Perimeter on a grid

Notes and guidance

In Year 3, children were introduced to the idea of perimeter by measuring and calculating the perimeter with labelled side lengths. In this small step, children explore perimeter further with a focus on rectilinear shapes, where all sides meet at right angles. These rectilinear shapes will be drawn on squared grids, mainly centimetre squared grids.

Encourage children to label the lengths of the sides if needed, and to mark off each side as they add the lengths together. Looking at a variety of shapes enables children to compare their perimeters. They also explore drawing different shapes with a specified perimeter. They continue to consider rectilinear shapes only and do not look at diagonal lengths.

Things to look out for

- Children may only add the width and length of one side, or the sides labelled, rather than all the sides of the shape.
- Children may forget to include the unit of measurement.
- Children may count all the squares around the outside of the shape, rather than the lengths of the sides.
- When looking at irregular rectilinear shapes, children may miss some of the sides of the shape.

Key questions

- What does "perimeter" mean?
- What is the length of each square? How do you know?
- What is the length of each side? How do you know?
- What unit is used for the perimeter of your shape?
- How can you make sure you do not include one side twice?
- Which shape has the greater/greatest perimeter? How do you know?
- Can two different shapes have the same perimeter? How do you know? Can you draw an example to support your answer?

Possible sentence stems

- Perimeter = _____ cm + _____ cm + _____ cm + _____ cm = _____ cm
- The width is _____ cm and the length is _____ cm.

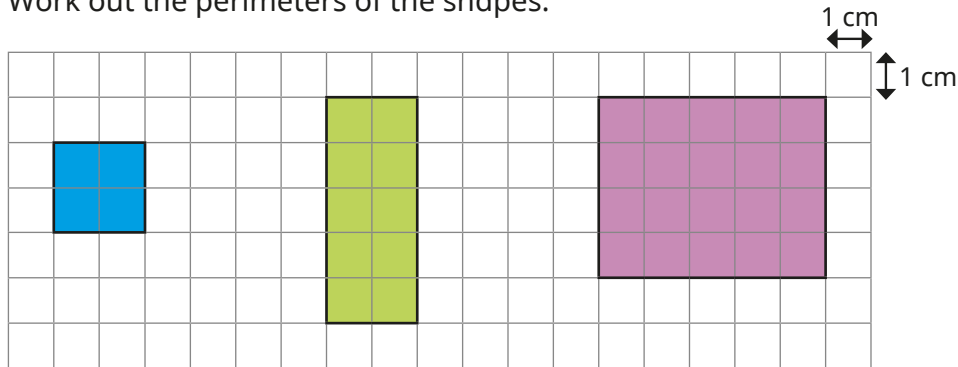 The perimeter of the shape is _____ cm because ...

National Curriculum links

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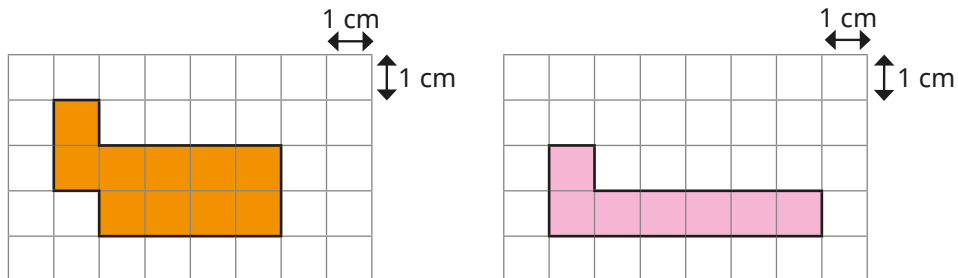
Perimeter on a grid

Key learning

- Work out the perimeters of the shapes.

