

LESSON 36

Build your Traffic Lights

10 minutes

Designing and Building for the Future

WHAT THIS LESSON DOES

In this lesson, you'll assemble your own traffic lights using a Microbit Traffic Lights Kit. You'll start by gathering your materials, then open the package and construct the stand. Finally, you'll attach the Microbit to the traffic lights, ensuring the correct alignment.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Identify and gather necessary components for the Microbit Traffic Lights Kit.
- Understand and execute the process of unpacking and preparing the kit.
- Develop skills in assembling the stand for the traffic lights.
- Apply knowledge of Microbit to correctly align and attach it to the traffic lights.
- Demonstrate the ability to follow step-by-step instructions to complete a technical task.

BEFORE THE LESSON

- Microbit Traffic Lights Kit and a Microbit for each pupil or pair
- A Phillips head screwdriver for each working group
- Quickly check kits for stand parts, screws and bolts so missing pieces do not stall the build

Build your Traffic Lights

HOW THE LESSON RUNS

- What you need
- Open up the package
- Make the stand
- Screw on the Microbit

TEACHING MOVES

- 1. What you need. Hold up the kit, the Microbit and the Phillips head screwdriver. Confirm every group has all three before anyone opens a package.
- 2. Open up the package. Have pupils open the kit carefully and lay out the contents. Scan the room so small screws and stand pieces are not lost.
- 3. Make the stand. Show the bottom piece that snaps off, then slot it into the matching part to form the stand. Warn pupils not to force the plastic.
- 4. Screw on the Microbit. Show the alignment map clearly: P0 Red to 0, P1 YLW to 1, P2 GRN to 2, 3V to 3V, 0V to GND. Check lineup before screws go in.

WHAT TO WATCH FOR

- Pupils seat the Microbit without matching P0, P1, P2, 3V and 0V to the labelled contacts, so the lights will not respond later. Pause before any screwing. Point to each label pair in turn and have pupils confirm the match.
- Pupils bend or force the stand instead of snapping the bottom piece off and slotting the matching parts. Demonstrate the snap and slot once slowly. If a piece resists, stop them and show the matching part again.

DIFFERENTIATION

- Emerging: Complete the pin lineup with the pupil before they use the screwdriver. Pair them so a partner steadies the Microbit while they fit the screws.
- Developing: Ask them to read each pin label back to you, then let them finish the screws themselves.
- Proficient: Have them check another group's pin alignment against the map before that group tightens its screws.