Name: _____ Chem 9, Section: _____

Lab Partner: _____ Date: _____

Lewis Structures and Molecule Shapes

1. **CH_4**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

2. **CO_2**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

3. N**H_3**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

4. **H_2O**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

5. **N_2**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

6. **SO_2**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

7. **O_2**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

8. **O_3 – use yellow ball for central atom**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

9. **CO**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

10. **CO_3^{-2}**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

11. **NO_3^-**

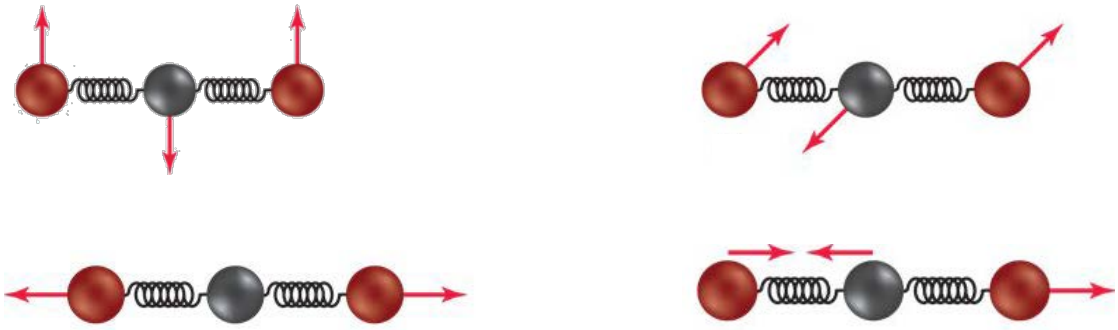
Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

12. **CF_2Cl_2 (CFC = chlorofluorocarbon)**

Total # of Valence Electrons:	3-D Model Sketch (show dipole arrows)
Lewis Structure	
Is there a polar bond in this molecule?	VSEPR shape name: Molecule Polarity: Polar Non-Polar Resonance: Yes No

Questions

When molecules and energy interact, there are different results. Atoms may dissociate, a molecule may rotate, or bonds may stretch and bend. Carbon dioxide has four possible vibrations. What is the effect of each vibration on the molecule: stretching, bending, or breaking?



What is the definition of a greenhouse gas?

Various atmospheric gases are listed below:

chemical formula	VSEPR shape (sketch)	greenhouse gas (yes or no)
carbon dioxide		
methane		
nitrogen		
oxygen		
ozone		
sulfur dioxide		
water		