

Microbit Lab

60 minutes

Microbit Masterclass

WHAT THIS LESSON DOES

As the teacher, guide students through brainstorming Microbit project ideas in small groups. Demonstrate a simple LED pattern to inspire them, facilitate group discussions, provide feedback on their ideas, and support them during project creation and presentations.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop creative and achievable project ideas using basic Microbit blocks.
- Collaborate effectively in small groups to brainstorm, plan and execute a Microbit project.
- Present project ideas clearly and receive feedback constructively.
- Apply problem-solving skills to create a Microbit project based on the brainstormed idea.
- Reflect on the project creation process, discussing changes made, challenges faced, and skills learned.

BEFORE THE LESSON

- Open the Microbit editor on the teacher machine and have a simple working example ready to demonstrate in step 1, such as a scrolling LED pattern.
- Check that pupils can reach the Microbit editor on the class devices and log in if your setup requires it, ideally one device per group.
- Have pens and paper ready for each group for the brainstorming session.
- Confirm the interactive whiteboard or projector connects to a pupil device for the Show and Tell at the end.

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HOW THE LESSON RUNS

Introduce the lesson

Forming Groups

Brainstorming Session

Sharing and Feedback Session

Project Creation

Show and Tell

TEACHING MOVES

1. Introduce the lesson. Run your prepared example live so pupils see a finished result, then say the aim is a simple idea they can actually build with the blocks they already know, not an ambitious one.
2. Forming Groups. Set groups of three to five yourself so no pupil is left out, and name the one rule of teamwork out loud: everyone's idea gets heard before the group decides.
3. Brainstorming Session. Set the ten-minute timer where all can see it. Prompt groups to name specific LED patterns, inputs like button A, and sounds, so ideas stay buildable rather than fantastical.
4. Sharing and Feedback Session. Before the first presenter, model one kind comment and one helpful suggestion so pupils know what constructive feedback sounds like. Keep each group's turn short.
5. Project Creation. Circulate constantly rather than staying at the board. When a group is stuck, point them to a group who solved the same thing rather than fixing it yourself.
6. Show and Tell. Ask each group to say what changed between their plan and their result. The gap between the two is where the real learning shows, so draw it out.

WHAT TO WATCH FOR

- Pupils treat brainstorming as choosing the most impressive idea rather than the most achievable one, then run out of time trying to build it. During brainstorming, ask each group what blocks they would actually use for their idea. If they cannot name them, steer the group toward a simpler version they can name.
- Pupils assume a project must run perfectly to count, and give up when their first attempt does not work. Remind them the aim is to explore and learn, and point out that changes and fixes are part of the work. Have them tell you one thing they changed and why.

DIFFERENTIATION

- **Emerging:** Pair a pupil who struggles to start with a group whose idea is already decided, and give them one clear job such as choosing the LED pattern. Offer a narrow starting point, for example show A on the screen when button A is pressed, so they have something concrete to build from.
- **Developing:** Prompt them to explain their sequence back to you in order before they move on, so they notice gaps themselves. Encourage the group to test after each block rather than building the whole thing before running it.
- **Proficient:** Challenge a finished group to add a second input or a response to shaking, using only blocks they already know. Ask them to help another group debug and to explain their fix, not do it for them.