Intermolecular Forces

forces between molecules - what creates solids, liquids, and gases

-Hydrogen Bonding

when a hydrogen atom that is bonded to a highly electronegative atom is attracted to an unshared pair of electrons of an atom in a nearby molecule

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-London Dispersion Forces

intermolecular attraction resulting from the constant motion of electrons and the creation of instantaneous dipoles

London Dispersion forces exist among all molecules and atoms, and are the only intermolecular forces between nonpolar molecules and noble gasses.

The strength of London forces increase relative to the number of electrons in the atoms.

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Naming Covalent Compounds

Since the ionic charges of the individual atoms do not matter, you must state how many of each atom you have.

However, you never start a molecule's name with mono

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Prefixes for naming molecules

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

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Name the following molecular compounds

1) CCl_4 2) N_2O

3) N_2O_5 4) CS_2

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Naming Acids and Bases

Acids always begin with a H

Bases always end in an OH

Acids get their name based on the anion that the hydrogen is bonded to.

Bases get their names based on the cation

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Some common acids and their names

anion	anion name	acid	acid name
Cl^-	chloride ion	HCl	hydrochloric acid
CO_3^{2-}	carbonate ion	H_2CO_3	carbonic acid
NO_2^-	nitrite ion	HNO_2	nitrous acid
NO_3^-	nitrate ion	HNO_3	nitric acid
SO_3^{2-}	sulfite ion	H_2SO_3	sulfurous acid
SO_4^{2-}	sulfate ion	H_2SO_4	sulfuric acid
CH_3COO^-	acetate ion	CH_3COOH	acetic acid

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Rules for naming acids with polyatomic anions

1) Any polyatomic ion with the suffix "-ate" uses the suffix "-ic" as an acid. So, HNO_3 will be nitric acid.

2) When you have a polyatomic ion with one more oxygen than the "-ate" ion, then your acid will have the prefix "per-" and the suffix "-ic." For example, the chlorate ion is ClO_3^-. Therefore, $HClO_4$ is called perchloric acid.

3) With one fewer oxygen than the "-ate" ion, the acid will have the suffix "-ous." For example, chlorous acid is $HClO_2$.

4) With two fewer oxygen than the "-ate" ion, the prefix will be "hypo-" and the suffix will be "-ous." For example, instead of bromic acid, $HBrO_3$, we have hypobromous acid, HBrO.

Source: Boundless. “Naming Acids and Bases.” Boundless Chemistry. Boundless, 21 Jul. 2015. Retrieved 06 Nov. 2015 from https://www.boundless.com/chemistry/textbooks/boundless-chemistry-textbook/atoms-molecules-and-ions-2/naming-compounds-38/naming-acids-and-bases-214-1019/

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Bases are much easier!!!

All strong bases end in OH, so they are all called _____ hydroxide.

Simply state the cation and then say hydroxide.

KOH $Ca(OH)_2$ NaOH

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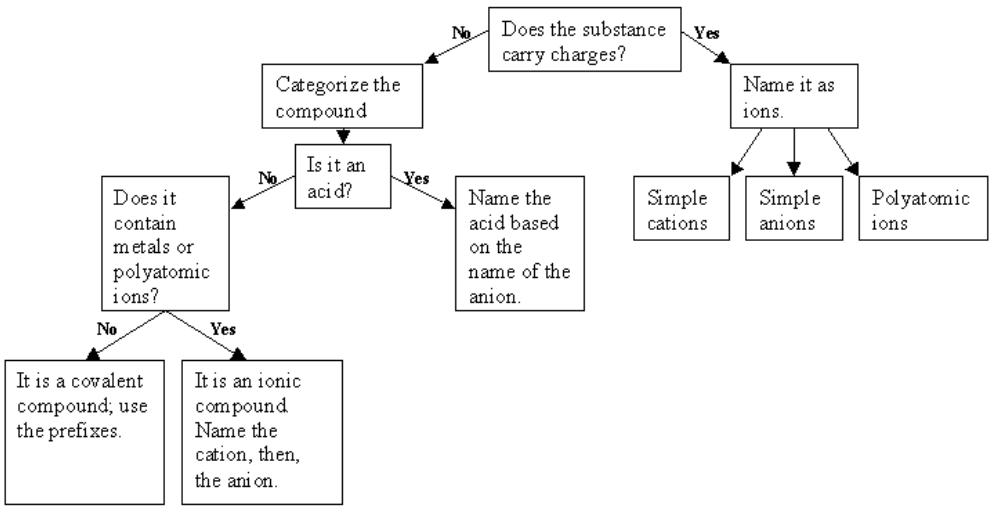
Flowchart of naming compounds:



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