

# IEEE Girls Make STEM with Heart

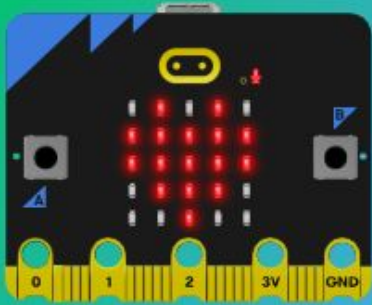
## BBC: Microbit v2

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Steve Case

# BBC micro:bit v2

**BBC micro:bit**



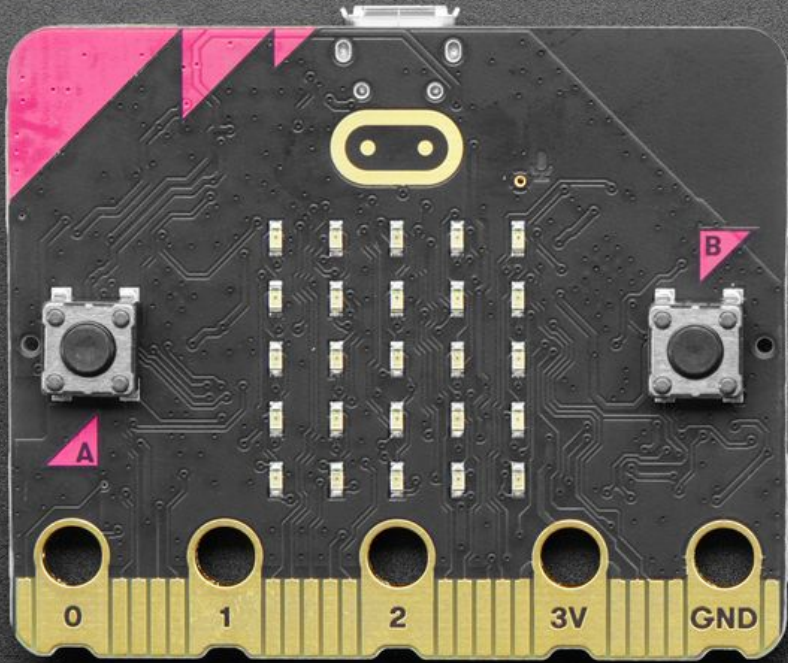
**Create | Learn | Code**

Get creative, get connected, get coding!  
The pocket-sized computer transforming the world

[Free resources](#)



# BBC Micro:bit v2 Development Board





# BBC micro:bit Development Board



# BBC Micro:bit

## Introduction

### Set up

#### LEDs and buttons

- Set 1: Icons and animals
- Set 2: Emotions badge
- Set 3: Sunshine

### Sensors

### Radio and pins

### Get creative

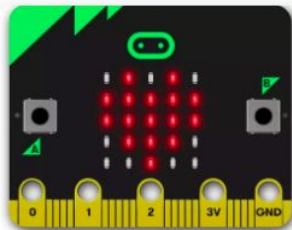
 micro:bit

Home learning  
activities



## Set 1: Icons and animals

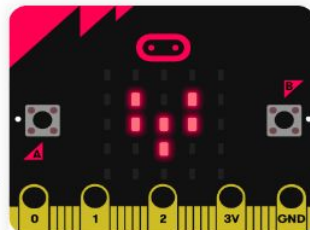
By following this sequence of projects, you'll learn how to create different images on the micro:bit LEDs by sequencing instructions and using the buttons. You'll then bring your creations to life using animation and loops.



### Heart

Light up your micro:bit with love by showing a heart

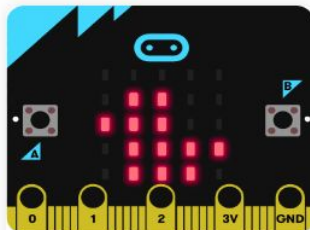
■ Beginner



### Beating heart

Make your micro:bit's heart beat using loops

■ Beginner



### Animated animals

Animate your own animals on the micro:bit display

■ Beginner

## Set 2: Emotions badge

Follow this sequence of projects to create an emotion badge using the LEDs, buttons and accelerometer to let others know how you are feeling. First, you'll program your micro:bit to show happy and sad faces before making them flash and then showing more emotions when your micro:bit is shaken.



# BBC Micro:bit

## Set up your classroom

Begin your classroom set-up below. Once you've launched your classroom session you will have the option to add your own code to the classroom editor to share with your students.

### Name your activity

Give your new activity a name...

### Choose a programming language

☐ MakeCode ☐ Python

### Select storage setting

☒ Use temporary local storage [?](#)

Launch classroom



Explore other activities

Want to resume an activity?

# BBC micro:bit

# Microsoft MakeCode

The screenshot displays the Microsoft MakeCode editor interface for the BBC micro:bit. The top navigation bar includes the 'micro:bit' logo, 'Home', 'Share', and tabs for 'Blocks' and 'JavaScript'. On the left, a visual representation of the micro:bit board is shown with its pins labeled 0, 1, 2, 3V, and GND. A central menu lists various block categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, and Advanced. The main workspace on the right contains a script with the following logic:

- on start** block:
  - set steps to 0
  - show number 0
- forever** loop block:
  - if acceleration (mg) strength > 1500 then:
    - change steps by 1
    - show number steps

At the bottom, a 'Download' button is visible on the left, and the file name 'stepcounter3' is shown in the center, accompanied by icons for saving and refreshing.

# BBC Micro:bit

# Python Editor

 micro:bit



Download



Connect



Load/Save



Open Serial



Help



Zoom in



Zoom out

Script Name

microbit program

```
1 # Add your Python code here. E.g.  
2 from microbit import *  
3  
4  
5 while True:  
6     display.scroll('Hello, World!')  
7     display.show(Image.HEART)  
8     sleep(2000)  
9
```



# Mu Python Editor



# Reference material

Adafruit Industries: [www.adafruit.com](http://www.adafruit.com)

Gemma M0 learning: [www.learn.adafruit.com/adafruit-gemma-m0?view=all](http://www.learn.adafruit.com/adafruit-gemma-m0?view=all)

Sparkfun electronics: [www.sparkfun.com](http://www.sparkfun.com)

Mu-Editor Installation:

<https://codewith.mu/en/download>

Seminar Slides:

[https://docs.google.com/presentation/d/1-rhSECbd1-\\_QQHVEifSHUANQ1VRY3bAzd5OX7KLlMLc/edit?usp=sharing](https://docs.google.com/presentation/d/1-rhSECbd1-_QQHVEifSHUANQ1VRY3bAzd5OX7KLlMLc/edit?usp=sharing)

Python:

<https://www.w3schools.com/python/default.asp>

<https://www.python.org/> (advanced full reference for Python)

<https://wiki.python.org/moin/BeginnersGuide> (still pretty advanced)