

Digital Robot

40 minutes

Unplugged Coding - Art

WHAT THIS LESSON DOES

Get ready to meet a robot on your screen that follows your commands to draw amazing patterns! You'll learn to give clear instructions, using direction buttons to create shapes step by step, and see your code come to life.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the importance of sequencing and order in coding instructions.
- Develop skills in directing a digital tool using precise commands.
- Recognise the impact of errors or 'bugs' in a sequence of instructions.
- Apply logical thinking to create and replicate shapes through coded instructions.
- Build confidence in translating conceptual ideas into digital outcomes.

BEFORE THE LESSON

- Open the on-screen interactives (Paintbrush Path, Robot Letter Tracer, Drawing Robot) on the projector before class and check they load and run on your school network.
- Have devices ready for pupils to use the interactives in steps 2 to 4, or plan to keep it whole-class on the projector if devices are limited.
- Draw a blank 4 by 4 dot grid on the board so you can sketch a letter like L or T during the demo.
- The final missions are unplugged: print the Drawing Robot and Grid Robot worksheets and grid sheets, one set per pupil.

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HOW THE LESSON RUNS

Introduction

Paintbrush Path

Robot Letter Tracer

Drawing Robot

Secret Shape Challenge

TEACHING MOVES

- 1. Introduction. Link back to when pupils acted as robots themselves. Say the on-screen robot follows the exact same commands, then stress that order still decides the result.
- 2. Paintbrush Path. Demo one command at a time: point to the start, read one arrow, show the line it draws. Then ask the class for the next single command to build the picture together.
- 3. Robot Letter Tracer. Sketch a simple letter on your 4 by 4 grid first, then click arrows in trace order so pupils see the code build. Press Run only when the full sequence is queued.
- 4. Drawing Robot. Have pupils trace the path with a finger before touching a button. Then click arrows, watch the Code Queue fill, and run it: one wrong arrow sends the robot off course.
- 5. Secret Shape Challenge. For mission one, tell pupils to start at the top-left dot and follow each arrow exactly. For mission two, they design their own shape then write the arrow code for it.

WHAT TO WATCH FOR

- Pupils press Run after each arrow instead of building the whole sequence first, expecting the robot to move as they go. Show that the Code Queue holds all the arrows and only Run plays them in order. Have them queue the full path, then run once.
- Pupils confuse the robot's Left and Right with their own, especially when facing the board or a partner's screen. Anchor direction to the grid, not the body: Right always means towards the right edge of the screen. Have them trace with a finger before clicking.
- When the robot ends up wrong, pupils blame the robot rather than checking their sequence. Remind them the robot only does exactly what it is told. Read the queue back arrow by arrow against the intended path to find the bug.

DIFFERENTIATION

- Emerging: Keep them on a 3 by 3 letter in the Tracer and let them trace the path with a finger before every click. Pair them with a partner who reads one arrow aloud while they click it.
- Developing: Ask them to say each arrow out loud as they add it to the queue, so the sequence stays deliberate. Have them predict where the robot will finish before pressing Run, then check.
- Proficient: Set them a harder shape or letter on the mission worksheet and ask them to find the shortest correct sequence. Have them swap their written arrow code with a partner and follow each other's exactly to check it works.