

Periodic Table of the Elements



GROUP 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		
1 1.00794 H Hydrogen 0.0899 13.5984 -259.14 -252.87 (v) 37																	2 4.002602 He Helium 0.1785 24.5874 -268.93 (v) 32		
3 6.941 Li Lithium 0.535 5.3917 180.54 1342 (m) 152 BCC	4 9.012182 Be Beryllium 1.848 9.3227 1287 2470 (m) 112 HCP											5 10.811 B Boron 2.46 8.2980 2075 4000 (v) 82 rhom.	6 12.0107 C Carbon 2.26 11.2603 3550 4027 (v) 77 hex	7 14.0067 N Nitrogen 1.251 14.5341 -210.1 -195.79 (v) 75 -	8 15.9994 O Oxygen 1.429 13.6181 -218.3 -182.9 (v) 73 -	9 18.9984032 F Fluorine 1.696 17.4228 -219.6 -188.12 (v) 71 -	10 20.1797 Ne Neon 0.9 21.5645 -248.59 -246.08 (v) 69		
11 22.989770 Na Sodium 0.968 5.1391 97.72 883 (m) 186 BCC	12 24.3050 Mg Magnesium 1.738 7.6462 650 1090 (m) 160 HCP											13 26.981538 Al Aluminum 2.7 5.9858 660.32 2519 (m) 143 FCC	14 28.0855 Si Silicon 2.33 8.1517 1414 2900 (v) 111 cubic	15 30.973761 P Phosphorus 1.823 10.4867 44.2 280.5 (v) 106 -	16 32.065 S Sulfur 1.96 10.3600 115.21 444.72 (v) 102 FCO	17 35.453 Cl Chlorine 3.214 12.9676 -101.5 -34.04 (v) 99 -	18 39.948 Ar Argon 1.784 15.7596 -189.3 -185.8 (v) 97 -		
19 39.0983 K Potassium 0.82 4.3407 63.38 759 (m) 227 BCC	20 40.078 Ca Calcium 1.55 6.1132 842 1484 (m) 197 FCC	21 44.955910 Sc Scandium 2.985 6.5615 1541 2830 (m) 162 HCP	22 47.867 Ti Titanium 4.507 6.8281 1668 3287 (m) 147 HCP	23 50.9415 V Vanadium 6.11 6.7462 1910 3407 (m) 134 BCC	24 51.9961 Cr Chromium 7.14 6.7665 1907 2671 (m) 128 BCC	25 54.938049 Mn Manganese 7.47 7.4340 1246 2061 (m) 127 scubic	26 55.845 Fe Iron 7.874 7.9024 1538 2861 (m) 126 BCC	27 58.933200 Co Cobalt 8.9 7.8810 1495 2927 (m) 125 HCP	28 58.6934 Ni Nickel 8.908 7.6398 1455 2913 (m) 124 FCC	29 63.546 Cu Copper 8.92 7.7264 1084.62 2927 (m) 128 FCC	30 65.409 Zn Zinc 7.14 9.3942 419.53 907 (m) 134 shex	31 69.723 Ga Gallium 5.904 5.9993 29.76 2204 (m) 135 sbcco	32 72.64 Ge Germanium 5.323 7.8944 938.3 2820 (v) 122 scubic	33 74.921600 As Arsenic 5.727 9.7886 817 614 (v) 119 rhom.	34 78.96 Se Selenium 4.819 9.7524 211 685 (v) 116 shex	35 79.904 Br Bromine 3.12 11.8138 -7.3 59 (v) 114 BCO	36 83.796 Kr Krypton 3.75 13.9996 -157.36 -153.22 (v) 110 -		
37 85.4678 Rb Rubidium 1.532 4.1771 39.31 688 (m) 248 BCC	38 87.62 Sr Strontium 2.63 5.6949 777 1382 (m) 215 FCC	39 88.90585 Y Yttrium 4.472 6.2173 1526 3345 (m) 180 HCP	40 91.224 Zr Zirconium 6.511 6.6339 1855 4409 (m) 146 HCP	41 92.90638 Nb Niobium 8.57 6.7589 2423 4639 (m) 139 BCC	42 95.94 Mo Molybdenum 10.28 7.0924 2623 4639 (m) 139 BCC	43 98.906 Tc Technetium 11.5 7.28 2157 4265 (m) 136 HCP	44 101.07 Ru Ruthenium 12.37 7.3605 2334 4150 (m) 134 HCP	45 102.90550 Rh Rhodium 12.45 7.4589 1964 3695 (m) 134 FCC	46 106.42 Pd Palladium 12.023 8.3369 1554.9 2963 (m) 137 FCC	47 107.8682 Ag Silver 10.49 7.5762 961.78 2162 (m) 144 FCC	48 112.411 Cd Cadmium 8.65 8.9938 321.07 767 (m) 151 shex	49 114.818 In Indium 7.31 5.7864 156.6 2072 (m) 167 shetra.	