


Unit 4: Organic Chemistry

Generally defined as the chemistry of _____ compounds. The properties of organic compounds are determined by:

- 1) a series _____ that are linked together, forming an almost completely unreactive _____ to which we add
- 2) a series of _____ which determine the basic "chemistry" of the molecule
 - _____ - _____ - _____ - _____

Let's first become familiar with the skeleton of organic compounds, called _____.

only carbon and hydrogen


All organic compounds are built using carbon atoms that have _____.

Alkanes – _____

Alkanes – hydrocarbon containing only single bonds between carbon atoms. Alkanes are _____ since all the carbon atoms are bonded to 4 other atoms. Alkanes have a name ending in "_____"

The general formula for an alkane is: _____

Drawing Structural formulas: Example C₅H₁₂

Step 1: Write the Carbon backbone of appropriate length

Step 2: Add single lines to each Carbon to a total of 4 lines

Step 3: Fill bonds with hydrogen.

Prefix	# of C Atoms	IUPAC Name	Formula	Structural formula
Meth-	1			
Eth-	2			
Prop-	3			
But-	4			
Pent-	5			
Hex-	6			
Hept-	7			
Oct-	8			
Non-	9			
Dec-	10			

Properties of Alkanes

1. Are very _____ (C-C and C-H bonds are strong and not easily broken). Mainly used as _____.
2. _____

Alkenes - hydrocarbon containing a _____ bond between two carbon atoms. Have a name ending in _____.

The general formula for an alkene is: _____

Naming alkenes differs from alkanes by:

1. Root chain must contain both _____, even if it is _____.
2. Chain is numbered from the end _____ to the C=C, and the position of the bond is indicated by the _____ in it.
3. The suffix is – _____ (drop the "ANE" and add "ENE").

Drawing Structural formulas of alkenes:

Example. 1-butene 2-butene (isomers)

Step 1: Write carbon backbone of appropriate length

Step 2: Establish position of double and single bonds

Step 3: Fill remaining bonds with hydrogen atoms

Alkynes - hydrocarbon containing a _____ bond between two carbon atoms. Have the name ending in _____

The general formula for an alkyne is: _____

Ex. pentyne 2-pentyne (isomers)

Properties of Alkenes and Alkynes:

Very similar to alkanes, however double and triple bonds make them more reactive.

Isomers: Two or more compounds with the _____ but have a _____ and _____ are called isomers.

Ex. C₆H₁₂

Practice Q#3 and 4 on page 186 of textbook