



What should I already know?

- How to describe positions on a 2-D grid as coordinates in the first quadrant
- How to describe movements between positions as translations of a given unit to the left/right and up/down
- How to plot specified points and draw sides to complete a given polygon.

What will I know by the end of the unit?

- How to describe and plot position in the first quadrant
- How to reflect shape
- How to reflect with coordinates
- How to translate a point or shape
- How to translate with coordinates

Vocabulary

Coordinate	x-axis	Mirror line	Vertical
Quadrant	y-axis	Translation	X- coordinate
Axes	Reflection	Horizontal	Y-coordinate

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

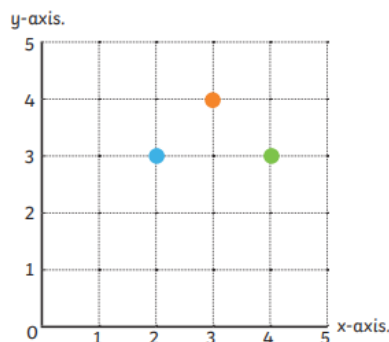
Key Information/Diagrams

X Axis

- X is "a cross" and so it goes *across* the page!

Y Axis

- Wise up! (Y is up)
- Y to the sky



Coordinates are a useful way to locate a position on a map or grid.

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

The numbers on the vertical line of the grid are on the **y-axis**.

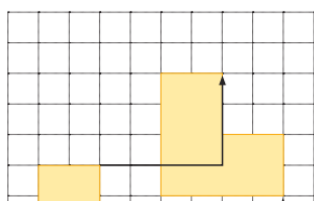
We always read or write the number on the x-axis before the y-axis.

The x and y position are written in brackets with a comma.

The coordinate of the orange spot is **(3, 4)**.

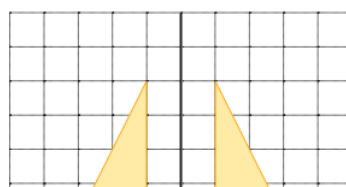
Translation

In maths, translation means moving an object on a grid. The object is moved without changing the size, turning or reflecting it. When translating an object on a grid, it can move up or down, left or right.



Reflection

A shape is reflected when it is flipped over a mirror line. The reflected image is congruent to the original. This means that the measurements of the sides and angles have not changed. Each point of the reflected shape is the same distance from the mirror line as the original shape.





Key Questions

Which of the numbers represents the movement in the direction of the x -axis (from the origin)? Which of the numbers represents the movement on the y -axis (from the origin)? Does it matter which way around coordinates are written? Look at the point I have marked, what are the coordinates of this point? If I moved the point one place to the left, what would be different about the coordinates? If I moved the point down one, what would be different about the coordinates? When I reflect something, what changes about the object? Is it exactly the same?

What are the coordinates of this point? If I reflect it in the mirror line, what are the new coordinates?

If I reflect this point/shape in a vertical/horizontal mirror line, what will happen to the x -coordinate/ y -coordinate?

What is the x -coordinate for this vertex? What is the y -coordinate for this vertex?

If we look at this point, where will its new position be on the image, when it is reflected? What's different about the coordinates of the object compared to the coordinates of the image?

Do you always need to use a mirror? How else could you work out the coordinates of each vertex?

What does translate mean?

Look what happens when I translate this shape. What has happened to the shape? Have the dimensions of the shape changed? Does it still face the same way?

Are there any other ways I can get the shape to this position?

If we move this point down, what will happen to its coordinates? What if it moves up?

If I move the point two right, what will happen to the coordinates?

If these are the translated coordinates, what were the original coordinates?