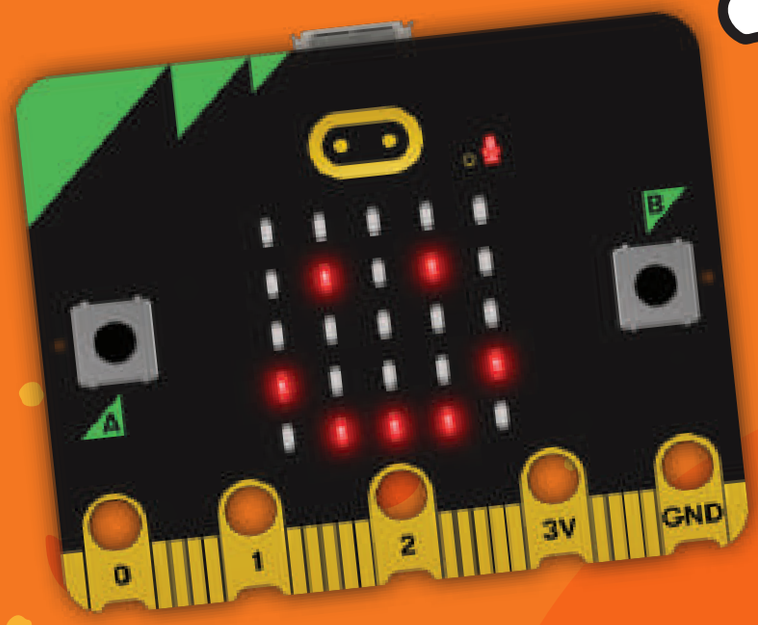
micro:bit

Quick Start Guide

Cytron Technologies

Let's Get Started Making Your First Project!



Let's Make | Let's Code | Let's Explore

Hi _____ ,

We'd love to introduce to you Kucing (pronounced “koo-ching”), our pet cat. Sometimes we call him Meow-Meow too. Let's have fun together.

First, follow the step-by-step guide in the **Let's Make** section to build the project. Then learn to programme it in the **Let's Code** section by following the step by step guide. **Let's Explore** and have fun modifying the project to get Meow-Meow to perform different tricks at your command.

Are you ready? Let's start. Have fun learning and exploring~

Cheers,

Adam & Anna

**Kucing means “cat” in the Malay language.*

This micro:bit Quick Start Kit has everything you need to build your first micro:bit project - featuring elements of sound, light and motion. On top of all the components in this kit, the box itself is creatively designed to be part of your project too. It is the perfect project set to start making and coding with micro:bit!

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WHAT'S IN THE BOX?

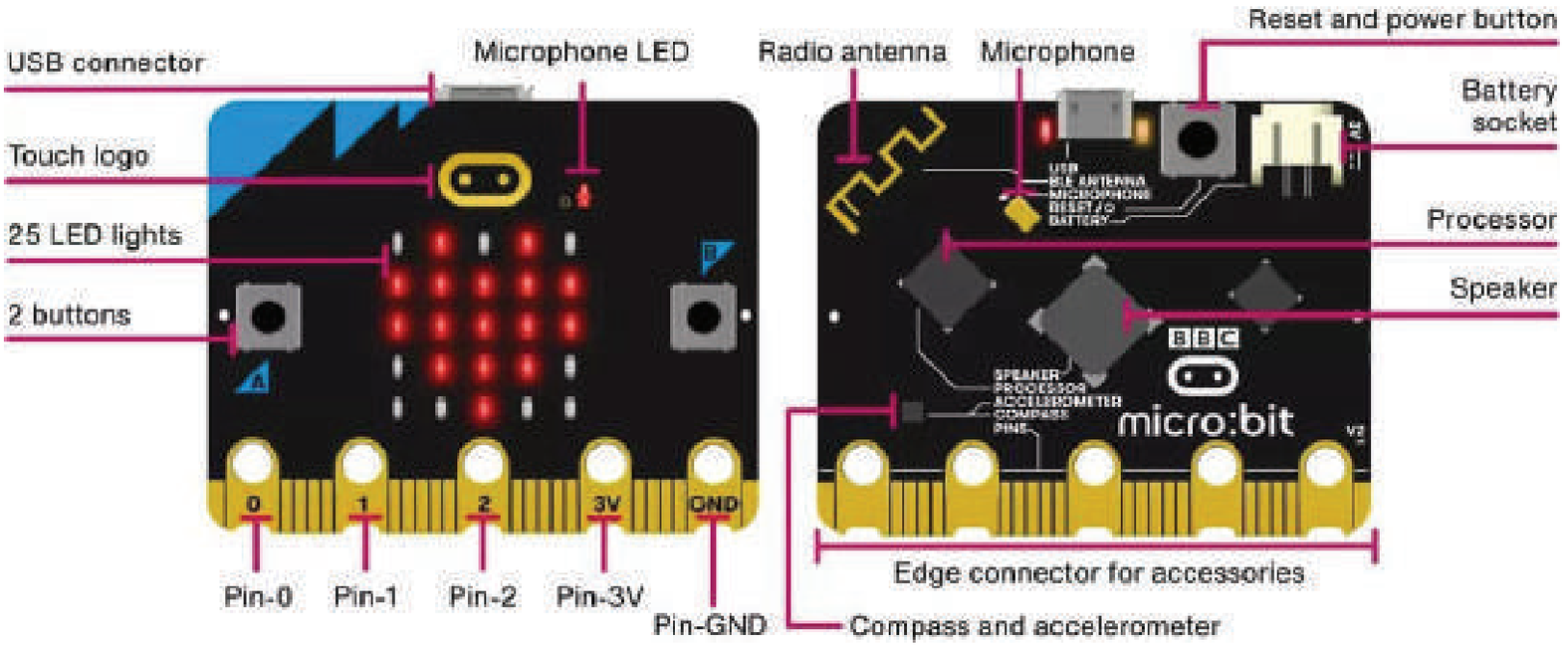
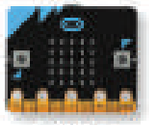


Image credit : microbit.org

Quick Start Guide



micro:bit

Battery Holder

Micro Servo Motor

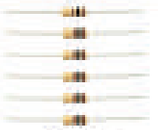
USB cable

Crocodile Clip x10

Connector Block x3

Servo Extension

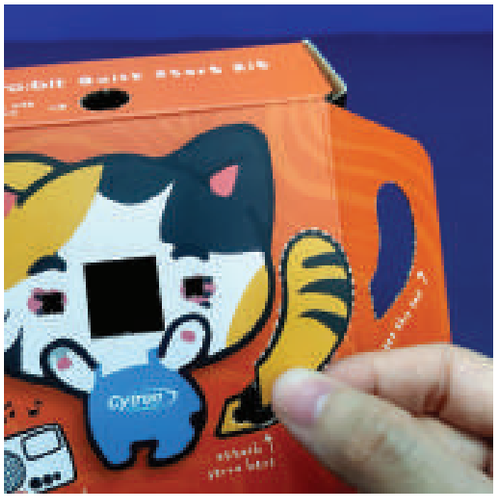
LED x6



Resistor x6

AA Battery x4

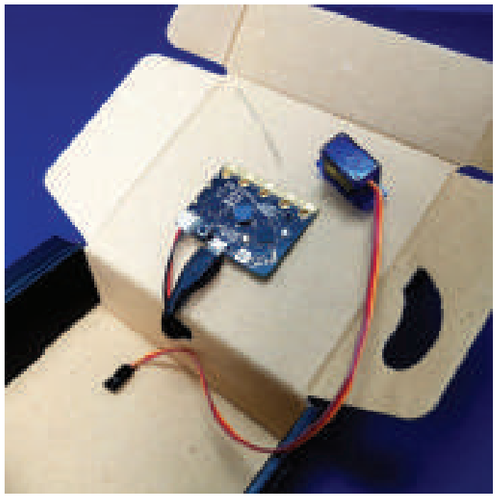
*If you purchased this kit without micro:bit, you can get micro:bit board at **www.cytron.io/p-micro-bit-board**



Step 1: Detach all perforated parts from the box.

