

Periodic Table of the Elements

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	IA	IIA	IIIB	IVB	VB	VIB	VII B	VIII B	VIII B	VIII B	IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA	
1	1 H 1.008																	2 He 4.003	
2	3 Li 6.939	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	
3	11 Na 22.99	12 Mg 24.31											13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95	
4	19 K 39.10	20 Ca 40.08		21 Sc 44.96	22 Ti 47.90	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 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
5	37 Rb 85.47	38 Sr 87.62		39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.96	43 Tc (99)	44 Ru 101.07	45 Rh 102.91	46 Pd 106.4	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.75	52 Te 127.60	53 I 126.90	54 Xe 131.29
6	55 Cs 132.91	56 Ba 137.33	57-70 *	71 Lu 174.97	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 207.2	83 Bi 208.98	84 Po (209)	85 At (210)	86 Rn (222)
7	87 Fr (223)	88 Ra (226)	89-102 **	103 Lr (262)	104 Rf (265)	105 Db (268)	106 Sg (271)	107 Bh (270)	108 Hs (277)	109 Mt (276)	110 Ds (281)	111 Rg (280)	112 Cn (285)	113 Uut (284)	114 Fl (289)	115 Uup (288)	116 Lv (293)	117 Uus (294)	118 Uuo (294)

*	57 La 138.91	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (147)	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
**	89 Ac (227)	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)

Common Chemistry Conversions

English to Metric Conversions

(mass, length, volume, and area conversions are good to 4 significant figures)

Mass	Length	Volume	Area	Temperature
1 lb = 453.6 g	1 in = 2.540 cm	1 fl oz = 29.57 mL	1 in ² = (2.54 cm) ² = 6.452 cm ²	$T_{\text{C}} = \frac{5}{9} (T_{\text{F}} - 32)$
1 oz = 28.35 g	1 ft = 30.48 cm	1 L = 1.057 qt	1 m ² = (3.281 ft) ² = 10.76 ft ²	$T_{\text{F}} = \frac{9}{5} T_{\text{C}} + 32$
1 kg = 2.205 lbs	1 m = 3.281 ft	1 gal = 3.785 L		$T_{\text{K}} = T_{\text{C}} + 273.15$
1 metric ton = 1000. kg	1 mi = 1.609 km	1 in ³ = (2.54 cm) ³ = 16.39 cm ³		

English to English Conversions. (all conversions are exact)

Mass	Length	Volume	Area
1 lb = 16 oz	1 ft = 12 in	1 cup = 8 fl oz	1 ft ² = (12 in) ² = 144 in ²
1 ton = 2000 lbs	1 yd = 3 ft	1 pt = 2 cups	1 mi ² = 640 acres
	1 mi = 5280 ft	1 qt = 2 pt	
		1 gal = 4 qt	

Other Conversions

Energy	Pressure
1 cal = 4.184 J	1 atm = 760 mm Hg = 760 torr = 29.92 in Hg
1 J = 1 kg·m ² /s ²	1 atm = 14.7 psi = 101,325 Pa = 1.01325 bar
	1 Pa = 1 kg/(m·s ²)

Constants

speed of light (in a vacuum)	$c = 2.998 \times 10^8 \text{ m/s}$
Planck's constant	$h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$
electron mass	$m_e = 9.109 \times 10^{-31} \text{ kg}$
proton mass	$m_p = 1.673 \times 10^{-27} \text{ kg}$
neutron mass	$m_n = 1.675 \times 10^{-27} \text{ kg}$
Avogadro's number	$N_A = 6.0221367 \times 10^{23} \text{ particles/mol}$
Gas Constant	$R = 0.08206 \text{ L}\cdot\text{atm}/(\text{mol}\cdot\text{K})$ $= 8.315 \text{ J}/(\text{mol}\cdot\text{K})$ $= 8.315 \text{ kPa}\cdot\text{dm}^3/(\text{mol}\cdot\text{K})$
Faraday Constant	$F = 9.65 \times 10^4 \text{ C/mol}$
Electronic charge	$e = 1.602 \times 10^{-19} \text{ C}$