

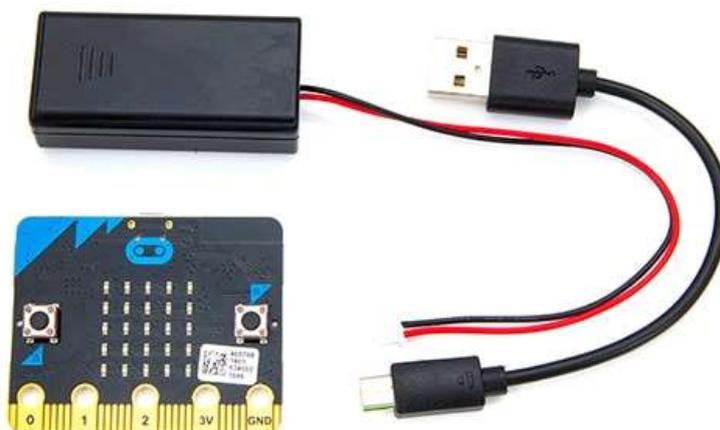
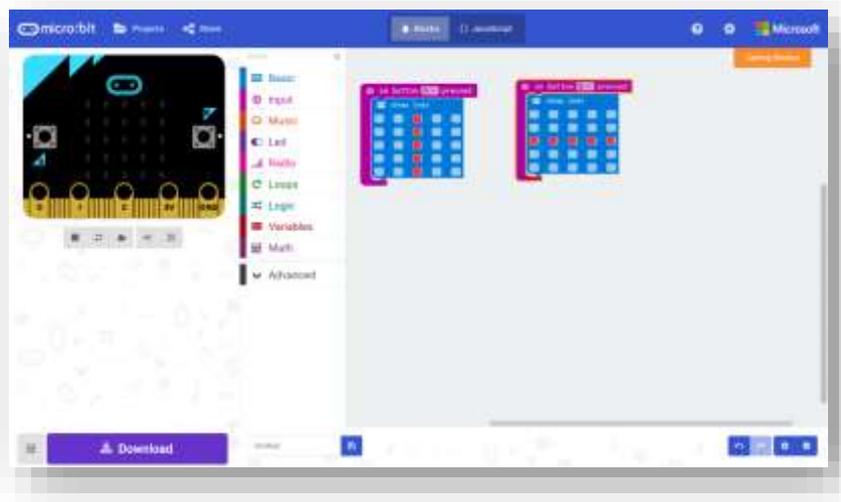
First steps with micro:bit

You will need:

- A laptop or PC with internet access to write and test programs

Optionally:

- A micro:bit device
- A micro USB cable to download programs and power the micro:bit
- A battery pack for using micro:bit without connection to a computer



Writing your first program

Our objective:

Use a micro:bit to display a team name, car name or team logo.

Step 1: Go to www.microbit.org and find the Let's Code section.

This is where you write your programs

Step 2: Open the MakeCode Blocks Editor

There are different ways to program the micro:bit.

The one we want to use should look something like this. It may already have a program loaded in the grey area.

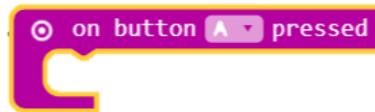


Step 3: Test the emulator (a virtual version of the micro:bit)

The picture on the left is a working on-screen version of the micro:bit. Click the buttons. Does anything happen?

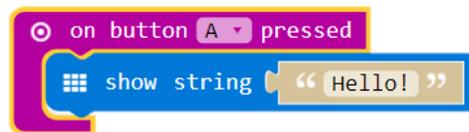
Step 4: Remove the blocks so you can write your own program
To remove unwanted blocks, drag them to the side or use right click and choose the remove blocks option in the menu.

Step 5: Add an Input block so we can use the buttons
*Drag out the block that shows 'on button A pressed' from the **Input** section. Put it in the grey area.*



This block will wait for the user to press the A button and then do whatever is connected to this block.

Step 6: Add a basic 'show string' display block
'String' is a computer term for words and letters. You can find the block in the Basic section. Drag it out and connect it to the 'on button pressed' block so that it looks like this.



You can change the word 'Hello!' by clicking on it. Many programmers will type "Hello World" as their first string to display with a new device or programming tool.

Why not put in your rocket car team or rocket car name?

Step 7: Test your program!
Click the A button on the emulator. Letters should appear. Did it work?

CHANGING AND IMPROVING YOUR PROGRAM

Let's make some changes.

Idea 1: Multiple buttons

Try adding another *Input > on button pressed* block and have it display another word. This time button B has been selected.



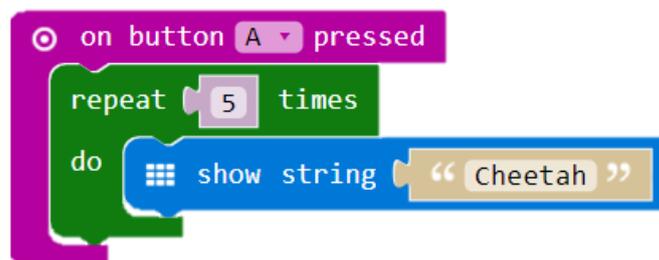
Test the program. Did it work?

Extra Challenge: Can you make the micro:bit display a third word when you press the A+B buttons together?

Idea 2: Save me from pressing the buttons all the time!

We can use a 'loop' to make micro:bit repeat something many times or forever. Let's make it display each word or phrase 5 times.

Find the '*repeat [x] times*' block in the green Loops section and add it to one of the button inputs like this. Change the 4 to a 5. Try it.



Idea 3: Display a picture instead of text.

The *Basic > show leds* block lets you draw simple picture. Swap the *show string* block for a *show leds* block in your program.



DOWNLOADING YOUR PROGRAM TO THE MICRO:BIT (OPTIONAL)

You can do many things with the on-screen emulator but it is great to see your program work on the micro:bit all by itself.

You will now need.

- A micro:bit device
- A micro USB cable (like many phone charger cables)

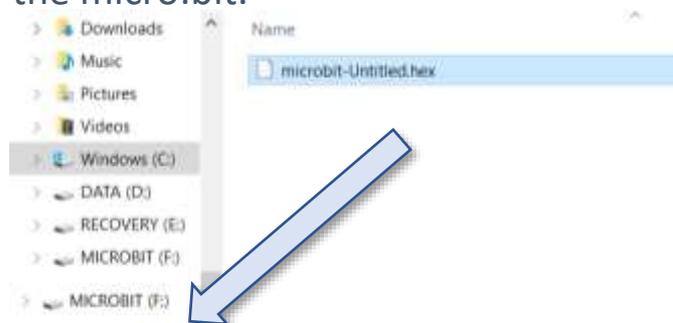
Connect the USB cable between the computer and the micro:bit. The micro:bit should appear like a USB stick and just like a USB stick, you drag your programs to it to download them.

Let's try it.

If you have a working program on screen, click the Download button.



A .hex file will be made and it will appear in the Downloads folder. You need to drag this .hex file to the micro:bit USB device to actually download it to the micro:bit.



That's it! Click the buttons on the micro:bit to see if it worked.

If you have a battery pack you can now disconnect the USB.

