Max’s Geometric Garden Design

Learning objective: To identify, compare, and order angles up to two right angles, and identify lines of symmetry in 2D shapes.

Help Max the monkey design his new garden. Use your knowledge of angles and symmetry to solve these geometric puzzles. Remember to use your ruler and protractor where needed.

Word bank: acute · obtuse · right angle · symmetry · parallel · perpendicular · vertex

1. Max is building a square flower bed. He says, 'Every corner of this square is a right angle.' Is Max correct? Justify your answer using your knowledge of square properties. (2 marks)

2. Look at a regular hexagon. How many lines of symmetry does it have? Draw them on a sketch and explain why this shape is symmetrical. (3 marks)

3. Compare an acute angle and an obtuse angle. Explain the difference between them in terms of their measurement in degrees. (2 marks)

4. Max has a garden gate shaped like a rectangle. If he draws a diagonal line from one corner to the opposite corner, does he create two lines of symmetry? Why or why not? (2 marks)

5. Identify the type of angle found in an equilateral triangle. If one angle is 60 degrees, what would happen to the triangle's classification if that angle grew to 95 degrees? (3 marks)

6. Max wants to plant hedges in parallel lines. Describe what 'parallel' means and explain how he can ensure his hedge rows never meet, no matter how long they grow. (2 marks)

Draw: Draw a composite shape made of a rectangle and a triangle. Mark one acute angle with a blue dot and one obtuse angle with a red dot. Label any perpendicular lines you have created.

Extension challenge: Design a symmetrical garden layout on squared paper. Your design must include at least one shape with an obtuse angle, one shape with parallel lines, and one shape that has no lines of symmetry. Write a brief paragraph explaining your design choices using geometric vocabulary.