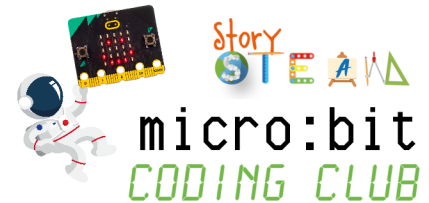


# Investigating the world around us



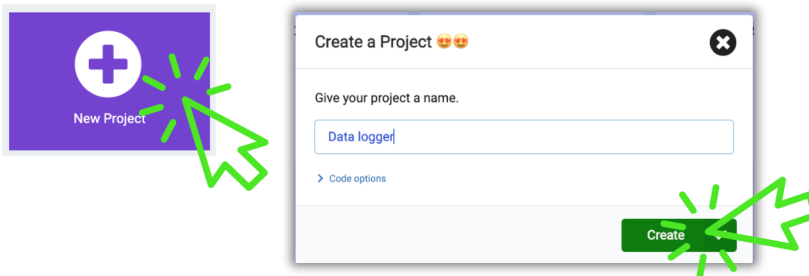
## Collecting data

In this project we are using the micro:bit as a data logger. I've used the built in temperature sensor and light sensor (LEDs) here so that I can compare the temperature to ambient light level but you can adapt the code to collect data from the micro:bit's other built in sensors such as sound, magnetic force or acceleration (movement) if you prefer.

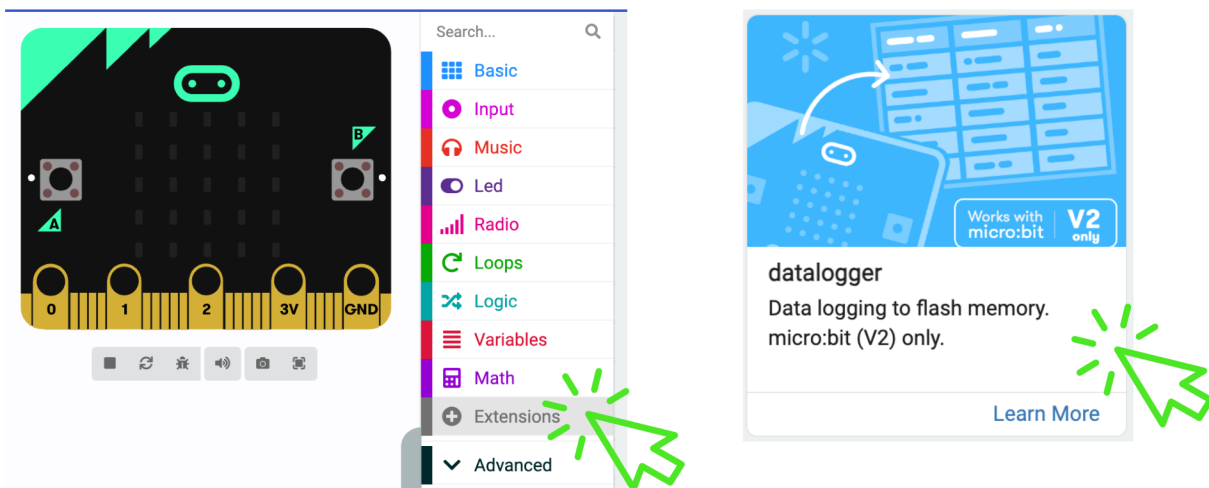
**Connect the micro:bit to your computer and let's get coding!**

<https://makecode.microbit.org/>

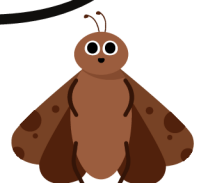
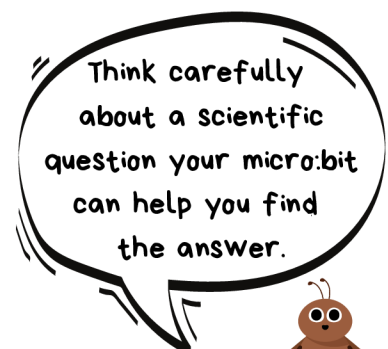
Click on 'New Project' and give your project a name.



Click on 'Extensions'; button and add the 'datalogger' extension.



The 'datalogger' extension logs data to the flash storage on the micro:bit. We will be able to access this later.



