

Lettergram.Net – Physics Standards (units)

Standard Units for Physics:

Quantity	Units	Symbol
Length	Meter	m
Mass	Kilogram	kg
Time	Seconds	s
Temperature	Kelvin	K
Amount of Substance	Mole	mol
Luminous Intensity	Candela	cd
Electric Current	Ampere	A

In order to solve equations in physics as a rule of thumb all problems should be converted into the standard units shown above.

Ex) 5 km/hr should not be the speed while riding a bike, it should be converted into m/s.

$$5\text{km} = 5 * (1 \times 10^3) \text{ m} = 5,000 \text{ meters}$$

$$1\text{hr} = 60 \text{ minutes} = 3,600 \text{ seconds}$$

$$5,000/3,600 = 1.4 \text{ m/s (rounded)}$$

Standard Dimensions:

Area	Volume	Speed	Acceleration
L^2	L^3	L/t	L/t^2
m^2	m^3	m/s	m/s^2

Table of Powers of Ten (Most SI are based of powers of ten):

Power (10^x)	Prefix	Abbreviation
-24	Yocto	y
-21	Zepto	z
-18	Atto	a
-15	Femto	f
-12	Pico	P
-9	Nano	n
-6	Micro	μ
-3	Milli	m
-2	Centi	c
-1	Deci	d
3	Kilo	k
6	Mega	M
9	Giga	G
12	Tera	T
15	Peta	P
21	Exa	E
21	Zetta	Z
24	Yotta	Y

Ex) The reason centimeters have the units of “cm” is because it is one hundredth of a meter (1×10^{-2} m), ***Centi-Meter***.

If I was to convert 1.2 kilometers into centimeters it would be 1.2×10^3 *(because kilometers is 1×10^3 power of meters), then $(1.2 \times 10^3 \text{ m}) \times (1 \times 10^2 \text{ m}) = 1.2 \times 10^5 \text{ cm}$. This is because it takes 1×10^2 cm to make one meter, because a centimeter is 1×10^{-2} or .01 of a meter, just as it takes 1,000 meters to make 1 kilometer.

Why Powers of Ten:

To clarify as best I can, all of these powers of ten are related to a standard for mass it would be grams, for length, area, or volume it is meters, etc. *You may be curious as to why we use kilograms as our standard mass, this is because if we used grams as our standard units the weights of our objects would be harder to calculate due to the decimal place (kilograms are larger and often decimal places need not be excessively large).

Recommendations:

Because I do not know the specific knowledge each individual has using this guide, I would recommend that if there is something I mention that you do not fully understand you either use [YouTube](#) to find a video; Tweet me via [Twitter](#) *(though I may be a while getting back); Comment on the related post on [Lettergram.net](#) or simply ask your teacher.