

Imperial Units

Most of the world uses the **metric system** for measurements. Units like kilometer, kilogram, and liter are known to most people. In a few countries (including the USA), a different system is used. Most people call these **imperial measurements**, though what is used in the US is actually **US customary measurements**. Some measurements of the original imperial system are slightly different from US measurements, so be careful when using measurements from the UK.

This document will introduce imperial units and how to convert them to metric units

Length

The smallest regular unit used for length is the **inch**. 1 inch (also written *1 in* or *1"*) is equal to 2.54 cm. 12" is equal to 1 **foot** (also written *1 ft* or *1'*). 3 **feet** is 1 **yard**. 1,760 yards is 1 **mile**.

Smaller imperial unit	Larger imperial unit	Metric equivalent
	1 inch	2.54cm
12 inches	1 foot	30.48cm
3 feet	1 yard	91.44cm
1,760 yards	1 mile	1.6km (1,609m)

Inches to centimeters: $\text{in} \times 2.54 = \text{cm}$

Centimeters to inches: $\text{cm} / 2.54 = \text{cm}$

Weight

The basic units of weight are the **ounce** and the **pound**. There are sixteen ounces in one pound.

Smaller imperial unit	Larger imperial unit	Metric equivalent
	1 ounce (oz)	28.35g
16oz	1 pound (lb)	453.49g

Pounds to kilograms: $\text{lb} / 2.2 = \text{kg}$

Kilograms to pounds: $\text{kg} \times 2.2 = \text{lb}$

Volume

There are many units of volume used in imperial measurements. The smallest common unit is the fluid ounce. Note that this is NOT the same as the ounce used for weight. Also, the US and UK both used ounces and gallons, but they were slightly different sizes. The measurements here are USA imperial units.

Smaller imperial unit	Larger imperial unit	Metric equivalent
	1 US fluid ounce (fl oz)	29.57ml
8oz	1 cup	236.58ml
2 cups	1 pint	473.18ml
2 pints	1 quart	943.35ml
4 quarts	1 gallon	3785.4ml (3.79L)

Other volumes used for cooking

Smaller imperial unit	Larger imperial unit	Metric equivalent
	1 teaspoon (t)	4.93ml
3 t	1 tablespoon (T)	14.79ml
2 T	1 fluid ounce	29.57
16 T	1 cup	236.58ml

Temperature

Temperature is a little more difficult because the units don't convert as easily. This is because the units are a different size, and they put zero in a different place

Degrees Celsius (°C)	Degrees Fahrenheit (°F)	Significance
100° C	212° F	water boils
37° C	98.6° F	normal human body temperature
20° C	68° F	normal room temperature
0° C	32° F	water freezes
-40° C	-40° F	Celsius and Fahrenheit meet

To convert Celsius to Fahrenheit: $^{\circ}\text{C} \times 1.8 + 32 = ^{\circ}\text{F}$

Example: $15^{\circ}\text{C} \times 1.8 + 32 = 59^{\circ}\text{F}$

To convert Fahrenheit to Celsius: $(^{\circ}\text{F} - 32) \times .5556 = ^{\circ}\text{C}$

Example: $(90^{\circ}\text{F} - 32) \times .5556 = 32^{\circ}\text{C}$

Table of Abbreviations

Unit	Abbreviation	Unit	Abbreviation
inch	in	cup	c
foot	ft	pint	pt
yard	yd	quart	qt
mile	mi	gallon	gal
ounce	oz	teaspoon	t
pound	lb	tablespoon	T
fluid ounce	fl oz		