Max’s Pattern Playground: Non-Verbal Reasoning Challenge

Learning objective: To identify and apply rules for rotation, reflection, and sequence progression in non-verbal reasoning patterns.

Max the monkey has been busy creating geometric puzzles! For each question below, analyse the sequence or pattern provided and determine the next step. You must explain the 'rule' Max used for each puzzle to earn full marks.

Word bank: Clockwise · Anti-clockwise · Reflection · Rotation · Symmetry · Sequence · Geometric · Progression

1. Max has a square that rotates 90 degrees clockwise every step. If the first square has a triangle in the top-right corner, where will the triangle be after three steps? Explain the movement. (2 marks)

2. A pattern shows a circle, then a hexagon, then an octagon. If the number of sides increases by two each time, what is the next shape? Why? (2 marks)

3. A shape is reflected across a vertical line. If the original shape has a shaded left side, describe what the reflected shape looks like. (2 marks)

4. Max puts items in a bag costing £2.50, £5.00, and £7.50. If this follows a numerical pattern, what is the cost of the fourth item? How did you calculate it? (2 marks)

5. Look at this sequence: Arrow pointing Up, Arrow pointing Right, Arrow pointing Down. Following this rotation, which way should the next arrow point? (2 marks)

Draw: Draw a 3x3 grid. In the first box, draw a star in the top-left. In the second box, draw the star in the top-middle. In the third box, draw the star in the top-right. Continue this pattern for the remaining six boxes to show Max how the star moves across the grid.

Extension challenge: Create your own 4-step sequence using shapes and a specific rotation rule. Swap with a partner and see if they can identify the rule you used!