



Ratio

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 ratios
- 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

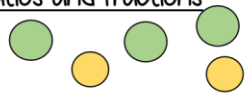
Ratio Language

"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

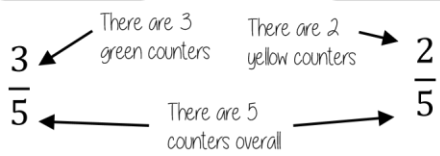


For every 3 green counters there are 2 yellow counters

The ratio of green to yellow counters is 3 : 2

The fraction of green counters is:

The fraction of yellow counters is:



The ratio symbol



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

Ratio of strawberries, bananas and berries

2 : 4 : 6

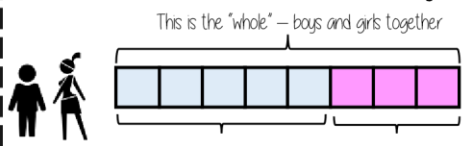
The order of notation follows the order of the parts



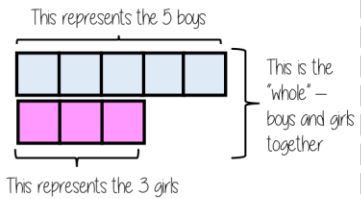
The colon notation is the symbol for ratio "For every..."

Representing a ratio

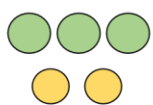
"For every 5 boys there are 3 girls"



5:3



Proportion



The ratio of green to yellow counters is

3 : 2

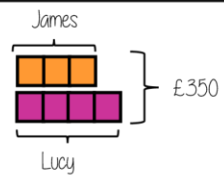
3/5 are green 2/5 are yellow

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

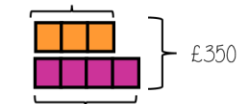


Find the value of one part

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

□ = one part = £50

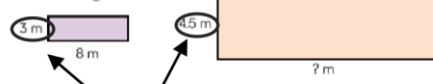
James = 3 x £50 = £150



Lucy = 4 x £50 = £200

Scale Factors

The two rectangles are similar.

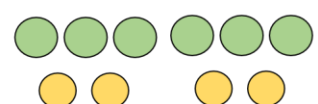
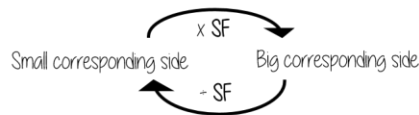


Use corresponding sides to calculate a scale factor

This is an enlargement of scale factor 1.5

Scale factor can also be calculated by

Bigger corresponding side
Smaller corresponding side



The ratio of green to yellow counters is

6 : 4

6/10 = 3/5 are green

4/10 = 2/5 are yellow

Ratio increases proportionally

The proportion remains the same