

## LESSON 6

# Sensing with a Micro:bit

40 minutes

Code That Reaches the Real World

### WHAT THIS LESSON DOES

Students program a micro:bit to read light, temperature, sound and movement sensors and show the readings on the LED screen, then test and tune so the values make sense.

### WHAT STUDENTS SHOULD BE ABLE TO DO

- Program the micro:bit to read a sensor and display a reading; test and tune the code so the readings are sensible.

### BEFORE THE BELL

- Students logged in to the Coding Ireland platform with micro:bits ready (or the MakeCode simulator if hardware is limited)
- Open MakeCode for micro:bit; each student or pair will create a new project
- Check USB cables or Bluetooth download method if using physical boards

## Sensing with a Micro:bit

### HOW THE LESSON RUNS

|       |              |                                     |
|-------|--------------|-------------------------------------|
| 4 min | introduction | Start: What We're Building          |
| 3 min | content      | Create a New Project                |
| 5 min | content      | Initialize Variables                |
| 3 min | content      | Configure Button a                  |
| 3 min | content      | Configure Button B                  |
| 3 min | content      | Configure Buttons a and B           |
| 2 min | content      | Configure Loud Sound Detection      |
| 6 min | content      | Create a Forever Loop               |
| 3 min | content      | Test Your Program                   |
| 2 min | content      | Reflect on Your Learning            |
| 3 min | content      | Make Sense: What Worked, What Broke |
| 2 min | content      | Reflect                             |
| 1 min | summary      | What You Covered                    |

### TEACHING MOVES

- Model the first blocks on the board, then let pairs build; circulate while they add the forever loop
- Stress that mode is just a number the buttons set, and the forever loop keeps checking it
- For light and sound, cover the sensor or clap so students see the bar graph change live
- If boards are shared, one student runs while the other watches the serial or LED output

### WHAT TO WATCH FOR

- Mode never changes because button handlers are missing or not downloaded: recheck onButtonPressed blocks and flash the board again
- Bar graph looks flat because the max value is wrong or the room is very bright or dark: try 255 and move the board to change light or sound
- Temperature shows a fixed number in the simulator: remind students the simulator needs the temperature slider moved, or use a real board

### DIFFERENTIATION

- Support: provide a printed mode list (1 temperature, 2 light, 3 sound, 4 movement) and build button A plus the forever branch first
- Extension: ask pairs to pick sensible thresholds or try showing a short message before the number
- Extension: challenge them to note how covering the board changes light level readings