

Area of Rectangles and Squares



Aim

- I can calculate the area of rectangles and squares.

Success Criteria

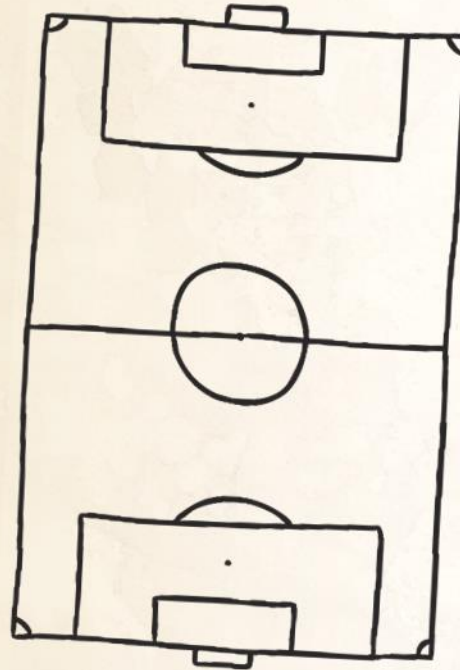
- I can use multiplication to calculate area.
- I can multiply length by width to calculate area.
- I can record area in standard units (square centimetres and square metres).

Area of Rectangles and Squares



Write a definition for 'area'.

It is useful to find the area when working out how much of something will be needed to cover a surface or when calculating how many or much of something will fit into a space.



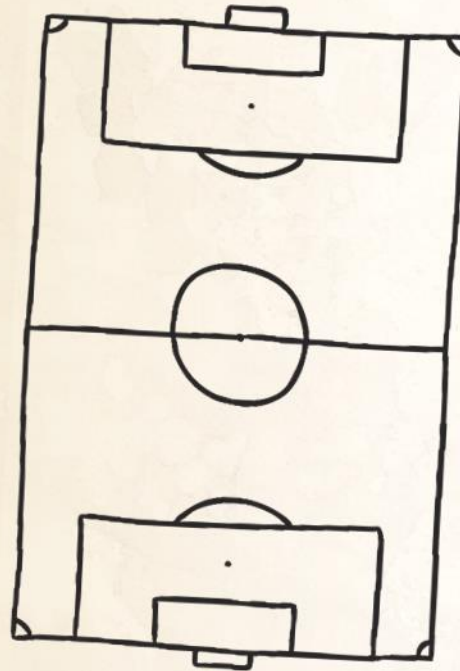
Area of Rectangles and Squares



Write a definition for 'area'.

For example, how much carpet is needed to cover a floor? How large must a car parking space be to fit one car in it?

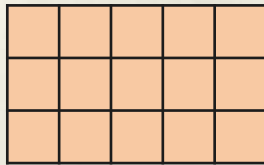
Area is the amount of space enclosed by a boundary.



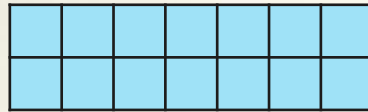
Area of Rectangles and Squares



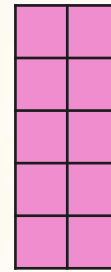
Count the squares to find the area of these rectangles and squares.
Order them from smallest to greatest area.



