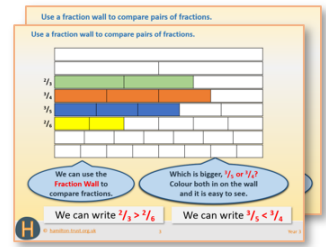


Week 10, Day 4

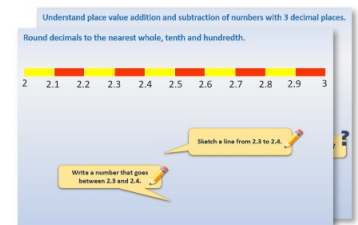
Find the area of rectangles

Each day covers one maths topic. It should take you about 1 hour or just a little more.

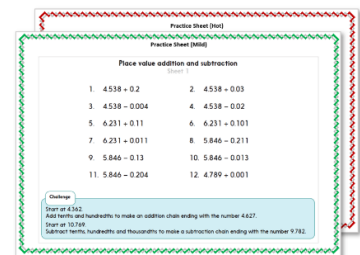
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



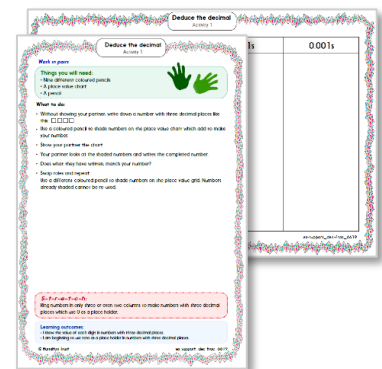
OR start by carefully reading through the **Learning Reminders**.



2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**



4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation...**

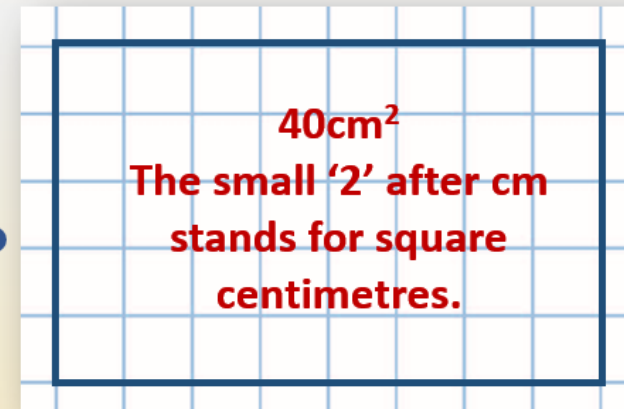
Learning Reminders

Find the area of rectangles.

James drew a rectangle on centimetre squared paper.

We can find how many squares are inside this rectangle without counting every one!

5 rows...
Each row has 8 squares.
 $5 \times 8 = 40$.

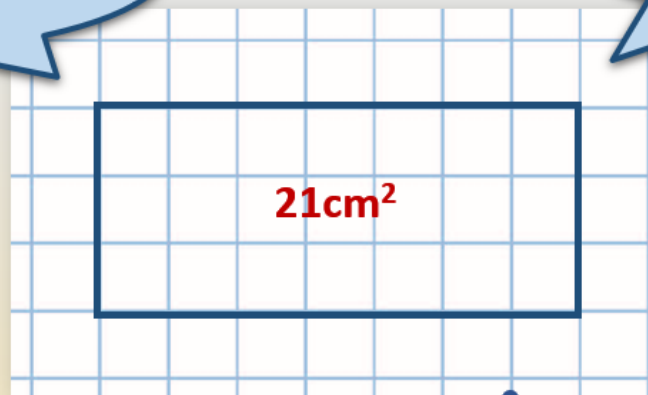


This is a way of measuring the **area** of the rectangle. It is the amount of surface it covers.

Learning Reminders

Find the area of rectangles.

Carla drew this rectangle on centimetre squared paper.



How many rows?
How many squares
in each row?

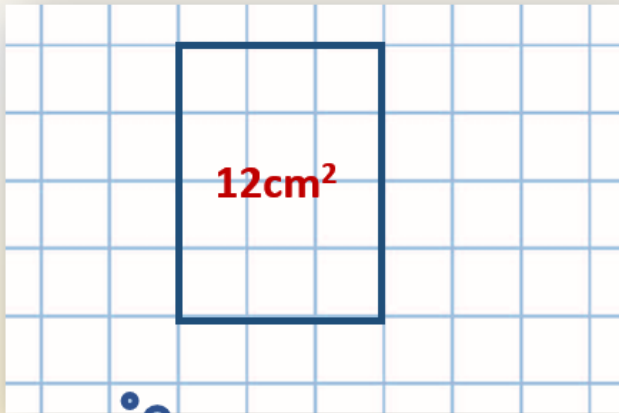
What times table fact can we use to find the area of this rectangle?

