

Table 1 Standard atomic weights 1999.[Scaled to $A_r(^{12}\text{C}) = 12$, where ^{12}C is a neutral atom in its nuclear and electronic ground state.]

The atomic weights of many elements are not invariant but depend on the origin and treatment of the material. The standard values of $A_r(E)$ and the uncertainties (in parentheses, following the last significant figure to which they are attributed) apply to elements of natural terrestrial origin. The footnotes to this table elaborate the types of variation which may occur for individual elements and which may be larger than the listed uncertainties of values of $A_r(E)$. Names of elements with atomic number 110 to 118 are provisional.

Alphabetical order in English

Name	Symbol	Atomic Number	Atomic Weight	Footnotes
Actinium*	Ac	89		
Aluminium (Aluminum)	Al	13	26.981 538(2)	
Americium*	Am	95		
Antimony (Stibium)	Sb	51	121.760(1)	g
Argon	Ar	18	39.948(1)	g r
Arsenic	As	33	74.921 60(2)	
Astatine*	At	85		
Barium	Ba	56	137.327(7)	
Berkelium*	Bk	97		
Beryllium	Be	4	9.012 182(3)	
Bismuth	Bi	83	208.980 38(2)	
Bohrium*	Bh	107		
Boron	B	5	10.811(7)	g m r
Bromine	Br	35	79.904(1)	
Cadmium	Cd	48	112.411(8)	g
Caesium (Cesium)	Cs	55	132.905 45(2)	
Calcium	Ca	20	40.078(4)	g
Californium*	Cf	98		
Carbon	C	6	12.0107(8)	g r
Cerium	Ce	58	140.116(1)	g
Chlorine	Cl	17	35.453(2)	g m r
Chromium	Cr	24	51.9961(6)	
Cobalt	Co	27	58.933 200(9)	
Copper (Cuprum)	Cu	29	63.546(3)	r
Curium*	Cm	96		
Dubnium*	Db	105		
Dysprosium	Dy	66	162.50(3)	g
Einsteinium*	Es	99		
Erbium	Er	68	167.259(3)	g
Europium	Eu	63	151.964(1)	g
Fermium*	Fm	100		
Fluorine	F	9	18.998 4032(5)	
Francium*	Fr	87		
Gadolinium	Gd	64	157.25(3)	g
Gallium	Ga	31	69.723(1)	
Germanium	Ge	32	72.64(1)	
Gold (Aurum)	Au	79	196.966 55(2)	
Hafnium	Hf	72	178.49(2)	
Hassium*	Hs	108		

Table 1 (Continued)

Name	Symbol	Atomic Number	Atomic Weight	Footnotes
Helium	He	2	4.002 602(2)	g r
Holmium	Ho	67	164.930 32(2)	
Hydrogen	H	1	1.007 94(7)	g m r
Indium	In	49	114.818(3)	
Iodine	I	53	126.904 47(3)	
Iridium	Ir	77	192.217(3)	
Iron (Ferrum)	Fe	26	55.845(2)	
Krypton	Kr	36	83.80(1)	g m
Lanthanum	La	57	138.9055(2)	g
Lawrencium*	Lr	103		
Lead (Plumbum)	Pb	82	207.2(1)	g r
Lithium	Li	3	[6.941(2)] [†]	g m r
Lutetium	Lu	71	174.967(1)	g
Magnesium	Mg	12	24.3050(6)	
Manganese	Mn	25	54.938 049(9)	
Meitnerium*	Mt	109		
Mendelevium*	Md	101		
Mercury (Hydrargyrum)	Hg	80	200.59(2)	
Molybdenum	Mo	42	95.94(1)	g
Neodymium	Nd	60	144.24(3)	g
Neon	Ne	10	20.1797(6)	g m
Neptunium*	Np	93		
Nickel	Ni	28	58.6934(2)	
Niobium	Nb	41	92.906 38(2)	
Nitrogen	N	7	14.0067(2)	g r
Nobelium*	No	102		
Osmium	Os	76	190.23(3)	g
Oxygen	O	8	15.9994(3)	g r
Palladium	Pd	46	106.42(1)	g
Phosphorus	P	15	30.973 761(2)	
Platinum	Pt	78	195.078(2)	
Plutonium*	Pu	94		
Polonium*	Po	84		
Potassium (Kalium)	K	19	39.0983(1)	
Praseodymium	Pr	59	140.907 65(2)	
Promethium*	Pm	61		
Protactinium*	Pa	91	231.035 88(2)	
Radium*	Ra	88		
Radon*	Rn	86		
Rhenium	Re	75	186.207(1)	
Rhodium	Rh	45	102.905 50(2)	
Rubidium	Rb	37	85.4678(3)	g
Ruthenium	Ru	44	101.07(2)	g
Rutherfordium*	Rf	104		
Samarium	Sm	62	150.36(3)	g
Scandium	Sc	21	44.955 910(8)	
Seaborgium*	Sg	106		
Selenium	Se	34	78.96(3)	r

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Table 1 (Continued)

Name	Symbol	Atomic Number	Atomic Weight	Footnotes
Silicon	Si	14	28.0855(3)	r
Silver (Argentum)	Ag	47	107.8682(2)	g
Sodium (Natrium)	Na	11	22.989 770(2)	
Strontium	Sr	38	87.62(1)	g r
Sulfur	S	16	32.065(5)	g r
Tantalum	Ta	73	180.9479(1)	
Technetium*	Tc	43		
Tellurium	Te	52	127.60(3)	g
Terbium	Tb	65	158.925 34(2)	
Thallium	Tl	81	204.3833(2)	
Thorium*	Th	90	232.0381(1)	g
Thulium	Tm	69	168.934 21(2)	
Tin (Stannum)	Sn	50	118.710(7)	g
Titanium	Ti	22	47.867(1)	
Tungsten (Wolfram)	W	74	183.84(1)	
Ununbium*	Uub	112		
Ununhexium*	Uuh	116		
Ununnilium*	Uun	110		
Ununoctium*	Uuo	118		
Ununquadium*	Uuq	114		
Unununium*	Uuu	111		
Uranium*	U	92	238.028 91(3)	g m
Vanadium	V	23	50.9415(1)	
Xenon	Xe	54	131.293(6)	g m
Ytterbium	Yb	70	173.04(3)	g
Yttrium	Y	39	88.905 85(2)	
Zinc	Zn	30	65.39(2)	
Zirconium	Zr	40	91.224(2)	g

*Element has no stable nuclides. One or more well-known isotopes are given in Table 3 with the appropriate relative atomic mass and half-life. However, three such elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.

†Commercially available Li materials have atomic weights that range between 6.939 and 6.996; if a more accurate value is required, it must be determined for the specific material.

g geological specimens are known in which the element has an isotopic composition outside the limits for normal material. The difference between the atomic weight of the element in such specimens and that given in the table may exceed the stated uncertainty.

m modified isotopic compositions may be found in commercially available material because it has been subjected to an undisclosed or inadvertent isotopic fractionation. Substantial deviations in atomic weight of the element from that given in the table can occur.

r range in isotopic composition of normal terrestrial material prevents a more precise $A_r(E)$ being given; the tabulated $A_r(E)$ value should be applicable to any normal material.