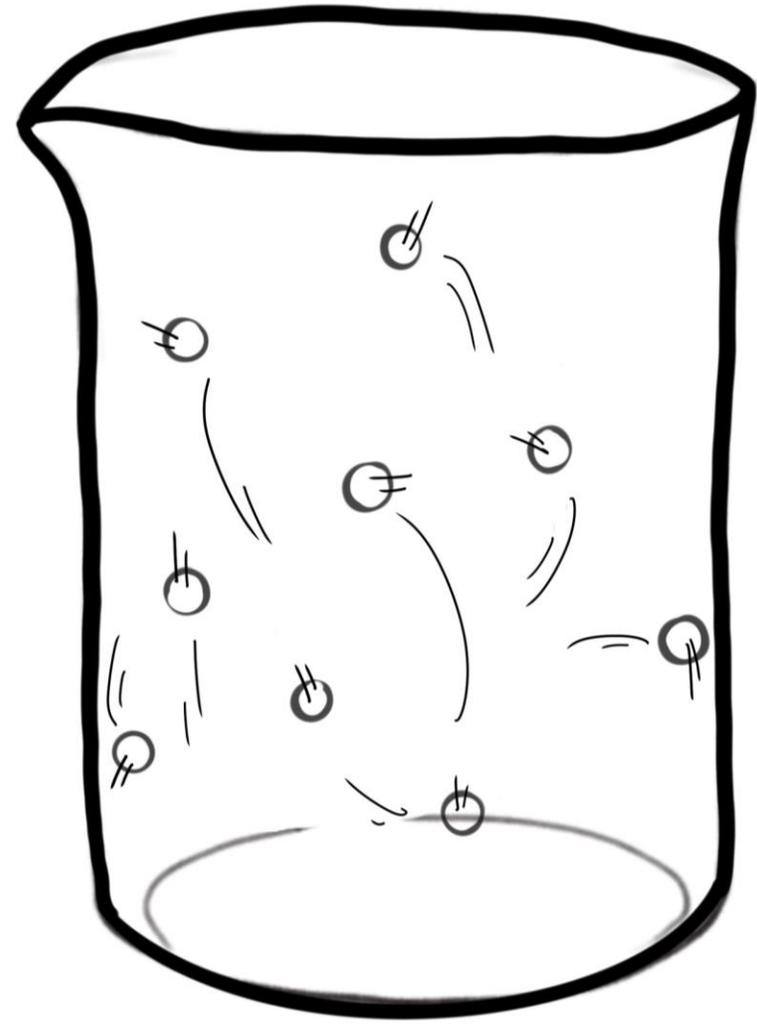
**Liquids have molecules that are loosely bonded together. The molecules in a liquid have the ability to slide past each other. For that reason, liquids can take the shape of their container and don't have a definite shape.**

**Can you describe some liquids that show these characteristics?**



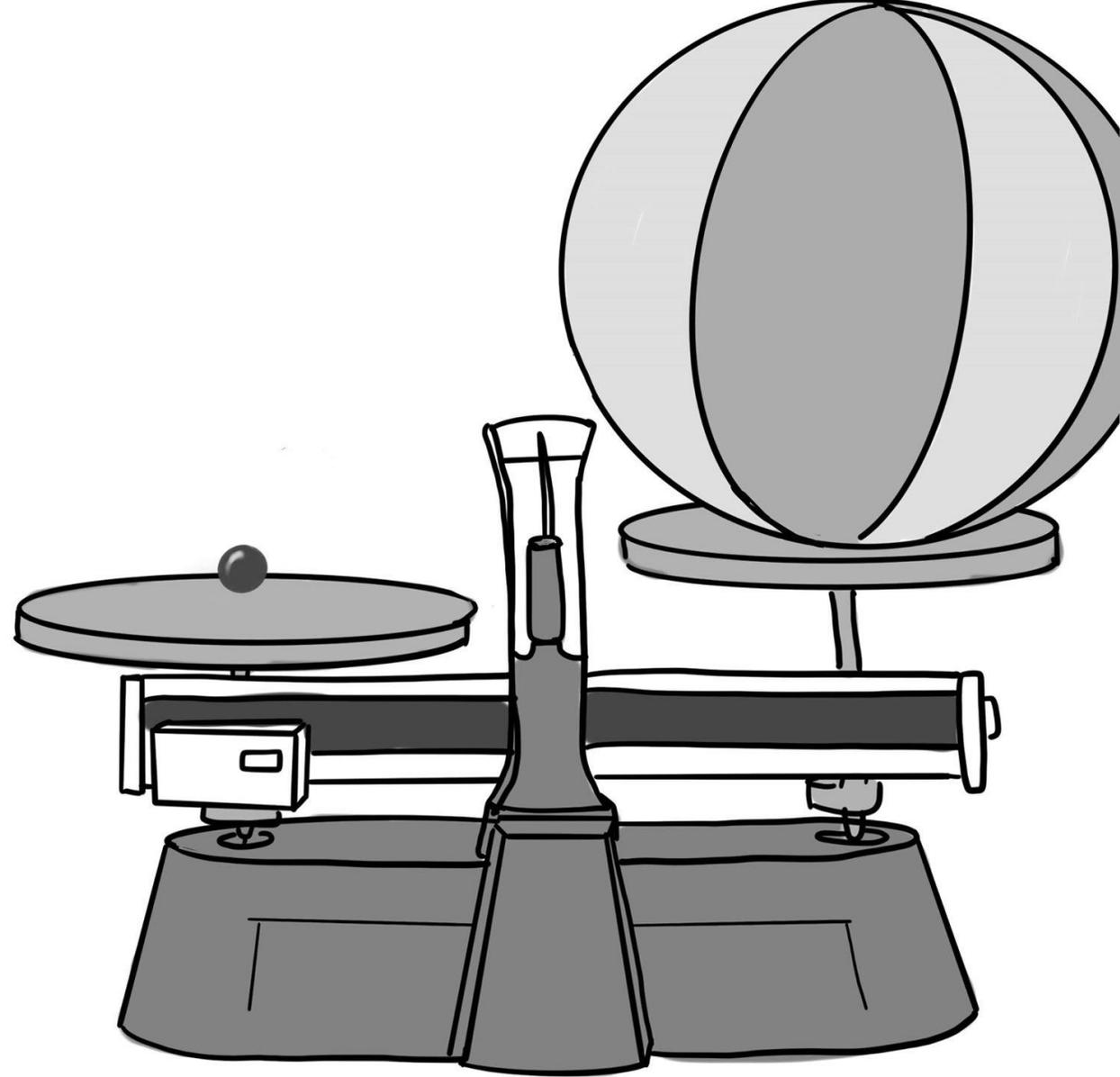
**Gases have molecules with broken bonds. The molecules of a gas move quickly and away from each other. For this reason, a gas is invisible to the eye, can take the shape of a container and will allow other types of matter to pass through it easily.**

