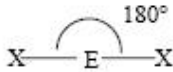
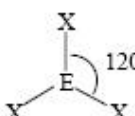
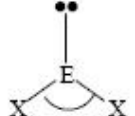
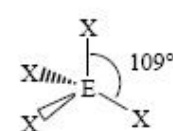
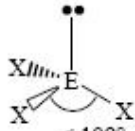
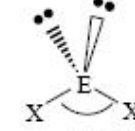
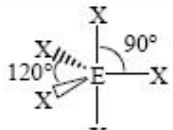
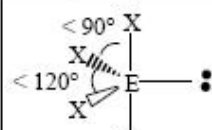
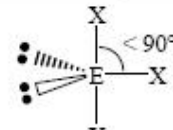
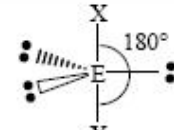
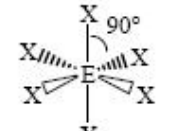
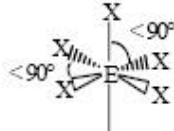
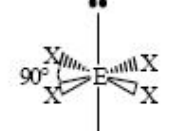
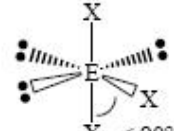
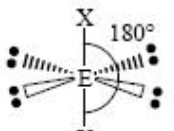


GENERAL CHEMISTRY STANDARD 5.7

5.7: Use VSEPR theory to describe the geometric shape of molecules

What is VSEPR?

- VSEPR stands for *Valence Shell Electron Pair Repulsion Theory*
- This is a model used to predict the geometry of individual molecules from the number of electron pairs surrounding the central atoms
 - Since electrons repel electrons (like charge repels like charge), unshared electron pairs will repel other electrons, including electrons in bonds.
 - Must remember that molecules are three-dimensional shapes!

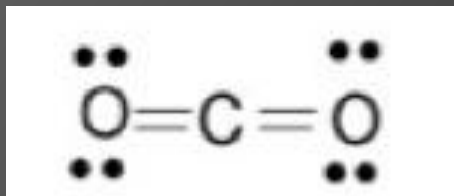
VSEPR Geometries					
Steric No.	Basic Geometry 0 lone pair	1 lone pair	2 lone pairs	3 lone pairs	4 lone pairs
2	 Linear				
3	 Trigonal Planar	 Bent or Angular			
4	 Tetrahedral	 Trigonal Pyramid	 Bent or Angular		
5	 Trigonal Bipyramid	 Sawhorse or Seesaw	 T-shape	 Linear	
6	 Octahedral	 Square Pyramid	 Square Planar	 T-shape	 Linear

Steric Number: The sum of lone electron pairs surrounding the central atom and ligands, which are atoms bonded to the central atom.

5.7: Use VSEPR theory to describe the geometric shape of molecules

Examples

Carbon Dioxide \rightarrow CO_2

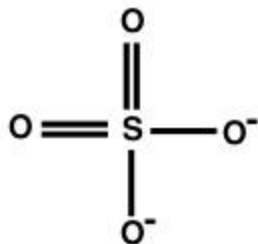


Note that there are NO unshared pairs of electrons on the central atom (unshared pairs of electrons on the outer atoms don't matter)

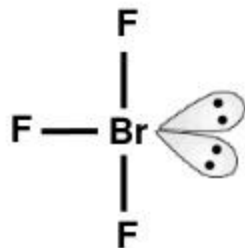
The Steric Number is 2 (2 atoms, no unshared pairs of electrons on central atom).

The shape is Linear.

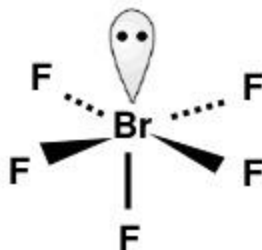
OTHER EXAMPLES TO TRY



BOND PAIRS
LONE PAIRS
SHAPE
ANGLE



BOND PAIRS
LONE PAIRS
SHAPE
ANGLE



BOND PAIRS
LONE PAIRS
SHAPE
ANGLE