SI Base Units
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Overview

The International System of Units, also known as the SI Base Units are an internationally agreed on and recognized system of measurement. Originating in 1960 at the 11th General Conference on Weights and Measures (CGPM). It consists of seven base units with each unit having a formal definition and justification.

By allowing for consistent and universal measures of common measurements, the SI unit system is important academically and commercially, facilitating international research cooperation and commerce.

In recent years, proposals have been made to revise the SI, but any revisions would not be made until mid 2019. Thus, this guide will focus on existing definitions of the SI base units.

Length: Meter

Name	Symbol	Measure	Definition	Origin
Meter	m	Length	"The metre is the length of the path travelled by light in vacuum during a time interval of 1 / 299792458 of a second." -17th CGPM	1/10,000,000 or 10^{-7} of the distance from the equator to the North Pole.

Conversions: 1 meter is equal to...

- 1.0936 yd.
- 3.2808 ft.
- 39.730 in. (2.54 cm/in.)

Mass: Kilogram

Name	Symbol	Measure	Definition	Origin
Kilogram	kg	Mass	"The kilogram is the unit of mass; it is equal to the mass of the international prototype of the kilogram" -3rd CGPM	Mass of a liter of water at the temperature of melting ice.

Conversions: 1 kilogram is equal to...

- 2.205 lbs. (approx.)

Time: Second

Name	Symbol	Measure	Definition	Origin
Second	s	Time	"The second is the duration of 9192631770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium 133 atom." -13th *CGPM*	1/86400 of a day. Spittling a day in 24 hours, each hour in 60 minutes, and each minute into 60 seconds.

Conversions: 1 second is equal to...

- 2.205 lbs. (approx.)

Electric Current: Ampere

Name	Symbol	Measure	Definition	Origin
Ampere	A	Electric current	"The ampere is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 metre apart in vacuum, would produce between these conductors a force equal to 2×10^{-7} newton per metre of length." *-9th CGPM*	1/10 of the current that generates a force of two dynes per centimeter between two wires one centimeter away.

Conversions:

Watts = Amps * Volts

Temperature: Kelvin

Name	Symbol	Measure	Definition	Origin
Kelvin	K	Temperature	"The kelvin, unit of thermodynamic temperature, is the fraction 1 / 273.16 of the thermodynamic temperature of the triple point of water." *-13th CGPM*	Based off Celsius scale, putting absolute zero at 0K and increasing in increments of celsius.

Conversions:

- K= C + 273015
- C= [5(F-32)]/9