

# Molecular Modeling Lab

Set up the intro for your lab notebook:

- A. Title: Molecular Modeling Lab
- B. Reference: Hubbard Scientific
- C. Purpose: To visualize the three dimensional organic compounds.
- D. Materials:
  - 12 black carbon atoms    4 green chloride atoms
  - 12 white hydrogen atoms        20 green covalent bond
  - 4 red oxygen atoms                6 white flexible bonds
- E. Methods: For each of the following compounds...
  1. Write the chemical formula.
  2. Draw the structural formula.
  3. Highlight and label functional groups.
  4. Sketch the 3-D model (or take pictures to be pasted in later).
  5. Label the type of macromolecule (if applicable).

# Molecular Modeling Lab

Make the following models as a group. Ensure that all atoms, except hydrogen, have a complete octet (bonds are attached)

1. Methane ( $\text{CH}_4$ )
2. Water ( $\text{H}_2\text{O}$ )
3. Carbon dioxide ( $\text{CO}_2$ )
4. Methanol ( $\text{CH}_3\text{OH}$ )
5. Ethanol ( $\text{C}_2\text{H}_5\text{OH}$ )
6. Glycerol ( $\text{C}_3\text{H}_8\text{O}_3$ ) part of a triglyceride
7.  $\alpha$  D glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ )
8. D ribose ( $\text{C}_5\text{H}_{10}\text{O}_5$ )
9. Sucrose ( $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ) work with the group next to you!
10. Glycine ( $\text{C}_2\text{H}_5\text{NO}_2$ )

## Functional Groups

hydroxyl	$-\text{OH}$
amine	$-\text{NH}_2$
carboxyl	$-\text{COOH}$
methyl	$-\text{CH}_3$