

Molecular Geometry

<p>1) Tetrahedral</p>	<p><u>Central Atom</u> is bonded to 4 atoms and has 0 lone pairs of e^-'s</p>	<p>ex/ CH_4</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">Hybridization sp^3</div> <div style="text-align: center;"> $\begin{array}{c} H \\ \\ H - C - H \\ \\ H \end{array}$ </div> <div style="margin-left: 20px;">Bond Angles 109.5°</div> </div>
<p>2) Trigonal Planar</p>	<p><u>Central Atom</u> is bonded to 3 atoms and has 0 lone pairs of e^-'s</p>	<p>ex/ BF_3</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">Hybridization sp^2</div> <div style="text-align: center;"> $\begin{array}{c} F & & F \\ & \backslash & / \\ & B & \\ & / & \backslash \\ F & & F \end{array}$ </div> <div style="margin-left: 20px;">Bond Angles 120°</div> </div>
<p>3) Pyramidal</p>	<p><u>Central Atom</u> is bonded to 3 atoms and has 1 lone pair of e^-'s</p>	<p>ex/ NH_3</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">Hybridization sp^3</div> <div style="text-align: center;"> $\begin{array}{c} \cdot\cdot \\ \cdot \\ H & - & N & - & H \\ & & & & \\ & H & & H & \end{array}$ </div> <div style="margin-left: 20px;">Bond Angles 107°</div> </div>
<p>4) Bent</p>	<p><u>Central Atom</u> is bonded to 2 atoms and has 2 lone pairs of e^-'s</p>	<p>ex/ H_2O</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">Hybridization sp^3</div> <div style="text-align: center;"> $\begin{array}{c} \cdot\cdot & & \cdot\cdot \\ \cdot & & \cdot \\ H & - & O & - & H \\ & & \cdot\cdot & & \end{array}$ </div> <div style="margin-left: 20px;">Bond Angles 105°</div> </div>
<p>5) Linear</p>	<p><u>Central Atom</u> is bonded to 2 atoms and has 0 lone pairs of e^-'s</p> <p style="text-align: center;">or</p> <p>There are only 2 atoms</p>	<p>ex/ CO_2</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">Hybridization sp</div> <div style="text-align: center;"> $:\ddot{O} = C = \ddot{O}:$ </div> <div style="margin-left: 20px;">Bond Angles 180°</div> </div> <p>ex/ HCl or N_2</p> <div style="display: flex; justify-content: center; gap: 50px;"> <div style="text-align: center;"> $H - \ddot{Cl}:$ </div> <div style="text-align: center;"> $:N \equiv N:$ </div> </div>