

Name: _____

Date: _____

Period: _____

1. H_2 (Diatomic Hydrogen)

2. O_2 (Diatomic Oxygen)

3. N_2 (Diatomic Nitrogen)

4. NH_3 (Ammonia)

5. H_2O (Dihydrogen Monoxide)

6. H_2O_2 (Hydrogen Peroxide)

7. CH_4 (Methane)

8. CH_3OH (Methanol)

9. C_2H_6 (Ethane)

10. $\text{C}_2\text{H}_5\text{OH}$ (Ethanol)

11. C_3H_8 (Propane)

12. C_3H_7OH (Propanol)

13. C_4H_{10} (Butane)

14. C_4H_9OH (Butanol)

15. C_2H_4 (Ethylene)

16. C_2H_2 (Acetylene)

17. KCN (Potassium Cyanide)

18. C_6H_6 (Benzene Ring)

19. $C_3H_8O_3$ (Glycerol)

20. $C_6H_{12}O_6$ (Glucose)

Questions – Part 1

1. What atoms/elements appear to be the most common in the structures that you built?
2. What do we call groups of elements combined together?
3. As you were building your molecules what connected each of the atoms (in the model)? What do we call a connection between two atoms/elements?
4. Of the elements/atoms used in the activity, which one had the ability to make the most connections with other atoms? Why do you think this is the case?
5. Looking at your various molecules which elements tended to be to the outside of the structure? The inside?
6. Explain the term organic. What do we call something that is not organic?

Questions – Part 2

Element	Symbol	Color (model)	p ⁺	n ⁰	e ⁻	Valence electrons	Number of bonds able to make
Carbon							
Hydrogen							
Oxygen							
Nitrogen							
Phosphorous							
Sulfur							
Helium		N/A					

Bonds

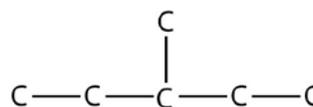
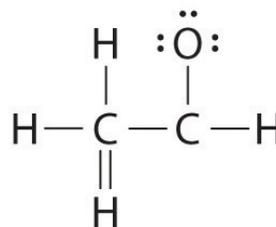
- a. What subatomic particles make up bonds?
- b. How many electrons are there in a single bond? _____ A double bond? _____ A triple bond? _____
- c. Electrons in each element are located in energy levels around the nucleus of the atom. For stability, elements try to fill their outermost energy level with the maximum amount of electrons. What is name of the outermost level of electrons?
- d. What role does the outer level play in bonding?

Lewis Dot structures/Bonding

Draw Lewis structures for the following atoms.

Atom	Atomic Number	Lewis Dot Structure
C		
H		
O		
N		
P		
S		

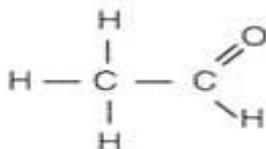
Bonding - Look at the molecules drawn below. Identify what is wrong with them. (HINT: Think about bonding and valence electrons.)



Counting Atoms in Molecules. The formula for a compound indicates the elements that make up the compound and the number of atoms of each element present in the compound. For example the formula $\text{Fe}(\text{OH})_3$ indicates the presence of one atom of iron, three atoms of oxygen, and three atoms of hydrogen. Fill in the chart below for each of the compounds shown including information about atoms, a potential chemical formula and functional groups you see.

Compound Number	Number of Atoms of Hydrogen	Number of Atoms of Carbon	Number of Atoms of Oxygen	Number of Atoms of Nitrogen	Number of bonds in molecule
#1					
#2					

#1



#2

