

APPENDIX C • Periodic Table of the Elements

Group I	Group II	Transition elements							
H 1 1.008 0 1s ¹									
Li 3 6.94 2s ¹	Be 4 9.012 2s ²								
Na 11 22.99 3s ¹	Mg 12 24.31 3s ²								
K 19 39.102 4s ¹	Ca 20 40.08 4s ²	Sc 21 44.96 3d ¹ 4s ²	Ti 22 47.90 3d ² 4s ²	V 23 50.94 3d ³ 4s ²	Cr 24 51.996 3d ⁵ 4s ¹	Mn 25 54.94 3d ⁵ 4s ²	Fe 26 55.85 3d ⁶ 4s ²	Co 27 58.93 3d ⁷ 4s ²	
Rb 37 85.47 5s ¹	Sr 38 87.62 5s ²	Y 39 88.906 4d ¹ 5s ²	Zr 40 91.22 4d ² 5s ²	Nb 41 92.91 4d ⁴ 5s ¹	Mo 42 95.94 4d ⁵ 5s ¹	Tc 43 (99) 4d ⁵ 5s ²	Ru 44 101.1 4d ⁷ 5s ¹	Rh 45 102.91 4d ⁸ 5s ¹	
Cs 55 132.91 6s ¹	Ba 56 137.34 6s ²	57-71*	Hf 72 178.49 5d ² 6s ²	Ta 73 180.95 5d ³ 6s ²	W 74 183.85 5d ⁴ 6s ²	Re 75 186.2 5d ⁵ 6s ²	Os 76 190.2 5d ⁶ 6s ²	Ir 77 192.2 5d ⁷ 6s ²	
Fr 87 (223) 7s ¹	Ra 88 (226) 7s ²	89-103**	Rf 104 (261) 6d ² 7s ²	Db 105 (262) 6d ³ 7s ²	Sg 106 (263)	Bh 107 (262)	Hs 108 (265)	Mt 109 (266)	

Symbol	Ca	20	Atomic number
Atomic mass †	40.08		
	4s ²		Electron configuration

*Lanthanide series

La 57 138.91 5d ¹ 6s ²	Ce 58 140.12 5d ¹ 4f ¹ 6s ²	Pr 59 140.91 4f ³ 6s ²	Nd 60 144.24 4f ⁴ 6s ²	Pm 61 (147) 4f ⁵ 6s ²	Sm 62 150.4 4f ⁶ 6s ²
Ac 89 (227) 6d ¹ 7s ²	Th 90 (232) 6d ² 7s ²	Pa 91 (231) 5f ² 6d ¹ 7s ²	U 92 (238) 5f ³ 6d ¹ 7s ²	Np 93 (239) 5f ⁴ 6d ¹ 7s ²	Pu 94 (239) 5f ⁶ 6d ⁰ 7s ²

**Actinide series

Atomic mass values given are averaged over isotopes in the percentages in which they exist in nature.
† For an unstable element, mass number of the most stable known isotope is given in parentheses.
†† Elements 110, 111, 112, and 114 have not yet been named.
††† For a description of the atomic data, visit physics.nist.gov/atomic

			Group III	Group IV	Group V	Group VI	Group VII	Group 0
							H 1 1.008 0 1s ¹	He 2 4.002 6 1s ²
			B 5 10.81 2p ¹	C 6 12.011 2p ²	N 7 14.007 2p ³	O 8 15.999 2p ⁴	F 9 18.998 2p ⁵	Ne 10 20.18 2p ⁶
			Al 13 26.98 3p ¹	Si 14 28.09 3p ²	P 15 30.97 3p ³	S 16 32.06 3p ⁴	Cl 17 35.453 3p ⁵	Ar 18 39.948 3p ⁶
Ni 28 58.71 3d ⁸ 4s ²	Cu 29 63.54 3d ¹⁰ 4s ¹	Zn 30 65.37 3d ¹⁰ 4s ²	Ga 31 69.72 4p ¹	Ge 32 72.59 4p ²	As 33 74.92 4p ³	Se 34 78.96 4p ⁴	Br 35 79.91 4p ⁵	Kr 36 83.80 4p ⁶
Pd 46 106.4 4d ¹⁰	Ag 47 107.87 4d ¹⁰ 5s ¹	Cd 48 112.40 4d ¹⁰ 5s ²	In 49 114.82 5p ¹	Sn 50 118.69 5p ²	Sb 51 121.75 5p ³	Te 52 127.60 5p ⁴	I 53 126.90 5p ⁵	Xe 54 131.30 5p ⁶
Pt 78 195.09 5d ⁹ 6s ¹	Au 79 196.97 5d ¹⁰ 6s ¹	Hg 80 200.59 5d ¹⁰ 6s ²	Tl 81 204.37 6p ¹	Pb 82 207.2 6p ²	Bi 83 208.98 6p ³	Po 84 (210) 6p ⁴	At 85 (218) 6p ⁵	Rn 86 (222) 6p ⁶
110†† (269)	111†† (272)	112†† (277)		114†† (289)				

Eu 63 152.0 4f ⁷ 6s ²	Gd 64 157.25 5d ¹ 4f ⁷ 6s ²	Tb 65 158.92 5d ¹ 4f ⁸ 6s ²	Dy 66 162.50 4f ¹⁰ 6s ²	Ho 67 164.93 4f ¹¹ 6s ²	Er 68 167.26 4f ¹² 6s ²	Tm 69 168.93 4f ¹³ 6s ²	Yb 70 173.04 4f ¹⁴ 6s ²	Lu 71 174.97 5d ¹ 4f ¹⁴ 6s ²
Am 95 (243) 5f ⁷ 6d ⁰ 7s ²	Cm 96 (245) 5f ⁷ 6d ¹ 7s ²	Bk 97 (247) 5f ⁸ 6d ¹ 7s ²	Cf 98 (249) 5f ¹⁰ 6d ⁰ 7s ²	Es 99 (254) 5f ¹¹ 6d ⁰ 7s ²	Fm 100 (253) 5f ¹² 6d ⁰ 7s ²	Md 101 (255) 5f ¹³ 6d ⁰ 7s ²	No 102 (255) 6d ⁰ 7s ²	Lr 103 (257) 6d ¹ 7s ²