**Chemistry 11: Study Guide for Mole Concept Test Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_**

**My “Organic Chemistry Test” will take place on: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!**

*Before I write my “Organic Chemistry Test”, I will be able to:*

* **Explain why Organic Chemistry is known as the student of Carbon**
  + discuss why Carbon is the element of life
  + draw the Lewis Structure of Carbon
  + state the number of covalent bonds each carbon forms
  + explain how Carbons valence electron configuration allows for large variability in organic compounds
  + recognize the connection of Organic Chemistry to industries such as *plastics, fuels, pharmaceuticals, cosmetics, perfumes etc.* and current environmental issues such as the *Ozone Layer and Climate Change.*
* **Recognize patterns in naming and drawing straight chain and branch chain alkanes**
  + list the ten prefixes (meth-, eth-, prop-, etc.) for the first ten hydrocarbons
  + recognize the parent chain for branch chain alkanes
  + name straight and branched chain structures (including numbering the branches) for the ***first ten hydrocarbons***
  + draw the ***full structure***, ***condensed structure*** and ***carbon skeleton*** structure for straight and branched chain alkanes
* **Recognize patterns in naming and drawing straight chain and branch chain alkenes, alkynes and cycloalkanes**
  + recognize the parent chain for branch chain alkenes, alkynes and cycloalkanes
  + name straight and branched chain structures (including numbering the branches) for alkenes/alkynes/cycloalkanes
  + draw the ***full structure***, ***condensed structure*** and ***carbon skeleton*** structure for straight and branched chain alkenes/alkynes/cycloalkanes
* **Recognize patterns in naming and drawing straight chain and branch chain alkanes, alkenes, alkynes and cycloalkanes with functional groups**
  + identify and name structures with functional groups
  + draw the ***full structure***, ***condensed structure*** and ***carbon skeleton*** for straight and branched chain alkenes/alkynes/cycloalkanes ***WITH*** functional groups
* **Identify structures that could have different connectivity (isomers) and therefore different chemical properties**
  + draw and name alkenes that demonstrate cis-trans isomerism
  + draw and name ***ALL STRUCTURAL ISOMERS*** of hydrocarbons from molecular formula’s
* **Understand the meanings of the following vocabulary words:**

|  |  |
| --- | --- |
| * + Organic   + Hydrocarbon   + Alkane   + Alkene   + Alkyne   + Cycloalkane   + di, tri, tetra, penta, hexa, etc.   + Functional Group | * + Alkyl Halide   + Alcohol   + Aldehyde   + Ketone   + Ester   + Ether   + Structural Isomer   + Cis-Trans Isomer |