Lesson 1: Ratio (1)

➜ pages 153–155

1. a) Fruit sorted into 3 groups, each group containing 1 apple and 2 pears.
b) For every 1 apple there are 2 pears.
For every 2 pears there is 1 apple.

2. a) For every 3 rulers there are 2 pencils.
b) For every 2 pencils there are 3 rulers.
c) $\frac{9}{15} = \frac{3}{5}$ of the objects are rulers.
d) $\frac{6}{15} = \frac{2}{5}$ of the objects are pencils.

3. a) Answers will vary; for example, children could draw 6 triangles and 2 circles.
b) Answers will vary; for example, children could draw 4 squares and 10 circles.

4. a) Shapes and descriptions matched:
Left-hand shape ➜ For every 1 grey square there are 2 white squares,
Middle shape ➜ For every 2 grey squares there is 1 white square,
Right-hand shape ➜ For every 1 grey square there is 1 white square
b) 10 squares shaded grey, leaving 2 white.

5. $\frac{1}{4}$
Yes, if the ratio of the red to white cubes is kept as ratio 3 : 1 then $\frac{1}{4}$ of the cubes will be white regardless of the size of the tower.

6. No, the ratio is 2 white marshmallows to 3 pink. This means that in every 5 marshmallows, 2 are white and 3 are pink. So, $\frac{2}{5}$ of the marshmallows are white and $\frac{3}{5}$ are pink.

Reflect

For every 2 apples there is 1 banana.

Lesson 2: Ratio (2)

→ pages 156–158

1. For every 4 chicks there is 1 hen.
Or, the ratio of chicks to hens is 4 : 1.

2. The ratio of jars to tins is 1 : 2.
The ratio of tins to jars is 2 : 1.

3. a) 1 : 3 b) 1 : 3 c) 1 : 4

4. Answers will vary but ensure that there are more than 6 shapes for each answer. For example:
a) 6 triangles and 2 circles
(or other multiples of 3 triangles and 1 circle)
b) 6 triangles and 4 circles
(or other multiples of 3 triangles and 2 circles)
c) 2 circles and 6 triangles
(or other multiples of 1 circle and 3 triangles)
d) 2 triangles to 8 circles
(or other multiples of 1 triangle and 4 circles)

5. a) No, the pencil is half the length of the straw.
b) Yes, the ratio of the length of the pencil to the length of the straw is 1 : 2 so the length of the straw is twice that of the pencil.

6. The ratio of orange juice to lemonade is 1 : 5 (250 : 1,250).

Reflect

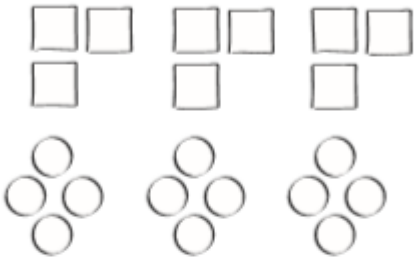
Yes and no. The ratio has the same digits, so describes the same relationship between quantities. However, the order is important as this tells you which quantity is double the other. For example:

In a bag of sweets there are twice as many mints to strawberry sweets. The ratio of mints to strawberry sweets is 2 : 1. This is the same as the ratio 1 : 2 if the order is reversed, i.e. strawberry sweets to mints.

Lesson 3: Ratio (3)

➜ pages 159–161

1. a)



b) 12

2.

Strawberry	Lime
2	3
4	6
6	9
8	12
10	15
12	18

There are 12 strawberry sweets in the jar.

3. There are 30 black buttons in the box.

4. There are 28 box fish in the tank.

5. Explanations may vary; for example:
7 squares would mean that there are 17·5 rectangles which is impossible.

6. There are 16 more cows than sheep in the field.

7. Josh has £2.

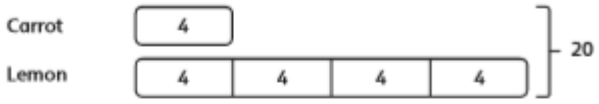
Reflect

Since there are 3 red balloons for every 4 blue balloons, there are more blue balloons in the bag than red balloons.

Lesson 4: Ratio (4)

➜ pages 162–164

1.



There are 4 slices of carrot cake and 16 slices of lemon cake.

2. There are 18 footballs and 45 tennis balls.

3. 27 squares shaded red and 45 squares shaded blue.
Explanations may vary; for example:
Work out the number of squares in total (72).
There are 3 + 5 = 8 parts in each group.
72 ÷ 8 = 9
So, there are 9 groups of 3 red squares and 9 groups of 5 blue squares.
9 × 3 = 27 and 9 × 5 = 45, so there are 27 red squares and 45 blue squares.

4. a) There are 24 grey socks in the drawer.
b) 8 pairs of white socks can be made.

5. Zac receives £12 more than Jamie.

6. 4 parts = 560, so 1 part = 140
3 parts + 7 parts = 10 parts altogether
10 × 140 =1,400

Reflect

Explanations may vary; for example:

Add together 2 + 3 to get 5. This is the total number of parts.
1 part = 60 ÷ 5 = 12
So, sharing 60 into the ratio 2 : 3 gives 2 × 12 : 3 × 12, which is 24 : 36.

Alternatively, children may choose to draw a bar model to show their method.