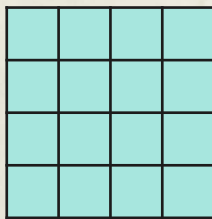
Shape A



Shape B



Shape C



Shape D



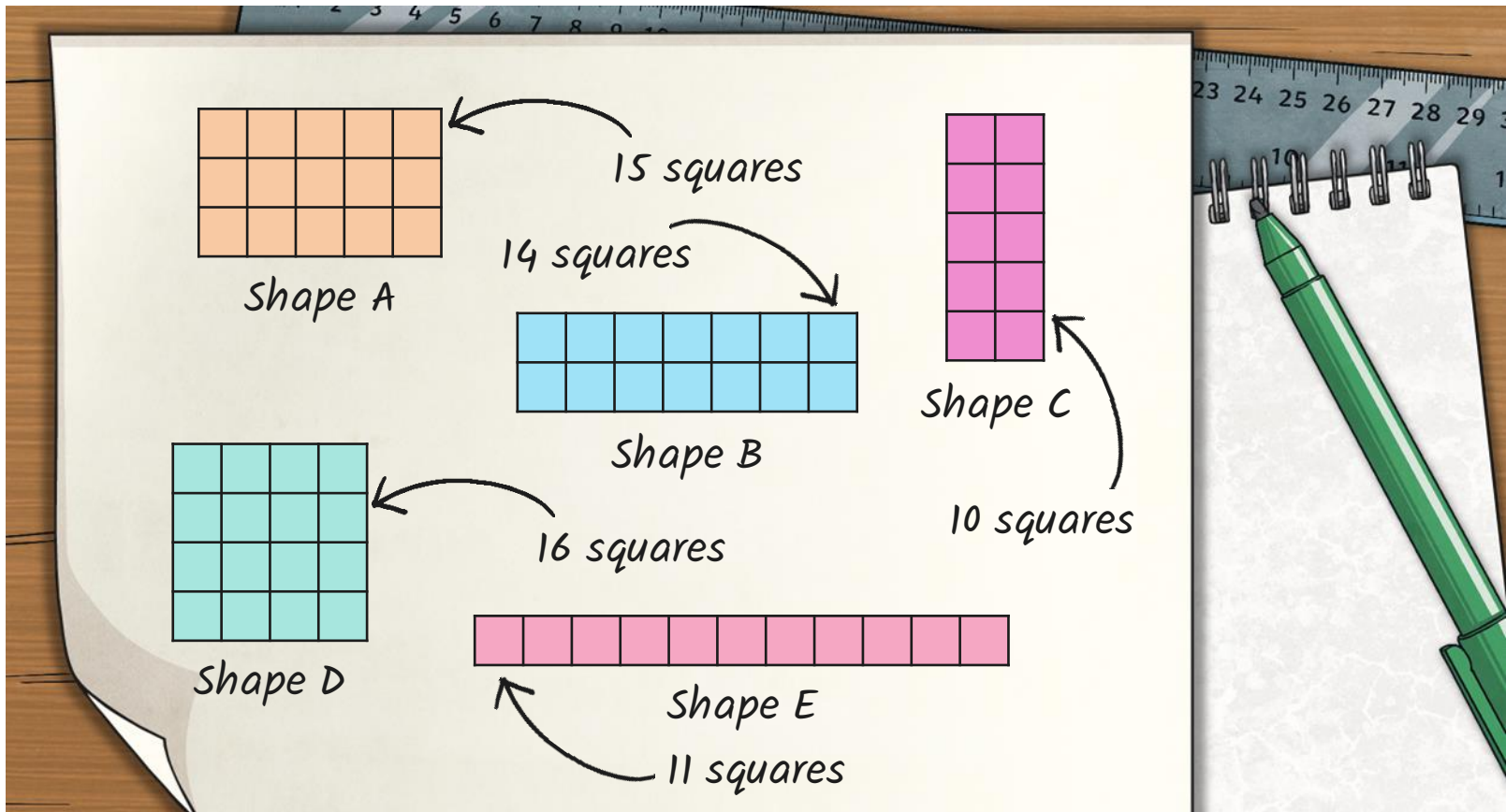
Shape E



Area of Rectangles and Squares



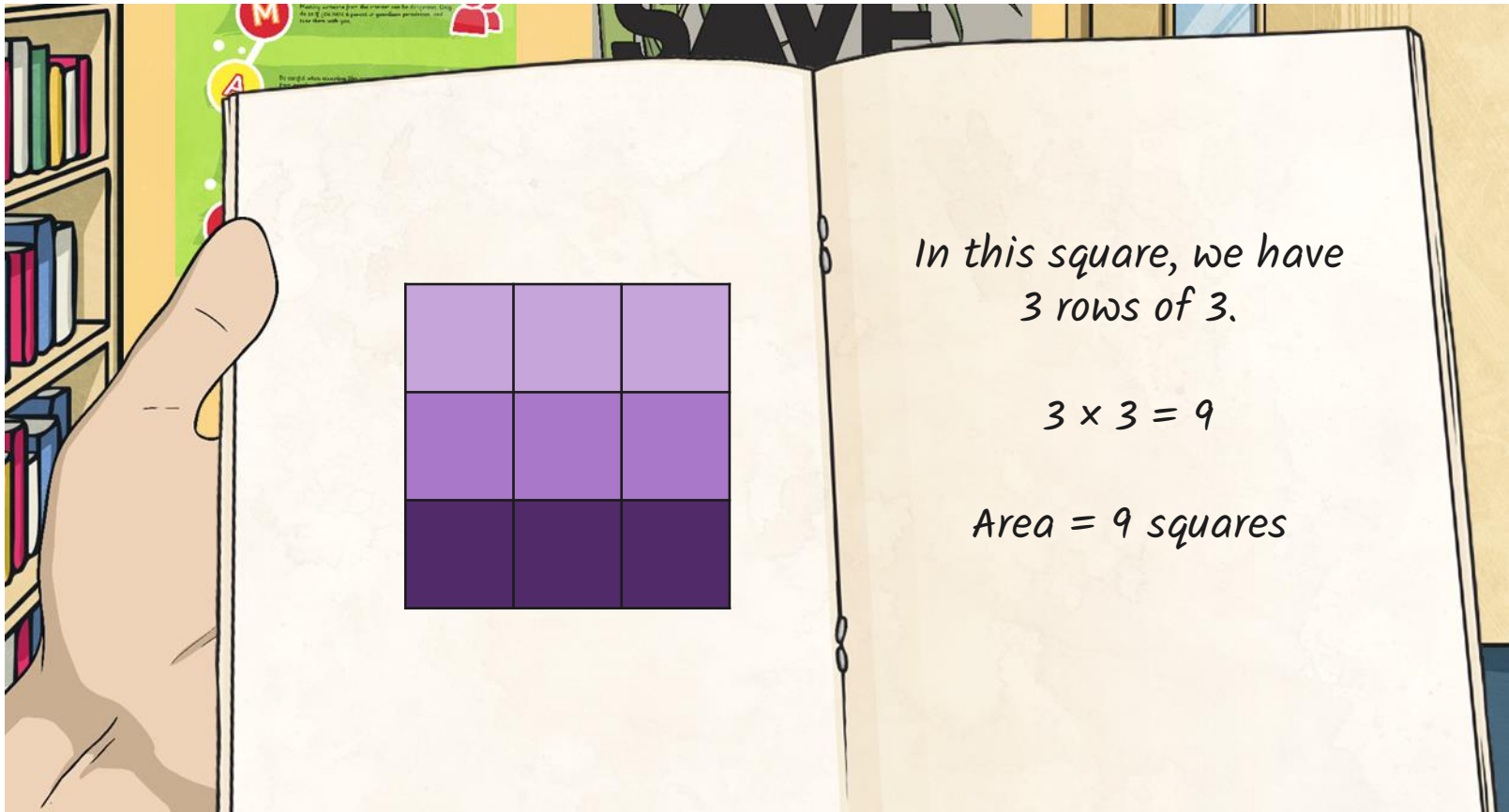
The order goes C, E, B, A, D.



