PERIODIC TABLE OF THE ELEMENTS

Group IUPAC	Group CAS	Atomic Number	Symbol	Name	Electron Configuration	Selected Oxidation States	Atomic Mass
14	IVA	6	C	Carbon	2-4	-4 +2 +4	12.011

	1 IA	2 IIA	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8 VIIIB	9 VIIIB	10 VIIIB	11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
1	1 **H** Hydrogen 1.0079 1 (+1 -1)																	2 **He** Helium 4.0026 2 (0)
2	3 **Li** Lithium 6.941 2-1 (+1)	4 **Be** Beryllium 9.0122 2-2 (+2)											5 **B** Boron 10.811 2-3 (+3)	6 **C** Carbon 12.011 2-4 (-4 +2 +4)	7 **N** Nitrogen 14.007 2-5 (-3 -2 -1 +1 +2 +3 +4 +5)	8 **O** Oxygen 15.999 2-6 (-2)	9 **F** Fluorine 18.998 2-7 (-1)	10 **Ne** Neon 20.179 2-8 (0)
3	11 **Na** Sodium 22.990 2-8-1 (+1)	12 **Mg** Magnesium 24.305 2-8-2 (+2)											13 **Al** Aluminium 26.982 2-8-3 (+3)	14 **Si** Silicon 28.086 2-8-4 (-4 +2 +4)	15 **P** Phosphorus 30.974 2-8-5 (-3 +3 +5)	16 **S** Sulphur 32.065 2-8-6 (-2 +4 +6)	17 **Cl** Chlorine 35.453 2-8-7 (-1 +1 +3 +5 +7)	18 **Ar** Argon 39.948 2-8-8 (0)
4	19 **K** Potassium 39.098 2-8-8-1 (+1)	20 **Ca** Calcium 40.078 2-8-8-2 (+2)	21 **Sc** Scandium 44.956 2-8-9-2 (+3)	22 **Ti** Titanium 47.867 2-8-10-2 (+2 +3 +4)	23 **V** Vanadium 50.942 2-8-11-2 (+2 +3 +4 +5)	24 **Cr** Chromium 51.996 2-8-13-1 (+2 +3 +6)	25 **Mn** Manganese 54.938 2-8-13-2 (+2 +3 +4 +7)	26 **Fe** Iron 55.845 2-8-14-2 (+2 +3)	27 **Co** Cobalt 58.933 2-8-15-2 (+2 +3)	28 **Ni** Nickel 58.693 2-8-16-2 (+2 +3)	29 **Cu** Copper 63.546 2-8-18-1 (+1 +2)	30 **Zn** Zinc 65.39 2-8-18-2 (+2)	31 **Ga** Gallium 69.723 2-8-18-3 (+3)	32 **Ge** Germanium 72.64 2-8-18-4 (-4 +2 +4)	33 **As** Arsenic 74.922 2-8-18-5 (-3 +3 +5)	34 **Se** Selenium 78.96 2-8-18-6 (-2 +2 +6)	35 **Br** Bromine 79.904 2-8-18-7 (-1 +1 +5)	36 **Kr** Krypton 83.80 2-8-18-8 (0 +2)
5	37 **Rb** Rubidium 85.468 2-8-18-8-1 (+1)	38 **Sr** Strontium 87.62 2-8-18-8-2 (+2)	39 **Y** Yttrium 88.906 2-8-18-9-2 (+3)	40 **Zr** Zirconium 91.224 2-8-18-10-2 (+4)	41 **Nb** Niobium 92.906 2-8-18-12-1 (+3 +5)	42 **Mo** Molybdenum 95.94 2-8-18-13-1 (+3 +6)	43 **Tc** Technetium (98) 2-8-18-14-1 (+4 +6 +7)	44 **Ru** Ruthenium 101.07 2-8-18-15-1 (+3)	45 **Rh** Rhodium 102.91 2-8-18-16-1 (+3)	46 **Pd** Palladium 106.42 2-8-18-18 (+2 +4)	47 **Ag** Silver 107.87 2-8-18-18-1 (+1)	48 **Cd** Cadmium 112.41 2-8-18-18-2 (+2)	49 **In** Indium 114.82 2-8-18-18-3 (+3)	50 **Sn** Tin 118.71 2-8-18-18-4 (+2 +4)	51 **Sb** Antimony 121.76 2-8-18-18-5 (-3 +3 +5)	52 **Te** Tellurium 127.60 2-8-18-18-6 (-2 +4 +6)	53 **I** Iodine 126.90 2-8-18-18-7 (-1 +1 +5 +7)	54 **Xe** Xenon 131.29 2-8-18-18-8 (0 +2 +4 +6)
6	55 **Cs** Cesium 132.91 2-8-18-18-8-1 (+1)	56 **Ba** Barium 137.33 2-8-18-18-8-2 (+2)	57-71 **La** Lanthanide	72 **Hf** Hafnium 178.49 2-8-18-32-10-2 (+4)	73 **Ta** Tantalum 180.95 2-8-18-32-11-2 (+5)	74 **W** Tungsten 183.84 2-8-18-32-12-2 (+6)	75 **Re** Rhenium 186.21 2-8-18-32-13-2 (+4 +6 +7)	76 **Os** Osmium 190.23 2-8-18-32-14-2 (+3 +4)	77 **Ir** Iridium 192.22 2-8-18-32-15-2 (+3 +4)	78 **Pt** Platinum 195.08 2-8-18-32-17-1 (+2 +4)	79 **Au** Gold 196.97 2-8-18-32-18-1 (+1 +3)	80 **Hg** Mercury 200.59 2-8-18-32-18-2 (+1 +2)	81 **Tl** Thallium 204.38 2-8-18-32-18-3 (+1 +3)	82 **Pb** Lead 207.2 2-8-18-32-18-4 (+2 +4)	83 **Bi** Bismuth 208.98 2-8-18-32-18-5 (+3 +5)	84 **Po** Polonium (209) 2-8-18-32-18-6 (+2 +4)	85 **At** Astatine (210) 2-8-18-32-18-7	86 **Rn** Radon (222) 2-8-18-32-18-8 (0)
7	87 **Fr** Francium (223) -18-32-18-8-1 (+1)	88 **Ra** Radium (226) -18-32-18-8-2 (+2)	89-103 **Ac** Actinide	104 **Rf** Rutherfordium (261) -18-32-32-10-2	105 **Db** Dubnium (262) -18-32-32-11-2	106 **Sg** Seaborgium (266) -18-32-32-12-2	107 **Bh** Bohrium (264) -18-32-32-13-2	108 **Hs** Hassium (277) -18-32-32-14-2	109 **Mt** Meitnerium (268) -18-32-32-15-2	110 **Uun** Ununnilium (281) -18-32-32-17-1 (+2 +4)	111 **Uuu** Unununium (272) -18-32-32-18-1	112 **Uub** Ununbium (285) -18-32-32-18-2	113 **Uut** Ununtrium (284)	114 **Uuq** Ununquadium (289)	115 **Uup** Ununpentium (288)	116 **Uuh** Ununhexium (291)	117 **Uus** Ununseptium	118 **Uuo** Ununoctium (294)

