

Metric Prefixes

Definitions

The metric system uses standard prefixes with its units, to show changes in the order of magnitude.

Prefix	Short	Word	Number	Scientific
Giga-	G-	billion	1,000,000,000	$\times 10^9$
Mega-	M-	million	1,000,000	$\times 10^6$
kilo-	k-	thousand	1,000	$\times 10^3$
deci-	d-	tenth	1/10 or 0.1	$\times 10^{-1}$
centi-	c-	hundredth	1/100 or 0.01	$\times 10^{-2}$
milli-	m-	thousandth	1/1,000 or 0.001	$\times 10^{-3}$
micro-	μ -	millionth	1/1,000,000 or 0.000001	$\times 10^{-6}$

Examples

Grams, kilograms, and milligrams are different units. But they all measure mass; just on different orders of magnitude:

- A kilogram (kg) is 1,000 grams (g), 1,000,000 milligrams, and 1,000,000,000 micrograms.
- A milliliter (mL) is 1/1000 of a liter, or 0.001 L.

Uses

Technically, you can use any of these prefixes with any metric unit. In practice, some are common and others are rare. For example, it's common to measure liquid in liters and milliliters, but deciliters are only used when talking about measuring toxins in human blood. Nobody uses kiloliters, but people working for public water systems might use megaliters or gegaliters. There is no special pattern; each profession has its own culture.