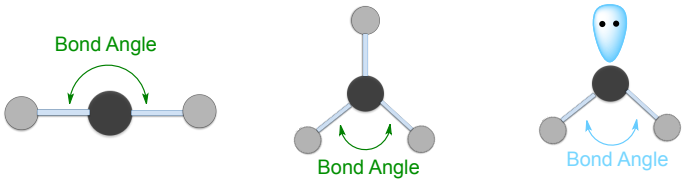
CONCEPT: BOND ANGLES (SIMPLIFIED)

- The angle formed by _____ adjacent, neighboring atoms in a molecule.
  - □ When the central element has ____ lone pair(s) it possesses an *ideal bond angle*.
  - □ **Ideal Bond Angle:** The _____ angle elements take in order to minimize repulsion between one another.
    - When the central element has ___ or more lone pairs its ideal bond angle will be decreased.

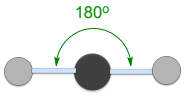
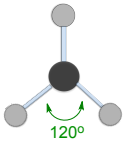
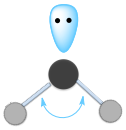
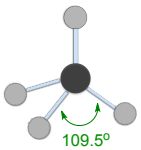
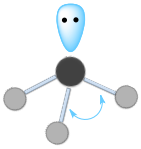
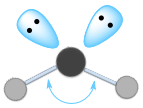


EXAMPLE: If the H–C–H angle within the CH_4 molecule is 109.5º, what is the H–N–H bond angle within NH_3?

a) 120º b) 109.5º c) 107.3º d) 180º

- Bond angles can further differentiate molecules that possess the same number of electron groups.

Bond Angles

Electron Groups	Ideal Bond Angle	1 Lone Pair	2 Lone Pairs	3 Lone Pairs
2				
3				
4				

EXAMPLE: Determine the H–Sn–H bond angle for the following compound: SnH_2.

CONCEPT: BOND ANGLES (SIMPLIFIED)

PRACTICE: Determine the bond angle for the following compound: $BeCl_2$.

PRACTICE: Determine the bond angle for the thiocyanate ion, SCN^-.

PRACTICE: Determine the Cl–O–Cl bond angle for the OCl_2 molecule.