# How to use this book

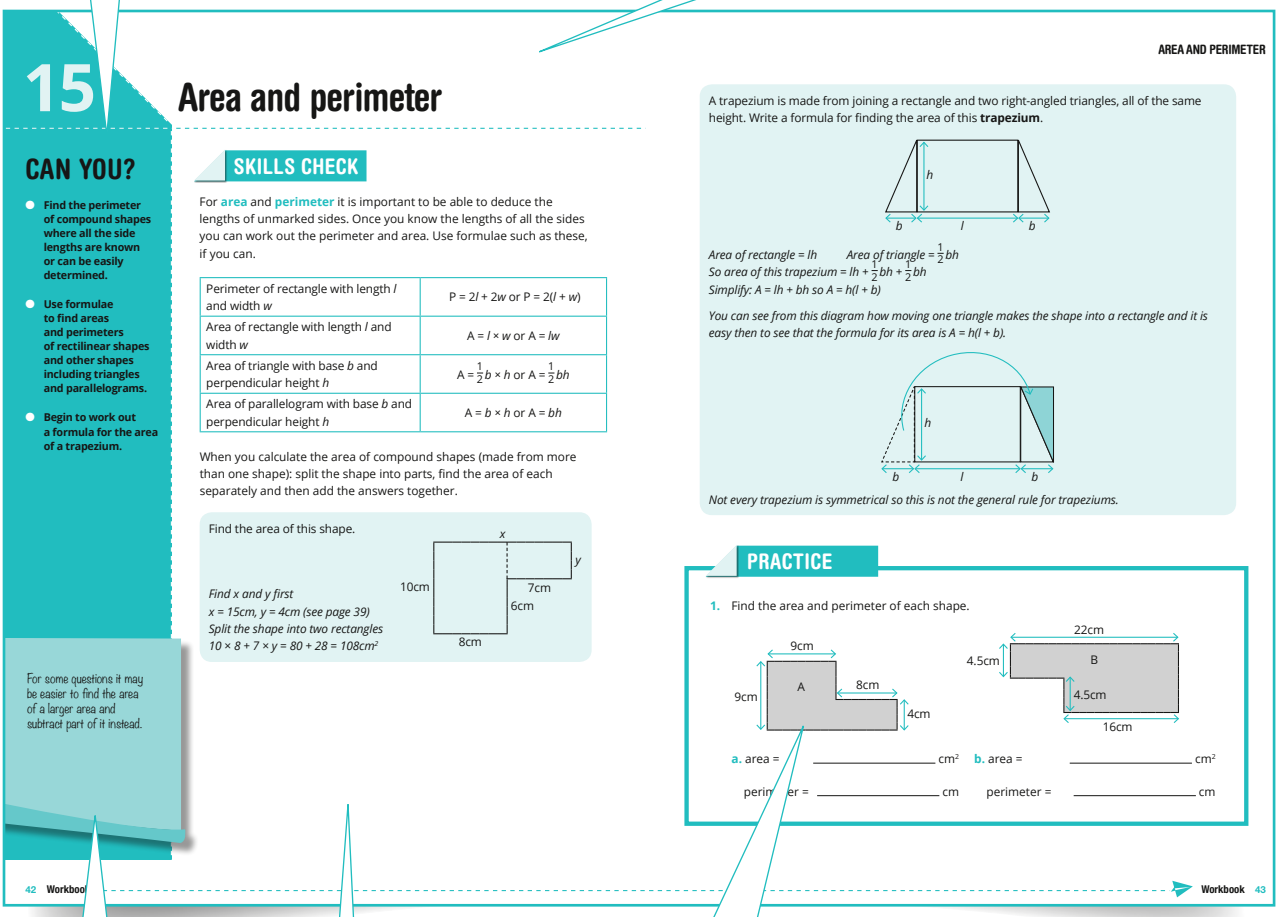
This *Workbook* helps you to check what you already know, practise what you've learned and challenge yourself to fly higher!

You can work through all of the activities in order or you can dip in and out to brush up your skills or explore in more depth. Use the progress chart opposite to record which skills you've checked and practised. Aim higher by having a go at the questions in the *Skills Test Papers*.

You can check the answers at the back of the book.

What you should be able to do after you complete the skills check and practice questions. You can tick off each one as you can do it.

The title of the topic.



AREA AND PERIMETER

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## Area and perimeter

### CAN YOU?

- Find the perimeter of compound shapes where all the side lengths are known or can be easily determined.
- Use formulae to find areas and perimeters of rectilinear shapes and other shapes including triangles and parallelograms.
- Begin to work out a formula for the area of a trapezium.

### SKILLS CHECK

For **area** and **perimeter** it is important to be able to deduce the lengths of unmarked sides. Once you know the lengths of all the sides you can work out the perimeter and area. Use formulae such as these, if you can.

| | |
|---|---|
| Perimeter of rectangle with length $l$ and width $w$ | $P = 2l + 2w$ or $P = 2(l + w)$ |
| Area of rectangle with length $l$ and width $w$ | $A = l \times w$ or $A = lw$ |
| Area of triangle with base $b$ and perpendicular height $h$ | $A = \frac{1}{2}b \times h$ or $A = \frac{1}{2}bh$ |
| Area of parallelogram with base $b$ and perpendicular height $h$ | $A = b \times h$ or $A = bh$ |

When you calculate the area of compound shapes (made from more than one shape): split the shape into parts, find the area of each separately and then add the answers together.

Find the area of this shape.




*Find x and y first*
*x = 15cm, y = 4cm (see page 39)*
*Split the shape into two rectangles*
*10 × 8 + 7 × y = 80 + 28 = 108cm²*

For some questions it may be easier to find the area of a larger area and subtract part of it instead.

A trapezium is made from joining a rectangle and two right-angled triangles, all of the same height. Write a formula for finding the area of this **trapezium**.




*Area of rectangle = lh* *Area of triangle = $\frac{1}{2}bh$*
*So area of this trapezium = $lh + \frac{1}{2}bh + \frac{1}{2}bh$*
*Simplify: A = lh + bh so A = h(l + b)*

*You can see from this diagram how moving one triangle makes the shape into a rectangle and it is easy then to see that the formula for its area is A = h(l + b).*




*Not every trapezium is symmetrical so this is not the general rule for trapeziums.*

### PRACTICE

1. Find the area and perimeter of each shape.




a. area = _____ cm² b. area = _____ cm²

perimeter = _____ cm perimeter = _____ cm

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Sticky notes provide tips and reminders.

Complete the practice questions to check your understanding. The questions become more difficult as you go down the page.

Background information on the topic to help you answer the questions.