

Regents Chem is try! Memory Tools

Significant Figures



- Start on the correct side (is decimal present or absent?) move toward the US
- First non-zero number and those after all are significant

Ideal gasses:

HOT LIP

High Temperature, Low Pressure

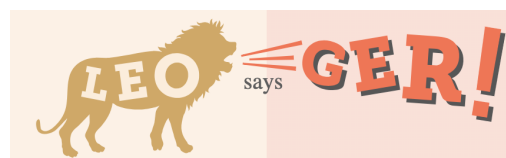


Leo the Lion says Ger!

LEO+ GER-

Losing electrons is called oxidation, oxidation number increases

Gaining electrons is called reduction, oxidation number decreases



Cations are pawstive

Cations are positive ions

Onions make you cry (negative)

Anions are negative ions



Metals are LOSERS!

Metal atoms generally lose electrons to complete their octet

Periodic Table																		18
1	2											13	14	15	16	17	18	
H	He											B	C	N	O	F	Ne	
Li	Be											Al	Si	P	S	Cl	Ar	
Na	Mg											K	Ca	Sc	Ti	V	Cr	
11	12	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
Fr	Ra	Ac	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	Unq	
87	88	89	104	105	106	107	108	109										
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu					
58	59	60	61	62	63	64	65	66	67	68	69	70	71					
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr					
90	91	92	93	94	95	96	97	98	99	100	101	102	103					

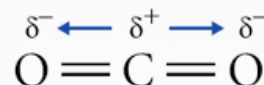


S.N.A.P

Symmetrical = nonpolar, Asymmetrical = polar



Example: CO_2

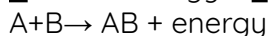


Bonds BARF!

Break bonds = Absorb energy



Release energy = Form bonds

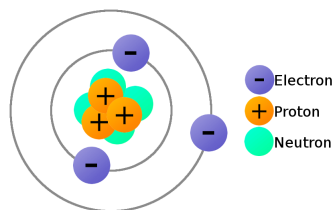


RECC rule

At equilibrium rates are equal, concentrations are constant



pen

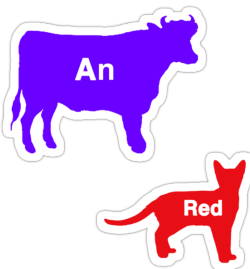


Subatomic particles = protons, electrons and neutrons

Red Cat An Ox

Reduction at the cathode

Oxidation at the anode

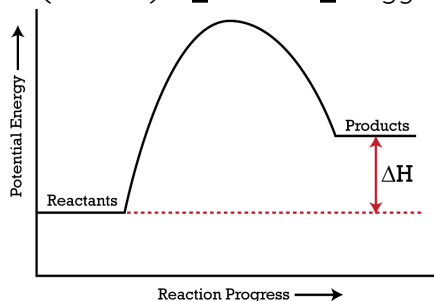


OIL RIG

Oxidation is loss of electrons
Reduction is gain of electrons

PEP-PER has the heat!

Heat of reaction (ΔH) = Potential Energy of Product - Potential Energy of Reactants



Electrons follow the **Fat Cat**



Electrons flow From Anode To Cathode

e- e- e- e- e-

ChEM

Charge, energy and mass are conserved

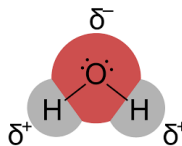
“Like dissolves like”

Polar compounds dissolve polar compounds, nonpolar compounds dissolve nonpolar compounds, but polar and nonpolar do not dissolve in each other.



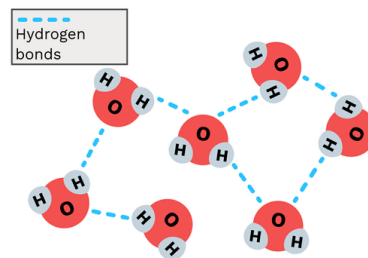
Polar bears love water!

Water is polar!



