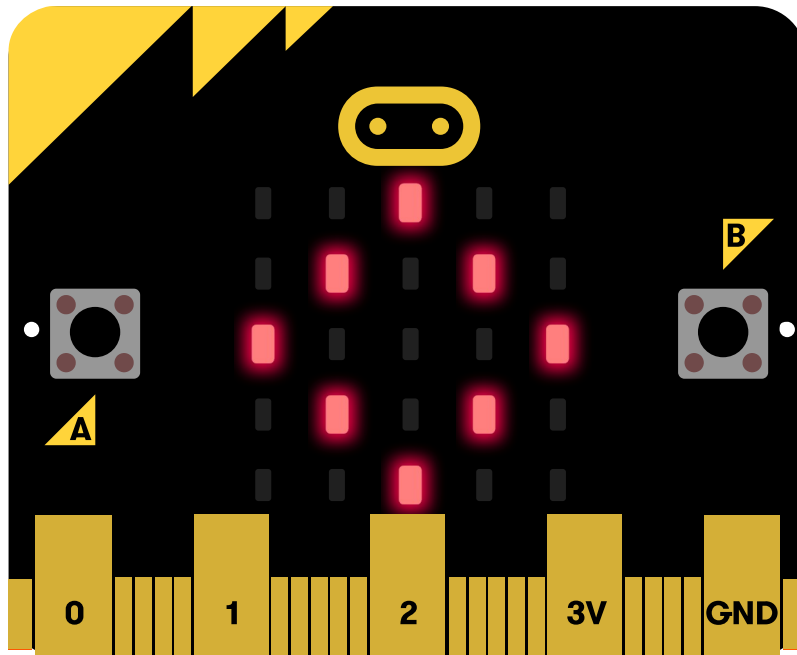


## Introduction

You are going to make an interactive badge, that will show your mood to your friends.



## Resources

For this project, the [MakeCode \(PXT\)](#) microbit editor should be used.

## Learning Objectives

- Inputs ( `on button pressed` );
- Sequencing instructions.

## Challenges

- "Displaying a sad face" - adding code to a new `on button pressed` event;
- "Create your own interactive badge!" - consolidation on skills learnt in this project.

# Step 1: Displaying an image

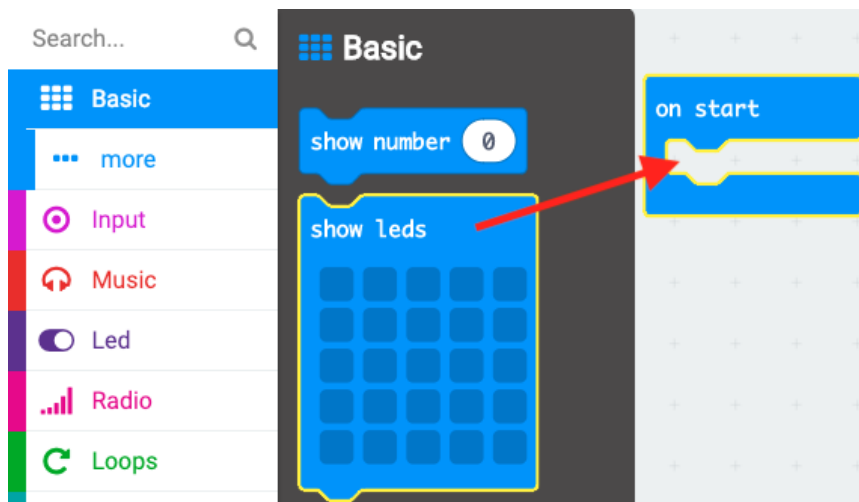
Let's start by showing an image on your micro:bit when it's powered on.

## ✔ Activity Checklist

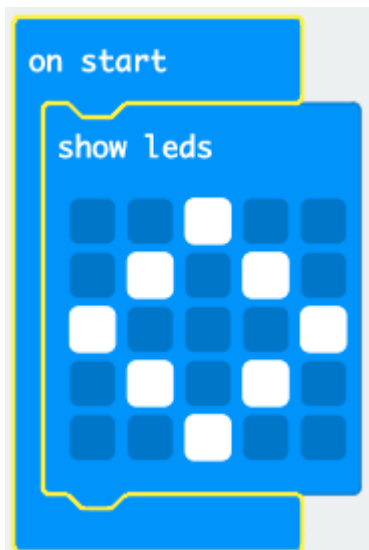
- Go to [rpf.io/microbit-new](https://rpf.io/microbit-new) to start a new project in the MakeCode (PXT) editor. Call your new project 'Interactive badge'.



