

Getting Started With JavaScript Blocks: Temperature

Temperature

Overview

The third project uses one of the on-board sensors and a gesture control to display the real world temperature.

.hex File

Final version of the .hex file called "03 Temperature.hex"

POS Reference

Designs simple algorithms using loops, and selection i.e. if statements. **(AL)**

Declares and assigns variables. **(AB)**

Uses a variable and relational operators within a loop to govern termination. **(AL) (GE)**

Uses logical reasoning to predict outcomes. **(AL)**

Detects and corrects errors i.e. debugging, in algorithms. **(AL)**

Creates programs that implement algorithms to achieve given goals. **(AL)**

Understands that programming bridges the gap between algorithmic solutions and computers. **(AB)**

I can statements

The students can:

- Use a gesture input to control the micro:bit.
- Use an micro:bit sensor to display real world data.

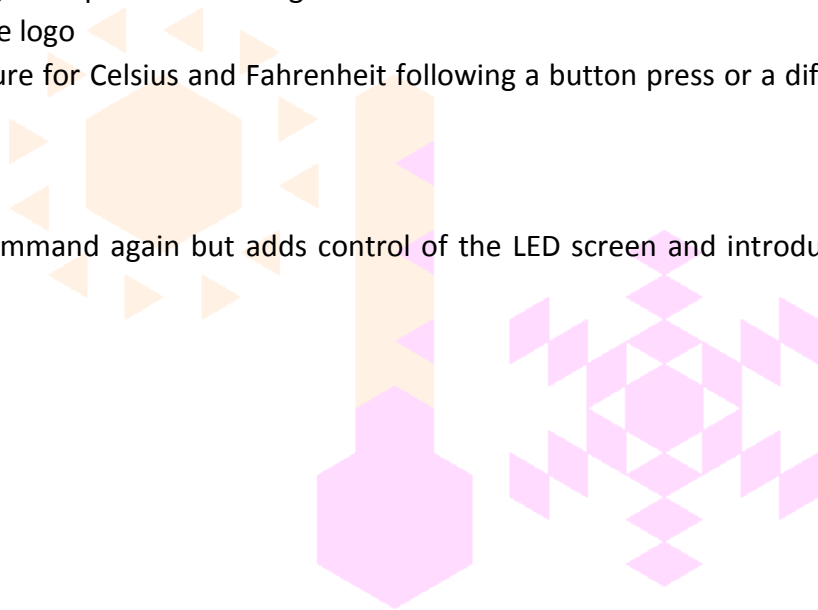
Challenges

A number of challenges are based upon this basic task.

- Displays text following a temperature reading to make it easier for the user
- Displays a temperature logo
- Change the temperature for Celsius and Fahrenheit following a button press or a different gesture.

Next Steps

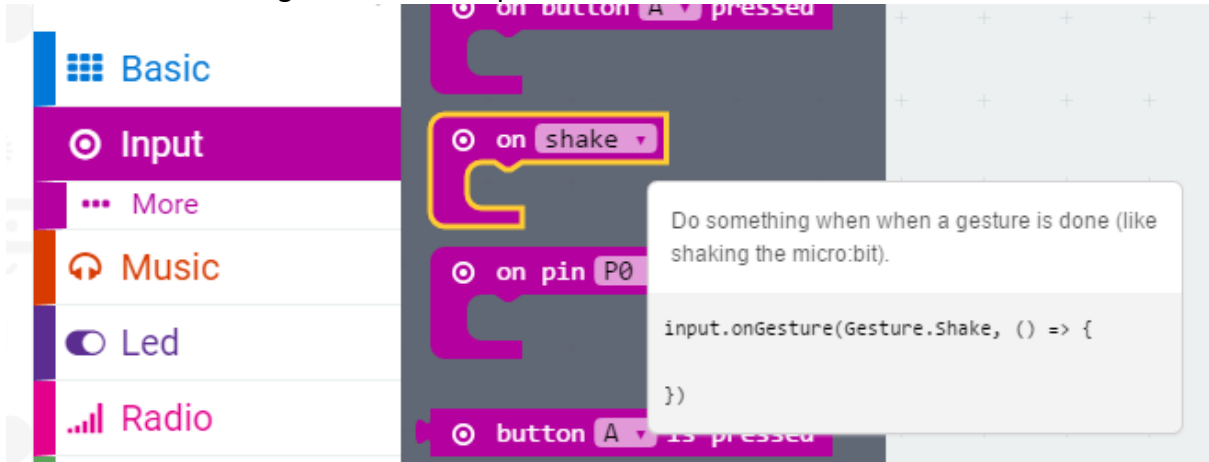
Lesson 4 uses the gesture command again but adds control of the LED screen and introduces IF statements.