Using Multiplication to Calculate Area

Whole Class

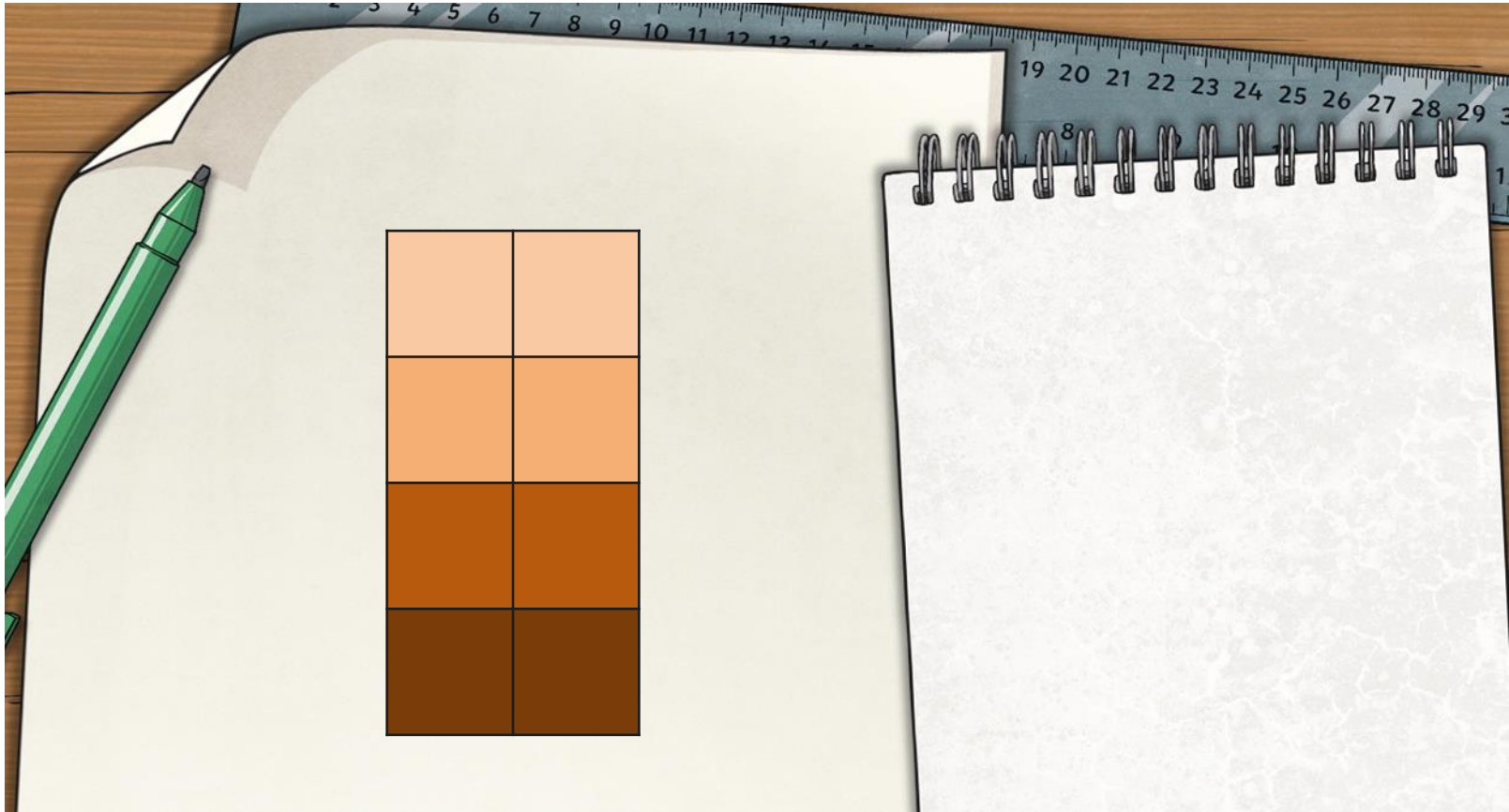
We can calculate area by counting squares. This square has an area of 9 squares. Another way to calculate the area is to use multiplication.



Using Multiplication to Calculate Area



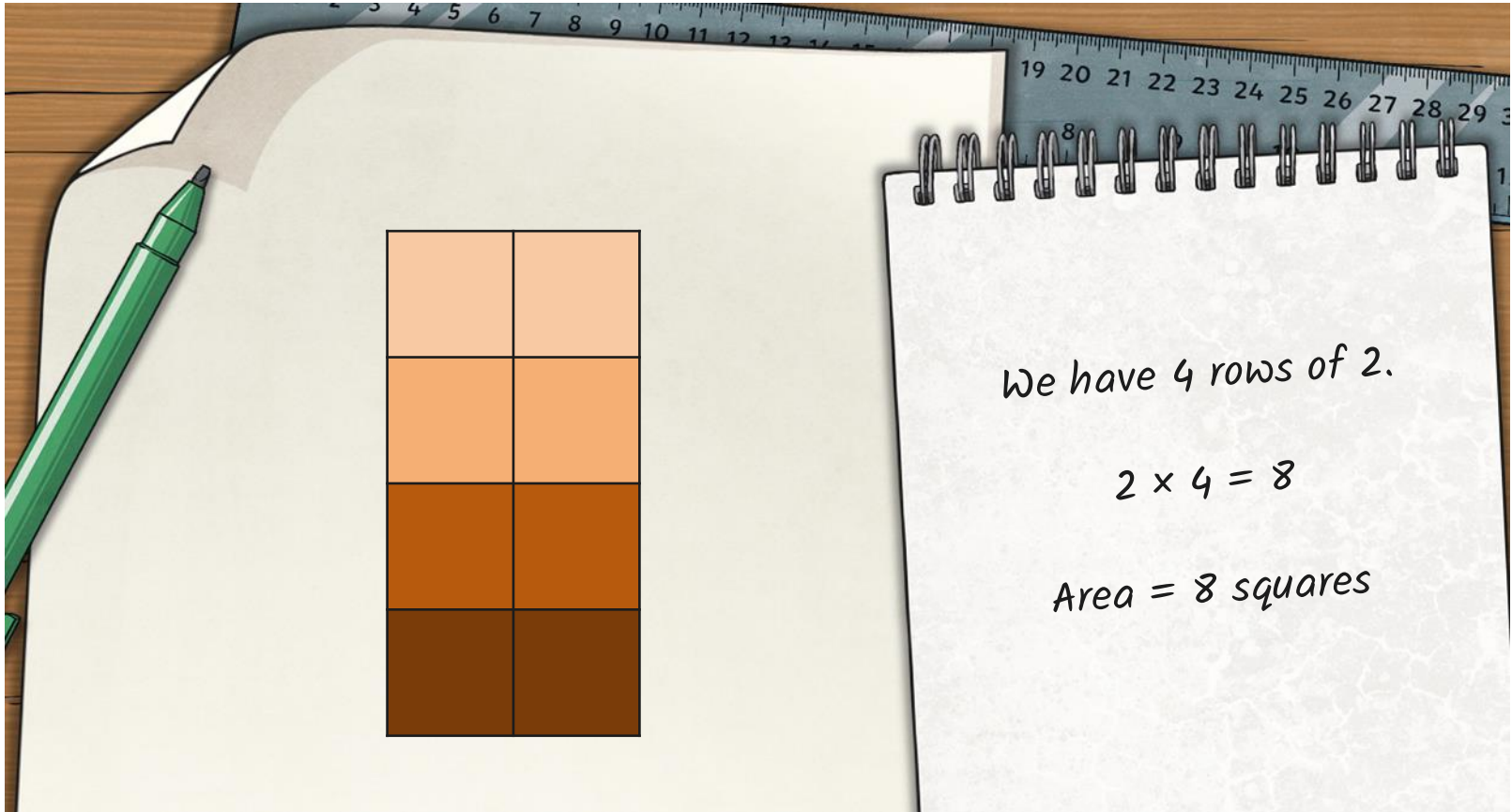
How could we use multiplication to calculate the area of this rectangle?