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# Investigating the world around us



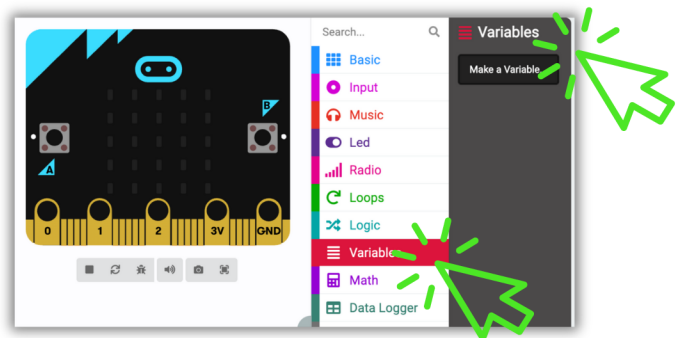
Collecting data continued...

Add the following code:

```
on start
  set pause to 1
  set logging to false
  show icon [checkered flag]
  set columns "temperature"
  "light"
  (-) (+)
```

Create 2 variables.

One called 'pause' and the other called 'logging'.



You'll find the 'set columns' block in the new 'data logger' extension blocks. Click the + to add another column.



```
on button A pressed
  set logging to true
  show icon [checkered flag]
  pause (ms) 100
```

Button A will start logging (collecting) data...

```
on button B pressed
  set pause to 1
  set logging to false
  show icon [checkered flag]
```

Button B will stop logging.

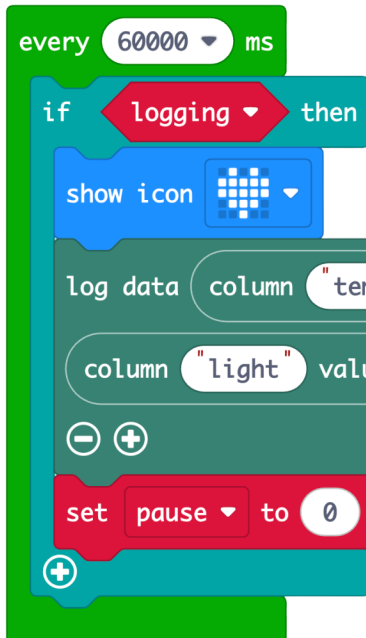
```
on button A+B pressed
  show icon [checkered flag]
  set pause to 1
  delete log (+)
  set columns "temperature"
  "light"
  (-) (+)
```

Button A+B will stop and reset your data logger.

# Investigating the world around us

## Collecting data continued...

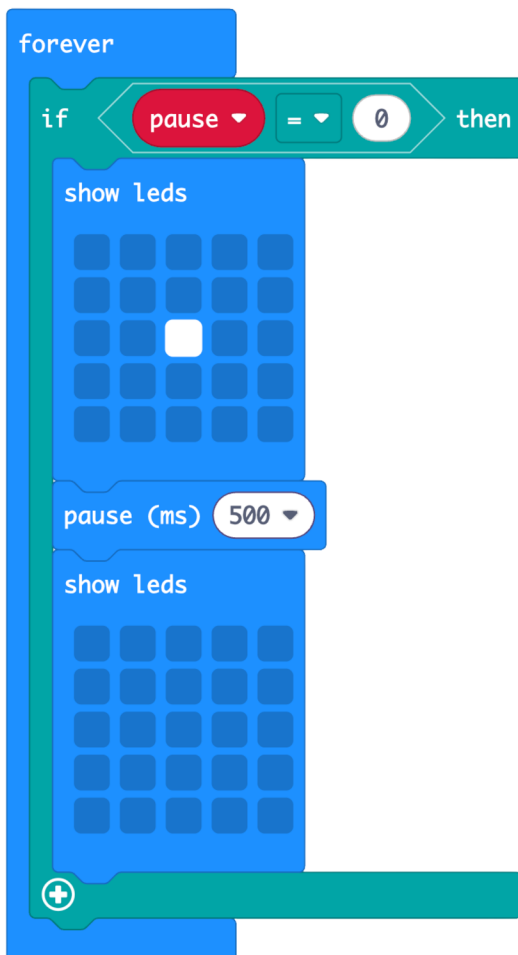
Continue adding code...:



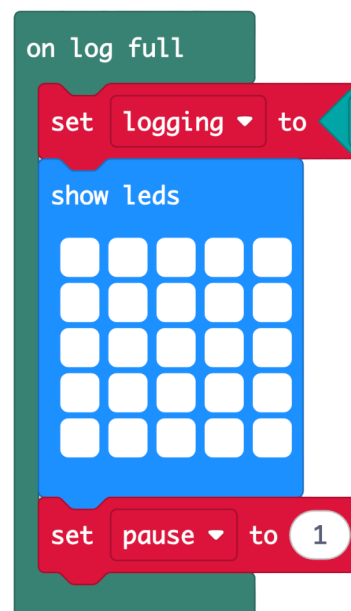
Decide how often you'd like to collect the data. (60,000 ms = 1 minute).

