

Units of Measurement

Weight/Mass

Da	dalton	1 Da	= 1.65 × 10 ⁻²⁴ g
g	gram	1 g	= 0.3035 oz (avoirdupois)
kg	kilogram	1 kg	= 2.2 lb
Mg	megagram, metric ton	1 Mg	= 10 ⁶ g or 2,205 lb
µg	microgram	1 µg	= 10 ⁻⁶ g
mg	milligram	1 mg	= 1/1,000 g; 10 ⁻³ g
mol	mole	1 mol	= molecular weight in grams
ng	nanogram	1 ng	= 10 ⁻⁹ g
oz	ounce (avoirdupois)	1 oz	= 28.3 g
pg	picogram	1 pg	= 10 ⁻¹² g
lb	pound	1 lb	= 0.45 kg

Length

cm	centimeter	100 cm	= 1 m
dm	decimeter	1 dm	= 1/10 m
ft	foot	1 ft	= 0.3 m
in.	inch	1 in.	= 2.54 cm
km	kilometer	1 km	= 0.6 mi
m	meter	1 m	= 3.3 ft
µm	micrometer, micron	1 µm	= 10 ⁻⁶ m
mi	mile	1 mi	= 1.6 km
mm	millimeter	1 mm	= 1/1,000 m; 10 ⁻³ m
nm	nanometer	1 nm	= 10 ⁻⁹ m

Area

A	acre	1 A	= 4047 m ²
Ha	hectare	1 Ha	= 2.47 A
m ²	square meter	1 m ²	= 10.8 ft ²

Volume

ft ³	cubic foot	1 ft ³	= 0.028 m ³
m ³	cubic meter	1 m ³	= 35 ft ³
cm ³ or cc	cubic centimeter	1 cc	= approximately 1 mL
gal	gallon (U.S.)	1 gal	= 3.8 L
L	liter	1 L	= 1.05 liquid quarts
mL	milliliter	1 mL	= 10 ⁻³ L
p.g.	proof gallon	1 p.g.	= 1 liquid gal of spirits that contains 50% alcohol at 60°F

Concentration

mM	millimolar	1 mM	= 1 M/1,000
mppcf	millions of particles per cubic foot	mppcf × 35.3	= millions of particles/m ³
M	molar; moles of solute per liter of solution		
N	normal; 1 gram equivalent of solute per L of solution		
ppm	parts per million	1 ppm	= 1 mg/kg = (mg/m ³)(24.45)/(mol wt)
ppb	parts per billion	1 ppb	= 1 µg/kg
ppt	parts per trillion	1 ppt	= 1 ng/kg

Pressure

kPa	kilopascal	1 kPa	= 0.145 lb/in ²
MPa	megapascal	1 MPa	= 1 Pa × 10 ⁶
mm Hg	millimeter of mercury	1 mm Hg	= 0.0193 lb/in ²
Pa	pascal	1 Pa	= 1 N/m ²

Force

N	newton	1 N	= 1 kg × m per s ²
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Temperature

°C	degrees Celsius	= (°F - 32) × 5/9
°F	degrees Fahrenheit	= (°C × 9/5) + 32
K	kelvin	1 K = 3.6609 × 10 ⁻³ of the thermodynamic temperature of the triple point of pure water = °C + 273.15 = [(°F - 32)/1.8] + 273.15

Energy/Power

A	ampere	1 A	= 1 C/s
C	coulomb	1 C	= 1 A × s
eV	electronvolt	1 eV	= 1.6 × 10 ⁻¹² erg
	erg	1 erg	= 10 ⁻⁷ J
J	joule	1 J	= 10 ⁷ erg
keV	kiloelectronvolt	1 keV	= 1,000 eV
MeV	megaelectronvolt	1 MeV	= 1 × 10 ⁶ eV
mW	milliwatt	1 mW	= 10 ⁴ erg/s

Radiation

Bq	becquerel	1 Bq	= 1 disintegration per second
Ci	curie	1 Ci	= 3.7 × 10 ¹⁰ disintegrations per second
Gy	gray	1 Gy	= 1 J/kg (physical quantity)
mCi	millicurie	1 mCi	= 10 ⁻³ Ci
pCi	picocurie	1 pCi	= 10 ⁻¹² Ci
	rad	1 rad	= 0.01 Gy
R	roentgen	1 R	= 2.58 × 10 ⁻⁴ C per kg
rem	roentgen equivalent man	1 rem	= 0.01 Sv
Sv	sievert	1 Sv	= 1 J/kg (biological effect)

DNA or RNA (length of nucleic acid chain)

kb	kilobase	1 kb	= 1,000 nucleotides of RNA = 2,000 nucleotides of DNA (1,000 pairs of nucleotides)
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Exponentials (Scientific Notation)

10², 10³, 10⁶, etc.: superscripts refer to the number of times 10 is multiplied by itself, e.g., 10² = 10 × 10 = 100; 10³ = 10 × 10 × 10 = 1,000, etc.