

Area and perimeter

Always, sometimes, never

You might feel that statements such as 'the area of a rectangle is greater than the perimeter' need unpacking with your class. The intention of all of these 'Always, sometimes, never?' tasks is to draw out misconceptions and this statement, combined with the statements about units should allow plenty of opportunities for this to occur.

You could offer learners squared paper to support them in working on some of these statements.

Multiple representations

This is a very straight forward multiple representations task. A follow up task might be for learners to draw some more straightforward shapes that have an area of 6cm^2 or 12cm^2 . The '12 cm' card has no matches and can be used for an extension task with learners deciding what part of the shape it might refer to and what the shape could look like, then creating a family for that shape.

Mystery

While it is possible to complete the mystery without knowing what the shapes used in it are, it is much more challenging. Many groups will benefit from being given the scaffolding of the shapes used early in the task. These are provided at the bottom but can be trimmed off.

Area and perimeter – always, sometimes, never

15 cards

Cut out these cards and sort them into statements that you think are *always* true, *sometimes* true and *never* true.

If you think *sometimes* then explain when it is and when it isn't true.

If you think *always* or *never* then explain how you can be so sure.



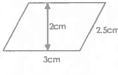
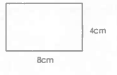
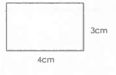
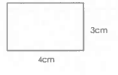
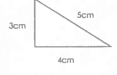
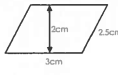
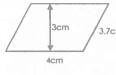
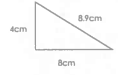
All members of your group must agree with each statement.

<p>Area and Perimeter – always, sometimes, never</p> <p>The area of a rectangle is greater than the perimeter</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>The perimeter of a rectangle is greater than the area</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>The area and perimeter of a rectangle are equal in value</p>
<p>Area and Perimeter – always, sometimes, never</p> <p>The area of a shape is found by multiplying the lengths together</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>The perimeter of a shape is found by adding the lengths together</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>Area is the space inside the shape's edges</p>
<p>Area and Perimeter – always, sometimes, never</p> <p>Perimeter is measured in centimetres</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>Area is measured in centimetres</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>If I know the perimeter of a shape, I will be able to calculate the area</p>
<p>Area and Perimeter – always, sometimes, never</p> <p>If I cut a piece off a rectangle, then the area will decrease</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>If I cut a piece off a rectangle, then the perimeter will decrease</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>The area of a triangle is half the area of a rectangle</p>
<p>Area and Perimeter – always, sometimes, never</p> <p>The perimeter of a triangle is half the perimeter of a rectangle</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>It is possible to cut a rectangle into two pieces, that can be rearranged to make a parallelogram with the same area</p>	<p>Area and Perimeter – always, sometimes, never</p> <p>It is possible to cut a rectangle into two pieces, that can be rearranged to make a parallelogram with the same perimeter</p>
<p>Area and Perimeter – always, sometimes, never</p>	<p>Area and Perimeter – always, sometimes, never</p>	<p>Area and Perimeter – always, sometimes, never</p>

Area and perimeter – multiple representations

Area and perimeter of triangles, rectangles and parallelograms – 15 cards

Cut out these cards and match any that show different ways of representing the same shape.

<p>Area and perimeter – multiple representations</p> <p>Half the area of this rectangle</p> 	<p>Area and perimeter – multiple representations</p> <p>The area of this rectangle</p> 	<p>Area and perimeter – multiple representations</p> <p>The area of this parallelogram</p> 
<p>Area and perimeter – multiple representations</p> <p>Half the area of this rectangle</p> 	<p>Area and perimeter – multiple representations</p> <p>The area of this rectangle</p> 	<p>Area and perimeter – multiple representations</p> <p>The perimeter of this rectangle</p> 
<p>Area and perimeter – multiple representations</p> <p>The area of this triangle</p> 	<p>Area and perimeter – multiple representations</p> <p>12 cm^2</p>	<p>Area and perimeter – multiple representations</p> <p>6 cm^2</p>
<p>Area and perimeter – multiple representations</p> <p>14 cm</p>	<p>Area and perimeter – multiple representations</p> <p>12 cm</p>	<p>Area and perimeter – multiple representations</p> <p>The perimeter of this parallelogram</p> 
<p>Area and perimeter – multiple representations</p> <p>11 cm</p>	<p>Area and perimeter – multiple representations</p> <p>The area of this parallelogram</p> 	<p>Area and perimeter – multiple representations</p> <p>The area of this triangle</p> 
<p>Area and perimeter – multiple representations</p>	<p>Area and perimeter – multiple representations</p>	<p>Area and perimeter – multiple representations</p>

Area and perimeter – mystery

15 cards + scaffolding

Read these cards and solve the problem.

All of the information you need to solve the problem is included in the cards.

<small>Area and perimeter – mystery</small> All of the shapes have the same height	<small>Area and perimeter – mystery</small> The parallelogram has an area of 20cm^2	<small>Area and perimeter – mystery</small> The square has a perimeter of 16cm
<small>Area and perimeter – mystery</small> The perimeter of the rectangle is 1cm more than the perimeter of the parallelogram	<small>Area and perimeter – mystery</small> The right-angled triangle has a hypotenuse that is 5cm long	<small>Area and perimeter – mystery</small> The area of the trapezium is half the area of the rectangle
<small>Area and perimeter – mystery</small> One of the parallel sides of the trapezium is 2cm longer than the other	<small>Area and perimeter – mystery</small> The trapezium has two right angles and its perimeter is 14.5cm (to 3 significant figures)	<small>Area and perimeter – mystery</small> The base of the rectangle is 6cm long
<small>Area and perimeter – mystery</small> Your task is to find the area and perimeter of the shapes. You might then be able to draw a diagram showing the lengths of the sides of each shape	<small>Area and perimeter – mystery</small> The isosceles triangle is made by putting two of the right-angled triangles together. Its perimeter is 16cm	<small>Area and perimeter – mystery</small> Hypotenuse means the longest side in a right-angled triangle. It is the side opposite the right angle
<small>Area and perimeter – mystery</small>	<small>Area and perimeter – mystery</small>	<small>Area and perimeter – mystery</small>
<small>Area and perimeter – mystery</small>  <p>The shapes are not drawn to scale</p>		

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