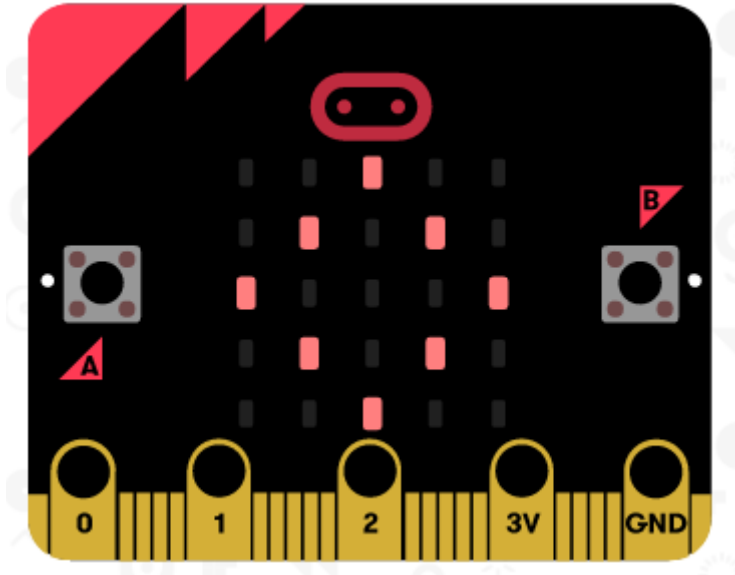
- You should now see the code editor. To draw an image on your micro:bit when it's powered on, drag a `show leds` block from the code area (on the left) inside the `start` block.



- To create an image to display, click on leds that you want to light up:



- Your code will run automatically in the emulator on the left:

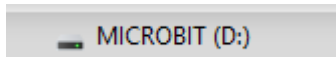


- You can also test your code on the micro:bit itself! To do this, click 'Download' on the menu at the left of the screen.

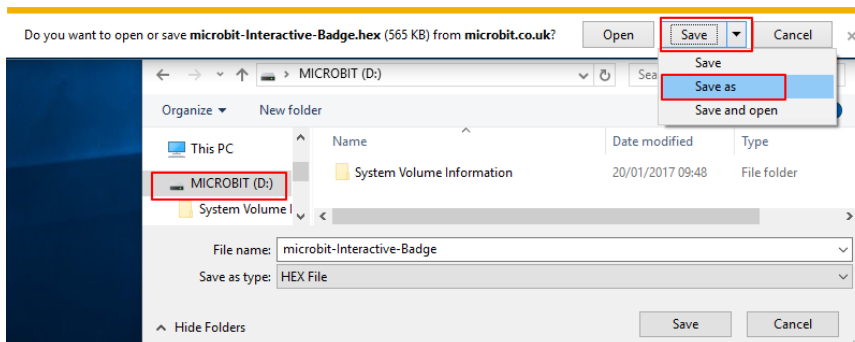


This will create and download a `.hex` file that will run on your micro:bit.

- Use the USB cable to plug your micro:bit into your computer. You should then see your micro:bit appear in your computer's file manager as a USB drive.

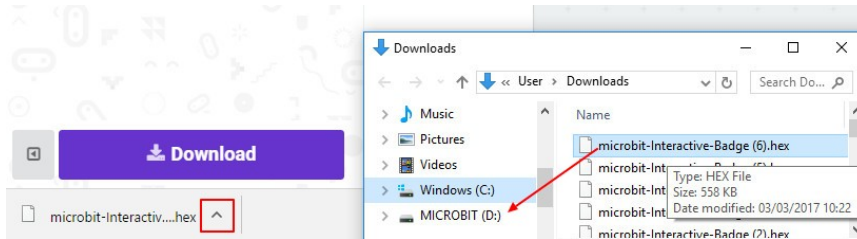


- If you are using the micro:bit uploader then the `.hex` file will be automatically copied to the micro:bit. Check with your volunteer if you're not sure. Otherwise you will need to copy the `.hex` file to the micro:bit. If you are using **Internet Explorer** you can choose **Save as** from the menu that appears at the bottom of your browser and then select the micro:bit drive:

