

Max's Mapping Mission: The Treasure Hunt

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.

Max the monkey has hidden four mysterious items across his jungle grid map. You must plot the coordinates to find where they are hidden. Once you have identified the locations, follow the translation instructions to discover where Max moved the items after the rain! Remember: always go along the corridor (x-axis) before you go up the stairs (y-axis).

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

1. Max has placed a 'Golden Banana' at (3, 2). Plot this point on your grid. If Max translates the banana 4 units to the right and 3 units up, what are the new coordinates of the banana? Explain your method. (2 marks)

2. A 'Silver Coconut' is located at (7, 5). Max reflects this point across the y-axis. What are the new coordinates of the coconut? Justify why the y-coordinate remains the same during this reflection. (2 marks)

3. Max wants to create a square shaped treasure site. He has points at (1, 1), (1, 4), and (4, 4). What must the final coordinate be to complete the square? Draw the shape on your grid. (2 marks)

4. Compare and contrast: How does a translation of a coordinate point differ from a reflection across the x-axis? Use mathematical vocabulary in your answer. (2 marks)

5. Max finds a 'Ruby Compass' at (2, 8). He wants to move it so that the new x-coordinate is double the original and the y-coordinate is halved. What are the new coordinates? Is this a translation? Why or why not? (2 marks)

6. What might happen to the position of a shape if you reflect it across both the x-axis and the y-axis sequentially? Describe the final position relative to the origin. (2 marks)

Draw: Draw a 10x10 coordinate grid on your paper. Label the x-axis (0-10) and y-axis (0-10). Plot the points for Max's treasure hunt and draw the resulting shapes clearly using a ruler.



Extension challenge: Design your own treasure map on a coordinate grid. Create three shapes (a triangle, a rectangle, and an irregular pentagon) and write a set of translation instructions for a friend to find the 'hidden treasure' at the final vertex of each shape.