

Nomenclature

The Language of Chemistry

2 Major Naming Systems

- molecular/covalent & ionic
- two different ways to name the compounds

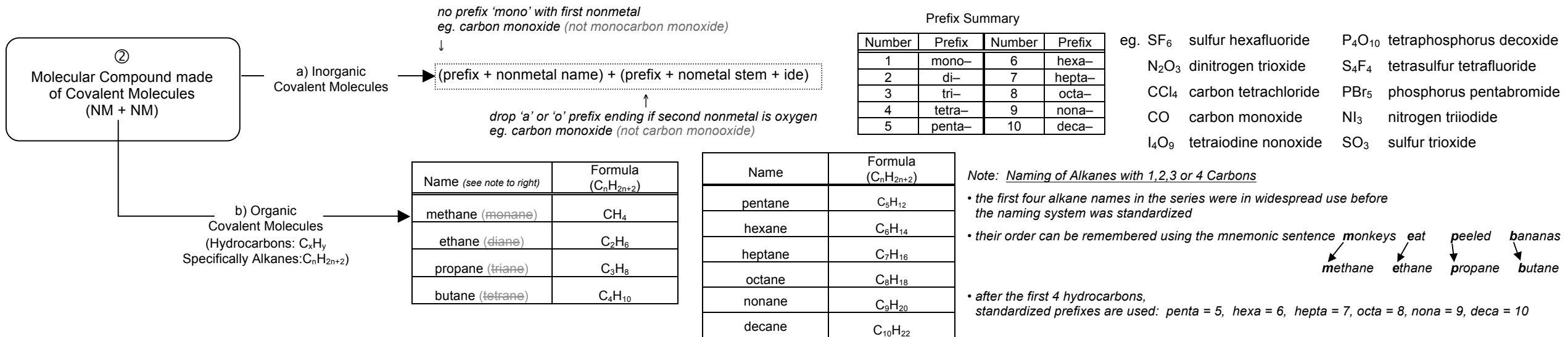
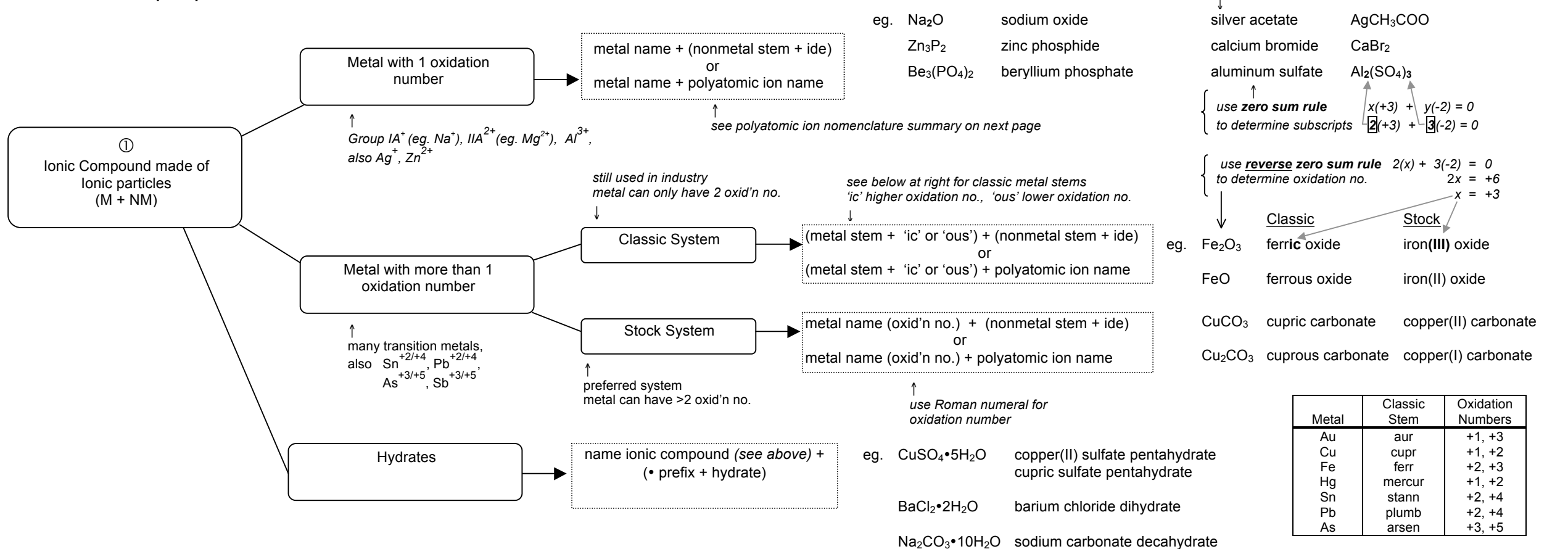
Molecular/Covalent Bonding

- bonding between a non-metal & another non-metal
- electrons are shared between the non-metals (electrons ARE NOT transferred, lost, or gained - just shared)
- try some HOFBrINCl's: compare H_2 , O_2 , N_2

Ionic Bonding & Nomenclature

- bonding between a metal & a non-metal
- electrons are transferred

Nomenclature Concept Map



Nomenclature

1) Diatomic Molecules

A diatomic molecule is a molecule composed of two atoms of the same element. In nature, the following molecules are diatomic:

hydrogen	→ H ₂
nitrogen	→ N ₂
oxygen	→ O ₂
fluorine	→ F ₂
chlorine	→ Cl ₂
bromine	→ Br ₂
iodine	→ I ₂

So whenever you hear the name hydrogen, it would exist as H₂.

2) Other common molecules

phosphorus → P ₄	glucose → C ₆ H ₁₂ O ₆	methane → CH ₄
sulfur → S ₈	sucrose → C ₁₂ H ₂₂ O ₁₁	propane → C ₃ H ₈
ozone → O ₃	ammonia → NH ₃	octane → C ₈ H ₁₈
methanol → CH ₃ OH	ethanol → CH ₃ CH ₂ OH	

hydrogen peroxide → H₂O₂

Polyatomic Ions (or Complex Ions)

A polyatomic ion (or complex ion) is a charged particle composed of more than two atoms.

a) The "ate" polyatomic (complex) ions

phosphate	PO ₄ ³⁻
Borate	BO ₃ ³⁻
Sulfate (or sulphate)	SO ₄ ²⁻
chromate	CrO ₄ ²⁻
carbonate	CO ₃ ²⁻
Nitrate	NO ₃ ¹⁻
chlorate	ClO ₃ ¹⁻
bromate	BrO ₃ ¹⁻
Iodate	IO ₃ ¹⁻
acetate	CH ₃ COO ¹⁻
manganate	MnO ₃ ¹⁻

b) The "non-ate" polyatomic (complex) ions

ammonium → NH₄¹⁺

hydroxide → OH¹⁻