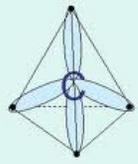
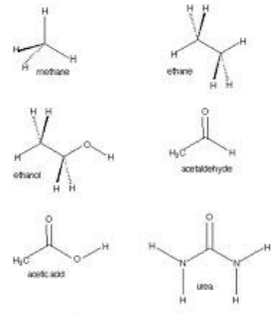
LO: Students will be able to name basic organic compounds.

DOL: Students will correctly identify organic compounds at least 4/5 times.

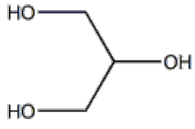
Organic Chemistry



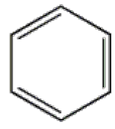
The Chemistry of Carbon



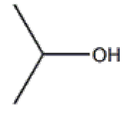
glycerol



benzene



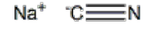
octane



isopropyl alcohol

pentene

acetylene



sodium cyanide

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Organic Chemistry is the study of the molecular compounds that contain carbon. Compounds that contain carbon are known as organic compounds.

Most of the the molecules in all living things on Earth are carbon based, meaning that they are made mostly of carbon atoms.

Some examples of carbon based compounds include

- Plastics made from petroleum
- Gasoline
- Cosmetics
- Medicines
- Food products.

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An atom is most stable when its outer electron energy level is filled. Carbon has four valence electrons and four empty spots in its outer electron energy level.

Carbon is a group 4A element, meaning that it has 4 valence electrons

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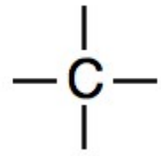
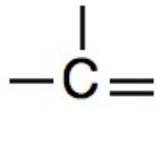
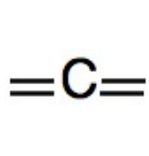
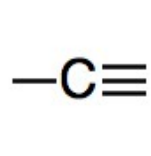
Carbon needs to form four bonds with other atoms to become stable

				
Number of single bonds				
Number of double bonds				
Total Number of Bonds				

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Functional Groups are characteristic arrangements (structures and bonds) of atoms within a molecule that are largely responsible for the physical and chemical properties of the compound

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The simplest carbon compounds are hydrocarbons they contain only **hydrogen and carbon.** These molecules can contain single, double or triple bonds

Hydrocarbons		
Single Bond	C — C	**Alkane**
Double Bond	C = C	**Alkene**
Triple Bond	C ≡ C	**Alkyne**

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-Alkanes are a hydrocarbon that contains only carbon-carbon single bonds

-The general formula for alkanes is C_nH_{2n+2}

-To name Alkanes we use a **prefix** which indicates how many carbon atoms are in the molecule, added to the **suffix *ane*** which indicates that there are only single bonds

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Number of Carbon	Prefix	Name	Use
1	Meth		gaseous fuel
2	Eth		gaseous fuel, starting compound for plastic
3	Prop		gaseous fuel
4	But		gaseous fuel
5	Pent		solvents
6	Hex		solvents, liquid fuel
7	Hept		liquid fuel
8	Oct		liquid fuel

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There are five ways to represent organic compounds

1. Chemical formula: Tells you the number of each type of atom
2. Lewis Dot Diagram: shows how valence electrons are shared (uses dots)
3. Structural Diagram: shows the bonds between atoms (uses a line)
4. Condensed Diagram: only shows the bonds between carbons (uses a line)
5. Line Diagram: A line showing the bonds between atoms. The end of each segment represents a carbon atom

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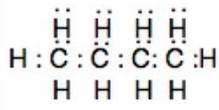
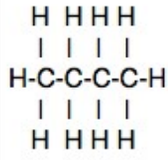
Compound: Butane	
Chemical Formula	C_4H_{10}
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	CH_3-CH_2-CH_2-CH_3
Line Diagram	 (4 points means there are 4 carbon)

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Compound: Ethane	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	
Line Diagram	

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Compound:	
Chemical Formula	C_7H_{16}
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	
Line Diagram	

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Compound:	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	
Line Diagram	

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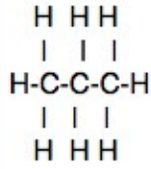
Compound:	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	
Line Diagram	

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Compound:	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	CH_3-CH_2-CH_2-CH_2-CH_2-CH_3
Line Diagram	

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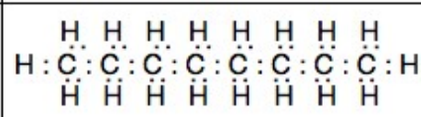
Compound:	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	
Line Diagram	

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Compound:	
Chemical Formula	
Lewis Dot Diagram	
Structural Diagram	
Condensed Diagram	CH_4
Line Diagram	

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