



Web Light | 1. Getting Started

Connect the BBC micro:bit to MicroBlocks.



Create a micro:bit LED light that you can turn on and off from a web browser or from another micro:bit via radio. We'll use a variable named "on" to control the light.

The screenshot shows the MicroBlocks interface. On the left is a sidebar with categories: Output, Input, Pins, Control, Math, Variables (highlighted), My Blocks, Libraries, Basic Sensors, and LED Display. The main workspace contains several blocks: 'Add a variable' and 'Delete a variable' buttons, an 'on' variable block, a 'local var 0' block, a 'set var to 0' block, and a 'change var by 1' block. To the right, a 'New variable name?' dialog box shows 'on' entered. Below that, a script is assembled: 'when started' block containing a 'forever' loop with a 'set user LED on' block.

The "on" variable is like a switch. When it is true the LED will light up, otherwise it will be dark.

This script flips the "on" variable when button A on the micro:bit is pressed. If "on" was true, it becomes false and vice versa. Click the start button then click button A on the micro:bit.

The script consists of two blocks: 'when button A pressed' and 'set on to not on'.

Hint: Click an "on" variable block to see if it is true or false.



True



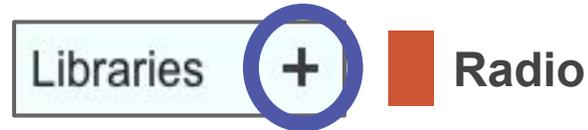
False



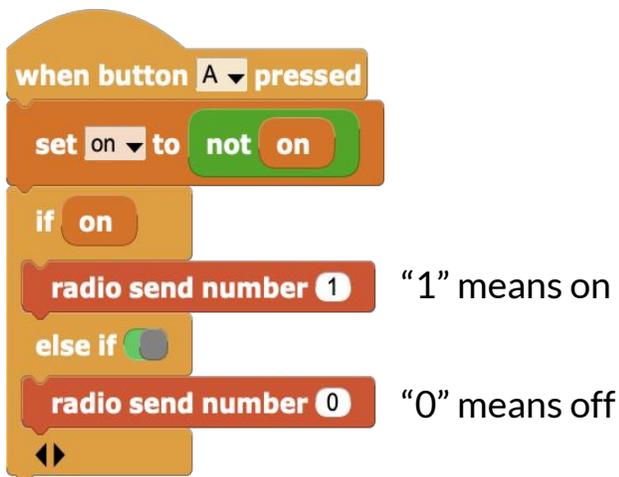
Web Light | 2. Radio Control

One micro:bit can control another wirelessly via radio.

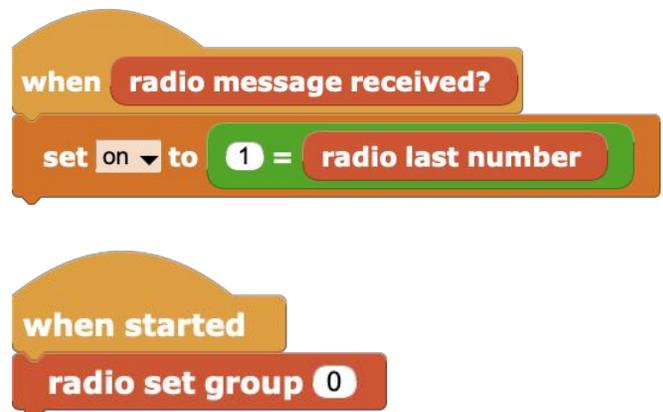
First, add the Radio library:



Change the button A script to also send radio messages:



Add these scripts to receive radio messages:



After writing these scripts, unplug the first micro:bit and connect a battery. Connect a second micro:bit and click  to start its scripts.

Press the A button on either micro:bit. Both LEDs will change!

Fun things to try: How far does the micro:bit radio reach? Does your body block the signal? Doors? Other objects?

Hint: If others nearby are also using the radio you can switch your micro:bits into their own radio “group” by changing the number in this block: 
Everyone should use a different group number.



