The Sutton Academy

Knowledge Rich Curriculum Plan

Year 11 Foundation+ Geometry 1

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this, students need to already know that…*	Steps to Success	Feedback
To learn how to calculate missing lengths in similar shapes	• 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. • Students will know how to calculate the length scale factor for a shape that has been enlarged • Students will know how to use the length scale factor to find missing lengths in similar shapes • 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 • Students will know when two triangles that are vertically opposite each other are similar and will know how to prove it by identifying alternate angles	**Similar** - having a resemblance in appearance, character, or quantity, without being identical. **Similar Shapes –** 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. **Similar triangles –** 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. **Scale factor –** how much the shape has been enlarged, the scale factor tells us what the corresponding measures have been multiplied by	• Students will need to be able to recognise similar and congruent shapes	**Step 1:** Identify the two known corresponding sides **Step 2:** Divide the larger side by the smaller side to calculate the scale factor **Step 3:** Use the scale factor to calculate the missing lengths using either multiplication or division. To go from the small shape to the large shape use multiplication, to go from the large shape to the small shape use division.	**Corresponding** - matching I've added in steps to success
To learn how to identify congruent shapes and prove congruence	• Students will know the criteria for congruent triangles. (SSS, SAS, ASA and RHS) • 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)	**Congruent** – the same **Similar Shapes –** 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.	• Students will need to know how to find missing angles in parallel lines • Students will need to know how to identify vertically opposite angles • Students will need to know the angle properties of special triangles		*Not on overview*
To learn how to represent and interpret column vectors	• Students will know how to represent a column vector on a coordinate grid • Students will know how to write a column vector given one drawn on a coordinate grid • Students will know that a negative vector has the same magnitude but the opposite direction. • Students will know how to combine column vectors by adding or subtracting them and draw resulting vectors • Students will know how to multiply column vectors by a scalar	**Vector –** A vector describes a movement from one point to another. A vector quantity has both direction and magnitude. **Magnitude –** size	• Students will need to know how to use Pythagoras' theorem to calculate the hypotenuse of a right-angled triangle •		Needs more appropriate prior knowledge

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	• Students will know how to solve substitution problems and equations involving column vectors				
To learn how to translate and reflect shapes and describe translations and reflections.	• Students will know how to translate a shape by a given column vector • Students will know how to describe a translation using a column vector • Students will know how to reflect a shape in a line in the form x = a, y = a, y = x, y = -x • Students will know how to reflect a shape in the x-axis or y-axis • Students will know how to describe a reflection fully	**Transform –** change **Transformation –** in maths, a transformation is a process that manipulates a polygon or other two-dimensional object on a plane or coordinate system **Translation –** the process of moving something from one place to another. **Reflection –** A transformation where each point in a shape appears at an equal distance on the opposite side of a given line - the line of reflection	• Students should know how to interpret a column vector as a movement • Students need to know how to identify the equation of a straight line that is parallel to either the x- or y-axis		Down as two separate lessons on overview
To learn how to rotate shapes and describe rotations	• Students will know how to rotate a shape about a centre • Students will know how to describe a rotation fully	**Rotate** – turn **Clockwise** – in the same direction as the hands move around a clock (to the right) **Anti-clockwise** – in the opposite direction as the hands move around a clock (to the left) **Origin** – The origin is located at the intersection of the vertical and horizontal axes at the coordinates (0, 0)	• Students need to know how to plot and write coordinates		
To learn how to enlarge shapes and describe enlargements.	• Students will know how to enlarge a shape by a positive scale factor • Students will know how to enlarge a shape by a positive scale factor from a given centre of enlargement • Students will know how to describe an enlargement fully • **Note: If students finish please use the opportunity for them to practise a mixture of the different transformations**	**Enlarge –** change the size **Enlargement –** 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 **Scale factor –** how much the shape has been enlarged, the scale factor tells us what the corresponding measures have been multiplied by	• Students will need to know how to identify the length scale factor for enlargement		

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