50 118.710 Sn Tin 7.31 7.3439 231.93 2602 (v) 141 shetra.	51 121.760 Sb Antimony 6.697 8.6084 630.63 1808 (v) 138 shrho.	52 127.60 Te Tellurium 6.24 9.0096 449.51 988 (v) 135 hex	53 126.90447 I Iodine 4.94 10.4513 113.7 184.3 (v) 133 BCO	54 131.293 Xe Xenon 5.9 12.1298 -111.8 -108 (v) 130 -		
55 132.90545 Cs Cesium 1.879 3.8939 28.44 671 (m) 265 BCC	56 137.327 Ba Barium 3.51 5.2117 727 1870 (m) 222 BCC	Lanthanide Series		72 178.49 Hf Hafnium 13.31 6.8251 2233 4603 (m) 159 HCP	73 180.9479 Ta Tantalum 16.65 7.5496 3017 5458 (m) 146 BCC	74 183.84 W Tungsten 19.25 7.8640 3422 5556 (m) 139 BCC	75 186.207 Re Rhenium 21.02 8.4382 3186 5596 (m) 137 HCP	76 190.23 Os Osmium 22.61 6.8012 3033 5012 (m) 135 HCP	77 192.22 Ir Iridium 22.65 8.9670 2466 4428 (m) 136 FCC	78 195.078 Pt Platinum 21.09 9.9588 1768.3 3825 (m) 139 FCC	79 196.96655 Au Gold 19.3 9.2255 1064.18 2856 (m) 144 FCC	Hg Mercury 13.534 10.4375 -38.83 356.73 (m) 151 shrho.		81 204.3833 Tl Thallium 11.85 6.1082 304 1473 (m) 170 HCP	82 207.2 Pb Lead 11.34 7.4167 327.46 1749 (m) 175 FCC	83 208.98038 Bi Bismuth 9.78 7.2855 271.3 1564 (v) 146 shrho.	84 209 Po Polonium 9.196 8.414 254 962 - scubic	85 210 At Astatine 6.24 15.872 302 - - scubic	86 222 Rn Radon 9.73 10.7485 -71 -61.7 (v) 145 -
87 0.7 Fr Francium - 4.0727 - - ([Rn] 7s ¹)	88 0.9 Ra Radium 5 5.2784 700 1737 - BCC ([Rn] 7s ²)	Actinide Series		104 261 Rf Rutherfordium [Rn] 5f ¹⁴ 6d ³ 7s ²	105 262 Db Dubnium [Rn] 5f ¹⁴ 6d ³ 7s ²	106 266 Sg Seaborgium [Rn] 5f ¹⁴ 6d ⁴ 7s ²	107 264 Bh Bohrium [Rn] 5f ¹⁴ 6d ⁵ 7s ²	108 277 Hs Hassium [Rn] 5f ¹⁴ 6d ⁶ 7s ²	109 268 Mt Meitnerium [Rn] 5f ¹⁴ 6d ⁷ 7s ²	110 281 Ds Darmstadtium [Rn] 5f ¹⁴ 6d ⁸ 7s ²	111 272 Rg Roentgenium [Rn] 5f ¹⁴ 6d ⁹ 7s ²	112 285 Cn Copernicium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ²	113 289 Nh Nihonium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ¹	114 289 Uuq Ununquadium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ²	115 289 Mc Moscovium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ³	116 292 Lv Livermorium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁴	117 292 Ts Tennessine [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁵	118 294 Og Oganesson [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶	

