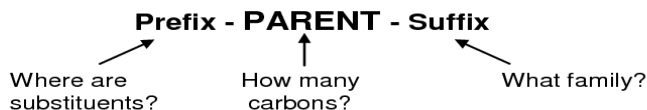


Naming Organic Compounds

According to the system devised by the International Union of Pure and Applied Chemistry (IUPAC), a chemical name has three parts: prefix, parent and suffix:



A simple way to go about naming follows the following steps:

Step 1: Name the main chain. Find the longest continuous chain of carbons present in the molecule and use the name of that chain as the parent (or root in text) name. The longest continuous chain may not be obvious from the way the molecule is drawn, you may have to "turn corners". The first four compounds have names with historical origins-- methane, ethane, propane and butane. After that, the alkanes (and -enes and -ynes) are named from Greek numbers according to the number of carbons present. I expect you to know how to name simple organic molecules with 1 – 12 carbons. See the table below:

No. of Carbons	Formula	Name
1	CH ₄	methane
2	C ₂ H ₆	ethane
3	C ₃ H ₈	propane
4	C ₄ H ₁₀	butane
5	C ₅ H ₁₂	pentane
6	C ₆ H ₁₄	hexane
7	C ₇ H ₁₆	heptane
8	C ₈ H ₁₈	octane
9	C ₉ H ₂₀	nonane
10	C ₁₀ H ₂₂	decane
11	C ₁₁ H ₂₄	undecane
12	C ₁₂ H ₂₆	dodecane

Step 2: Number the carbon atoms in the main chain. Beginning at the end nearest to the first substituent, number each carbon atom in the parent chain. It is important to remember that double and triple bonds take precedence in numbering over alkyl or halo substituents.

Step 3: Identify and number the substituents. This gives you the prefix to the name. Alkyl substituents (those derived from alkanes) are named according to the number of carbons and end in -yl, halo substituents are named according to the element base name and end in -o.

Step 4: Identify the family. According to whether a single, double or triple bond is present, your suffix to the name will be -ane, -ene, or -yne. You also have to include a number in the name to signify where the double or triple bond starts in the molecule. If the molecule is a cycloalkane, -ene or -yne, just add "cyclo" to the name.

If another functional group like an alcohol, aldehyde, ketone, carbonyl or amine is present, those take precedence in the naming. NOTE that there are many other functional groups we're not discussing! NOTE also that I don't expect you to know what takes greater precedence, one of these functional groups or a double/triple bond.