Geometry and favorite bonding modes (total number of bonds) for C, N,O, halogen, H

4 3 2 1 1

N O , these elements may have a variable number of bonds	(2) (1) (4) (3)

supplemental HO 68

VSEPR = valence shell electron pair repulsion

Determine the angles between bonds, name the geometry about the central atom and give the its hybridization.

Ideal Geometries

Ideal bonding angles for carbon

bond angles	109.5 109.5 109.5 109.5	120 120 120 120	180	180
geometric name	tetrahedral	trigonal planar	linear	linear

Ideal bonding for carbon are four bonds to carbon - four bonding modes

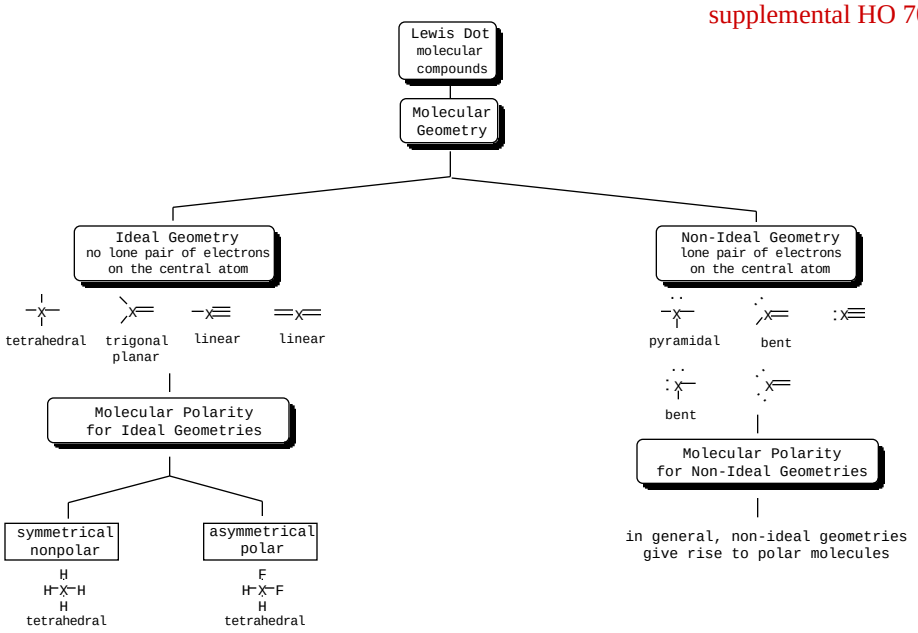
Non-Ideal Geometries

bond angles	107.5 107.5	θ<120	
geometric name	pyramidal or trigonal pyramid	bent	

Bond angles are less than ideal angle
Electron pair occupies a lot of space & is held close to nucleus of central atom

bond angles	104.5	
geometric name	bent	

supplemental HO 70



Structure and Bonding

Go to the powerpoint
Rules for Drawing Lewis Dot Structures