Notes:
 - Density units are g/cm³ for solids and g/L or kg/cm³ at 0° Celsius for gases
 - Atomic Weight based on ¹²C
 - () indicate mass number of most stable isotope
 - Common Oxidation States in bold
 - Electron Config. based on IUPAC guidelines
 - S indicates crystal structure is unusual or may require explanation
 - (m) Metallic radius, (v) Covalent radius

References:
 [1]Nist.gov, [2]Wolfram.com (Mathematic),
 CRC Handbook of Chemistry and Physics
 81st Edition, 2000-2001, and others

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Lanthanides	Actinides
57 138.9055 La Lanthanum 6.146 5.5769 920 3464 (m) 187 shex [Xe] 5d ¹ 6s ² +3	89 227 Ac Actinium 10.07 5.17 1050 3200 - FCC [Rn] 6d ¹ 7s ² +3
58 140.116 Ce Cerium 6.689 5.5387 798 3360 (m) 182 FCC [Xe] 4f ¹ 5d ¹ 6s ² +3, +4	90 232.0381 Th Thorium 11.724 6.3067 1750 4820 (m) 179 FCC [Rn] 6d ² 7s ² +4
59 140.90765 Pr Praseodymium 6.64 5.473 931 3290 (m) 182 shex [Xe] 4f ³ 6s ² +3, +4	91 231.0359 Pa Protactinium 15.37 5.89 1572 4000 (m) 163 shetra. [Rn] 5f ² 6d ¹ 7s ² +4, +5
60 144.24 Nd Neodymium 7.01 5.5250 1021 3100 (m) 181 shex [Xe] 4f ⁴ 6s ² +3	92 238.0289 U Uranium 19.05 6.1941 1135 3927 (m) 156 BCP [Rn] 5f ³ 6d ¹ 7s ² +3, +4, +5, +6
61 145 Pm Promethium 7.264 5.582 1100 3000 (m) 183 HCP [Xe] 4f ⁵ 6s ² +3	93 237 Np Neptunium 20.45 6.2657 644 4000 (m) 155 SO [Rn] 5f ⁴ 6d ¹ 7s ² +3, +4, +5, +6
62 150.36 Sm Samarium 7.353 5.6437 1072 1803 (m) 180 shex [Xe] 4f ⁶ 6s ² +2, +3	94 244 Pu Plutonium 19.816 6.0260 640 3230 (m) 159 smono. [Rn] 5f ⁶ 6d ¹ 7s ² +3, +4, +5, +6
63 151.964 Eu Europium 5.244 5.6704 822 1527 (m) 180 BCC [Xe] 4f ⁷ 6s ² +2, +3	95 243 Am Americium 13.51 5.9738 1176 2011 (m) 173 HCP [Rn] 5f ⁷ 7s ² +3, +4, +5, +6
64 157.25 Gd Gadolinium 7.901 6.1498 1313 3250 (m) 180 HCP [Xe] 4f ⁷ 6s ² +3	96 247 Cm Curium 13.51 5.9914 1345 3110 (m) 174 HCP [Rn] 5f ⁸ 6d ¹ 7s ² +3
65 158.92534 Tb Terbium 8.219 5.8638 1356 3230 (m) 177 HCP [Xe] 4f ⁹ 6s ² +3	97 247 Bk Berkelium 14.78 6.1979 1050 3000 (m) 170 hex [Rn] 5f ⁹ 7s ² +3
66 162.500 Dy Dysprosium 8.551 5.9389 1412 2567 (m) 178 HCP [Xe] 4f ¹⁰ 6s ² +3	98 251 Cf Californium 15.1 6.2817 900 - - hex [Rn] 5f ¹⁰ 7s ² +3
67 164.93032 Ho Holmium 8.795 6.0215 1474 2700 (m) 176 HCP [Xe] 4f ¹¹ 6s ² +3	99 252 Es Einsteinium 6.42 860 - - hex [Rn] 5f ¹¹ 7s ² +3
68 167.259 Er Erbium 9.066 6.1077 1497 2868 (m) 176 HCP [Xe] 4f ¹² 6s ² +3	100 257 Fm Fermium 6.50 1527 - - hex [Rn] 5f ¹² 7s ² +3
69 168.93421 Tm Thulium 9.321 6.1843 1545 1950 (m) 176 HCP [Xe] 4f ¹³ 6s ² +3	101 258 Md Mendelevium 6.58 827 - - hex [Rn] 5f ¹³ 7s ² +3
70 173.04 Yb Ytterbium 6.57 6.2542 819 1196 (m) 176 FCC [Xe] 4f ¹⁴ 6s ² +2, +3	102 259 No Nobelium 6.65 827 - - hex [Rn] 5f ¹⁴ 7s ² +2, +3
71 174.967 Lu Lutetium 9.841 5.4259 1663 3402 (m) 174 HCP [Xe] 4f ¹⁴ 6s ² +3	103 262 Lr Lawrencium 4.9 ? 1627 - - hex [Rn] 5f ¹⁴ 7s ² 7p ¹ +3