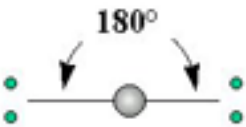
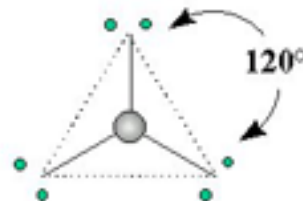
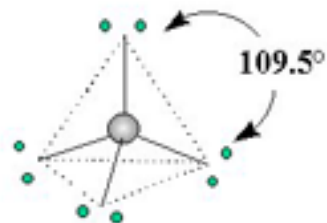
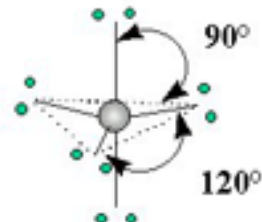
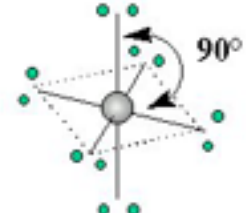


## Molecular Geometry (VSEPR)

### VSEPR- Valence Shell Electron Pair Repulsion

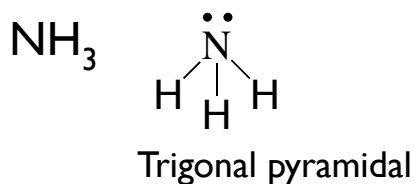
While Lewis structures tell us how the atoms are bonded together they do not tell us the shape of the molecule, we use VSEPR for that. We determine structure by minimizing electron-electron repulsion. While the Shape is determined by the number of electron pairs. The geometry is named based on the arrangement of the atoms.

Number of electron pairs	Arrangement of electron pairs	Electron-pair geometry	Predicted bond angles
2		Linear	180°
3		Trigonal planar	120°
4		Tetrahedral	109.5°
5		Trigonal bipyramid	90° 120°
6		Octahedral	90°

Total Electron Pairs	Electron Pair Geometry	Bonding Pairs	Nonbonding Pairs	Molecular Geometry	B.P.	N.B.P.						
2	 Linear	2	0	 Linear	5	0	Trigonal Bipyramidal					
3		3	0	 Trigonal planar	4	1	Seesaw					
		2	1	 Bent					Trigonal Bipyramidal			
4		4	0	 Tetrahedral	6	0	Octahedral					
		3	1	 Trigonal pyramidal					5	1	Square Pyramidal	
		2	2	 Bent					4	2	Square Planar	

## VSEPR

- 1- Determine the Lewis structure as usual.
- 2- Determine the number of effective electron pairs (multiple bonds count as 1 pair).
- 3- Determine the positions of the atoms based on the way the electron pairs are shared.
- 4- Name the structure based on the arrangement of the atoms.



Ex: