

Max's Pattern-Solving Challenge: A Non-Verbal Reasoning Log

Learning objective: To identify, describe, and complete complex visual sequences and analogies using logical reasoning and spatial awareness.

Max the monkey has found a series of mysterious geometric puzzles. Use this log to document your problem-solving process. For each task, analyse the rotation, reflection, or pattern of the shapes before you draw the final piece of the sequence. Be sure to justify your logic using the vocabulary provided.

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

1. Sequence Analysis: Describe the transformation occurring in your current puzzle. Explain why the shape changes position as it does. (2 marks)

2. Pattern Prediction: Based on the first three stages of the sequence, justify your choice for the fourth stage. What might happen if the pattern was extended to a fifth stage? (3 marks)

3. Compare and Contrast: Compare the relationship between the first pair of shapes and the second pair in an analogy puzzle. What is the common rule? (3 marks)

4. Logical Deduction: If a shape is rotated 90 degrees clockwise three times, what is its final orientation compared to its starting position? Explain your reasoning. (2 marks)

5. Error Correction: Imagine a classmate suggests a different solution for a pattern. Justify why your answer is correct using mathematical evidence from the grid. (3 marks)

6. Design Challenge: Create your own rule for a 3-stage sequence. Describe the rule in words so that a partner could draw the solution. (4 marks)

Extension challenge: Greater Depth Challenge: Invent a 'nested' puzzle where two different transformations occur simultaneously (e.g., a shape is both rotating AND changing size). Write a formal explanation of the combined rule and present it to the class.