

Scheme of Learning: Year 8 Summer Term

Topic Sequence: Developing Geometry

13	14	15
Angles in Parallel Lines and Polygons	Area of Trapezia and Circles	Line Symmetry and Reflection

Topic Overview:

The teaching of reflection is split from that of rotation and translation to try and ensure students attain a deeper understanding and avoid mixing up the different concepts. Although there is comparatively little content in this block, it is worth investing time to build confidence with shapes and lines in different orientations. Students can revisit and enhance their knowledge of special triangles and quadrilaterals and focus on key vocabulary such as object, image, congruent, etc. Rotation and translations will be explored in Year 9.

Learning Sequence:

Recognise line symmetry

Students will be familiar with the concept of line symmetry from KS2. As well as looking at conventional shapes and counting lines, students can explore the structure of shapes and how this affects the number of lines, for example considering why a quadrilateral cannot have 3 lines of symmetry and/or how designs for shapes with 3 lines are based around an equilateral triangle.

Reflect a shape in a horizontal or vertical 1 (shapes touching the line)

In this step, students can make links with the previous step, noticing that reflecting when a shape is “on the line” automatically produces a line of symmetry. As before, they could use paper folding and mirrors to check their results. Students could also be challenged to find the areas of the shape either by counting squares or recalling and revisiting formulae as appropriate.

Reflect a shape in a horizontal or vertical 2 (shapes not touching the line)

This step now moves students on to shapes that are not touching the line. Students can again use folding and mirrors to check their results and will need to be encouraged to take care that their images are the same distance away from the mirror line as the object. This step provides a good opportunity to revisit equations of lines parallel to the axes which were met in the Autumn Term.

Reflect a shape in a diagonal line 1 (shapes touching the line)

Using mirrors or tracing paper and folding to support and check answers is even more important for the more challenging diagonal lines. It is also helpful to model drawing a perpendicular line from the vertices of the object to the mirror line and then extend this to find the position of the corresponding vertices of the image.

Reflect a shape in a diagonal line 2 (shapes not touching the line)

We now consider shapes that are not touching a diagonal line. Students can again use folding and mirrors to check their results, and will again need to be encouraged to take care that their images are the same perpendicular distance away from the mirror line as the object. Practising on cm- or even 2 cm-square paper can make this (and earlier steps) more accessible than using very small squares.

Sequence of Learning:

1	Recognise line symmetry
2	Reflect a shape in a horizontal or vertical line 1 (shapes touching the line)
3	Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line)
4	Reflect a shape in a diagonal line 1 (shapes touching the line)
5	Reflect a shape in a diagonal line 2 (shapes not touching the line)

Topic Resources:

Knowledge Maps:	2D shapes Transformations
Assessment:	
Knowledge:	End of Topic test
Application of Knowledge:	Termly mixed topic assessment
Supportive Reading:	
Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
	Corbett Maths : www.corbettmaths.com
	AQA Revision Guide