Knowledge Rich Curriculum Plan

Year 9 Core – Similarity, Congruency and Transformations

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this, students need to already know that…*	Assessment
To learn how to calculate missing lengths in similar shapes.	• Students will know that two similar shapes are where one is an enlargement of the other. • 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. • 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. **Opportunity for challenge:** • 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	Mini-Assessment 10
To learn how to identify congruent shapes and prove congruence.	• Students will know that congruence is when two shapes are the same size and shape. • 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 **Hypotenuse** – the longest side in a right-angled triangle. It can always be found opposite the right angle **Parallel** – parallel lines are two lines that are side by side and have the same distance continuously between them **Isosceles Triangle –** a triangle with two equal sides and two equal angles **Corresponding –** matching **Co-interior Angles –** angles that lie between two lines and on the same side of a transversal	• 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.	
To learn how to translate shapes and describe translations.	• 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.	**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.	• Students should know how to interpret a column vector as a movement	
To learn how to reflect shapes and describe reflections.	• Students will know how to reflect a shape in the x-axis or y-axis. • 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 describe a reflection fully.	**Reflection –** 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 **Symmetry –** the quality of being made up of exactly similar parts facing each other or around an axis.	• Students need to know how to identify the equation of a straight line that is parallel to either the x- or y-axis	

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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.	• 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. **Opportunity for challenge:** • Students will know how to enlarge a shape by a fractional scale factor from a given centre of enlargement.	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.	
To learn how to describe enlargements.	• Students will know how to describe positive enlargements fully. **Note: If students finish please use the opportunity for them to practise a mixture of the different transformations**		• Students need to know how to enlarge 2D shapes.	