# Carbon Chemistry

## Carbon Chemistry

- 90% of all known molecules contain a carbon atom
- Almost all these molecules are found in living organisms
- Study of carbon containing compounds is called Organic Chemistry

## Reasons Carbon Forms Large Number of Compounds

- Carbon atoms can form bonds with many other Carbon atoms
- Bonds between C atoms can be single, double or triple
- Molecules can be linear chains or have branches
- Same number of carbon atoms can form many different arrangements

## Reasons Carbon Forms Large Number of Compounds

- Molecules can even be cyclic, especially if there are 6 carbon atoms to form a ring
- Carbon atoms can form bonds with most other atoms, including metals

## Naming Organic Compounds

- The name is determined by the LONGEST chain of carbon atoms that it contains
- Can be difficult to find at times

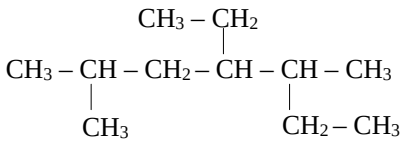
## Basic Prefixes

- $C_1$ = meth
- $C_2$ = eth
- $C_3$ = prop
- $C_4$ = but
- $C_5$ = pent
- $C_6$ = hex
- $C_7$ = hept
- $C_8$ = oct
- $C_9$ = non
- $C_{10}$ = dec

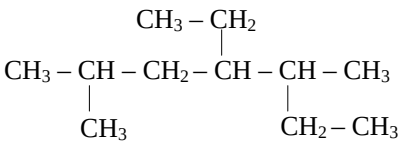
## Side Chains

- $C_1$ = methyl
- $C_2$ = ethyl
- $C_3$ = propyl
- $C_4$ = butyl
- $C_5$ = pentyl
- $C_6$ = hexyl
- $C_7$ = heptyl
- $C_8$ = octyl
- $C_9$ = nonyl
- $C_{10}$ = decyl

## Name this molecule

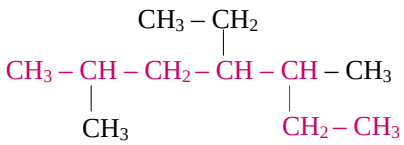


## Name this molecule



We need to find the longest chain

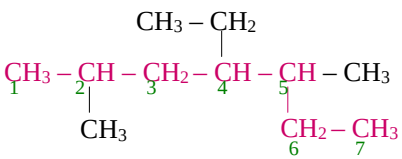
## Name this molecule



The longest chain

## Name this molecule

heptane

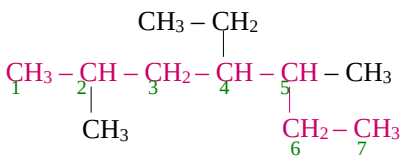


The longest chain

Number the carbon atoms

## Name this molecule

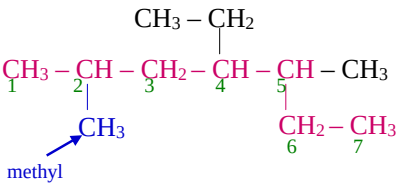
heptane



Find and name the side chains

## Name this molecule

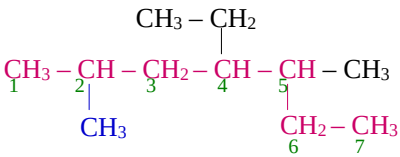
heptane




Find and name the side chains

## Name this molecule

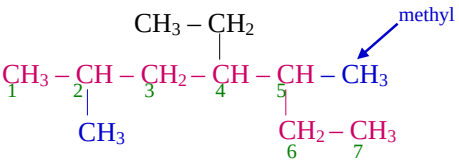
2 – methyl - heptane




Find and name the side chains

## Name this molecule

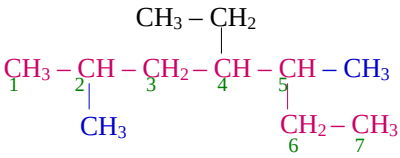
2 – methyl - heptane




Find and name the side chains

## Name this molecule

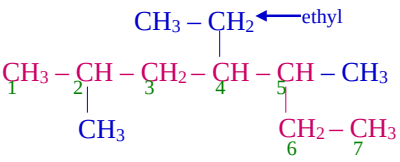
2,5 – dimethyl - heptane




Find and name the side chains

## Name this molecule

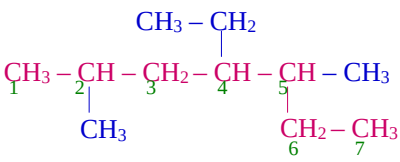
2,5 – dimethyl - heptane




Find and name the side chains

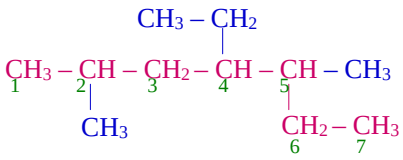
## Name this molecule

2,5 – dimethyl – 4 – ethyl – heptane



## Name this molecule

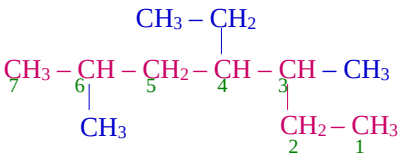
2,5 – dimethyl – 4 – ethyl – heptane



If the numbers on the C atoms are reversed

## Name this molecule

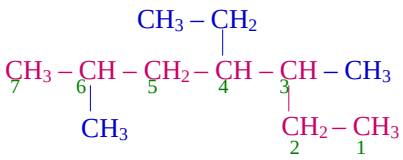
2,5 – dimethyl – 4 – ethyl – heptane



If the numbers on the C atoms are reversed

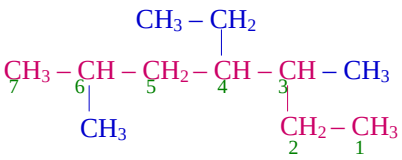
## Name this molecule

3,6 – dimethyl – 4 – ethyl – heptane



The name becomes

## Name this molecule



Both names are correct

2,5 – dimethyl – 4 – ethyl – heptane

3,6 – dimethyl – 4 – ethyl – heptane

## Functional Groups

- When a hydrogen atom is replaced in an alkane by another atom
- The three to be considered this year are
- – Cl chloro
- – OH hydroxy or alcohols
- –COOH carboxy or carboxy acids