

Max's Non-Verbal Reasoning Challenge

Learning objective: To develop logical thinking and spatial awareness by identifying patterns, sequences, and relationships in non-verbal shapes and figures.

Read each card carefully. Use your logical reasoning skills to determine the missing pattern, the odd one out, or the next shape in the sequence. Max the monkey is waiting to see how you solve these puzzles!

A shape turns 90 degrees clockwise three times. What is the total degree of rotation from its starting position?

270 degrees.

If a shape is reflected across a vertical line, what happens to the horizontal position of its features?

They are reversed or flipped horizontally.

Identify the odd one out: A square, a rectangle, a circle, a rhombus. Explain why.

A circle, because it has no straight edges or vertices.

In a sequence, a triangle becomes a square, then a pentagon. What is the next shape and why?

A hexagon, because the number of sides increases by one each time.

What is the term for when a shape looks exactly the same after being rotated less than a full turn?

Rotational symmetry.

If a black dot moves from the top-left corner to the bottom-right corner in a 2x2 grid, what is the transformation?

A diagonal movement or a 180-degree rotation.

Compare and contrast a square and a kite regarding their lines of symmetry.

A square has four lines of symmetry; a kite typically has only one.

Explain why a shape might be considered 'congruent' to another shape in a sequence.

Because it is the exact same size and shape, even if it has been rotated or reflected.

If a pattern involves shading every third square in a line, what happens to the pattern if the line length is doubled?

The pattern repeats, and the frequency of shading remains consistent.

Justify your answer: Does a regular hexagon have more lines of symmetry than a regular pentagon?

Yes, a hexagon has 6 lines of symmetry, while a pentagon has 5.

What might happen if you reflect an asymmetrical shape twice across the same vertical axis?

The shape returns to its original orientation.

Max has 4 shapes. Three are rotated versions of each other. The fourth is a mirror image. Which is the odd one out?

The mirror image, because rotation does not change the 'handedness' (chirality) of a shape, but reflection does.