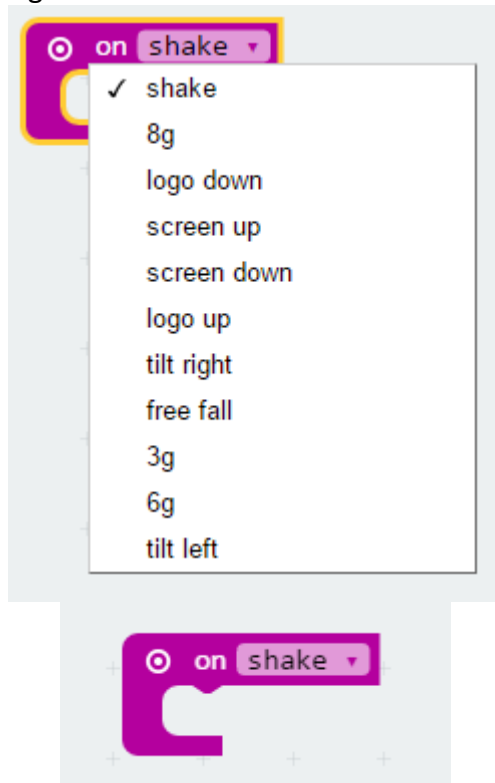
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Step by Step

In the JavaScript Blocks editor select the Input option from the block menu and find the “On shake” block and drag onto the workspace.

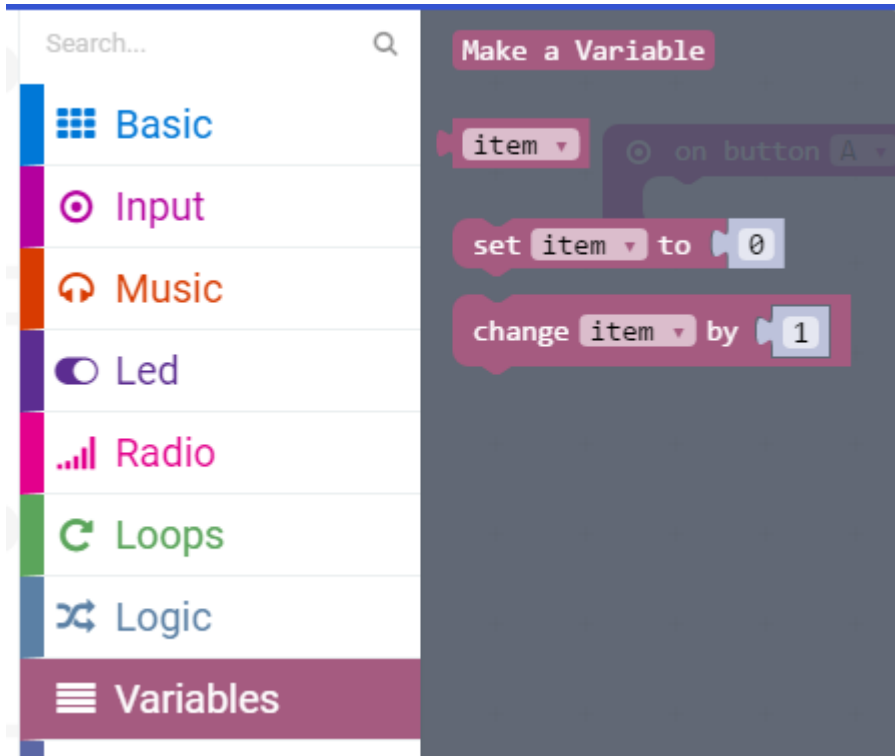


Once on the worksheet the “on” block can be changed to a number of gestures, such as tilt left or right. For this project the shake gesture is selected.