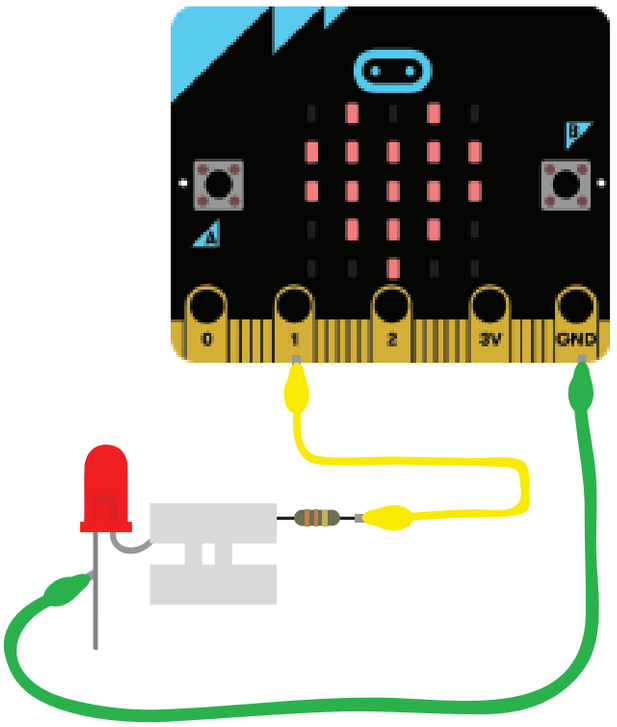
Step 2: Use some adhesive to attach the battery holder to the side or back of the box.

Step 3: Insert the battery holder cable and USB cable through the hole. Attach them to the battery connector and USB port of the micro:bit board.



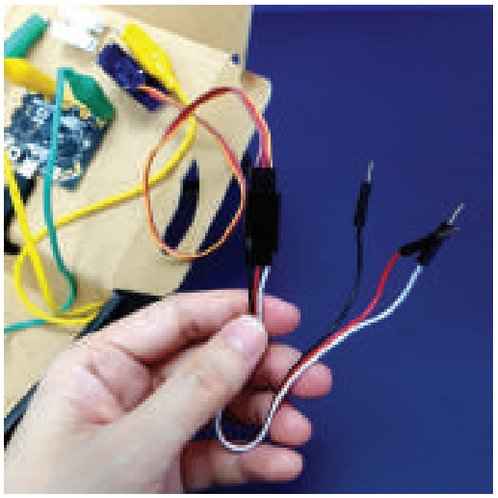
Step 4: Attach the micro:bit board, an LED and a servo motor to the box as indicated.

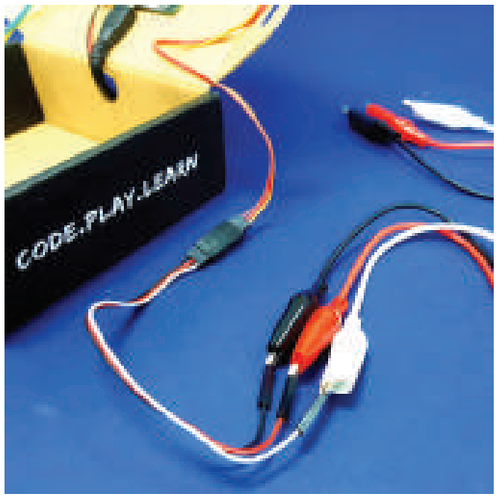
Step 5: Bend the legs to secure the LED in place. Use a connector block to clasp the longer leg of the LED and one end of a resistor as shown.

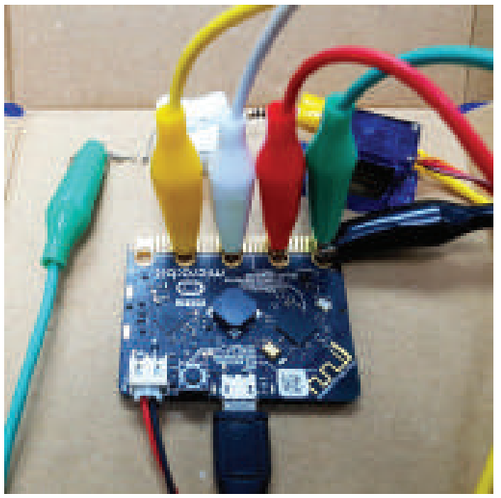


Step 6: Attach a crocodile clip to connect the other end of the resistor to Pin-1 of the micro:bit.

Step 7: Attach another crocodile clip to connect the shorter leg of the LED to Pin-GND of the micro:bit.







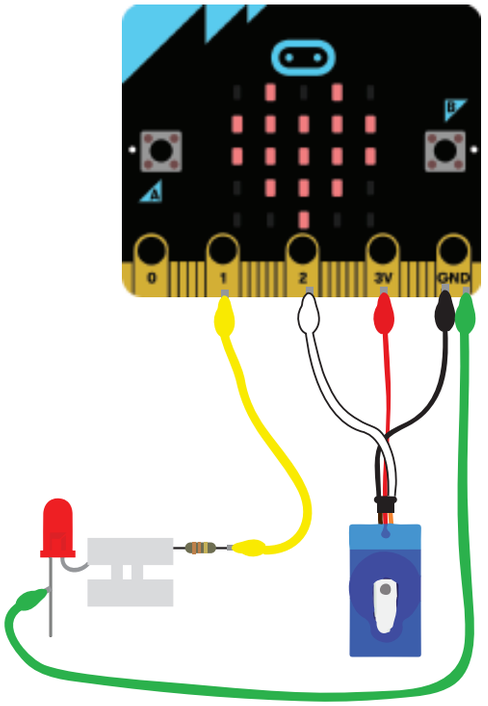
Step 8: Connect the servo motor cable to the servo extension cable.

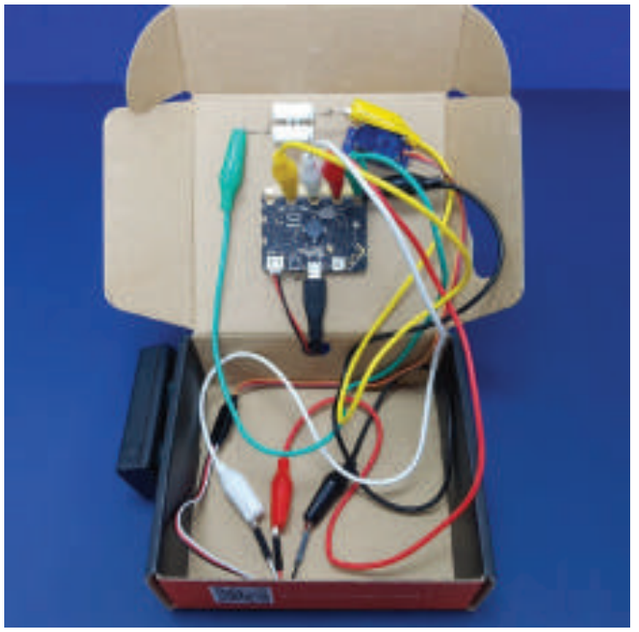
Servo Motor Cable	**Brown**	**Red**	**Orange**
Servo Extension Cable	**Black**	**Red**	**White**

Step 9: Then attach crocodile clips to the servo extension cable as shown.

Step 10: Attach the other end of the white cable to Pin-2 of the micro:bit, red cable to Pin-3V and black cable to Pin-GND.

HERE'S THE COMPLETE CIRCUIT DIAGRAM!





