

Zig-Zag Stairs

The route climbs a staircase of corridors. Your car already finds openings by itself. Now make it **remember its route** and show it on the hub — a robot that keeps notes.

BEFORE YOU START

Your toolkit

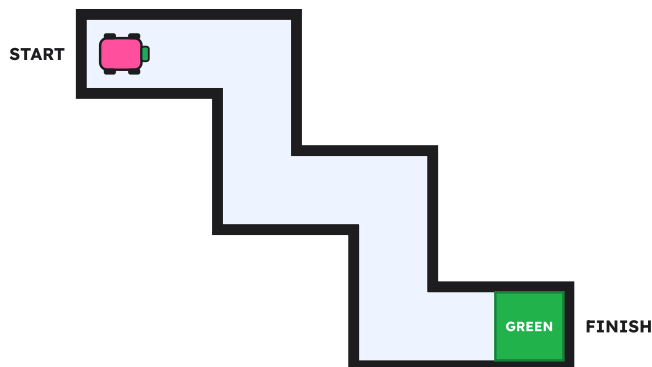
Everything on your car. The highlighted parts are the ones this mission needs.

The diagram shows the top surface of a LEGO Mindstorms EV3 brick. It is divided into several sections by dashed lines. The top row contains four sections: 'SPIKE Hub' (top-left), '2 Medium motors' (top-middle), 'Large motor' (top-right), and 'Large motor' (far right). The bottom row contains three sections: 'Distance sensor' (bottom-left), 'Color sensor' (bottom-middle), and 'Hub gyro' (bottom-right). The 'Hub gyro' section is enclosed in a dashed border. The text in the diagram is as follows:

- SPIKE Hub**
the brain · has a built-in gyro
USED THIS MISSION
- 2 Medium motors**
left + right wheels · ports A, E
USED THIS MISSION
- Large motor**
steers the back · port D
USED THIS MISSION
- Large motor**
the **turret**
: swings the distance sensor · port C
USED THIS MISSION
- Distance sensor**
port B · looks **right, left and ahead**
on the turret
USED THIS MISSION
- Color sensor**
underneath, pointing down · port F
USED THIS MISSION
- Hub gyro**
level-up: exact 90° turns
OPTIONAL LEVEL-UP

Your car: the Delivery Cart with a large-motor turret carrying the distance sensor at the front, and a color sensor underneath. How to build it →

THE MAZE



YOUR MISSION

What the car must do

- Reach the green tile with your S-Curve program — no counted turns.
- Keep a **list** called *route*: add **R** for every right turn and **L** for every left turn.
- At the end, show the list on the hub. The staircase should read **RLRL**.

Playbook cards for this mission: [Stop and look](#) · [The right-hand rule](#) · [Remember your route](#)

BUILD IT

Maze size

Along the route	Whole maze
$2 \rightarrow 2 \rightarrow 2 \rightarrow 2 \rightarrow 2$ lane widths	about 7.3×5.3 lane widths

With a 30 cm lane width the maze is about 219×159 cm. Lane spacing is one lane width plus a wall.

DONE WHEN

Success looks like

- All four corners are found by sensing.
- The hub shows RLRL.
- Run the **mirrored** staircase: the hub now shows LRLR — proof that the car senses.

Keep going: All missions → [index.pdf](#) | Hints → [mission-4-hints.pdf](#)

The same content is in the matching .html files.