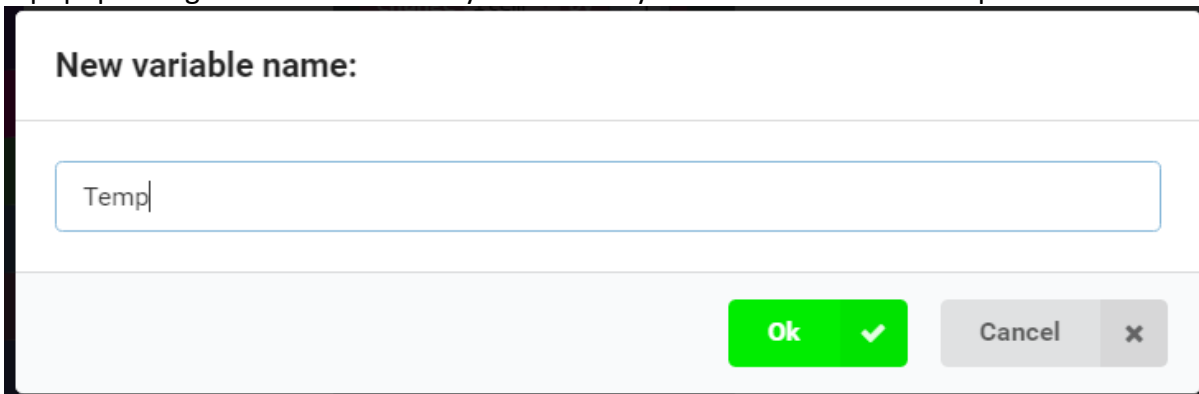


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Now the micro:bit is programmed so it will response to a shake gesture the next part is to create a variable that the temperature will be stored in. From the block menu select the “Variable” and click “Make a Variable”.



A popup dialogue box will then ask you to name your variable. In this example name it “Temp”

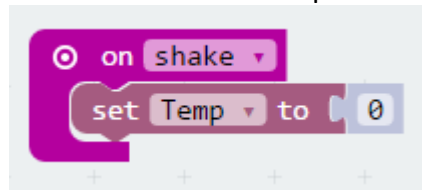


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The block “Temp” now appears in the Variable option menu. When the micro:bit is shaken we would like the temperature to be stored in the variable “Temp”. To achieve this, we select the “Set variable” and drag into the workspace.