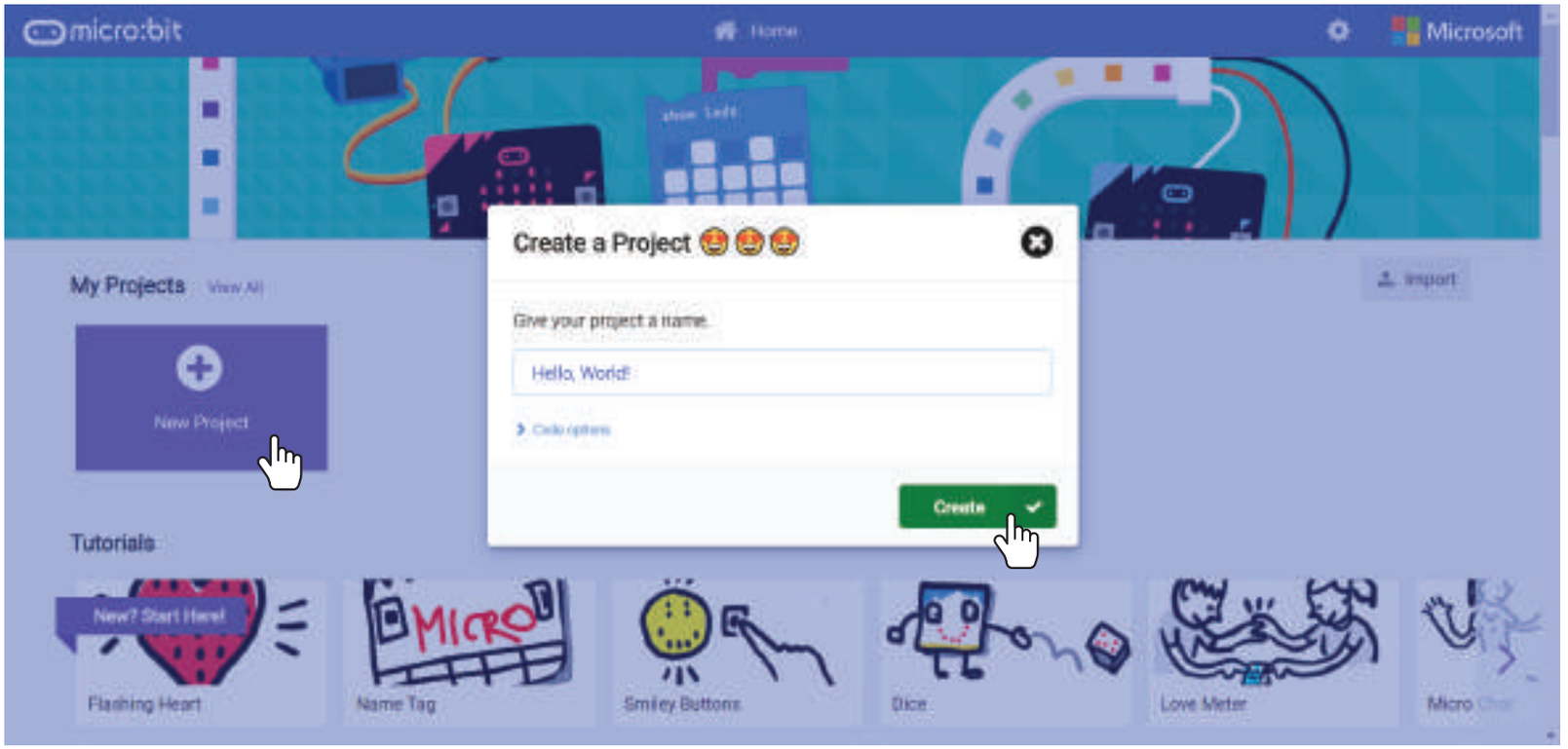
Pin-1 : LED (positive, longer leg)
Pin-2 : Servo motor (signal)
Pin-3V : Servo motor (voltage)
Pin-GND : Servo motor (ground),
LED (negative, shorter leg)

Step 11: Attach servo motor horn to the tail using some adhesive and then fasten it in to the servo motor.

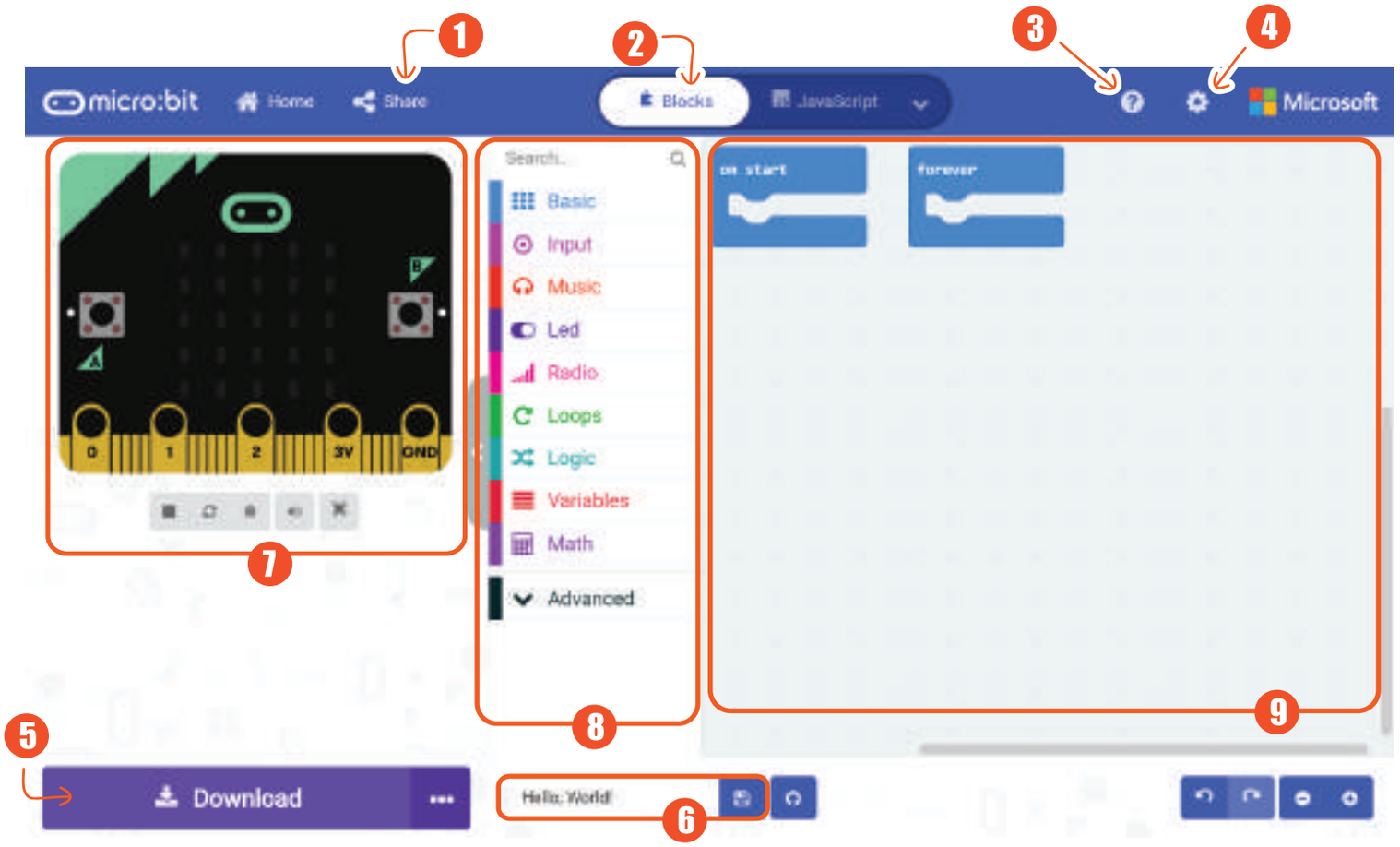
Step 12: Tidy up the cables and close the box.

Step 13: Plug in the USB cable to your computer.

Step 14: In your browser, go to **https://makecode.microbit.org** and click 'New Project'. Type in your project name and then click 'Create'.

