Case 1: Ionic compounds containing monatomic ions (i.e. ions that can only have one charge)
- Name of Compound = name of metal + name of non-metal w/ide suffix or name of polyatomic ion. <u>No prefixes are used</u>!
- e.g. NaF = sodium fluoride; Na_3PO_4 = sodium phosphate; $(NH_4)_3PO_4$ = ammonium phosphate

Case 2: Ionic compounds containing a metal that can form more than one ion
- Name of Compound = name of metal, followed by charge of metal in Roman numerals in parentheses, followed by name of non-metal w/ -ide suffix or name of polyatomic ion. <u>No prefixes are used</u>!
- e.g. $PbCl_2$ = Lead (II) chloride; $Cu(NO_3)_2$ = copper (II) nitrate

Case 3: Binary molecular compounds:
- Name of Compound = name of first element + name of second element with -ide suffix.
- Use prefixes (mono-, di-, tri-, tetra-, penta-, hexa-, hepta-, nona-, deca-) to indicate the number of atoms. The mono prefix is not used with the first element.
- e.g. CO = carbon monoxide; NO_2 = nitrogen dioxide; N_2O = dinitrogen monoxide; P_2O_5 = diphosphorus pentoxide

Case 4: Binary acid solutions (i.e. binary acids dissolved in water = binary acids in aqueous solution)
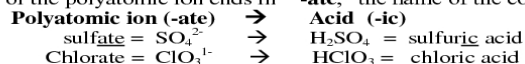- Name of Compound = hydro + name of halogen w/ -ic suffix e.g. $HF_{(aq)}$ = hydrofluoric acid; $HCl_{(aq)}$ = hydrochloric acid
- Unless stated otherwise assume the formula of a binary acid is for the acid dissolved in water. E.g. assume HCl = $HCl_{(aq)}$

Naming Oxoacids (i.e. compound with the general formula H_xMO_y, where M = nonmetal)
The name of an oxoacid is based on the name of the polyatomic ion from which the acid is derived.

Case 5: -ate ⬅➡ -ic
If the name of the polyatomic ion ends in **"-ate,"** the name of the corresponding acid ends in **"-ic** acid."

Polyatomic ion (-ate)	➔	Acid (-ic)
sulf<u>ate</u> = SO_4^{2-}	➔	H_2SO_4 = sulfur<u>ic</u> acid
Chlor<u>ate</u> = ClO_3^{1-}	➔	$HClO_3$ = chlor<u>ic</u> acid

Case 6: -ite ⬅➡ -ous
If the name of the polyatomic ion ends in **"-ite,"** the name of the corresponding acid ends in **"-ous** acid."

Polyatomic ion (-ite)	➔	Acid (-ous)
sulf<u>ite</u> = SO_3^{2-}	➔	H_2SO_3 = sulfur<u>ous</u> acid
Chlor<u>ite</u> = ClO_2^{1-}	➔	$HClO_2$ = chlor<u>ous</u> acid