A heart emoji will display when it takes a reading.

The pause variable is set to 0 which will clear the heart and make one LED flash. (See forever loop).



When the pause variable is set to 0, one LED will flash on and off. This is to tell us that the code is working. We turn the pause 'on' by setting it to '1'. No flashing LED will mean the micro:bit is not logging. (See previous code).

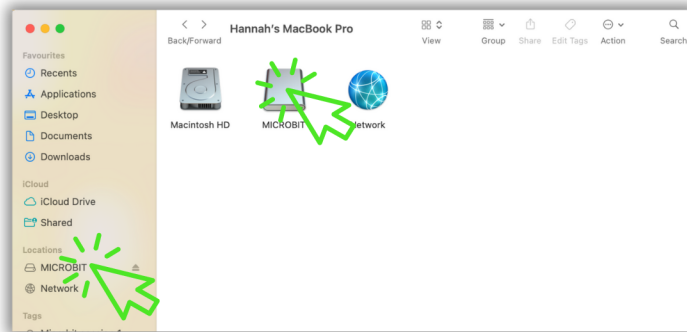


Finally, add some code to tell us that the log is full and doesn't have space for any more data!

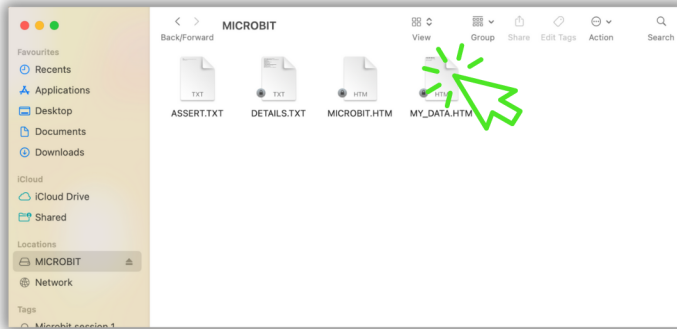
# Investigating the world around us

## Collecting data continued...

To collect the data, plug your micro:bit into a computer.

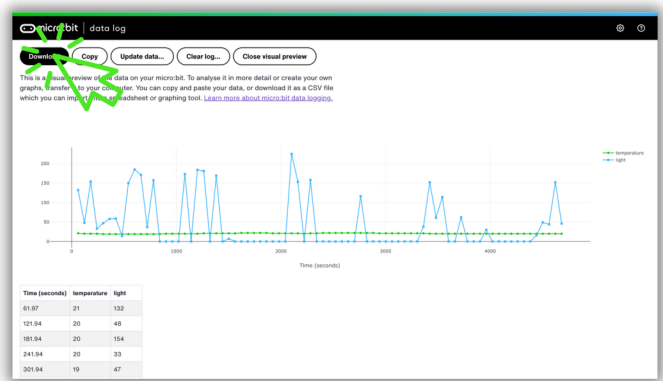
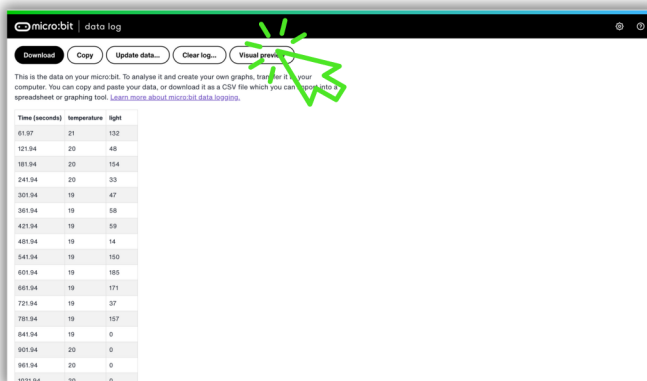


Find the micro:bit icon or button in 'locations' and view it as a device. (Double Click).



Look for a file called MY\_DATA.htm. This is where the data has been stored. (Double Click).

Click on 'Visual preview' to see a graph.



You can download the data as a CSV file to open in a spreadsheet and make you own graph!

Now, decide on your scientific question and code your micro:bit to help you find the answer!

**WARNING!** sometimes data collected may lead to more questions than answers!