

Investigating Shapes

Mathematics

Year 5

Lesson 1 of 5

Learning Objective	Resources	
Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Slides Worksheets 1A/1B/1C Protractors Rectangles Challenge Rules (FSD? activity only)	
Teaching Input		
<ul style="list-style-type: none"> • What is a quadrilateral? Children to think, pair, share. Which of these shapes are quadrilaterals? Again, children to discuss and feed back. • Recap properties of quadrilaterals, parallelograms, rectangles and special types of rectangles. Which of these are rectangles? Which of the rectangles are squares? Oblongs? Children to think, pair, share. • Explain that the pairs of parallel lines in rectangles are always the same length. We can use this information to find missing lengths on a rectangle. Show some examples of this. Children to think, pair, share as each is shown. • Go on to explain that we can also find missing angles inside shapes if we know the properties of the shape. Challenge children to find the missing angles inside a square, then inside parallelograms and other irregular quadrilaterals. • Show a compound shape. Explain that picturing the simple shapes that make up a composite shape can help us work out the missing angles inside it. Children to finish finding missing angles inside a compound shape. • Explain that today we will be using what we know about the properties of quadrilaterals to find missing angles and lengths or draw them accurately. 		
Main Activity		
<p><u>Lower ability:</u></p> <p>On worksheet 1A, children are to measure and record missing lengths and angles inside and outside quadrilaterals. They are also to label and shade the quadrilaterals used to form compound shapes.</p>	<p><u>Middle ability:</u></p> <p>On worksheet 1B, children are to measure and record missing lengths and angles inside and outside quadrilaterals. They are also to work out the missing angles inside compound shapes formed from quadrilaterals.</p>	<p><u>Higher ability:</u></p> <p>On worksheet 1C, children are to measure and record missing lengths and angles inside and outside quadrilaterals. They are then to draw compound shapes accurately on squared paper, based on the given descriptions.</p>
Fancy something different...?		
<ul style="list-style-type: none"> • Provide children with the Rectangle Challenge Rules. Challenge children to draw rectangles accurately according to the set of rules. Their aim is to draw as many rectangles as possible on one sheet of paper; each rectangle they draw must be 1cm longer and wider than the previous one. Who can draw the most rectangles on their sheet of paper? • EXTEND - challenge children to repeat the challenge, but to double the size of the rectangle each time. A3 or A2 sheets of paper could be used to further explore this idea. 		
Plenary	Assessment Questions	
<p>Show the Plenary slide. Children are to suggest how quadrilaterals might have been used to construct the compound shape shown, then work out the missing lengths and angles.</p>	<ul style="list-style-type: none"> • Do children know the properties of quadrilaterals, rectangles, squares and oblongs? • Can children identify pairs of parallel lines and use their conventional markings? • Can children find missing lengths and angles of rectangles? 	