

### Carbon Can Bind With...

- ☞ Carbon (1x, 2x, 3x)
- ☞ Hydrogen
- ☞ Oxygen
- ☞ Nitrogen
- ☞ X - Halogens
- ☞ Sulfur

### Semi Structural Formulae Bracket Purposes

- ☞ Branching
- ☞ Condensing formulae
- ☞ Multiple attached chains to same carbon

### Hydrocarbon Naming Guide

1. Stem/base name is the longest C chain
2. Identify any function groups
3. Number C in chain starting from strongest function group end
4. Multi-bond takes higher priority over functional group in terms of 'counting side'
5. Prefix 'di-'/'tri-'/'tetra-' etc. for more than one function/alkyl group
6. Prefix 'cis-'/'trans-' for geometric isomers
7. Functional groups in alphabetical order, ending with base name & suffix
8. No spaces in name, dashes to separate No. & letters and commas to separate No. & No.

### Additional Tips

- ☞ Highest priority group assigned lowest possible No. & prefix
- ☞ Lower priority group assigned prefix or alternative name

### Isomers

- ☞ Same molecular formula, different structures & properties

#### Structural Isomers

- ☞ Different structures



#### Chain Isomers

- ☞ Branching, no functional groups

#### Positional Isomers

- ☞ Functional group located elsewhere

### Stereoisomers

- ☞ Different arrangements in 3D space



#### Geometric Isomers

- ☞ Can't rotate at a certain molecule point

#### Optical Isomers

- ☞ Mirror image doesn't match the original



#### Cis Isomers

- ☞ Longest C chain/main group on same 2x bond side

#### Trans Isomers

- ☞ Longest C chain/main group continues opposite of 2x bond

#### Enantiomers

- ☞ Optical isomer pair

### Alcohol Types

#### Primary Alcohols

- ☞ Alcohol bonding to 1 alkyl group

#### Secondary Alcohols

- ☞ Alcohol bonding to 2 alkyl groups

#### Tertiary Alcohols

- ☞ Alcohol bonding to 3 alkyl groups

### Functional Groups With Priorities

Priority	Functional Group Name	Base Structure	Suffix	Alphabetical
1	Carboxyl	COOH	-oic acid	N
2	Hydroxyl	OH	-ol	H
3	Amino	NH <sub>2</sub>	-amine	A
4	Alkene	=	-ene	-e
5	Alkyne	≡	-yne	-y
6	Halo	X	N/A	[H-er]

### Other Functional Groups

Functional Group Name	Base Structure	Suffix	Homologous Series
Alkyl	CH <sub>3</sub>	-yl	Alkanes
Ester	COOC	-yl + -oate	Esters
Aldehyde	OCHR	N/A	Carbonyl (Aldehydes)
Ketone	ORR'	N/A	Carbonyl
Amide	CONH <sub>2</sub>	N/A	Primary Amides

