Shapes – same area

Notes and guidance

In this small step, children recap learning from previous years by finding the areas of shapes. It may be useful to remind children about the differences between area and perimeter, which will be covered explicitly in the next step.

Children find the areas of shapes by counting squares and then identify shapes that have the same area. It should become clear to children that shapes can look different but still have the same area. Rectilinear shapes are included here.

Children then explore instances when multiplication can be used to find the areas of shapes. They should begin to identify rectangles that will have the same area by using factor pairs rather than relying on counting squares. They can also use factor pairs to draw rectangles that have the same area.

Things to look out for

- Children may confuse area and perimeter.
- When counting squares, children may miscount or use inefficient strategies.
- Children may not use factor pairs to notice shapes that have the same area or to create shapes with the same area.

Key questions

- How can you find the area of this shape? Is there more than one way?
- Do shapes that have the same area have to look the same?
- How can you use factor pairs to find shapes that would have the same area?
- How would you draw more than one rectangle that has an area of _____ cm^2?

Possible sentence stems

- The total number of squares in the rectangle is _____

  The area of the rectangle is _____ cm^2

- The length of the rectangle is _____ cm.

  The width of the rectangle is _____ cm.
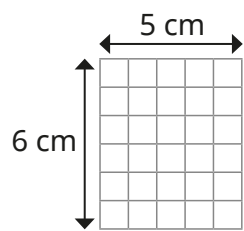
  The area of the rectangle is _____ cm^2

National Curriculum links

- Recognise that shapes with the same areas can have different perimeters and vice versa

Shapes – same area

Key learning

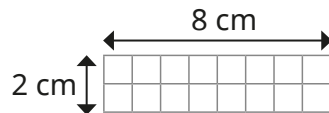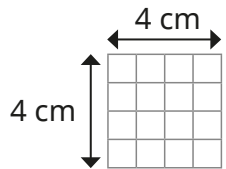- Complete the sentences to describe the rectangle.

  The length of the rectangle is _____ cm.

  The width of the rectangle is _____ cm.
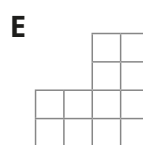
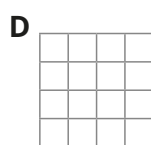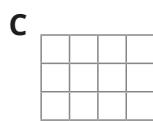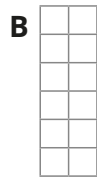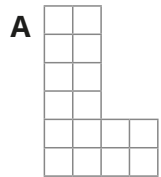 The total number of squares in the rectangle is _____

  The area of the rectangle is _____ cm^2
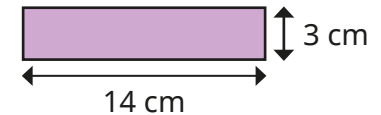
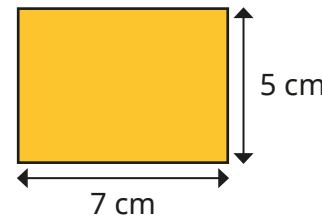 Use the same method to find the areas of these rectangles.

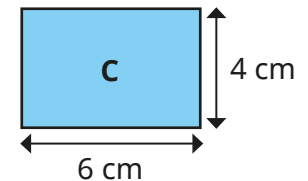 What do you notice?
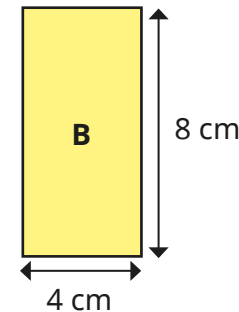
- Each square represents 1 cm^2

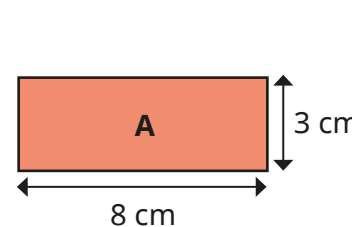 **A**   **B**   **C**   **D**   **E**

  ▶ Which shapes have an area of 12 cm^2?

  ▶ Which shapes have an area of 16 cm^2?

  ▶ Why is there more than one representation for each?

- Find the areas of the rectangles.

  Explain your method to a partner.

- Which two rectangles have the same area?

  How do you know?

- Draw as many rectangles as possible that have these areas.

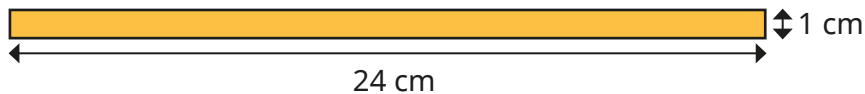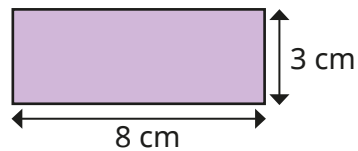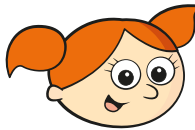 All the side lengths should be whole numbers.

  ▶ 36 cm^2 ▶ 16 cm^2 ▶ 17 cm^2

  What do you notice about your last answer?

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Reasoning and problem solving

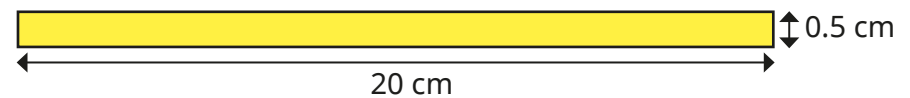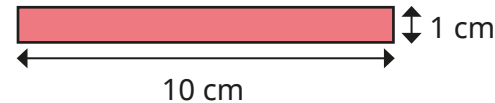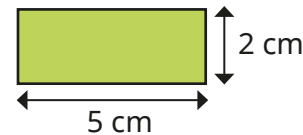These two shapes cannot have the same area, as they look different.

3 cm
8 cm

1 cm
24 cm

Do you agree with Alex?

Explain your answer.

No

Which rectangle has the greatest area?

2 cm
5 cm

1 cm
10 cm

0.5 cm
20 cm

Sketch the next rectangle in the pattern.

What is its area?

How do you know?

All the rectangles have the same area. | 10 cm²