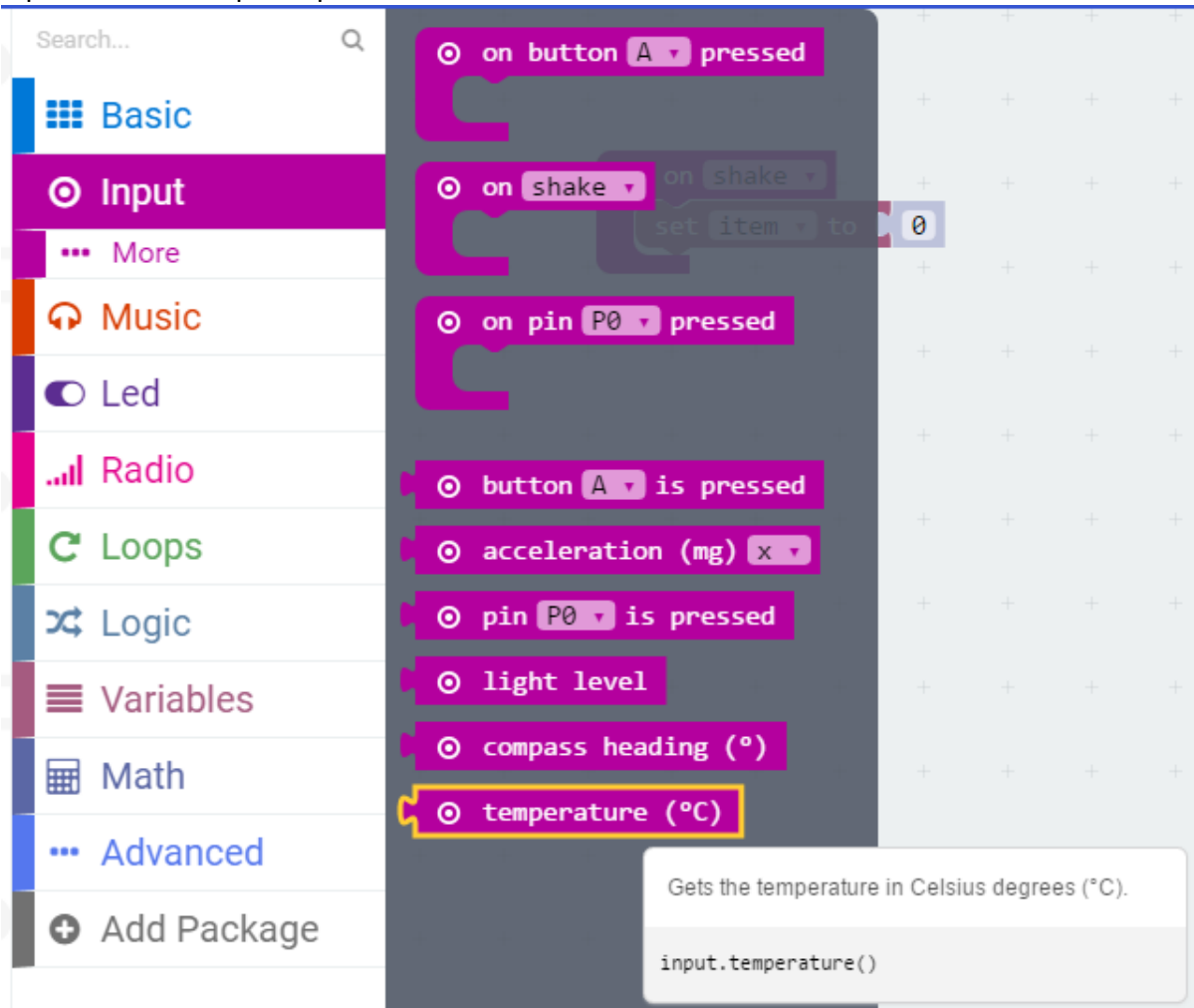


Now when the micro:bit has is shaken the variable “Temp” will be set to 0.

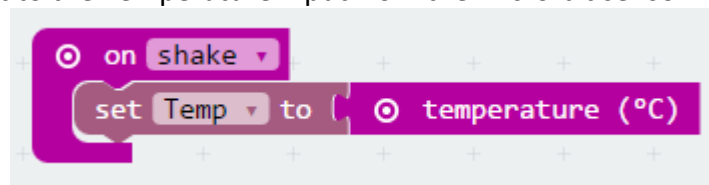


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So that the variable “Temp” is set to the actual temperature we need to use the temperature input from the “Input” option from the block menu.

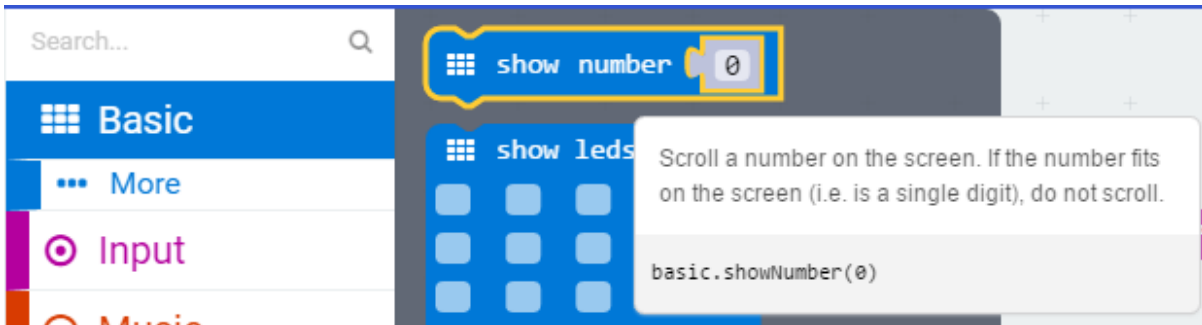


Drag this onto the workspace and set it to replace the “0” so that when the micro:bit is shaken the “Temp” variable is set to the Temperature input from the micro:bit sensor.

