

# The periodic table

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1 Hydrogen 1 <b>H</b> 1.008	2 Helium 2 <b>He</b> 4.0026	3 Lithium 3 <b>Li</b> 6.94	4 Beryllium 4 <b>Be</b> 9.0122	5 Boron 5 <b>B</b> 10.81	6 Carbon 6 <b>C</b> 12.011	7 Nitrogen 7 <b>N</b> 14.007	8 Oxygen 8 <b>O</b> 15.999	9 Fluorine 9 <b>F</b> 18.998	10 Neon 10 <b>Ne</b> 20.180	11 Sodium 11 <b>Na</b> 22.990	12 Magnesium 12 <b>Mg</b> 24.305	13 Aluminium 13 <b>Al</b> 26.982	14 Silicon 14 <b>Si</b> 28.085	15 Phosphorus 15 <b>P</b> 30.974	16 Sulfur 16 <b>S</b> 32.06	17 Chlorine 17 <b>Cl</b> 35.45	18 Argon 18 <b>Ar</b> 39.948	
Potassium 19 <b>K</b> 39.098	Calcium 20 <b>Ca</b> 40.078(4)	Scandium 21 <b>Sc</b> 44.956	Titanium 22 <b>Ti</b> 47.867	Vanadium 23 <b>V</b> 50.942	Chromium 24 <b>Cr</b> 51.996	Manganese 25 <b>Mn</b> 54.938	Iron 26 <b>Fe</b> 55.845(2)	Cobalt 27 <b>Co</b> 58.933	Nickel 28 <b>Ni</b> 58.693	Copper 29 <b>Cu</b> 63.546(3)	Zinc 30 <b>Zn</b> 65.38(2)	Gallium 31 <b>Ga</b> 69.723	Germanium 32 <b>Ge</b> 72.630(8)	Arsenic 33 <b>As</b> 74.922	Selenium 34 <b>Se</b> 78.971(8)	Bromine 35 <b>Br</b> 79.904	Krypton 36 <b>Kr</b> 83.798(2)	
Rubidium 37 <b>Rb</b> 85.468	Strontium 38 <b>Sr</b> 87.62	Yttrium 39 <b>Y</b> 88.906	Zirconium 40 <b>Zr</b> 91.224(2)	Niobium 41 <b>Nb</b> 92.906(2)	Molybdenum 42 <b>Mo</b> 95.95	Technetium 43 <b>Tc</b> [98.906]	Ruthenium 44 <b>Ru</b> 101.07(2)	Rhodium 45 <b>Rh</b> 102.91	Palladium 46 <b>Pd</b> 106.42	Silver 47 <b>Ag</b> 107.87	Cadmium 48 <b>Cd</b> 112.41	Indium 49 <b>In</b> 114.82	Tin 50 <b>Sn</b> 118.71	Antimony 51 <b>Sb</b> 121.76	Tellurium 52 <b>Te</b> 127.60(3)	Iodine 53 <b>I</b> 126.90	Xenon 54 <b>Xe</b> 131.29	
Caesium 55 <b>Cs</b> 132.91	Barium 56 <b>Ba</b> 137.33	57-70 *	Lutetium 71 <b>Lu</b> 174.97	Hafnium 72 <b>Hf</b> 178.49(2)	Tantalum 73 <b>Ta</b> 180.95	Tungsten 74 <b>W</b> 183.84	Rhenium 75 <b>Re</b> 186.21	Osmium 76 <b>Os</b> 190.23(2)	Iridium 77 <b>Ir</b> 192.22	Platinum 78 <b>Pt</b> 195.08	Gold 79 <b>Au</b> 196.97	Mercury 80 <b>Hg</b> 200.59	Thallium 81 <b>Tl</b> 204.38	Lead 82 <b>Pb</b> 207.2	Bismuth 83 <b>Bi</b> 208.98	Polonium 84 <b>Po</b> [208.98]	Astatine 85 <b>At</b> [209.99]	Radon 86 <b>Rn</b> [222.02]
Francium 87 <b>Fr</b> [223.02]	Radium 88 <b>Ra</b> [226.03]	89-102 **	Lawrencium 103 <b>Lr</b> [262.11]	Rutherfordium 104 <b>Rf</b> [267.12]	Dubnium 105 <b>Db</b> [270.13]	Seaborgium 106 <b>Sg</b> [269.13]	Bohrium 107 <b>Bh</b> [270.13]	Hassium 108 <b>Hs</b> [270.13]	Meitnerium 109 <b>Mt</b> [278.16]	Darmstadtium 110 <b>Ds</b> [281.17]	Roentgenium 111 <b>Rg</b> [281.17]	Copernicium 112 <b>Cn</b> [285.18]	Nihonium 113 <b>Nh</b> [286.18]	Flerovium 114 <b>Fl</b> [289.19]	Moscovium 115 <b>Mc</b> [289.19]	Livermorium 116 <b>Lv</b> [293.20]	Tennessee 117 <b>Ts</b> [293.21]	Oganesson 118 <b>Og</b> [294.21]

