

# The Periodic Table of the Elements

|   |    |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |          |          |           |           |    |
|---|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|----|
| 1 | IA | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | VIIIA     | 2         |           |          |          |           |           |    |
|   |    | <b>H</b>  |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | <b>He</b> |           |           |          |          |           |           |    |
|   |    | 1.00797   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 4.00260   |           |           |          |          |           |           |    |
| 2 |    | 3         | IIA       | 4         |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 5         | 6        | 7        | 8         | 9         | 10 |
|   |    | <b>Li</b> | <b>Be</b> |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | <b>B</b>  | <b>C</b>  | <b>N</b> | <b>O</b> | <b>F</b>  | <b>Ne</b> |    |
|   |    | 6.941     | 9.01218   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 10.81     | 12.011    | 14.0067  | 15.9994  | 18.998403 | 20.179    |    |
| 3 |    | 11        | 12        |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 13        | 14        | 15       | 16       | 17        | 18        |    |
|   |    | <b>Na</b> | <b>Mg</b> |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | <b>Al</b> | <b>Si</b> | <b>P</b> | <b>S</b> | <b>Cl</b> | <b>Ar</b> |    |
|   |    | 22.98977  | 24.305    |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 26.98154  | 28.0855   | 30.97376 | 32.06    | 35.453    | 39.948    |    |
| 4 |    | 19        | 20        | III B     | IV B      | VB        | VIB       | VII B     | VIII      |           |           | IB        | II B      | 31        | 32        | 33        | 34        | 35        | 36        |           |           |          |          |           |           |    |
|   |    | <b>K</b>  | <b>Ca</b> | <b>Sc</b> | <b>Ti</b> | <b>V</b>  | <b>Cr</b> | <b>Mn</b> | <b>Fe</b> | <b>Co</b> | <b>Ni</b> | <b>Cu</b> | <b>Zn</b> | <b>Ga</b> | <b>Ge</b> | <b>As</b> | <b>Se</b> | <b>Br</b> | <b>Kr</b> |           |           |          |          |           |           |    |
|   |    | 39.0983   | 40.08     | 44.9559   | 47.90     | 50.9415   | 51.996    | 54.9380   | 55.847    | 58.9332   | 58.70     | 63.546    | 65.38     | 69.72     | 72.59     | 74.9216   | 78.96     | 79.904    | 83.80     |           |           |          |          |           |           |    |
| 5 |    | 37        | 38        | 39        | 40        | 41        | 42        | 43        | 44        | 45        | 46        | 47        | 48        | 49        | 50        | 51        | 52        | 53        | 54        |           |           |          |          |           |           |    |
|   |    | <b>Rb</b> | <b>Sr</b> | <b>Y</b>  | <b>Zr</b> | <b>Nb</b> | <b>Mo</b> | <b>Tc</b> | <b>Ru</b> | <b>Rh</b> | <b>Pd</b> | <b>Ag</b> | <b>Cd</b> | <b>In</b> | <b>Sn</b> | <b>Sb</b> | <b>Te</b> | <b>I</b>  | <b>Xe</b> |           |           |          |          |           |           |    |
|   |    | 85.4678   | 87.62     | 88.9059   | 91.22     | 92.9064   | 95.94     | (98)      | 101.07    | 102.9055  | 106.4     | 107.868   | 112.41    | 114.82    | 118.69    | 121.75    | 127.60    | 126.9045  | 131.30    |           |           |          |          |           |           |    |
| 6 |    | 55        | 56        | 57        | 72        | 73        | 74        | 75        | 76        | 77        | 78        | 79        | 80        | 81        | 82        | 83        | 84        | 85        | 86        |           |           |          |          |           |           |    |
|   |    | <b>Cs</b> | <b>Ba</b> | <b>La</b> | <b>Hf</b> | <b>Ta</b> | <b>W</b>  | <b>Re</b> | <b>Os</b> | <b>Ir</b> | <b>Pt</b> | <b>Au</b> | <b>Hg</b> | <b>Tl</b> | <b>Pb</b> | <b>Bi</b> | <b>Po</b> | <b>At</b> | <b>Rn</b> |           |           |          |          |           |           |    |
|   |    | 132.9054  | 137.33    | 138.9055  | 178.49    | 180.9479  | 183.85    | 186.207   | 190.2     | 192.22    | 195.09    | 196.9665  | 200.59    | 204.37    | 207.2     | 208.9804  | (209)     | (210)     | (222)     |           |           |          |          |           |           |    |
| 7 |    | 87        | 88        | 89        | 104       | 105       | 106       | 107       | 108       | 109       | 110       | 111       | 112       | 113       | 114       | 115       | 116       | 117       | 118       |           |           |          |          |           |           |    |
|   |    | <b>Fr</b> | <b>Ra</b> | <b>Ac</b> | <b>Rf</b> | <b>Db</b> | <b>Sg</b> | <b>Bh</b> | <b>Hs</b> | <b>Mt</b> | <b>Ds</b> | <b>Rg</b> | <b>Cn</b> | <b>Nh</b> | <b>Fl</b> | <b>Mc</b> | <b>Lv</b> | <b>Ts</b> | <b>Og</b> |           |           |          |          |           |           |    |
|   |    | (223)     | 226.0254  | 227.0278  | (261)     | (262)     | (263)     | (262)     | (265)     | (266)     | (269)     | (272)     | (277)     | (286)     | (289)     | (290)     | (293)     | (294)     | (294)     |           |           |          |          |           |           |    |

|             |  |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|-------------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|             |  | 58        | 59        | 60        | 61        | 62        | 63        | 64        | 65        | 66        | 67        | 68        | 69        | 70        | 71        |
| Lanthanides |  | <b>Ce</b> | <b>Pr</b> | <b>Nd</b> | <b>Pm</b> | <b>Sm</b> | <b>Eu</b> | <b>Gd</b> | <b>Tb</b> | <b>Dy</b> | <b>Ho</b> | <b>Er</b> | <b>Tm</b> | <b>Yb</b> | <b>Lu</b> |
|             |  | 140.12    | 140.9077  | 144.24    | (145)     | 150.4     | 151.96    | 157.25    | 158.9254  | 162.50    | 164.9304  | 167.26    | 168.9342  | 173.04    | 174.967   |
| Actinides   |  | 90        | 91        | 92        | 93        | 94        | 95        | 96        | 97        | 98        | 99        | 100       | 101       | 102       | 103       |
|             |  | <b>Th</b> | <b>Pa</b> | <b>U</b>  | <b>Np</b> | <b>Pu</b> | <b>Am</b> | <b>Cm</b> | <b>Bk</b> | <b>Cf</b> | <b>Es</b> | <b>Fm</b> | <b>Md</b> | <b>No</b> | <b>Lr</b> |
|             |  | 232.0381  | 231.0359  | 238.029   | 237.0482  | (242)     | (243)     | (247)     | (247)     | (251)     | (252)     | (257)     | (258)     | (259)     | (260)     |