

**Molecular Geometry:**

<b>Total Electron Pairs</b>	<b>Electron-Pair Geometry</b>	<b>Bonding Pairs</b>	<b>NonBonding Pairs</b>	<b>Molecular Geometry</b>
2 pairs	Linear	2	0	Linear
3 pairs	Trigonal planar	3	0	Trigonal planar
		2	1	Bent
4 pairs	Tetrahedral	4	0	Tetrahedral
		3	1	Trigonal pyramidal
		2	2	Bent
5 pairs	Trigonal bipyramidal	5	0	Trigonal bipyramidal
		4	1	Seesaw
		3	2	T-shaped
		2	3	Linear
6 pairs	Octahedral	6	0	Octahedral
		5	1	Square pyramidal
		4	2	Square planar

**Hybrid Orbitals:**

Atomic Orbital Set	Hybrid Orbital Set	Geometry	Examples
s, p	Two $sp$	Linear	$\text{BeF}_2$ , $\text{HgCl}_2$
s, p, p	Three $sp^2$	Trigonal planar	$\text{BF}_3$ , $\text{SO}_3$
s, p, p, p	Four $sp^3$	Tetrahedral	$\text{CH}_4$ , $\text{NH}_3$ , $\text{H}_2\text{O}$ , $\text{NH}_4^+$
s, p, p, p, d	Five $sp^3d$	Trigonal bipyramidal	$\text{PF}_5$ , $\text{SF}_4$ , $\text{BrF}_3$ , $\text{SbCl}_5^{2-}$
s, p, p, p, d, d	Six $sp^3d^2$	Octahedral	$\text{SF}_6$ , $\text{ClF}_5$ , $\text{XeF}_4$ , $\text{PF}_6^-$

**Bond Angles:**

Number of Electron Pairs	Electron-Pair Geometry	Predicted Bond Angles
2	Linear	$180^\circ$
3	Trigonal Planar	$120^\circ$
4	Tetrahedral	$109.5^\circ$
5	Trigonal-bipyramidal	$120^\circ$ , $90^\circ$
6	Octahedral	$90^\circ$ , $180^\circ$