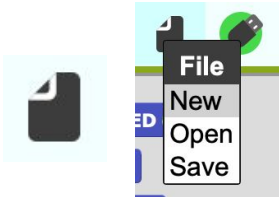




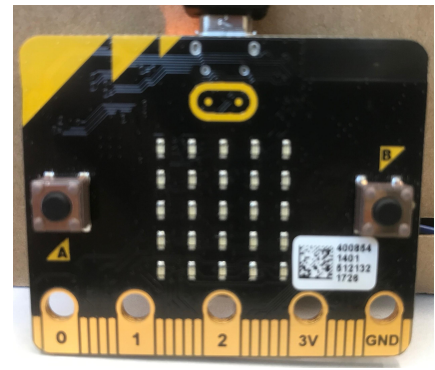
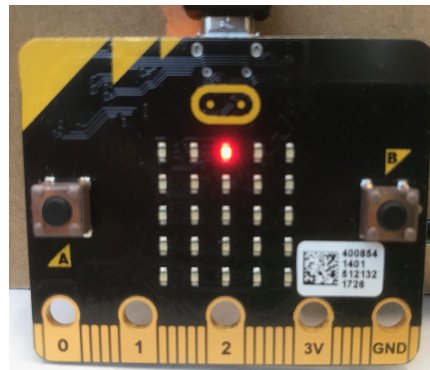
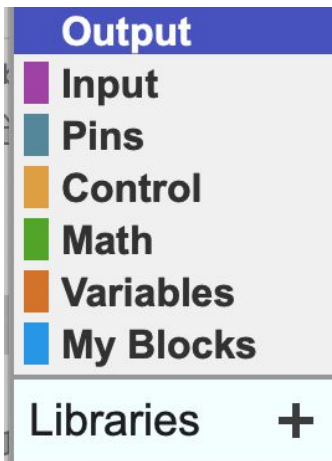
# Hello LED - basic

Connect the BBC micro:bit to MicroBlocks.  
(Make sure the icon turns green.)

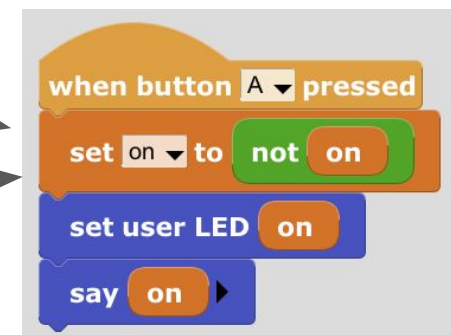
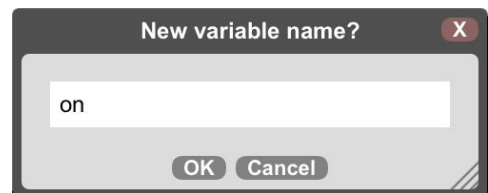
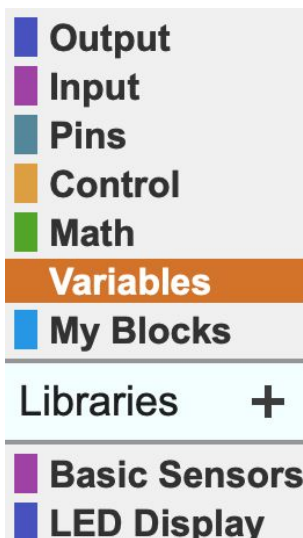


Select "New" to start with a clean stage.

Click **set user LED** with the switch state on and off.



Create an **on** variable to control the LED state, and trigger the state change with a button press.





# Hello LED - graphing data

Example "HelloLED-graph.ubp".



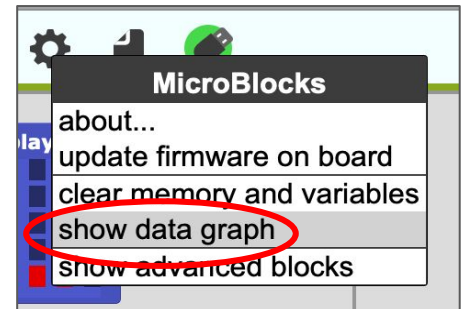
Log the on variable so that you can graph its state.

