

TEACHER BACKGROUND INFORMATION

(What is Matter?)

A. DEFINITION OF MATTER:

The word matter comes from the Latin word *materia*, meaning “material” or “stuff”. Matter is everything and it is found everywhere. Everything on Earth, in our galaxy, and in the universe is made up of matter. Matter is anything that has mass and takes up space. The **mass** of an object is the amount of material it contains. The three-dimensional space an object takes up is known as its **volume**. Matter can be found in four phases: solid, liquid, gas and plasma (found inside stars). Phases of matter are also called **states of matter**. In general, matter cannot be created nor destroyed.

Note: Chemistry, on a basic level, is the study of the properties and behavior of matter.

B. PROPERTIES OF MATTER:

Each form of matter has a unique set of properties that are characteristics which allow us to recognize and distinguish it from other forms of matter. The properties of matter can be grouped into two categories: physical and chemical.

Physical properties can be observed and measured without changing the identity and composition of matter (e.g. sculpting clay changes its shape but not what it’s made up of). Physical properties of matter include color, odor, hardness, density and shape. Again, these are physical properties because they can be observed and measured without changing the identity of matter.

Chemical properties cannot be observed and measured without changing the identity and composition of matter (e.g. burning paper changes its shape and what it's made up of). Common chemical properties include flammability, tendency to rust, and reactivity to acid and to water. Once again, these are chemical properties because in order to observe and measure these properties, the composition and identity of matter will be changed.