Periodic Table with Atomic Properties and Thermal Data

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Z 1 A 1 **H** AW 1.008 u IE 13.60 eV MP -259 °C																	Z 2 A 4 **He** AW 4.003 u IE 24.59 eV MP -272 °C
2	Z 3 A 7 **Li** AW 6.940 u IE 5.39 eV MP 180 °C	Z 4 A 9 **Be** AW 9.012 u IE 9.32 eV MP 1287 °C											Z 5 A 11 **B** AW 10.810 u IE 8.30 eV MP 2076 °C	Z 6 A 12 **C** AW 12.011 u IE 11.26 eV MP 4327 °C	Z 7 A 14 **N** AW 14.007 u IE 14.53 eV MP -210 °C	Z 8 A 16 **O** AW 15.999 u IE 13.62 eV MP -219 °C	Z 9 A 19 **F** AW 18.998 u IE 17.42 eV MP -220 °C	Z 10 A 20 **Ne** AW 20.180 u IE 21.56 eV MP -249 °C
3	Z 11 A 23 **Na** AW 22.990 u IE 5.14 eV MP 97.8 °C	Z 12 A 24 **Mg** AW 24.305 u IE 7.65 eV MP 650 °C											Z 13 A 27 **Al** AW 26.982 u IE 5.99 eV MP 660 °C	Z 14 A 28 **Si** AW 28.085 u IE 8.15 eV MP 1414 °C	Z 15 A 31 **P** AW 30.974 u IE 10.49 eV MP 44.1 °C	Z 16 A 32 **S** AW 32.060 u IE 10.36 eV MP 115 °C	Z 17 A 35 **Cl** AW 35.450 u IE 12.97 eV MP -102 °C	Z 18 A 40 **Ar** AW 39.948 u IE 15.76 eV MP -189 °C
4	Z 19 A 39 **K** AW 39.098 u IE 4.34 eV MP 63.5 °C	Z 20 A 40 **Ca** AW 40.078 u IE 6.11 eV MP 842 °C	Z 21 A 45 **Sc** AW 44.956 u IE 6.56 eV MP 1541 °C	Z 22 A 48 **Ti** AW 47.867 u IE 6.83 eV MP 1668 °C	Z 23 A 51 **V** AW 50.941 u IE 6.75 eV MP 1910 °C	Z 24 A 52 **Cr** AW 51.996 u IE 6.77 eV MP 1907 °C	Z 25 A 55 **Mn** AW 54.938 u IE 7.43 eV MP 1246 °C	Z 26 A 56 **Fe** AW 55.845 u IE 7.90 eV MP 1538 °C	Z 27 A 59 **Co** AW 58.933 u IE 7.88 eV MP 1495 °C	Z 28 A 58 **Ni** AW 58.693 u IE 7.64 eV MP 1455 °C	Z 29 A 63 **Cu** AW 63.546 u IE 7.73 eV MP 1085 °C	Z 30 A 64 **Zn** AW 65.382 u IE 9.39 eV MP 420 °C	Z 31 A 69 **Ga** AW 69.723 u IE 6.00 eV MP 29.8 °C	Z 32 A 74 **Ge** AW 72.631 u IE 7.90 eV MP 938 °C	Z 33 A 75 **As** AW 74.922 u IE 9.81 eV MP 817 °C	Z 34 A 80 **Se** AW 78.972 u IE 9.75 eV MP 221 °C	Z 35 A 79 **Br** AW 79.904 u IE 11.81 eV MP -7.3 °C	Z 36 A 84 **Kr** AW 83.798 u IE 14.00 eV MP -157 °C
5	Z 37 A 85 **Rb** AW 85.468 u IE 4.18 eV MP 39.3 °C	Z 38 A 88 **Sr** AW 87.621 u IE 5.70 eV MP 777 °C	Z 39 A 89 **Y** AW 88.906 u IE 6.22 eV MP 1526 °C	Z 40 A 90 **Zr** AW 91.224 u IE 6.63 eV MP 1855 °C	Z 41 A 93 **Nb** AW 92.906 u IE 6.76 eV MP 2477 °C	Z 42 A 98 **Mo** AW 95.951 u IE 7.09 eV MP 2623 °C	Z 43 A [98] **Tc** AW [98] u IE 7.28 eV MP 2157 °C	Z 44 A 102 **Ru** AW 101.072 u IE 7.36 eV MP 2334 °C	Z 45 A 103 **Rh** AW 102.906 u IE 7.46 eV MP 1964 °C	Z 46 A 106 **Pd** AW 106.421 u IE 8.34 eV MP 1555 °C	Z 47 A 107 **Ag** AW 107.868 u IE 7.58 eV MP 962 °C	Z 48 A 114 **Cd** AW 112.414 u IE 8.99 eV MP 321 °C	Z 49 A 115 **In** AW 114.818 u IE 5.79 eV MP 157 °C	Z 50 A 120 **Sn** AW 118.711 u IE 7.34 eV MP 232 °C	Z 51 A 121 **Sb** AW 121.760 u IE 8.64 eV MP 631 °C	Z 52 A 130 **Te** AW 127.603 u IE 9.01 eV MP 450 °C	Z 53 A 127 **I** AW 126.904 u IE 10.45 eV MP 114 °C	Z 54 A 132 **Xe** AW 131.294 u IE 12.13 eV MP -112 °C
6	Z 55 A 133 **Cs** AW 132.905 u IE 3.89 eV MP 28.6 °C	Z 56 A 138 **Ba** AW 137.328 u IE 5.21 eV MP 727 °C		Z 72 A 180 **Hf** AW 178.492 u IE 6.82 eV MP 2233 °C	Z 73 A 181 **Ta** AW 180.948 u IE 7.89 eV MP 3017 °C	Z 74 A 184 **W** AW 183.841 u IE 7.98 eV MP 3422 °C	Z 75 A 187 **Re** AW 186.207 u IE 7.88 eV MP 3186 °C	Z 76 A 192 **Os** AW 190.233 u IE 8.71 eV MP 3033 °C	Z 77 A 193 **Ir** AW 192.217 u IE 9.12 eV MP 2446 °C	Z 78 A 195 **Pt** AW 195.085 u IE 9.02 eV MP 1768 °C	Z 79 A 197 **Au** AW 196.967 u IE 9.23 eV MP 1064 °C	Z 80 A 202 **Hg** AW 200.592 u IE 10.44 eV MP -38.8 °C	Z 81 A 205 **Tl** AW 204.380 u IE 6.11 eV MP 304 °C	Z 82 A 208 **Pb** AW 207.210 u IE 7.42 eV MP 327 °C	Z 83 A 209 **Bi** AW 208.980 u IE 7.29 eV MP 272 °C	Z 84 A [209] **Po** AW [209] u IE 8.42 eV MP 254 °C	Z 85 A [210] **At** AW [210] u IE 9.32 eV MP 302 °C	Z 86 A [222] **Rn** AW [222] u IE 10.75 eV MP -71.2 °C
7	Z 87 A [223] **Fr** AW [223] u IE 3.94 eV MP 26.9 °C	Z 88 A [226] **Ra** AW [226] u IE 5.28 eV MP 960 °C		Z 104 A [267] **Rf** AW [267] u IE 6.01 eV MP 2127 °C	Z 105 A [268] **Db** AW [268] u IE – eV MP – °C	Z 106 A [269] **Sg** AW [269] u IE – eV MP – °C	Z 107 A [270] **Bh** AW [270] u IE – eV MP – °C	Z 108 A [269] **Hs** AW [269] u IE – eV MP – °C	Z 109 A [278] **Mt** AW [278] u IE – eV MP – °C	Z 110 A [281] **Ds** AW [281] u IE – eV MP – °C	Z 111 A [282] **Rg** AW [282] u IE – eV MP – °C	Z 112 A [285] **Cn** AW [285] u IE – eV MP 9.8 °C	Z 113 A [286] **Nh** AW [286] u IE – eV MP 427 °C	Z 114 A [289] **Fl** AW [289] u IE – eV MP 66.8 °C	Z 115 A [289] **Mc** AW [289] u IE – eV MP 397 °C	Z 116 A [293] **Lv** AW [293] u IE – eV MP 436 °C	Z 117 A [294] **Ts** AW [294] u IE – eV MP 450 °C	Z 118 A [294] **Og** AW [294] u IE – eV MP – °C