$$3 \times 7 = 21.$$

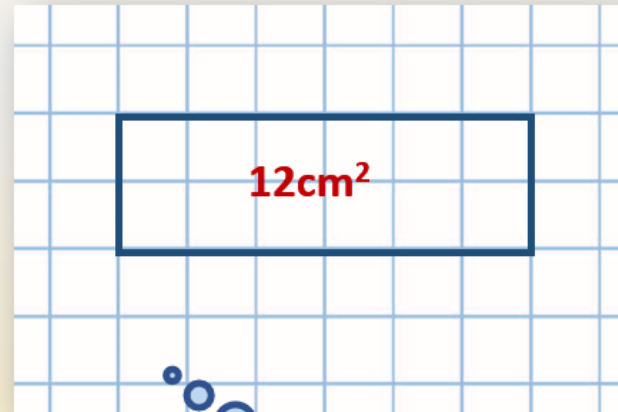
Learning Reminders

Find the area of rectangles.

Kirk drew 2 rectangles.



4 rows...
each has 3 squares.
 $4 \times 3 = 12.$



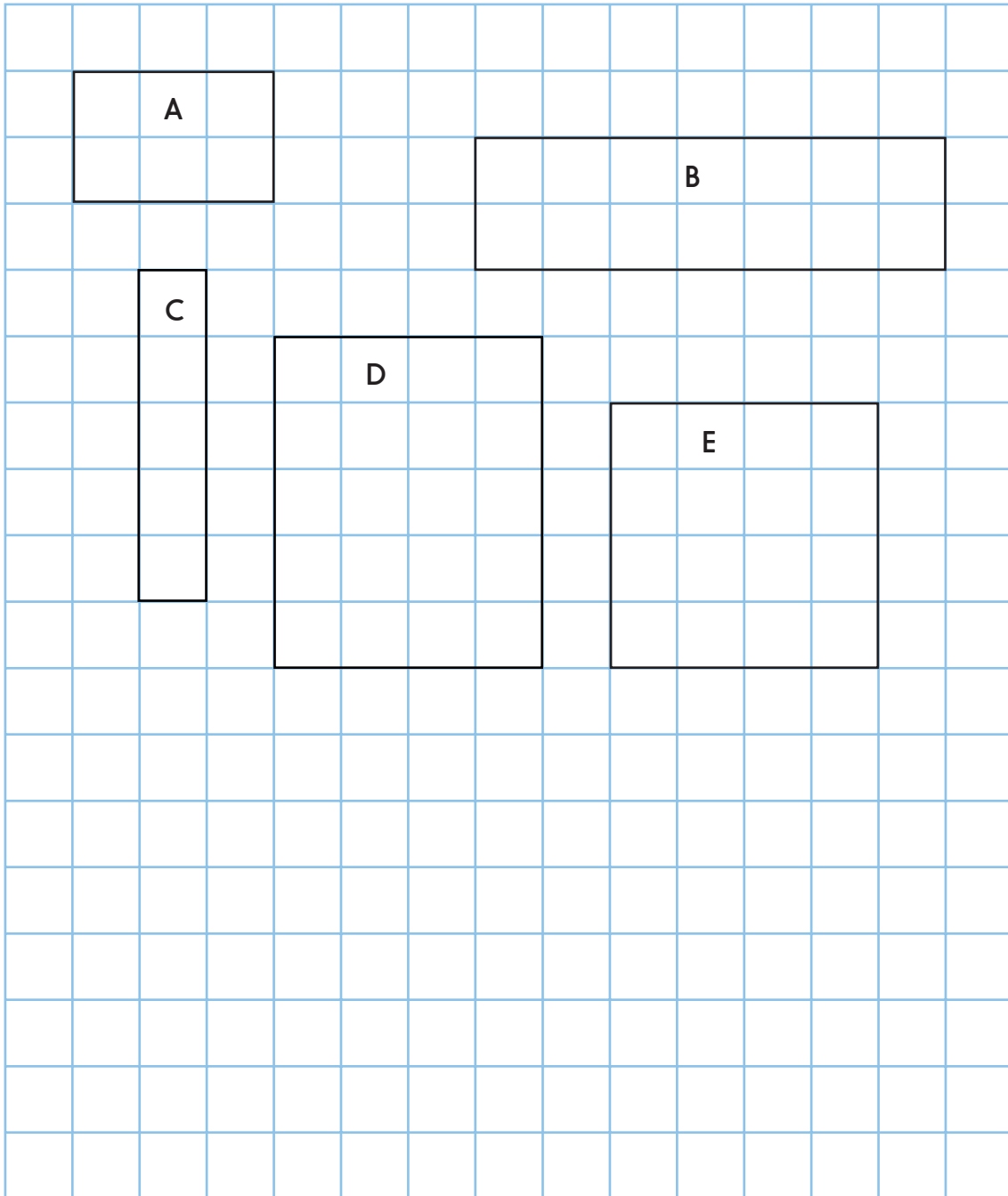
2 rows...
each has 6 squares.
 $2 \times 6 = 12.$

