Line Symmetry and Rotational Symmetry Explained

KS2 MATHS GEOMETRY Ages 9-12 ⏰ 3 min read

What is Line Symmetry?

Line symmetry (also called **mirror symmetry**) happens when you can draw a straight line through a shape and both sides are exact mirror images of each other. If you folded the shape along that line, the two halves would match perfectly.

Think of it like a butterfly: if you draw an imaginary line down the middle of its body, the left wing is a perfect mirror of the right wing. That's line symmetry!

Many shapes have **line symmetry**. A **square** has **4** lines of symmetry. A **rectangle** has **2**. An **equilateral triangle** has **3**. Some shapes have no lines of symmetry at all, like a **scalene triangle** (one where all sides are different lengths).

What is Rotational Symmetry?

Rotational symmetry happens when you can turn a shape around a point in its centre, and it looks exactly the same at some point during the turn—before it completes a full **360-degree rotation**.

Think of it like a ceiling fan: when you spin it, it looks the same every time it rotates a quarter turn. That's rotational symmetry!

We describe rotational symmetry by its **order**. If a shape has **rotational symmetry of order 2**, it looks the same twice as you turn it (every **180 degreessquare** has **rotational symmetry of order 4** because it looks the same **4** times during a full spin (every **90 degrees**). A **circle** has infinite rotational symmetry because it looks identical no matter how much you rotate it.

The Key Difference

Line symmetry is about mirror images—folding. **Rotational symmetry** is about spinning and turning. A shape can have **line symmetry**, **rotational symmetry**, both, or neither! For example, a **square** has both types of symmetry, but a **rectangle** (that isn't a square) has **line symmetry** but only **rotational symmetry of order 2**.