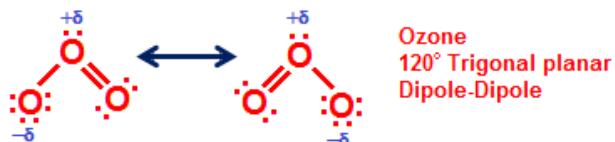
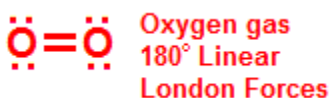
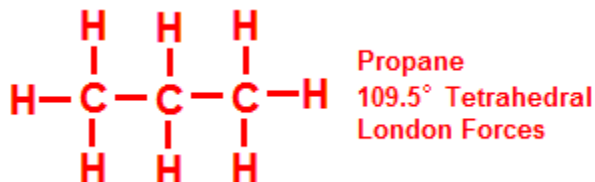
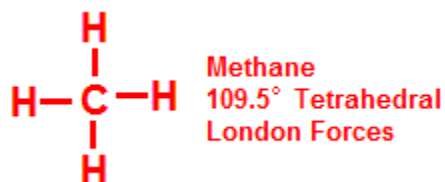
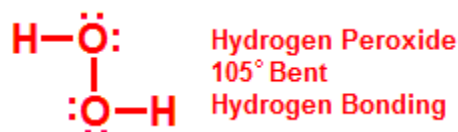
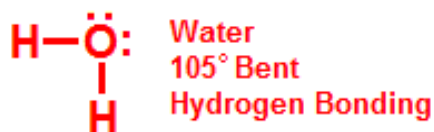
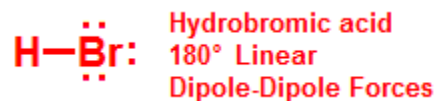
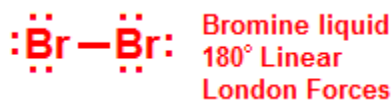
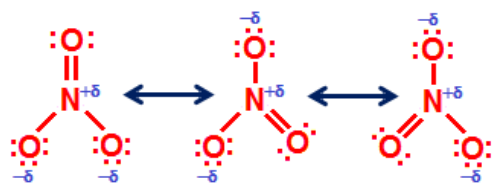
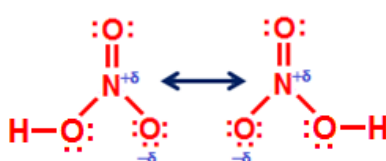


Write the name of each molecule, and draw its Lewis Dot Structure. If Resonance Structures exist, draw the 2-3 most stable structures. Label the bond angles, VSEPR shapes, and intermolecular forces.

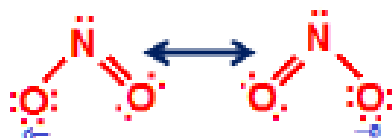




Nitrate ion
120° Trigonal Planar
ion-ion attraction



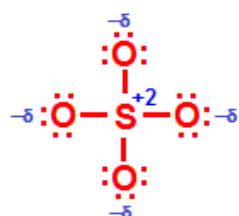
Nitric acid
105° Bent at N-O-H
120° Trigonal planar on N
Hydrogen bonding



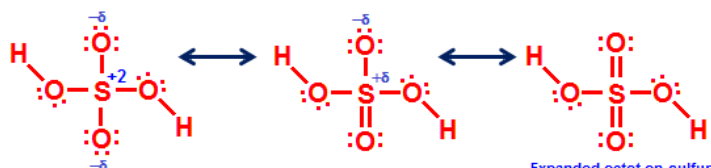
Nitrite ion
120° Trigonal Planar
ion-ion attraction



Nitrous acid
120° Trigonal Planar on N
105° Bent at H-O-N
Hydrogen bonding

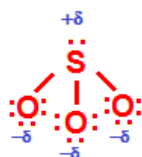


Sulfate ion
109.5° Tetrahedral
ion-ion attraction

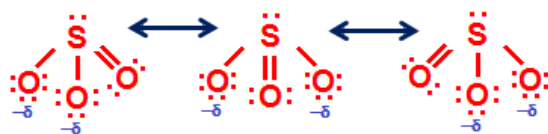


Sulfuric acid
109.5° Tetrahedral on S
105° Bent at H-O-S
Hydrogen Bonding

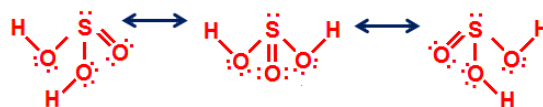
Expanded octet on sulfur



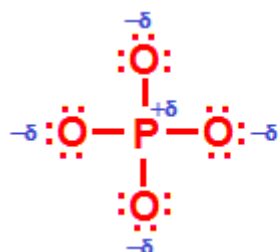
Notice that the first drawing follows the octet rule. All the resonance structures below have expanded octets, which makes them less stable in nature.



