

# The Periodic Table of Elements

Group																												
I	II											III	IV	V	VI	VII	0											
		<div style="border: 1px solid black; padding: 5px; display: inline-block;">           1 H hydrogen 1         </div>																										2 He helium 4
<div style="border: 1px solid black; padding: 5px;"> <b>Key</b>            proton (atomic) number            atomic symbol            name            relative atomic mass         </div>		<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Transitions Metals :</b>            ▪ Variable oxidation states            ▪ Form coloured compounds            ▪ Transitions metals and their compounds are good catalysts         </div>										5 B boron 11	6 C carbon 12	7 N nitrogen 14	8 O oxygen 16	9 Gas F fluorine 19	10 Ne neon 20											
												13 Al aluminium 27	14 Si silicon 28	15 P phosphorus 31	16 S sulfur 32	17 Gas Cl chlorine 35.5	18 Ar argon 40											
← Transitions Metals →																												
3 Li lithium 7	4 Be beryllium 9	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 Liquid Br bromine 80	36 Kr krypton 84									
11 Na sodium 23	12 Mg magnesium 24	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 Solid 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 Solid 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 -															

lanthanoids

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 berkelium -	98 Cf californium -	99 Es einsteinium -	100 Fm fermium -	101 Md mendelevium -	102 No nobelium -	103 Lr lawrencium -

actinoids

The volume of one mole of any gas is 24 dm<sup>3</sup> at room temperature and pressure (r.t.p.).

- Alkali Metals - Soft and low density metals. Low melting and boiling points compared to other metals. Highly reactive. Reactivity increases down the group. Melting and boiling points decrease down the group.
- Halogens - Reactivity decreases down the group. Melting and boiling points increase down the group. Colour darkens down the group. Diatomic molecules.
- Noble Gas - Monoatomic. Unreactive as they have full valence shells. Helium has a stable duplet structure while the rest have a stable octet structure. They do not lose, gain or share electrons.
- Metalloids - Elements with properties of both metals and non-metals.

— Diatomic Particles

— Elements on the left are metals  
— Elements on the right are non-metals

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