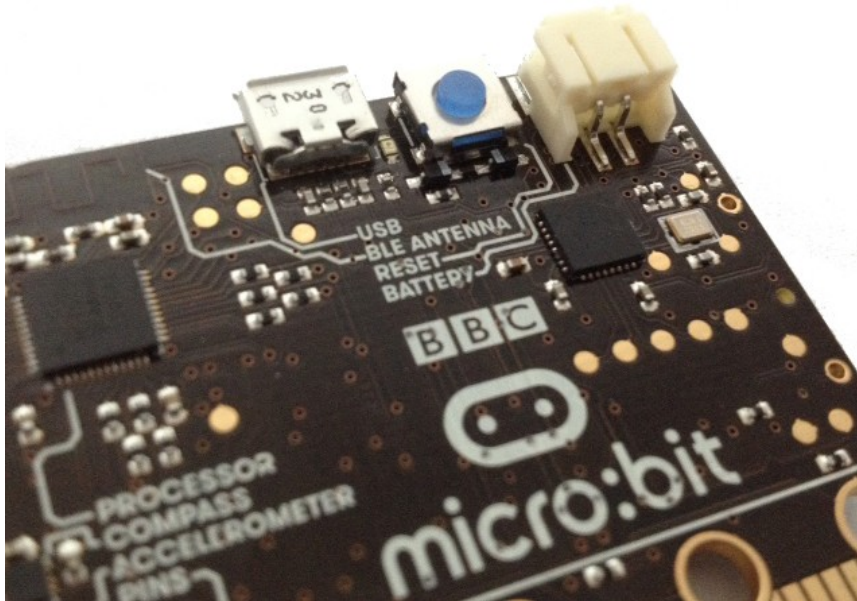


If you are using **Google Chrome** you can click on the arrow after the downloaded file and choose 'Show in folder' and then drag the highlighted file to

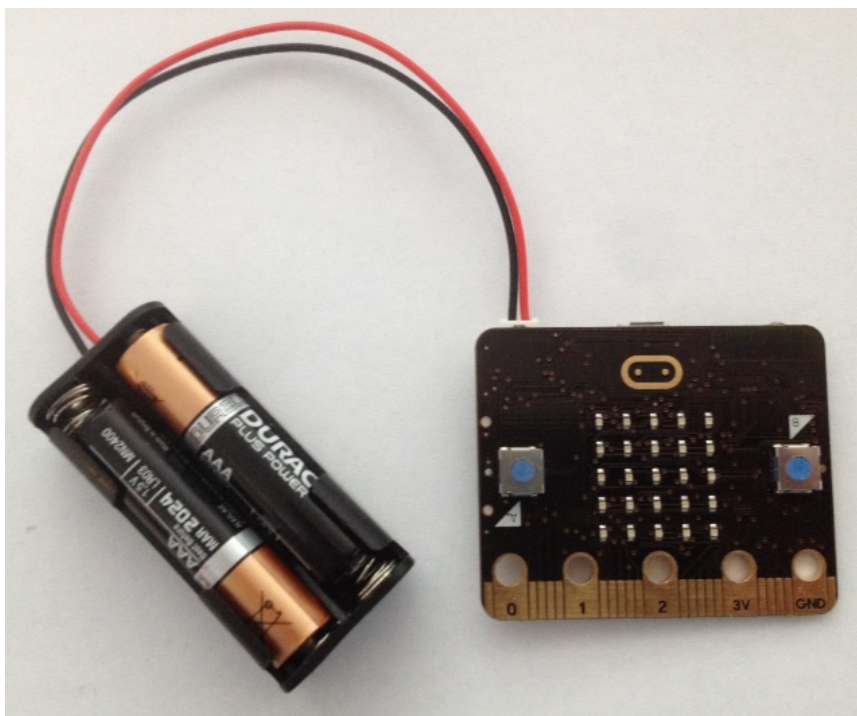
the micro:bit drive:



- A light on the back of your micro:bit will flash while the file is being copied. Once this has stopped your program will run. You can click the reset button on the back of your micro:bit to restart the program.