Key:

Element Name
Atomic number
<b>Symbol</b>
Atomic weight (mean relative mass)

Lanthanoid	Cerium 58 <b>Ce</b> 140.12	Praseodymium 59 <b>Pr</b> 140.91	Neodymium 60 <b>Nd</b> 144.24	Promethium 61 <b>Pm</b> [144.91]	Samarium 62 <b>Sm</b> 150.36(2)	Europium 63 <b>Eu</b> 151.96	Gadolinium 64 <b>Gd</b> 157.25(3)	Terbium 65 <b>Tb</b> 158.93	Dysprosium 66 <b>Dy</b> 162.50	Holmium 67 <b>Ho</b> 164.93	Erbium 68 <b>Er</b> 167.26	Thulium 69 <b>Tm</b> 168.93	Ytterbium 70 <b>Yb</b> 173.05
Actinoid	Thorium 90 <b>Th</b> 232.04	Protactinium 91 <b>Pa</b> 231.04	Uranium 92 <b>U</b> 238.03	Neptunium 93 <b>Np</b> [237.05]	Plutonium 94 <b>Pu</b> [244.06]	Americium 95 <b>Am</b> [243.06]	Curium 96 <b>Cm</b> [247.07]	Berkelium 97 <b>Bk</b> [247.07]	Californium 98 <b>Cf</b> [251.08]	Einsteinium 99 <b>Es</b> [252.08]	Fermium 100 <b>Fm</b> [257.10]	Mendelevium 101 <b>Md</b> [258.10]	Nobelium 102 <b>No</b> [259.10]

\*lanthanoids

\*\*actinoids

Symbols and names: the symbols and names of the elements, and their spellings are those recommended by the International Union of Pure and Applied Chemistry (IUPAC - <http://www.iupac.org/>). In some countries, the spellings aluminium, caesium, and sulphur are usual.  
 Group labels: the numeric system (1-18) used here is the current IUPAC convention.  
 Atomic weights (mean relative masses): these are the IUPAC 2013 values and given to 5 significant figures. The last significant figure of each value is considered reliable to  $\pm 1$  except where a larger uncertainty is given in parentheses. IUPAC representative values are given for those elements having an atomic weight interval (H, Li, B, C, N, O, Si, S, Cl, Ti). Elements for which the atomic weight is listed within square brackets and are represented by the element's longest lived isotope reported in the IUPAC 2013 values except Tc for which the value of Tc-99 given as that is the most commonly used isotope.