Select "show graph data" from the MicroBlocks "gear" menu.

```

comment |plot the "on" variable by clicking these blocks
comment |select "show graph" from the settings menu
comment |keep clicking the A button to see the graph change
forever
  graph on

```

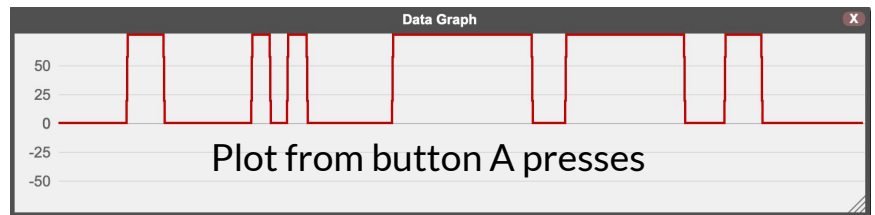


```

when button A pressed
  set on to not on
  set user LED on
  say on

```

Press button A to see the LED/graph toggle.

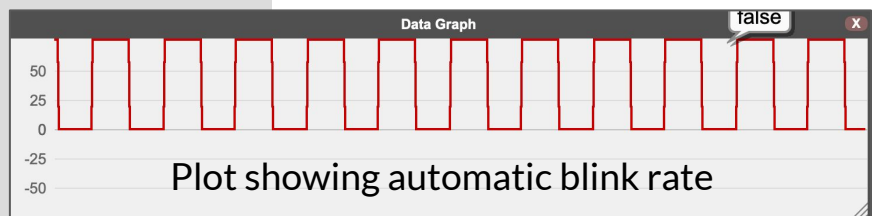


```

when started
  false
  comment |this block runs when power applied
  comment |It acts like "Arduino Blink"
  forever
    set on to not on
    set user LED on
    say on
    wait 500 millisecs
  comment |Note that when running, there's a greenish outline around all blocks

```

Click ► to see the LED blink.



What happens if you change the wait time?



# Hello LED - radio

Example "HelloLED-radio.ubp".

Run same program on 2 or more micro:bit boards.

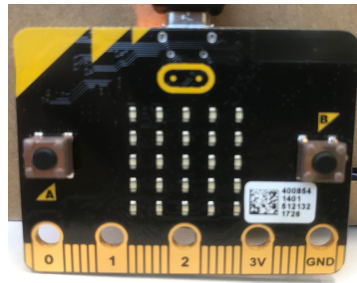
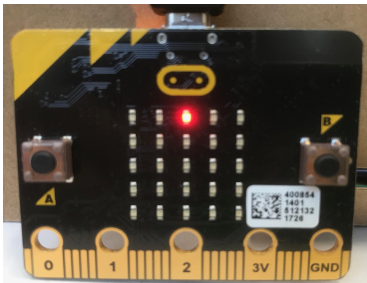


Set the LED state on your own board, and broadcast the change to everyone else as well!

Radio "1" = LED on  
Radio "2" = LED off  
Radio "3" = "text"



Press button A to see the user LED toggle.



```

when radio message received?
  if radio last number = 1
    set on to [off]
    set user LED on
  else if radio last number = 2
    set on to [on]
    set user LED on
  else if radio last number = 3
    scroll text radio last string pausing 100 ms
  
```

```

when button A pressed
  set on to not on
  set user LED on
  say on
  if on
    radio send number 1
  else if [off]
    radio send number 2
  
```

Press button B to broadcast your name.

```

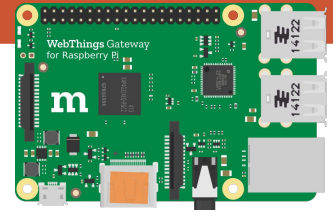
when button B pressed
  radio send pair your_name = 3
  comment just for fun, send your name
  
```

Share and receive messages with other micro:bit boards.





