Perimeter of a rectangle

Notes and guidance

In this small step, children focus on calculating the perimeter of rectangles using the side lengths, rather than counting the squares.

Rectangles are first presented on squared grids as they have been seen previously. Children should be encouraged to label the side lengths on the rectangles and discuss anything they notice as they work through some examples. They can then progress to looking at rectangles that are not presented on squared grids but with all four sides labelled, before finally exploring rectangles with only one length and width given.

Children explore different methods for working out the perimeter of rectangles, such as adding double the length to double the width, and doubling the sum of the length and the width.

Things to look out for

- Children may only add the lengths of the sides that are labelled rather than using more efficient methods involving multiplication.

- Children may not check the units given in the diagrams and so fail to convert them if there are mixed units.

- If children do not have efficient strategies for doubling 1- and 2-digit numbers then this may lead to a reliance on inefficient methods.

Key questions

- What is the length of each side? How do you know?

- How can you use the length of each side to calculate the perimeter?

- What is the measurement unit used for the perimeter of the rectangle?

- How did you work out the perimeter of the rectangle? How could you have done it a different way?

- If you know the length and width of a rectangle, do you need to measure/label every side?

- How many different ways can you find the perimeter of this rectangle?

Possible sentence stems

- _____ cm + _____ cm + _____ cm + _____ cm = _____ cm

- $2 \times$ _____ cm + $2 \times$ _____ cm = _____ cm
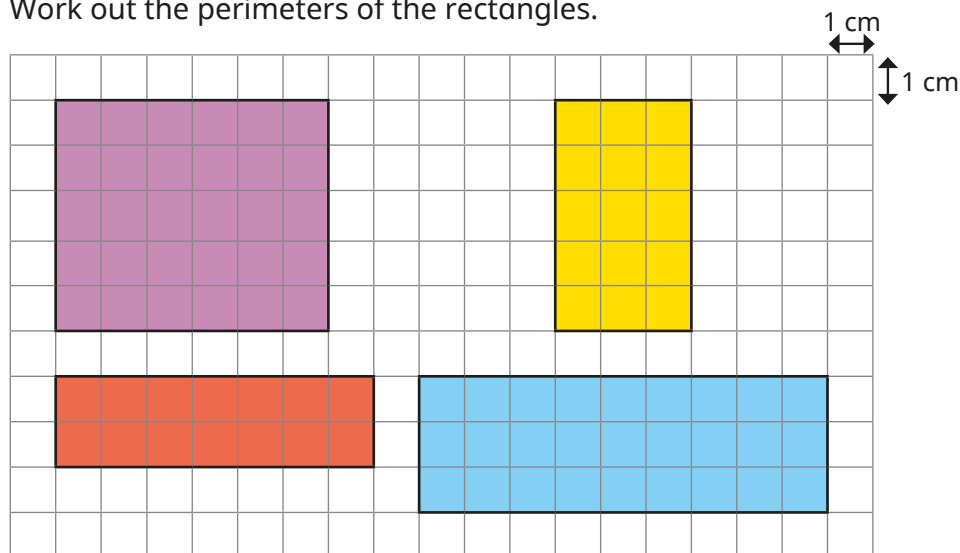
- $2 \times ($ _____ cm + _____ cm $) =$ _____ cm

National Curriculum links

- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
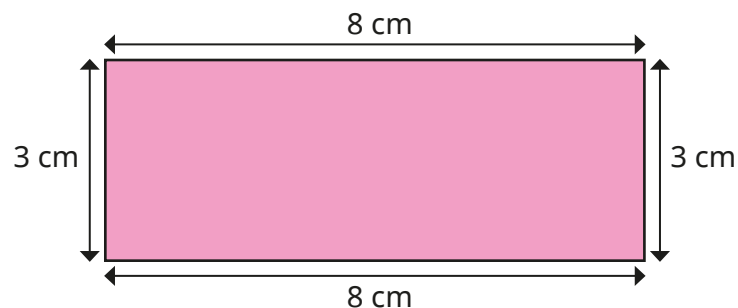
Perimeter of a rectangle

Key learning

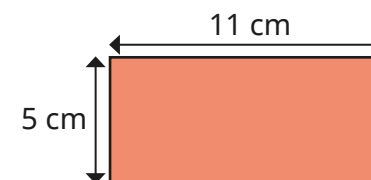- Work out the perimeters of the rectangles.

1 cm

1 cm

- Work out the perimeter of the rectangle.

8 cm

3 cm

3 cm

8 cm

How many different ways can you work out the perimeter?

- Mo and Eva are working out the perimeter of the rectangle.

11 cm

5 cm

Mo

5 cm + 11 cm = 16 cm
16 cm × 2 = 32 cm

Eva

5 cm + 5 cm = 10 cm
11 cm + 11 cm = 22 cm
10 + 22 = 32 cm

What is the same and what is different about their methods?

- Work out the perimeters of the rectangles.

6 cm

8 cm

2 cm

18 cm
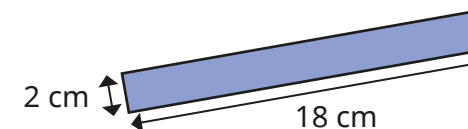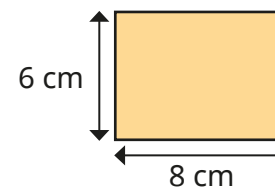
Compare methods with a partner.

- The perimeter of a rectangle is 30 cm.

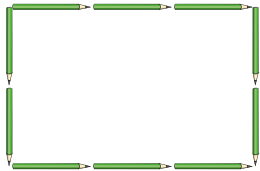The length of the rectangle is 11 cm.

What is the width of the rectangle?

Perimeter of a rectangle

Reasoning and problem solving

Whitney makes a rectangle using pencils.

Each pencil is 11 cm long.

What is the perimeter of the rectangle?

110 cm

Mo is describing a square.

Use the clues to work out the perimeter of the square.

- The perimeter is a 2-digit even number less than 50
- The sum of the digits of the perimeter is 9
- The side length is a whole number of metres.

36 m

Is the statement always true, sometimes true or never true?

When the sides of a rectangle are all odd numbers, the perimeter is an even number.

Explain your answer.

always true

Mrs Trent is working out the perimeter of her garden.

- The length of the garden is double its width.
- The width of the garden is a multiple of 3
- The perimeter of the garden is less than 40

What could the length, width and perimeter of Mrs Trent's garden be?

Find all the possible answers.

6 m long,
3 m wide,
perimeter 18 m

12 m long,
6 m wide,
perimeter 36 m