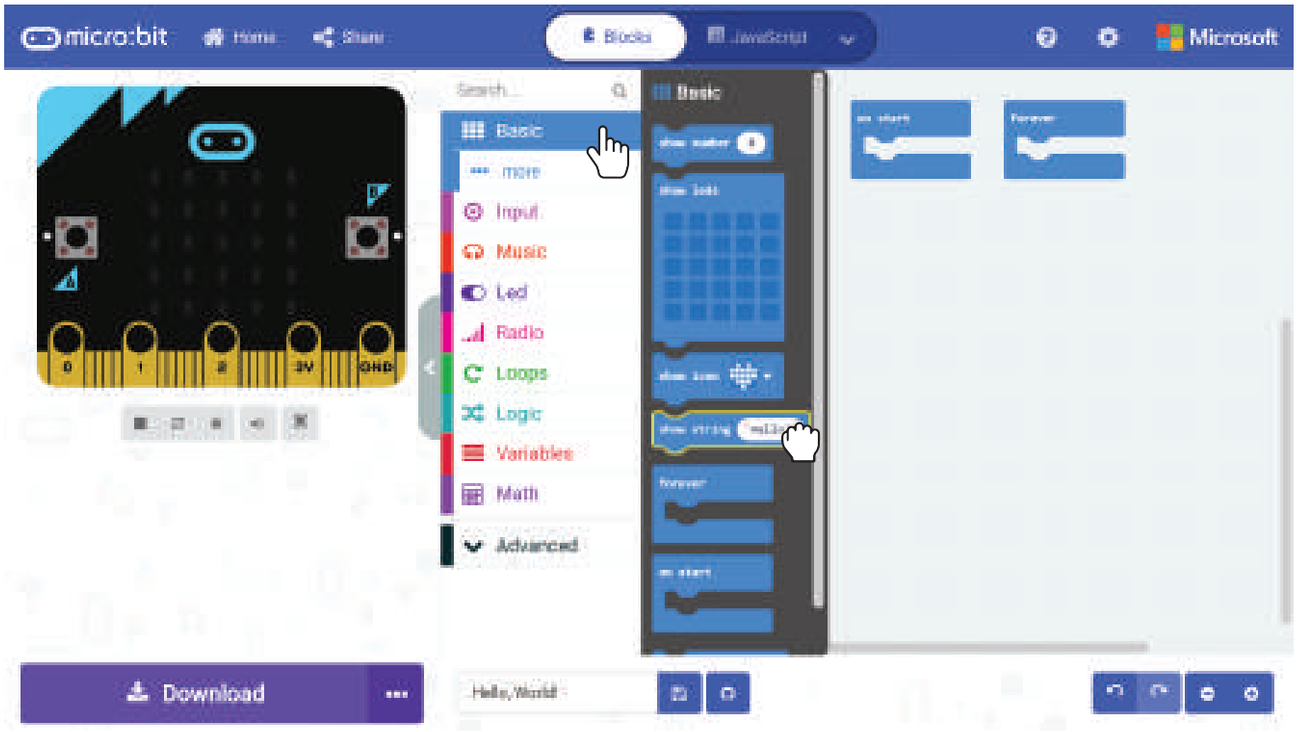


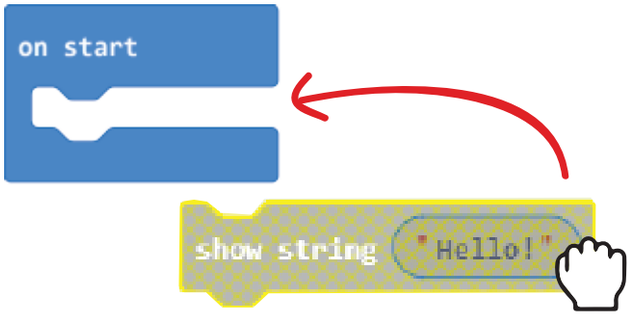
https://makecode.microbit.org

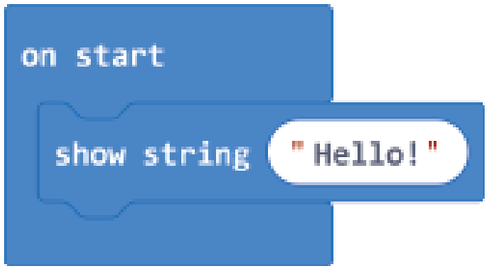


1) Publish and share project.
2) Choose to program in Blocks, JavaScript or Python.
3) Open Help menu.
4) Change settings, add extensions, etc.
5) Download code to the micro:bit.
6) Name and save project to computer.
7) **SIMULATOR** - Watch a simulation of your code here.
8) **TOOLBOX / CATEGORY DRAWER** - Get coding blocks that you need here.
9) **PROGRAMMING WORKSPACE** - Drag, drop and snap coding blocks together in this area to build your project.

Step 15 : Click **[Basic]** and then select **[show string]** block. Click and snap the block to the **[on start]** slot.

