Nomenclature Flow Chart

Type of Compound

Binary (-ide) 2 elements

metal – nonmetal

1) Name metal
2) Use Roman numeral if metal has variable oxidation number.
3) Name non-metal.
4) Change ending to –ide.

Example: LiF
1) Lithium
2) Not variable – skip
3) Lithium Fluor(ine)
4) Lithium Fluoride.

Example: $FeCl_3$
1) Iron
2) $Fe^{+3}CL_3^{-3} \rightarrow$ Fe(III)
3) Iron(III) Chlor(ine)
4) Iron(III) Chloride.

nonmetal – nonmetal

1) Use prefix for number of atoms of 1st element. Omit if mono.
2) Name first element.
3) Use prefix for number of atoms of 2nd element.
4) Name second element.
5) Change ending to –ide.

Prefixes: 1=mono 6=hexa
2=di 7=hepta
3=tri 8=octa
4=tetra 9=nona
5=penta 10=deca

Example: SiO_2
1) mono - skip
2) Silicon
3) 2 oxygen – di
4) Silicon di ox(ygen)
5) Silicon dioxide

Example: CCl_4
1) mono - skip
2) Carbon
3) 4 Cl – tetra
4) Carbon tetra chlor(ine)
5) Carbon tetrachloride

Ternary – 3 elements

1) Name metal
2) Use Roman numeral if variable oxidation number.
3) Name polyatomic ion.

Example: $Na_2C_2O_4$

1) Sodium
2) Skip
3) Sodium Oxalate

Example: $Cu(NO_3)_2$
1) Copper
2) Variable $Cu^{+2}(NO_3^{-1})_2^{-1x2=-2}$
$\therefore$ Copper(II)
3) Copper(II) Nitrate

Note – for group 7.
per ate (ClO_4^- perchlorate)
ate (ClO_3^- chlorate)
ite (ClO_2^- chlorite)
hypo ite (ClO^- hypochlorite)
ide (Cl^- chloride)
Can replace Cl with any other element in same column.
(F,Br,I) Ex: BrO_4^- perbromate

Acid (aqueous solutions)

Binary

1) Name Hydrogen as hydro.
2) Name nonmetal
3) Change ending to: ic.
4) Add the word "acid"

Example: HF
1) Hydro
2) Hydro fluor(ine)
3) Hydrofluoric
4) Hydrofluoric acid

Ternary

1) Drop name for hydrogen.
2) Name polyatomic ion
3) Change ending:
ate $\rightarrow$ ic
ite $\rightarrow$ ous
4) Add the word "acid"

Example: H_2CO_3
1) It's dropped.
2) Carbon(ate)
3) Carbonic
4) Carbonic acid

Example: $HClO_4$
1) It's dropped
2) Perchlor(ate)
3) Perchloric
4) Perchloric acid