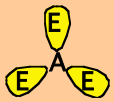
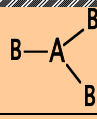
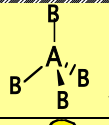
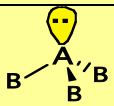
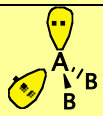
Miscellaneous information for Chemistry 100

[1]Conversion [2]VSEPR [3]Solubility [4]Stoichiometry [5]Periodic table

[1] Conversion information:

System	LENGTH:	VOLUME	MASS	Temperature
English:	1 ft = 12 in 1 mile = 5280 ft	1 gal = 4 qt 1 qt = 2 pints 1 pt = 16 fl oz	1 lb = 16 oz 1 ton = 2000 lb	$T_{^\circ F} = 1.8T_{^\circ C} + 32$
SI- **English:**	2.54 cm = 1 in 1.609 km = 1 mi	0.946 L = 1 qt 3.785 L= 1 gal 29.57 mL = 1 fl oz.	453.6 g = 1 lb 28.35 g = 1 oz 1 kg = 2.205 lb	$T_{^\circ C} = \frac{(T_{^\circ F} - 32)}{1.8}$
Misc. info	1 mole = $6.02 \cdot 10^{23}$		Density H_2O: 1.0 g / cc	

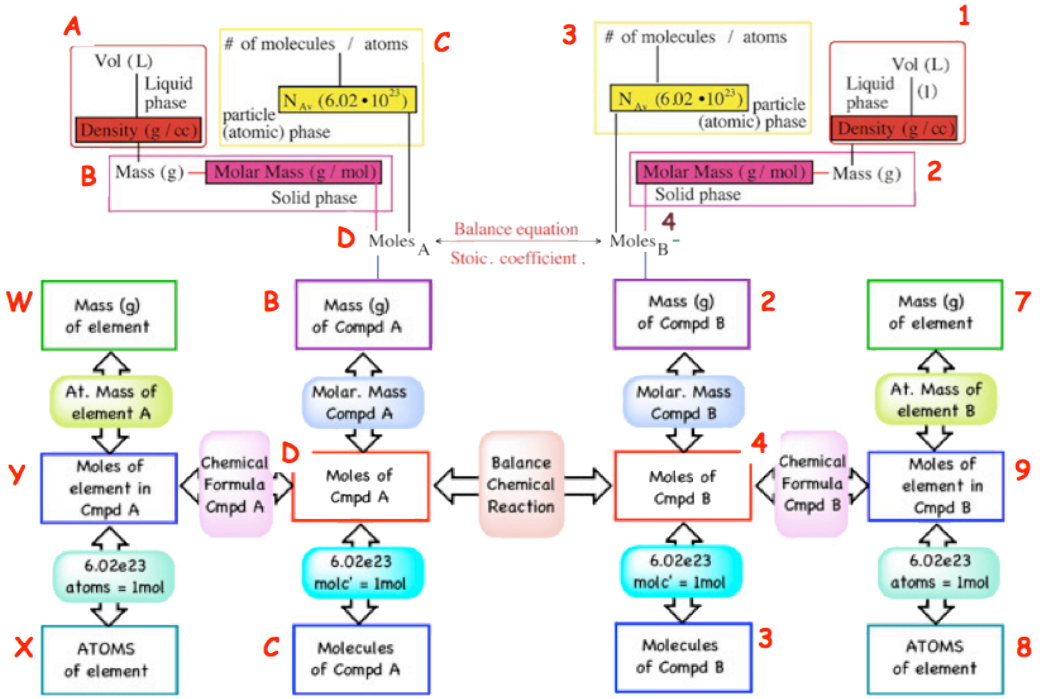
[2] Valence Shell Electron-Pair Repulsion Theory (VSEPR) :

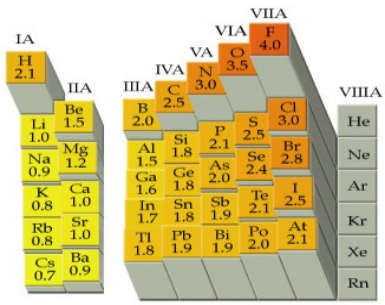
e- pr	AE_n	Electronic Geometry	Bond Pair (Coord #)	n-bond pair	AE_nB_m	Molecular Geometry	Bond angle Hybrid
2	AE_2	 Linear	2	0	AB_2	 Linear	180° sp
3	AE_3	 Trigonal	3	0	AB_3	 Trigonal	120° sp^2
			2	1	AB_2E	 Bent	< 120° sp^2
4	AE_4	 Tetrahedralal	4	0	AB_4	 Tetrahedral	109.5° sp^3
			3	1	AB_3E	 Pyramidal	< 109.5° sp^3
			2	2	AB_2E_2	 Bent	< 109.5° sp^3

