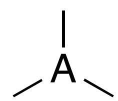
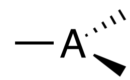
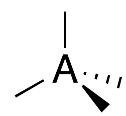
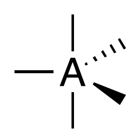
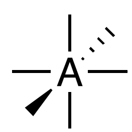
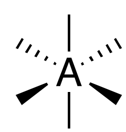
The Complete Table of Hybridization and Geometry

Number of Electron Domains	Hybridization	Electron-Pair Geometry	Line, Dash, and Wedge Perspective Representation of the Electron-Pair Geometry	Number of Lone Pairs	Molecular Geometry	Bond Angles	Polar? (***)
2	sp	Linear		0	Linear	180°	No
	(two sp hybrid orbitals)						
(2 unhybridized p orbitals are available for π bonding)							
3	sp^2	Trigonal Planar	 or 	0	Trigonal Planar	120°	No
	(three sp^2 hybrid orbitals)			1	Bent	< 120°	Yes
(1 unhybridized p orbital is available for π bonding)							
4	sp^3	Tetrahedral		0	Tetrahedral	109.5°	No
	(four sp^3 hybrid orbitals)			1	Trigonal Pyramidal	< 109.5°	Yes
(0 unhybridized p orbitals are leftover; no π bonding)				2	Bent	< 109.5°	Yes
5	sp^3d	Trigonal Bipyramidal		0	Trigonal Bipyramidal	90° and 120°	No
	(five sp^3d hybrid orbitals)			1	See-Saw	< 90° and < 120°	Yes
(0 unhybridized p orbitals are leftover; no π bonding)				2	T-Shaped	< 90°	Yes
			Note: Contains Axial and Equatorial Positions.	3	Linear	180°	No
			Lone pairs (if any) go in Equatorial Positions				
6	sp^3d^2	Octahedral	 or 	0	Octahedral	90°	No
	(six sp^3d^2 hybrid orbitals)			1	Square Pyramidal	< 90°	Yes
(0 unhybridized p orbitals are leftover; no π bonding)				2	Square Planar	90°	No

Number of Electron Domains (or "Number of electron pairs") = (Number of Other Atoms Something is Bonded To) + (Number of Lone Pairs)

Hybrid orbitals are used to form σ bonds and to hold lone pairs of electrons.

Unhybridized p orbitals are used to form π bonds.

***Note: **"Polar?"** refers to a molecule in which all terminal atoms are the same. In general, if terminal atoms are different, the molecule will be polar.