

Max's Geometric Garden Design

Learning objective: To identify, compare, and classify quadrilaterals and triangles, and to identify lines of symmetry in 2D shapes.

Max the monkey is designing a symmetrical garden! Help him organize his flowerbed shapes by completing the sorting activity and answering the depth-based challenges below. Use the word bank to correctly identify the shapes Max has placed in his garden grid.

Word bank: Isosceles · Equilateral · Scalene · Parallelogram · Rhombus · Trapezium · Symmetry · Perpendicular

1. Max has a flowerbed shaped like a quadrilateral with two pairs of parallel sides and all four sides of equal length. Name this shape and explain why a square is a special version of it. (3 marks)

2. A triangular flowerbed has sides measuring 5m, 5m, and 8m. Identify the type of triangle and justify your answer based on its side lengths. (2 marks)

3. Compare a rectangle and a parallelogram. How are they similar, and what is the primary difference regarding their angles? (3 marks)

4. If Max draws a line of symmetry through a trapezium, what must be true about the shape for that line to be valid? Explain your reasoning. (3 marks)

5. Justify why an equilateral triangle is always also an isosceles triangle, but an isosceles triangle is not always an equilateral triangle. (3 marks)

6. What might happen to the symmetry of a shape if Max adds a circular birdbath exactly in the center of a square flowerbed? (2 marks)

Draw: Draw a composite shape made of one square and one right-angled triangle. Label the lines of symmetry using a dashed line and mark any right angles with a small square symbol.



Extension challenge: Design a 'Geometric Garden' blueprint on squared paper. You must include at least four different types of quadrilaterals and three different types of triangles. Label your shapes and calculate the total perimeter if every grid square represents 1 meter. If paving stones cost £4 per square meter, calculate the total cost for a path that covers an area of 12 square metres.