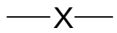
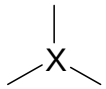
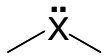
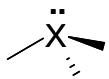
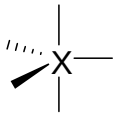
Valence Shell Electron Pair Repulsion (VSEPR) Theory

Chem1A, General Chemistry I

Total Electron Groups	Atoms Connected	Lone Pairs	Electronic Geometry	Molecular Geometry	Structure
2	2	0	linear	linear	
3	3	0	trigonal planar	trigonal planar	
3	2	1	trigonal planar	bent	
4	4	0	tetrahedral	tetrahedral	
4	3	1	tetrahedral	trigonal pyramidal	
4	2	2	tetrahedral	bent	
5	5	0	trigonal bipyramidal	trigonal bipyramidal	

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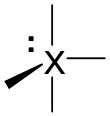
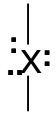
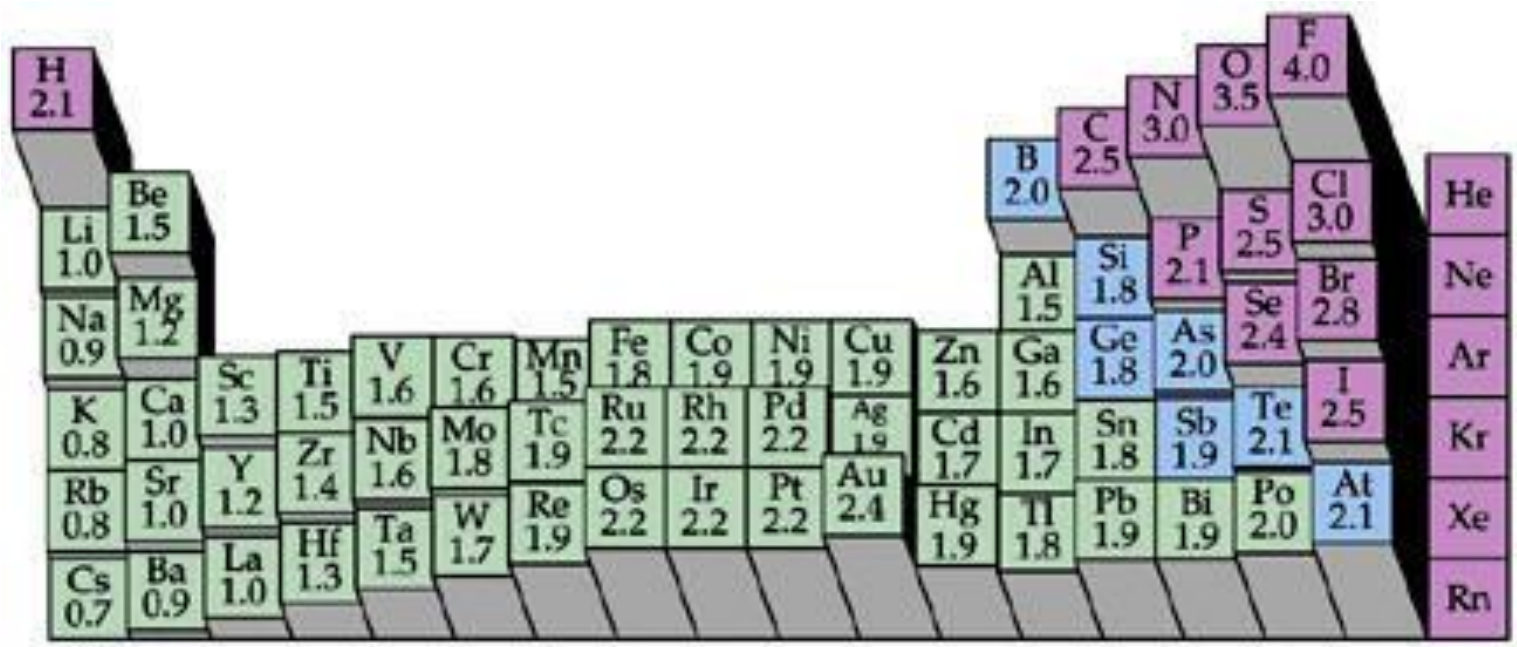
5	4	1	trigonal bipyramidal	seesaw	
5	3	2	trigonal bipyramidal	T-shaped	
5	2	3	trigonal bipyramidal	linear	
6	6	0	octahedral	octahedral	
6	5	1	octahedral	square pyramidal	
6	4	2	octahedral	square planar	

Electronegativity

Electronegativity Difference	Bond Type	Example
Small (0.0-0.4)	pure covalent	O_2
Intermediate (0.5-2.0)	polar covalent	HF
Large (2.1+)	ionic	KBr

Measures the pull an atom exerts on the electron; based on a 4.0 scale.