

PERIODIC TABLE OF THE ELEMENTS

PRENTICE HALL

Main groups		Transition metals										Main groups					
1A ^a 1	2A 2	3B 3	4B 4	5B 5	6B 6	7B 7	8B 8 9 10			1B 11	2B 12	3A 13	4A 14	5A 15	6A 16	7A 17	8A 18
1 H 1.00794												B 10.811	C 12.0107	N 14.0067	O 15.9994	F 18.998403	Ne 20.1797
2 Li 6.941	Be 9.012182											Al 26.981538	Si 28.0855	P 30.973761	S 32.065	Cl 35.453	Ar 39.948
3 Na 22.989770	Mg 24.3050											Ga 69.723	Ge 72.64	As 74.92160	Se 78.96	Br 79.904	Kr 83.80
4 K 39.0983	Ca 40.078	Sc 44.955910	Ti 47.867	V 50.9415	Cr 51.9961	Mn 54.938049	Fe 55.845	Co 58.933200	Ni 58.6934	Cu 63.546	Zn 65.39	In 114.818	Sn 118.710	Sb 121.760	Te 127.60	I 126.90447	Xe 131.293
5 Rb 85.4678	Sr 87.62	Y 88.90585	Zr 91.224	Nb 92.90638	Mo 95.94	Tc [98]	Ru 101.07	Rh 102.90550	Pd 106.42	Ag 107.8682	Cd 112.411						
6 Cs 132.90545	Ba 137.327	Lu 174.967	Hf 178.49	Ta 180.9479	W 183.84	Re 186.207	Os 190.23	Ir 192.2217	Pt 195.078	Au 196.96655	Hg 200.59	Tl 204.3833	Pb 207.2	Bi 208.98038	Po [208.98]	At [209.99]	Rn [222.02]
7 Fr [223.02]	Ra [226.03]	Lr [262.11]	Rf [261.11]	Db [262.11]	Sg [266.12]	Bh [264.12]	Hs [269.13]	Mt [268.14]	110 [271.15]	111 [272.15]	112 [277]		114 [285]		116 [289]		

*Lanthanide series	57 *La 138.9055	58 Ce 140.116	59 Pr 140.90765	60 Nd 144.24	61 Pm [145]	62 Sm 150.36	63 Eu 151.964	64 Gd 157.25	65 Tb 158.92534	66 Dy 162.50	67 Ho 164.93032	68 Er 167.259	69 Tm 168.93421	70 Yb 173.04
†Actinide series	89 †Ac [227.03]	90 Th 232.0381	91 Pa 231.03588	92 U 238.02891	93 Np [237.05]	94 Pu [244.06]	95 Am [243.06]	96 Cm [247.07]	97 Bk [247.07]	98 Cf [251.08]	99 Es [252.08]	100 Fm [257.10]	101 Md [258.10]	102 No [259.10]

^aThe labels on top (1A, 2A, etc.) are common American usage. The labels below these (1, 2, etc.) are those recommended by the International Union of Pure and Applied Chemistry.

The names and symbols for elements 110 and above have not yet been decided.

Atomic weights in brackets are the masses of the longest-lived or most important isotope of radioactive elements.

Further information is available at <http://www.shef.ac.uk/chemistry/web-elements/>

The production of element 116 was reported in May 1999 by scientists at Lawrence Berkeley National Laboratory.

USEFUL CONVERSION FACTORS AND RELATIONSHIPS

Length

SI unit: meter (m)

1 km = 0.62137 mi
1 mi = 5280 ft
= 1.6093 km
1 m = 1.0936 yd
1 in. = 2.54 cm (exactly)
1 cm = 0.39370 in.
1 Å = 10^{-10} m

Mass

SI unit: kilogram (kg)

1 kg = 2.2046 lb
1 lb = 453.59 g
= 16 oz
1 amu = $1.66053873 \times 10^{-24}$ g

Temperature

SI unit: Kelvin (K)

0 K = -273.15°C
= -459.67°F
K = $^{\circ}\text{C} + 273.15$
$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32^{\circ})$
$^{\circ}\text{F} = \frac{9}{5} ^{\circ}\text{C} + 32^{\circ}$

Energy (derived)

SI unit: Joule (J)

1 J = $1 \text{ kg}\cdot\text{m}^2/\text{s}^2$
1 J = 0.2390 cal
= 1 C \times 1 V
1 cal = 4.184 J
1 eV = 1.602×10^{-19} J

Pressure (derived)

SI unit: Pascal (Pa)

1 Pa = 1 N/m ²
= 1 kg/m \cdot s ²
1 atm = 101,325 Pa
= 760 torr
= 14.70 lb/in ²
1 bar = 10 ⁵ Pa

Volume (derived)

SI unit: cubic meter (m³)

1 L = 10 ⁻³ m ³
= 1 dm ³
= 10 ³ cm ³
= 1.0567 qt
1 gal = 4 qt
= 3.7854 L
1 cm ³ = 1 mL
1 in ³ = 16.4 cm ³

FUNDAMENTAL CONSTANTS*

Atomic mass unit	1 amu = $1.66053873 \times 10^{-24}$ g
	1 g = $6.02214199 \times 10^{23}$ amu
Avogadro's number	N = $6.02214199 \times 10^{23}$ /mol
Boltzmann's constant	k = $1.3806503 \times 10^{-23}$ J/K
Electron charge	e = $1.602176462 \times 10^{-19}$ C
Faraday's constant	F = 9.64853415×10^4 C/mol
Gas constant	R = 0.082058205 L \cdot atm/mol \cdot K
Mass of electron	m_e = 5.485799×10^{-4} amu
	= $9.10938188 \times 10^{-28}$ g
Mass of neutron	m_n = 1.0086649 amu
	= $1.67492716 \times 10^{-24}$ g
Mass of proton	m_p = 1.0072765 amu
	= $1.67262158 \times 10^{-24}$ g
Pi	π = 3.1415927
Planck's constant	h = $6.62606876 \times 10^{-34}$ J \cdot s
Speed of light	c = 2.99792458×10^8 m/s

*Fundamental constants are listed at the National Institute of Standards and Technology website:
<http://physics.nist.gov/PhysRefData/contents.html>

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