

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

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
hydrogen 1 <b>H</b> 1.00794(7)																	helium 2 <b>He</b> 4.002602(2)
lithium 3 <b>Li</b> 6.941(2)	beryllium 4 <b>Be</b> 9.012182(3)											boron 5 <b>B</b> 10.811(7)	carbon 6 <b>C</b> 12.0107(8)	nitrogen 7 <b>N</b> 14.00674(7)	oxygen 8 <b>O</b> 15.9994(3)	fluorine 9 <b>F</b> 18.9984032(5)	neon 10 <b>Ne</b> 20.1797(6)
sodium 11 <b>Na</b> 22.989770(2)	magnesium 12 <b>Mg</b> 24.3050(6)											aluminium 13 <b>Al</b> 26.981538(2)	silicon 14 <b>Si</b> 28.0855(3)	phosphorus 15 <b>P</b> 30.973761(2)	sulfur 16 <b>S</b> 32.066(6)	chlorine 17 <b>Cl</b> 35.4527(9)	argon 18 <b>Ar</b> 39.948(1)
potassium 19 <b>K</b> 39.0983(1)	calcium 20 <b>Ca</b> 40.078(4)											gallium 31 <b>Ga</b> 69.723(1)	germanium 32 <b>Ge</b> 72.61(2)	arsenic 33 <b>As</b> 74.92160(2)	selenium 34 <b>Se</b> 78.96(3)	bromine 35 <b>Br</b> 79.904(1)	krypton 36 <b>Kr</b> 83.80(1)
rubidium 37 <b>Rb</b> 85.4678(3)	strontium 38 <b>Sr</b> 87.62(1)											indium 49 <b>In</b> 114.818(3)	tin 50 <b>Sn</b> 118.710(7)	antimony 51 <b>Sb</b> 121.760(1)	tellurium 52 <b>Te</b> 127.60(3)	iodine 53 <b>I</b> 126.90447(3)	xenon 54 <b>Xe</b> 131.29(2)
caesium 55 <b>Cs</b> 132.90545(2)	barium 56 <b>Ba</b> 137.327(7)	57-70 *										thallium 81 <b>Tl</b> 204.3833(2)	lead 82 <b>Pb</b> 207.2(1)	bismuth 83 <b>Bi</b> 208.98038(2)	polonium 84 <b>Po</b> [208.9824]	astatine 85 <b>At</b> [209.9871]	radon 86 <b>Rn</b> [222.0176]
francium 87 <b>Fr</b> [223.0197]	radium 88 <b>Ra</b> [226.0254]	89-102 **										ununquadium 114 <b>Uuq</b> [289]		unhexhium 116 <b>Uuh</b> [289]		ununoctium 118 <b>Uuo</b> [293]	
			scandium 21 <b>Sc</b> 44.955910(8)	titanium 22 <b>Ti</b> 47.867(1)	vanadium 23 <b>V</b> 50.9415(1)	chromium 24 <b>Cr</b> 51.9961(6)	manganese 25 <b>Mn</b> 54.938049(9)	iron 26 <b>Fe</b> 55.845(2)	cobalt 27 <b>Co</b> 58.933200(9)	nickel 28 <b>Ni</b> 58.6934(2)	copper 29 <b>Cu</b> 63.546(3)	zinc 30 <b>Zn</b> 65.39(2)					
			yttrium 39 <b>Y</b> 88.90585(2)	zirconium 40 <b>Zr</b> 91.224(2)	niobium 41 <b>Nb</b> 92.90638(2)	molybdenum 42 <b>Mo</b> 95.94(1)	technetium 43 <b>Tc</b> [98.9063]	ruthenium 44 <b>Ru</b> 101.07(2)	rhodium 45 <b>Rh</b> 102.90550(2)	palladium 46 <b>Pd</b> 106.42(1)	silver 47 <b>Ag</b> 107.8682(2)	cadmium 48 <b>Cd</b> 112.411(8)					
			lutetium 71 <b>Lu</b> 174.967(1)	hafnium 72 <b>Hf</b> 178.49(2)	tantalum 73 <b>Ta</b> 180.9479(1)	tungsten 74 <b>W</b> 183.84(1)	rhenium 75 <b>Re</b> 186.207(1)	osmium 76 <b>Os</b> 190.23(3)	iridium 77 <b>Ir</b> 192.217(3)	platinum 78 <b>Pt</b> 195.078(2)	gold 79 <b>Au</b> 196.96655(2)	mercury 80 <b>Hg</b> 200.59(2)					
			lawrencium 103 <b>Lr</b> [262.110]	rutherfordium 104 <b>Rf</b> [261.1089]	dubnium 105 <b>Db</b> [262.1144]	seaborgium 106 <b>Sg</b> [263.1186]	bohrium 107 <b>Bh</b> [264.12]	hassium 108 <b>Hs</b> [265.1306]	meitnerium 109 <b>Mt</b> [268]	ununnium 110 <b>Uun</b> [269]	unununium 111 <b>Uuu</b> [272]	ununbium 112 <b>Uub</b> [277]					

**Key:**  
 element name  
 atomic number  
 element symbol  
 1997 atomic weight (mean relative mass)

\*lanthanoids

\*\*actinoids

lanthanum 57 <b>La</b> 138.9055(2)	cerium 58 <b>Ce</b> 140.116(1)	praseodymium 59 <b>Pr</b> 140.90765(2)	neodymium 60 <b>Nd</b> 144.24(3)	promethium 61 <b>Pm</b> [144.9127]	samarium 62 <b>Sm</b> 150.36(3)	europium 63 <b>Eu</b> 151.964(1)	gadolinium 64 <b>Gd</b> 157.25(3)	terbium 65 <b>Tb</b> 158.92534(2)	dysprosium 66 <b>Dy</b> 162.50(3)	holmium 67 <b>Ho</b> 164.93032(2)	erbium 68 <b>Er</b> 167.26(3)	thulium 69 <b>Tm</b> 168.93421(2)	ytterbium 70 <b>Yb</b> 173.04(3)
actinium 89 <b>Ac</b> [227.0277]	thorium 90 <b>Th</b> 232.0381(1)	protactinium 91 <b>Pa</b> 231.03588(2)	uranium 92 <b>U</b> 238.0289(1)	neptunium 93 <b>Np</b> [237.0482]	plutonium 94 <b>Pu</b> [244.0642]	americium 95 <b>Am</b> [243.0614]	curium 96 <b>Cm</b> [247.0703]	berkelium 97 <b>Bk</b> [247.0703]	californium 98 <b>Cf</b> [251.0796]	einsteinium 99 <b>Es</b> [252.0830]	fermium 100 <b>Fm</b> [257.0951]	mendelevium 101 <b>Md</b> [258.0984]	nobelium 102 <b>No</b> [259.1011]

**Symbols and names:** the symbols of the elements, their names, and their spellings are those recommended by IUPAC. After some controversy, the names of elements 101-109 are now confirmed: see Pure & Appl. Chem., 1997, 69, 2471-2473. Names have not been proposed as yet for the most recently discovered elements: 110-112, 114, 116, and 118 so those used here are IUPAC's temporary systematic names: see 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. 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.

**Atomic weights (mean relative masses):** see Pure & Appl. Chem., 1996, 68, 2339-2359. These are the IUPAC 1995 values. Elements for which the atomic weight is contained within square brackets have no stable nuclides and are represented by one of the element's more important isotopes. However, the three elements thorium, protactinium, and uranium do 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.

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## Web Links

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