

Connecting two micro:bits with radio

40 minutes

Strand 2: Let's get connected

Built in micro:bit

Outcome 1.7

Outcome 1.4

WHAT THIS LESSON DOES

Students program two micro:bits to send and receive string, number and name-value messages over radio, then discuss how the devices cooperate and one data-privacy issue with logging readings about people.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
1.7	discuss and implement core features of structured programming languages, including variables, operators, loops, decisions, assignment and modules
1.4	discuss the ethical and legal issues that could be encountered when using computers, applications, or digital devices, or when engaging online

WHAT STUDENTS SHOULD BE ABLE TO DO

- Program two micro:bits to send and receive a value using radio (LO 1.7)
- Explain how the devices communicate and cooperate, and discuss one data-privacy issue with logging readings about people (LO 1.4)

BEFORE THE BELL

- Students logged in to the Coding Ireland platform and MakeCode micro:bit editor open in the browser.
- At least two micro:bits per pair, with USB cables or battery packs so both can be powered at once.
- Optional: board or projector ready to model the first radio blocks before pairs work independently.

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	How two micro:bits find each other
2 min	content	Create a new project
4 min	content	Choose a radio group
3 min	content	Send a message
4 min	content	Receive the message
5 min	content	Send a number message
7 min	content	Send a name value message
2 min	content	Explore
3 min	content	Make sense: what worked, what broke
2 min	content	Reflect
1 min	summary	What you covered

TEACHING MOVES

- Model setting the same radio group on both devices first; mismatched groups are the most common reason nothing appears.
- Use the simulator's second micro:bit to check send and receive before downloading, then test on real hardware with both boards powered.
- For name-value messages, stress that the receiving side must match the name string exactly before it acts on the value.
- In the Reflect discussion, ask how the two devices cooperate, one sending and one listening on an agreed group, and then ask who should be able to see readings logged about people.

WHAT TO WATCH FOR

- Different radio groups on the two micro:bits: nothing is received. Set both to the same group and re-download.
- Only one micro:bit powered or code only on one device: the pair cannot see a reply. Power both and flash the same program to both.
- Receive handler missing or name string mistyped in a name-value check: the display never updates. Check the on-received block and the exact name spelling.

DIFFERENTIATION

- Support: Stay with string send on button A and receive-and-show until that works on both devices before adding number or name-value.
- Extension: Have pairs send a sensor reading (for example light or temperature) to a “base station” micro:bit that only displays values.
- Extension: Ask pairs to invent one extra gesture or button that sends a different name-value pair and handles it on receive.