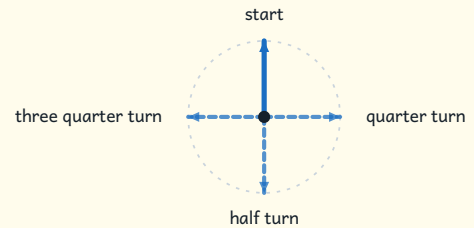


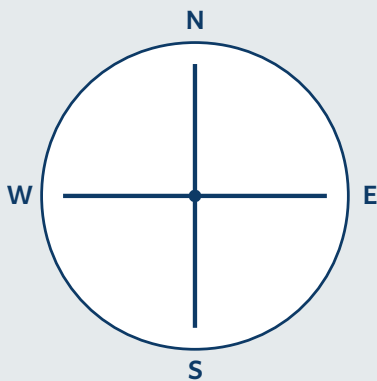
ARROW QUARTER-TURNS

- 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**.



WARM-UP

Use the printed compass. These turns all go **ANTICLOCKWISE** from up. Draw each new arrow from the centre in a different colour, so the three turns do not run into one another.



1. In **RED**, draw the arrow after a quarter turn anticlockwise from up.
2. In **BLUE**, draw the arrow after a half turn anticlockwise from up.
3. In **GREEN**, draw the arrow after a three-quarter turn anticlockwise from up.

PRACTICE

- 1 Sam pins a cardboard arrow through one corner and it points left. He spins it a quarter turn clockwise. Which way does the arrow point now?
- 2 Mia builds a pointer that starts pointing up. She turns it a half turn. Which direction does the tip face now?
- 3 Lena's cardboard arrow points up. She spins it three-quarters of the way round clockwise. Predict the direction the tip now faces.

SPOT THE MISTAKE

Niamh rotates an arrow that points up by a half turn. She says:

After a half turn the arrow points right.

Niamh is wrong. Which way does the arrow point after a half turn?

REFLECT

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