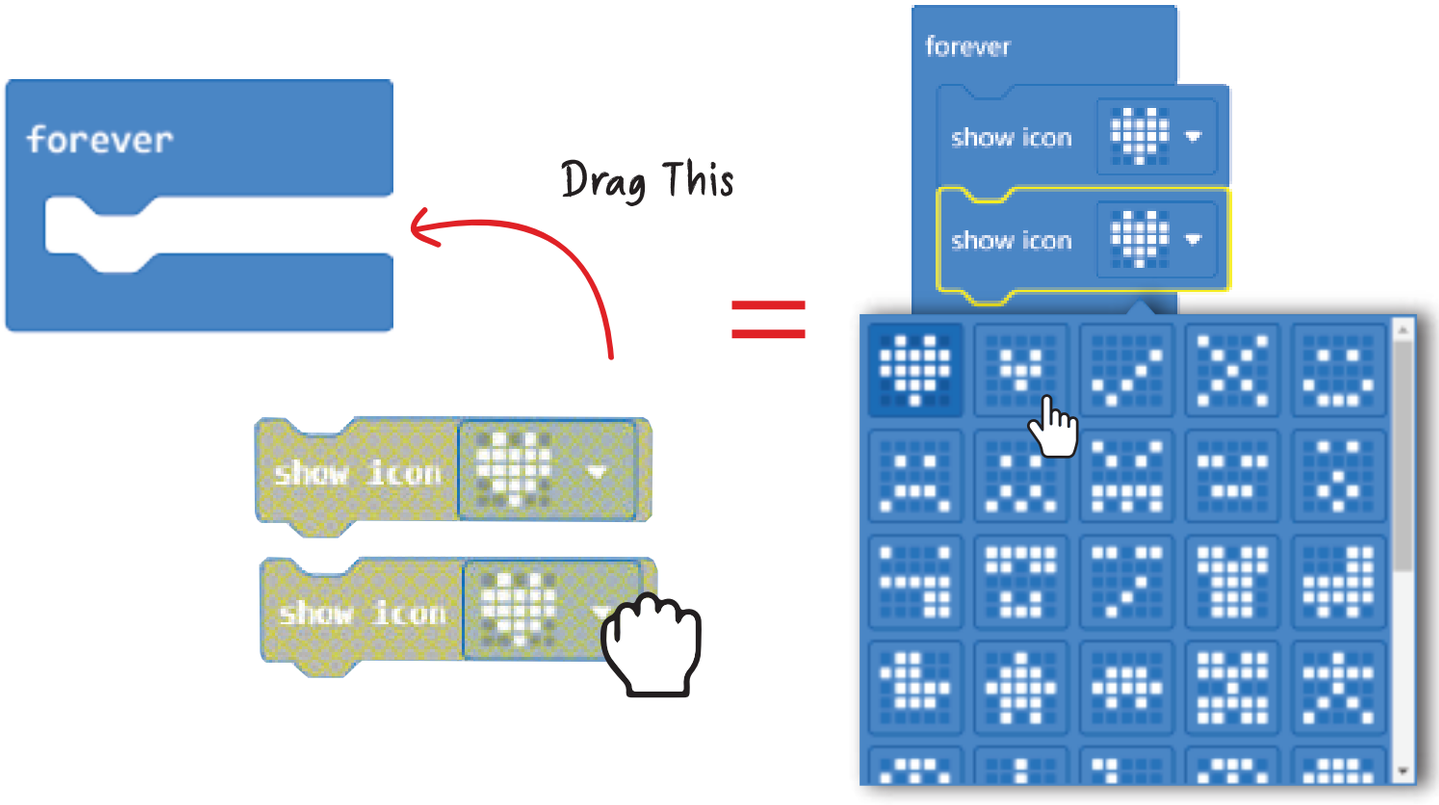




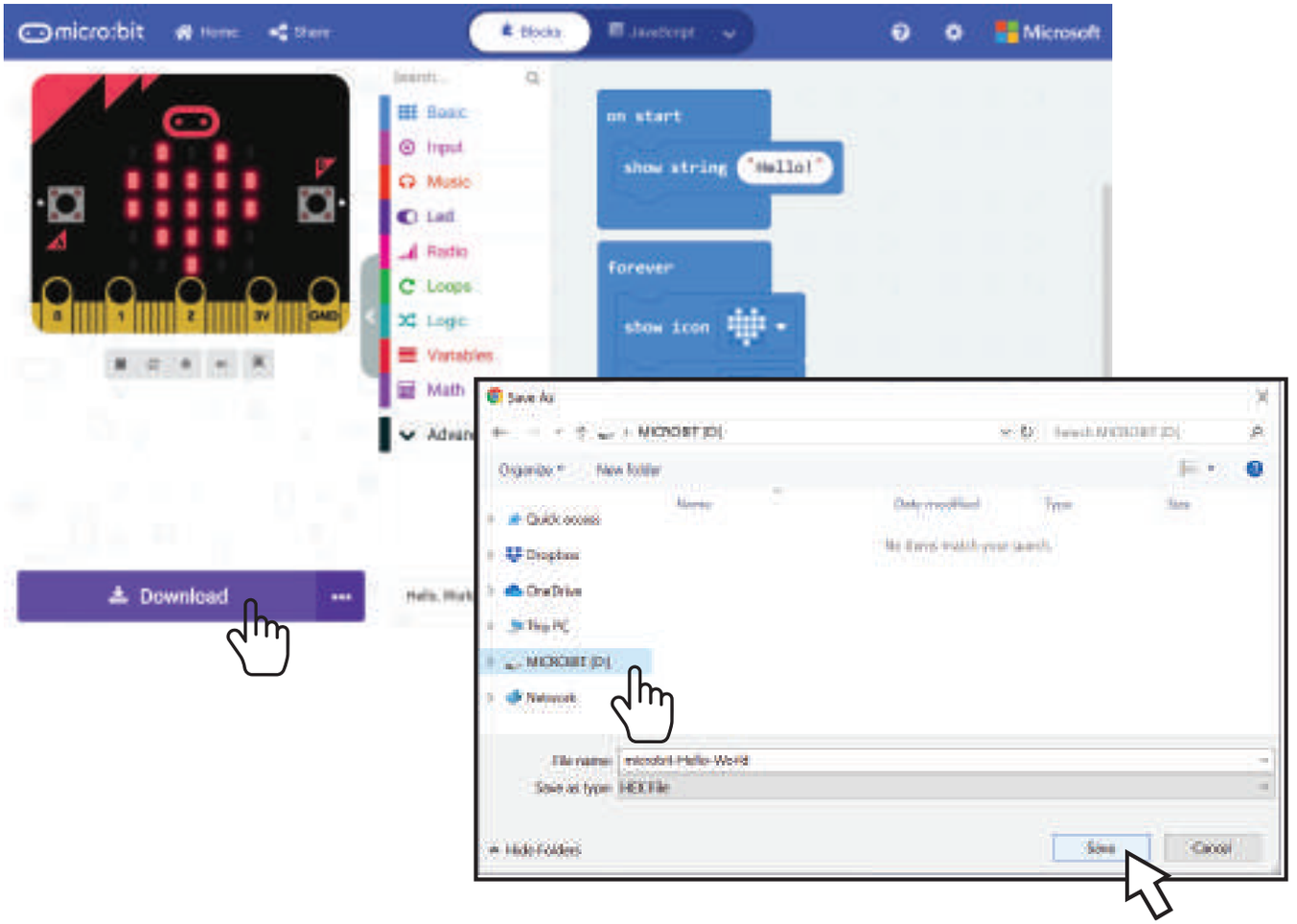


Step 16 : Click **[Basic]** again and select **[show icon]** block. Repeat to add another **[show icon]** block. Snap the blocks to the **[forever]** slot.

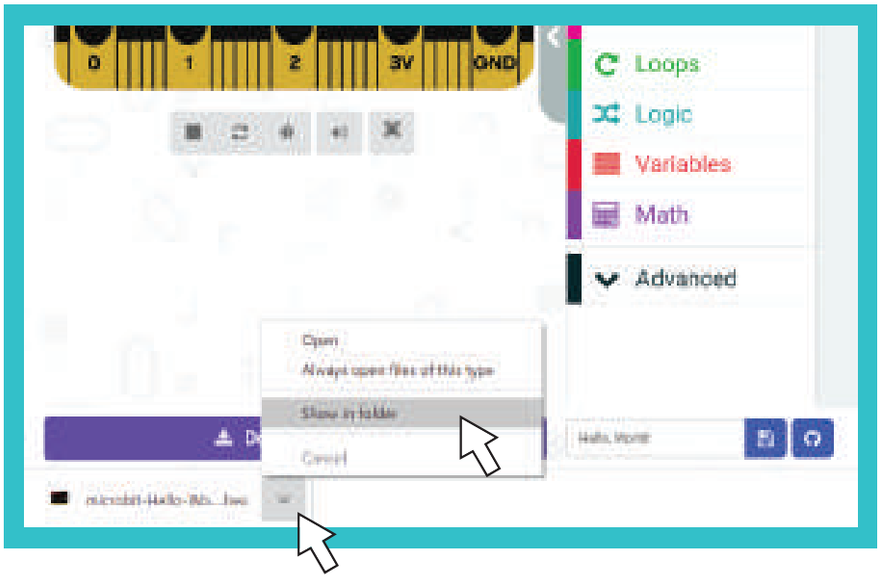
Step 17: Click on the second **[show icon]** block and select the 'small heart' design from the pop-up window.

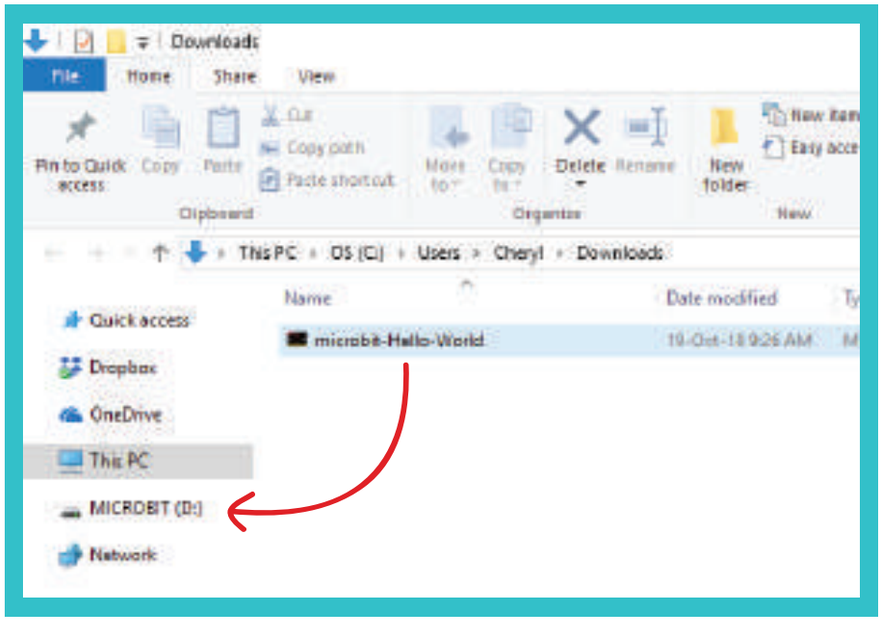


Step 18 : Click **[Download]** and save your project to the MICROBIT drive. Close the window when it says "Download completed."



This process of transferring code is called Flashing. The orange LED on the back of the micro:bit flashes during the transfer and once completed, the code will run automatically.





