

Max's Pattern Playground: A Non-Verbal Reasoning Challenge

Learning objective: To develop logical thinking and spatial awareness by identifying, analysing, and completing complex sequences and patterns.

Max the monkey has been busy creating a series of visual logic puzzles in the jungle. For each item below, observe the sequence of shapes or the relationships between the figures. Determine the rule governing the change (rotation, reflection, or progression) and draw the final figure that completes the sequence.

Word bank: rotation · reflection · progression · symmetry · clockwise · anticlockwise · transformation · sequence

1. Sequence A: A triangle pointing up, a triangle pointing right, a triangle pointing down. Explain the rule of rotation Max has used and draw the next shape in the sequence. (2 marks)

2. Sequence B: A square with a dot in the top-left corner, followed by a square with a dot in the top-right, then a square with a dot in the bottom-right. Justify which corner the dot will appear in next. (2 marks)

3. Sequence C: A shaded circle, a larger unshaded circle, a shaded square. Compare and contrast the pattern of shading and the pattern of shape geometry. Predict the fourth item. (2 marks)

4. Sequence D: A pentagon with 1 internal line, a pentagon with 2 internal lines, a pentagon with 3 internal lines. What might happen if the pattern continued to a 6th shape? Explain your reasoning. (2 marks)

5. Sequence E: A shape is shown alongside its mirror image. If Max flips an L-shaped polygon horizontally, describe how the coordinates of its vertices change in relation to the line of reflection. (2 marks)

6. Sequence F: Max has a set of coins worth £1.00, £0.50, and £0.20 arranged in a repeating pattern. If the sequence is £1.00, £0.50, £0.20, £1.00, £0.50... what is the 10th coin in the sequence? (2 marks)

Draw: Draw a 3x3 grid. In the first row, create a sequence of three shapes that rotate 90 degrees clockwise each time. In the second row, show a shape being reflected across a vertical axis.

Extension challenge: Design your own original 'Non-Verbal Reasoning' sequence consisting of four stages. Write a set of instructions for a partner, explaining the underlying logic without explicitly stating the rule. Then, challenge your partner to justify why their chosen final shape is the correct one.