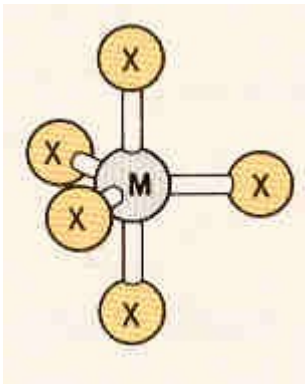

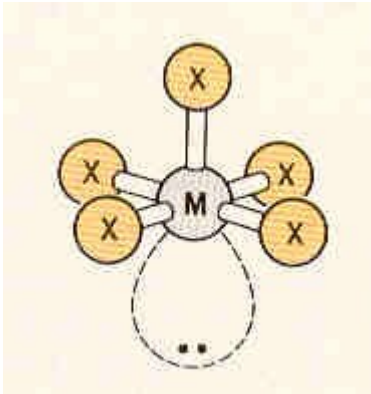
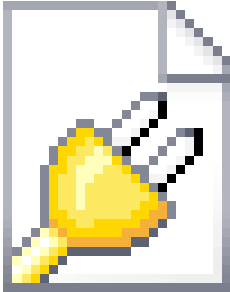
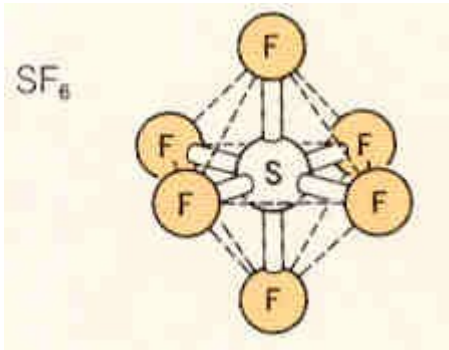


VSEPR CHART A = central atom X = bonding pair E = lone pair

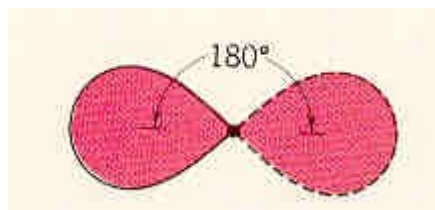
# of Electron Pairs	# of Lone Pairs	VSEPR notation	Name	Diagram	
2	0	$AX_2$	Linear		
2	2	$AX_2E_2$	Bent		
2	3	$AX_2E_3$	Linear		
3	0	$AX_3$	Planar triangular		
3	1	$AX_3E$	Trigonal pyramidal		

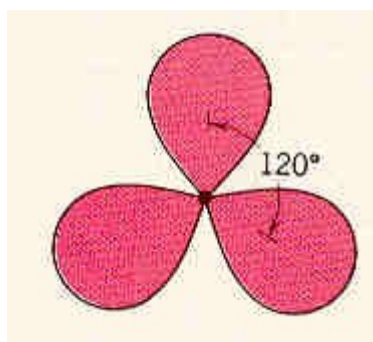
3	2	$AX_3E_2$	T-shaped		
4	0	$AX_4$	Tetrahedral		
4	1	$AX_4E$	See-saw		
4	2	$AX_4E_2$	Square planar		

5	0	$AX_5$	Trigonal bipyramidal		
5	1	$AX_5E$	Square pyramidal		
6	0	$AX_6$	Octahedral	$SF_6$ 	

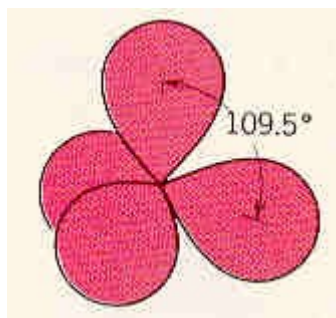
The list below shows important types of hybrid orbitals. The directional properties of the various hybrids are also shown.

sp hybrids

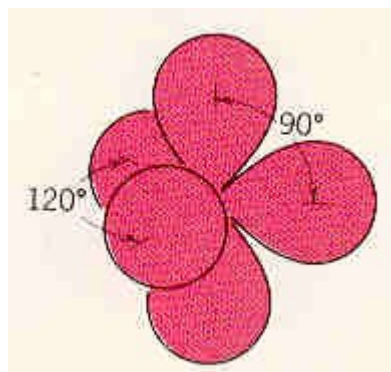




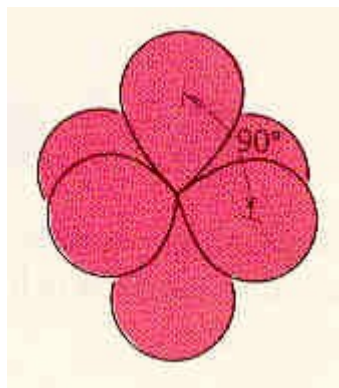
$sp^2$  hybrids



$sp^3$  hybrids



$sp^3d$  hybrids



$sp^3d^2$  hybrids

The bonds in the ethane molecule. Notice the overlap in the orbitals. The degree of overlap of the  $sp^3$  orbitals in the carbon-carbon bond does not appreciably affect the rotation of the two  $CH_3$ - groups.

