Max’s Geometry Garden Adventure

Learning objective: To identify, describe, and compare 2D shapes, including properties such as parallel and perpendicular sides, and identify lines of symmetry.

Help Max the monkey organise his garden. Read the descriptions carefully and use your knowledge of 2D shapes to solve the puzzles.

Max is planning a new vegetable patch. He wants his garden to be full of interesting shapes! He has a triangular patch for his carrots, a square patch for his potatoes, and a large, irregular hexagon for his sunflowers. Max remembers that a shape is only a polygon if all its sides are straight. He is also very careful to check for lines of symmetry, because he likes his garden to look tidy and balanced. 'Every shape is just a maths puzzle waiting to be solved!' Max says as he marks out a rectangle for his beans, noting that the opposite sides are parallel and the corners meet at right angles.

Word bank: polygon · parallel · perpendicular · symmetry · vertex · quadrilateral · acute · obtuse

1. Max has a square garden bed. How many lines of symmetry does a square have? Explain your answer. (2 marks)

2. Max draws a shape with four equal sides, but it is not a square because the angles are not 90 degrees. What is the name of this shape? (1 mark)

3. Look at the rectangle Max made for his beans. Explain what 'parallel sides' means using the rectangle as your example. (2 marks)

4. If Max builds a regular hexagon, how many vertices (corners) will it have in total? (1 mark)

5. Max wants to place a fence around a triangular patch. If he uses an equilateral triangle, what can you tell me about the length of the sides? (2 marks)

Draw: Draw a composite shape made of one square and one triangle joined together. Label all the parallel lines you can find with a small arrow on the lines.

Extension challenge: Max wants to design a patio using only shapes that have at least one line of symmetry. Research or sketch three different shapes that would fit his criteria and explain why they are suitable.