Using Multiplication to Calculate Area

Whole Class

How could we use multiplication to calculate the area of this rectangle?



We have 4 rows of 2.

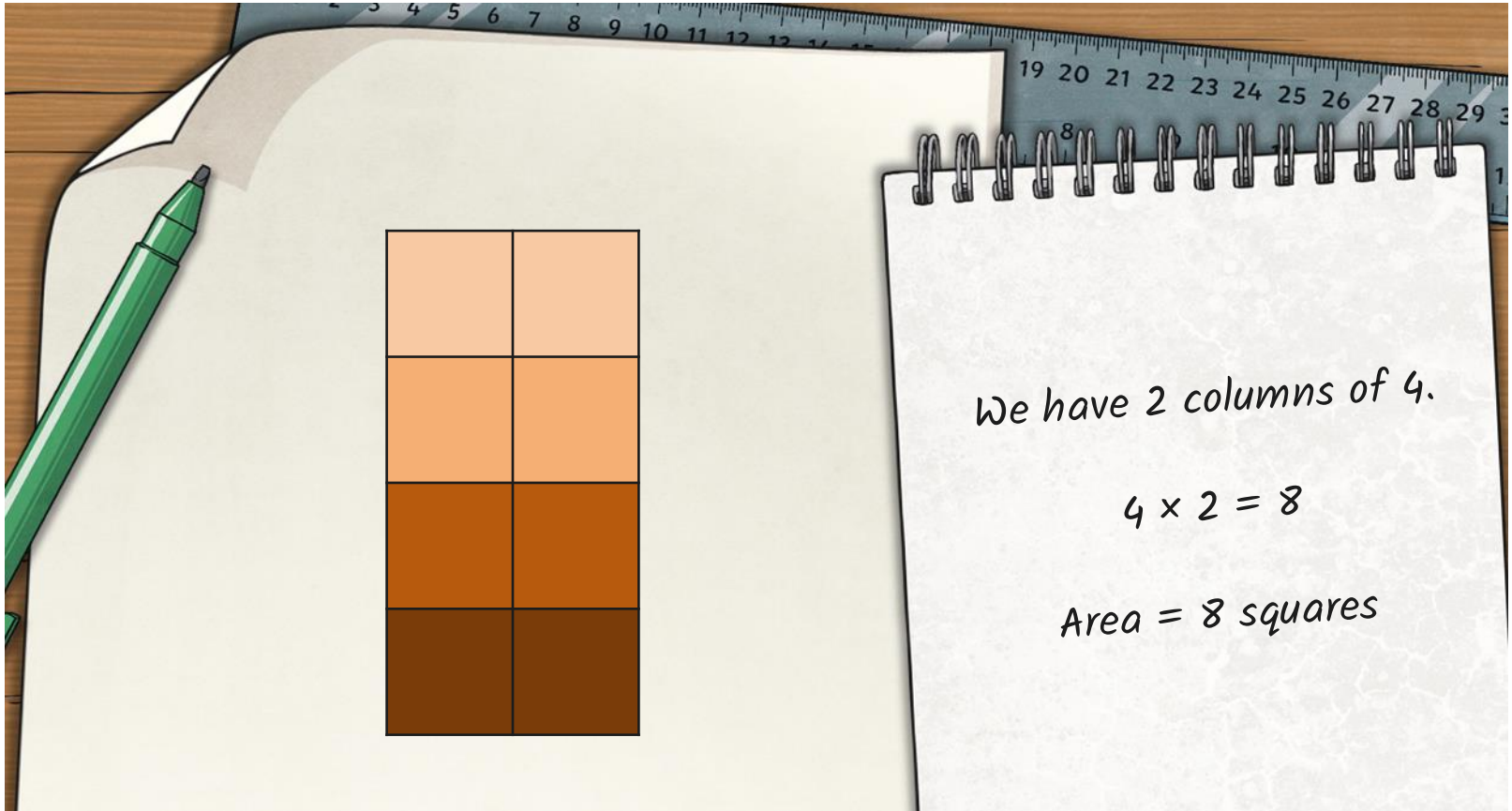
$$2 \times 4 = 8$$

Area = 8 squares

Using Multiplication to Calculate Area



How could we use multiplication to calculate the area of this rectangle?



Using Multiplication to Calculate Area

Whole Class

Use multiplication to calculate the area of these shapes.
Write a multiplication calculation to show how you calculated the area.

on the NET

6 × 2 =
12 squares

2 × 10 =
20 squares

Using Multiplication to Calculate Area



Use multiplication to calculate the area of these shapes.
Write a multiplication calculation to show how you calculated the area.

