

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

**Molecular Geometry Lab**

Complete the following data table

1. Draw the Lewis line structure for the covalent molecule
2. Locate and identify the central atom (highlight, make with different color). IF there are only two atoms total select one to be your central atom.
3. State the number of bonds the central atom is forming
4. State the number of lone pairs on the central atom
5. Using the modeling kit build the molecule
6. State the molecular geometry around the central atom

Covalent Molecule	Lewis Line Structure	# of bonds on central atom	# of lone pairs of electrons on central atom	Geometry
1. Cl <sub>2</sub>				
2. O <sub>2</sub>				
3. P <sub>2</sub>				
4. BH <sub>3</sub>				
5. C <sub>2</sub> H <sub>6</sub>				
6. Si <sub>2</sub>				
7. CF <sub>4</sub>				

8. $\text{SBr}_2$				
9. $\text{NCl}_3$				
10. $\text{H}_2\text{S}$				
11. $\text{PH}_3$				
12. $\text{BF}_3$				
13. $\text{NBr}_3$				
14. $\text{PBr}_2\text{I}$				
15. $\text{SiBr}_2\text{H}_2$				

**Post Lab Questions:**

1. What is the molecular geometry of all diatomic compounds?
2. What is one way to recognize that a compound has bent geometry?
3. What is one way to recognize that a compound has trigonal planar geometry?
4. What is one way to recognize that a compound has tetrahedral geometry?
5. What is one way to recognize that a compound has trigonal pyramid geometry?

<p><b>Linear</b></p> $\begin{array}{c} \text{X} - \text{A} - \text{X} \\ \text{X} = \text{A} = \text{X} \\ \text{X} - \text{A} \equiv \text{X} \end{array}$	<p><b>Bent</b></p> $\begin{array}{c} \text{X} - \overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{A}}} - \text{X} \\ \text{X} - \overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{A}}} - \text{X} \end{array}$	<p><b>Tetrahedral</b></p> $\begin{array}{c} \text{X} \\   \\ \text{X} - \text{A} - \text{X} \\   \\ \text{X} \end{array}$
<p><b>Trigonal Planar</b></p> $\begin{array}{c} \text{X} \\ \diagdown \\ \text{X} - \text{A} \\ \diagup \\ \text{X} \end{array}$	<p><b>Trigonal Pyramidal</b></p> $\begin{array}{c} \text{X} \\   \\ \overset{\cdot\cdot}{\text{A}} - \text{X} \\   \\ \text{X} \end{array}$	<p>A and X are ANY ELEMENT</p> <p>A is central atom X is other elements</p>