

Name: _____ Date: _____ Period: _____

MODELS of Covalent Compounds

Organic chemistry is the study of compounds that contain CARBON and HYDROGEN. We are going to look at different types of organic compounds to learn about different arrangements of covalent bonds. We will use atom models to represent the compounds.

Pre Activity Questions (use complete sentences)

1. How many valence electrons does Carbon have? How many valence electrons does it 'want'?
2. Carbon tends to form bonds with Hydrogen, Nitrogen, and Oxygen. What type of bonds will these be? Why?

Materials you Should have

8 C atoms (black) 16 H atoms 2 O atoms (red)
18 short connectors **2 long connectors**

Part 1

Build a model of methane, CH₄. Draw a picture here. Try to show the 3 dimensional structure.

What do the pieces connecting the atoms represent? List the atoms in methane and how many valence electrons they have when in this molecule.

Partners: Build a model of propane C₂H₆. Draw a picture here. Can the atoms rotate?

Part 2

Build a model of propene C₂H₄. Draw a picture.

How is the double bond different in movement than the single bond? What do your double bond connectors represent?

List the atoms in propene and how many valence electrons they have when in this molecule.

Part 3

Build a model of methanol, CH_3OH . Draw it here.

List the atoms in methanol and write how many valence electrons they have in your molecule.

Oxygen has high ELECTRONEGATIVITY, meaning it does not tend to share electrons equally with other atoms. Instead, oxygen pulls the shared electrons closer to its nucleus. In this situation which atoms in your molecule do you think would be **slightly positive** or **slightly negative**? Explain.

EXTRA TIME? How many different ways can you make butane, C_4H_8 ? Draw them here.

CLEAN UP—disassemble all of your molecules and put them back in the bag. Look on the floor to make sure you did not drop any.



