

Row	Group I $\overline{R_2O}$	Group II $\overline{RO}$	Group III $\overline{R_2O_3}$	Group IV $\overline{RH_2}$ $\overline{RO_2}$	Group V $\overline{RH_3}$ $\overline{R_2O_5}$	Group VI $\overline{RH_2}$ $\overline{RO_3}$	Group VII $\overline{RH}$ $\overline{R_2O_7}$	Group VIII $\overline{RO_3}$
1	H = 1							
2	Li = 7	Be = 9.4	B = 11	C = 12	N = 14	O = 16	F = 19	
3	Na = 23	Mg = 24	Al = 27.3	Si = 28	P = 31	S = 32	Cl = 35.5	
4	K = 39	Ca = 40	— = 44	Ti = 48	V = 51	Cr = 52	Mn = 55	Fe = 56, Co = 59, Ni = 59, Cu = 63
5	(Cu = 63)	Zn = 65	— = 68	— = 72	As = 75	Se = 78	Br = 80	
6	Rb = 85	Sr = 87	?Yt = 88	Zr = 90	Nb = 94	Mo = 96	— = 100	Ru = 104, Rh = 104, Pd = 106, Ag = 108
7	(Ag = 108)	Cd = 112	In = 113	Sn = 118	Sb = 122	Te = 125	I = 127	
8	Cs = 133	Ba = 137	?Di = 138	?Ce = 140				
9								
10			?Er = 178	?La = 180	Ta = 182	W = 184		Os = 195, Ir = 197, Pt = 198, Au = 199
11	(Au = 199)	Hg = 200	Tl = 204	Pb = 207	Bi = 208			
12				Th = 231		U = 240		

Figure 7-1

The periodic table of Mendeleev as it appeared when published in English, in 1871. The elements appear in order of increasing atomic weight. Note the space left under Si for an unknown (at that time) element of atomic weight 72, and the incorrect atomic weights (for example, In). The letter R in the column headings is the general symbol for an element in the table. Elements in parentheses indicate the continuation of a period from the preceding row.

7-3 The Modern Periodic Table

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The diagram illustrates the modern periodic table. At the top, a horizontal strip lists elements in order of increasing atomic number: He (2), Li (3), Be (4), B (5), C (6), N (7), O (8), F (9), Ne (10), Na (11), Mg (12), Al (13), Si (14), P (15), S (16), Cl (17), Ar (18), K (19), Ca (20), Sc (21), Ti (22), V (23), Cr (24), Mn (25), Fe (26), Co (27), Ni (28), Cu (29), Zn (30), Ga (31), Ge (32), As (33), Se (34), Br (35), Kr (36), Rb (37), Sr (38), Y (39), Zr (40), Nb (41), Mo (42), Tc (43), Ru (44), Rh (45), Pd (46), Ag (47), Cd (48), In (49), Sn (50), Sb (51), Te (52), I (53), Xe (54), Ba (56), La (57), Ce (58), Pr (59), Nd (60), Pm (61), Sm (62), Eu (63), Gd (64), Tb (65), Dy (66), Ho (67), Er (68), Tm (69), Yb (70), Lu (71), Hf (72), Ta (73), W (74), Re (75), Os (76), Ir (77), Pt (78), Au (79), Hg (80), Tl (81), Pb (82), Bi (83), Po (84), At (85), Rn (86), and Fr (87). Below this strip, the periodic table is shown in its standard form, with elements grouped into three categories: Representative Elements (Metals and nonmetals with a great variety of chemical properties), Transition Metals (Metals of similar yet distinctive chemical properties), and Inner Transition Metals (Metals of extremely similar chemical properties).

Figure 7-3

When elements are listed in order of increasing atomic number, as in the strip at the top, the recurrence of similar chemical properties suggests the folding into the "super-long" form of the periodic table shown below the strip. Elements can be classified into three categories, based on the extent to which chemical and physical properties change from one position in the table to the next.