Hydrogen is FON! (*fun*)

Hydrogen forms hydrogen bonds with three elements which are fluorine (F), oxygen (O), and nitrogen (N).



BrINCIHOF!

Diatomic elements: **B**romine, **I**odine, **N**itrogen, **C**hlorine, **H**ydrogen, **O**xygen, **F**luorine

Chemistry sheep says **B.A.A.D!**

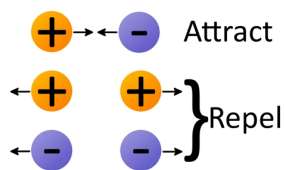
Alternative acid-base theory: Bases accept H⁺, acids donate H⁺



BAAD

Opposites attract!

Opposites charges attract; like charges repel



M

Mass #

-A

-Atomic Number

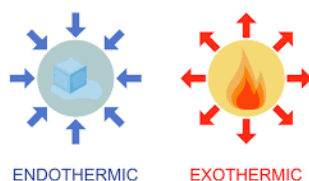
N

Neutrons

Exo=Exit, Endo=Enter

Exothermic: heat is released

Endothermic: heat is absorbed



AP=E

Atom: protons = electrons

b/c atoms are electrically neutral



ME!ME!ME!ME!

Nuclear reaction: **mass is converted to energy**

$$E = mc^2$$

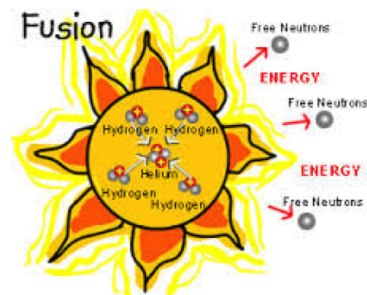
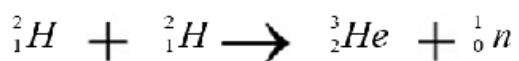
Energy mass speed of light

fUSion

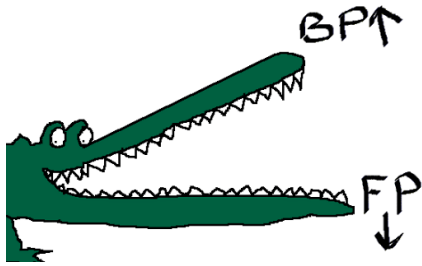
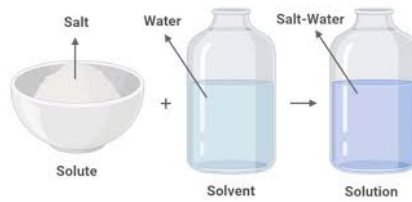
Spells out the word 'sun'

In its core, the Sun fuses 500 million tonnes of hydrogen each second.

Fusion= Light nuclei fuse to form heavier nucleus.



The **solution** was to hide the **loot** in the **vent**!
 The solute goes into the solvent.
 Lute – loot, Vent – vent, The soLoot goes into the solVent.



When a solute is added to a solvent (more ions in the solution):

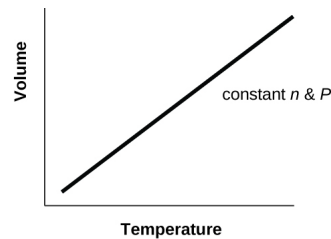
- The boiling point of the solvent increases
- The freezing point of the solvent decreases

Direct TV

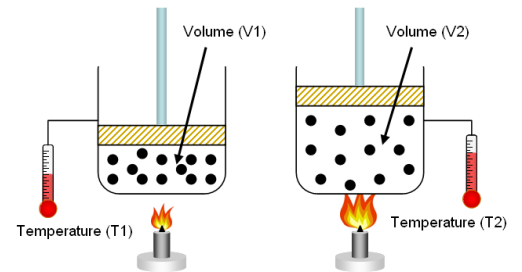
The volume (**V**) of an ideal gas varies **directly** with the temperature (**T**) of the gas (*pressure is constant*)

$$V \propto T$$

The volume increases as the temperature increases, and as the temperature decreases.



decreases



Add your own memory tool!

