**Acids and Bases**

**Hydrochloric Acid**

Certain molecules, ionic and covalent, dissociate in such a way that they release a hydrogen ion.  These substances are called acids.  Since a hydrogen ion is really just a single proton in most cases, the chemist’s definition of an acid is a “proton donor.” If very many protons (hydrogen ions) are “donated” the effect can be very profound, such as burning your skin or dissolving metal.  The acid illustrated is hydrochloric acid.  Pure hydrochloric acid is a gas, but it dissolves easily in water to produce a solution of hydrogen ion and chloride ion.  Since nearly all of it is dissociated in water, it is called a strong acid.  Acids that do not dissociate completely are called weak acids.

**Sodium Hydroxide**

The opposite of an acid is a base, also known as an alkali.  A typical strong base is sodium hydroxide, the principal component of lye.  Sodium hydroxide dissociates to form a sodium ion and a hydroxide ion.  A base is defined as a “proton acceptor.”  The most common bases produce hydroxide ion when they dissociate, and it is the hydroxide ion that accepts the proton.  A strong base can give your skin a much worse burn than an acid.

**Neutralization**

When a base and an acid are mixed, the hydroxide ion and the base combines with the hydrogen ion from the acid to form water. This process is called neutralization.





