Year 7 higher topic 8

Multiplicative reasoning

What careers would use these skills?

Carpenter, builder, lorry driver, sports analyst, hairdresser, vet, dentist, nurse, café worker, painter and decorator, architect

Conversion of metric and imperial units

The Imperial system of measurement is an old measurement system based on everyday activities that originated in England.

The metric system a decimal system of measurement based on 10.

Lengths

Imperial		Metric
1 inch	≈	2.5 cm
1 foot	≈	30 cm
5 miles	≈	8 km

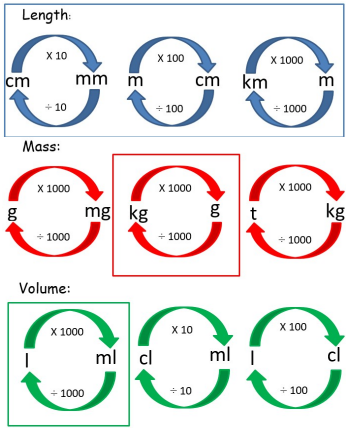
Weights

Imperial		Metric
1 pound	≈	450 g
2.2 pounds	≈	1 kg
1 stone	≈	6.3 kg

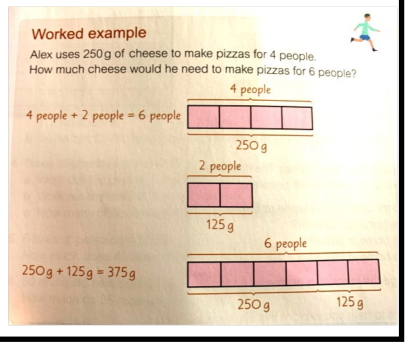
Capacity

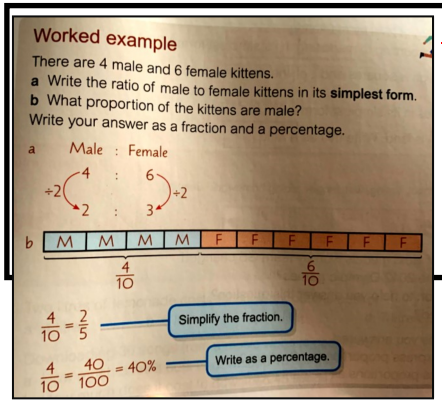
Imperial		Metric
1 pint	≈	570 ml
1 gallon	≈	4.5 l
1.75 pints	≈	1 l

Using metric units



Sharing in a given ratio





Ratio and proportion

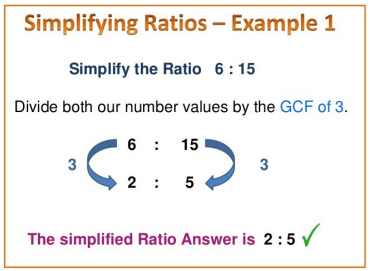
- Ratio compares part to part.
- Proportion compares part to whole.
- Proportions can be written as fractions or percentages.

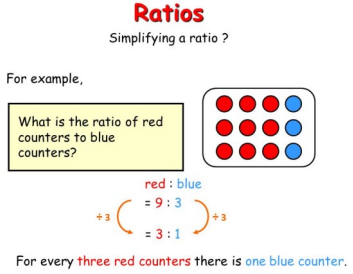
Writing ratios

A ratio is a way of comparing two or more quantities. These show the ratio of red beads to green beads.

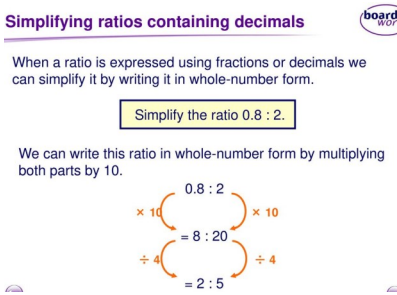
Simplify a ratio

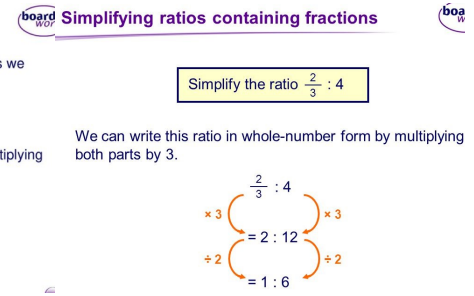
You can make the numbers in a ratio as small as possible by **simplifying**. You simplify a ratio by dividing the numbers in the ratio by the **highest common factor (HCF)**





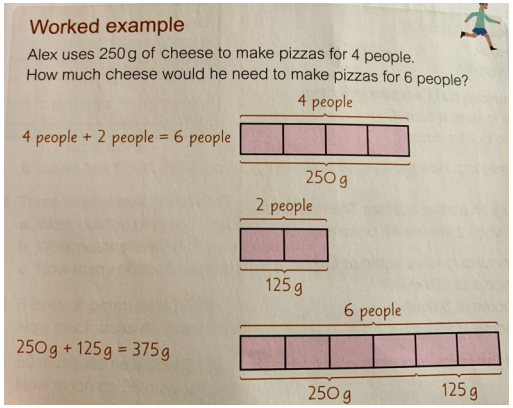
For ratios with fractions or decimals, first multiply both sides of the ratio to get whole numbers





Direct and Proportion

When two quantities are in direct proportion, as one increases or decreases, the other increases or decreases in the same ratio.



Inverse proportion

When two quantities are in invers proportion, as one increases, the other decreases in the same ratio.