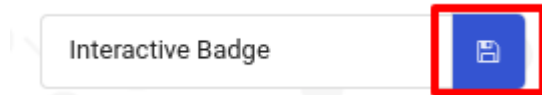


- You should now see your image on the micro:bit. If you prefer, you can remove the USB cable from your micro:bit, and attach the battery. The program will be saved on the micro:bit.



You don't need an account to save your stuff! Your project will automatically be saved in the browser, you can click on **Projects** to see your projects.

You can also click save to download your project as a **.hex** file which contains your project:



To load your project on another computer, click 'Projects' and then 'Import file' and select your **.hex** file.

## Projects



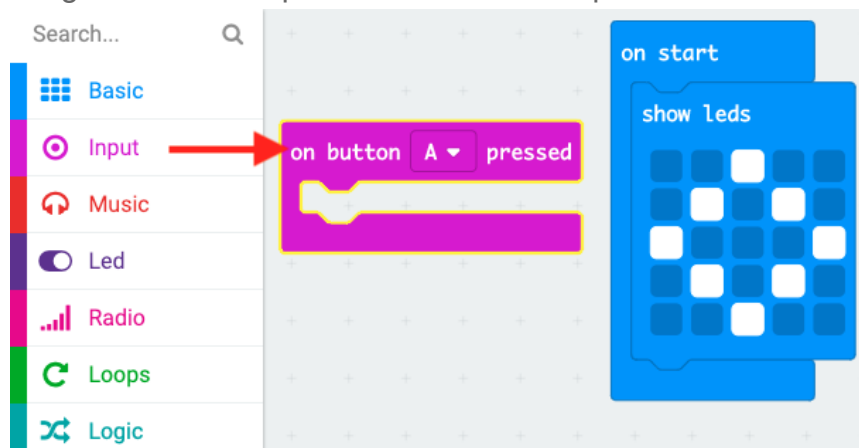
## Step 2: Displaying a happy face

Let's show a happy face on your micro:bit when the 'A' button is pressed.

### ✔ Activity Checklist

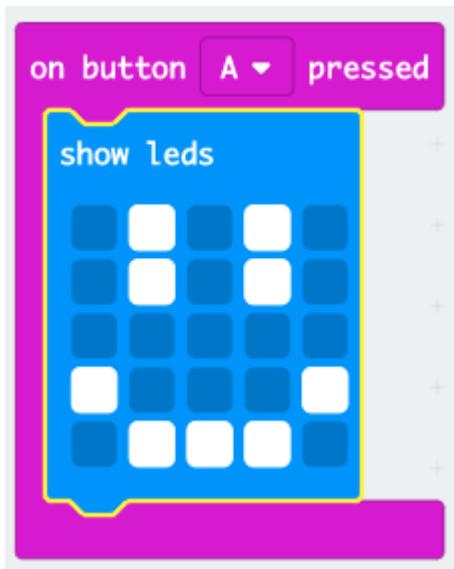
- So far, you've only run code when the micro:bit is powered on. You can also run code when a button is pressed.

Drag an 'on button pressed' block from input and make sure 'A' is selected:

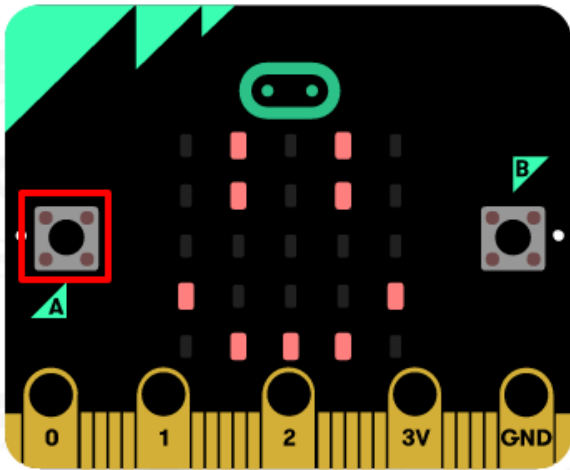


Any code added inside this block will run when the 'A' button on your micro:bit is pressed.

- Drag another **show leds** block inside your new event, and draw a happy face pattern.



