Inorganic Nomenclature

"Nomenclature" means the naming of.

RULE #1 – CATION/ANION

- cation first (postive ion)
- anion second (negative ion)

RULE #2 – POSITIVE AND NEGATIVE MUST BALANCE

- charge balance must be achieved
- the number of cations times the cation charge must be equal but opposite the number of anions times the anion charge
- use a teeter toter

RULE #3 – CATIONS USE THE NAME AS SEEN ON THE PERIODIC TABLE

- monovalent cations **DO NOT** use a roman numeral
- polyvalent cations **DO** use a roman numeral in brackets after the cation name to identify the charge on the polyvalent cation*

RULE #4 – <u>ELEMENTAL ANIONS</u> HAVE NAME WITH AN "IDE" SUFFIX

C^{4-}	carbide
N^{3-}	nitride
O^{2-}	oxide
F^{1-}	fluoride
P^{3-}	phosphide
S^{2-}	sulphide (sulfide)
Cl^{1-}	chloride
As^{3-}	arsenide
Se^{2-}	selenide
Br^{1-}	bromide
Sb^{3-}	antimonide
Te^{2-}	telluride
I^{1-}	iodide

- **POLYATOMIC ANIONS HAVE SPECIAL NAMES AND A "COMBINED CHARGE"****

*__**Polyvalent Cations:**__

- cations that are capable of more than one possible charge
- a roman numeral is used to state the charge on the cation
- eg Fe^{2+} is called iron(II)
  Fe^{3+} is called iron(III)
- roman numerals are as follows

  I
  II
  III
  IV
  V
  VI
  VII
  VIII
  IX
  X
- writing a formula is easier
- writing names is more difficult (you must determine the charge on the cation)

<u>Polyatomic Ions:**</u>

- a group of atoms that are bonded together and share a "combined charge"
- the group must be kept together
- if you need more than one of the group, brackets are used

eg SO_4^{2-} = sulphate (the 2- is the combined charge) The "4" tells you the number of oxygens in the group. It does not multiple the 2- charge

Na_2SO_4 $MgSO_4$ $Al_2(SO_4)_3$

eg OH^{1-} = hydroxide

NaOH $Mg(OH)_2$ $Al(OH)_3$

Common polyatomic ions are:

CO_3^{2-}	carbonate
NO_3^{1-}	nitrate
PO_4^{3-}	phosphate
SO_4^{2-}	sulphate
ClO_3^{1-}	chlorate
OH^{1-}	hydroxide
CN^{1-}	cyanide
NH_4^{1+}	ammonium