THE SI MEASUREMENT SYSTEM

The International System of Units (SI) is made up of 7 base units, featured on this chart with their Measurement League counterparts. The SI, commonly known as the metric system, is easy to use.

SECOND (s): Time

Defined with atomic precision, one second is equal to the time it takes for a cesium atom to send out 9,192,631,770 "wiggles" of microwave radiation.

AMPERE (A): Electric Current

The ampere is equal to the flow of approximately 6 quintillion electrons past a single point per second—that's 6 followed by 18 zeroes!

MOLE (mol): Substance

A mole is a shorthand way to talk about huge amounts of tiny things. One mole of anything—atoms, molecules, even moles—is equal to about 600 sextillion of that item—that's 6 followed by 23 zeroes!

KILOGRAM (kg): Mass

Mass is a measure of how much matter is in an object. If a hammer has a mass of one kilogram, you can figure out how much it weighs both on Earth and on the Moon.

UNCERTAINTY (?): Unknown

Though not a base unit, uncertainty is an important aspect of any measurement. It tells you how much error is in a measurement and how much your number may differ from the actual "true" value of what you're measuring.

CANDELA (cd): Luminous Intensity

One candela is about equal to the light given off by a single candle.

METER (m): Length

The meter is how far light travels in just 1/299,792,458 of a second through empty space (vacuum).

KELVIN (K): Temperature

Water freezes at 273 K and boils at 373 K. The coldest temperature is zero K, also called "absolute zero." Nothing can get that cold, but scientists can cool atoms very close to that temperature.

PREFIXES

Place Value	1 000 000 000 000 000 000 000 000	1 000 000 000 000 000 000 000	1 000 000 000 000 000 000	1 000 000 000 000 000	1 000 000 000 000	1 000 000 000	1 000 000	1 000	100	10	1	0.1	0.01	0.001	0.000 001	0.000 000 001	0.000 000 000 001	0.000 000 000 000 001	0.000 000 000 000 000 001	0.000 000 000 000 000 000 001	0.000 000 000 000 000 000 000 001	0.000 000 000 000 000 000 000 000 001
Scientific Notation	10^{24}	10^{21}	10^{18}	10^{15}	10^{12}	10^{9}	10^{6}	10^{3}	10^{2}	10^{1}	10^{0}	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}	10^{-12}	10^{-15}	10^{-18}	10^{-21}	10^{-24}
Prefix	Y yotta	Z zetta	E exa	P peta	T tera	G giga	M mega	k kilo	h hecto	da deka		d deci	c centi	m milli	μ micro	n nano	p pico	f femto	a atto	z zepto	y yocto

SI symbols are the same worldwide, regardless of the spelling, language, or alphabet. Prefix symbols are used with a unit symbol to represent smaller or larger units by factors that are powers of 10.

National Institute of Standards and Technology
U.S. Department of Commerce

TheSI@nist.gov