LESSON 26

Sensing with a micro:bit

40 minutes | Strand 2: Let's get connected | Built in micro:bit | Outcome 1.7 | Outcome 1.8

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.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
1.7	Discuss and implement core features of a structured programming language: variables, operators, loops, decisions, assignment and modules.
1.8	Test code to find and manage errors.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Program a micro:bit to read a sensor (light or temperature) and show a reading (LO 1.7)
- Test and tune your code so the readings are sensible (LO 1.8)

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

WHAT YOU NEED

Item	Qty	Per	If you do not have it
micro:bit (with USB lead)	1	pair	run the lesson on the IWB using the MakeCode simulator

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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