



**Topic: Line symmetry and reflection**

**Year: 8**

**NC Strand: Geometry**

**What should I already know?**

- How to read and plot coordinates in all four quadrants
- How to draw shapes in all four quadrants from given coordinates
- How to find the length of a line from the coordinates of its two endpoints
- How to use instructions to translate shapes in all four quadrants
- How to describe translations in all four quadrants
- How to reflect shapes in the x-axis and the y-axis

**What will I know by the end of the unit?**

- How to recognise line symmetry
- How to reflect a shape in a horizontal or vertical line using tracing paper
- How to reflect a shape in a horizontal or vertical line
- How to reflect a shape in a diagonal line using tracing paper
- How to reflect a shape in a diagonal line

**Vocabulary**

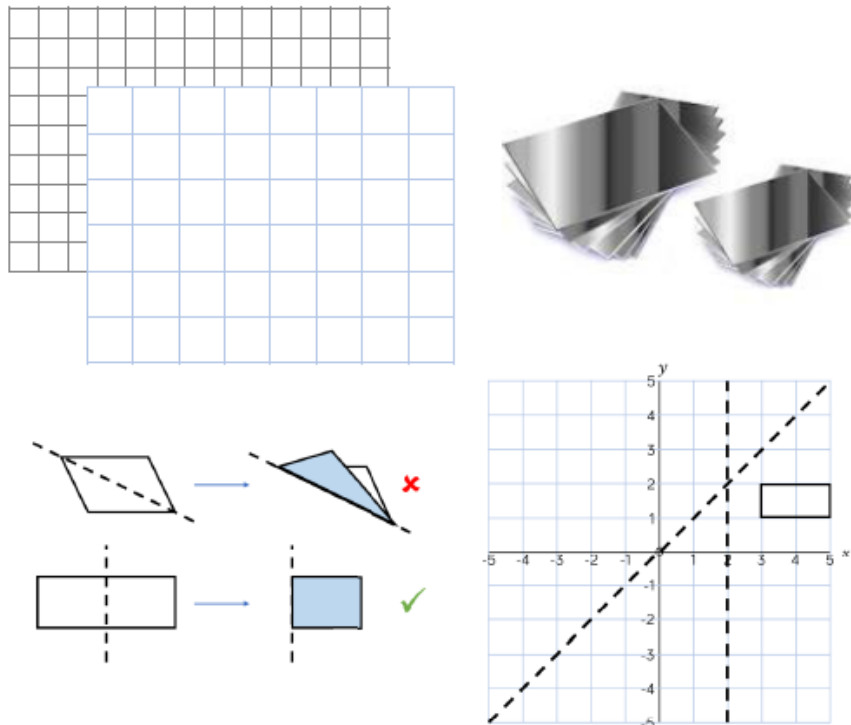
Line symmetry	Equilateral	Object	Horizontal
Regular	Rhombus	Image	Vertex
Polygon	Reflect	Vertical	Perpendicular distance
Isosceles	Congruent		

**Investigate/Homework tasks**

- Homework will be set by your teacher using google classroom
- You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home
- Additional work you could complete:
  - Find out more about the meaning of the vocabulary list using <http://www.amathsdictionaryforkids.com/>
- To challenge yourself: Answer the key questions to deepen your knowledge

**Key Information/Diagrams**

## Key Representations



## Key Questions

Do all regular polygons have lines of symmetry?

Why does a rhombus have two lines of symmetry but a parallelogram none? What do you notice about the other special quadrilaterals?

After a reflection, does the resulting shape always have a line of symmetry? Why or why not?

What's the same and what's different about the two parts of a shape following a reflection?

What's the area of the original shape? What's the area of the resulting shape?

How far is each vertex of the object from the mirror line? What does this tell us about the position of the image?

How do we know whether the equation of a line parallel to an axis is of the form  $x = \dots$  or  $y = \dots$ ?

Why does it help to rotate your exercise book when reflecting in diagonal lines?

Why don't we have to worry about points/vertices that are on the line?

How do we know how far the vertices of the image are from the mirror line?

What is the equation of the line that goes through (0,0), (1,1) etc.?

How can we tell the lines  $y = x$  and  $y = -x$  apart?

Why do we count the distance to the mirror line diagonally rather than horizontally?