Max’s Magnificent Shape Adventure

Learning objective: To identify, describe, and classify 2D and 3D shapes, including properties like vertices, edges, and lines of symmetry.

Help Max the monkey solve his shape puzzles! Read the descriptions carefully and use your knowledge of geometry to answer the questions below.

Max the monkey is visiting the local park to collect shapes for his maths project. He finds a square sign that has four equal sides and four right angles. Next, he spots a triangular flowerbed with three sides of different lengths. Max also finds a shiny, silver cube-shaped box left on a bench, which has six flat square faces. He wonders how many edges the cube has and if the square sign has any lines of symmetry. He finishes his day by drawing a large rhombus on the pavement, noticing that its opposite sides are parallel.

Word bank: vertex · edge · face · parallel · perpendicular · symmetry · polygon · quadrilateral

1. Look at the square sign Max found. How many lines of symmetry does a square have? Explain your answer. (2 marks)

2. Max found a cube-shaped box. How many edges does a cube have in total? (1 mark)

3. Define a 'polygon'. Based on this definition, is a circle a polygon? Why or why not? (2 marks)

4. Max draws a rhombus. Name one property that a rhombus shares with a square. (1 mark)

5. If Max buys a triangular flag for £2.50 and a square frame for £3.75, what is the total cost of his shape collection? (2 marks)

Draw: Draw an irregular pentagon and mark all its vertices with a small circle. Then, draw a line showing where it might have a line of symmetry if it were a regular shape.

Extension challenge: Max wants to build a 3D structure using only cylinders and cones. List the number of curved surfaces and flat faces for both shapes. What happens to the number of vertices if you stack a cone on top of a cylinder?