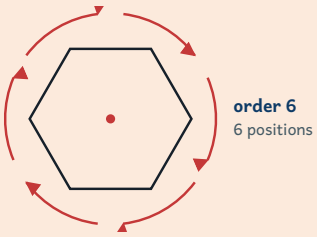
Symmetry – lines and rotational

MODULE 6 · 2D AND 3D SHAPE, ANGLES, SYMMETRY SHAPE & SPACE

A shape has **rotational symmetry** if you can rotate it less than a full turn and it lands on itself. The **order** of rotation counts how many times that happens in one full turn — including the starting position.

→ A **square** has order **4** — it lands on itself every 90°.
→ An **equilateral triangle** has order **3** — every 120°.
→ A **regular hexagon** has order **6** — every 60°.

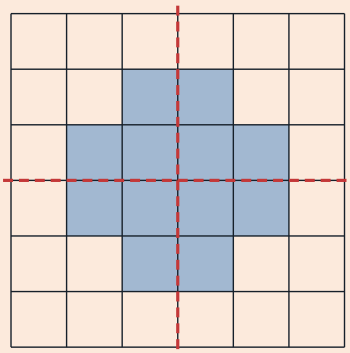


HOW TO ANSWER TODAY

- **Lines of symmetry.** A line of symmetry folds the shape so both halves match. Count every direction that works.
  Square → 4 lines (2 middles + 2 diagonals) · Equilateral triangle → 3

TRY IT ON THE LINE

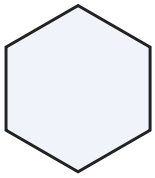
The shape is shown with its vertical and horizontal mirror lines. Use them to reason about rotation.



1. How many times does the shape **land on itself** in a full turn (including starting position)? _____
2. What is the **smallest angle** of rotation that maps the shape onto itself? _____
3. What is the **order of rotation** of this shape? _____

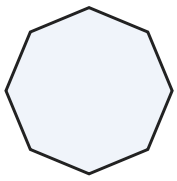
PRACTICE

1



The 5th class are designing a tile pattern for the floor of the new school polytunnel. Each tile is shaped like a regular hexagon. How many lines of symmetry does a regular hexagon have?

2



Tadhg is painting a regular octagon shape onto a banner for the Cumann na mBunscol GAA finals day. He wants to fold the octagon along every line of symmetry to check his design is even. How many lines of symmetry does a regular octagon have?