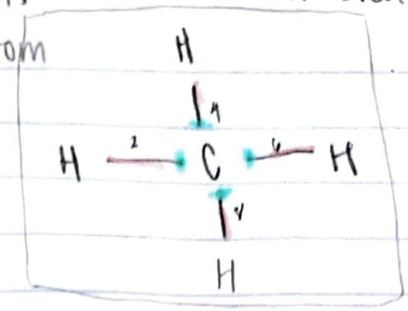
COLOR BY MOLECULAR GEOMETRY KEY

Steps:

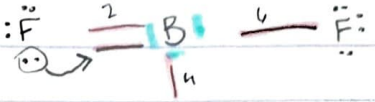
1) sum valence electrons
2) write symbols & connect w/ one bond each
3) complete octet of terminal atoms
4) place left over VE on central atom
5) create multiple bonds if there is not an octet w/ central atom

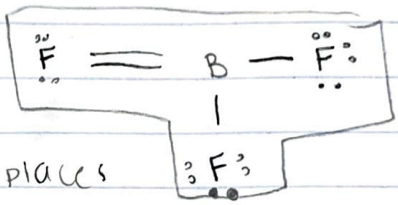
CH_4 C = 4, H = 1 (4) → 8 v-e



4 electron groups
4 bonding groups
0 unpaired
Tetrahedral 109.5
Green

BF_3 B = 3, F = 7 (3) → 24 v-e − 6 → 18 v-e − 18 v-e → 0 v-e

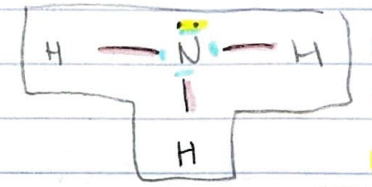




resonance structure! Bonds can be placed in different places

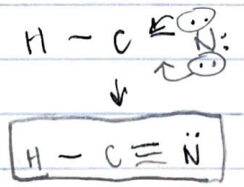
3 electron groups
3 bonding groups
0 lone pairs
Trigonal Planar 120°
Pink

NH_3 N = 5, H = 1 (3) → 8 v-e − 6 v-e → 2 v-e



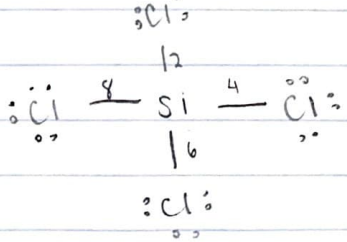
4 electron groups
3 bonding groups
1 lone pair
Light Blue
Trigonal Pyramidal 109.5

HCN H = 1, C = 4, N = 5 → 10 v-e.



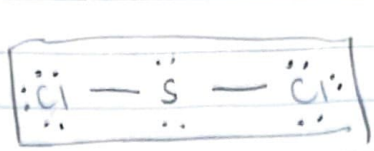
2 electron groups
linear 180
Light Grey

$SiCl_4$ Si = 4, Cl = 7 (4) → 32 v-e − 8 → 24 − 24 → 0 v-e



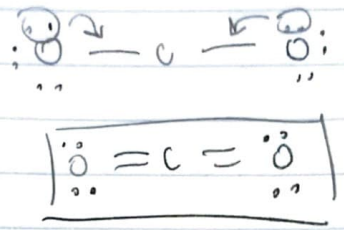
Tetrahedral, 109.5
Green

SCl_2 S = 6
Cl = 7(2)
20 ve
- 4
16
- 12
4 ve



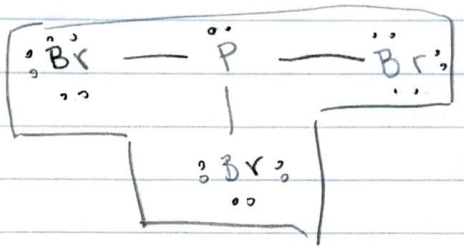
4 electron groups
2 bonding groups
2 lone pairs
Bent, 109.5
Brown