Different rectangles can have the same area!

Practice Sheet Mild

Rectangle areas

Which of these rectangles has the largest area?



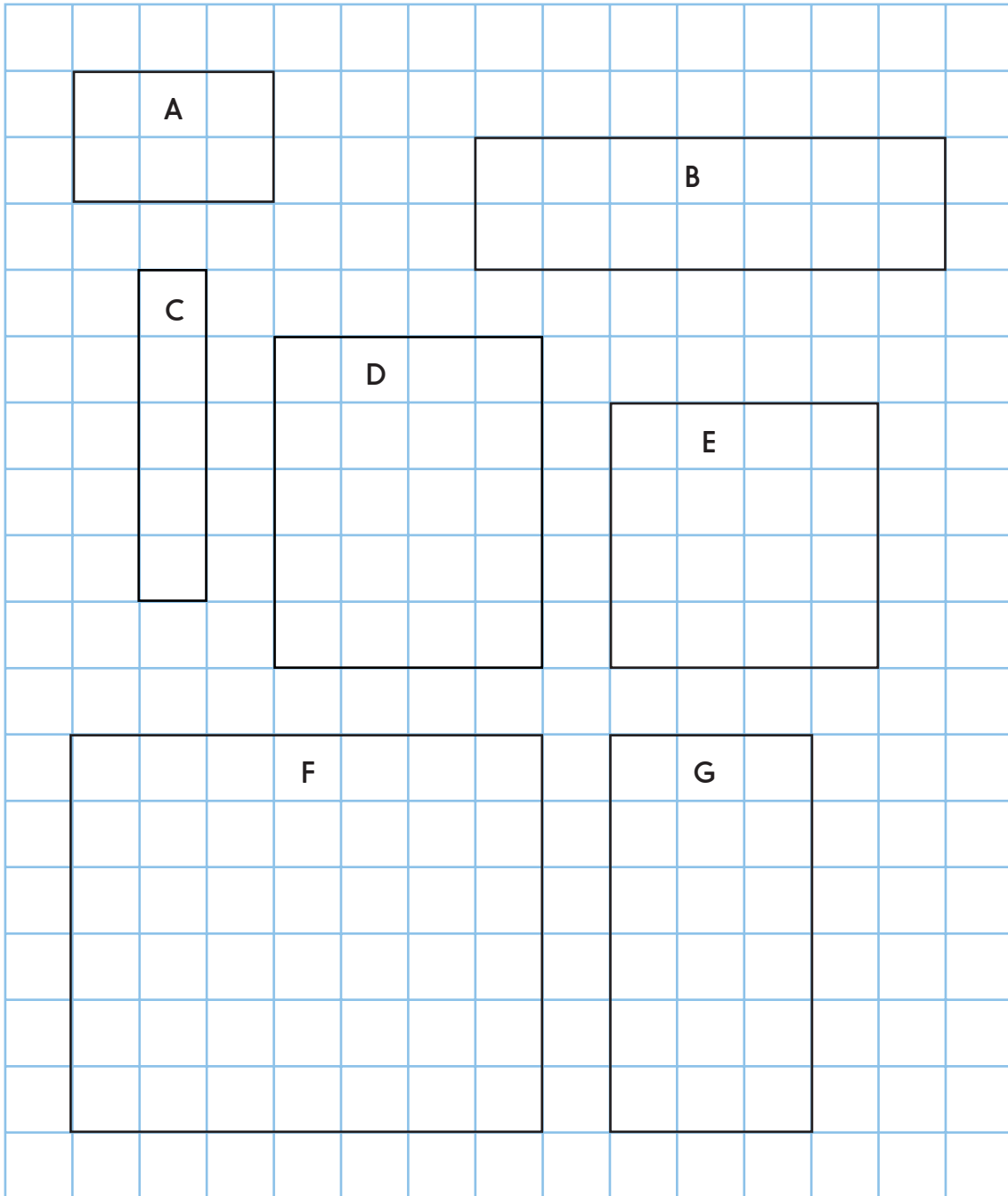
Challenge

Draw two more rectangles, each with an area of 18cm^2 .