**Can you name some examples of gases that you know of?**



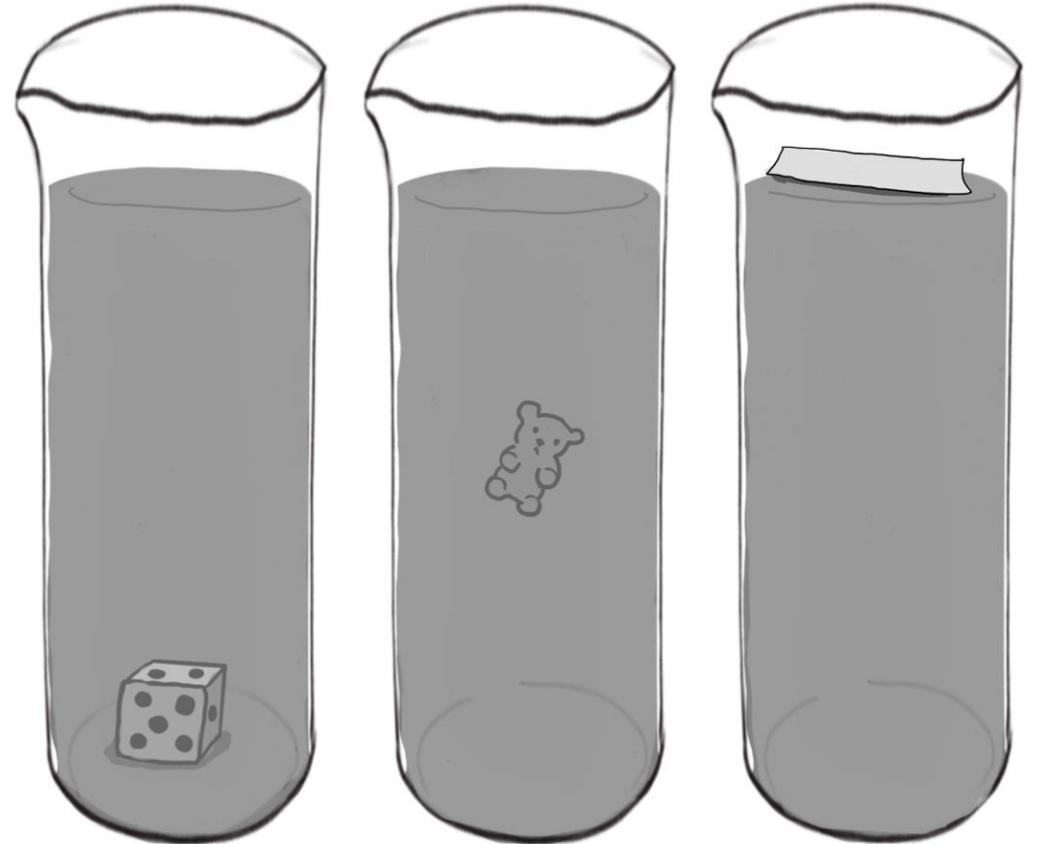
**Mass** is a property that compares how much matter is packed into an object. Mass is measured with a balance. A balance compares the mass of two objects. On Earth, you can also compare mass to weight using a scale.

Have you ever noticed that large things like a beach ball may not have as much mass as a small thing like a steel ball bearing? Why do you think that is?



**Density is the amount of matter packed into an object. Relative density in water is a way to tell if matter in an object is more dense or less dense than water. If it is less dense than water, it will float. If it is more dense than water, it will sink. Sometimes, matter can have a density close to water that causes it to suspend itself inside the water.**

**Have you ever seen something suspended in water?**



You use a magnet to determine whether matter contains iron or nickel (magnetism) and you use a circuit tester to see if matter will allow itself to conduct electricity. Some matter allows electricity (and probably heat) to travel through it easily (conductor).

Other types of matter slow or stop the flow of electricity or heat (insulator). Can you name what types of materials make good conductors and insulators?

