

Symmetry Superstars: Exploring Lines of Symmetry

Learning objective: To identify, describe, and draw lines of symmetry in 2D shapes and patterns.

Read each question carefully. Use a ruler to draw lines of symmetry where required. Think about how shapes can be reflected or folded to match perfectly.

Max the monkey has been busy sorting his collection of geometric shapes. He knows that a shape is symmetrical if it can be folded in half so that both sides match exactly. These matching sides are called reflections.

Word bank: symmetry · line of symmetry · reflection · regular polygon · horizontal · vertical · diagonal · congruent

1. Max has a regular pentagon. Explain why a regular pentagon has five lines of symmetry, whereas a non-regular pentagon might have none. Justify your answer by describing the properties of the sides. (3 marks)

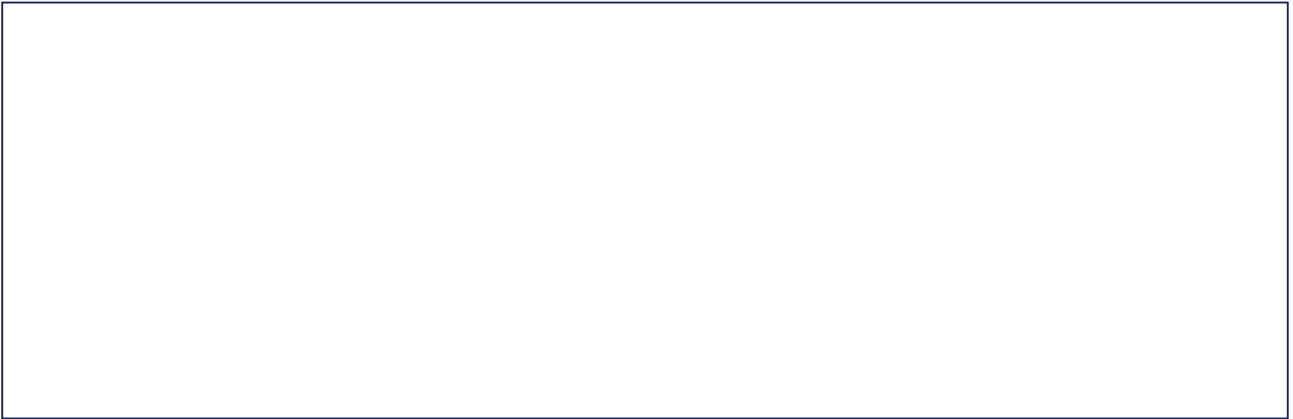
2. Zara the zebra has drawn an isosceles triangle. Draw a dashed line to show its line of symmetry. Explain why an equilateral triangle would have more lines of symmetry than an isosceles triangle. (2 marks)

3. Look at the letter 'H'. How many lines of symmetry does it have? Describe their positions (e.g., vertical or horizontal). (2 marks)

4. Compare and contrast a square and a rectangle. How many lines of symmetry does each shape possess? Explain why the rectangle has fewer lines of symmetry than the square. (3 marks)

5. If you draw a shape with two diagonal lines of symmetry, what might happen to the shape if you were to rotate it by 90 degrees? Would it still look the same? (2 marks)

Draw: Draw a complex, symmetrical butterfly wing pattern on the left side of a grid. Then, carefully reflect your design onto the right side to complete the symmetrical insect.



Extension challenge: Design your own original 'Symmetry City' building. It must be at least 10cm tall and feature at least two different types of symmetry (e.g., vertical and horizontal). Write a brief paragraph justifying why your design is structurally balanced.