Max’s Coordinate Quest: The Jungle Grid

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.

Join Max the monkey in the jungle! Max has hidden his favourite treats across a coordinate grid. Read the grid carefully, remember that we go along the corridor (x-axis) before we go up the stairs (y-axis). Answer the questions below to help Max find his treasure.

Answer Key: 1. (3, 2), 2. False, 3. (1, 4), 4. (5, 0), 5. True, 6. (2, 5), 7. (4, 4), 8. Translation, 9. (0, 0), 10. True. Reasoning for Q8: A translation is a shift in position without rotation or reflection.

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

1. Max is standing at (3, 2). If he moves 0 units along the x-axis and 3 units up the y-axis, what is his new position? A) (6, 2) B) (3, 5)* C) (3, 2) D) (5, 3) (1 mark)

2. True or False: The coordinate (0, 5) is located on the x-axis. (1 mark)

3. A banana is at (1, 1). It is moved 3 units up. What is the new coordinate? (1 mark)

4. If a point is plotted at (5, 0), is it on the x-axis or the y-axis? (1 mark)

5. True or False: The origin is represented by the coordinate (0, 0). (1 mark)

6. Max plots a point at (2, 2). He moves it 3 units up. Where is the point now? A) (2, 5)* B) (5, 2) C) (2, 2) D) (5, 5) (1 mark)

7. If you are at (1, 4) and you move 3 units to the right, what is your new x-coordinate? (1 mark)

8. What is the mathematical term for sliding a shape across a grid without changing its size or orientation? (1 mark)

9. What are the coordinates of the origin where the x-axis and y-axis intersect? (1 mark)

10. True or False: The x-axis is always the horizontal line on a coordinate grid. (1 mark)

Draw: Draw a 6x6 grid. Plot a triangle with vertices at (1, 1), (1, 3), and (3, 1). Then, draw a second triangle that has been translated 2 units right and 2 units up.

Extension challenge: 1. Explain why you must always state the x-coordinate before the y-coordinate. 2. If a square has vertices at (1,1), (1,3), (3,3), and (3,1), what happens to the coordinates if you reflect it across the y-axis? 3. Justify why the coordinate (0,0) is unique on a grid. 4. Compare and contrast a translation and a reflection; how do the coordinates change in each? 5. What might happen if the grid was extended into negative numbers? 6. Create your own coordinate puzzle for a partner involving a square moving across three different positions.