



# WebElements: the periodic table on the world-wide web

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1 hydrogen <b>H</b> 1.00794(7)	2 helium <b>He</b> 4.002602(2)	3 lithium <b>Li</b> 6.941(2)	4 beryllium <b>Be</b> 9.012182(3)	5 boron <b>B</b> 10.811(7)	6 carbon <b>C</b> 12.0107(8)	7 nitrogen <b>N</b> 14.0067(7)	8 oxygen <b>O</b> 15.9994(3)	9 fluorine <b>F</b> 18.9984032(5)	10 neon <b>Ne</b> 20.1797(6)	11 sodium <b>Na</b> 22.989770(2)	12 magnesium <b>Mg</b> 24.3050(6)	13 aluminium <b>Al</b> 26.981538(2)	14 silicon <b>Si</b> 28.0855(3)	15 phosphorus <b>P</b> 30.973761(2)	16 sulfur <b>S</b> 32.065(5)	17 chlorine <b>Cl</b> 35.453(2)	18 argon <b>Ar</b> 39.948(1)
19 potassium <b>K</b> 39.0983(1)	20 calcium <b>Ca</b> 40.078(4)	21 scandium <b>Sc</b> 44.955910(8)	22 titanium <b>Ti</b> 47.867(1)	23 vanadium <b>V</b> 50.9415(1)	24 chromium <b>Cr</b> 51.9961(6)	25 manganese <b>Mn</b> 54.938049(9)	26 iron <b>Fe</b> 55.845(2)	27 cobalt <b>Co</b> 58.933200(9)	28 nickel <b>Ni</b> 58.6934(4)	29 copper <b>Cu</b> 63.546(3)	30 zinc <b>Zn</b> 65.38(2)	31 gallium <b>Ga</b> 69.723(1)	32 germanium <b>Ge</b> 72.64(1)	33 arsenic <b>As</b> 74.92160(2)	34 selenium <b>Se</b> 78.96(3)	35 bromine <b>Br</b> 79.904(1)	36 krypton <b>Kr</b> 83.798(2)
37 rubidium <b>Rb</b> 85.4678(3)	38 strontium <b>Sr</b> 87.62(1)	39 yttrium <b>Y</b> 88.90585(2)	40 zirconium <b>Zr</b> 91.224(2)	41 niobium <b>Nb</b> 92.90638(2)	42 molybdenum <b>Mo</b> 95.96(2)	43 technetium <b>Tc</b> [98]	44 ruthenium <b>Ru</b> 101.07(2)	45 rhodium <b>Rh</b> 102.90550(2)	46 palladium <b>Pd</b> 106.42(1)	47 silver <b>Ag</b> 107.8682(2)	48 cadmium <b>Cd</b> 112.411(8)	49 indium <b>In</b> 114.818(3)	50 tin <b>Sn</b> 118.710(7)	51 antimony <b>Sb</b> 121.760(1)	52 tellurium <b>Te</b> 127.60(3)	53 iodine <b>I</b> 126.90447(3)	54 xenon <b>Xe</b> 131.293(6)
55 caesium <b>Cs</b> 132.90545(2)	56 barium <b>Ba</b> 137.327(7)	71 lutetium <b>Lu</b> 174.9668(1)	72 hafnium <b>Hf</b> 178.49(2)	73 tantalum <b>Ta</b> 180.9479(1)	74 tungsten <b>W</b> 183.84(1)	75 rhenium <b>Re</b> 186.207(1)	76 osmium <b>Os</b> 190.23(3)	77 iridium <b>Ir</b> 192.217(3)	78 platinum <b>Pt</b> 195.078(2)	79 gold <b>Au</b> 196.96655(2)	80 mercury <b>Hg</b> 200.59(2)	81 thallium <b>Tl</b> 204.3833(2)	82 lead <b>Pb</b> 207.2(1)	83 bismuth <b>Bi</b> 208.98038(2)	84 polonium <b>Po</b> [209]	85 astatine <b>At</b> [210]	86 radon <b>Rn</b> [222]
87 francium <b>Fr</b> [223]	88 radium <b>Ra</b> [226]	103 lawrencium <b>Lr</b> [262]	104 rutherfordium <b>Rf</b> [267]	105 dubnium <b>Db</b> [268]	106 seaborgium <b>Sg</b> [271]	107 bohrium <b>Bh</b> [272]	108 hassium <b>Hs</b> [270]	109 meitnerium <b>Mt</b> [276]	110 darmstadtium <b>Ds</b> [281]	111 roentgenium <b>Rg</b> [280]	112 ununbium <b>Uub</b> [285]	113 ununtrium <b>Uut</b> [284]	114 ununquadium <b>Uuq</b> [289]	115 ununpentium <b>Uup</b> [288]	116 ununhexium <b>Uuh</b> [293]	117 ununseptium <b>Uus</b> —	118 ununoctium <b>Uuo</b> [294]