$5 \times 3 = 15$ squares

$5 \times 5 = 25$ squares

$4 \times 4 = 16$ squares

$2 \times 6 = 12$ squares

$10 \times 2 = 20$ squares

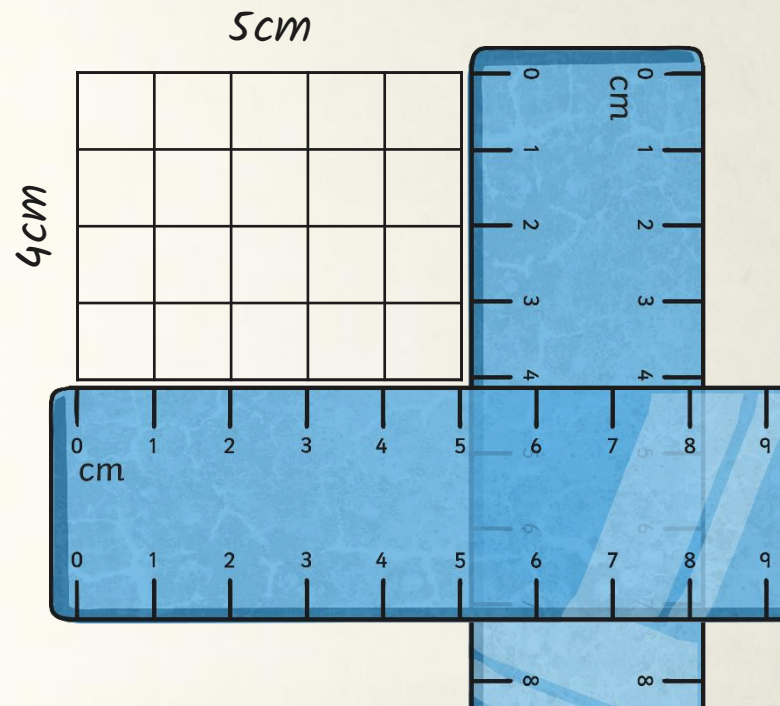
Calculating Area in cm^2 and m^2



If we know the length and the width of a rectangle or square, we can calculate its area.

When we calculate an area in centimetres, we measure this in square centimetres. We can also write this as cm^2 .

This is because it describes how many 1cm by 1cm squares make up the area.



Calculating Area in cm^2 and m^2



If we know the length and the width of a rectangle or square, we can calculate its area.

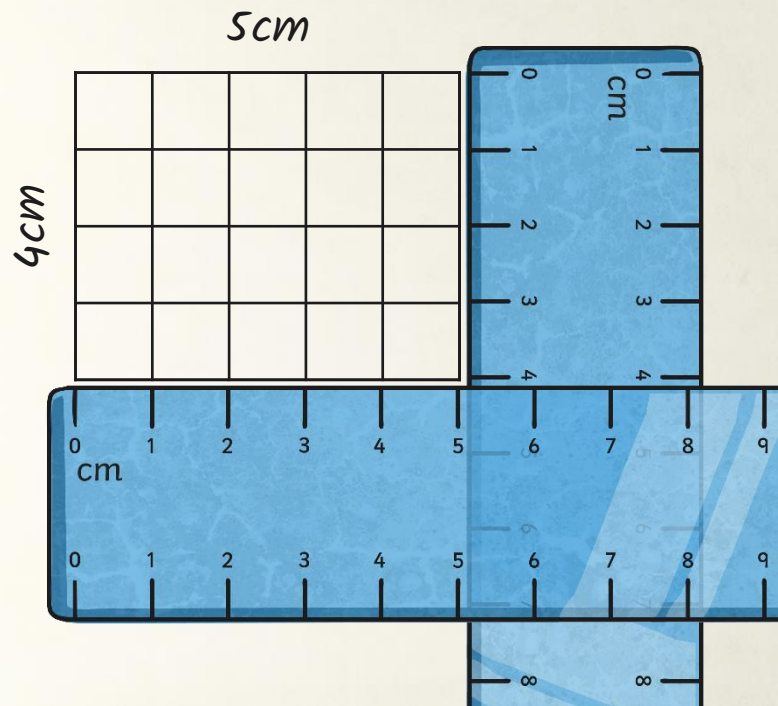
$$4\text{cm} \times 5\text{cm} = 20 \text{ square centimetres}$$

We write this as 20cm^2 .

What is the other multiplication we could do to find the area?

$$5\text{cm} \times 4\text{cm} = 20\text{cm}^2$$

$$\text{Area} = 20\text{cm}^2$$



Calculating Area in cm^2 and m^2



Calculate the area of this shape.

5cm

6cm

0 cm

1

2

3

4

5

6

0 cm

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

$5\text{cm} \times 6\text{cm} = 30\text{cm}^2$

or

$6\text{cm} \times 5\text{cm} = 30\text{cm}^2$

Area = 30cm^2

Calculating Area in cm^2 and m^2

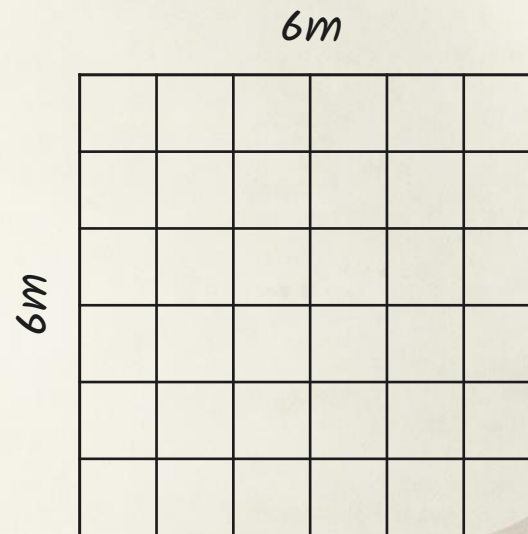


When we calculate an area in metres, we measure this in **square metres**.

We can also write this as m^2 . This is because it describes how many 1m by 1m squares make up the area.

Imagine that each square you see on the shape is a metre.

Calculate the area of this shape.



Calculating Area in cm^2 and m^2



When we calculate an area in metres, we measure this in **square metres**.

A worksheet is placed on a wooden desk. A blue ruler is visible at the top and right edges. A purple pencil lies on the right side of the paper. The worksheet contains the following text and a diagram:

$6\text{m} \times 6\text{m} = 36\text{m}^2$

Area = 36m^2

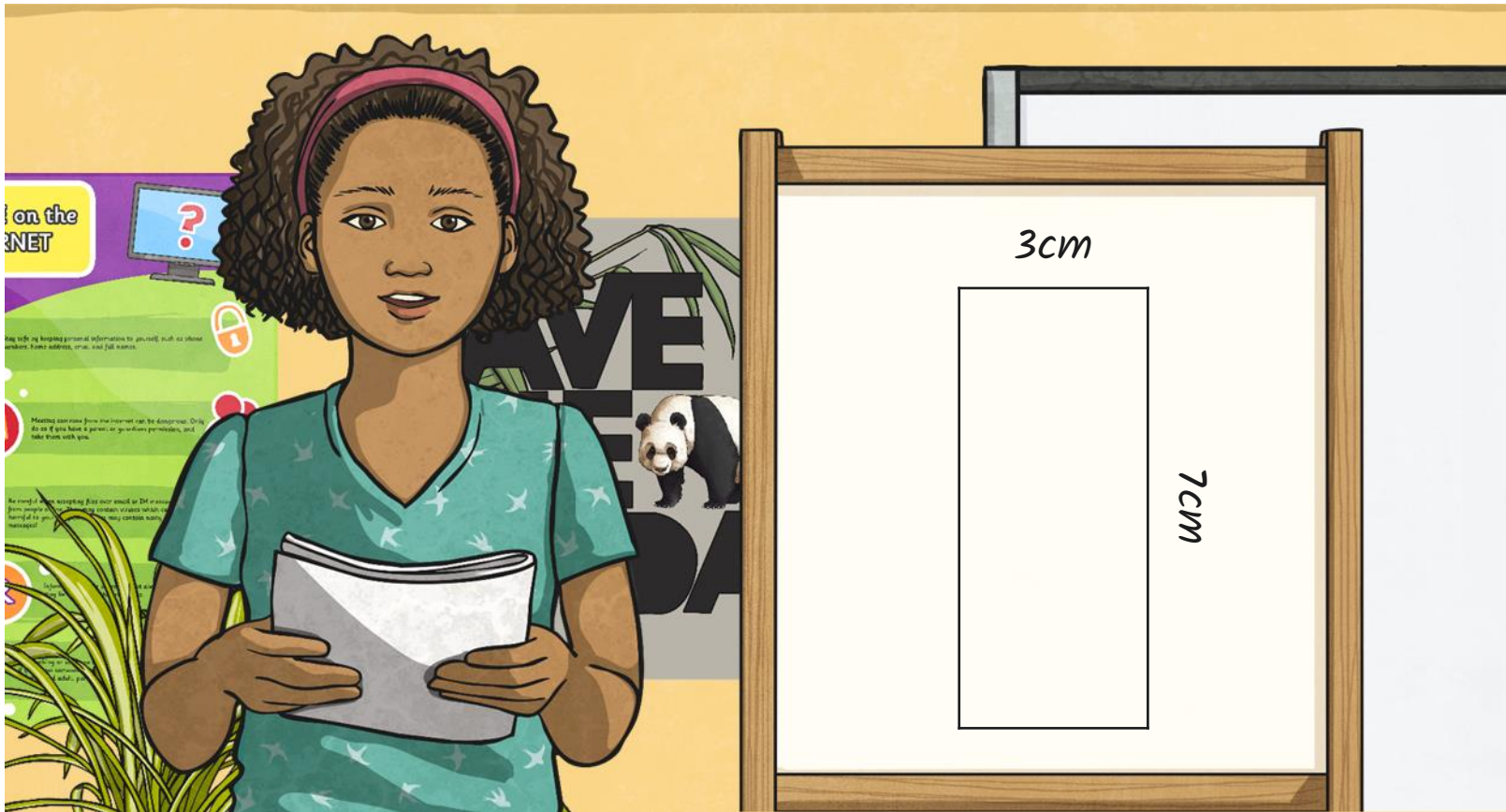
Do we need to do another multiplication?
Why/why not?

6m

Calculating Area in cm^2 and m^2



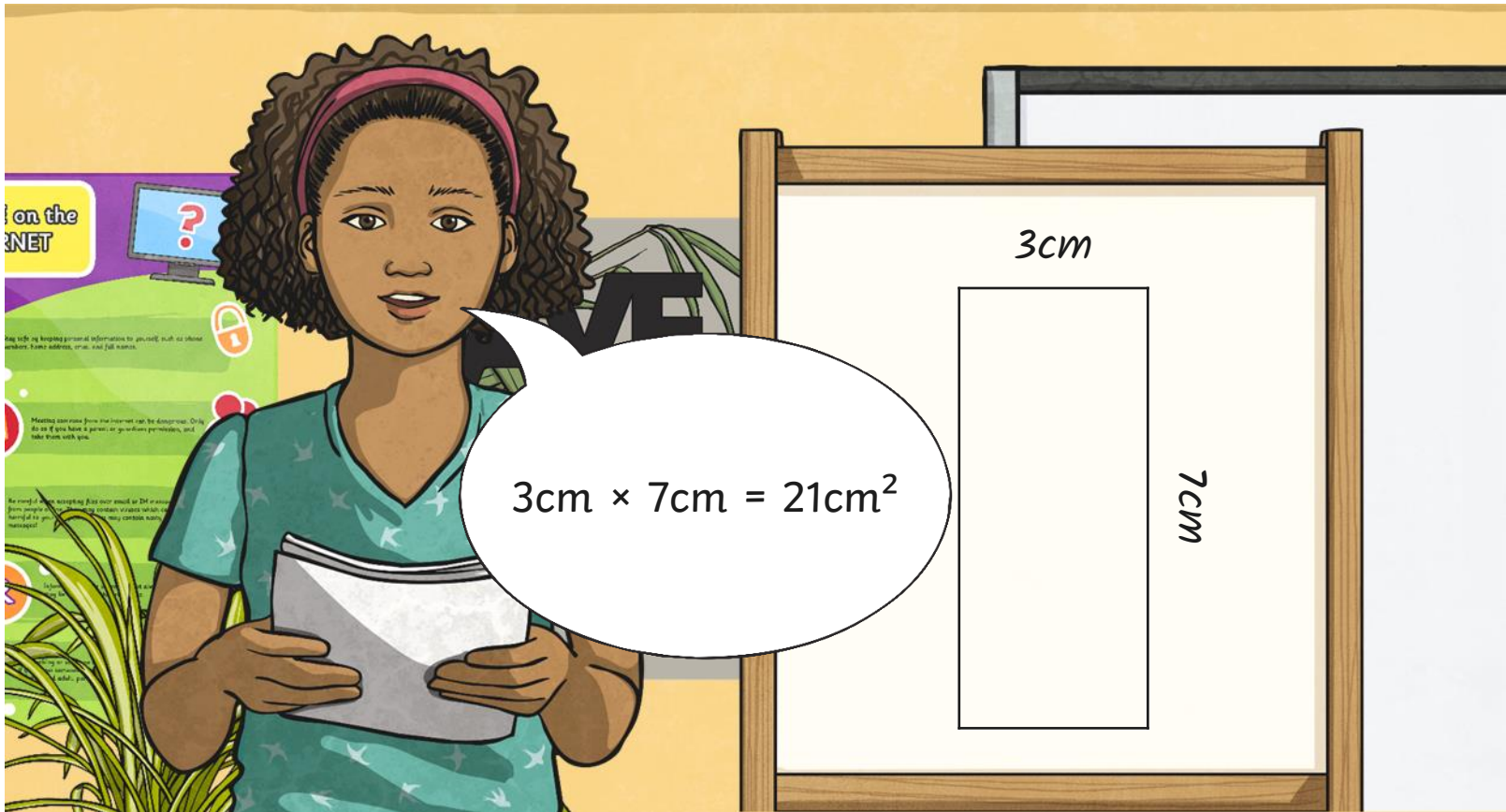
Calculate the area of this shape.



