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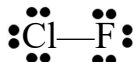
**Prelab Assignment: Lewis Structures and Molecular Shapes**

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1. Lewis Structures are used to represent covalently bonded molecules and polyatomic ions. Draw the Lewis Structure of the  $\text{OF}_2$  molecule. A copy of the "Rules for Drawing Lewis Structures" may be found on page 4 of the Procedure Handout.

2. Consider the molecule chlorine monofluoride, shown below.



a. Are the electrons in the bond pulled closer to the Cl or the F, or are they equally shared? Explain your response, referring to the concept of electronegativity.

b. Is this triple bond polar or non-polar? \_\_\_\_\_

3. In this lab you will draw Lewis Structures for a number of molecules, and then you will build each molecule with the Model Kit provided. The kits contain three items: colored balls, short sticks and long flexible sticks.

a. The colored balls correspond to different atoms. How will you know which color to use for specific atoms?

b. What type of bond is a short sticks used for?

c. Suppose you want to construct a triple bond. What type of stick should you use, and how many?

4. One of the goals of this lab is to become familiar with different shapes of simple molecules.

a. What is the name of the theory used to predict molecular shapes?

b. Suppose a molecule consists of a central atom (X) bonded to 2 outer atoms (both Y). There is one lone pair on the central atom.

What is the name of the shape of this molecule? \_\_\_\_\_

What are all the bond angles in this molecule? \_\_\_\_\_

c. Suppose a molecule consists of a central atom (X) bonded to 4 outer atoms (all Y). There are no lone pairs on the central atom.

What is the name of the shape of this molecule? \_\_\_\_\_

What are all the bond angles in this molecule? \_\_\_\_\_