

# Investigating Shapes

Mathematics

Year 5

Lesson 2 of 5

Learning Objective		Resources
To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.		Slides Worksheets 2A/2B/2C Protractors Make A Tangram (FSD? activity only)
Teaching Input		
<ul style="list-style-type: none"> <li>• What is a polygon? What is a regular polygon? What is an irregular polygon? Children to share prior learning.</li> <li>• Explain the properties of regular polygons, showing some common examples.</li> <li>• Demonstrate checking angles and lengths of sides, focusing on the need for accurate measuring.</li> <li>• Compare two similar shapes; which is regular? Children to think, pair share as each pair of shapes is shown.</li> <li>• Show how to work out the angles inside a regular polygon, then use this information to draw it using a ruler and a protractor.</li> <li>• Explain that today we will be measuring and sorting regular and irregular polygons as well as drawing them accurately.</li> </ul>		
Main Activity		
<p><u>Lower ability:</u></p> <p>On worksheet 2A, children are to carefully measure the angles and lengths of some 2-D shapes and determine whether they are regular or irregular. They are then to draw regular polygons according to the measurements given.</p>	<p><u>Middle ability:</u></p> <p>On worksheet 2B, children are to carefully measure the angles and lengths of some 2-D shapes and determine whether they are regular or irregular. They are then to calculate the degrees per angle of regular polygons and draw them accurately.</p>	<p><u>Higher ability:</u></p> <p>On worksheet 2C, children are to carefully measure the angles and lengths of some 2-D shapes and determine whether they are regular or irregular. They are then to calculate the total degrees and degrees per angle of regular polygons and draw them accurately.</p>
Fancy something different...?		
<ul style="list-style-type: none"> <li>• Provide children with the Make A Tangram instructions and some coloured card or paper. Challenge them to make their own tangrams as per the instructions, without measuring or drawing on the card or paper.</li> <li>• Challenge children to make larger polygons such as parallelograms, squares, rectangles, trapezoids and triangles by using some or all of their tangram pieces. As they do this, encourage children to describe their process using mathematical language and create a list of questions that could be asked about each shape they make, such as: How many pieces did they use? Did they have to rotate or flip over any of their pieces? Is the polygon regular or irregular? Does it have parallel sides? How many degrees are its angles? What length are its sides?</li> <li>• EXTEND - challenge children to work in pairs or small groups to create even larger shapes by combining their tangram sets.</li> </ul>		
Plenary	Assessment Questions	
<p>Show the plenary slide with some polygons. Which are regular? Which are not? Why? Children to think, pair, share their ideas.</p>	<ul style="list-style-type: none"> <li>• Do children know all the properties of regular polygons?</li> <li>• Can children use rulers and protractors to measure and check if polygons are regular?</li> <li>• Can children make a variety of different regular polygons accurately?</li> </ul>	