			Z 57 A 139 **La** AW 138.905 u IE 5.58 eV MP 920 °C	Z 58 A 140 **Ce** AW 140.116 u IE 5.54 eV MP 795 °C	Z 59 A 141 **Pr** AW 140.908 u IE 5.46 eV MP 935 °C	Z 60 A 142 **Nd** AW 144.242 u IE 5.53 eV MP 1024 °C	Z 61 A [145] **Pm** AW [145] u IE 5.60 eV MP 1042 °C	Z 62 A 152 **Sm** AW 150.362 u IE 5.64 eV MP 1072 °C	Z 63 A 153 **Eu** AW 151.964 u IE 5.67 eV MP 826 °C	Z 64 A 158 **Gd** AW 157.253 u IE 6.15 eV MP 1312 °C	Z 65 A 159 **Tb** AW 158.925 u IE 5.86 eV MP 1356 °C	Z 66 A 164 **Dy** AW 162.500 u IE 5.94 eV MP 1407 °C	Z 67 A 165 **Ho** AW 164.930 u IE 6.02 eV MP 1461 °C	Z 68 A 166 **Er** AW 167.259 u IE 6.11 eV MP 1529 °C	Z 69 A 169 **Tm** AW 168.934 u IE 6.18 eV MP 1545 °C	Z 70 A 174 **Yb** AW 173.045 u IE 6.25 eV MP 824 °C	Z 71 A 175 **Lu** AW 174.967 u IE 5.43 eV MP 1652 °C
			Z 89 A [227] **Ac** AW [227] u IE 5.17 eV MP 1227 °C	Z 90 A 232 **Th** AW 232.038 u IE 6.08 eV MP 1750 °C	Z 91 A 231 **Pa** AW 231.036 u IE 5.89 eV MP 1568 °C	Z 92 A 238 **U** AW 238.029 u IE 6.19 eV MP 1132 °C	Z 93 A [237] **Np** AW [237] u IE 6.27 eV MP 639 °C	Z 94 A [244] **Pu** AW [244] u IE 6.06 eV MP 639 °C	Z 95 A [243] **Am** AW [243] u IE 5.99 eV MP 1176 °C	Z 96 A [247] **Cm** AW [247] u IE 6.02 eV MP 1340 °C	Z 97 A [247] **Bk** AW [247] u IE 6.23 eV MP 986 °C	Z 98 A [251] **Cf** AW [251] u IE 6.30 eV MP 900 °C	Z 99 A [252] **Es** AW [252] u IE 6.42 eV MP 860 °C	Z 100 A [257] **Fm** AW [257] u IE 6.50 eV MP 1527 °C	Z 101 A [258] **Md** AW [258] u IE 6.58 eV MP 827 °C	Z 102 A [259] **No** AW [259] u IE 6.65 eV MP 827 °C	Z 103 A [266] **Lr** AW [266] u IE 4.87 eV MP 1627 °C

