INTRODUCTION TO MATTER

What Is Matter?

Matter is anything that takes up space and has mass. Some of its properties are **physical** and would include such things as color, volume and weight. Other properties are **chemical** and deal with how matter chemically reacts with other materials. An example would be what would happen to an acid if it reacted with a base.

Measur

The measu **olume**, and **lengt** **rams**, volume in an object can chang changed by gravity. front of the above terms to indicate quantity. A milliliter is 1/1000 of a liter while a kiloliter is one thousand liters. A kilogram would be 1000 grams and a millimeter would 1/1000 of a meter.

Lesson Checkpoint:

What system of measurement is used to measure matter?

Changes in Matter

Matter can undergo both **physical** and **chemical** changes.

A **physical change** would include a change in color or a change in state. The different states of matter are solid, liquid and gas. When a physical change occurs, the substance does not change. For example, when you fry an egg, you change its physical state but it is still an egg in substance.

Chemical changes are those that change the actual chemical makeup of the substance. When these occur, materials lose their identity. For example, when you make a cake, you mix an egg with the other ingredients, which together become cake batter. The egg is now transformed and is part of something else—the batter.

Think o… change in matter.

Types of Energy

Energy or the ability to do work can be classified in different ways. Energy at rest is considered to be **potential energy**. An example of this would be a car battery that is not in use. Energy in motion is called **kinetic,** an example of which would be a moving car.

Energy can also take various forms. These include the energy of moving parts which is called **mechanical energy**. Other forms of energy include **electromagnetic energy** such as light, the **chemical energy** of a battery or the **nuclear energy** released from radioactive elements. Other forms are **electrical** and **thermal** or heat energy.

Lesson Checkpoint:
Name one type and one form of energy and give an example of each.

Changes in Energy Form

Energy can be changed from one form to another. This is referred to as an **energy transformation**. We rely on these transformations for many important things. For example, the chemical energy of food in our body gets changed to heat us. Gasoline is burned to move a car, electricity is used to heat a toaster, and generators are turned to produce electricity.