

Periodic Table of the Elements

1A 1	Periodic Table of the Elements																8A 18
1 H 1.008											3A 13	4A 14	5A 15	6A 16	7A 17	2 He 4.003	
3 Li 6.941	4 Be 9.012											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31	3B 3	4B 4	5B 5	6B 6	7B 7	8B 8	8B 9	8B 10	1B 11	2B 12	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.87	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.38	31 Ga 69.72	32 Ge 72.64	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90	54 Xe 131.29
55 Cs 132.91	56 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (266)	107 Bh (264)	108 Hs (277)	109 Mt (268)	110 Ds (281)	111 Rg (281)	112 Cn (285)	113 Nh (286)	114 Fl (289)	115 Mc (289)	116 Lv (293)	117 Ts (293)	118 Og (294)

58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)

constants

$$R = 8.314 \text{ J/mol K}$$

$$R = 0.08206 \text{ L}\cdot\text{atm/mol}\cdot\text{K}$$

$$R = 62.36 \text{ L}\cdot\text{torr/mol}\cdot\text{K}$$

$$N_A = 6.022 \times 10^{23} / \text{mol}$$

$$h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$$

$$c = 3.00 \times 10^8 \text{ m/s}$$

$$F = 96485 \text{ C/mol } e^-$$

$$e = 1.602 \times 10^{-19} \text{ C}$$

charge on one electron

$$g = 9.81 \text{ m/s}^2$$

conversions

$$1 \text{ atm} = 760 \text{ torr}$$

$$1 \text{ atm} = 101325 \text{ Pa}$$

$$1 \text{ atm} = 1.01325 \text{ bar}$$

$$1 \text{ atm} = 14.7 \text{ psi}$$

$$1 \text{ bar} = 10^5 \text{ Pa}$$

$$1 \text{ L}\cdot\text{atm} = 101.325 \text{ J}$$

$$1 \text{ cal} = 4.184 \text{ J}$$

$$1 \text{ eV} = 1.602 \times 10^{-19} \text{ J}$$

$$1 \text{ in} = 2.54 \text{ cm}$$

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$1 \text{ mi} = 5280 \text{ ft}$$

$$1 \text{ \AA} = 10^{-10} \text{ m}$$

$$1 \text{ lb} = 453.6 \text{ g}$$

$$1 \text{ gal} = 3.785 \text{ L}$$

$$1 \text{ gal} = 231 \text{ in}^3$$

H₂O water data

$$C_{s,\text{ice}} = 2.09 \text{ J/g K}$$

$$C_{s,\text{water}} = 4.184 \text{ J/g K}$$

$$C_{s,\text{steam}} = 2.03 \text{ J/g K}$$

$$\rho_{\text{water}} = 1.000 \text{ g/mL}$$

$$\rho_{\text{saltwater}} = 1.024 \text{ g/mL}$$

$$\rho_{\text{ice}} = 0.9167 \text{ g/mL}$$

$$\Delta H_{\text{fus}} = 334 \text{ J/g}$$

$$\Delta H_{\text{vap}} = 2260 \text{ J/g}$$

$$K_f = 1.86 \text{ }^\circ\text{C/m}$$

$$K_b = 0.512 \text{ }^\circ\text{C/m}$$

$$K_w = 1.0 \times 10^{-14}$$