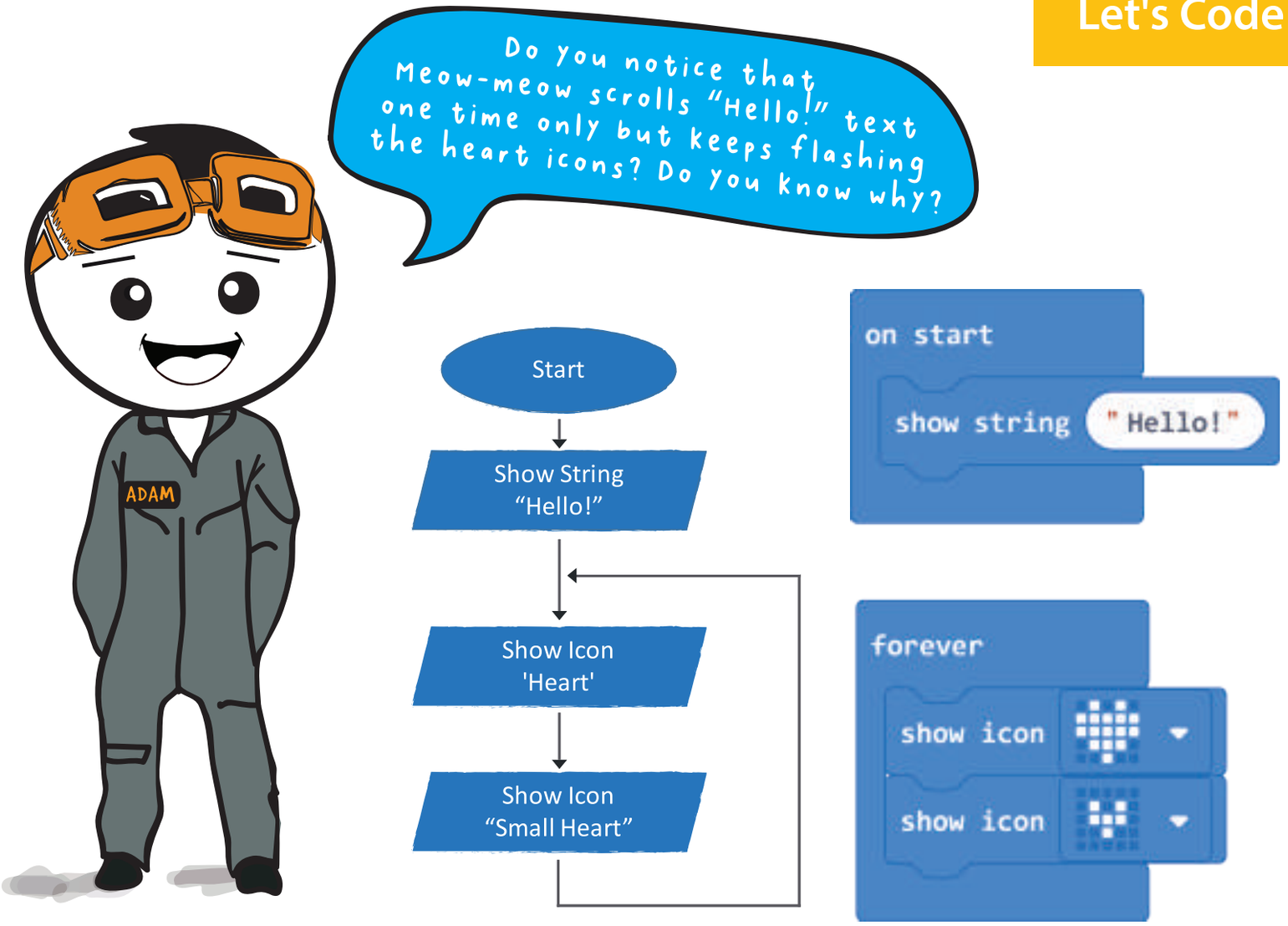
NOTE:

If the pop-up window does not appear, it means that the file has been automatically downloaded to the location where your browser is set to save downloads.

Right-click on the downloaded .hex file which will appear at the bottom of the window and select "Show in folder."

Then click and drag the downloaded "microbit-xxx.hex" file to the MICROBIT drive as if you were copying a file to a flash drive.

Visit https://microbit.org/guide/quick/ for more info.

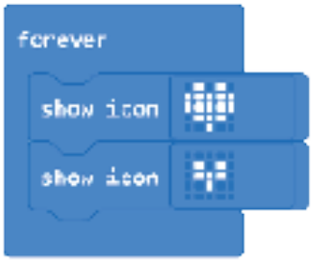


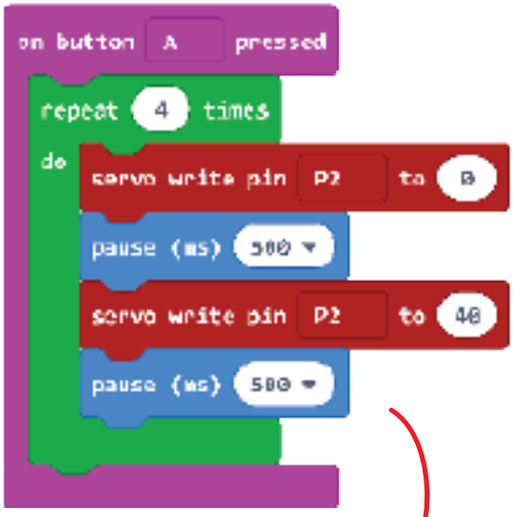
The **[on start]** block runs the code on start (once).
The **[forever]** block runs the code over and over again (in a continuous loop).

NOTE!

If you wish to start the program all over again,
simply press the RESET button (at the back of the micro:bit) .

Step 19: Add the following blocks to your programme and download to your MICROBIT drive again.





Press Button A to make Meow-Meow swish its tail.

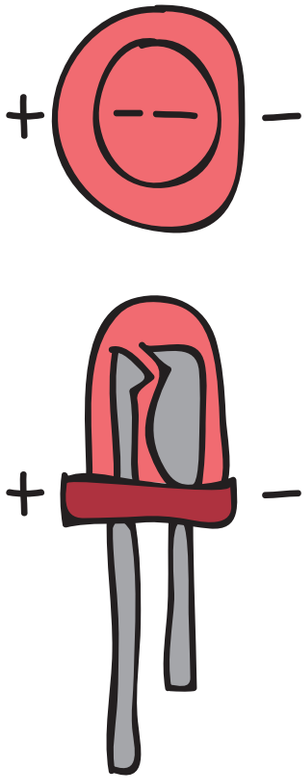
Press Button B to make Meow-Meow sing the Birthday song.

The LED blinks whenever Meow-meow "sings" and stops when the melody ends.

All programming blocks are colour coded; you can find the blocks you need in the category drawer with the same colour. Alternatively, you can type the key words in the search box.

Step 20: Unplug the USB cable from your computer and also the micro:bit. Install batteries in the battery holder and slide the switch to turn it on/off.

Woohoo..you've completed your first micro:bit project!

