@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Use ratio language
- Understand ratios and fractions
- Use the : symbol for ratio
- Calculate ratios
- Use scale factors
- Calculate scale factors
- Link ratio and proportion

Keywords

Ratio: a statement of how two numbers compare
Enlargement: to change the size of a shape
Proportion: a statement that links two rations
Scale Factor: the multiple that increases/ decreases a shape in size
Part: a section of a whole
Scale: the comparison of something drawn to its actual size.
Order: to place a number in a determined sequence

Ratio Language

"For every XXX of XXX there are XXX of XXX"

For every 4 cows there are 3 pigs

For every 3 pigs there are 4 cows

Ratios and fractions

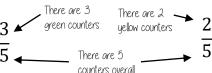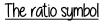For every 3 green counters there are 2 yellow counters

The ratio of green to yellow counters is **3 : 2**

The fraction of green counters is:

The fraction of yellow counters is:

There are 3 green counters → $\frac{3}{5}$

There are 2 yellow counters → $\frac{2}{5}$

There are 5 counters overall

The ratio symbol

"For every 2 strawberries I have 4 bananas and 6 berries"

Ratio of strawberries, bananas and berries **2 : 4 : 6**

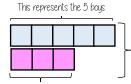The order of notation follows the order of the parts

☐ : ☐

The colon notation is the symbol for ratio "For every…"

Representing a ratio

"For every 5 boys there are 3 girls"

5:3

This is the "whole" – boys and girls together

This represents the 5 boys

This represents the 3 girls

This represents the 5 boys

This is the "whole" – boys and girls together

This represents the 3 girls

Proportion

The ratio of green to yellow counters is **3 : 2**

$\frac{3}{5}$ are green

$\frac{2}{5}$ are yellow

The ratio of green to yellow counters is **6 : 4**

$\frac{6}{10} = \frac{3}{5}$ are green

$\frac{4}{10} = \frac{2}{5}$ are yellow

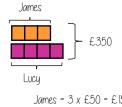Ratio increases proportionally

The proportion remains the same

Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4. Work out how much each person earns
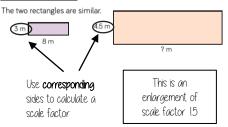
Model the Question

James: Lucy

3 : 4

James

Lucy

£350

Find the value of one part

Whole: £350
7 parts to share between
(3 James, 4 Lucy)

☐ = one part
= £50

£350 ÷ 7 = £50

James = 3 x £50 = £150

£350

Lucy = 4 x £50 = £200

Scale Factors

The two rectangles are similar.

3 m
8 m

4.5 m
? m

Use **corresponding** sides to calculate a scale factor

This is an enlargement of scale factor 1.5

Scale factor can also be calculated by:

Bigger corresponding side
Smaller corresponding side

Small corresponding side — x SF → Big corresponding side

Big corresponding side — ÷ SF → Small corresponding side