

Max's Coordinate Quest: Mapping the Jungle

Learning objective: To identify, describe, and represent the position of a shape following a reflection or translation, and to plot coordinates in the first quadrant.

Use your knowledge of the x-axis (horizontal) and y-axis (vertical) to help Max the monkey navigate his jungle playground. Remember: 'Along the corridor, then up the stairs!'

Word bank: x-axis · y-axis · coordinate · quadrant · origin · horizontal · vertical · translation · reflection

1. Max is standing at (2, 4). He decides to jump 3 units to the right and 2 units up. What are his new coordinates? (2 marks)

2. A triangular fruit patch has vertices at (1, 1), (4, 1), and (2, 5). If the patch is translated 3 units to the right, list the new coordinates of the vertices. (3 marks)

3. Explain why the order of the numbers in a coordinate pair (x, y) is crucial when plotting points on a grid. (2 marks)

4. A square has two vertices at (3, 2) and (3, 5). If the square is reflected across the vertical line $x = 5$, what will the coordinates of the two new reflected vertices be? (3 marks)

5. Compare and contrast a translation and a reflection. How does the position of the shape change in each instance? (2 marks)

Draw: Draw a 10x10 grid. Plot the points (1, 2), (5, 2), (5, 6), and (1, 6). Label these points to form a square. Draw a line of reflection at $x = 7$ and plot the reflected square.



Extension challenge: Justify your answer: If you translate a shape 4 units right and 4 units left, where does the shape end up in relation to its starting position? What might happen if you reflect a shape across the x -axis versus the y -axis? Design your own 'coordinate treasure map' for Max, ensuring you include at least one translation challenge for a friend to solve.