

Chemical Names and Formulas

<p>Significance of a Chemical Formula</p>	<ul style="list-style-type: none"> • To describe the atomic makeup of compounds chemists use systematic methods for naming compounds and for writing chemical formulas. • A _____ indicates the relative _____ of _____ of each kind in a chemical compound. • For a _____ compound, the chemical formula gives the number of atoms of each element contained in a single _____ of the compound. Example: octane – C₈H₁₈ • The chemical formula for an _____ compound represents one _____ unit – the simplest _____ of the compound's (+) ions and its (-) ions. Example: aluminum sulfate – Al₂(SO₄)₃.
<p>Monatomic Ions</p>	<ul style="list-style-type: none"> • _____ Ions are ions formed from a _____ atom (Na⁺). • Monatomic _____ are identified by the element's _____ (Na⁺ is Sodium). When naming monatomic _____, you drop the ending of the element's name and add <i>-ide</i> (F⁻, Fluorine → Fluoride) • Many of the _____ metals lose different numbers of _____ and follow the _____ System of naming ions and elements. Example: copper(I) → Cu⁺ or copper(II) → Cu²⁺
<p>Binary Ionic Compounds</p>	<ul style="list-style-type: none"> • _____ Compounds are compounds composed of _____ different elements. • The total number of positive and negative charges must be _____. • The _____ method is a method of _____ the charges between the ions in an ionic compound.
<p>Polyatomic Ions</p>	<ul style="list-style-type: none"> • In a _____ ion, two or more atoms are _____ - bonded together. • Together, they carry a _____. • When balancing charges in an ionic compound, the

	polyatomic ion acts as a _____ <i>unit</i> of charge.
Naming Binary Ionic Compounds	<ul style="list-style-type: none"> • The _____, or naming system, of binary ionic compounds involves combining the names of the compound's _____ and _____ ions. • The name of the _____ is given _____, followed by the name of the _____ (<i>-ide</i>). Example: Al₂O₃ – aluminum oxide. • Some elements such as iron, form two or more _____ with _____ charges. • The _____ System of nomenclature uses a _____ numeral to indicate an ion's charge. The numeral is enclosed in _____ and placed <u>immediately</u> after the metal's name. Example: Fe²⁺ - iron(II), Fe³⁺ - iron(III).
Compounds containing Polyatomic Ions	<ul style="list-style-type: none"> • Most polyatomic ions are _____ charged and are _____ – contain oxygen. • Compounds containing polyatomic ions are named in the same way as binary ionic compounds. Name the _____ first, then the _____. • If more than one oxyanion is formed by the same two elements (Ex. N and O) the most _____ ion is given the ending <i>-ate</i>. The one with one _____ oxygen ends in <i>-ite</i>. Example: NO₂⁻ - nitrite, NO₃⁻ - nitrate. • Some elements can form _____ than two _____ of oxyanions. Example: chlorine can form ClO⁻ (hypochlorite), ClO₂⁻ (chlorite), ClO₃⁻ (chlorate), and ClO₄⁻ (perchlorate).
Naming Binary Molecular Compounds	<ul style="list-style-type: none"> • The naming of _____ compounds is based on the use of _____ (CO is carbon monoxide, CO₂ is carbon dioxide, P₄O₁₀ is tetraphosphorus decaoxide). • The _____ electronegative element is given first. It is given a prefix only if it contributes more than _____ atom to a molecule. • The second element is named by (a) _____ giving number of atoms contributed (b) the _____ of the name of the second element, and (c) the ending <i>-ide</i>.

