














MOLECULAR GEOMETRY

For molecules $AB_{n e_m}$, where A = the central atom, B = other atoms directly bonded to A, and e = unshared (nonbonding) pairs of electrons.

Note that a molecule formed by joining only 2 atoms together is linear regardless of the number of unshared pairs of electrons (AB , ABe , ABe_3 , etc.).

$AB_{n e_m}$	No. of Electron Pairs	No. of Bonding Pairs	No. of Nonbonding Pairs	Molecular Shape	Graph	Hybrid Orbitals	Some Examples
AB_2	2	2	0	Linear		sp	$HgCl_2$, $BeCl_2(g)$, CO_2 , HCN
AB_3	3	3	0	Triangular Planar		sp^2	BF_3 , BCl_3 , BH_3 , SO_3
$AB_2 e$	3	2	1	Bent		sp^2	$SnCl_2$, SO_2 , NO_2^-
AB_4	4	4	0	Tetrahedral		sp^3	CH_4 , $SiCl_4$, $POCl_3$
$AB_3 e$	4	3	1	Trigonal Pyramidal		sp^3	NH_3 , PF_3
$AB_2 e_2$	4	2	2	Bent		sp^3	H_2O , ICl_2^+ , F_2O , BrO_2 , SCl_2
AB_5	5	5	0	Trigonal Bipyramid		dsp^3	PH_5 , PCl_5 , SbF_5 , $IO_3F_2^-$
$AB_4 e$	5	4	1	Distorted Tetrahedron		dsp^3	SF_4 , IF_4^+
$AB_3 e_2$	5	3	2	T-Shape		dsp^3	ClF_3 , BrF_3
$AB_2 e_3$	5	2	3	Linear		dsp^3	I_3^- , ICl_2^- , XeF_2
AB_6	6	6	0	Octahedral		d^2sp^3	SF_6 , PF_6^-
$AB_5 e$	6	5	1	Square Pyramidal		d^2sp^3	IF_5 , BrF_3 , $XeOF_4$
$AB_4 e_2$	6	4	2	Square Planar		d^2sp^3	XeF_4 , BrF_4^-