

Meet the Microbit

60 minutes (2 periods)

Microbit Basics

WHAT THIS LESSON DOES

Discover the world of microbits, pocket-sized computers that you can program. Learn how to create a new project, navigate the project editor, and add your first piece of code. Program your microbit to display messages, react to button presses, and even respond to movement. Explore, experiment, and have fun!

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the basic functionality and features of a microbit.
- Develop skills in creating a new project on the MakeCode for microbit platform.
- Gain familiarity with the Project Editor interface, including the Microbit Simulator, Toolbox, and Code Area.
- Acquire the ability to write simple code to display numbers, text, and icons on the microbit.
- Explore and experiment with different coding blocks to create interactive microbit programs.

BEFORE THE LESSON

- Open MakeCode for microbit on the class screen and on a test device beforehand, and check the school filter does not block the site.
- Have a microbit and a USB cable ready per pupil or pair, and confirm the download-to-device step works on your machines before the class needs it.
- Log pupils in or have the site open on each device so they are not stuck at the New Project stage.

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HOW THE LESSON RUNS

What is a microbit?

Create a new project

The Project Editor

Add Our First Code!

Delete Some Code

Display Your Name

Show a Happy Face

Connect your Microbit

Explore!

TEACHING MOVES

- 1. What is a microbit? Hold up an actual microbit if you have one. Ask pupils what they think the grid of red lights and the two buttons might do before you tell them.
- 2. Create a new project. Do this once on the big screen first. Watch that everyone names and creates their project rather than opening an old one, or their later code will land in the wrong place.
- 3. The Project Editor. Point to each of the three areas by name on the shared screen: simulator on the left, toolbox in the middle, code area on the right. Name on start and forever.
- 4. Add Our First Code! Have pupils drag the show number block themselves rather than watching. Ask them to change the number and confirm the simulator updates before moving on.
- 5. Delete Some Code. Show that dragging a block back into the toolbox deletes it. This is a useful move they will need again, so make sure everyone can do it.
- 6. Display Your Name. Stress the block goes inside on button A pressed. Have pupils click the A circle in the simulator and watch their name scroll one letter at a time.
- 7. Show a Happy Face. Point out the small white down arrow that opens the icon library. Let pupils pick their own icon rather than all copying the same one.
- 8. Connect your Microbit. Walk the connection and download steps slowly at the board. This is where most pupils get stuck, so circulate and check each device shows the name and icon.
- 9. Explore! Set one clear challenge, such as making a third thing happen, and remind pupils to download again after every change or the device will not update.

WHAT TO WATCH FOR

- Pupils drop the show name or show icon block outside the on button pressed block, so nothing happens when they press the button. Show that code must sit inside the button block to run on a press. Have them check the block is nested before testing.
- Pupils change code in MakeCode, see the simulator update, and assume the real microbit has updated too. Explain the device only changes after you download again. Make re-downloading after every edit a fixed habit.
- Pupils expect their whole name to appear at once and think it is broken when it scrolls one letter at a time. Point out the LED grid is small, so text moves across it. Ask them to watch the full scroll before deciding it failed.

DIFFERENTIATION

- Emerging: Pre-open MakeCode with a new project already created so they start at the coding step, not the setup. Pair them with a partner and let them copy the shared screen block by block before trying alone.
- Developing: Ask them to talk you through what on button A pressed does before they add the next button. Have them fix a deliberately mis-nested block so they learn to spot where code belongs.
- Proficient: Challenge them to make the microbit react to a third input or to show different icons on A and B. Ask them to explore one new block from the toolbox and explain to a partner what it does.