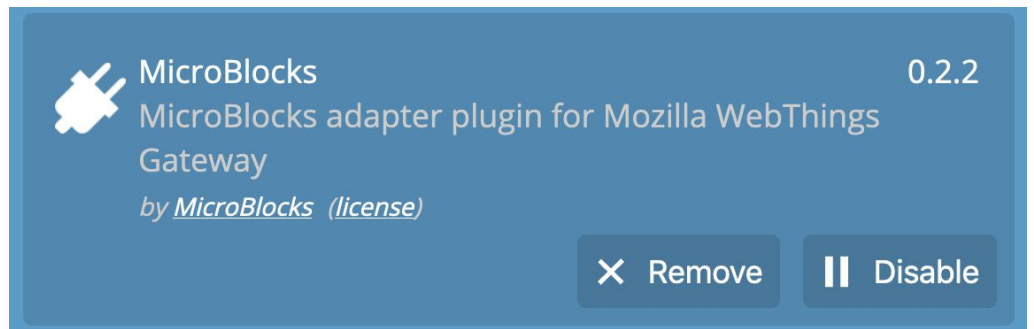
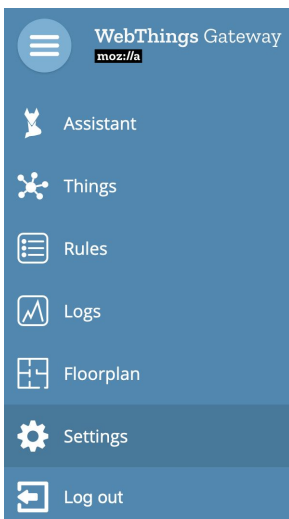
# Mozilla WebThings Gateway



First set up a Mozilla WebThings Gateway

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

For boards connected to the gateway over USB, you must also install the **MicroBlocks Add-on**. Under **Settings > Add-ons**, if the MicroBlocks Add-on is not installed, click “+” to browse and add it.



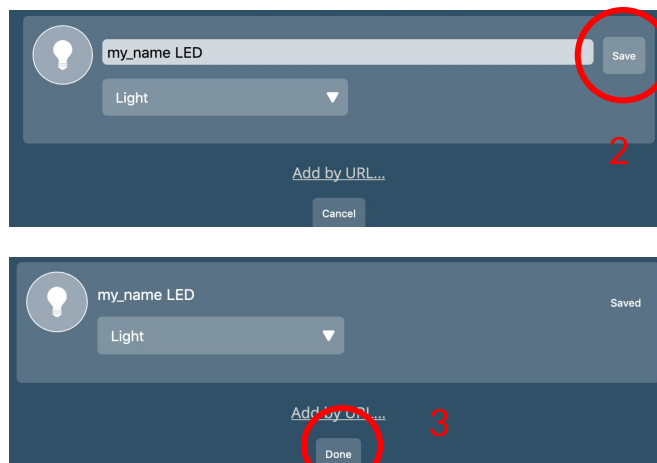
Connect the micro:bit over USB then click “+” from the “Things” page to discover and add the micro:bit as a “web thing”.

1. Click “+”



1

2. & 3. Discovery scan (Click “Save”, “Done”)



2

3

4. New Thing added!



4

(Tip: in MicroBlocks, change the thing “Hello LED” to **your name** to more easily identify your board.)

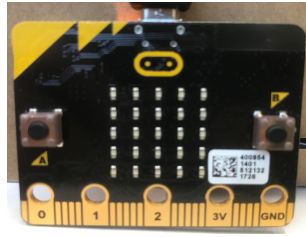
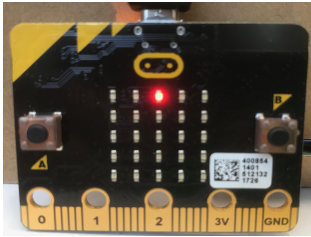


# HelloLED - webthing

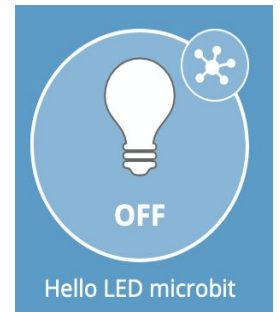
Example "HelloLED-webthing.ubp".  
After running the example, connect the micro:bit board to the WebThings Gateway via USB.



Press button A to toggle the user LED.



Or press the web page icon to toggle the LED.



```

when started
  define thing Hello LED capability Light
  add boolean property title Lit variable on @Type OnOffProperty
  set on to [on]
  set last_on to [on]
  forever
    if on != last_on
      set user LED on
      set last_on to on
    wait 50 millisecs

when button A pressed
  comment To test, click to toggle the LED.
  set on to not on
  wait 300 millisecs

```