Naming Compounds

Ask yourself: Is it IONIC or MOLECULAR?

IONIC (METAL + NONMETAL)

Fixed charge metal

Na^{1+}, Ca^{2+}, Ba^{2+}, and K^{1+}

Just name it – adding the ending – ***ide*** to the nonmetal

(The *charge on the metal* will ***ALWAYS BE THE SAME*** for the fixed metals)

Variable charge metal

Cu^{1+} *or* Cu^{2+}, Pb^{2+} *or* Pb^{4+}, and Ni^{2+} *or* Ni^{3+}

* ***STOP*** and *find the* ***charge*** (***Roman Numeral***) ***on the metal***:

Example:

- $Cu(NO_3)_2$

Cu NO_3^-

NO_3^-

2+ = 2- total charge

(Charges have to be EQUAL; if there is more than 1 metal in the compound, the roman numeral is the charge on ONE of the metals, not the total positive charge!)

∴Copper (II) nitrate

MOLECULAR (NONMETALS ONLY!)

Non-Acids

Just name it using appropriate prefixes:

- Mono – 1
- Di – 2
- Tri – 3
- Tetra – 4
- Penta – 5
- Hexa – 6
- Hepta – 7
- Octa – 8
- Nona – 9
- Deci – 10

* If the 1st element of the compound has 1 atom, you may omit the prefix mono -.

Acids

Binary

H + another nonmetal

Use the prefix **hydro** – and the suffix – **ic** followed by the word **acid**

Examples:

- Hydrosulfuric acid
- Hydroiodic acid
- Hydrobromic acid

Oxyacids

H + a polyatomic ion (an element + oxygen)
If polyatomic ion is an – **ate**, substitute the –**ate** with –**ic** followed by the word **acid**

If polyatomic ion is an – **ite**, substitute the –**ite** with – **ous** followed by **acid**

Examples:

- Sulfuric acid (SO_4^{2-})
- Sulfurous acid (SO_3^{2-})
- Carbonic acid (CO_3^{2-})

Writing Formulas

Ask yourself: Is it IONIC or MOLECULAR?

IONIC (metal + nonmetal)

Write ions (Then, make charges EQUAL)

Calcium carbonate	Ca^{2+} CO_3^{2-}
Silver oxide	Ag^{1+} O^{2-}
Zinc phosphide	Zn^{2+} P^{3-}
Antimony (V) nitrite	Sb^{5+} NO_2^{1-}
Cobalt (II) hypochlorite	Co^{2+} ClO^{1-}
Chromium (II) nitrate	Cr^{2+} NO_3^{1-}
Potassium chlorite	K^{1+} ClO_2^{1-}
Aluminum chloride	Al^{3+} Cl^{1-}

MOLECULAR (nonmetals only!)

Use prefixes (nonacids)

Silicon tetrachloride
Phosphorus trichloride
Carbon tetrachloride
Dinitrogen tetroxide
Carbon disulfide
Chlorine trifluoride
Chlorine monoxide
Sulfur hexafluoride

Write ions (acids) (Make charges EQUAL)

Bromous acid
Hydrofluoric acid
Acetic acid
Sulfuric acid
Phosphorous acid
Hydroselenic acid
Hydroiodic acid
Fluorous acid