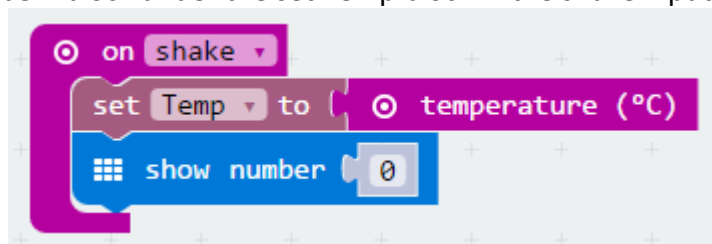


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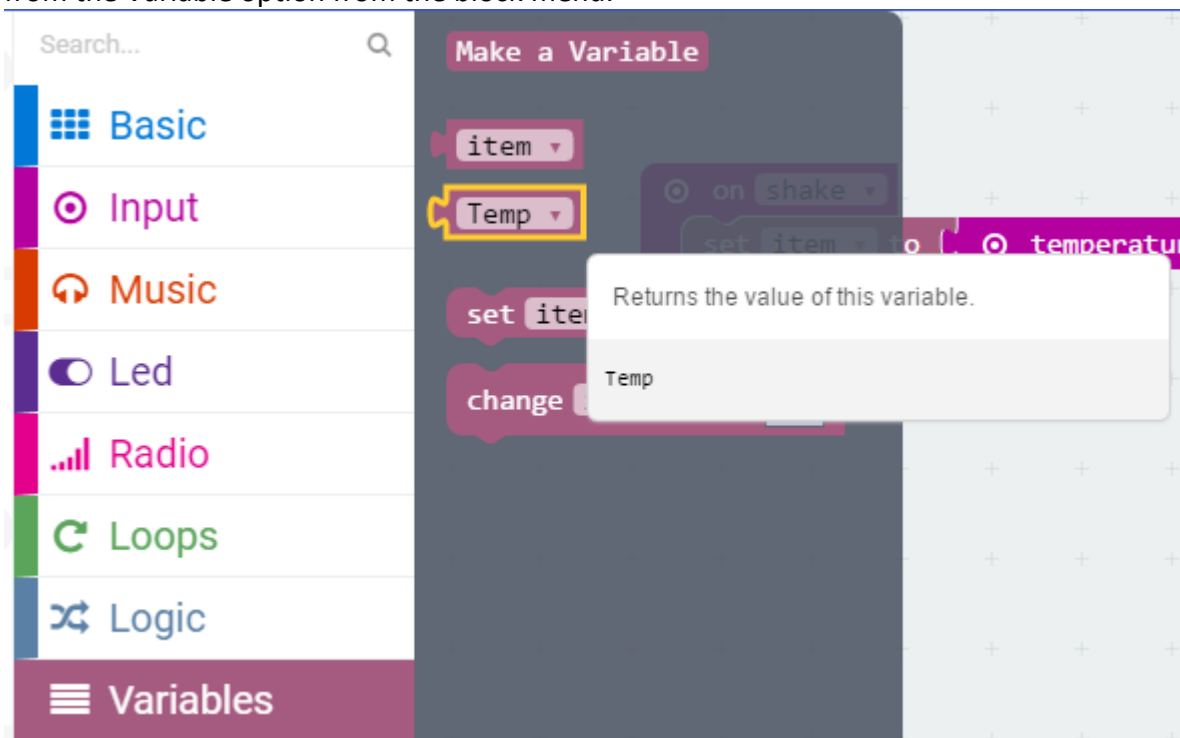
Now that the variable “Temp” has been set to the actual temperature using the micro:bit sensor, it now must be displayed so the user can see the value. Select the “Show number” block from the basic menu and drag it onto the workspace.



Place the “show number” block under the set Temp block in the shake input block.

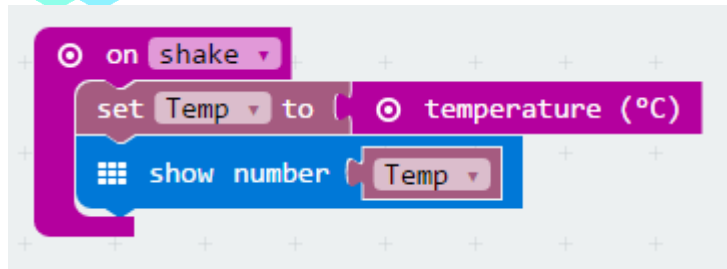


So that the temperature is shown on the LEDs the “Temp” variable is needed again. This is found from the Variable option from the block menu.



Place the “Temp” variable in the show number block so the value of the temperature is displayed on the LEDs.

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Save the project and download to the micro:bit.