Electron Shells

			S	P	D	F
1	K	2	2			
2	L	8	2	6		
3	M	18	2	6	10	
4	N	32	2	6	10	14
5	O	32	2	6	10	14
6	P	18	2	6	10	
7	Q	8	2	6		
8	R	2	2			

Lanthanide

57 **La** Lanthanium 138.91 2-8-18-18-9-2 (+3)	58 **Ce** Cerium 140.12 2-8-18-20-8-2 (+3 +4)	59 **Pr** Praseodymium 140.91 2-8-18-21-8-2 (+3)	60 **Nd** Neodymium 144.24 2-8-18-22-8-2 (+3)	61 **Pm** Promethium (145) 2-8-18-23-8-2 (+3)	62 **Sm** Samarium 150.36 2-8-18-24-8-2 (+2 +3)	63 **Eu** Europium 151.96 2-8-18-25-8-2 (+2 +3)	64 **Gd** Gadolinium 157.25 2-8-18-25-9-2 (+3)	65 **Tb** Terbium 158.93 2-8-18-27-8-2 (+3)	66 **Dy** Dysprosium 162.50 2-8-18-28-8-2 (+3)	67 **Ho** Holmium 164.93 2-8-18-29-8-2 (+3)	68 **Er** Erbium 167.26 2-8-18-30-8-2 (+3)	69 **Tm** Thulium 168.93 2-8-18-31-8-2 (+3)	70 **Yb** Ytterbium 173.04 2-8-18-32-8-2 (+2 +3)	71 **Lu** Lutetium 174.97 2-8-18-32-9-2 (+3)

Actinide

89 **Ac** Actinium (227) -18-32-18-9-2 (+3)	90 **Th** Thorium 232.04 -18-32-18-10-2 (+4)	91 **Pa** Protactinium 231.04 -18-32-20-9-2 (+4 +5)	92 **U** Uranium 238.03 -18-32-21-9-2 (+3 +4 +5 +6)	93 **Np** Neptunium (237) -18-32-23-8-2 (+3 +4 +5 +6)	94 **Pu** Plutonium (244) -18-32-24-8-2 (+3 +4 +5 +6)	95 **Am** Americium (243) -18-32-25-8-2 (+3 +4 +5 +6)	96 **Cm** Curium (247) -18-32-25-9-2 (+3)	97 **Bk** Berkelium (247) -18-32-27-8-2 (+3 +4)	98 **Cf** Californium (251) -18-32-28-8-2 (+3)	99 **Es** Einsteinium (252) -18-32-29-8-2	100 **Fm** Fermium (257) -18-32-30-8-2	101 **Md** Mendelevium (258) -18-32-31-8-2	102 **No** Nobelium (259) -18-32-32-8-2	103 **Lr** Lawrencium (262) -18-32-32-9-2