

LESSON 11

Microbit Compass and Thermometer

60 minutes (2 periods)

Robotics & Engineering Basics

WHAT THIS LESSON DOES

Follow this guide to program your Microbit to function as a compass and thermometer. You'll create a new project, set up variables for direction, code buttons to display direction and temperature, and test everything on your device.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand and utilise the compass and temperature sensor features of the Microbit.
- Develop proficiency in creating and setting variables in a Microbit project.
- Apply conditional logic to program Microbit buttons for specific functions.
- Test and debug code using the simulator before transferring to the Microbit.
- Interpret and display data from the Microbit's sensors in a user-friendly format.

BEFORE THE BELL

- To spark student curiosity, begin by connecting the activity to real-world navigation and weather tools, encouraging them to explore how technology mimics these functions. Prepare by ensuring access to the MakeCode platform and Microbits for hands-on coding. Guide students through creating variables and conditional logic, focusing on the compass and temperature sensor functionalities as key concepts. Engage them with interactive testing using simulators before deploying code to devices. Anticipate challenges like syntax errors or connectivity issues, and troubleshoot patiently. Differentiate by offering extra challenges for advanced learners, ensuring all grasp the practical application of coding. If you do not have microbit devices, you can still do the lesson using the virtual microbit in the project editor.

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HOW THE LESSON RUNS

- Create a new Microbit project
- Create the 'direction' variable
- Set the 'direction' variable
- Program the A button
- Check the direction and display it
- Program the B button
- Test your code
- Send your code to your Microbit

STEP BY STEP

Create the 'direction' variable

If required, explain how a compass works in relation to 360 degrees and north, south, east and west using the compass image.