

Lesson 87 **MIXED****Rotation – quarter, half and three-quarter turns**

WHAT THIS LESSON TEACHES

A turn is how far a shape spins around one fixed point. A quarter turn is a little way round, a half turn is halfway round, and a three-quarter turn is most of the way round. Clockwise means the way a clock's hands go.

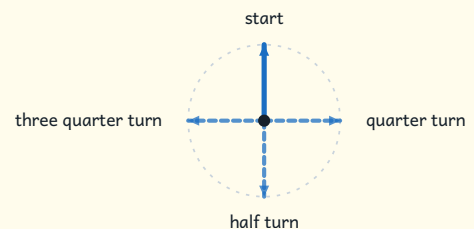
→ An arrow pointing up faces right after a quarter turn clockwise.

→ An arrow pointing up faces straight down after a half turn.

MODEL THIS ON THE BOARD

ARROW QUARTER-TURNS

- 1 The arrow starts pointing **up**, fixed at its corner.
- 2 A quarter turn clockwise swings the tip to **right**.
- 3 A half turn continues to **down** (opposite).
- 4 A three-quarter turn lands the tip pointing **left**.



DISCUSSION STARTER

REFLECT Which turn is easiest for you to picture — quarter, half or three-quarter?

ANSWER KEY

Scaffold: visual check on the page

Q1: up

Q2: down

Q3: left

a) Always — A half turn is halfway round, so any starting direction ends facing its opposite.

b) Always — A quarter turn clockwise moves up to right every time.

c) Never — A quarter turn always changes the direction, so it never matches the start.

d) Sometimes — It fits again only if the gap has matching symmetry, so this depends on the shape.

EXTENSION SHEET · STRETCH ANSWERS

S1: east (a full turn = 360°)

S2: west (a three-quarter turn = 270°)

S3: east (a quarter turn = 90°)

S4: north (a half turn = 180°)

S5: north (a quarter turn = 90°)