

# The Metric System

Measurement	Unit and Abbreviation	Metric Equivalent	Metric to English Conversion Factor	English to Metric Conversion Factor
<b>Length</b>	1 kilometer (km)	= 1000 ( $10^3$ ) meters	1 km = 0.62 mile	1 mile = 1.61 km
	1 meter (m)	= 100 ( $10^2$ ) centimeters = 1000 millimeters	1 m = 1.09 yards 1 m = 3.28 feet 1 m = 39.37 inches	1 yard = 0.914 m 1 foot = 0.305 m
	1 centimeter (cm)	= 0.01 ( $10^{-2}$ ) meter	1 cm = 0.394 inch	1 foot = 30.5 cm 1 inch = 2.54 cm
	1 millimeter (mm)	= 0.001 ( $10^{-3}$ ) meter	1 mm = 0.039 inch	
	1 micrometer ( $\mu$ m) [formerly micron( $\mu$ )]	= 0.000001 ( $10^{-6}$ ) meter		
	1 nanometer (nm) [formerly millimicron (m $\mu$ )]	= 0.000000001 ( $10^{-9}$ ) meter		
	1 angstrom ( $\text{\AA}$ )	= 0.0000000001 ( $10^{-10}$ ) meter		
<b>Area</b>	1 square meter ( $\text{m}^2$ )	= 10,000 square centimeters	1 $\text{m}^2$ = 1.1960 square yards 1 $\text{m}^2$ = 10.764 square feet	1 square yard = 0.8361 $\text{m}^2$ 1 square foot = 0.0929 $\text{m}^2$
	1 square centimeter ( $\text{cm}^2$ )	= 100 square millimeters	1 $\text{cm}^2$ = 0.155 square inch	1 square inch = 6.4516 $\text{cm}^2$
<b>Mass</b>	1 metric ton (t)	= 1000 kilograms	1 t = 1.103 ton	1 ton = 0.907 t
	1 kilogram (kg)	= 1000 grams	1 kg = 2.205 pounds	1 pound = 0.4536 kg
	1 gram (g)	= 1000 milligrams	1 g = 0.0353 ounce 1 g = 15.432 grains	1 ounce = 28.35 g
	1 milligram (mg)	= 0.001 gram	1 mg = approx. 0.015 grain	
	1 microgram ( $\mu$ g)	= 0.000001 gram		
<b>Volume (solids)</b>	1 cubic meter ( $\text{m}^3$ )	= 1,000,000 cubic centimeters	1 $\text{m}^3$ = 1.3080 cubic yards 1 $\text{m}^3$ = 35.315 cubic feet	1 cubic yard = 0.7646 $\text{m}^3$ 1 cubic foot = 0.0283 $\text{m}^3$
	1 cubic centimeter ( $\text{cm}^3$ or cc)	= 0.000001 cubic meter = 1 milliliter	1 $\text{cm}^3$ = 0.0610 cubic inch	1 cubic inch = 16.387 $\text{cm}^3$
	1 cubic millimeter ( $\text{mm}^3$ )	= 0.000000001 cubic meter		
<b>Volume (liquids and gases)</b>	1 kiloliter (kl or kL)	= 1000 liters	1 kl = 264.17 gallons	1 gallon = 3.785 L
	1 liter (l or L)	= 1000 milliliters	1 L = 0.264 gallon 1 L = 1.057 quarts	1 quart = 0.946 L
	1 milliliter (ml or mL)	= 0.001 liter = 1 cubic centimeter	1 ml = 0.034 fluid ounce 1 ml = approx. $\frac{1}{4}$ teaspoon 1 ml = approx. 15–16 drops (gtt.)	1 quart = 946 ml 1 pint = 473 ml 1 fluid ounce = 29.57 ml 1 teaspoon = approx. 5 ml
	1 microliter ( $\mu$ l or $\mu$ L)	= 0.000001 liter		
<b>Time</b>	1 second (s)	= $\frac{1}{60}$ minute		
	1 millisecond (ms)	= 0.001 second		
<b>Temperature</b>	Degrees Celsius ( $^{\circ}\text{C}$ )		$^{\circ}\text{F} = \frac{9}{5}^{\circ}\text{C} + 32$	$^{\circ}\text{C} = \frac{5}{9}^{\circ}\text{F} - 32$

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