[3] Solubility rules:

Soluble Substances		**Insoluble Substances**	
Containing-	***Exceptions***	***Containing-***	***Exceptions***
Nitrates (NO_3^-) Perchlorates (ClO_4^-) Acetates (CH_3CO_2-)	None	Carbonates (CO_3^{2-}) Chromates (CrO_4^{2-}) Phosphates (PO_4^{3-}) Sulfides (S^{2-})	**Alkali and NH_4+**
Halogens (X-) Cl- , Br-, I-	**Ag, Hg & Pb.**	Hydroxides (OH^-)	**Ca, Ba, Sr, Alkali & NH_4+**
Sulfates (SO_4^{2-})	**Ca, Ba, Hg and Pb**	**Soluble - dissolve, no precipitate (aq -phase) insoluble (or slightly sol.) - does not dissolve, precipitate forms. (solid-phase)**	
Alkali (Group1A) NH_4+	None		

Stoichiometric Map





←Table of Electronegativity

	1 IA												13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
1	1 **H** 1.00797	2 IIA																2 **He** 4.0026
2	3 **Li** 6.939	4 **Be** 9.0122											5 **B** 10.811	6 **C** 12.0112	7 **N** 14.0067	8 **O** 15.9994	9 **F** 18.9984	10 **Ne** 20.179
3	11 **Na** 22.9898	12 **Mg** 24.305	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8	9 VIIIB	10	11 IB	12 IIB	13 **Al** 26.9815	14 **Si** 28.086	15 **P** 30.9738	16 **S** 32.064	17 **Cl** 35.453	18 **Ar** 39.948
4	19 **K** 39.102	20 **Ca** 40.08	21 **Sc** 44.956	22 **Ti** 47.90	23 **V** 50.942	24 **Cr** 51.996	25 **Mn** 54.9380	26 **Fe** 55.847	27 **Co** 58.9332	28 **Ni** 58.71	29 **Cu** 63.54	30 **Zn** 65.37	31 **Ga** 69.72	32 **Ge** 72.59	33 **As** 74.9216	34 **Se** 78.96	35 **Br** 79.909	36 **Kr** 83.80
5	37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.905	40 **Zr** 91.22	41 **Nb** 92.906	42 **Mo** 95.94	43 **Tc** [99]	44 **Ru** 101.07	45 **Rh** 102.905	46 **Pd** 106.4	47 **Ag** 107.870	48 **Cd** 112.40	49 **In** 114.82	50 **Sn** 118.69	51 **Sb** 121.75	52 **Te** 127.60	53 **I** 126.904	54 **Xe** 131.30
6	55 **Cs** 132.905	56 **Ba** 137.34	71* **Lu** 174.967	72 **Hf** 178.49	73 **Ta** 180.948	74 **W** 183.85	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 192.2	78 **Pt** 195.09	79 **Au** 197.0	80 **Hg** 200.59	81 **Tl** 204.37	82 **Pb** 207.19	83 **Bi** 208.980	84 **Po** [210]	85 **At** [210]	86 **Rn** [222]
7	87 **Fr** [223.02]	88 **Ra** [226.03]	103‡ **Lr** [260]	104 **Rf** [261.11]	105 **Db** [262.11]	106 **Sg** [266.12]	107 **Bh** [264.12]	108 **Hs** [269.13]	109 **Mt** [268.14]	110 **Ds** [271]	111 **Rg** [272]	112 [277]		114 [289]		116 [292]		

* Lanthanide Series	57 **La** 138.91	58 **Ce** 140.115	59 **Pr** 140.9077	60 **Nd** 144.24	61 **Pm** (145)	62 **Sm** 150.368	63 **Eu** 151.965	64 **Gd** 157.25	65 **Tb** 158.9254	66 **Dy** 162.50	67 **Ho** 164.9303	68 **Er** 167.26	69 **Tm** 168.9342	70 **Yb** 173.04
‡ Actinide Series	89 **Ac** [227.03]	90 **Th** 232.0381	91 **Pa** 231.0359	92 **U** 238.0289	93 **Np** 237.048	94 **Pu** [244]	95 **Am** [260]	96 **Cm** [247]	97 **Bk** [247]	98 **Cf** [251]	99 **Es** [252]	100 **Fm** [257]	101 **Md** [258]	102 **No** [259]