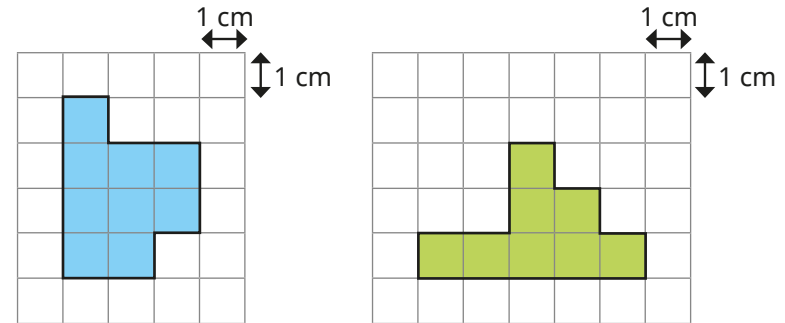- Two recilinear shapes are drawn on centimere squared paper.

  ▶ Are the perimeters of the shapes the same or different?
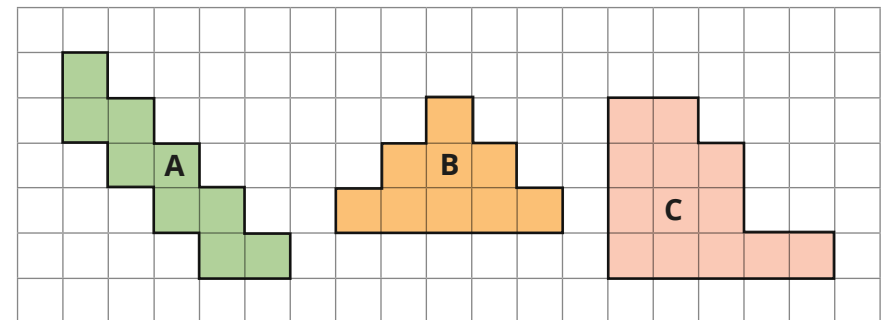
  How do you know?

  ▶ Draw a shape with a perimeter that is greater than each of the shapes.

- Work out the perimeters of the shapes.

  How did you find the perimeters?
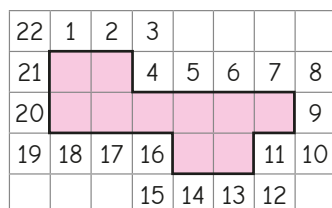
- Find the perimeter of each shape.

  Order the shapes from smallest to greatest perimeter.

- Use centimetre squared paper to draw two different rectilinear shapes, each with a perimeter of 18 cm.

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Reasoning and problem solving

Tiny has worked out the perimeter of the shape to be 22 cm.

22	1	2	3			
21			4	5	6	7	8
20						9
19	18	17	16		11	10
			15	14	13	12

Is Tiny correct?

Explain your reasoning.

No

The width of a rectangle is 2 cm less than its length.

The perimeter of the rectangle is between 20 cm and 30 cm.

What could the dimensions of the rectangle be?

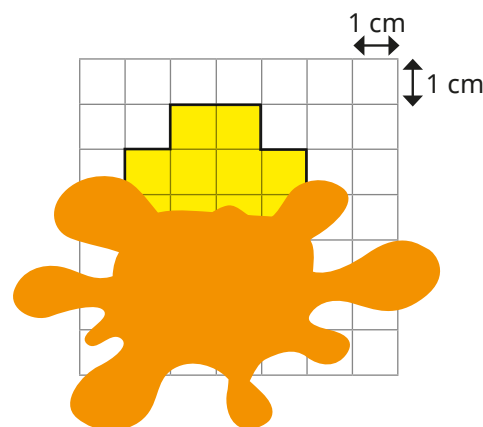How many possible rectangles can you find?

length = 6 cm,
width = 4 cm

length = 7 cm,
width = 5 cm

length = 8 cm,
width = 6 cm

Huan has drawn a shape on a centimetre squared grid.

He has spilt some paint on his drawing.

1 cm

1 cm

What could the perimeter of the shape be?

Find three possible answers.

What is the smallest possible perimeter?

Explain your answer.

Compare answers as a class.

14 cm