Max’s Geometry Transformation Logbook

Learning objective: To describe and perform translations, reflections, and rotations of 2D shapes on a coordinate grid.

Max the monkey is helping us map out his jungle gym. Use this logbook to record how shapes move across the coordinate plane. Remember to include the direction and the number of units moved for translations, the line of reflection, and the degrees/direction for rotations.

Word bank: Translation · Reflection · Rotation · Coordinate · Axis · Clockwise · Anticlockwise · Vertex · Quadrant · Symmetry

1. Translation Task: Describe how to move a triangle from coordinate (2, 3) to (5, 7). How many units right and how many units up did the shape travel? (2 marks)

2. Reflection Task: If you reflect a square across the y-axis, what happens to the x-coordinates of its vertices? Explain the change. (2 marks)

3. Rotation Task: Max rotates a rectangle 90 degrees clockwise around the origin (0,0). Describe the new position of a point that started at (1, 2). (3 marks)

4. Comparison: Explain the difference between a translation and a reflection. Which one changes the orientation of the shape? (2 marks)

5. Challenge: If a shape is translated 4 units left and 2 units down, and then reflected in the x-axis, sketch the final position. How does the final shape compare to the original? (3 marks)

Extension challenge: Create your own complex shape on a 10x10 grid and perform a two-step transformation. Write down the coordinates for your starting shape and your final shape to challenge a partner.