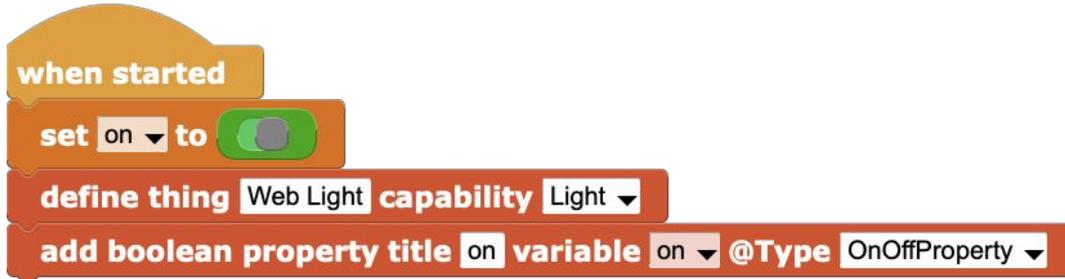
Web Light | 3. Making a Web Thing

Connecting your micro:bit to a Mozilla Web Thing gateway will let you turn your light on and off remotely from a web browser on a laptop or mobile device.

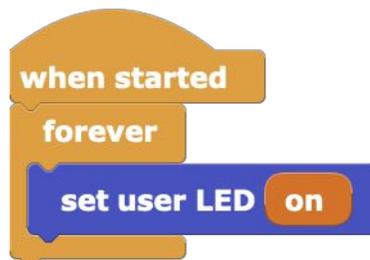
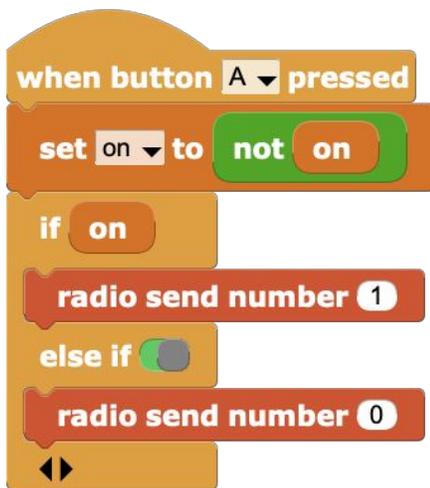
Add the Web Thing library:



Add this script to tell the gateway about your Web Thing:



As a reminder, here are all the other scripts:



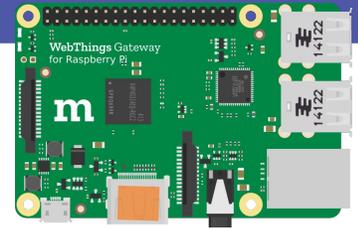
Check your scripts, then disconnect your micro:bit. The next section will show how to connect your micro:bit to the Mozilla Web Things gateway.



Web Light | 4. Gateway Setup

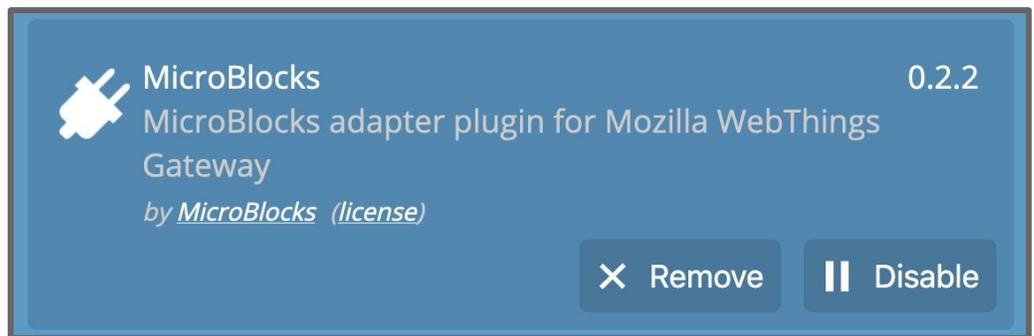
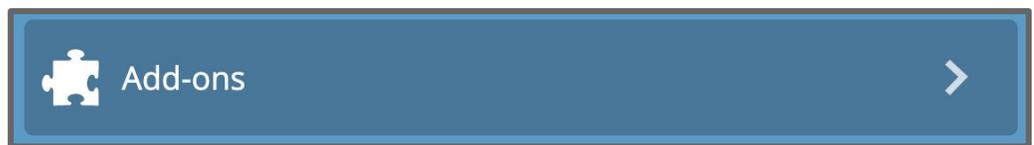
First set up a Mozilla WebThings Gateway

