Binary Ionic Compounds

- Metal + Nonmetal
- Cation + Anion
- Name = metal name + non metallic ion name with –ide ending
- Ex. Sodium & Chlorine
    - Na^+ & Cl^-
    - NaCl
    - Sodium Chloride

Other Ionic Compounds

- Ionic Compounds composed of 3 or more elements
- These compounds involve Polyatomic Ions
    - There are 25 common Polyatomic Ions
    - You do not have to memorize these! There is a chart on the back of your Periodic Table Reference Sheet.
    - **Common Polyatomic Ions**

1– charge		2– charge		3– charge	
Formula	Name	Formula	Name	Formula	Name
$H_2PO_4^-$	Dihydrogen phosphate	HPO_4^{2-}	Hydrogen phosphate	PO_3^{3-}	Phosphite
$C_2H_3O_2^-$	Acetate	$C_2O_4^{2-}$	Oxalate	PO_4^{3-}	Phosphate
HSO_3^-	Hydrogen sulfite	SO_3^{2-}	Sulfite		
HSO_4^-	Hydrogen sulfate	SO_4^{2-}	Sulfate		
HCO_3^-	Hydrogen carbonate	CO_3^{2-}	Carbonate	1+ charge	
NO_2^-	Nitrite	CrO_4^{2-}	Chromate	Formula	Name
NO_3^-	Nitrate	$Cr_2O_7^{2-}$	Dichromate	NH_4^+	Ammonium
CN^-	Cyanide	SiO_3^{2-}	Silicate		
OH^-	Hydroxide				
MnO_4^-	Permanganate				
ClO^-	Hypochlorite				
ClO_2^-	Chlorite				
ClO_3^-	Chlorate				
ClO_4^-	Perchlorate				

    - Most of their names end in –ite or –ate
    - You MUST USE parenthese ( ) if you need more than one polyatomic ion in a chemical compound formula
        - Examples:

Compounds with Transition Metal Cations

- Some Transition Metals can form more than one cation
    - Example: Iron makes 2 cations – Iron (II): Fe^{+2} & Iron (III): Fe^{+3}
    - Common Transition metals that form more than one ion:
        - Chromium
        - Nickel

        - Mercury
        - Manganese
        - Copper
        - Lead
        - Iron
        - Tin
        - Cobalt
    - When writing the name of a Transition Metal compound, you need to include the charge of the cation in the name. The charge is placed in Roman numerals in ( ) after the metal name
        - Example $CrCl_2$ is Chromium (II) Chloride
    - One other Transition Metal Note:
        - Zinc always forms a Zn^{+2} ion
        - Silver always forms a Ag^{+1} ion
        - Cadmium always forms a Cd^{+2} ion
    - Examples: