Y5 M5d Can measure and calculate the area of a rectangle, including a square

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Teachers' Notes

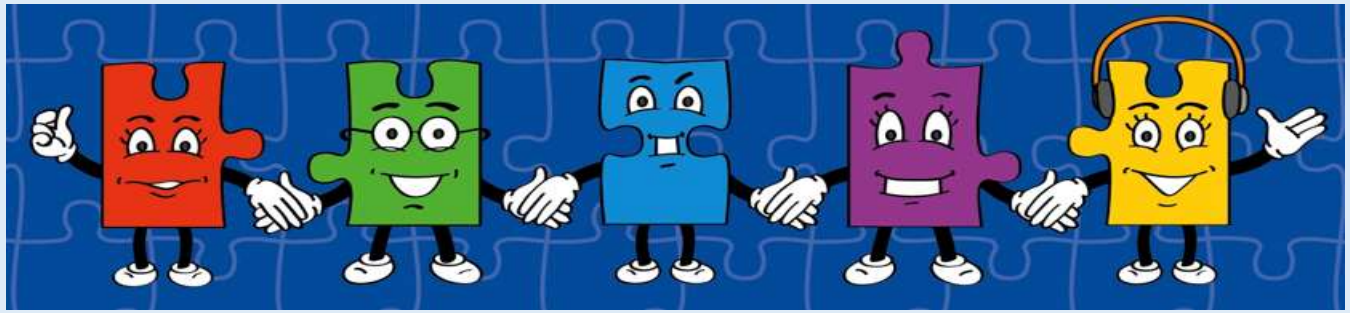
- The PiXL therapies can be taught to a whole class or a target group. Year 3-5 therapies are designed to take approximately 30-40 minutes. However, this is flexible: it may be that only part of the therapy is taught or it could, of course, be adapted or extended.
- Each therapy begins with a LORIC activity to develop relevant learning behaviours.
- This is followed by a vocabulary task, which uses the PiXL 5-phase approach to teach key mathematical vocabulary. Further resources to develop vocabulary can be found in the Whole School area.
- Each therapy adopts the 'Teach, model and apply' process with opportunities for pupils to demonstrate the taught skill independently.
- Problem solving and reasoning activities are an integral part of each therapy.

Progress across amber – the 4-stage model

The three therapy tests which accompany this resource can be used to revisit the taught skill to check that the pupil is able to perform it independently and consistently.

A	A child has successfully completed a therapy test independently, following a set of therapy sessions.
A	A child has successfully completed a therapy test independently, a period after the relevant therapy sessions – we would advise about 2 weeks.
DA	A child has successfully applied their knowledge or skill in an unfamiliar context. This may be application across the curriculum or in a problem.
G	A pupil has successfully re-visited the skills at a later point, and applies these in an unfamiliar context or problem, or across the curriculum.

LORIC task



Our Primary Edge attributes help us to become better learners and today is no exception. Before you start this activity, here are some ideas for how you will need your Raj Resilience skills today:

- Do not be put off by a difficult task
- Keep going – persevere
- Think about ways you can help yourself and others

LORIC task

- Using any times tables up to x12, select the times table you need to practise the most.
- See how many calculations for **multiplication, division and fractions** you can write for your chosen times table in just one minute.

For example, if I wanted to practise the 7 times table, I would write down, in order, as many of the **7 times table calculations** as possible and **the related division and fractions facts**.

E.g. 1 x 7 = 7 7 ÷ 7 = 1 $\frac{1}{7}$ of 7 = 1

2 x 7 =14 14 ÷ 7 = 2 $\frac{1}{2}$ of 14 = 7

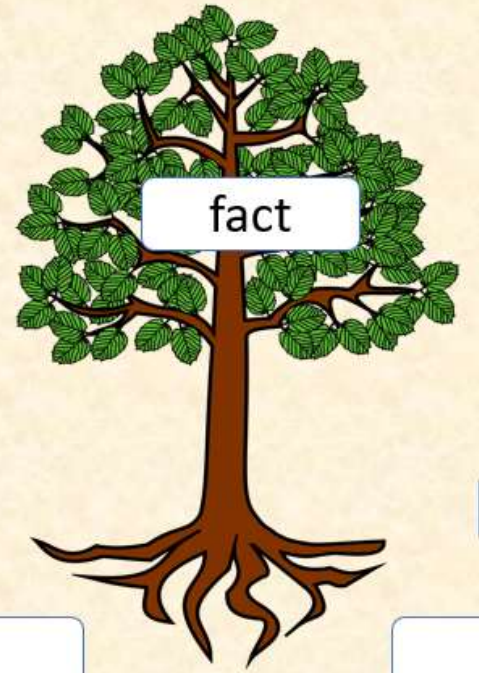
Vocabulary activity

area
width
length
factors

DECONSTRUCT IT

At the root of it

The root ‘fact’ means a thing that is known or proved to be true. How does this relate to the overall word meaning of ‘factors’?

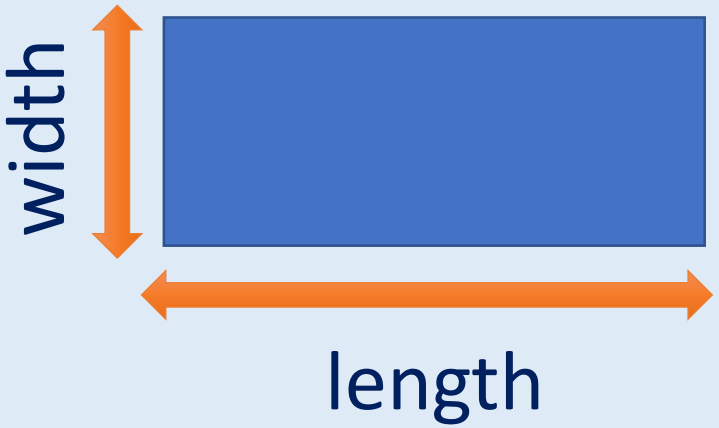


Teach

Today, we are going to calculate the **area** of rectangles, including squares.

The **area** of a shape is the **surface space** taken up by that shape.

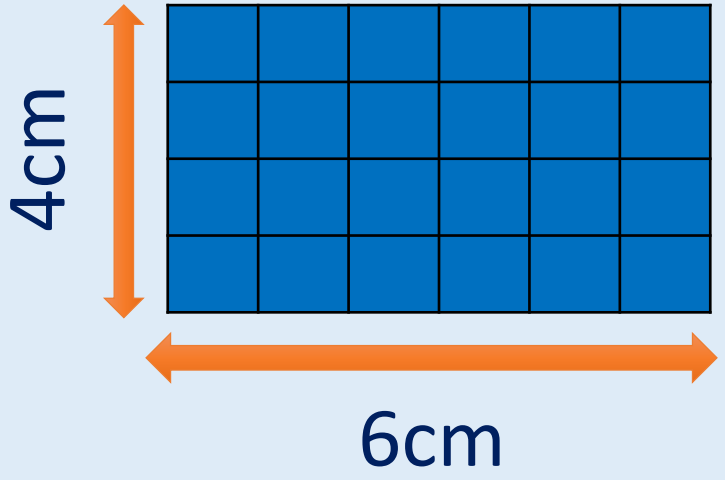
For example, the **area** of a playing field or a given object is the total surface space taken up by the field or object.



Teach

Today, we are going to calculate the **area** of shapes by using the formula: **length x width = area**

The **unit** we use when calculating **area** is mm^2 cm^2 or m^2.

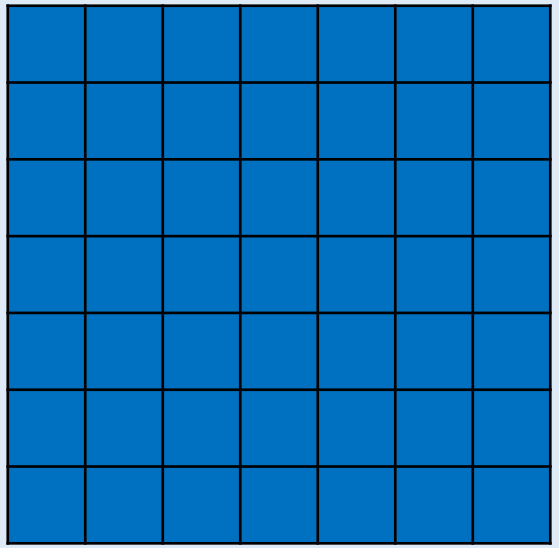


4cm x 6cm = $24cm^2$

Teach

Today, we are going to calculate the **area** of shapes by using the formula: **length x width = area**

When calculating the **area** of a square, each side is the same measurement.



7cm

7cm x 7cm = 49cm^2

Model

We can calculate the **area** of this shape simply by multiplying the **length** by the **width**.

This means I need to complete the following calculation:

$5cm \times 9cm = 45cm^2$

or $9cm \times 5cm = 45cm^2$

The answer is $45cm^2$ (we read this as '45 square centimetres').

Model

We can calculate the **area** of this shape by using the formula:
length x width = area

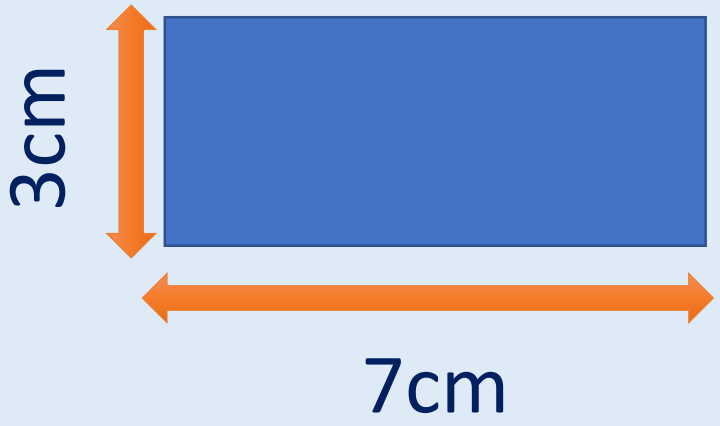
9m

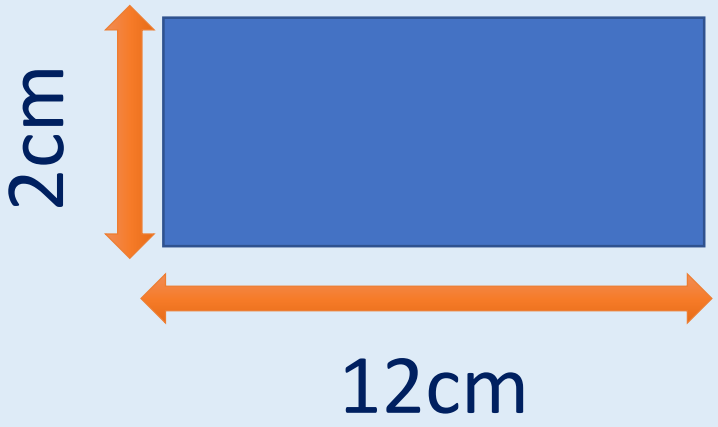
This shape is a square, which means I need to complete the following calculation:
9m x 9m = 81m^2

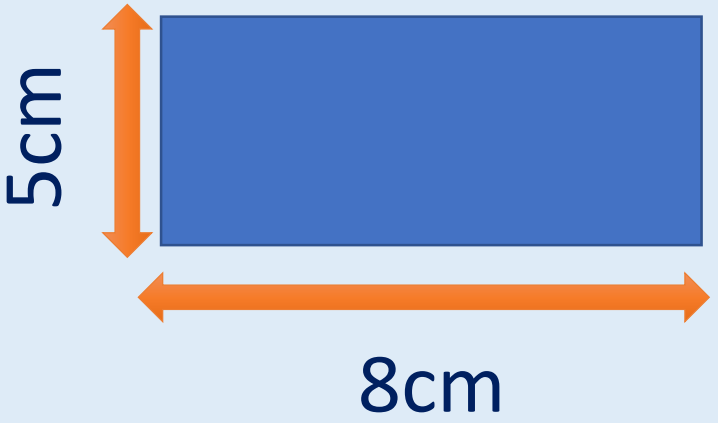
The answer is 81m^2 (we read this as '81 square metres').

Apply

Work out the area of each shape. Give each answer in **cm²**:



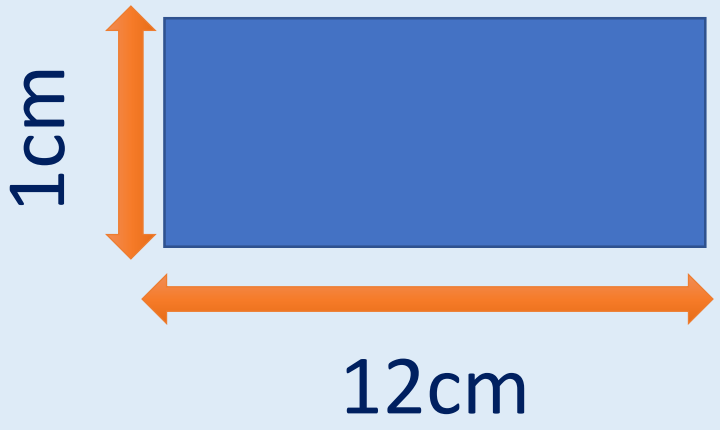


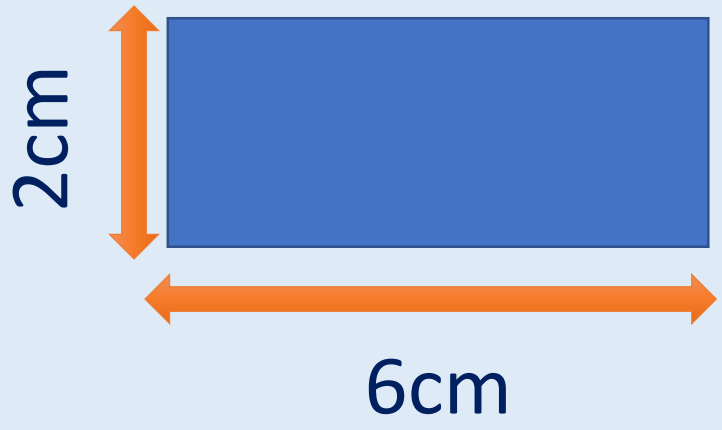


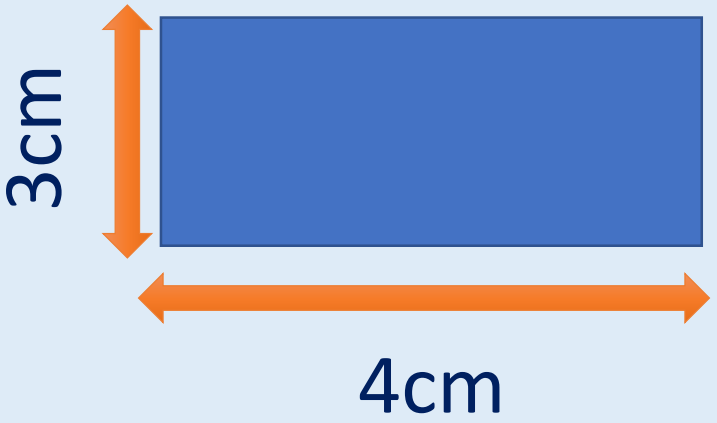
Model

If I had to create a shape with a given area, I would need to use my knowledge of factors to help me.

For example, if I had to create a shape with an **area** of **12cm^2,** I would use the following **factor pairs**: (1 and 12), (2 and 6), (3 and 4).







Your Turn

Use your knowledge of **factor pairs** to find **all the possible dimensions** for rectangles with the following areas:

36cm²
72cm²
120cm²

Apply – Problem Solving

Jenny has a rectangular garden measuring 4m by 12m.
In **m²**, what is the **area** of her garden?

Apply – Problem Solving

Which shapes have an **area** of **36cm²**?

A

B

C

Apply – Problem Solving

Draw and label a rectangle with an **area** of **30cm²**.
(Think about your knowledge of factor pairs of 30.)

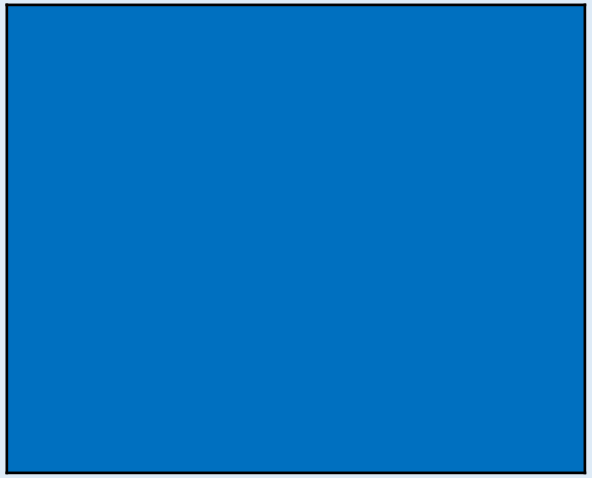
Challenge: Can you find more than one way of showing this area?

Apply – Reasoning

Mark says the **area** of this square is **20cm²**

Is he correct?

Explain how you know.



4cm