Zara’s Symmetry Explorer: Patterns in Nature

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

Join Zara the zebra on a mathematical safari! Use this template to explore the world of symmetry. Look around your classroom or garden for objects that have lines of symmetry. Follow the prompts below to record your findings and practice your drawing skills.

Word bank: Symmetry · Line of symmetry · Reflect · Mirror image · Vertical · Horizontal · Diagonal · Pattern

1. Definition of Symmetry: Explain in your own words what it means for a shape or pattern to have 'line symmetry'. Why do we call it a 'mirror line'? (2 marks)

2. The Geometric Hunt: Choose a 2D shape (such as a square, rectangle, or rhombus). Sketch it below and draw on all its lines of symmetry using a ruler. How many lines did you find? (3 marks)

3. Nature’s Design: Think of a natural object, like a leaf or a butterfly. Describe its symmetry. Is the line of symmetry vertical, horizontal, or diagonal? (2 marks)

4. The Mirror Challenge: If you have a shape with one vertical line of symmetry, what happens if you try to draw a horizontal line of symmetry through it? Will it still be symmetrical? Explain why or why not. (3 marks)

5. Creative Patterning: Imagine you are Zara the zebra. Design a simple pattern that has at least two lines of symmetry. Describe the steps you took to ensure it was perfectly balanced. (3 marks)

Extension challenge: Find an object at home that has no lines of symmetry (an asymmetrical object). Write a short paragraph explaining why it cannot be folded to create a perfect mirror image.