Symbol	Element	Atomic Number	Avg. Atomic Mass	Symbol	Element	Atomic Number	Avg. Atomic Mass	Symbol	Element	Atomic Number	Avg. Atomic Mass
Ac	Actinium	89	227	Hf	Hafnium	72	178.49	Pr	Praseodymium	59	140.90766
Al	Aluminum	13	26.982	Hs	Hassium	108	270	Pm	Promethium	61	145
Am	Americium	95	243	He	Helium	2	4.002602	Pa	Protactinium	91	231.03588
Sb	Antimony	51	121.76	Ho	Holmium	67	164.93	Ra	Radium	88	226
Ar	Argon	18	39.948	H	Hydrogen	1	1.008	Rn	Radon	86	222
As	Arsenic	33	74.922	In	Indium	49	114.818	Re	Rhenium	75	186.207
At	Astatine	85	210	I	Iodine	53	126.904	Rh	Rhodium	45	102.90549
Ba	Barium	56	137.327	Ir	Iridium	77	192.217	Rg	Roentgenium	111	282
Bk	Berkelium	97	247	Fe	Iron	26	55.845	Rb	Rubidium	37	85.4678
Be	Beryllium	4	9.0121831	Kr	Krypton	36	83.798	Ru	Ruthenium	44	101.07
Bi	Bismuth	83	208.9804	La	Lanthanum	57	138.90547	Rf	Rutherfordium	104	267
Bh	Bohrium	107	270	Lr	Lawrencium	103	266	Sm	Samarium	62	150.36
B	Boron	5	10.81	Pb	Lead	82	207.2	Sc	Scandium	21	44.9559
Br	Bromine	35	79.904	Li	Lithium	3	6.94	Sg	Seaborgium	106	269
Cd	Cadmium	48	112.414	Lv	Livermorium	116	293	Se	Selenium	34	78.971
Ca	Calcium	20	40.078	Lu	Lutetium	71	174.9668	Si	Silicon	14	28.085
Cf	Californium	98	251	Mg	Magnesium	12	24.305	Ag	Silver	47	107.8682
C	Carbon	6	12.011	Mn	Manganese	25	54.938043	Na	Sodium	11	22.9898
Ce	Cerium	58	140.116	Mt	Meitnerium	109	278	Sr	Strontium	38	87.62
Cs	Cesium	55	132.9055	Md	Mendelevium	101	258	S	Sulfur	16	32.06
Cl	Chlorine	17	35.453	Hg	Mercury	80	200.592	Ta	Tantalum	73	180.94788
Cr	Chromium	24	51.9961	Mo	Molybdenum	42	95.95	Tc	Technetium	43	98
Co	Cobalt	27	58.933194	Mc	Moscovium	115	290	Te	Tellurium	52	127.6
Cn	Copernicium	112	285	Nd	Neodymium	60	144.242	Ts	Tennesine	117	294
Cu	Copper	29	63.546	Ne	Neon	10	20.1797	Tb	Terbium	65	158.925
Cm	Curium	96	247	Np	Neptunium	93	237	Tl	Thallium	81	204.38
Ds	Darmstadtium	110	281	Ni	Nickel	28	58.6934	Th	Thorium	90	232.0377
Db	Dubnium	105	268	Nh	Nihonium	113	286	Tm	Thulium	69	168.934
Dy	Dysprosium	66	162.5	Nb	Niobium	41	92.90637	Sn	Tin	50	118.71
Es	Einsteinium	99	252	N	Nitrogen	7	14.007	Ti	Titanium	22	47.867
Er	Erbium	68	167.259	No	Nobelium	102	259	W	Tungsten	74	183.84
Eu	Europium	63	151.964	Og	Oganesson	118	294	U	Uranium	92	238.02891
Fm	Fermium	100	257	Os	Osmium	76	190.23	V	Vanadium	23	50.9415
Fl	Flerovium	114	289	O	Oxygen	8	15.999	Xe	Xenon	54	131.293
F	Fluorine	9	18.998	Pd	Palladium	46	106.42	Yb	Ytterbium	70	173.045
Fr	Francium	87	223	P	Phosphorus	15	30.9738	Y	Yttrium	39	88.90584
Gd	Gadolinium	64	157.25	Pt	Platinum	78	195.084	Zn	Zinc	30	65.38
Ga	Gallium	31	69.723	Pu	Plutonium	94	244	Zr	Zirconium	40	91.224
Ge	Germanium	32	72.63	Po	Polonium	84	209				
Au	Gold	79	196.967	K	Potassium	19	39.0983				

Average atomic masses are given for elements with stable isotopes. Elements without any stable isotopes show the mass number of the longest-lived isotope.