Z = atomic number. A = representative mass number: the most abundant natural isotope, or in square brackets the longest-lived isotope of an element with no standard atomic weight. AW = atomic weight (u). IE = first ionization energy (eV, converted from kJ/mol at 1 eV = 96.485 kJ/mol). MP = melting point (°C). A dash means no value is available, as for the heaviest synthetic elements, whose values may be predictions.

Periodic Table PDF with Atomic Properties and Thermal Data (black and white): notes

About this sheet

The standard 18-column layout, with periods 1 to 7 down the side, groups 1 to 18 across the top, and the lanthanides and actinides in two rows below. Each tile shows the atomic number, the symbol, the atomic weight in u, a representative mass number (A), the first ionization energy in eV and the melting point in °C, in the order set out in the key box. The mass number is that of the most abundant natural isotope, or the bracketed longest-lived isotope. Ionization energy and melting point show a dash where no value is available, as for the heaviest synthetic elements.

Best for

Chemistry revision, quick reference, lab and classroom use, and problem-solving where atomic weight, ionization energy and melting point are needed together.

Printing

Plain white tiles with black outlines use very little ink and photocopy cleanly, so it suits class sets and sheets students will write on. Sized for A4 landscape: print at 100% (actual size) so the margins stay correct.

What the data shows

Each tile carries six numbers. First ionization energy runs from 3.894 eV for cesium to 24.59 eV for helium.

Melting points run from -272.2 °C for helium to 4327 °C for carbon among the elements with a measured value.

How the table is organised

Atomic number counts the protons in an atom's nucleus and fixes each element's place in the table. Moving down a group adds a new electron shell, so atomic radius grows and metallic character increases.

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