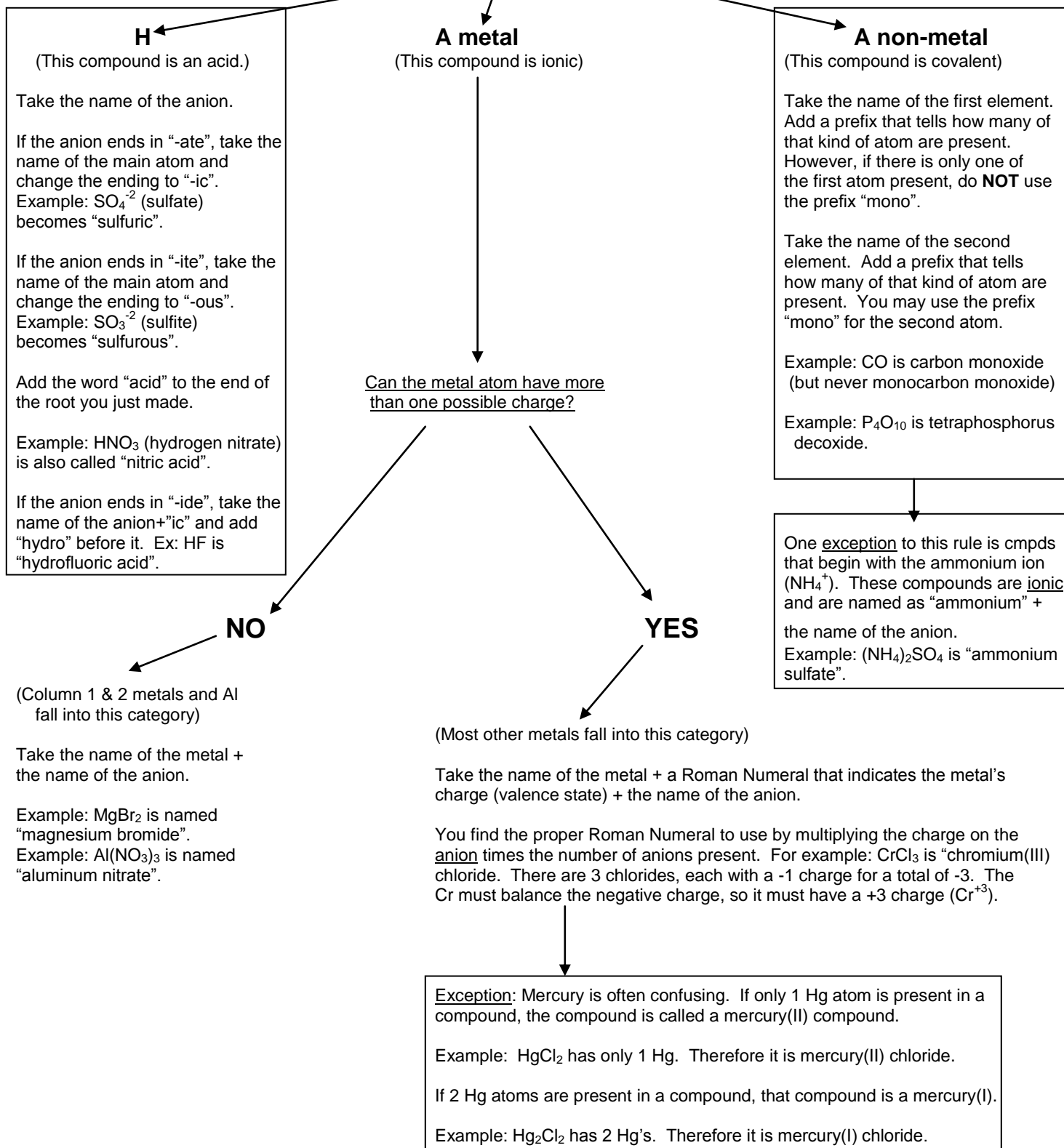


Naming Chemical Compounds – a Conceptual Flow-Chart

What is the first atom in the compound?



Nomenclature of chemical compounds:

Ionic-

1. cation is named first followed by anion.
2. cation (unless polyatomic) is named using the name of the element
3. anion (unless polyatomic) is named by changing the ending of the element's name to the suffix -ide.
(ex: sulfur becomes sulfide)

Examples:

NaCl is sodium chloride

Mg(NO₃)₂ is magnesium nitrate

4. If the cation or anion has more than one possible charge, indicate the charge you are using in one of the following methods:

-Roman numerals, in parenthesis after the name of the ion

Examples:

Fe²⁺ is represented as iron(II)

-use of the -ic or -ous endings with the Latin or English names to indicate the lowest(-ous) or second lowest (highest if there are only 2) (-ic) possible charges

Examples:

Sn²⁺ is stannous; Sn⁴⁺ is stannic

Co²⁺ is cobaltous; Co³⁺ is cobaltic

Examples:

K₂SO₄ is potassium sulfate

Fe(NO₃)₃ is iron(III) nitrate or ferric nitrate

Covalent-

1. The elements are named in the order they appear in the formula
2. The first element is named using the name of the element
3. The last element is named by changing the ending of the element's name to the suffix -ide.
4. Prefixes (mono, di, tri...) are used to indicate the number of each type of atom.
5. The prefix mono- is NEVER used on the first element.
6. If the element's name begins with a vowel, drop the last vowel of the prefix (except for i) before adding the prefix.

Example:

2 oxygens is dioxide but 4 oxygens is tetroxide

Examples:

CO₂ is carbon dioxide

SF₆ is sulfur hexafluoride

Acids-

1. If the acid **does not** contain polyatomic oxygen anions it is named with the prefix hydro- and the suffix -ic acid.

Examples:

HCl is hydrochloric acid

HCN is hydrocyanic acid

2. If the acid **does** contain polyatomic oxygen anions it is named by changing the root name of the anion by adding the -ic or -ous suffixes.

If the original name of the anion ends in -ate replace with -ic

Example:

H₂SO₄ (SO₄²⁻ is sulfate) so the acid is **Sulfuric acid**

If the original name of the anion ends in -ite replace with -ous

Example:

HNO₂ (NO₂⁻ is nitrite) so the acid is **Nitrous acid**

Practice problems:

Name the following (some may have alternative names)