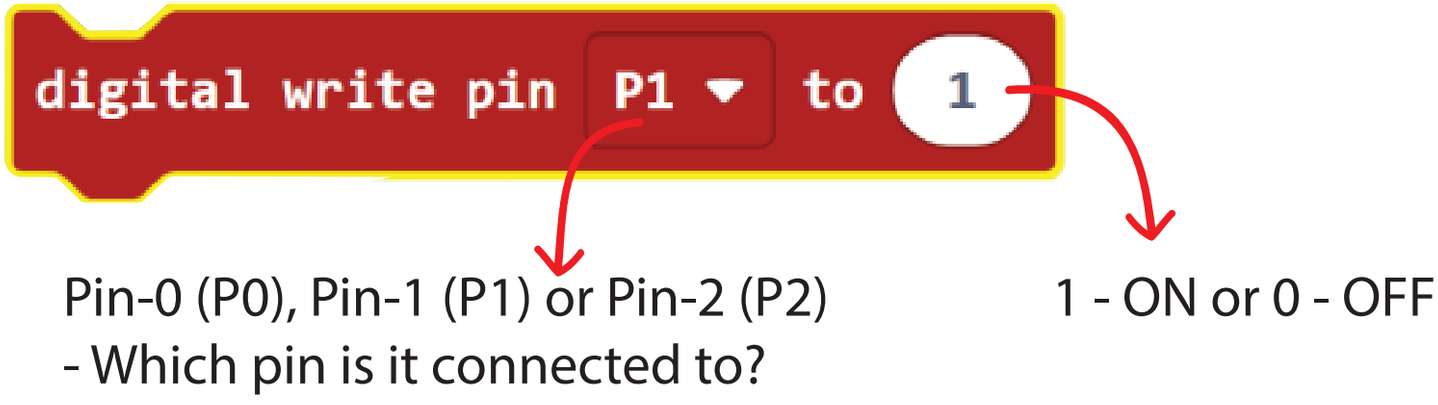


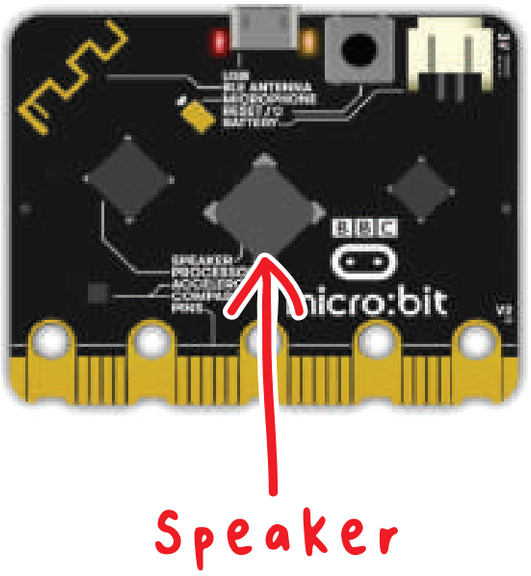
A **light-emitting diode (LED)** is a semiconductor device that produces light from electricity.

It has a positive terminal and a negative terminal. For the LED to work, the negative terminal (shorter leg) must be connected to pin-GND but you can connect the positive terminal (the longer leg) to either pin-0, pin-1 or pin-2 of the micro:bit.

An LED is an example of a digital output device. It has only two possible states - ON (1) or OFF (0).

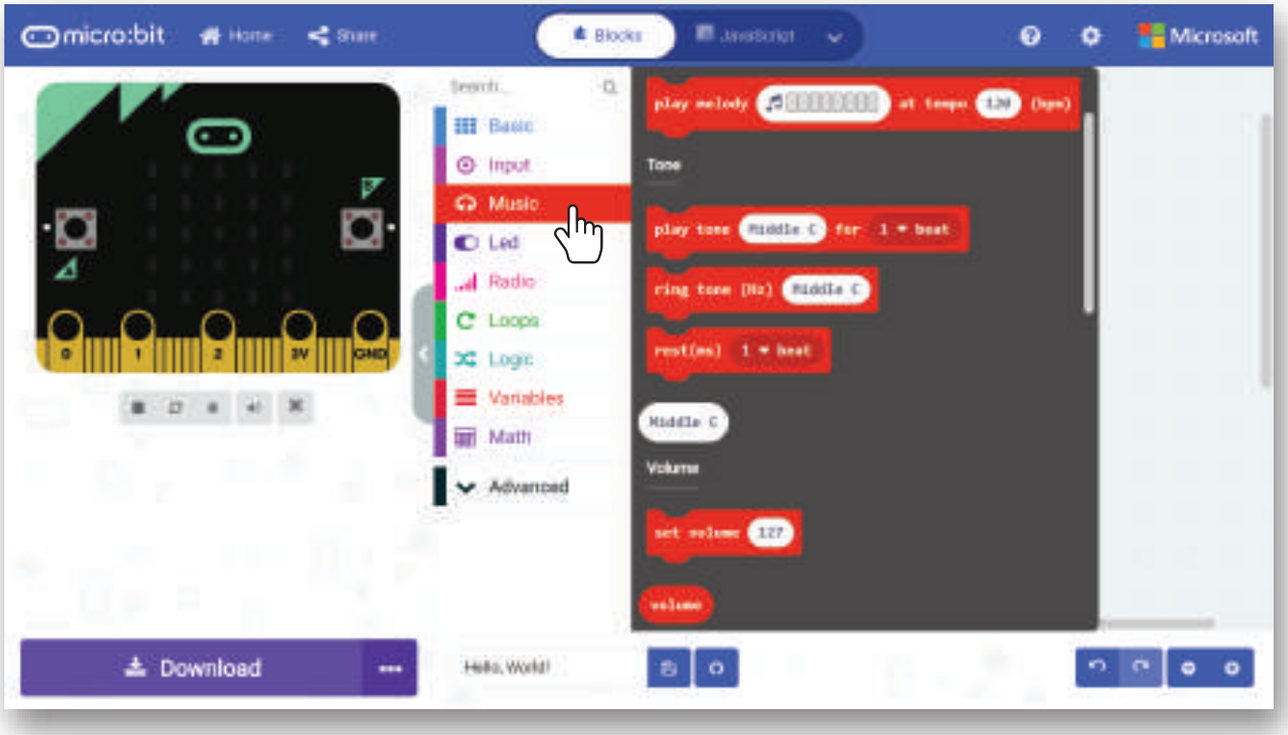
You can control an LED that is connected to the micro:bit using **[digital write pin __ to __]** block from the **[Advanced - Pins]** category.

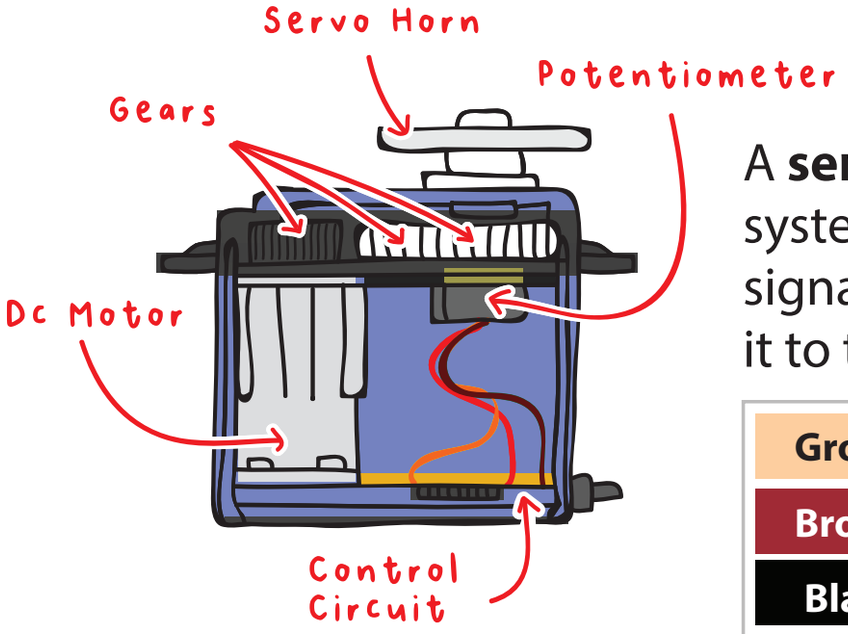




The micro:bit V2 has a built-in **piezo speaker.** You can control the pitch or tone of the sound that the speaker produces by changing the frequency of the electric signal that passes through it.

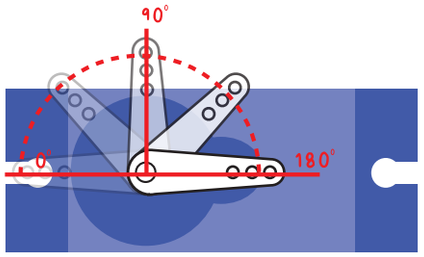
To make music with the micro:bit, you can use coding blocks from the **[Music]** category drawer. If you use **[Music]** blocks in your project, do not connect another external component to pin-0.





