Zara's Geometry Patterns: Exploring Symmetry and Tessellation

Learning objective: I can identify, create, and describe complex geometric patterns using symmetry and tessellation.

About 15 minutes. Grown-up tip: Look for patterns in your home, such as bathroom tiles or brickwork on the house, to see tessellation in real life.

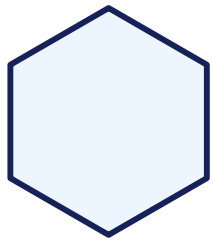
Zara the zebra loves finding patterns in nature and architecture. Follow these steps to complete your pattern study. A tessellation is a shape that fits together perfectly without any gaps or overlaps. Symmetry means one side is a mirror image of the other.

Worked Example: If you have a hexagon shape, you can tessellate it by drawing another hexagon directly next to it so the edges touch perfectly.

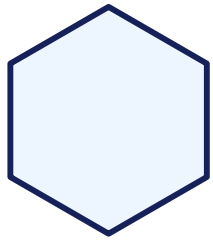
Task: Complete the questions below to explore how shapes create visual rhythm in art.

Word bank: Tessellation · Symmetry · Translation · Rotation · Geometric

1. Identify which of these shapes can tessellate perfectly without gaps: Circle, Square, Regular Pentagon, or Equilateral Triangle. Explain why. (2 marks)



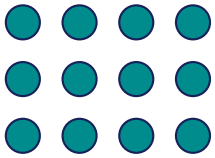
2. Draw a line of symmetry through the shape below. If the shape cannot have a line of symmetry, write 'none'. (1 mark)



3. Zara is creating a border pattern using 4 squares and 4 triangles. If each square costs £0.50 and each triangle costs £0.25, what is the total cost for the pattern? (2 marks)

4. Describe the difference between a pattern that uses 'rotation' and a pattern that uses 'translation'. (2 marks)

5. Look at the array below. If this represents a tile design, how many tiles would you need to cover a 4x8 grid? (2 marks)



Draw: A view of a busy school playground floor where the paving stones form a complex geometric tessellation pattern, with Zara the zebra standing to the side holding a sketchbook.

Extension challenge: Design your own original 'wallpaper' pattern on a piece of squared paper using only two different shapes that tessellate. Colour your pattern using a repeating colour scheme.

I did it! Name: _____ Date: _____

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