

Max's Geometry Garden: Properties of Shapes

Learning objective: To identify, describe, and represent the properties of 2D and 3D shapes, including regular and irregular polygons and the nets of cubes and cuboids.

Help Max the monkey solve these geometry puzzles. Read each question carefully and show your working out where necessary.

Word bank: Polygon · Vertex · Parallel · Perpendicular · Net · Cuboid · Regular · Irregular

1. Max has found a regular octagon in his garden. How many vertices and how many lines of symmetry does a regular octagon have? (2 marks)

2. Identify the shape that has 6 square faces, 8 vertices, and 12 edges. Is this shape a prism? (2 marks)

3. Max draws two lines that are perpendicular to each other. Explain what 'perpendicular' means in your own words and sketch an example. (3 marks)

4. A shop sells decorative tiles. A pack of 4 square tiles costs £8.50. If each tile is a regular polygon with 4 sides of 10cm, what is the perimeter of one single tile? (2 marks)

5. Look at a cuboid. If you unfolded it to create a flat 2D 'net', how many rectangles would you see in total? (1 mark)

Draw: Draw a net for a cube. Ensure all six squares are connected correctly so that it would fold into a 3D cube.



Extension challenge: Max wants to build a new monkey enclosure. If he uses shapes that have at least one pair of parallel sides, which 2D shapes could he use? List three different shapes and explain why they fit his criteria.