As outcomes, Year 8 pupils should, for example:

Simplify a (three-part) ratio to an equivalent ratio by cancelling. For example:
- Write the ratio 12 : 9 : 3 in its simplest form.

Link to fraction notation (pages 60–3).

Simplify a ratio expressed in different units.
For example:
- 2 m : 50cm
- 450g:5kg
- 500mm:75cm:2.5m

Link to converting between measures (pages 228–9).

Consolidate understanding of the relationship between ratio and proportion. For example:

- In a game, Tom scored 6, Sunil scored 8, and Amy scored 10. The ratio of their scores was 6 : 8 : 10, or 3:4:5. Tom scored a proportion of $\frac{3}{12}$ or $\frac{1}{4}$ or 25% of the total score.

Divide a quantity into two or more parts in a given ratio. Solve simple problems using a unitary method.

- Potting compost is made from loam, peat and sand, in the ratio 7 : 3 : 2 respectively. A gardener used 1½ litres of peat to make compost.
  How much loam did she use? How much sand?
- The angles in a triangle are in the ratio 6:5:7. Find the sizes of the three angles.
- Lottery winnings were divided in the ratio 2:5. Dermot got the smaller amount of £1000.
  How much in total were the lottery winnings?

  2 parts = £1000
  1 part = £500
  5 parts = £2500
  Total = £1000 + £2500 = £3500

Link to problems involving ratio (pages 4–5).

Use ratios when interpreting or sketching maps or drawing to scale in geography and other subjects.

- A map has a scale of 1 : 10000. What distance does 5cm on the map represent in real life?

Link to enlargement and scale (pages 212–17).

As outcomes, Year 9 pupils should, for example:

Simplify a ratio expressed in fractions or decimals.
For example:
- Write 0.5 : 2 in whole-number form.

Compare ratios by changing them to the form m : 1 or 1 :m. For example:
- The ratios of Lycra to other materials in two stretch fabrics are 2 : 25 and 3:40. By changing each ratio to the form 1:m, say which fabric has the greater proportion of Lycra.
- The ratios of shots taken to goals scored by two hockey teams are 17:4 and 13:3 respectively. By changing each ratio to the form m:1, say which is the more accurate team.

Interpret and use ratio in a range of contexts.
For example:

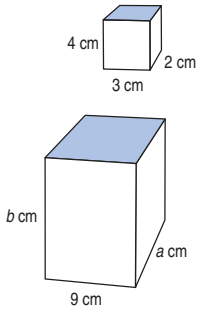
- Shortcrust pastry is made from flour and fat in the ratio 2 :1. How much flour will make 450g of pastry?
- An alloy is made from iron, copper, nickel and aluminium in the ratio 5:4:4:1. Find how much copper is needed to mix with 85g of iron.
- 2 parts of blue paint mixed with 3 parts of yellow paint makes green. A boy has 50ml of blue paint and 100ml of yellow. What is the maximum amount of green he can make?
- On 1st June the height of a sunflower was 1m. By 1st July, the height had increased by 40%. What was the ratio of the height of the sunflower on 1st June to its height on 1st July?

Link to problems involving ratio (pages 4–5).

Understand the implications of enlargement for area and volume. For example:

- Corresponding lengths in these similar cuboids are in the ratio 1 : 3.

  Find the values of a and b.
  Find the ratio of the areas of the shaded rectangles.
  Find the ratio of the volumes of the cuboids.



Link to enlargement and scale (pages 212–17).