Max’s Coordinate Quest

Learning objective: To be able to describe, plot, and reflect positions on a 2D grid, including all four quadrants.

Help Max the monkey navigate his jungle playground. Read the coordinates carefully to identify points and shapes on the four-quadrant grid provided.

Max has mapped out his favorite climbing spots in the jungle using a coordinate plane. The origin (0,0) is marked by the Great Banyan Tree. Remember: 'Along the corridor (x) and up or down the stairs (y)'.

Word bank: x-axis · y-axis · origin · coordinates · quadrant · horizontal · vertical · plot

1. Max is sitting at (-3, 4). If he moves 5 units to the right and 2 units down, what are his new coordinates? (2 marks)

2. A square is plotted with vertices at (2, 2), (2, -2), (-2, -2), and (-2, 2). What is the total perimeter of this square, assuming each unit on the grid represents 1 meter? (2 marks)

3. Write down the coordinates of the origin and explain why it is written as (0,0). (2 marks)

4. A triangle has vertices at (1, 1), (4, 1) and (1, 5). Calculate the area of this triangle. (2 marks)

5. Max draws a line segment between (-5, -3) and (2, -3). Is this line horizontal or vertical? How can you tell by looking at the coordinates? (2 marks)

Draw: Draw a 10x10 four-quadrant grid. Plot a rectangle with vertices at (1, 2), (5, 2), (5, 5), and (1, 5). Reflect this rectangle across the y-axis and label the new coordinates.

Extension challenge: If you reflect a shape across the y-axis, which coordinate changes: the x-coordinate or the y-coordinate? Create your own shape in the first quadrant and challenge a partner to write down the coordinates of the reflected shape in the second quadrant.