CO_2 C = 4
O = 6(2)
16 ve
- 4
12 ve
- 12 ve
0



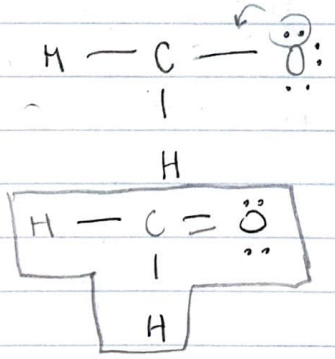
Linear, 180
Light Grey

PBr_3 P = 5
Br = 7(3)
26 ve
- 6
20 ve
- 18 ve
2 ve



Trigonal pyramidal
109.5
Light Blue

H_2CO H = 1(2)
C = 4
O = 6
12 ve
- 6
6 ve



Trigonal Planar
120
Pink

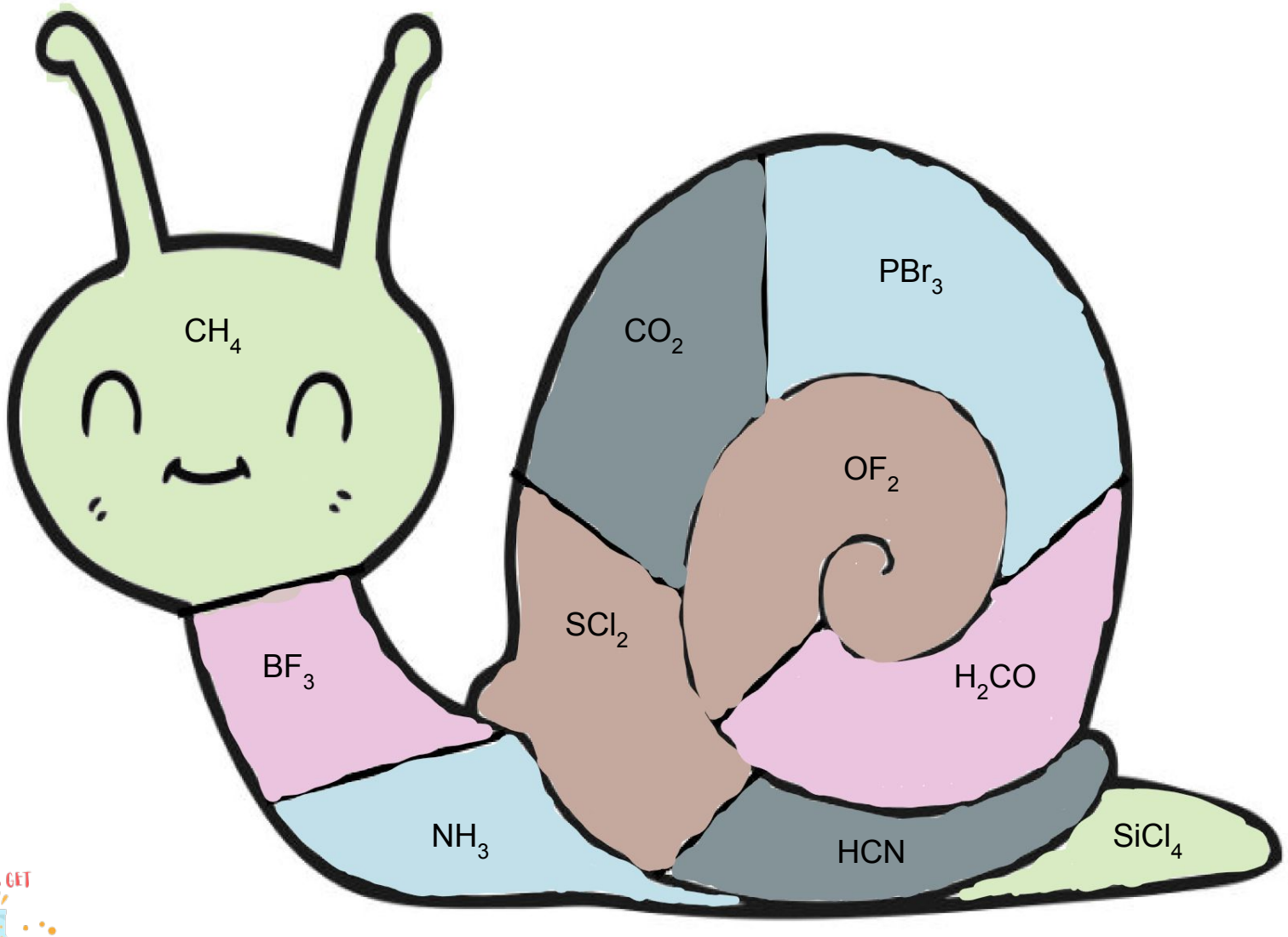
OF_2 O = 6
F = 7(2)
20 ve
- 4 ve
16 ve
- 12
4 ve

Bent, 109.5
Brown

Key Color by Molecular Geometry

Instructions: Identify the molecular geometry of each molecule in the picture. Color the each part of the picture according to the color code below.

Molecular Geometry	Color
Linear	Light Grey
Bent	Light Brown
Trigonal Planar	Light Pink
Trigonal Pyramidal	Light Blue
Tetrahedral	Light Green



LET'S GET CHEMICAL