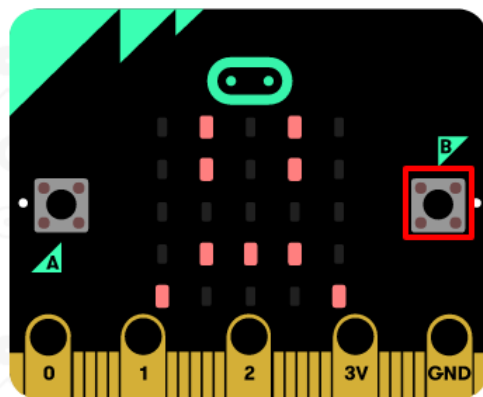
- Test out your new code in the emulator. Press the 'A' button and you should see a happy face on your micro:bit:



You can also test out your new code on your micro:bit.

## Challenge: Displaying a sad face

Can you make your micro:bit display a sad face when the 'B' button is pressed? You'll need to use another 'on button pressed' block to do this and select 'B'.

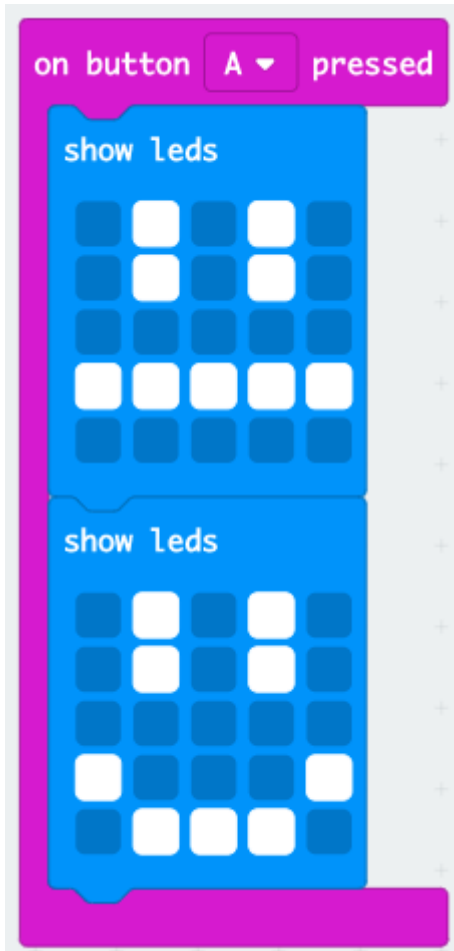


## Step 3: Creating a simple animation

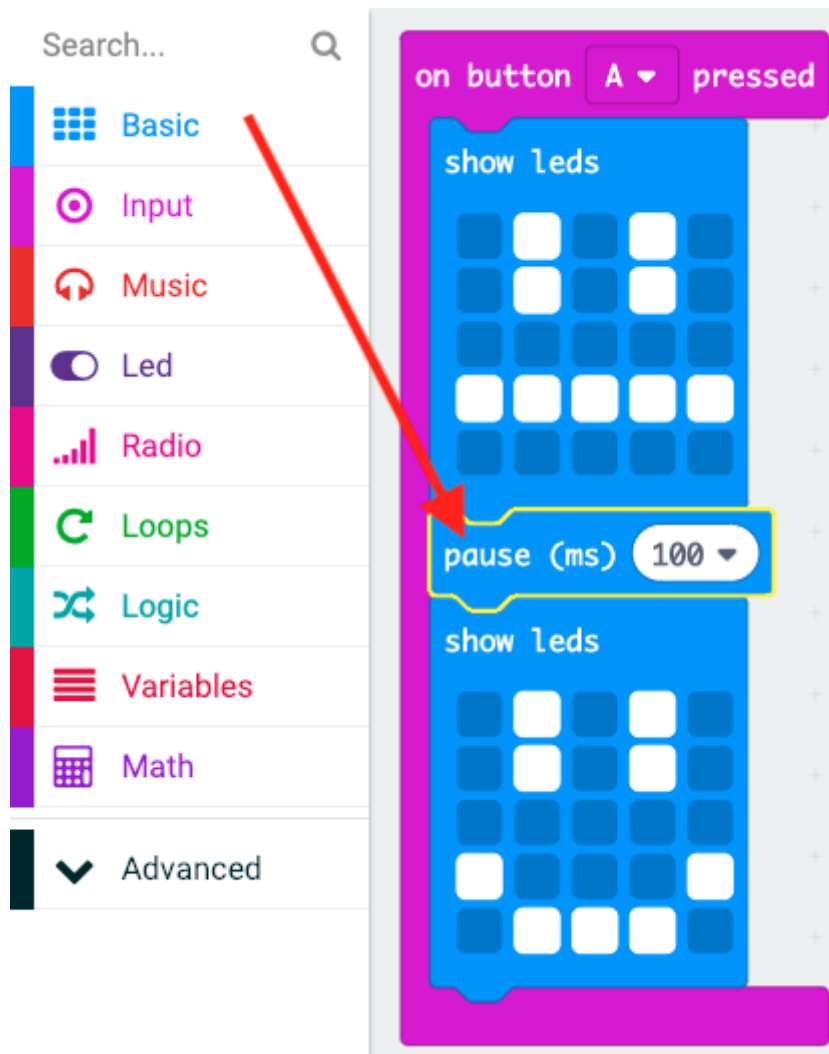
Let's create a (very) simple animation for your happy and sad faces.

