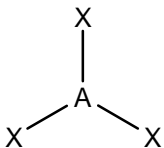
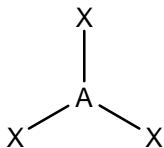
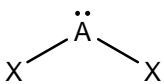
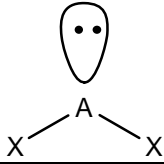
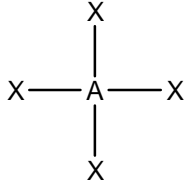
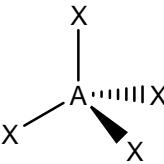
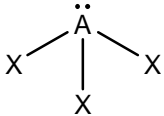
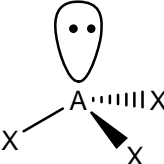

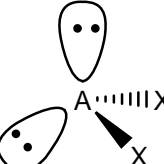
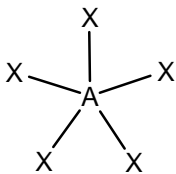
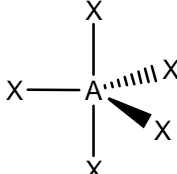
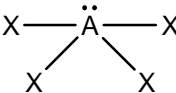
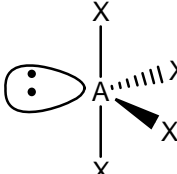
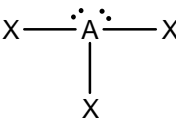
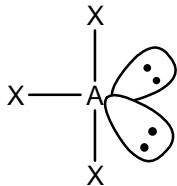
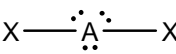
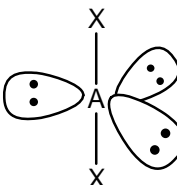


Molecular Geometry	AX _m E _n Code	Approximate Bond Angles (degrees)	Hybridization of Central Atom*	2-dimensional Representation	3-dimensional Representation
Linear	AX ₂	180	sp	X—A—X	X—A—X
Trigonal Planar	AX ₃	120	sp ²		
Bent/V-shaped	AX ₂ E ₁	<120	sp ²		
Tetrahedral	AX ₄	109.5	sp ³		
Trigonal Pyramid	AX ₃ E ₁	<109.5	sp ³		
Bent/V-shaped	AX ₂ E ₂	<109.5	sp ³		

In the AXE codes, *m* is the number of atoms bonded to the central atom, and *n* is the number of lone pairs on the central atom (do not include lone pairs on other atoms).

Hybridization is an important topic which will be introduced in CHEM 130. Although you do not need this information for CHEM 120, it will be useful for you when you take General Chemistry.

Molecular Geometry	AX_mE_n Code	Approximate Bond Angles (degrees)	Hybridization of Central Atom	2-dimensional Representation	3-dimensional Representation
Trigonal Bipyramid	AX_5	90 & 120	dsp^3		
See-saw	AX_4E_1	90 & 120	dsp^3		
T-shaped	AX_3E_2	90	dsp^3		
Linear	AX_2E_3	180	dsp^3		

Note: None of the shapes on pages 2 or 3 of this handout will be tested in CHEM 120, as they all have central atoms which exceed an octet. These are included to assist you in your later studies in General Chemistry.

Molecular Geometry	AX_mE_n Code	Approximate Bond Angles (degrees)	Hybridization of Central Atom	2-dimensional Representation	3-dimensional Representation
Octahedral	AX_6	90	d^2sp^3		
Square Pyramid	AX_5E_1	90	d^2sp^3		
Square Planar	AX_4E_2	90	d^2sp^3		

Note: None of the shapes on pages 2 or 3 of this handout will be tested in CHEM 120, as they all have central atoms which exceed an octet. These are included to assist you in your later studies in General Chemistry.