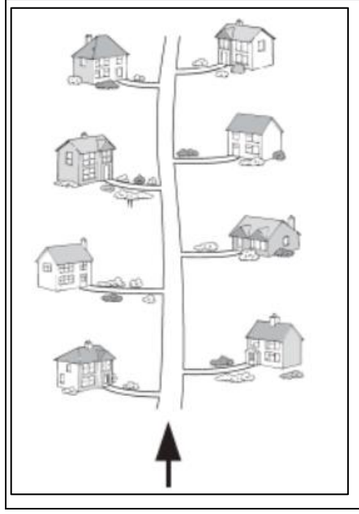
POSITION and DIRECTION

Year 6

KNOWLEDGE ORGANISER

Overview



In our position and direction topic, we learn to:

-Read and Plot Coordinates -Problem Solving with Coordinates

-Translation -Translation with Coordinates

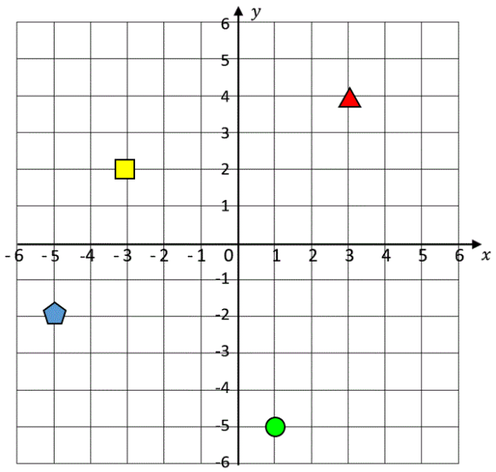
Lines of Symmetry -Reflection in Horizontal and Vertical Lines

Position means the location of something – where it is.

Direction means the path along which something moves.

Position and direction is useful learning because it helps us to describe where we are, where things in the world are, and to follow directions to reach different places.

Coordinates in Four Quadrants



The green circle is 1 unit along the x-axis and 5 units down the y-axis. Therefore, its coordinates are (1, -5).

-Coordinates are a good way for us to find the position of something on a map or a grid.

-The numbers across the horizontal line are on the x-axis.

-The numbers up and down the vertical line are on the y-axis.

-We read the number on the x-axis before the y-axis (remember 'along the corridor and up the stairs').

-Coordinates are written in brackets and are separated by a comma.

-e.g. The coordinates of A are (2, 8). The coordinates of B are (4, 7).

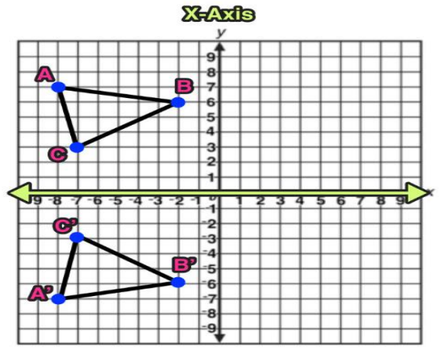
-Coordinates can use both positive and negative numbers. The x-axis is always written first, even if one of the coordinates is negative.

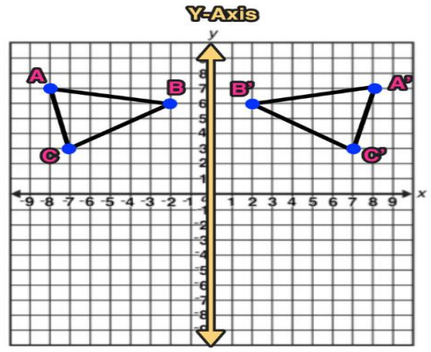
Reflection

-A shape is reflected when it is flipped over a mirror line.

-We can reflect objects vertically, horizontally, or diagonally across a mirror line. Objects reflected across the x-axis will flip vertically. Objects reflected across the y-axis will flip horizontally.

-Reflected images should be congruent to the original, meaning that the measurements and sizes have not changed. Each point of the reflected shape is the same distance from the mirror line as in the original.





Translation

-Translation (in maths) means moving objects on a grid.

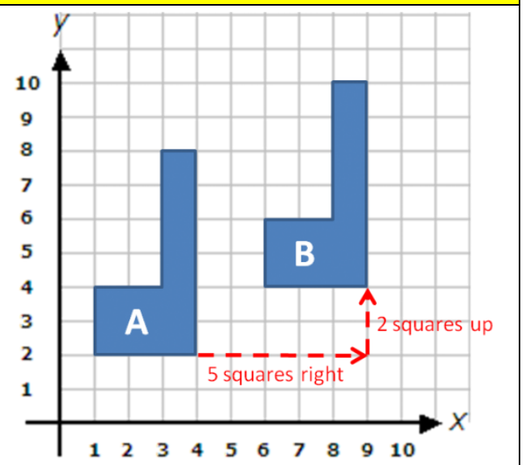
-We can produce accurate translations by applying the same movement to all vertices.

-For example, in this translation, all vertices have been...

...moved 5 squares right along x-axis, and...

...moved 2 squares up the y-axis.

This helps to ensure the shape stays the same size and proportion.



Key Vocabulary

Coordinate Plane | Four Quadrants | x-axis | y-axis | Translation | Reflection | Mirror Line | Horizontal/Vertical | Congruent