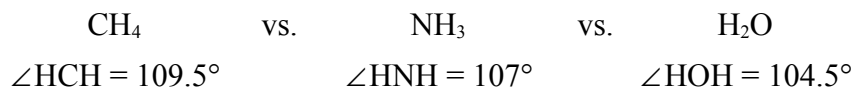


# of e <sup>-</sup> domains	e <sup>-</sup> domain geometry	# of bonding domains	# of non-bonding domains	Molecular geometry	Ideal Bond Angles	General formula	Example
2	Linear	2	0	Linear	180°	AX <sub>2</sub>	CO <sub>2</sub>
3	Trigonal Planar	3	0	Trigonal Planar	120°	AX <sub>3</sub>	CO <sub>3</sub> <sup>2-</sup>
		2	1	Bent	120°	AX <sub>2</sub> E	NO <sub>2</sub> <sup>-</sup>
4	Tetrahedral	4	0	Tetrahedral	109.5°	AX <sub>4</sub>	CH <sub>4</sub>
		3	1	Trigonal Pyramidal	109.5°	AX <sub>3</sub> E	NH <sub>3</sub>
		2	2	Bent	109.5°	AX <sub>2</sub> E <sub>2</sub>	H <sub>2</sub> O
5	Trigonal Bipyramidal	5	0	Trigonal Bipyramidal	120°, 90°	AX <sub>5</sub>	SbF <sub>5</sub>
		4	1	See-saw	120°, 90°	AX <sub>4</sub> E	SF <sub>4</sub>
		3	2	T-shaped	90°	AX <sub>3</sub> E <sub>2</sub>	ClF <sub>3</sub>
		2	3	Linear	180°	AX <sub>2</sub> E <sub>3</sub>	XeF <sub>2</sub>
6	Octahedral	6	0	Octahedral	90°	AX <sub>6</sub>	SF <sub>6</sub>
		5	1	Square Pyramidal	90°	AX <sub>5</sub> E	IF <sub>5</sub>
		4	2	Square Planar	90°	AX <sub>4</sub> E <sub>2</sub>	XeF <sub>4</sub>

Bond Angle Adjustments: Lone pairs repel other e<sup>-</sup> domains more than bonds do (≈ 2.5° per L.P.)

Example:



Polarity Trends: A molecule will be non-polar if all dipoles cancel out, otherwise, it will be polar.

- Formula: AX<sub>n</sub>E<sub>0</sub> with all the X's the same → Non-Polar Molecule
- Formula: AX<sub>n</sub>E<sub>0</sub> with not all A-X bonds identically polar → Polar Molecule
- Formula: AX<sub>n</sub>E<sub>n≥1</sub> → Usually Polar
  - Exception : XeF<sub>4</sub>

Hypervalent Repulsion Energy:

LonePair-LonePair > LonePair-BondingPair > BondingPair-BondingPair