


The Periodic Table of Elements

I		II		Group																III	IV	V	VI	VII	0	
				1 H hydrogen 1																						2 He helium 4
3 Li lithium 7	4 Be beryllium 9	 MIRACLE LEARNING CENTRE PTE LTD 144 UPPER BUKIT TIMAH ROAD #03-01 BEAUTY WORLD CENTRE S(588177) TEL: 6463 8756 / 9839 9908 WWW.MIRACLELEARNINGCENTRE.COM SCIENCE AND MATHS SPECIALIST (Pri, Sec, JC)																5 B boron 11	6 C carbon 12	7 N nitrogen 14	8 O oxygen 16	9 F fluorine 19	10 Ne neon 20			
11 Na sodium 23	12 Mg magnesium 24	19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	32 Ge germanium 73	33 As arsenic 75	34 Se selenium 79	35 Br bromine 80	36 Kr krypton 84							
37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium -	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	50 Sn tin 119	51 Sb antimony 122	52 Te tellurium 128	53 I iodine 127	54 Xe xenon 131									
55 Cs caesium 133	56 Ba barium 137	57-71 lanthanoids	72 Hf hafnium 178	73 Ta tantalum 181	74 W tungsten 184	75 Re rhenium 186	76 Os osmium 190	77 Ir iridium 192	78 Pt platinum 195	79 Au gold 197	80 Hg mercury 201	81 Tl thallium 204	82 Pb lead 207	83 Bi bismuth 209	84 Po polonium -	85 At astatine -	86 Rn radon -									
87 Fr francium -	88 Ra radium -	89-103 actinoids	104 Rf rutherfordium -	105 Db dubnium -	106 Sg seaborgium -	107 Bh bohrium -	108 Hs hassium -	109 Mt meitnerium -	110 Ds darmstadtium -	111 Rg roentgenium -	112 Cn copernicium -	114 Fl flerovium -	116 Lv livermorium -													

Key

a	X
name	b

a = proton number
X = atomic number
b = relative atomic mass

57 La lanthanum 139	58 Ce cerium 140	59 Pr praseodymium 141	60 Nd neodymium 144	61 Pm promethium -	62 Sm samarium 150	63 Eu europium 152	64 Gd gadolinium 157	65 Tb terbium 159	66 Dy dysprosium 163	67 Ho holmium 165	68 Er erbium 167	69 Tm thulium 169	70 Yb ytterbium 173	71 Lu lutetium 175
89 Ac actinium -	90 Th thorium 232	91 Pa protactinium 231	92 U uranium 238	93 Np neptunium -	94 Pu plutonium -	95 Am americium -	96 Cm curium -	97 Bk berkeium -	98 Cf californium -	99 Es einsteinium -	100 Fm fermium -	101 Md mendelevium -	102 No nobelium -	103 Lr lawrencium -

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	Na ⁺	fluoride	IONS	F ⁻	Cation	Effect of NaOH	Effect of aq NH ₃
sodium	Na ⁺	chloride	Cl ⁻	Cl ⁻	Zn ²⁺	White ppt, siegcs	White ppt, siegcs
potassium	K ⁺	bromide	Br ⁻	Br ⁻	Al ³⁺	White ppt, siegcs	White ppt, iie
silver	Ag ⁺	iodide	I ⁻	I ⁻	Pb ²⁺	White ppt, siegcs	White ppt, iie
copper (I)	Cu ⁺	oxide	O ²⁻	O ²⁻	Ca ²⁺	White ppt, iie	No ppt (or slight)
hydrogen	H ⁺	sulfide	S ²⁻	S ²⁻	Cu ²⁺	Blue ppt, iie	Blue ppt, siegdbbs
ammonium	NH ₄ ⁺	nitride	N ³⁻	N ³⁻	Fe ²⁺	Green ppt, iie	Green ppt, iie
lead (II)	Pb ²⁺	nitrate (V)	NO ₃ ⁻	NO ₃ ⁻	Fe ³⁺	Reddish-brown ppt, iie	Reddish-brown ppt, iie
copper (II)	Cu ²⁺	nitrite/nitrate(III)	NO ₂ ⁻	NO ₂ ⁻	NH ₄ ⁺	Ammonia produced	---
magnesium	Mg ²⁺	sulfate (VI)	SO ₄ ²⁻	SO ₄ ²⁻	Na ⁺	No ppt	No ppt
calcium	Ca ²⁺	sulfite/sulfate(IV)	SO ₃ ²⁻	SO ₃ ²⁻	K ⁺	No ppt	No ppt
zinc	Zn ²⁺	carbonate	CO ₃ ²⁻	CO ₃ ²⁻	*(siegcs) soluble in excess giving a colourless solution *(siegdbbs) soluble in excess giving a dark blue solution *(iie) insoluble in excess		
barium	Ba ²⁺	phosphate (V)	PO ₄ ³⁻	PO ₄ ³⁻			
iron (II)	Fe ²⁺	hydrogen carbonate	HCO ₃ ⁻	HCO ₃ ⁻			
mercury(II)	Hg ²⁺	hydrogen sulfate	HSO ₄ ⁻	HSO ₄ ⁻			
iron (III)	Fe ³⁺	manganate(VII)	MnO ₄ ⁻	MnO ₄ ⁻			
aluminium	Al ³⁺						
chromium(III)	Cr ³⁺						

All Sodium, Potassium, Ammonium, Gp I salts are soluble.
 All nitrates are soluble.
 All chlorides/iodides are soluble except AgCl, PbCl₂
 All sulfates are soluble except PbSO₄, BaSO₄, CaSO₄
 All carbonates insoluble except Na₂CO₃, K₂CO₃, (NH₄)₂CO₃
 and group I carbonates.
 All hydroxides insoluble except NaOH, KOH, aq NH₃
 and group I hydroxides.
 Mg(OH)₂, Ca(OH)₂, Ba(OH)₂ are slightly soluble.

	Relative charge	Relative mass	Proton no/ Atomic no is the no protons in an atom. Mass no/ Nucleon no is the no of protons and neutrons in an atom.
Proton	+1	1	
Electron	-1	$\frac{1}{1840}$	
Neutron	No charge	1	

Valence electrons are the electrons in the outermost shell of the atom. The number of valence electrons determines the **chemical properties** of the atom.
 Elements in **Group 0** have noble gas electronic structures. (**completely filled outermost shell.**)
Isotopes are atoms of the same element which have the same number of protons but different number of neutrons.