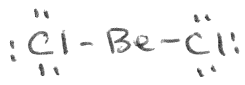
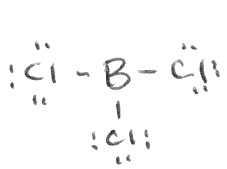
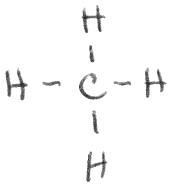
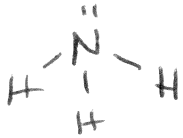
Determining Shape via e⁻ pairs

Model compound	# bonds or bonding units	# unshared pairs on central atom	Shape
	2	0	linear
	3	0	Trigonal planar
	4	0	Tetrahedral
	2	2	Bent
	3	1	pyramidal

Note: 1 bonding unit is 1 single bond

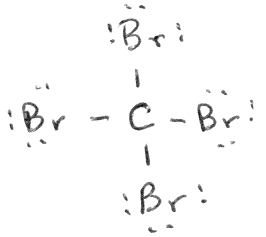
1 bonding unit is 1 double bond

1 bonding unit is 1 triple bond

Example CO_2 =  ; 2 bonding units, 0 e⁻ pairs so compound is linear.

Examples

3 bonding units
1 pair unshared
} pyramidal

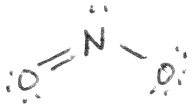


4 bonding units
0 unshared pairs
} Tetrahedral

ClO_2^- $7 + 12 + 1 = 20$

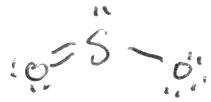
2-bonding units
2-unshared pairs
} bent

NO_2^- $5 + 12 + 1 = 18$



2 bonding units
1 unshared pair
} best option is bent

SO_2 $6 + 12 = 18$



← 2 bonding units
1 unshared pair
} best option = bent