### ✔ Activity Checklist

- Add a second `show leds` block to your `on button A pressed` block, with a neutral face.



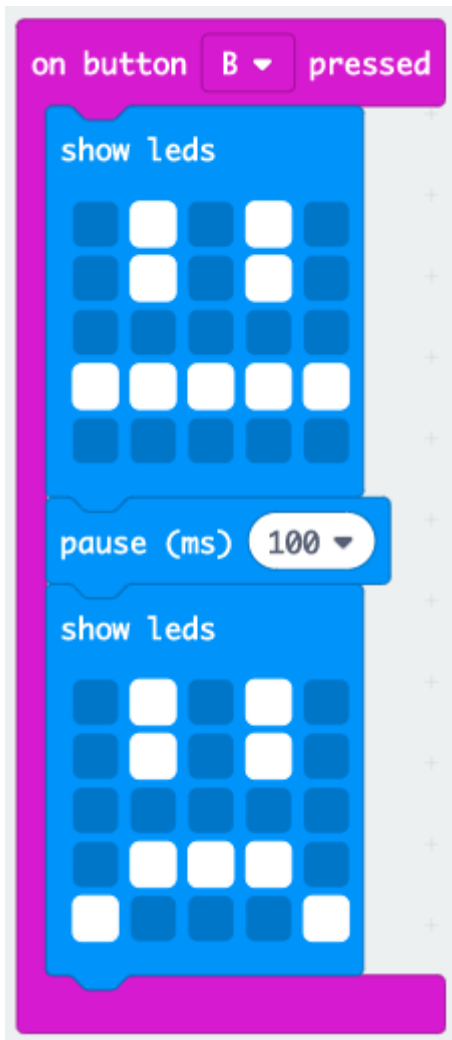
- If you run this code to test it, you'll notice that the pattern changes quickly. For a longer delay, you'll need to add a `pause` block between the two images being displayed.



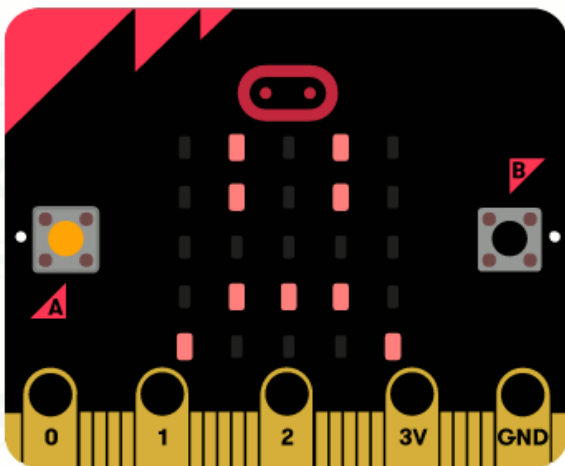
To choose how many milliseconds to wait, click the down-arrow and enter a number. 1000 milliseconds is 1 second, so 250 milliseconds is a quarter of a second.

- You'll also need to animate your sad face. The easiest way to do this is to duplicate the blocks you've just created. Right-click on a block to duplicate it. Note that the PXT editor just duplicates one block at a time (not multiple blocks like Scratch.)
- You can then drag these blocks into your `on button B pressed` block. This is how your code should look:





- Test your code, and you should see your animated happy and sad faces when you press button A and B.



## Challenge: Create your own interactive badge!

Create your own badge - you can use any images or animations you like!