Periodic Table for the *Table of Isotopes* (1999)

Group

Element	
K	E_Z
L	M.P.°
M	B.P.°
N	C.P.°
O	Ox.States
P	At.Weight
Q	Abundance%

Key to Table

1 (IA)	2 (IIA)	3 (IIIB)	4 (IVB)	5 (VB)	6 (VIB)	7 (VIIB)	8 (VIII)	9 (VIII)	10 (VIII)	11 (IB)	12 (IIB)	13 (IIIA)	14 (IVA)	15 (VA)	16 (VIA)	17 (VIIA)	18 (VIIIA)
Hydrogen 1 H_1 -259.34° -252.87° -240.18° +1-1 1.00794 91.0%																	**Helium** 2 He_2 -272.2° -268.93° -267.96° 0 4.002602 8.9%
Lithium 2 1 Li_3 180.5° 1342° +1 6.941 1.86×10^{-7}%	**Beryllium** 2 2 Be_4 1287° 2471° +2 9.012182 2.38×10^{-9}%											**Boron** 2 3 B_5 2075° 4000° +3 10.811 6.9×10^{-8}%	**Carbon** 2 4 C_6 4492t° 3642s° +2+4-4 12.0107 0.033%	**Nitrogen** 2 5 N_7 -210.00° -195.79° -146.94° ±1±2±3+4+5 14.00674 0.0102%	**Oxygen** 2 6 O_8 -218.79° -182.95° -118.56° -2 15.9994 0.078%	**Fluorine** 2 7 F_9 -219.62° -188.12° -129.02° -1 18.9984032 2.7×10^{-6}%	**Neon** 2 8 Ne_{10} -248.59° -246.08° -228.7° 0 20.1797 0.0112%
Sodium 2 8 1 Na_{11} 97.80° 883° +1 22.989770 0.000187%	**Magnesium** 2 8 2 Mg_{12} 650° 1090° +2 24.3050 0.00350%											**Aluminum** 2 8 3 Al_{13} 660.32° 2519° +3 26.981538 0.000277%	**Silicon** 2 8 4 Si_{14} 1414° 3265° +2+4-4 28.0855 0.00326%	**Phosphorus** 2 8 5 P_{15} 44.15° 280.5° 721° +3+5-3 30.973761 0.000034%	**Sulfur** 2 8 6 S_{16} 115.21° 444.60° 1041° +4+6-2 32.066 0.00168%	**Chlorine** 2 8 7 Cl_{17} -101.5° -34.04° 143.8° +1+5+7-1 35.4527 0.000017%	**Argon** 2 8 8 Ar_{18} -189.35° -185.85° -122.28° 0 39.948 0.000329%
Potassium 2 8 8 1 K_{19} 63.38° 759° +1 39.0983 0.0000123%	**Calcium** 2 8 8 2 Ca_{20} 842° 1484° +2 40.078 0.000199%	**Scandium** 2 8 9 2 Sc_{21} 1541° 2836° +3 44.955910 1.12×10^{-7}%	**Titanium** 2 8 10 2 Ti_{22} 1668° 3287° +2+3+4 47.867 7.8×10^{-6}%	**Vanadium** 2 8 11 2 V_{23} 1910° 3407° +2+3+4+5 50.9415 9.6×10^{-7}%	**Chromium** 2 8 13 1 Cr_{24} 1907° 2671° +2+3+6 51.9961 0.000044%	**Manganese** 2 8 13 2 Mn_{25} 1246° 2061° +2+3+4+7 54.938049 0.000031%	**Iron** 2 8 14 2 Fe_{26} 1538° 2861° +2+3 55.845 0.00294%	**Cobalt** 2 8 15 2 Co_{27} 1495° 2927° +2+3 58.933200 7.3×10^{-6}%	**Nickel** 2 8 16 2 Ni_{28} 1455° 2913° +2+3 58.6934 0.000161%	**Copper** 2 8 18 1 Cu_{29} 1084.62° 2562° +1+2 63.546 1.70×10^{-6}%	**Zinc** 2 8 18 2 Zn_{30} 419.53° 907° +2 65.39 4.11×10^{-6}%	**Gallium** 2 8 18 3 Ga_{31} 29.76° 2204° +3 69.723 1.23×10^{-7}%	**Germanium** 2 8 18 4 Ge_{32} 938.25° 2833° +2+4 72.61 3.9×10^{-7}%	**Arsenic** 2 8 18 5 As_{33} 817t° 614s° 1400° +3+5-3 74.92160 2.1×10^{-8}%	**Selenium** 2 8 18 6 Se_{34} 221° 685° 1493° +4+6-2 78.96 2.03×10^{-7}%	**Bromine** 2 8 18 7 Br_{35} -7.2° 58.8° 315° +1+5-1 79.904 3.8×10^{-8}%	**Krypton** 2 8 18 8 Kr_{36} -157.36° -153.22° -63.74° 0 83.80 1.5×10^{-7}%
