

# Classifying Hydrocarbons

Figure 13.10 pg 544

## Alkanes:

Alkanes are aliphatic (chain) hydrocarbons that only contain single bonds.

Since each carbon is bonded to the maximum possible number of atoms, alkanes are said to be saturated.

Alkanes vary by the repeated unit  $\text{CH}_2$ , and have the general formula  $\text{C}_n\text{H}_{2n+2}$

Alkanes are non-polar, giving them low B.P's and M.P. based on their length.

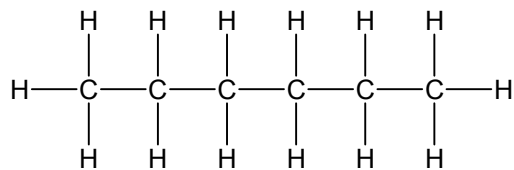
## Naming Straight Chain Alkanes:

Root – Tells you how many C's are in the chain:

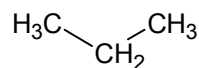
| Number | Prefix |
|--------|--------|
| 1      | meth   |
| 2      | eth    |
| 3      | prop   |
| 4      | but    |
| 5      | pent   |
| 6      | hex    |
| 7      | hept   |
| 8      | oct    |
| 9      | non    |
| 10     | dec    |

Suffix – “ane” = alkane

Ex 1.



Ex 2.



## Naming Branched Chain Alkanes:

Prefix – tells you the type of groups and which carbons they are attached to.

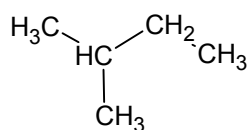
Rule 1: If there are two or more of the same type of chain, give each group a position number and use the molecular prefixes to indicate the number of them.

Rule 2: Put commas between numbers and hyphens between numbers and letters

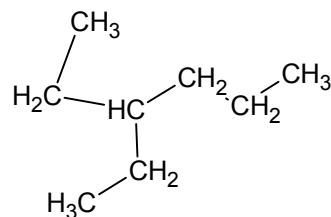
Rule 3: Put numbers in ascending order.

Rule 4: If there is more than 1 type of branch, list them in alphabetical order by the first letter of the branch root.

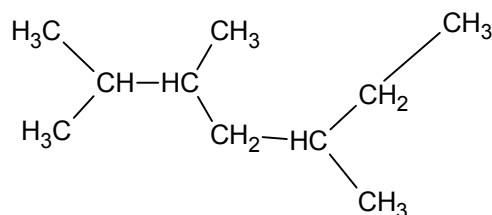
Ex 3 a)



b)



c)



d)