Calculating Area in cm^2 and m^2



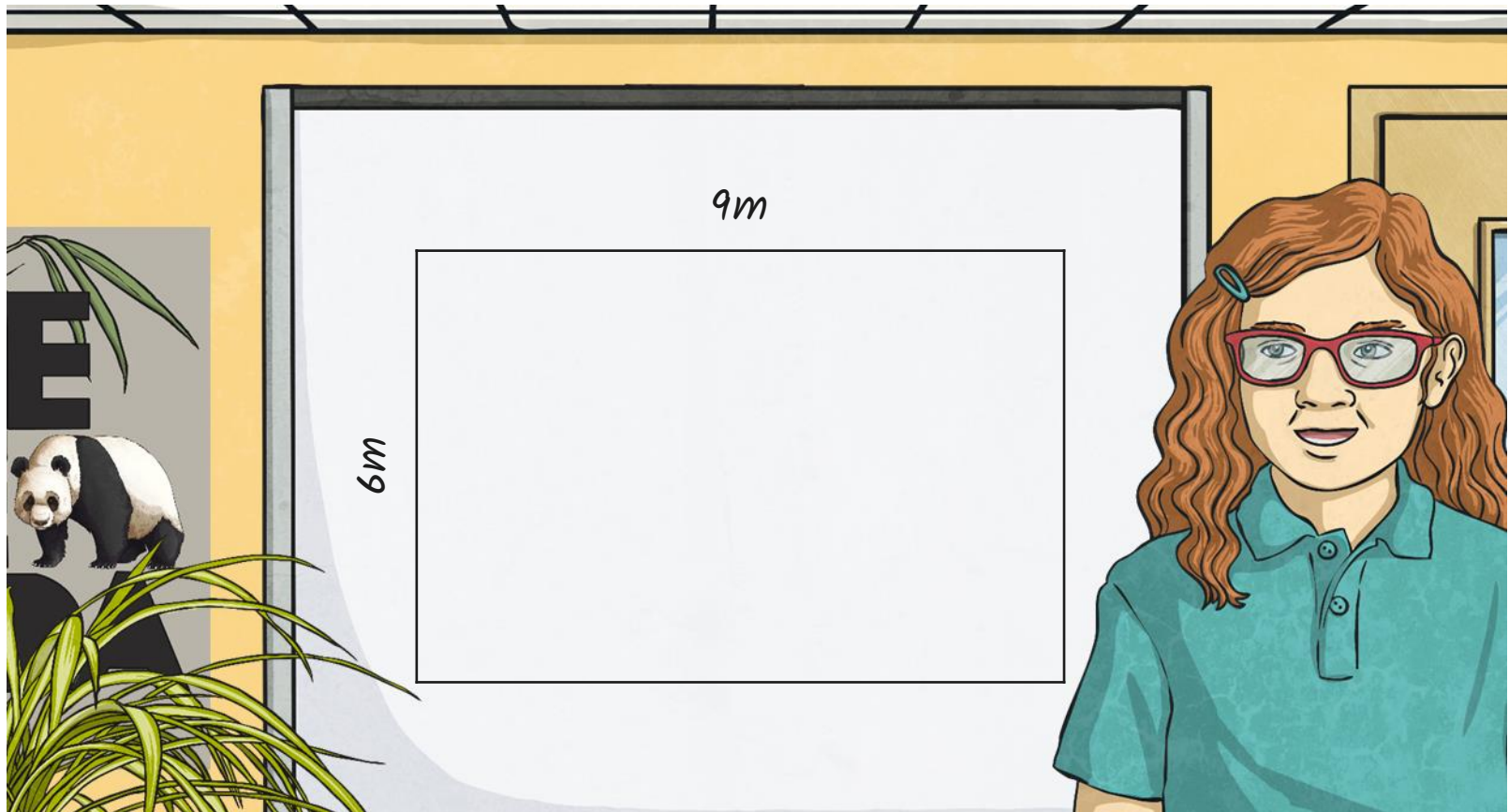
Calculate the area of this shape.



