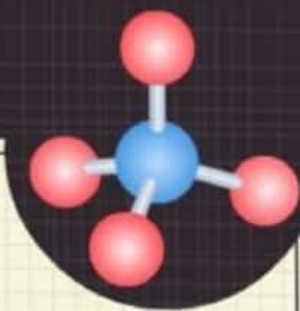


VSEPR & SHAPES OF MOLECULES



Bonding Pairs & Lone Pairs

Lone pairs in a molecule lie closer to the central atom, hence they repel more than a bonded pair. The order of strengths of repulsion is :

LONE PAIR/LONE PAIR > BONDED PAIR/LONE PAIR > BONDED PAIR/BONDED PAIR

Shapes with different electron Pair : (ep)

2
ep :

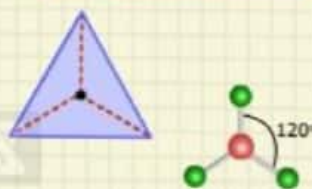
Linear



AX_2
2 bond pairs
0 lone pairs

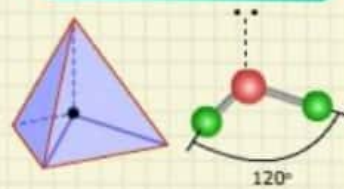
3
ep :

Trigonal-Planar



AX_3
3 bond pairs
0 lone pairs

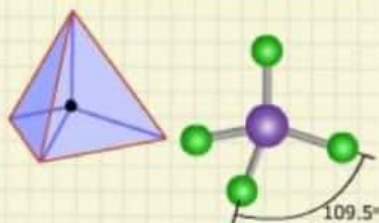
Bent



$SnCl_2$
2 bond pairs
1 lone pairs

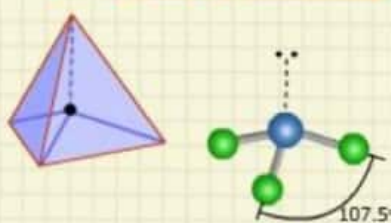
4
ep :

Tetrahedral



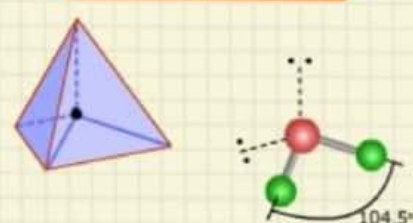
Methane (CH_4)
4 bond pairs
0 lone pairs

Trigonal pyramidal



Ammonia (NH_3)
3 bond pairs
1 lone pairs

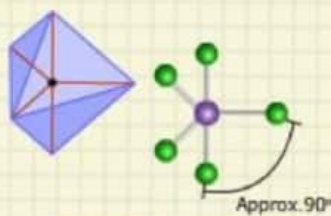
Bent



Water (H_2O)
2 bond pairs
2 lone pairs

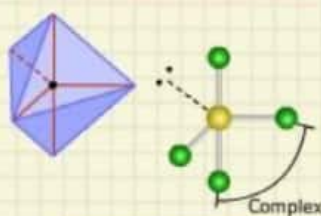
5
ep :

Trigonal Bipyramidal



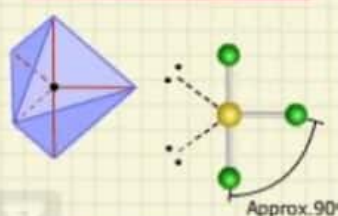
PF_5
5 bond pairs
No lone pairs

See Saw



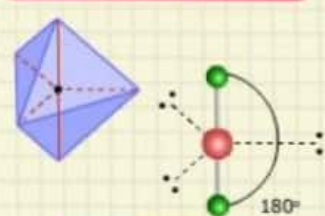
SF_4
4 bond pairs
1 lone pairs

T-Shaped



ICl_3
3 bond pairs
2 lone pairs

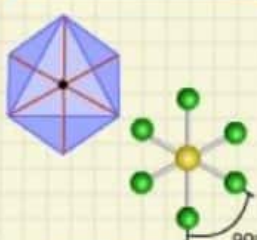
Linear



BrF_2^-
2 bond pairs
3 lone pairs

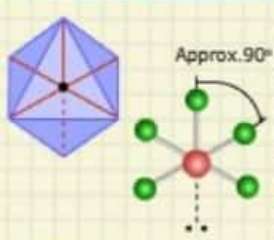
6
ep :

Octahedral



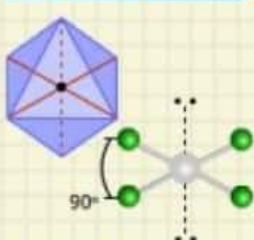
SF_6
6 bond pairs
No lone pairs

Square-pyramidal



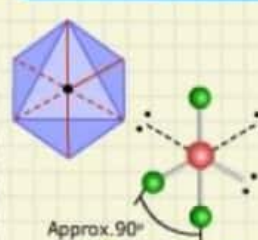
BrF_5
5 bond pairs
1 lone pairs

Square-planar



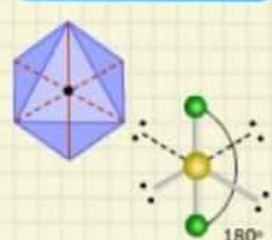
XeF_4
4 bond pairs
2 lone pairs

T-Shaped



ClF_3
3 bond pairs
3 lone pairs

Linear



XeF_2
2 bond pairs
4 lone pairs

