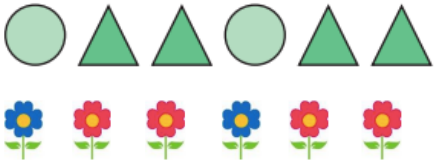
Templars Primary School Knowledge Organiser — Year 6 Ratio

Key Vocabulary

- ratio
- value
- diagram
- relationship
- enlargement
- scale factor
- for every…there are…
- part
- whole
- proportion
- length/width

Using ratio language

For every 1 circle, there are 2 triangles.



For every 2 blue flowers there are 4 pink flowers.
For every blue flower there are 2 pink flowers.

Ratio and fractions

For every red circle there are 2 blue circles.
The **ratio** of red circles to blue circles is **1:2**
1 of the circles are red **2** are blue
3 **3**

The ratio of this bar model is **2: 3 : 4**

Pink = **2/9** Yellow = **3/9** Blue = **4/9**

The ratio symbol

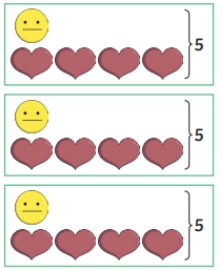
We use a **colon** as the ratio symbol which means **'for every…, there are…'**.
We read ratios e.g. 3 : 5 as **"three to five"**.

The colon relates to the order of parts. For example, 'For every 3 bananas there are 2 apples would be the same as 3 : 2 and for every 2 apples there are 3 bananas would be the same as 2 : 3

Calculating ratio

A farmer plants some crops in a field.
For every 4 carrots he plants 2 leeks.
He plants 48 carrots in total.
How many leeks did he plant?
How many vegetables did he plant in total?

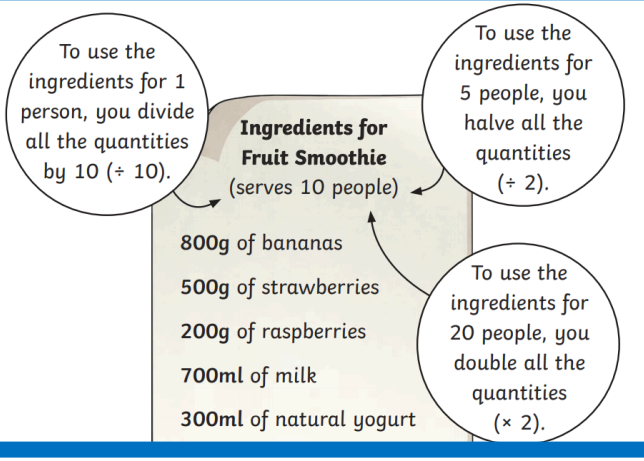
4:2 (For every 4 carrots, there are 2 leeks)
48 ÷ 4 = 12
2 x 12 = 24 leeks
48 carrots + 24 leeks = **72 vegetables in total**



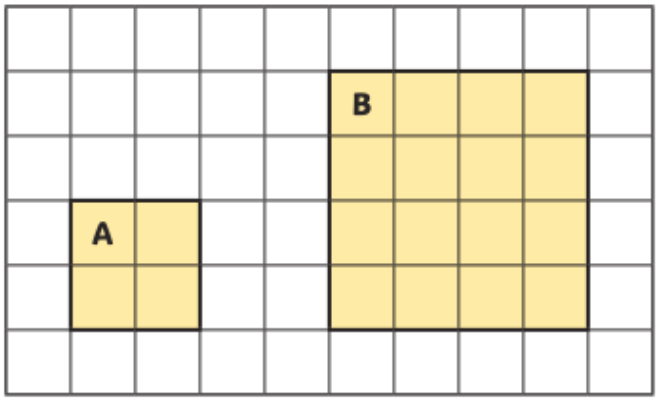
In a bag of 15 sweets, there is 1 smiley face sweet for every 4 love heart sweets.
Ratio = 1:4

Therefore, there will be **3 smiley face sweets and 12 love heart sweets** in the bag.

Ratio and proportion problems



Using scale factors



Shape A has been enlarged by a scale factor of 2 to make Shape B.

Shape B is now two times as big as Shape A.

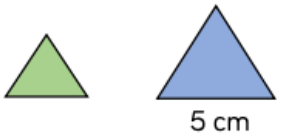
Enlarge these shapes by:

- Scale factor 2
- Scale factor 3
- Scale factor 4

Rectangle = 5cm x 2cm
Scale factor 2 = 10 cm x 4 cm
Scale factor 3 = 15cm x 6cm
Scale factor 4 = 20cm x 8 cm

Triangle = ½ x 6cm x 2cm
Scale factor 2 = ½ x 12cm x 4cm
Scale factor 3 = ½ x 18cm x 6cm
Scale factor 4 = ½ x 24cm x 8cm

Here are two equilateral triangles.
The blue triangle is three times larger than the green triangle.



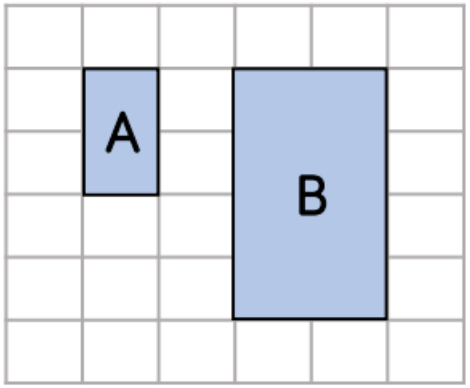
(Not drawn to scale)

Find the perimeter of both triangles.

Perimeter of blue triangle =
5cm x 3 (5 + 5 + 5) = 15cm

Perimeter of green triangle =
15cm ÷ 3 = 5cm

Calculating scale factors



Shape B is ___twice___ as big as shape A.

Shape A has been enlarged by scale factor ___2___ to make shape B.

The rectangles described in the table are all similar to each other.
Fill in the missing lengths and widths and complete the sentences.

Rectangle	Length	Width
A	5 cm	2 cm
B	**10cm**	4 cm
C	25 cm	**10cm**
D	**45cm**	18 cm

From A to B, the scale factor of enlargement is ___2___
From A to C, the scale factor of enlargement is ___5___
From A to D the scale factor of enlargement is ___9___
From B to D, the scale factor of enlargement is ___4.5___