

## Organic Chemistry

**Homologous Series:** Homologous series is the family of compounds with similar chemical properties due to the presence of same functional group.

Characteristics of homologous series:

1. They have same general formula.
2. They have same functional group.
3. They have similar chemical properties.
4. Each member in the series differ from the next by  $-CH_2-$  unit.
5. There is a gradual change in physical properties as we go down the series from one member to the next.

**Functional group:** A functional group is an atom or group of atoms which determines the chemical properties of homologous series.

**Displayed formula:** Displayed formula shows all the bonds between the atoms in a molecule.

**General formula :** General formula shows the ratio of atoms in the molecules of the compound.

<b>Alkanes</b>	$C_n H_{2n+2}$
<b>Alkenes</b>	$C_n H_{2n}$
<b>Alcohols</b>	$C_n H_{2n+1} OH$
<b>Carboxylic acids</b>	$C_n H_{2n+1} COOH$

## Naming organic compounds:

Prefix	Number of Carbon Atoms
meth-	1
eth-	2
prop-	3
but-	4
pent-	5
hex-	6
hept-	7
oct-	8
non-	9
dec-	10

1. Identify the longest carbon chain. This chain is called the parent chain.
2. Identify all of the substituents (groups appending from the parent chain).
3. Number the carbons of the parent chain from the end that gives the substituents the lowest numbers. When comparing a series of numbers, the series that is the "lowest" is the one which contains the lowest number at the occasion of the first difference. If two or more side chains are in equivalent positions, assign the lowest number to the one which will come first in the name.
4. If the same substituent occurs more than once, the location of each point on which the substituent occurs is given. In addition, the number of times the substituent group occurs is indicated by a prefix (di, tri, tetra, etc.).
5. Alkyl groups end with 'yl' like methyl and halogens group ends with 'o' like chloro, bromo etc.

### Naming of alkenes:

1. Choose the longest chain of carbon and start numbering carbon where double bond is close.
2. Place the location number of double bond.
3. Start numbering carbon atoms from the place where double bond is close (now priority is double bond over substituents)

eg : pent-2-ene     $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$

4-methylpent-2-ene