Calculating Area in cm^2 and m^2



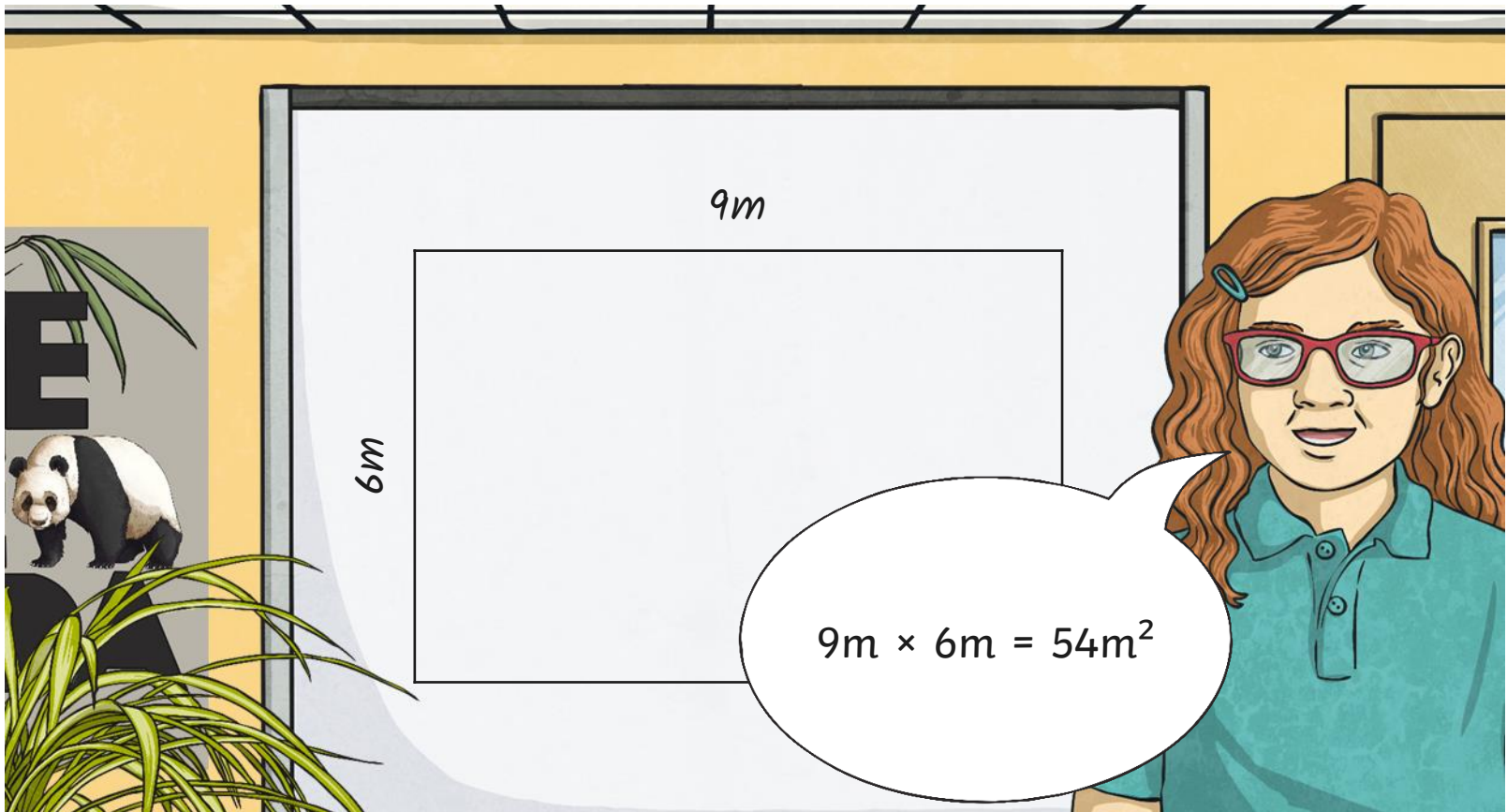
Calculate the area of this shape.



Calculating Area in cm^2 and m^2

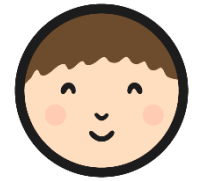


Calculate the area of this shape.



$$9\text{m} \times 6\text{m} = 54\text{m}^2$$

Calculating Area



Now use your amazing area skills to complete these activities.

3) These three shapes all have a width of 6cm. What are the measurements of the other sides?

a) Area = _____

b) Area = _____

c) Area = _____

2) Now use your knowledge of area to calculate the area of the shapes. Remember to look carefully at the measurements.

a) Area = _____

b) Area = _____

c) Area = _____

2) Now use your knowledge of area to calculate the area of the shapes. Remember to look carefully at the measurements.

a) Area = _____

b) Area = _____

c) Area = _____

d) Area = _____

3) Now use your knowledge of area to calculate the area of the shapes. Remember to look carefully at the measurements.

a) Area = _____ cm²

Calculating Area

I can calculate the area of rectangles and squares.

1) Fill in the answers to the 4 times table. This will help you in the next question.

1 × 4 =	4 × 4 =	7 × 4 =	10 × 4 =
2 × 4 =	5 × 4 =	8 × 4 =	11 × 4 =
3 × 4 =	6 × 4 =	9 × 4 =	12 × 4 =

2) Calculate the area of these shapes in cm² and write a multiplication fact to show how you found the area. You can use the 4 times table that you completed in the first question to help. The shapes in these questions may not be drawn to scale.

The first one has been done for you.

a) Area = 8 cm²

Multiplication fact:
4 × 2 = 8

b) Area = _____ cm²

Multiplication fact:
Area = _____ cm²

c) Area = _____ cm²

Multiplication fact:
Area = _____ cm²

d) Area = _____ cm²

Multiplication fact:
Area = _____ cm²

e) Area = _____ cm²

Multiplication fact:
Area = _____ cm²

f) Area = _____ cm²

Multiplication fact:
Area = _____ cm²

Area of 24



On squared paper, draw as many rectangles with different measurements as you can think of that have an area of 24cm^2 .

6cm

4cm

$6\text{cm} \times 4\text{cm} = 24\text{cm}^2$
or
 $4\text{cm} \times 6\text{cm} = 24\text{cm}^2$

!

Top Tip:
which pairs of numbers can be multiplied together to make 24?

Aim



- I can calculate the area of rectangles and squares.

Success Criteria

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