Practice Sheet Hot

Rectangle areas

Which of these rectangles has the largest area?



Challenge

Can you draw any other rectangles with same area as shape F?

Practice Sheets Answers

Rectangle areas (mild)

- A 6 cm²
- B 14 cm²
- C 5 cm²
- D 20 cm²
- E 16 cm²

Which of these rectangles has the largest area? **D**

Challenge

Rectangles of 18cm² could measure: 18cm x 1cm, 9cm x 2cm, or 6cm x 3cm

Rectangle areas (hot)

- A 6 cm²
- B 14 cm²
- C 5 cm²
- D 20 cm²
- E 16 cm²
- F 42 cm²
- G 18 cm²

In order of size from smallest to biggest: **C, A, B, E, G, D, F**

Which of these rectangles has the largest area? **F**

Challenge

Can you draw any other rectangles with same area as shape F?

Rectangles with an area 42 cm² may also be 42 cm x 1 cm, 21 cm x 2 cm, or 14 cm x 3 cm.

A Bit Stuck? Rectangle patterns

- o Draw these rectangles:

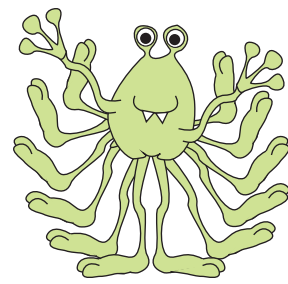
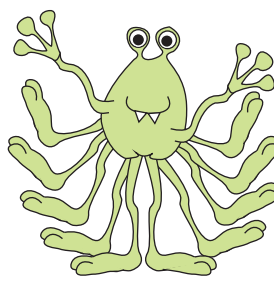
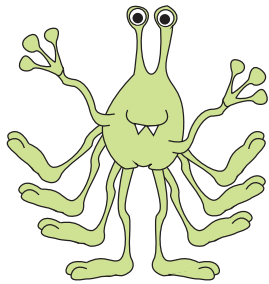
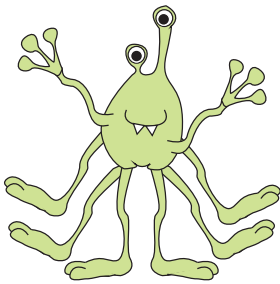
3cm by 2cm

4cm by 2cm

5cm by 2cm

6cm by 2cm

- Count the squares to find the area of each. What do you notice?
- What would be the area of the next rectangle in this sequence? Draw it to check.
- How will the sequence continue?



- o Now try these:

