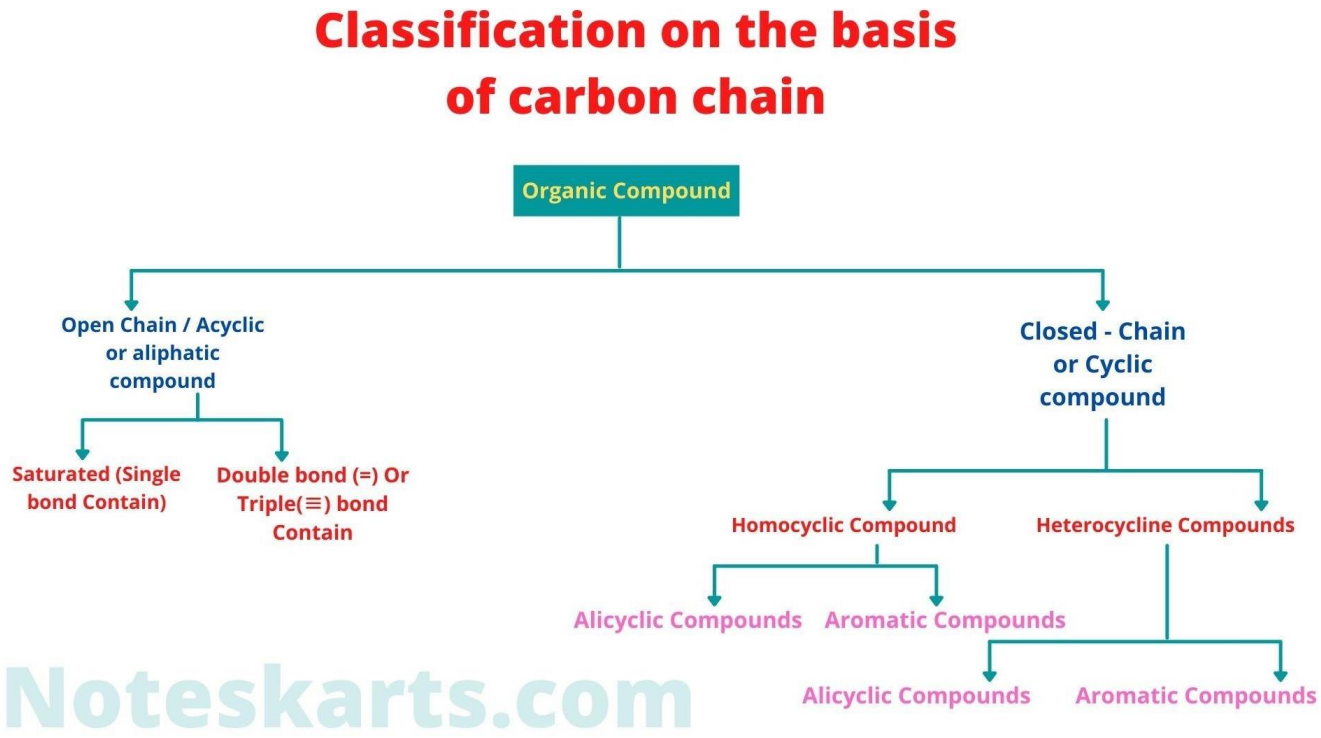
Introduction to the Nomenclature of Organic Chemicals.

Mainly two nomenclature system are proposed for the naming of organic compounds.

Classification on the basis of carbon chain



1. Common naming system.

a) On the basis of source. Example

Chemical	Source
CH4	Marsh gas (marshy place)
CH3COOH	Acetic acid (vinegar)
HCOOH	Formic acid (Red ant)
CH3OH	Methyl alcohol (wood spirit)

b) On the basis of hydrocarbons (Radical independent).

