Electrolysis of water is a technique that uses electricity to decompose water into 2 parts of hydrogen gas and 1 part of oxygen gas.

The Law of Conservation of Mass states that the number and type of atoms on the reactant side must be the same as the atoms on the product side of a reaction.

The subscripts in the chemical formula for a substance, such as Al₂O₃, give the number of atoms of each element in that substance.

The three states of matter are solid, liquid, and gas.

During any phase change from solid to liquid, and from liquid to gas, heat energy is required but the temperature does not change.

An energy curve of Temperature vs. Heat can be plotted using time in the x-axis if a constant source of heat is used.

As heat energy is added to a substance, the average kinetic energy of its particles increases.

Kinetic energy (KE) = \( \frac{1}{2} mv^2 \).

During a phase change, energy is absorbed to overcome the intermolecular attractive forces which hold the substance in the solid or liquid phase.

When the vapor pressure of a liquid equals the atmospheric pressure, a liquid will boil. At STP this temperature is called the normal boiling point of a liquid.

Fog is an example of a colloidal dispersion or colloid. The observation that a beam of light passing through a colloid is visible is called the Tyndall Effect.

Density is a physical property of all substances which is determined by mass and volume.

The mathematical expression is: \( D = \frac{m}{V} \).

Precision of measurements is a term used to show the reproducibility of a measurement.

Accuracy is the term used to show how close the measurements are to the true value.

Scientific notation uses powers of ten to simplify working with very large and very small numbers.

All of the elements of the periodic table fall into one of three groups: metals, nonmetals, and metalloids.

Alloys are solutions of one (or more) metal in another. The alloy, such as brass, has superior properties to any of the components.

Polymers are very large molecules which are built from repeating units of monomers. Starch and plastics are common polymers used on a daily basis.

Metal cations can be identified by the color that they emit when they are excited in a flame.

Carbon has unique bonding capabilities which leads to the enormous field of organic chemistry, the study of the molecular compounds of carbon.

The simplest family of compounds in organic chemistry, hydrocarbons, are used for combustion.