

Max's Geometric Garden: A Study of Symmetry

Learning objective: To identify, draw, and reflect shapes with lines of symmetry, including those with multiple lines of symmetry.

Max the monkey is designing a symmetrical garden for his friends. Use your ruler to complete the patterns and shapes below. Ensure every reflection is accurate across the lines of symmetry provided.

Draw: Create a scene featuring a 'Geometric Garden'. Include: 1. A butterfly with a complex, symmetrical wing pattern (split by a vertical line). 2. A pond shaped like a regular pentagon with one line of symmetry drawn. 3. A path of square paving stones. Use a sharp pencil and a ruler to ensure all reflections are precise. The style should be clean, technical, and architectural.



Label words: Line of symmetry · Reflection · Vertex · Horizontal axis · Vertical axis · Congruent

Steps:

1. Max has drawn half of a regular hexagon. Explain why a regular hexagon has six lines of symmetry.
2. If Max reflects a scalene triangle across a vertical line of symmetry, will the result be a symmetrical shape? Justify your answer.
3. Step 1: Draw a square with a side length of 4cm. Step 2: Draw both diagonal lines of symmetry on your square.

4. Compare and contrast a square and a rectangle regarding the number of lines of symmetry they possess.
5. What might happen to the symmetry of a pattern if one vertex is plotted incorrectly by only 2 millimetres? Explain the impact.
6. Label the horizontal and vertical axes on your completed drawing of the symmetrical flower bed.