Tweet!

Write as many chemical formulas you know.

CO_2

Nomenclature
Names & Formulas

IUPAC - International union of Pure & Applied chemistry

1) Type III (Covalent) Nomenclature
↓
2 nonmetals

A. Names - use prefixes to tell the # atoms of each element in the formula.

Prefixes

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

* only used on the 2nd nonmetal

- write the prefix & name of the 1st nonmetal.
- do the same for the 2nd nonmetal, change the ending to -ide

Ex) H_2O
dihydrogen monoxide

PCl_3
phosphorous trichloride

N_2O_5
dinitrogen pentoxide

P_4S_{10}
tetraphosphorous decasulfide

B. Formulas

- write symbol for the 1ST nonmetal, change prefix to a subscript
- do the exact same for the 2nd nonmetal.

Ex) iodine heptabromide — IBr_7

sulfur trioxide — SO_3

dinitrogen monoxide — N_2O

carbon monoxide — CO

2) Type I (Ionic) Binary Nomenclature

↓ metal + nonmetal ↓ 2 elements

A. Names - No Prefixes!

- write the name of the metal cation
- write the name of the nonmetal anion, change the ending to -ide

Ex) $CaBr_2$ — calcium bromide

K_3P — potassium phosphide

Al_2O_3 — aluminum oxide

NaF — sodium fluoride

B. Formulas

- write symbol & charge for the metal cation.
- do the same for the nonmetal anion.
- make sure the charges add up to zero.

Ex) lithium chloride

Li^{1+} Cl^{1-}

$LiCl$

magnesium fluoride

Mg^{2+} F^{1-} F^{1-}

MgF_2

criss-cross method

gallium sulfide

Ga^{3+} S^{2-} Ga^{3+} S^{2-} S^{2-}

Ga_2S_3

germanium oxide

Ge^{4+} O^{2-}

$Ge_2O_4 \Rightarrow GeO_2$