

| electron domains | VSEPR Geometry | AXE Type | Molecular Shape | Example molecule | Lewis Structure | Etc. |
|------------------|---|--------------------------------|--|------------------|---|--|
| 2 | linear 180° | AX ₂ | linear | CO ₂ | $\text{:}\ddot{\text{O}}=\text{C}=\ddot{\text{O}}\text{:}$ | A double (or triple) bond counts as <u>one</u> electron domain. |
| 3 | trigonal planar 120° (triangular) | AX ₃ | trigonal planar | BH ₃ | $\begin{array}{c} \text{H} \\ \diagdown \\ \text{H}-\text{B} \\ \diagup \\ \text{H} \end{array}$ | B is electron deficient in this molecule |
| 3 | Trigonal planar | AX ₂ E | bent | SO ₂ | $\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \diagdown \\ \text{S} \\ \diagup \\ \text{:}\ddot{\text{O}}\text{:} \end{array}$ | S is a third row element, but often behaves like a second row element (follows octet "rule") |
| 4 | tetrahedral 109.5° | AX ₄ | tetrahedral CH₄ | CH ₄ | $\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$ 109.5° | perfect tetrahedral bond angles (109.5°) 4 identical bonds |
| 4 | tetrahedral | AX ₃ E | trigonal pyramidal | NH ₃ | $\begin{array}{c} \text{:}\ddot{\text{N}}\text{:} \\ \\ \text{H}-\text{N}-\text{H} \\ \\ \text{H} \end{array}$ 107° | 3 identical bonds, but the lone pair of electrons distorts the bond angles |
| 4 | Tetrahedral | AX ₂ E ₂ | bent | H ₂ O | $\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \\ \text{O}-\text{H} \\ \\ \text{H} \end{array}$ 104.5° | More distortion of the bond angle due to <u>two</u> e ⁻ lone pair on O |

A = central atom; X = attachment atom (on central atom)
 E = non-bonding e⁻ pair (on central atom)