# **Metric & Imperial Units**

#### **Metric Units**

- Developed in Europe in 18<sup>th</sup> Century
- Based on decimal system where each unit is divided into blocks of 10, 100 or 1000 smaller units.
- The three main units for decimal measurement are
  - o length in metres (m)
  - o mass in kilograms (kg)
  - o volume in cubic metres (m³) or capacity in litres (l)
- Common equivalences you need to know:
  - Length
    - 10mm = 1 cm
    - 100cm = 1 m
    - 1000m = 1km
  - Mass
    - 1000g = 1kg
    - 1000kg = 1 tonne
  - Volume
    - 1000cm<sup>3</sup> = 1 litre

#### **Imperial Units**

- Used in UK until early 1970's, still used extensively in USA.
- Much less intuitive to see the relationships between units.
  - length in inches, feet and yards {12 inches = 1 foot, 3 feet = 1 yard}
  - o mass in pounds (lb), ounces (oz) and stones {16oz = 1lb, 14 lb = 1 stone}
  - o volume in fluid ounces, pints and gallons {20 floz = 1 pint, 8 pints = 1 gallon}

## **Converting between units**

In an exam you may be asked to convert between metric and imperial units.

You will be given the equivalences between a pair of imperial units, for example that 1 yard = 3 feet.

You may be given the equivalences between some lesser known metric and imperial units, for example that 1 acre = 0.4047 hectare.

You are expected to know the following approximate equivalences:

8km ≈ 5 miles

1kg ≈ 2.2 lb

1 litre ≈ 1.75 pints

### Past Paper Questions

Aled 12 x 14 = 168  + 8  176 1b  Thomas 85 x 2.2 = 187 1b  So Thomas is heavier by 11 pounds  Sian is driving along a road in Germany, which has a speed limit of 80 km per hour. By how much is her speed above or below the speed limit?  She is driving at 55 mph.  By how much is her speed above or below the speed limit?  She is 8 km  So she is 8 km over speed limit.  There are 1760 yards in a mile.  How many yards are there in a kilometre?  Shides & 8 km  2 : 8  0.627 mby 1 km	Which of the two is the heavier, and b	
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	ch most distance was covered was
Difference	in the distance covered was 34cm
At the time when the use today	e pyramids were built, the Egyptians used different measures fro
It is believed that	
	1 pyramid inch = 1:0010846752 inches 1 pyramid cubit = 25 pyramid inches.
We also know that	
	1 inch = 2·54 cm.
Complete the following	ng table
Measure	Equivalent to
1 pyramid cubit	25.027 inches, correct to 3 decimal places
1 pyramid inch	2-543 cm, correct to 4 significant figures
25 × 1.0	010846752 = 25.027
2.54 x 1.0	0010846752 = 2.543
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