

1.2 SI units

SI base units

<i>physical quantity</i>	<i>name</i>	<i>symbol</i>
length	metre ^a	m
mass	kilogram	kg
time interval	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol
luminous intensity	candela	cd

^aOr “meter”.

SI derived units

<i>physical quantity</i>	<i>name</i>	<i>symbol</i>	<i>equivalent units</i>
catalytic activity	katal	kat	mol s^{-1}
electric capacitance	farad	F	C V^{-1}
electric charge	coulomb	C	A s
electric conductance	siemens	S	Ω^{-1}
electric potential difference	volt	V	J C^{-1}
electric resistance	ohm	Ω	V A^{-1}
energy, work, heat	joule	J	N m
force	newton	N	m kg s^{-2}
frequency	hertz	Hz	s^{-1}
illuminance	lux	lx	cd sr m^{-2}
inductance	henry	H	$\text{V A}^{-1} \text{s}$
luminous flux	lumen	lm	cd sr
magnetic flux	weber	Wb	V s
magnetic flux density	tesla	T	V s m^{-2}
plane angle	radian	rad	m m^{-1}
power, radiant flux	watt	W	J s^{-1}
pressure, stress	pascal	Pa	N m^{-2}
radiation absorbed dose	gray	Gy	J kg^{-1}
radiation dose equivalent ^a	sievert	Sv	$[\text{J kg}^{-1}]$
radioactive activity	becquerel	Bq	s^{-1}
solid angle	steradian	sr	$\text{m}^2 \text{m}^{-2}$
temperature ^b	degree Celsius	$^{\circ}\text{C}$	K

^aTo distinguish it from the gray, units of J kg^{-1} should not be used for the sievert in practice.

^bThe Celsius temperature, T_{C} , is defined from the temperature in kelvin, T_{K} , by $T_{\text{C}} = T_{\text{K}} - 273.15$.



SI prefixes^a

<i>factor</i>	<i>prefix</i>	<i>symbol</i>	<i>factor</i>	<i>prefix</i>	<i>symbol</i>
10 ²⁴	yotta	Y	10 ⁻²⁴	yocto	y
10 ²¹	zetta	Z	10 ⁻²¹	zepto	z
10 ¹⁸	exa	E	10 ⁻¹⁸	atto	a
10 ¹⁵	peta	P	10 ⁻¹⁵	femto	f
10 ¹²	tera	T	10 ⁻¹²	pico	p
10 ⁹	giga	G	10 ⁻⁹	nano	n
10 ⁶	mega	M	10 ⁻⁶	micro	μ
10 ³	kilo	k	10 ⁻³	milli	m
10 ²	hecto	h	10 ⁻²	centi	c
10 ¹	deca ^b	da	10 ⁻¹	deci	d

^aThe kilogram is the only SI unit with a prefix embedded in its name and symbol. For mass, the unit name “gram” and unit symbol “g” should be used with these prefixes, hence 10⁻⁶ kg can be written as 1 mg. Otherwise, any prefix can be applied to any SI unit.

^bOr “deka”.

Recognised non-SI units

<i>physical quantity</i>	<i>name</i>	<i>symbol</i>	<i>SI value</i>
area	barn	b	10 ⁻²⁸ m ²
energy	electron volt	eV	≈ 1.602 18 × 10 ⁻¹⁹ J
length	ångström	Å	10 ⁻¹⁰ m
	fermi ^a	fm	10 ⁻¹⁵ m
	micron ^a	μm	10 ⁻⁶ m
plane angle	degree	°	(π/180) rad
	arcminute	'	(π/10 800) rad
	arcsecond	"	(π/648 000) rad
pressure	bar	bar	10 ⁵ N m ⁻²
time	minute	min	60 s
	hour	h	3 600 s
	day	d	86 400 s
mass	unified atomic mass unit	u	≈ 1.660 54 × 10 ⁻²⁷ kg
	tonne ^{a,b}	t	10 ³ kg
volume	litre ^c	l, L	10 ⁻³ m ³

^aThese are non-SI names for SI quantities.

^bOr “metric ton.”

^cOr “liter”. The symbol “l” should be avoided.