Rubidium 2 8 18 8 1 Rb_{37} 39.31° 688° +1 85.4678 2.31×10^{-8}%	**Strontium** 2 8 18 8 2 Sr_{38} 777° 1382° +2 87.62 7.7×10^{-8}%	**Yttrium** 2 8 18 9 2 Y_{39} 1522° 3345° +3 88.90585 1.51×10^{-8}%	**Zirconium** 2 8 18 10 2 Zr_{40} 1855° 4409° +4 91.224 3.72×10^{-8}%	**Niobium** 2 8 18 12 1 Nb_{41} 2477° 4744° +3+5 92.90638 2.28×10^{-9}%	**Molybdenum** 2 8 18 13 1 Mo_{42} 2623° 4639° +6 95.94 8.3×10^{-9}%	**Technetium** 2 8 18 13 2 Tc_{43} 2157° 4265° +4+6+7 [98]	**Ruthenium** 2 8 18 15 1 Ru_{44} 2334° 4150° +3 101.07 6.1×10^{-9}%	**Rhodium** 2 8 18 16 1 Rh_{45} 1964° 3695° +3 102.90550 1.12×10^{-9}%	**Palladium** 2 8 18 18 0 Pd_{46} 1554.9° 2963° +2+4 106.42 4.5×10^{-9}%	**Silver** 2 8 18 18 1 Ag_{47} 961.78° 2162° +1 107.8682 1.58×10^{-9}%	**Cadmium** 2 8 18 18 2 Cd_{48} 321.07° 767° +2 112.411 5.3×10^{-9}%	**Indium** 2 8 18 18 3 In_{49} 156.60° 2072° +3 114.818 6.0×10^{-10}%	**Tin** 2 8 18 18 4 Sn_{50} 231.93° 2602° +2+4 118.710 1.25×10^{-8}%	**Antimony** 2 8 18 18 5 Sb_{51} 630.63° 1587° +3+5-3 121.760 1.01×10^{-9}%	**Tellurium** 2 8 18 18 6 Te_{52} 449.51° 988° +4+6-2 127.60 1.57×10^{-8}%	**Iodine** 2 8 18 18 7 I_{53} 113.7° 184.4° 546° +1+5+7-1 126.90447 2.9×10^{-9}%	**Xenon** 2 8 18 18 8 Xe_{54} -111.75° -108.04° 16.58° 0 131.29 1.5×10^{-8}%
Cesium 2 8 18 18 8 1 Cs_{55} 28.44° 671° +1 132.90545 1.21×10^{-9}%	**Barium** 2 8 18 18 8 2 Ba_{56} 727° 1897° +2 137.327 1.46×10^{-8}%	**Lanthanum** 2 8 18 18 9 2 La_{57} † 918° 3464° +3 138.9055 1.45×10^{-9}%	**Hafnium** 2 8 18 32 10 2 Hf_{72} 2233° 4603° +4 178.49 5.02×10^{-10}%	**Tantalum** 2 8 18 32 11 2 Ta_{73} 3017° 5458° +5 180.9479 6.75×10^{-11}%	**Tungsten** 2 8 18 32 12 2 W_{74} 3422° 5555° +6 183.84 4.34×10^{-10}%	**Rhenium** 2 8 18 32 13 2 Re_{75} 3186° 5596° +4+6+7 186.207 1.69×10^{-10}%	**Osmium** 2 8 18 32 14 2 Os_{76} 3033° 5012° +3+4 190.23 2.20×10^{-9}%	**Iridium** 2 8 18 32 15 2 Ir_{77} 2446° 4428° +3+4 192.217 2.16×10^{-9}%	**Platinum** 2 8 18 32 16 2 Pt_{78} 1768.4° 3825° +2+4 195.078 4.4×10^{-9}%	**Gold** 2 8 18 32 18 1 Au_{79} 1064.18° 2856° +1+3 196.96655 6.1×10^{-10}%	**Mercury** 2 8 18 32 18 2 Hg_{80} -38.83° 356.73° 1477° +1+2 200.59 1.11×10^{-9}%	**Thallium** 2 8 18 32 18 3 Tl_{81} 304° 1473° +1+3 204.3833 6.0×10^{-10}%	**Lead** 2 8 18 32 18 4 Pb_{82} 327.46° 1749° +2+4 207.2 1.03×10^{-8}%	**Bismuth** 2 8 18 32 18 5 Bi_{83} 271.40° 1564° +3+5 208.98038 4.7×10^{-10}%	**Polonium** 2 8 18 32 18 6 Po_{84} 254° 962° +2+4 [209]	**Astatine** 2 8 18 32 18 7 At_{85} 302° [210]	**Radon** 2 8 18 32 18 8 Rn_{86} -71° -61.7° 104° 0 [222]
Francium 2 8 18 32 18 8 1 Fr_{87} 27° +1 [223]	**Radium** 2 8 18 32 18 8 2 Ra_{88} 700° +2 [226]	**Actinium** 2 8 18 32 18 9 2 Ac_{89} ‡ 1051° 3198° +3 [227]	**Rutherfordium** 2 8 18 32 32 10 2 Rf_{104} +4 [261]	**Dubnium** 2 8 18 32 32 11 2 Db_{105} [262]	**Seaborgium** 2 8 18 32 32 12 2 Sg_{106} [266]	**Bohrium** 2 8 18 32 32 13 2 Bh_{107} [264]	**Hassium** 2 8 18 32 32 14 2 Hs_{108} [269]	**Meitnerium** 2 8 18 32 32 15 2 Mt_{109} [268]	**Element-110** 2 8 18 32 32 16 2 110_{110} [271]	**Element-111** 2 8 18 32 32 17 2 111_{111} [272]	**Element-112** 2 8 18 32 32 18 2 112_{112} [277]		**Element-114** 2 8 18 32 32 20 2 114_{114} [289]		**Element-116** 2 8 18 32 32 22 2 116_{116} [289]		**Element-118** 2 8 18 32 32 24 2 118_{118} [293]