No. of Carbon Atoms	Prefix
1C	form.
2C	acet
3C	propion
4C	butyr
5C	valer

- Three carbon with one double bond—Acryl.
- Four carbon with one double bond—

Functional groups	Suffix
-CHO	aldehyde
-COOH	IC acid
-COOR	alkyl-ate
-COX	alkyl halide
-CONH2	amide
-CN	Onitrile

Radical dependent-

Sr.no	Number of Bond	Suffix
1)	Single bond (-)	ane suffix
2)	Double bond (=)	ene suffix
3)	Triple(≡) bond	yne suffix

For saturated hydrocarbon—CnH2n+2-

Suffix used as -ane.

- If unbranched hydrocarbon then use prefix (n)
- When one methyl group is attached to the second C-atom of the continuous chain then iso prefix is used.
- When Two methyl group is attached to the second C-atom of the continuous chain then neo prefix is used.

Note—when one hydrogen group are removed from the alkane then radical is form and called monovalent radical or alkyl. -CH3—methyl -C2H5—ethyl For unsaturated hydrocarbon…

- Double bond(CnH2n)—suffix — ene
- Triple bond(CnH2n-2)—suffix — yne Note—unsaturated radical.

Ex -CH2=CH--- vinyl. -CH2-CH=CH2 — Allyl.

If any functional group are attached to the radical then direct functional suffix are used to radical. Name= prefix of R + Suffix of

Functional groups	Suffix
-OH	alcohol
-NH2	Amine
-O-	ether
-S-	thio ether
-X-	halide
-CN	Cyanide
-CO-	ketone.

IUPAC NAMING SYSTEM.

Rule—

A) Selection of longest continuous parent carbon chain.
B) Numbering in selected parent carbon chain.

Priority order for selection of carbon chain

(Functional group > multiple bond>number of carbon atom>substituents)

Functional group-

S.No.	Functional Group	Prefix	Suffix
1.	-(C) OOH (carboxylic acid) -COOH	x carboxy	oic acid carboxylic acid
2.	-SO_3H (sulphoric acid)	sulpho	sulphonic acid
3.	-(C)OOR(ester) -COOR	x alkoxy carbonyl or carbalkoxy	alkyl-oate alkyl-carboxylate

4.	-(C)OX(acid halide) -COX	x halo formyl	oyl halide carbonyl halide
5.	-(C)ONH$_2$(amide) -CONH$_2$	x carbamoyl	amide carbonitrile
6.	-(C)N (cyanide) -CN	x cyano	Nitrile carboxamide
7.	-(C)HO (aldehyde) -CHO	oxo formyl	al carbaldehyde
8.	-OH (alcohol)	hydroxy	ol
9.	-SH (thio alcohol)	mercapto	thiol
10.	-NH$_2$ (amine)	amino	amine

Multiple bond—

Sr.no	Number of Bond	Suffix
1)	Single bond (-)	ane suffix
2)	Double bond (=)	ene suffix
3)	Triple(≡) bond	yne suffix

No of carbon

Number of Carbons	Root Word
1C	meth
2C	eth
3C	prop
4C	but
5C	pent
6C	hex
7C	hept
8C	oct

Substituents means

Substituents	Prefix
-R	alkyl
-NH$_2$	amino
-o-N=O	nitrite

$-OCH_2CH_3$	ethoxy
$-CH_2-Cl$	Chloro methyl
-S-	thio
-X	Halo

Numbering of selected carbon chain---

Priority order.

Functional group>multiple bond>substituents.

Procedure of naming.

(Secondary prefix----- primary prefix----- word)

(root----- primary suffix------- Secondary suffix.)

➢ Secondary prefix means — substituents with locants

➢ Primary prefix means—cyclic group(cyclo).

➢ Word root means—number of carbon chain.

➢ Primary suffix means-- - ane, -ene, - yne.

➢ Secondary suffix means—principle fuctional groups.

➢Number and alphabets are seperated by hyphen(-).Di,tri,iso,neo and cyclo are niether seperated by comma nor by hyphen .

➢ First latter of naming is always capital letter and space required between naming.

➢ If more than one substituents then use alphabetical order of substituent names.

Examples.

Heterocyclic rings which are used during the naming…