


LON-CAPA Units

You can see the full list of units currently accepted by LON-CAPA by clicking on the small blue question-mark symbol  that appears whenever you enter units that are not understood by the program. The following tables are adapted from the LON-CAPA help file about acceptable units. You can only use the **symbols** shown when entering the units. For example, you must use “35 kg”, not “35 kilograms”. Combinations of units are written as “kg*m/s^2”, “J/(g*K)”, etc.

Some Physical Units Accepted by LON-CAPA

Base Units

name	symbol	quantity
meter	m	length
kilogram	kg	mass
second	s	time
ampere	A	electric current
kelvin	K	thermodynamic temperature
mole	mol	amount of substance
candela	cd	luminous intensity

Common SI Derived Units

name	symbol	description
radian	rad	plane angle
degree	deg	plane angle (π rad = 180 deg)
steradian	sr	solid angle
newton	N	force
joule	J	energy, work, heat
watt	W	power, radiant flux
pascal	Pa	pressure, stress
hertz	Hz	frequency
coulomb	C	electric charge
volt	V	electric potential, electromotive force
ohm	ohm	electric resistance
farad	F	electric capacitance
henry	H	inductance
tesla	T	magnetic flux density
weber	Wb	magnetic flux
electronvolt	eV	energy
becquerel	Bq	activity (radioactive)
gray	Gy	absorbed dose (of radiation)
sievert	Sv	dose equivalent (dose equivalent index)

Prefixes

Prefix	symbol	factor
yotta	Y	10^{24}
zetta	Z	10^{21}
exa	E	10^{18}
peta	P	10^{15}
tera	T	10^{12}
giga	G	10^9
mega	M	10^6
kilo	k	10^3
hecto	h	10^2
deci	d	10^{-1}
centi	c	10^{-2}
milli	m	10^{-3}
micro	u	10^{-6}
nano	n	10^{-9}
pico	p	10^{-12}
femto	f	10^{-15}
atto	a	10^{-18}
zepto	z	10^{-21}
yocto	y	10^{-24}

Derived Units used in Chemistry

name	symbol	description
liter	L	volume
gram	g	mass
amu	amu	atomic mass unit
calorie	cal	energy
torr	torr	pressure
mm Hg	mmHg	pressure
atm	atm	standard atmosphere

Some Other Physical Units Accepted by LON-CAPA

name	symbol	description
ounce	oz	mass
pound	lb	mass
pound_force	lbf	force
dyne	dyn	force
hour	hr	time
minute	min	time
day	day	time
year	yr	time
astroUnit	AU	mean distance earth to sun
inch	in	length
foot	ft	length
mile	mi	length
yard	yd	length
nautical_mile	n_mi	length, nautical mile (UK)
rood	rood	area
acre	acre	area
bar	bar	pressure
Btu	Btu	energy
ohm	ohms	electric resistance
ohm	Ohm	electric resistance
ohm	Ohms	electric resistance
siemens	S	electric conductance
lumen	lm	luminous flux
lux	lx	illuminance

Warning to students:

You must remember that some of the ways you enter answers into LON-CAPA are wrong if used on an exam, quiz, or in a lab report. They are used here because your computer keyboard does not have Greek letters or a universal way of designating a superscript or subscript. The “micro” prefix μ is one of those problem areas. You must enter um or uF when using LON-CAPA, but must write μm or μF when doing anything else. This computer-only notation will be marked wrong on exams. Similarly, you must use superscripts and subscripts correctly on everything else you do in your course. Using a shortcut for scientific notation (such as 6.02e-9 for 6.02×10^{-9}) or for chemical formulas (such as H2O for H_2O) is not acceptable and should never be used outside of LON-CAPA.

Computer Geek Details

The coded units are interpreted in the order of basic unit, derived unit, then prefix. For example, “min” will match “minutes” instead of being treated as a combination of the prefix “m” and the unit “in”. Further, “T” by itself will always be matched against “tesla” instead of considered shorthand for 10^{12} (which would be improper usage in any case).