

Name: _____

Modeling Molecules Lab

Learning Targets

Describe the components of an atom.

Differentiate between atoms, elements, and molecules.

Today you will be using model kits and molecular formulas to build common molecules used in biology. A molecular formula tells us which elements are in each molecule and the number of each atom. A structural formula indicates the numbers of each kind of atom within the molecule and shows the bonds and arrangement of the atoms using dashes to depict bonds between atoms. The following information should be helpful:

1. Carbon is black, hydrogen is white, and oxygen is red.
2. The sticks represent bonds.
3. A molecule is stable if there are no open holes or unattached sticks.

Directions: Using the information above, complete the following table as you build each molecule based on the provided molecular formula. Then, draw the structural formula for each molecule by looking at your model.

	Molecular Formula	Structural Formula	# Elements	# Atoms
Molecular Hydrogen	H ₂			
Molecular Oxygen	O ₂			
Water	H ₂ O			
Hydrogen Peroxide	H ₂ O ₂			

Carbon Dioxide	CO₂			
Methane	CH₄			
Ethanol	C₂H₅OH			

QUESTIONS

1. When a stick is used to join two spheres, what is actually occurring in real atoms?

2. What subatomic particle makes up the answer to the previous question?

3. What do we know to be true about a molecule if all the holes are filled?

4. Would protons be represented in the spheres or the sticks? Explain how you know.

5. How are atoms and elements related?
