

# Symmetry, Reflection and Coordinates

Mathematics

Year 5

Lesson 5 of 5

Learning Objective		Resources
To explore ways in which some congruent shapes can tessellate.		Slides Worksheets 5A/5B/5C/5D Art software Thick card/foam, poster paint (FSD? only)
Teaching Input		
<ul style="list-style-type: none"> <li>Do you know what tessellation is? Allow time for children to think, pair, share their ideas. The following slides give a definition and some examples of tessellating patterns made using shapes such as squares, equilateral triangles and oblongs.</li> <li>Show the slide with two trapeziums of different sizes; it explains that they are similar, but not congruent. Do you think these shapes will tessellate? Again, allow time for children to think, pair, share their ideas. The following slide reveals the answer: similar shapes of different sizes will only tessellate if they are an exact multiple, e.g. double or triple the size.</li> <li>Show a scalene triangle and an irregular quadrilateral. Demonstrate how these shapes will also tessellate. Go on to show how congruent shapes can even be reflected or rotated and will still tessellate.</li> <li>Not all polygons will tessellate. The slide shows how regular pentagons will not tessellate, but 'house' shaped pentagons will.</li> <li>Explain that today we will be creating tessellating patterns using congruent shapes.</li> </ul>		
Main Activity		
<u>Lower ability:</u>	<u>Middle ability:</u>	<u>Higher ability:</u>
Worksheet 5A challenges children to use art software on a computer to create a tessellating pattern by drawing an irregular quadrilateral, then creating multiple reflected or rotated copies of it.	Worksheet 5B challenges children to use art software on a computer to create a tessellating pattern by drawing a scalene triangle, then creating multiple reflected or rotated copies of it.	Worksheet 5C challenges children to use art software on a computer to create a tessellating pattern using reflected or rotated copies of the 'house-shaped' pentagon or the 'arrow-shaped' hexagon shown.
Fancy something different...?		
<ul style="list-style-type: none"> <li>Worksheet 5D includes instructions for making two 'stamps' for printing tessellating patterns. Draw a triangle or a quadrilateral on a piece of foam or thick card. Cut it out then draw around it again to create an identical shape. Flip one of the two shapes over so it is a reflection of the other. Stick them both to larger pieces of card. Use these two 'stamps' you have created to print a tessellating pattern using poster paint. SUPPORT: Make regular triangular or rectangular stamps. EXTEND: Try making a tessellating pattern using 'house-shaped' pentagon or an 'arrow-shaped' hexagon stamps (see Worksheet 5C for examples of these shapes).</li> </ul>		
Plenary	Assessment Questions	
Allow some time for children to share their work. Did anyone find any interesting tessellating patterns? Do you think any combination of two or more different shapes might tessellate? Allow time for children to discuss the questions.	<ul style="list-style-type: none"> <li>Do children know what tessellation is?</li> <li>Do children know that some shapes will tessellate and some will not?</li> <li>Can children create tessellating patterns by reflecting or rotating shapes?</li> </ul>	