Naming of organic compounds

Main principles:

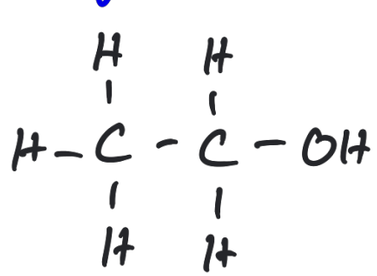
1. Each carbon forms a total of 4 covalent bonds
2. Carbon atoms may be bonded to each other
3. Carbons bind to other non-metals atoms

Types of organic formulas:

Molecular Formula: Indicates the type and number of each atom, but does not provide information about the bonds

e.g. C_2H_5OH

Structural Formula: Indicates the complete 2D structure of the compound showing all bonds present



Condensed structural formula: Short hand form that omits the bond lines, but still indicates what is bonded to each carbon or other atom

CH_3CH_2OH

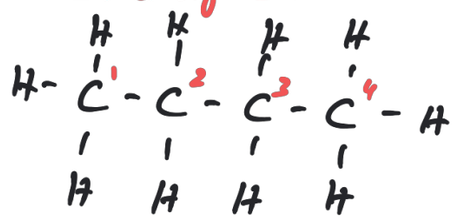
Skeleton: Each angle represents a carbon

Alkanes C_nH_{2n+2}

- contain only single bonds
- named with root + -ane

# C-atoms	root
1	meth-
2	eth-
3	prop-
4	but-
5	pent-
6	hex-
7	hept-
8	oct-
9	non-
10	dec-

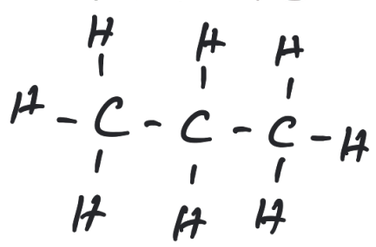
Example:



butane

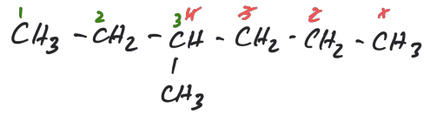
$CH_3CH_2CH_2CH_2CH_2CH_3$

hexane



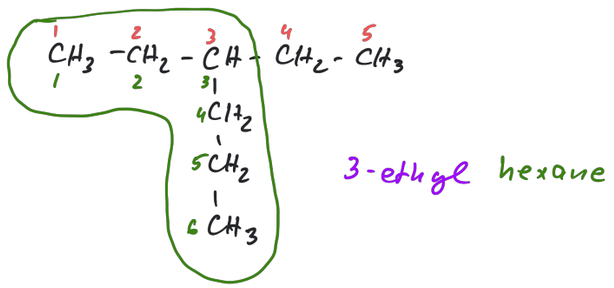
propane

Branched alkanes



1. Identify the longest chain
2. Number the chain so that the side group has the lowest number
3. side chain: root + yl

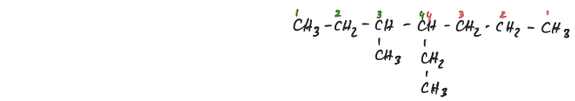
3-methyl hexane



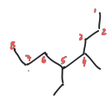
3-ethyl hexane

More than one branched group: assign lowest number possible to side chains

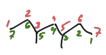
2,3 dimethyl pentane



4-ethyl-3-methyl heptane



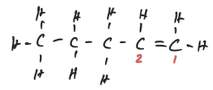
4-ethyl-5-methyl octane



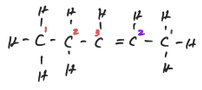
3,5 dimethyl heptane

Alkenes C_nH_{2n} suffix -ene

- Contain at least one double bond
- naming: root must contain both C-atoms of the double bond, even it is not the longest chain
- chain is numbered from the end closer to the double bond



1-pentene



2-pentene