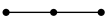














## Student Handout 2 of 2: Molecular Structure

Hybridization	# of $\sigma$ Bonds	# of Non-Bonding Pairs	Molecular Shape	Bond Angles	Example
sp	2	0	 Linear	180°	BeH <sub>2</sub> , CO <sub>2</sub>
sp <sup>2</sup>	3	0	 Trigonal planar	120°	SO <sub>3</sub> , BF <sub>3</sub>
sp <sup>2</sup>	2	1	 Angular	<120°	SO <sub>2</sub> , O <sub>3</sub>
sp <sup>3</sup>	4	0	 Tetrahedral	109.5°	CH <sub>4</sub> , CF <sub>4</sub> , SO <sub>4</sub> <sup>2-</sup>
sp <sup>3</sup>	3	1	 Trigonal pyramidal	<109.5°	NH <sub>3</sub> , PF <sub>3</sub> , AsCl <sub>3</sub>
sp <sup>3</sup>	2	2	 Angular	<109.5°	H <sub>2</sub> O, H <sub>2</sub> S, SF <sub>2</sub>
sp <sup>3</sup> d	5	0	 Trigonal bipyramidal	120°, 90°	PF <sub>5</sub> , PCl <sub>5</sub> , AsF <sub>5</sub>
sp <sup>3</sup> d	4	1	 Sawhorse (irregular tetrahedron)	<120°, <90°	SF <sub>4</sub>
sp <sup>3</sup> d	3	2	 T-shaped	<90°	ClF <sub>3</sub>
sp <sup>3</sup> d	2	3	 Linear	180°	XeF <sub>2</sub> , I <sub>3</sub> <sup>-</sup> , IF <sub>2</sub>
sp <sup>3</sup> d <sup>2</sup>	6	0	 Octahedron	90°	SF <sub>6</sub> , PF <sub>6</sub> <sup>-</sup> , SiF <sub>6</sub> <sup>2-</sup>
sp <sup>3</sup> d <sup>2</sup>	5	1	 Square pyramidal	<90°	IF <sub>5</sub> , BrF <sub>5</sub>
sp <sup>3</sup> d <sup>2</sup>	4	2	 Square planar	90°	XeF <sub>4</sub> , IF <sub>4</sub> <sup>-</sup>