Representing a ratio

This is the "whole" – boys and girls together

"For every 5 boys there are 3 girls"
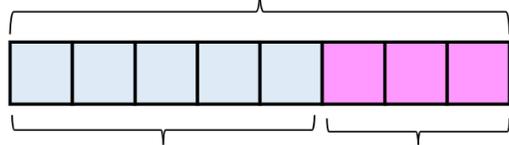
This represents the 5 boys

This represents the 3 girls

$5:3$
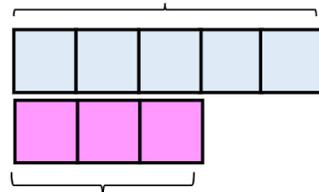
Double Number Line

This represents the 5 boys

This is the "whole" – boys and girls together

This represents the 3 girls

Direct Proportion

As one variable changes the other changes at the same rate.

This is a multiplicative change

4 cans of pop = £2.40

4 cans of pop = £2.40 → ×3 → 12 cans of pop = £7.20 ×3

×0.5 4 cans of pop = £2.40 ×0.5
2 cans of pop = £1.20

This multiplier is the same in the same way that this would be for ratio

Sometimes this is easiest if you work out how much one unit is worth first
e.g. 1 can of pop = £0.60

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
£350
Lucy

Find the value of one part

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

£350 ÷ 7 = £50

☐ = one part = £50

Put back into the question

James: Lucy

(×50) $3 : 4$ (×50)

£150:£200

James = 3 x £50 = £150
£350
Lucy = 4 x £50 = £200

Order is Important

"For every dog there are 2 cats"

Dogs: Cats

$1:2$

The ratio has to be written in the same order as the information is given.
e.g. 2:1 would represent 2 dogs for every 1 cat. ✗

Ratio – part questions

Albert and Beatrice share money in the ratio of 5:4. If Beatrice gets £20, how much does Albert get?

A : B
5 : 4
    20

÷4 (4 parts = £20) ÷4
x5 (1 part = £5) x5
    (5 parts = £25)

Simplifying a ratio

Cancel down the ratio to its lowest form

"For every 6 days of rain there are 4 days of sun"

$6:4$

÷ by 2

$3:2$

rain   sun

Find the biggest common factor that goes into all parts of the ratio
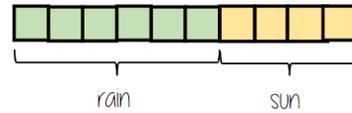
For 6 and 4 the biggest factor (number that multiplies into them is 2)

"For every 3 days of rain there are 2 days of sun" – when this happens twice the ratio becomes 6:4.

Ratio 1:n (or n:1)

This is asking you to cancel down until the part indicated represents 1.

Show the ratio 4:20 in the ratio of 1:n

The question states that **this part has to be 1 unit. Therefore Divide by 4**

$4:20$

$1:5$

This side has to be divided by 4 too – to keep in **proportion**

H the n part does not have to be an integer for this type of question

Ratio as a fraction

Trees: Flowers

$3 : 7$

Trees

Flowers

There are 3 parts for trees

Fraction of trees

$\dfrac{\text{Number of parts of in group}}{\text{Total number of parts}}$

$\dfrac{3}{10}$

Tree parts 3 + Flower parts 7 = 10

Ratio

Fraction