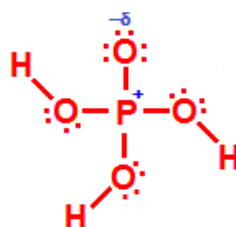
Sulfite ion
107° Trigonal pyramidal
ion-ion attraction



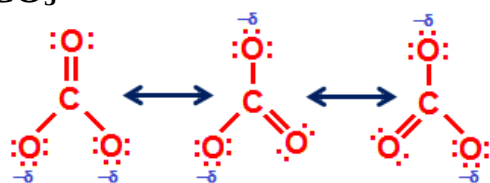
Sulfurous acid
107° Trigonal pyramidal
105° Bent H-O-S
Hydrogen Bonding



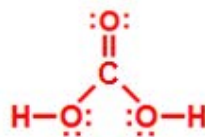
Phosphate ion
109.5° Tetrahedral
ion-ion attraction



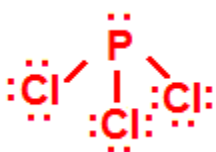
Phosphoric acid
109.5° Tetrahedral on P
105° Bent at H-O-P
Hydrogen Bonding



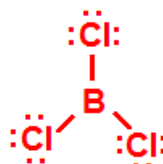
Carbonate ion
120° Trigonal planar
ion-ion attraction



Carbonic acid
120° Trigonal planar on C
105° Bent at H-O-C
Hydrogen Bonding



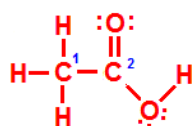
Phosphorus Trichloride
107° Trigonal pyramidal
Dipole-dipole forces



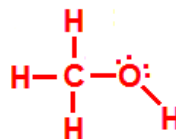
Boron trichloride
120° Trigonal planar
London forces



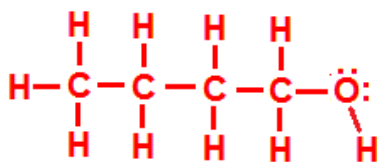
(also written $\text{HC}_2\text{H}_3\text{O}_2$)



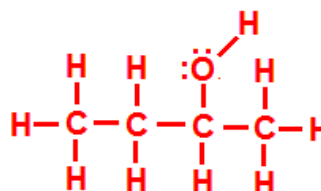
Acetic Acid (Ethanoic acid)
109.5° Tetrahedral at C_1
120° Trigonal planar at C_2
105° Bent at H-O-C
London Forces/ Hydrogen Bonding



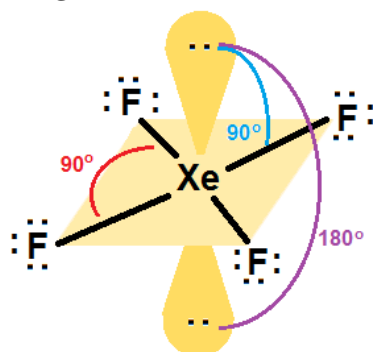
Methanol
109.5° Tetrahedral at C
105° Bent at HOC
London Forces/ Hydrogen Bonding



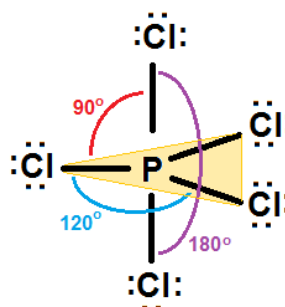
1 - Butanol
109.5° Tetrahedral at C
105° Bent at HOC
London Forces/ Hydrogen Bonding



2 - Butanol
109.5° Tetrahedral at C
105° Bent at HOC
London Forces/ Hydrogen Bonding



Xenon Tetrafluoride
Octahedral
90° top to middle
90° middle to middle
180° top to bottom
London Forces



Phosphorus Pentachloride
Trigonal bipyramidal
90° top to middle
120° middle to middle
180° top to bottom
London Forces