



Measurement

What do I need to be able to do?

By the end of this unit you should be able to

- Recognise metric measures
- Convert metric measures
- Calculate with metric measures
- Understand Miles and Kilometre relationships
- Recognise Imperial measures and conversions

Keywords

Length - the distance from one point to another

Mass - a measure of how much matter is in an object

Capacity - the amount an object can contain (normally liquids)

Volume - the amount of 3-dimensional space an object takes up (units of length cubed)

Convert - to change a value or expression from one value to another.

Imperial - a system of weights and measures originally developed in England

Metric - a system of measuring that replaced the imperial system to fall in line with the rest of Europe.

Proportion - values of two items that increase in the same ratio

Metric measures

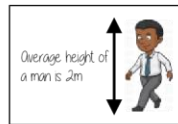
Length Common units of length or distance are

Millimetres (mm) - "Milli" prefix means one thousandth or $\div 1000$

Centimetres (cm) - "Centi" prefix means one hundredth or $\div 100$

Metres (m)

Kilometres (km) - "Kilo" prefix means a thousand $\times 1000$



Mass (Weight)

Grams (g)

Kilograms (kg) - "Kilo" prefix means a thousand $\times 1000$

Tonnes (t)



Capacity

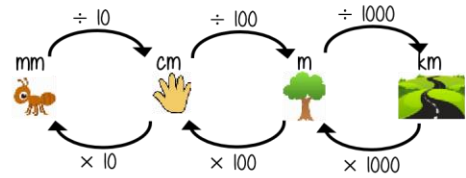
Millilitre (ml) - "Milli" prefix means one thousandth or $\div 1000$

Litre (l)

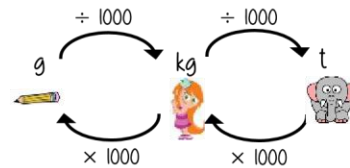


Metric conversions

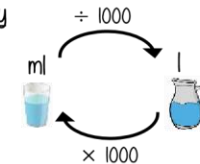
Length



Mass



Capacity



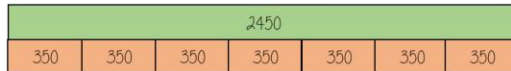
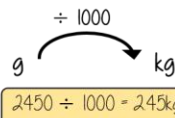
Milli - thousandth
Centi - hundredth
Kilo - thousand

Metric calculations

A package weighs 350g. How much will 7 packages weigh?
Give your answers in kilograms



The final weight is in grams



Calculations tips:

- Do all calculations in the same unit (often the smaller measurement)
- Read for the units of your answer
- Do all conversions of units at the same time
- Represent your image pictorially where possible

Miles and Kilometres

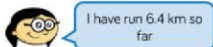
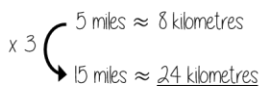
Miles and kilometres are normally used as measures of distance

≈ symbol represents "is approximately equal to"

5 miles ≈ 8 kilometres

Conversion calculations

How many kilometres is 15 miles?



Ron and Onnie are running a 5-mile race.
Who has run the furthest?

5 miles ≈ 8 kilometres
0.625 mile ≈ 1 kilometre
4 miles ≈ 6.4 kilometre

Ron has 1.2 miles left to run
Onnie has 1 mile left to run
Onnie has run the furthest

Imperial measures

Length

2.5 cm ≈ 1 inch

1 foot = 12 inches

Mass

1 pound (lb) = 16 ounces

1 stone = 14 pounds (lbs)

Capacity

1 gallon = 8 pints



In 1965 Britain converted to the metric system for measurement to fall in line with the rest of Europe. We still use an imperial measurement of miles for distance and speed on our roads