**Key:**

element name
atomic number
symbol
2003 atomic weight (mean relative mass)

## Lanthanoids

lanthanum <b>La</b> 138.9055(2)	cerium <b>Ce</b> 140.116(1)	praseodymium <b>Pr</b> 140.90765(2)	neodymium <b>Nd</b> 144.24(3)	promethium <b>Pm</b> [145]	samarium <b>Sm</b> 150.36(3)	europium <b>Eu</b> 151.964(1)	gadolinium <b>Gd</b> 157.25(3)	terbium <b>Tb</b> 158.92534(2)	dysprosium <b>Dy</b> 162.500(1)	holmium <b>Ho</b> 164.93032(2)	erbium <b>Er</b> 167.259(3)	thulium <b>Tm</b> 168.93421(2)	ytterbium <b>Yb</b> 173.054(5)
actinium <b>Ac</b> [227]	thorium <b>Th</b> 232.0381(1)	protactinium <b>Pa</b> 231.03588(2)	uranium <b>U</b> 238.02891(3)	neptunium <b>Np</b> [237]	plutonium <b>Pu</b> [244]	americium <b>Am</b> [243]	curium <b>Cm</b> [247]	berkelium <b>Bk</b> [247]	californium <b>Cf</b> [251]	einsteinium <b>Es</b> [252]	fermium <b>Fm</b> [257]	mendelevium <b>Md</b> [258]	nobelium <b>No</b> [259]

## Actinoids

**Element symbols and names:** symbols, names, and spellings are recommended by IUPAC (<http://www.iupac.org/>). Names are not yet proposed for the elements beyond 111 - those used here are IUPAC's temporary systematic names (Pure & Appl. Chem., 1979, 51, 381–384). In the USA and some other countries, the spellings **aluminum** and **cesium** are normal while in the UK and elsewhere the usual spelling is **sulphur**.

**Atomic weights (mean relative masses):** Apart from the heaviest elements, these are IUPAC 2007 values (Pure & Appl. Chem., 2007, in press). Elements with values given in brackets have no stable nuclides and are represented by integer values for the longest-lived isotope known at the time writing. The elements thorium, protactinium, and uranium have characteristic terrestrial abundances and these are the values quoted. The last significant figure of each value is considered reliable to ±1 except where a larger uncertainty is given in parentheses.

**Periodic table organisation:** for a justification of the positions of the elements La, Ac, Lu, and Lr in the WebElements periodic table see W.B. Jensen, "The positions of lanthanum (actinium) and lutetium (lawrencium) in the periodic table", J. Chem. Ed., 1982, 59, 634–636.

**Group labels:** the numeric system (1–18) used here is the current IUPAC convention. For a discussion of this and other common systems see: W.C. Fernelius and W.H. Powell, "Confusion in the periodic table of the elements", J. Chem. Ed., 1982, 59, 504–508.

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# The WebElements™ printable periodic table

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## Web Links

If you are connected to the Internet and your Adobe Acrobat software is sufficiently current, click on any of the elements in the periodic table from within the Adobe Acrobat reader to retrieve information about that element from the WebElements site. To do this, you will need an appropriate Web browser program. You may need to update your Adobe Acrobat Reader program [<http://www.adobe.com/acrobat/>].

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