

## Binary Formula Summary

1. Positive ion is written first.
  - a. If both elements are nonmetals, the one with the lower **electronegativity** is treated as the cation.
2. The anions get their names changed to end in “ide”.
3. For ionic bonds metals lose valence electrons and nonmetals gain electrons until they satisfy the octet rule. When combined, the sum of the oxidation numbers must be equal to zero.
4. For covalent bonds two nonmetals share electrons until they satisfy the octet rule.
5. When more than one compound can be formed between the two nonmetals (two nonmetals where neither is hydrogen) prefixes are used in the name to indicate the number of atoms **except** that “mono” is never used on the first atom.

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

6. For organic compounds (mostly carbon and hydrogen) a completely different naming system is used. Compounds with only single bonds end in “ane”, those with a double bond end in “ene”, and a triple bond end in “yne”.

Prefixes for organic compounds that indicate the number of carbons:

meth=1	eth=2	prop=3	but=4	pent=5	hex=6
hept=7	oct=8	non=9	dec=10		

7. Diatomic Elements: There are 8 elements that exist as two atoms of the same element joined in a covalent molecule. [hydrogen, nitrogen, oxygen, fluorine, chlorine, bromine, iodine, astatine]
  - a. Rule of 7's+1 “There are 7 elements, starting with element number 7, using group 7 (or 17 on the new numbering system), forming the figure “7” on the periodic chart plus element number 1 (hydrogen)
  - b. All of the elements that end in “gen” or “ine”