A **servo motor** uses a three-wire system for power (+), ground (-) and signal. Here's how you are to connect it to the micro:bit

Ground	Power	Signal
Brown	Red	Orange
Black	Red	White
Pin-GND	Pin-3V	Pin-0,1 or 2



0-180° rotation

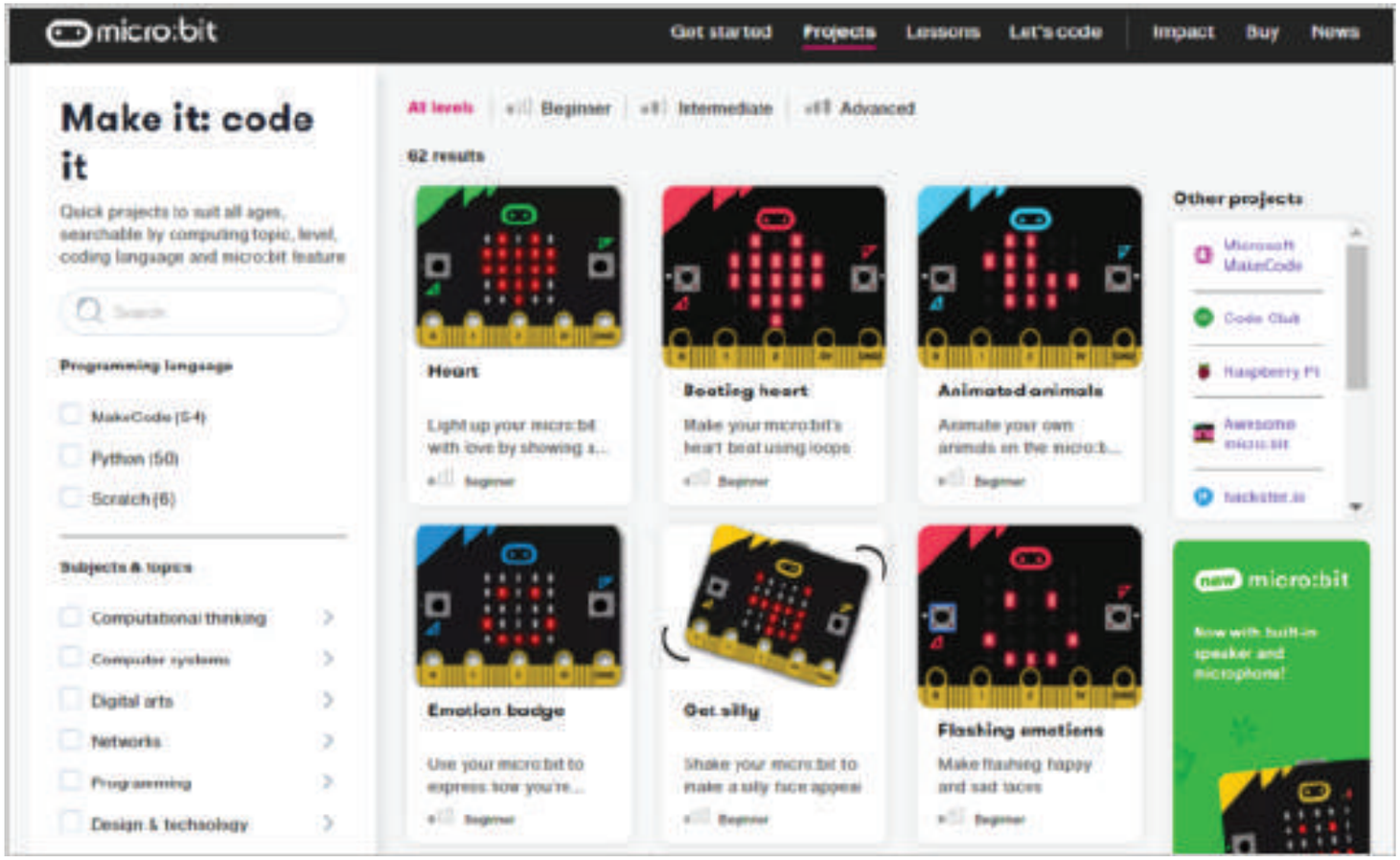
When it is connected to the micro:bit, you can control the motor rotation to a specific angle, between the range of 0 to 180 degrees using **[servo write pin __ to __]** block from the **[Advanced - Pins]** category.

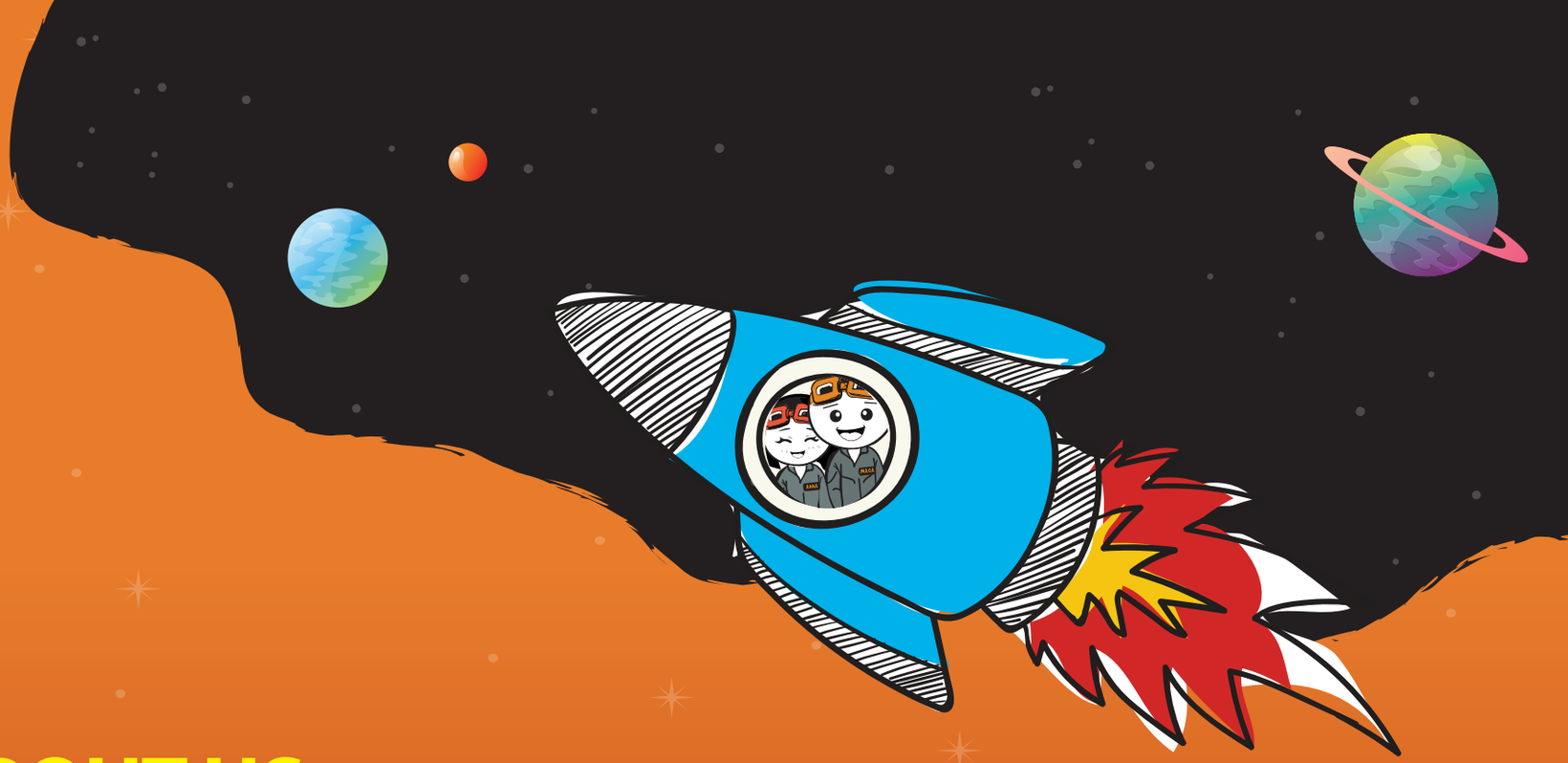
Pin-0 (P0), Pin-1 (P1) or Pin-2 (P2) - Which pin is it connected to?

0 to 180 - The angle you want the servo to turn to.

Let's Explore

For more project ideas, go to
https://microbit.org/projects





ABOUT US

Cytron Technologies, an official micro:bit reseller, is a Malaysian tech company based in Penang. Cytron designs, manufactures and distributes educational robotic kits and electronic parts. Founded in 2004, Cytron is the pioneer in this field in Malaysia and aims to provide high-quality yet affordable solutions for educators and students.

Rero EDUteam is the education arm of Cytron Technologies. Our vision is to bring robotics and coding to the masses by making quality robotics and coding education available, affordable and attainable for all children.

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