<https://iot.mozilla.org/gateway>

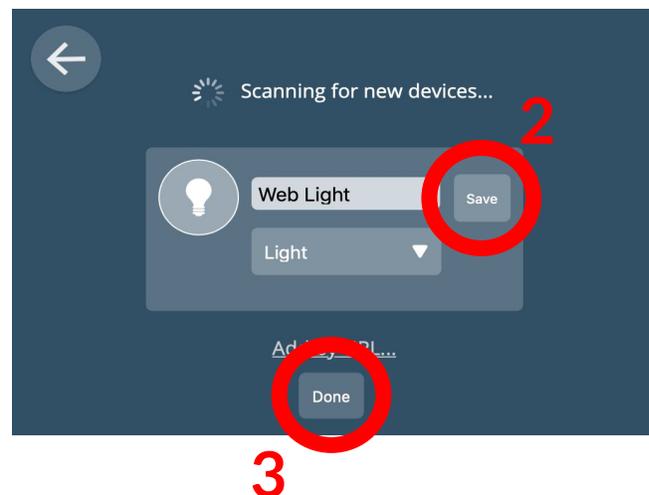
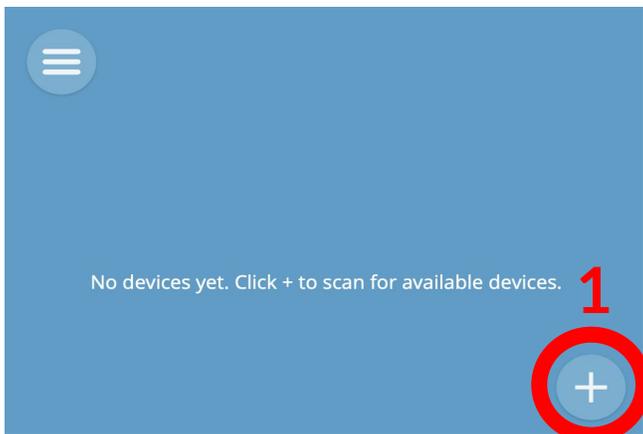


Use any web browser to connect to your gateway: <http://gateway.local>

Install the **MicroBlocks** add-on:



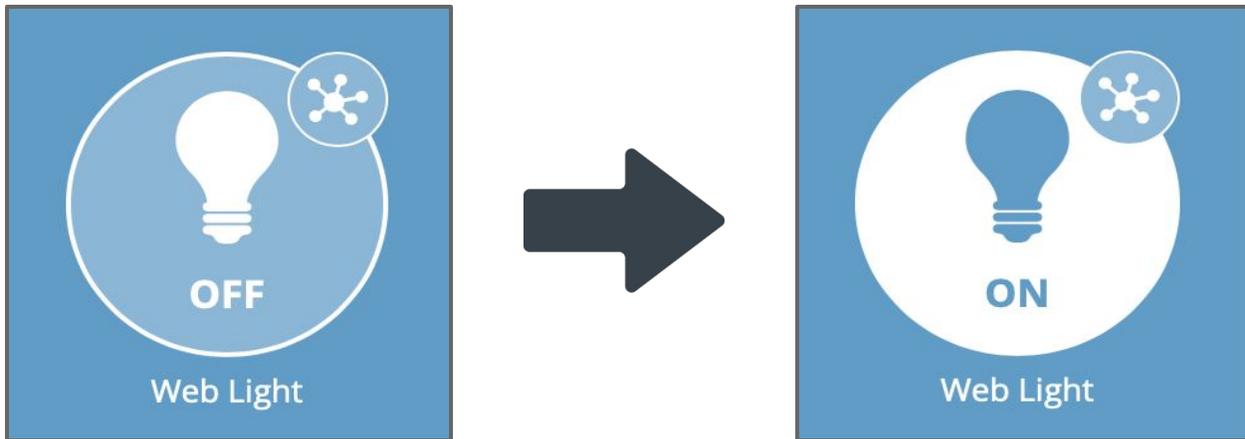
Plug the micro:bit into the gateway. On the Things page, click + to add your Web Light, then click Save and Done:



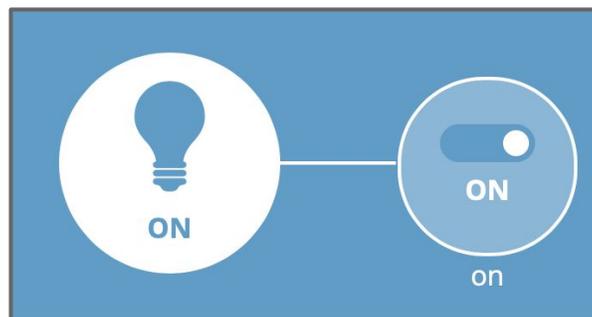


Web Light | 5. Web Control

Your Web Thing will appear on the Things page.
Clicking the light icon will turn the micro:bit LED on and off.
Clicking the A button on the micro:bit will do the same.



Click on  to open the Thing and see its parts:



If you set up the secure tunneling service, you will be able to control your light securely from a web browser anywhere on the internet!

For more info see:

<https://iot.mozilla.org/docs/gateway-user-guide.html>