

Lesson: LED Function

Big Picture

This lesson will introduce students to functions. Students will create a program that will have two functions. One function should turn the LED on, and the other function should turn the LED off.

Objectives

Students will be able to:

- Define variable
- Define sensor
- Define temperature
- Define function

Alabama Standards Alignment

6th grade: Computational Thinker #2, #5 and #7

7th grade: Computational Thinker #1, #3, and #6

8th grade: Computational Thinker #2 and #4

Preparation

Choose a presentation method:

- Instructor can walk the students through using the student tutorial handout.
- Students can work at their own pace using the tutorial handout. You may also post the video and tutorial locally and allow students to choose.

Materials Required

Each student (or pair of students) requires:

- Micro:bit
- Two Crocodile clip pins
- One LED light
- One resistor
- One Pin wire

Vocabulary and Concepts

- Variable: An element, feature, or factor that is liable to change; in a programming language, a symbolic representation of some state or property of the program.
- Sensor: An input device that reads or measures a physical property and converts it to a numerical value.
- Temperature Sensor: a sensor that measures the temperature in degrees Celsius (scientific units)
- Function: A named piece of code that can be called repeatedly, sometimes called procedures or methods: a segment of code that includes the steps performed in a specified process.

Teaching Guide

Getting started (10 mins)

Tell the class that they will create a program that will have two functions- one that turns the LED on and one that turns the LED off. Before they start programming, everyone needs to learn the new vocabulary terms.

Activity (40 mins)

The class is now ready to create their micro:bit with the sensor. Use your chosen method to demonstrate how to complete the activity. Make sure students are using functions and the functions are working properly.

Wrap Up (5 mins)

Review the 4 vocabulary words.

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Sensor: An input device that reads or measures a physical property and converts it to a numerical value.

Temperature Sensor: a sensor that measures the temperature in degrees Celsius (scientific units)

Function: A named piece of code that can be called repeatedly, sometimes called procedures or methods: a segment of code that includes the steps performed in a specified process.