Geometry 2   **Year 10 Foundation**

Key Knowledge/Prior Learning KS2/3 and Retrieval and Suggested Starters
Four operations with all numbers.   **Coordinates in all four quadrants.**   **Plot straight lines such as x=, y=,**   **Retrieval and Suggested Starters**   Practicing the fluency of the above skills.   Interleaving & problem-solving questions involving the above topics.

| KS4 National Curriculum – what students will be practicing |
|---|
| Identify lines of symmetry on a given shape. Identify order of rotational symmetry. Reflect a shape in a given line. Translate a shape given written instructions or vectors. Enlarge a shape by a positive integer or fractional scale factor. Describe a translation as a 2D vector. Add/Subtract vectors and multiply by a scalar. Identify, describe and construct congruent & similar shapes. |

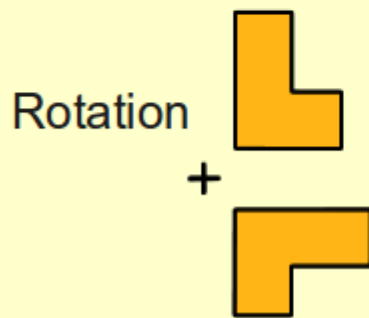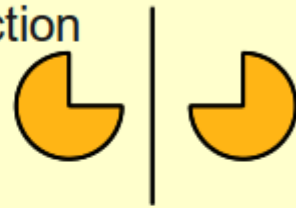| Specific Ambitious Knowledge |
|---|
| Interleaving topics & problem-solving scenarios. Use a centre of enlargement. |

Key Vocabulary/Literacy Opportunities
- Translation   - Reflection   - Vector   - Rotation   - Enlargement   - Scale factor   - Quadrant   - Similarity   - Congruence   - Fractional.

Key Formulae/Knowledge:

1 Transformations
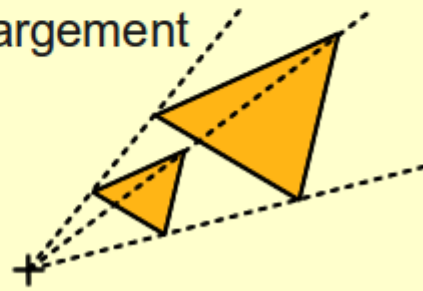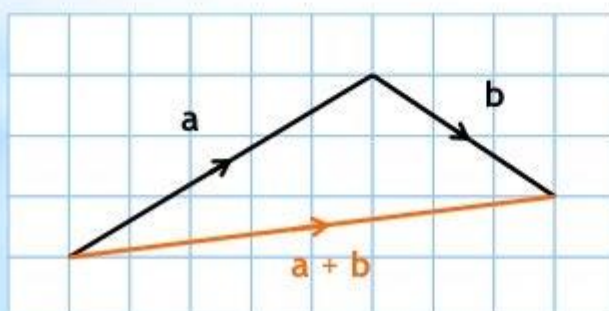
Translation
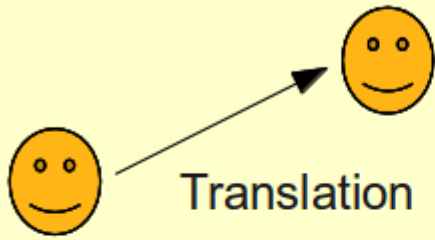
Reflection

Rotation +

Enlargement

The Triangle Law of Vector A

Adding two vectors is equivalent to applying one vector followed by
example,

Suppose $\qquad a = \begin{pmatrix} 5 \\ 3 \end{pmatrix}$ and $\qquad b = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$

Find a + b

We can represent this addition in the following diagram:

a

b

$a + b = \begin{pmatrix} 8 \\ 1 \end{pmatrix}$

a + b

Cross Curricular Links

- Similarity and enlargement links to scales and scale models allowing us to calculate new lengths, surface areas and volumes i.e. comparing models and real life.
- Transformations preserve parallel lines and distances from points, so are therefore used by number of disciplines.
- Vectors links directly to physics but also other areas such as PE in relation to forces applied and movement – higher ability students could be exposed to mechanics as an extension.
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Student' Thinking

- Can a shape get smaller when you enlarge it?
- Which way round should the shape be after a rotation of…?

Projects/Enrichment/Investigations	
• Task using all transformation to make a word/shape.	
• **Transformations short problems**	
• Nrich problems:	

Reflecting Squarely	Transformation Game
Shady Symmetry	Robotic Rotations
Mirror, Mirror...	
...on the Wall	
Attractive Rotations	