

Max's Symmetry Masterclass

Learning objective: To identify, describe and represent the position of a shape following a reflection, and to understand lines of symmetry in 2D shapes.

Use these flashcards to test your knowledge of symmetry. Max the Monkey has prepared these challenges to help you master geometric transformations.

Define 'Line of Symmetry'.

An imaginary line where you could fold a shape in half and both halves would match exactly.

How many lines of symmetry does a regular pentagon have?

5 lines of symmetry.

True or False: A scalene triangle has no lines of symmetry.

True.

Explain the difference between a reflection and a rotation.

A reflection flips a shape over an axis, creating a mirror image; a rotation turns a shape around a fixed point.

If a shape is reflected across a vertical axis, what happens to the x-coordinates of its vertices?

The horizontal distance from the axis remains the same, but the shape appears on the opposite side.

Does a parallelogram have any lines of symmetry? Justify your answer.

No. If you fold a parallelogram, the corners do not align perfectly, making it asymmetrical.

Compare and contrast a square and a rectangle in terms of their lines of symmetry.

Both have lines of symmetry, but a square has 4 (horizontal, vertical, and two diagonals), whereas a rectangle only has 2 (horizontal and vertical).

What might happen to the line of symmetry if a square is stretched into a rhombus?

The number of lines of symmetry decreases from four to two, as the diagonal lines no longer function as lines of symmetry.

Explain why a circle is considered to have an infinite number of lines of symmetry.

Any straight line drawn through the centre point of a circle will divide it into two identical halves.

Justify your answer: Can a shape have more than one line of symmetry but not be a regular polygon?

Yes, for example, a rectangle has two lines of symmetry but is not a regular polygon because its sides are not all equal in length.