

Vocabulary: Naming Compounds

- **Acid** – a water-soluble *compound* that is capable of donating protons (H^+ ions) to another substance.
 - Acids often are sour in taste, can burn the skin and eyes, and react with a *base* to produce a salt and water.
 - The chemical formulas of acids usually begin with H. Examples are HCl (hydrochloric acid), H_2SO_4 (sulfuric acid), and HNO_3 (nitric acid).
 - There are several commonly-used definitions of acids and bases. The definition used here is the Brønsted-Lowry definition.
- **Alkali metal** – any of a group of highly reactive metals in Group 1 of the periodic table.
 - Alkali metals have one valence electron and form ions with a charge of 1+.
 - The alkali metals are lithium (Li), sodium (Na), potassium (K), rubidium (Rb), cesium (Cs), and francium (Fr).
- **Alkaline earth metal** – any of a group of reactive metals in Group 2 of the periodic table.
 - Alkaline earth metals have two valence electrons and form ions with a charge of 2+.
 - The alkaline earth metals are beryllium (Be), magnesium (Mg), calcium (Ca), strontium (Sr), barium (Ba), and radium (Ra).
- **Anion** – a negatively charged *ion*.
- **Base** – a water-soluble chemical compound that is able to accept protons (H^+ ions).
 - Bases often are bitter in taste, have a slippery texture, and react with acids to produce a salt and water.
 - The chemical formulas of bases usually end with OH. Examples are NaOH (sodium hydroxide), KOH (potassium hydroxide), and $Ca(OH)_2$ (calcium hydroxide).
- **Cation** – a positively charged ion.
- **Chemical formula** – a symbolic representation of an element or compound.
 - Chemical formulas use subscripts and parentheses to denote the number of atoms in a molecule of the substance.
 - Examples of chemical formulas include NaCl (table salt), H_2O (water), and $Ca(OH)_2$ (calcium hydroxide).

- Compound – a pure substance composed of two or more elements chemically bonded together.
 - The elements in a compound are in fixed ratios.
 - For example, water (H₂O) contains two hydrogen atoms for every oxygen atom.
- Covalent bond – a chemical bond in which atoms share a pair of valence electrons.
 - Covalent bonds form between nonmetal atoms.
- Halogen any of a group of reactive elements in Group 17 of the periodic table.
 - Halogens have seven valence electrons and form ions with a charge of 1–.
 - The halogens are fluorine (F), chlorine (Cl), bromine (Br), iodine (I), and astatine (As)
- Ion – an electrically charged atom that has gained or lost one or more electrons.
 - An atom with more protons than electrons is a positively charged ion, or cation.
 - An atom with more electrons than protons is a negatively charged ion, or anion.
 - In an element symbol, the electric charge is shown at the upper right.
- Ionic bond – a bond formed by the attraction between two oppositely charged ions.
 - Positively charged ions attract negatively charged ions and vice versa.
 - Positively charged ions repel positively charged ions, and negatively charged ions repel negatively charged ions.
- Molecule – a stable particle made of two or more atoms joined by covalent bonds.
- Nomenclature – a system of rules for creating names.
- Polyatomic ion – an ion composed of several atoms held together by covalent bonds.
 - Examples of polyatomic ions include hydroxide (OH⁻), nitrate (NO₃⁻), and ammonium (NH₄⁺).
- Transitional metal – an element in groups 3 through 12 in the periodic table.
 - Transitional metals have incomplete d sub-shells. Transitional metals form positively-charged ions with a variety of charges.
 - Well-known transitional metals include iron (Fe), copper (Cu), zinc (Zn), silver (Ag), and gold (Au).