



**scitk.org Periodic Table of the Elements**

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1-18		group														19-118																																																					
1-18		Alkali metal Post transition metal														19-118																																																					
1-18		Alkaline earth metal Metalloid														19-118																																																					
1-18		Lanthanide Actinide Group 17														19-118																																																					
1-18		Nonmetal Noble gas Halogen														19-118																																																					
1-18		Transition metal Unclassified														19-118																																																					
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1	H	2	He															3	Li	4	Be	5	B	6	C	7	N	8	O	9	F	10	Ne																																				
11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	Ar	19	K	20	Ca	21	Sc	22	Ti	23	V	24	Cr	25	Mn	26	Fe	27	Co	28	Ni	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Br	36	Kr																		
37	Rb	38	Sr	39	Y	40	Zr	41	Nb	42	Mo	43	Tc	44	Ru	45	Rh	46	Pd	47	Ag	48	Cd	49	In	50	Sn	51	Sb	52	Te	53	I	54	Xe	55	Cs	56	Ba	57	La	58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	65	Tb	66	Dy	67	Ho	68	Er	69	Tm	70	Yb	71	Lu
87	Fr	88	Ra	89	Ac	90	Th	91	Pa	92	U	93	Np	94	Pu	95	Am	96	Cm	97	Bk	98	Cf	99	Es	100	Fm	101	Md	102	No	103	Lr	104	Rf	105	Db	106	Sg	107	Bh	108	Hs	109	Mt	110	Ds	111	Rg	112	Cn	113	Nh	114	Fl	115	Mc	116	Lv	117	Ts	118	Og						
Sci Toolkit		57	La	58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	65	Tb	66	Dy	67	Ho	68	Er	69	Tm	70	Yb	71	Lu	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn								
Scientific		89	Ac	90	Th	91	Pa	92	U	93	Np	94	Pu	95	Am	96	Cm	97	Bk	98	Cf	99	Es	100	Fm	101	Md	102	No	103	Lr	104	Rf	105	Db	106	Sg	107	Bh	108	Hs	109	Mt	110	Ds	111	Rg	112	Cn	113	Nh	114	Fl	115	Mc	116	Lv	117	Ts	118	Og								

**Conversion factors:**  
 1 μm = 10<sup>-6</sup> m; 1 nm = 10<sup>-9</sup> m; 1 Å (Angs) = 10<sup>-10</sup> m; 1 pm = 10<sup>-12</sup> m; 1 fm = 10<sup>-15</sup> m  
 1 bar = 10<sup>5</sup> N/m<sup>2</sup>; 1 atm = 10<sup>5</sup> Pa; 1 atm = 1.01325 Pa = 1.01325 bar  
 Torr = 1/760 atm = 1.333 mbar = 1 mmHg  
 1 L = 10<sup>-3</sup> m<sup>3</sup> = 1 dm<sup>3</sup> = 10<sup>3</sup> cm<sup>3</sup> = 10<sup>6</sup> mm<sup>3</sup>

**Constants:**  
 Avogadro number  $N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$   
 Mass of proton  $m_p = 1.672 \times 10^{-27} \text{ kg}$   
 Mass of electron  $m_e = 9.109 \times 10^{-31} \text{ kg}$   
 Mass of neutron  $m_n = 1.674 \times 10^{-27} \text{ kg}$   
 Standard temperature  $T_s = 273.15 \text{ K} = 0 \text{ }^\circ\text{C}$   
 Universal gas constant  $R = 8.314 \text{ J/(mol}\cdot\text{K)}$   
 Boltzmann-constant  $k_B = 1.380 \times 10^{-23} \text{ J/K}$   
 Speed of light  $c = 2.997 \times 10^8 \text{ m/s}$   
 Elementary charge  $e = 1.602 \times 10^{-19} \text{ C}$   
 Planck constant  $h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$   
 Unified atomic mass unit  $1 \text{ u} = 1.660 \times 10^{-27} \text{ kg}$   
 The unified atomic mass is equal to 1/12 of the mass of a single isolated C-atom.

**Equations:**  
 Concentration:  $c = n/V$  [mol/L]  
 Amount of substance:  $n$  [mol]  
 Volume:  $V$  [L]  
 Particle number:  $N = n \cdot N_A$   
 Pressure:  $p$  [Pa]  
 Ideal gas equation:  $pV = nRT = Nk_B T$

**REFERENCES:**  
 [weight] <http://www.ciswv.org/>  
 [Constants] <http://physics.nist.gov/cuu/Constants/index.html>