MOLECULE POLARITY

PART I: TWO ATOMS SCREEN

1. Explain **all the ways** you can change the polarity of the two-atom molecule.

2. **Record your ideas** in the table below.

Representation	How does each change as electronegativity changes?	How does each help you understand the polarity of molecules?
Bond Dipole		
Partial Charges		
Electrostatic Potential		

PART II: THREE ATOMS SCREEN

3. Explain any **new** ways to change the molecule polarity of the three-atom molecule.

4. How does the **ABC-bond angle** effect molecule polarity? Tip: Try changing the bond angle in the simulation.

5. Explain the relationship between the **bond dipoles** and the **molecule dipole**.

6. Can a non-polar molecule contain polar bonds? Use an **example** to explain your answer.

PART III: REAL MOLECULES SCREEN

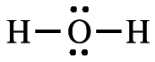
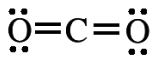
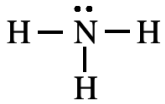
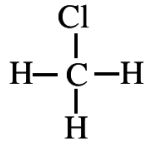
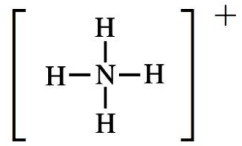
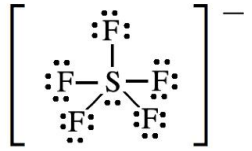
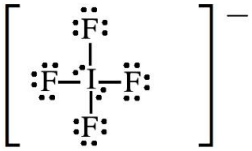
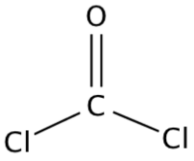
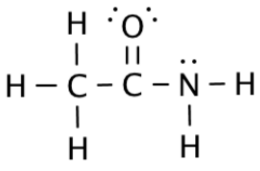
7. **Predict** the polarity of four real molecules in the simulation. Explain your reasoning before you check your predictions with the simulation.

YOUR PREDICTION		CHECK Your Prediction
Draw Molecule - Include Bond Dipoles & Molecule Dipole	Explain Your Reasoning:	Correct? Explain any differences.

8. Discuss with your group the method(s) that you used to determine the bond dipoles and the molecule dipole. Write your method(s) in complete sentences below.

EXERCISES

Determine the Molecule Geometry and Polarity of the following molecules.

Molecule	Molecule Geometry	Is the Molecule Polar? Explain Why or Why Not.
		
		
		
		
		
		
		
		
		

CHALLENGE PROBLEMS:

For each molecule below: Determine the Lewis structure and molecule geometry. Draw the molecule using wedges to show three-dimensionality. Finally, determine if the molecule is polar. If so, draw an arrow to show the molecule dipole.

1. CHO_2^{-1}

2. PF_3

3. $AlCl_3$

4. $CHBr_3$

5. H_2S

6. $SiCl_4$

7. HCCBr

8. $CH_2CHCHCH_2$

9. BrF_4^+(Br is central atom and has $10e^-$ in its valance shell)