Periodic Table of the Elements

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 **H** Hydrogen [1.00784, 1.00811]																	2 **He** Helium 4.002602
2	3 **Li** Lithium [6.938, 6.997]	4 **Be** Beryllium 9.0121831											5 **B** Boron [10.806, 10.821]	6 **C** Carbon [12.0096, 12.0116]	7 **N** Nitrogen [14.00643, 14.00728]	8 **O** Oxygen [15.99903, 15.99977]	9 **F** Fluorine 18.998403162	10 **Ne** Neon 20.1797
3	11 **Na** Sodium 22.98976928	12 **Mg** Magnesium [24.304, 24.307]											13 **Al** Aluminium 26.9815385	14 **Si** Silicon [28.084, 28.086]	15 **P** Phosphorus 30.973761998	16 **S** Sulfur [32.059, 32.076]	17 **Cl** Chlorine [35.446, 35.457]	18 **Ar** Argon [39.792, 39.963]
4	19 **K** Potassium 39.0983	20 **Ca** Calcium 40.078	21 **Sc** Scandium 44.955907	22 **Ti** Titanium 47.867	23 **V** Vanadium 50.9415	24 **Cr** Chromium 51.9961	25 **Mn** Manganese 54.938043	26 **Fe** Iron 55.845	27 **Co** Cobalt 58.933194	28 **Ni** Nickel 58.6934	29 **Cu** Copper 63.546	30 **Zn** Zinc 65.38	31 **Ga** Gallium 69.723	32 **Ge** Germanium 72.630	33 **As** Arsenic 74.921595	34 **Se** Selenium 78.971	35 **Br** Bromine [79.901, 79.907]	36 **Kr** Krypton 83.798
5	37 **Rb** Rubidium 85.4678	38 **Sr** Strontium 87.62	39 **Y** Yttrium 88.905838	40 **Zr** Zirconium 91.224	41 **Nb** Niobium 92.90637	42 **Mo** Molybdenum 95.95	43 **Tc** Technetium (99)	44 **Ru** Ruthenium 101.07	45 **Rh** Rhodium 102.90549	46 **Pd** Palladium 106.42	47 **Ag** Silver 107.8682	48 **Cd** Cadmium 112.414	49 **In** Indium 114.818	50 **Sn** Tin 118.710	51 **Sb** Antimony 121.760	52 **Te** Tellurium 127.60	53 **I** Iodine 126.90447	54 **Xe** Xenon 131.293
6	55 **Cs** Caesium 132.90545196	56 **Ba** Barium 137.327	51–71 * Lanthanides	72 **Hf** Hafnium 178.486	73 **Ta** Tantalum 180.94788	74 **W** Tungsten 183.84	75 **Re** Rhenium 186.207	76 **Os** Osmium 190.23	77 **Ir** Iridium 192.217	78 **Pt** Platinum 195.084	79 **Au** Gold 196.966570	80 **Hg** Mercury 200.592	81 **Tl** Thallium [204.382, 204.385]	82 **Pb** Lead [206.14, 207.94]	83 **Bi** Bismuth 208.98040	84 **Po** Polonium (210)	85 **At** Astatine (210)	86 **Rn** Radon (222)
7	87 **Fr** Francium (223)	88 **Ra** Radium (226)	89–103 ** Actinides	104 **Rf** Rutherfordium (267)	105 **Db** Dubnium (268)	106 **Sg** Seaborgium (271)	107 **Bh** Bohrium (272)	108 **Hs** Hassium (277)	109 **Mt** Meitnerium (276)	110 **Ds** Darmstadtium (281)	111 **Rg** Roentgenium (280)	112 **Cn** Copernicium (285)	113 **Nh** Nihonium (278)	114 **Fl** Flerovium (289)	115 **Mc** Moscovium (289)	116 **Lv** Livermorium (293)	117 **Ts** Tennessine (293)	118 **Og** Oganesson (294)

*	57 **La** Lanthanum 138.90547	58 **Ce** Cerium 140.116	59 **Pr** Praseodymium 140.90766	60 **Nd** Neodymium 144.242	61 **Pm** Promethium (145)	62 **Sm** Samarium 150.36	63 **Eu** Europium 151.964	64 **Gd** Gadolinium 157.25	65 **Tb** Terbium 158.925354	66 **Dy** Dysprosium 162.500	67 **Ho** Holmium 164.930329	68 **Er** Erbium 167.259	69 **Tm** Thulium 168.934219	70 **Yb** Ytterbium 173.045	71 **Lu** Lutetium 174.9668
**	89 **Ac** Actinium (227)	90 **Th** Thorium 232.0377	91 **Pa** Protactinium 231.03588	92 **U** Uranium 238.02891	93 **Np** Neptunium (237)	94 **Pu** Plutonium (239)	95 **Am** Americium (243)	96 **Cm** Curium (247)	97 **Bk** Berkelium (247)	98 **Cf** Californium (252)	99 **Es** Einsteinium (252)	100 **Fm** Fermium (257)	101 **Md** Mendelevium (258)	102 **No** Nobelium (259)	103 **Lr** Lawrencium (262)

Constants

atomic mass constant	m_u	=	$1.660\,539\,066\,60(50) \times 10^{-27}\,\mathrm{kg}$
Avogadro constant	N_A	=	$6.022\,140\,76 \times 10^{23}\,\mathrm{mol}^{-1}$
Boltzmann constant	k	=	$1.380\,649 \times 10^{-23}\,\mathrm{J/K}$
Faraday constant	F	=	$96\,485.332\,12\cdots\,\mathrm{C/mol}$
gas constant	R	=	$8.314\,462\,618\cdots\,\mathrm{J\,K^{-1}\,mol^{-1}}$
moler volume (0 °C, 1 atm)	V_m	=	$22.413\,969\,54\cdots \times 10^{-3}\ \mathrm{m^3/mol}$
Stefan–Boltzmann constant	σ	=	$5.670\,374\,419\cdots \times 10^{-8}\ \mathrm{W\,m^{-2}\,K^{-4}}$
standard atmosphere	1 atm	=	101 325 Pa
Absolute zero	0 K	=	−273.15 °C

speed of light in vacuum	c	=	$299\,792\,458\,\mathrm{m/s}$
vacuum permeability	μ_0	=	$1.256\,637\,062\,12(19) \times 10^{-6}\,\mathrm{N/A^2}$
vacuum permittivity	ε_0	=	$8.854\,187\,812\,8(13) \times 10^{-12}\,\mathrm{F/m}$
gravitational constant	G	=	$6.674\,30(15) \times 10^{-11}\,\mathrm{N\,m^2/kg^2}$
Planck constant	h	=	$6.626\,070\,15 \times 10^{-34}\,\mathrm{J\,s}$
elementary charge	e	=	$1.602\,176\,634 \times 10^{-19}\,\mathrm{C}$
electron mass	m_e	=	$9.109\,383\,701\,5(28) \times 10^{-31}\,\mathrm{kg}$
Bohr radius	a_0	=	$5.291\,772\,109\,03(80) \times 10^{-11}\,\mathrm{m}$
Rydberg constant	R_∞	=	$1.097\,373\,156\,816\,0(21) \times 10^{7}\,\mathrm{m^{-1}}$

Reference 国立天文台（2023）『理科年表 2023』丸善出版