Reasoning and Problem Solving
Step 3: Introducing the Ratio Symbol

National Curriculum Objectives:

Mathematics Year 6: (6R1) Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain if a statement matches the given ratio. Two parts to each ratio.
Expected Explain if a statement matches the given ratio. Three parts to each ratio.
Greater Depth Explain if a statement matches the given ratio. Three parts to each ratio where a fraction is also used.

Questions 2, 5 and 8 (Reasoning)
Developing Using the images, explain why the given statements are correct. Comparing 2 groups.
Expected Using the images, explain why the given statements are correct. Comparing 2 groups where 3 groups are shown. Ratios and fractions used.
Greater Depth Using the images, explain why the given statements are correct. Comparing 2 groups where 3 groups are arranged randomly. Ratios and simplified fractions used.

Questions 3, 6 and 9 (Problem Solving)
Developing Give possible ratios with pictorial evidence to solve a word problem. 2 groups of items, one group larger than the other.
Expected Give possible ratios with pictorial evidence to solve a word problem. 3 groups of items, one group given as a fraction.
Greater Depth Give possible ratios with pictorial evidence to solve a word problem. 3 groups of items where one group is given as a fraction and an additional clue is provided.

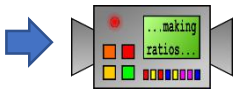
More Year 6 Ratio resources.

Did you like this resource? Don't forget to review it on our website.

Introducing the Ratio Symbol

1a. This machine turns sentences into ratios. Could this ratio be correct?

There are four times as many pears as oranges.



4:2.

Convince me.

D R

2a. Each child's statement is correct.

Rishon

The ratio is 4:1.

The ratio is 1:4.

Riva

Explain how this is possible.

D R

3a. In a purse of 9 coins, some are silver and the rest are copper. There are more silver coins than copper coins.

Write down 3 solutions for the possible ratio of silver to copper coins.

Draw counters to support your answers.

D PS

Introducing the Ratio Symbol

1b. This machine turns sentences into ratios. Could this ratio be correct?

For every 3 boys, there are 2 girls.

3:2

Convince me.

D R

2b. Each child's statement is correct.

Yussuf

The ratio is 3:5.

The ratio is 5:3.

Marium

Explain how this is possible.

D R

3b. In a 10-piece fruit basket, there are only apples and pears. There are more apples than pears.

Write down 3 solutions for the possible ratio of pears to apples.

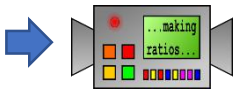
Draw counters to support your answers.

D PS

Introducing the Ratio Symbol

4a. This machine turns sentences into ratios. Could this ratio be correct?

There are twice as many pears as oranges. For every 2 oranges, there are 3 apples.



3:2:4

Convince me.

E R

Introducing the Ratio Symbol

4b. This machine turns sentences into ratios. Could this ratio be correct?

There are three times as many pencils as rulers. For every 3 pencils, there are 2 rubbers.

3:2:1

Convince me.

E R

5a. Each child's statement is correct.

Cole

The ratio is 4:3.

The fraction is $\frac{4}{13}$.

Elise

Explain how this is possible.

E R

5b. Each child's statement is correct.

Eli

The ratio is 5:1.

The fraction is $\frac{1}{8}$.

Verity

Explain how this is possible.

E R

6a. In a bag of 10 sweets, $\frac{3}{5}$ are red. The rest are green or blue.

Write down 3 solutions for the possible ratio of red to blue to green sweets.

Draw counters to support your answers.

E PS

6b. In a class of 30 children, $\frac{2}{3}$ are having sandwiches for lunch. The rest are having cook's choice or jacket potato.

Write down 3 solutions for the possible ratio of jacket potato to sandwiches to cook's choice.

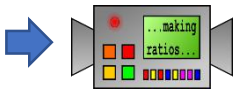
Draw counters to support your answer.

E PS

Introducing the Ratio Symbol

7a. This machine turns sentences into ratios. Could this ratio be correct?

$\frac{3}{8}$ of a bag of sweets are red. For every 2 blue sweets, there are 3 green sweets.



3:2:3

Convince me.

GD

R

Introducing the Ratio Symbol

7b. This machine turns sentences into ratios. Could this ratio be correct?

$\frac{3}{11}$ of a box of chocolates are white. For every 3 milk, there are 5 dark.

11:3:3

Convince me.

GD

R

8a. Each child's statement is correct.

Leemar

The ratio is 2:3.

The fraction is $\frac{1}{3}$.

Persephone

Explain how this is possible.

GD

R

8b. Each child's statement is correct.

Rio

The ratio is 3:5.

The fraction is $\frac{1}{2}$.

Mave

Explain how this is possible.

GD

R

9a. In a class of 30 children, $\frac{3}{10}$ have a pet dog. The rest either have a pet cat or have no pets. More children have a pet than don't have a pet.

Write down 3 solutions for the possible ratio of dogs to cats to none.

Draw counters to support your answers.

GD

PS

9b. In my pencil case of 15 items, $\frac{1}{3}$ are handwriting pens. The rest are either felt tip pens or pencils. There are more pens than pencils.

Write down 3 solutions for the possible ratio of pencils to handwriting pens to felt tip pens.

Draw counters to support your answers.

GD

PS

Reasoning and Problem Solving
Introducing the Ratio Symbol

Developing

1a. No because the ratio of pears to oranges would be 4:1.

2a. Rishon is describing the ratio of triangles to pentagons. Riva is describing the ratio of pentagons to triangles.

3a. Various answers, for example: 8:1, 7:2, 6:3, 5:4

Expected

4a. Yes because the ratio of apples to oranges to pears would be 3:2:4.

5a. Cole is describing the ratio of rectangles to triangles. Elise is describing the proportion of shapes that are rectangles.

6a. Various answers, for example: 6:1:3, 6:2:2, 6:3:1

Greater Depth

7a. Yes because the ratio of red to blue to green sweets would be 3:2:3.

8a. Leemar is describing the ratio of circles to trapeziums. Persephone is describing the proportion of the shapes that are trapeziums.

9a. Various answers, for example: 9:20:1, 9:19:2, 9:18:3

Reasoning and Problem Solving
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Developing

1b. Yes because the ratio of boys to girls would be 3:2.

2b. Yussuf is describing the ratio of circles to squares. Marium is describing the ratio of squares to circles.

3b. Various answers, for example: 1:9, 2:8, 3:7, 4:6

Expected

4b. Yes because the ratio of pencils to rubbers to rulers would be 3:2:1.

5b. Eli is describing the ratio of squares to trapeziums. Verity is describing the proportion of shapes that are trapeziums.

6b. Various answers, for example: 1:20:9, 2:20:8, 3:20:7

Greater Depth

7b. No because the ratio of dark to milk to white would be 5:3:3.

8b. Rio is describing the ratio of hexagons to triangles. Mave is describing the proportion of the shapes that are triangles.

9b. Various answers, for example: 1:5:9, 2:5:8, 3:5:7