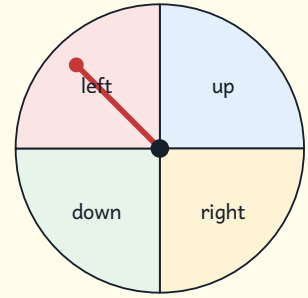


ARROW QUARTER-TURNS

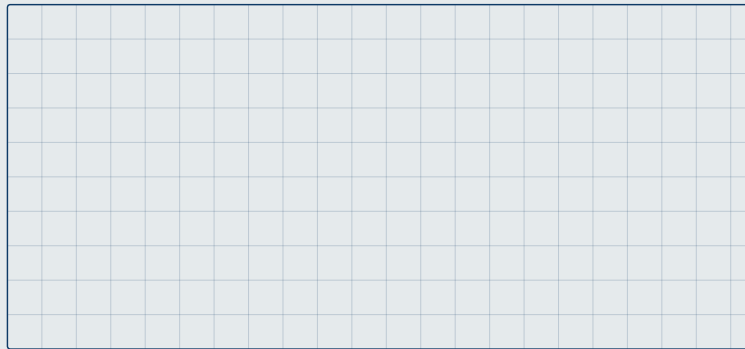
- 1 The arrow starts pointing **up**, fixed at its corner.
- 2 A quarter turn clockwise swings the tip to **right**.
- 3 A half turn continues to **down** (opposite).
- 4 A three-quarter turn lands the tip pointing **left**.



WARM-UP

Draw an up arrow with a dot in its corner, then draw where its tip points after each turn.

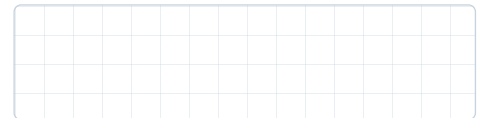
Patterns



1. Draw an arrow pointing up, then draw it after a quarter turn clockwise (tip should point right).
2. Beside it, draw the same up arrow after a half turn (tip should point down).
3. Draw the same up arrow after a three-quarter turn clockwise (tip should point left).

PRACTICE

- 1 Sam pins a cardboard arrow through one corner and it points up. He spins it a quarter turn clockwise. Which way does the tip point now?



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?