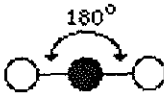
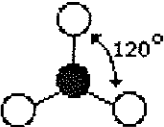
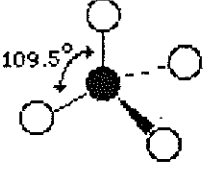
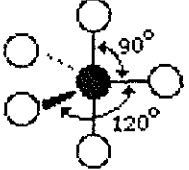
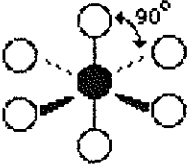
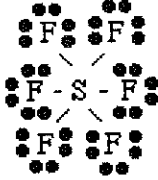
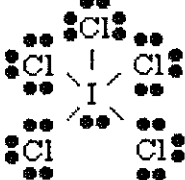
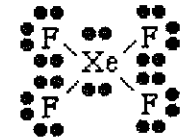


COMPARISON OF VSEPR & VB THEORIES

Valence Shell Electron Pair Repulsion Theory

Valence Bond Theory

Class e ⁻ pair geometry	bonding e ⁻ pairs	lone e ⁻ pairs	Molecular Shape/geometry	Examples	* π bonds	σ bonds	lone pairs	Hybrid Orbital
 Linear	2	0	Linear	H - Be - H	0	2	0	sp
	2	0	Linear	$\text{O}=\text{C}=\text{O}$	2	2	0	
	2	0	Linear	H - C \equiv N	2	2	0	
 Trigonal Planar	3	0	Trigonal planar	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{B}-\text{H} \end{array}$	0	3	0	sp ²
	3	0	Trigonal planar	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}=\text{O} \end{array}$	1	3	0	
	2	1	Bent	$\text{Cl}-\text{Sn}-\text{Cl}$	0	2	1	
 Tetrahedral	4	0	Tetrahedral	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$	0	4	0	sp ³
	3	1	Trigonal pyramidal	$\begin{array}{c} \text{H} \\ \cdot\cdot \\ \text{H}-\text{N}-\text{H} \\ \\ \text{H} \end{array}$	0	3	1	
	2	2	Bent	$\text{H}-\text{O}-\text{H}$	0	2	2	
 Trigonal Bipyramidal	5	0	Trigonal bipyramidal	$\begin{array}{c} \text{Cl} \quad \text{Cl} \\ \cdot\cdot \quad \cdot\cdot \\ \text{Cl}-\text{P}-\text{Cl} \\ \\ \text{Cl} \end{array}$	0	5	0	sp ³ d
	4	1	See-saw	$\begin{array}{c} \text{F} \quad \text{F} \\ \cdot\cdot \quad \cdot\cdot \\ \text{F}-\text{S}-\text{F} \\ \cdot\cdot \quad \cdot\cdot \\ \text{F} \quad \text{F} \end{array}$	0	4	1	
	3	2	T-shape	$\begin{array}{c} \text{Cl} \quad \text{Cl} \\ \cdot\cdot \quad \cdot\cdot \\ \text{Cl}-\text{Br}-\text{Cl} \\ \\ \text{Cl} \end{array}$	0	3	2	
	2	3	Linear	$\text{F}-\text{Xe}-\text{F}$	0	2	3	

Class e ⁻ pair geometry	bonding e ⁻ pairs	lone e ⁻ pairs	Molecular Shape/geometry	Examples	*π bonds	σ bonds	lone pairs	Hybrid Orbital
 <p>Octahedral</p>	6	0	Octahedral		0	6	0	sp ³ d ²
	5	1	Square pyramidal		0	5	1	
	4	2	Square planar		0	4	2	

*Note that pi (π) bonds do not affect hybrid or shape. The sigma (σ) bonds and lone pairs dictate which hybrid and what geometry is involved.