Year 5 Maths: Geometry - Position and direction.

What should I already know?

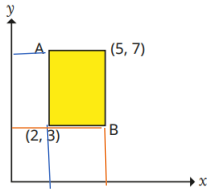
- Describe positions on a 2-D grid as co-ordinates in the first quadrant (x,y).
- Describe movements between positions as translations of a given unit to the left/right and up/down.
- Plot given points and draw sides to complete a polygon.

Key Knowledge

Read and plot co-ordinates for points and polygons (see year 4):

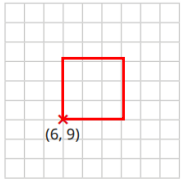
Solve problems with co-ordinates.

Use the co-ordinates of the other vertices to calculate A and B.



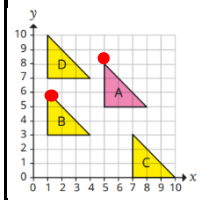
A = (2,7) – (**2**,3) and (5,**7**)
B = (5,3) – (**5**,7) and (2,**3**)

A square has an area of 9 squares. What could the other co-ordinates be?



Draw the square and plot the co-ordinates using (x,y)

Translation with co-ordinates:

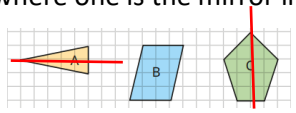


Recognise which co-ordinate changes when a point is moved up and down or left and right before moving onto translating shapes.

Choose one point on shape A (5,8) and describe its translation to B (2 squares down and 4 squares to the right). It must be the same vertex on the triangle that is followed (●).

Symmetry:

Identify lines of symmetry in shapes (lines which split a shape exactly in half where one is the mirror image of the other.



Reflection in horizontal and vertical lines:

Write the co-ordinates of the original shape. Then reflect the shape around the mirror line and write the new co-ordinates.

Key Vocabulary and definitions

Axis/Axes	Vertical (y) and horizontal (x) lines drawn to make a quadrant.
Quadrant	A region enclosed by the x-axis and y-axis.
Co-ordinate	Numbers which specify a point (x,y) on a map or grid.
x-axis	The horizontal line drawn to create an axis.
y-axis	The vertical line drawn to create an axis.
Reflection	When a shape is flipped over a line to create a mirror image.
Mirror line	A line drawn onto a shape to show both sides have reflective symmetry.
Translation	Moves every point in a shape by the same distance in the same direction without rotating or resizing.