† Lanthanides	Cerium	Praseodymium	Neodymium	Promethium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium	Lutetium
	2 8 18 19 9 2 Ce_{58} 798° 3443° +3+4 140.116 3.70×10^{-9}%	2 8 18 21 8 2 Pr_{59} 931° 3520° +3 140.90765 5.44×10^{-10}%	2 8 18 22 8 2 Nd_{60} 1021° 3074° +3 144.24 2.70×10^{-9}%	2 8 18 23 8 2 Pm_{61} 1042° 3000° +3 [145]	2 8 18 24 8 2 Sm_{62} 1074° 1794° +2+3 150.36 8.42×10^{-10}%	2 8 18 25 8 2 Eu_{63} 822° 1596° +2+3 151.964 3.17×10^{-10}%	2 8 18 25 9 2 Gd_{64} 1313° 3273° +3 157.25 1.076×10^{-9}%	2 8 18 27 8 2 Tb_{65} 1356° 3230° +3 158.92534 1.97×10^{-10}%	2 8 18 28 8 2 Dy_{66} 1412° 2567° +3 162.50 1.286×10^{-9}%	2 8 18 29 8 2 Ho_{67} 1474° 2700° +3 164.93032 2.90×10^{-10}%	2 8 18 30 8 2 Er_{68} 1529° 2868° +3 167.26 8.18×10^{-10}%	2 8 18 31 8 2 Tm_{69} 1545° 1950° +3 168.93421 1.23×10^{-10}%	2 8 18 32 8 2 Yb_{70} 819° 1196° +2+3 173.04 8.08×10^{-10}%	2 8 18 32 9 2 Lu_{71} 1663° 3402° +3 174.967 1.197×10^{-10}%

‡ Actinides	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium	Lawrencium
	2 8 18 32 18 10 2 Th_{90} 1750° 4788° +4 232.0381 1.09×10^{-10}%	2 8 18 32 20 9 2 Pa_{91} 1572° +5+4 231.03588	2 8 18 32 21 9 2 U_{92} 1135° 4131° +3+4+5+6 238.0289 2.94×10^{-11}%	2 8 18 32 22 9 2 Np_{93} 644° +3+4+5+6 [237]	2 8 18 32 24 8 2 Pu_{94} 640° 3228° +3+4+5+6 [244]	2 8 18 32 25 8 2 Am_{95} 1176° 2011° +3+4+5+6 [243]	2 8 18 32 25 9 2 Cm_{96} 1345° +3 [247]	2 8 18 32 27 8 2 Bk_{97} 1050° +3+4 [247]	2 8 18 32 28 8 2 Cf_{98} 900° +3 [251]	2 8 18 32 29 8 2 Es_{99} 860° +3 [252]	2 8 18 32 30 8 2 Fm_{100} 1527° +3 [257]	2 8 18 32 31 8 2 Md_{101} 827° +2+3 [258]	2 8 18 32 32 8 2 No_{102} 827° +2+3 [259]	2 8 18 32 32 9 2 Lr_{103} 1627° +3 [262]

The new IUPAC Group format numbers the groups from 1 to 18. The numbering system used by the Chemical Abstracts Service (CAS) is given in parentheses. For elements that are not naturally abundant, the mass number of the longest-lived isotope is given in brackets. The abundances (atomic %) are based on meteorite and solar wind data. The melting point (M.P.), boiling point (B.P.), and critical point (C.P.)temperatures are given in °Celsius. Sublimation and critical temperatures are indicated by s and t.

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