



The Sutton Academy

# Knowledge Rich Curriculum Plan

Year 8 Core – Similarity, Congruency and Transformations

| Lesson/Learning Sequence  | Intended Knowledge:<br><i>Students will know that...</i>  | Tiered Vocabulary  | Prior Knowledge:<br><i>In order to know this, students need to already know that...</i>   | Assessment         |
|---|---|--|---|--------------------|
| <b>To learn how to identify congruent and similar shapes.</b>       | <ul style="list-style-type: none"> <li>• Students will know that congruence is when two shapes are the same size and shape.</li> <li>• Students will know that two similar shapes are where one is an enlargement of the other.</li> <li>• Students will know that similar means two shapes are similar if the angles are the same size and the corresponding sides are in the same ratio.</li> <li>• Students will identify similar shapes including circles and regular polygons.</li> <li>• Students will know the criteria for congruent triangles. (SSS, SAS, ASA and RHS).</li> <li>• Students will know how to prove that two triangles are congruent by proving that one of the criteria for congruence is met. (SSS, SAS, ASA and RHS).</li> </ul>   |  | <ul style="list-style-type: none"> <li>• Students need to know properties of 2D shapes.</li> </ul>  | Mini-Assessment 10 |
| <b>To learn how to calculate missing lengths in similar shapes.</b> | <ul style="list-style-type: none"> <li>• Students will know that two triangles are similar if all of the angles are the same size or if the corresponding sides are in the same ratio. They will know that either of these conditions will prove two triangles are similar.</li> <li>• Students will know how to calculate the length scale factor for a shape that has been enlarged.</li> <li>• Students will know how to use the length scale factor to find missing lengths in similar shapes.</li> </ul> <p><b>Opportunity for challenge:</b></p> <ul style="list-style-type: none"> <li>• Students will know how to find missing lengths in similar triangles and will know how to prove that two triangles where one is inside another are similar by identifying corresponding angles.</li> </ul> | <p><b>Similar</b> - having a resemblance in appearance, character, or quantity, without being identical.</p> <p><b>Similar Shapes</b> – two shapes are similar when one is an enlargement of the other. When a shape is enlarged, the image is similar to the original shape. It is the same shape but a different size.</p> <p><b>Similar triangles</b> – two triangles are similar if all of the angles are the same size or if the corresponding sides are in the same ratio. Either of these conditions will prove two triangles are similar.</p> <p><b>Scale factor</b> – how much the shape has been enlarged, the scale factor tells us what the corresponding measures have been multiplied by</p> | <ul style="list-style-type: none"> <li>• Students will need to be able to recognise similar and congruent shapes</li> </ul>   | Mini-Assessment 10 |
| <b>To learn how to translate shapes and describe translations.</b>  | <ul style="list-style-type: none"> <li>• Students will know how to translate a shape by given units to the left/right up/ down.</li> <li>• Students will know how to use a column vector to write movements.</li> <li>• Students will know how to translate a shape by a given column vector.</li> <li>• Students will know how to describe a translation of a shape using units to the left/right up/ down.</li> <li>• Students will know how to write movements as column vectors.</li> <li>• Students will know how to describe a translation using a column vector.</li> </ul>  | <p><b>Transform</b> – change</p> <p><b>Transformation</b> – in maths, a transformation is a process that manipulates a polygon or other two-dimensional object on a plane or coordinate system</p> <p><b>Translation</b> – the process of moving something from one place to another.</p>  | <ul style="list-style-type: none"> <li>• Students should know how to interpret a column vector as a movement</li> </ul>   | Mini-Assessment 10 |
| <b>To learn how to reflect shapes and describe reflections.</b>     | <ul style="list-style-type: none"> <li>• Students will know how to reflect a 2D shape using a horizontal or vertical mirror line.</li> <li>• Students will know how to reflect a 2D shape in a diagonal line.</li> <li>• Students will know how to reflect a shape in the x-axis or y-axis.</li> <li>• Students will know how to reflect a shape in a line in the form <math>x = a</math>, <math>y = a</math>, <math>y = x</math>, <math>y = -x</math>.</li> <li>• Students will know how to identify where a mirror line would be when a shape has already been reflected.</li> <li>• Students will know how to describe a reflection fully.</li> </ul>  | <p><b>Reflection</b> – In maths, a reflection is a type of transformation where each point in a shape appears at an equal distance on the opposite side of a given line - the line of reflection</p> <p><b>Symmetry</b> – the quality of being made up of exactly similar parts facing each other or around an axis.</p>   | <ul style="list-style-type: none"> <li>• Students need to know how to identify the equation of a straight line that is parallel to either the x- or y-axis</li> </ul> | Mini-Assessment 10 |

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|--|---|--|---|--------------------|
| To learn how to rotate shapes.         | <ul style="list-style-type: none"> <li>Students will know how to rotate a shape about a centre.</li> </ul>  | <p><b>Rotate</b> – turn</p> <p><b>Clockwise</b> – in the same direction as the hands move around a clock (to the right)</p> <p><b>Anti-clockwise</b> – in the opposite direction as the hands move around a clock (to the left)</p> <p><b>Origin</b> – The origin is located at the intersection of the vertical and horizontal axes at the coordinates (0, 0)</p> | <ul style="list-style-type: none"> <li>Students need to know how to plot and write coordinates</li> </ul>                             | Mini-Assessment 10 |
| To learn how to describe rotations.    | <ul style="list-style-type: none"> <li>Students will know how to describe a rotation fully.</li> </ul>  |  | <ul style="list-style-type: none"> <li>Students need to know how to rotate 2D shapes.</li> </ul>                                      | Mini-Assessment 10 |
| To learn how to enlarge shapes.        | <ul style="list-style-type: none"> <li>Students will know how to enlarge a shape by a positive scale factor.</li> <li>Students will know how to enlarge a shape by a positive scale factor from a given centre of enlargement.</li> </ul> <p><b>Opportunity for challenge:</b></p> <ul style="list-style-type: none"> <li>Students will know how to enlarge a shape by a fractional scale factor from a given centre of enlargement.</li> </ul> | <p><b>Enlarge</b> – change the size</p> <p><b>Enlargement</b> – a type of transformation where we change the size of the original shape to make it bigger or smaller by multiplying it by a scale factor</p> <p><b>Scale factor</b> – how much the shape has been enlarged, the scale factor tells us what the corresponding measures have been multiplied by</p>  | <ul style="list-style-type: none"> <li>Students will need to know how to identify the length scale factor for enlargement.</li> </ul> | Mini-Assessment 10 |
| To learn how to describe enlargements. | <ul style="list-style-type: none"> <li>Students will know how to describe positive enlargements fully.</li> </ul> <p><b>Note: If students finish please use the opportunity for them to practise a mixture of the different transformations</b></p>   |  | <ul style="list-style-type: none"> <li>Students need to know how to enlarge 2D shapes.</li> </ul>                                     | Mini-Assessment 10 |