2cm by 3cm

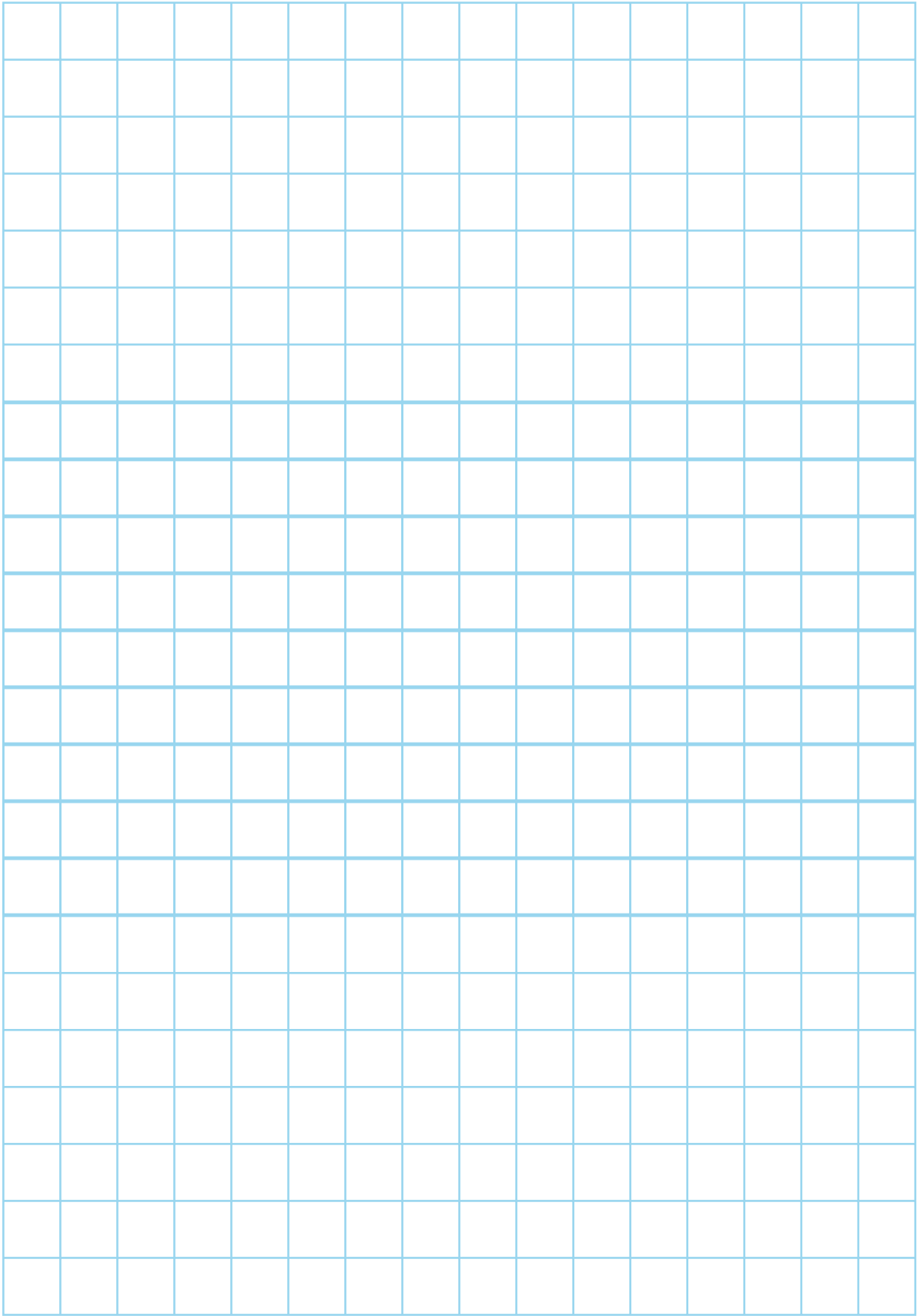
3cm by 3cm

4cm by 3cm

5cm by 3cm

- Count the squares to find the area of each. What do you notice?
- What would be the area of the next rectangle in this sequence? Draw it to check.
- How will the sequence continue?

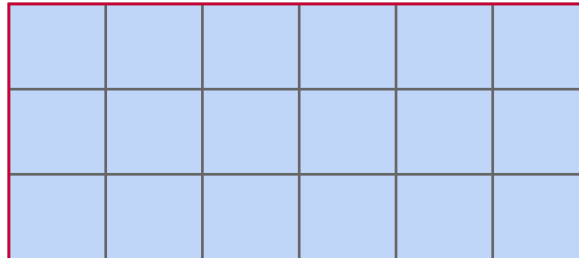
A Bit Stuck?
Rectangle patterns



Investigation

Pete's pond problem

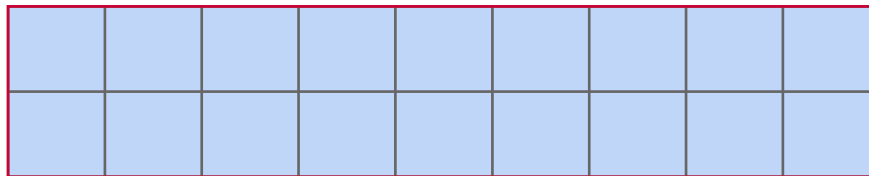
- Pete is digging a rectangular pond in his garden. To stop the herons eating his fish, he is going to put a fence all the way around the pond.



This pond has an area of **18 squares**. Each square is a metre long, so the perimeter of this pond is **18m**.

If Pete changes the shape of the pond into a different rectangle, does the perimeter change too?

For example:



Are these the only two rectangles Pete could create for an area of 18 squares?

- To save money, Pete wants to use a minimum length of fencing. Which rectangle should he use?
- Try creating rectangular ponds with these areas: 20 squares, 16 squares, 30 squares, and 25 squares. Investigate all of the possible rectangles with that area, and always note which pond uses the least fencing.
- Have you noticed anything interesting?

Can you make a **generalisation** about the relationship between the length of the rectangle and its perimeter?

How might you record all of the combinations you try?

Organising your recording will help you **systematically** try all possibilities and spot **patterns** in the results.

Challenge

If you are allowed to use half-squares for the pond, can you use what you have discovered to make an even smaller perimeter for an area of 20 squares?