Places and spaces

Lesson 1

Remixed from a Unit from

Raspberry Pi Foundation

https://experience-cs.org/units/smart-communities

Lesson 1 objectives

I can **create a program** to make a **smart pedestrian traffic signal** follow certain rules.

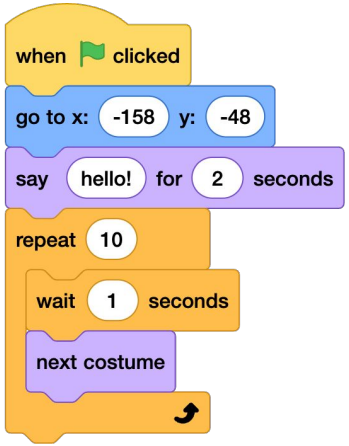
I can **explain** why I sequenced my code the way I did.

Agenda

5 minutes	Unit video
5 minutes	Welcome to Scratch
15 minutes	Ten block mission
10 minutes	Sharing
10 minutes	Make a change
5 minutes	Reflection

Lesson 1 vocabulary

Surroundings: The things that are around you in a specific place.



Program: A set of ordered commands that can be run by a computer to complete a task.

If you see this in a hallway

should you run or walk?

If you are taking a walk and you see this

what would you do?

Where might you see a sign like this?

Why do you think that?

Our **surroundings** shape the way we behave.

We can create simulations of different surroundings.

Welcome to MakeCode

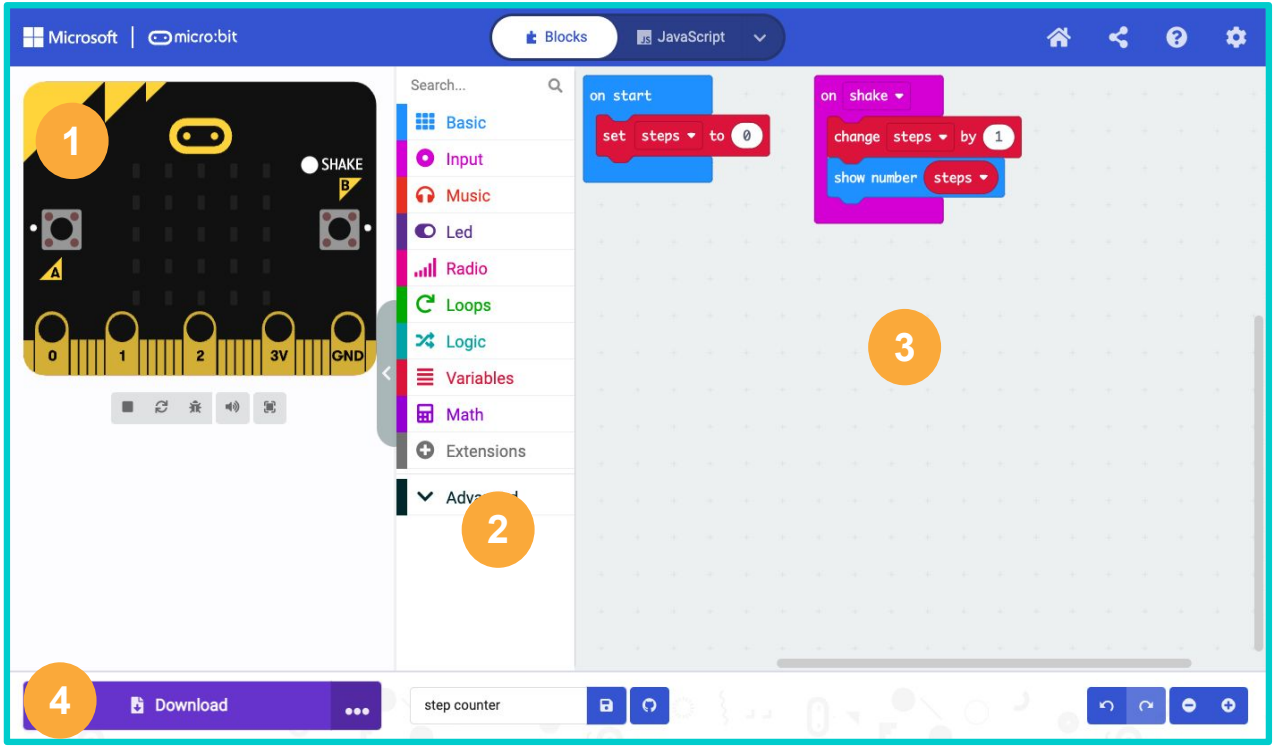
https://makecode.microbit.org/

5 minutes

Start a New Project

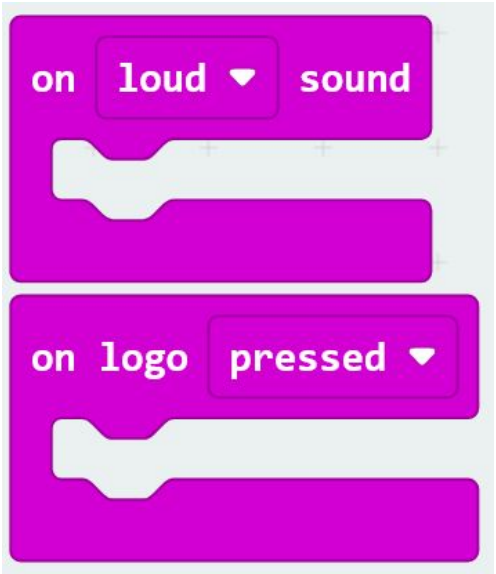
This is the Code Editor

1. Simulator
2. Toolbox with different categories of programming blocks.
3. Programming canvas/editor
4. Toolbar which features a Download button

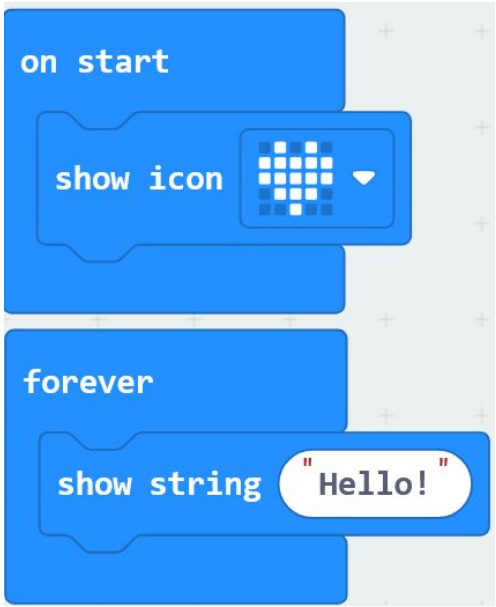


Explore Inputs and Basic Blocks

Inputs



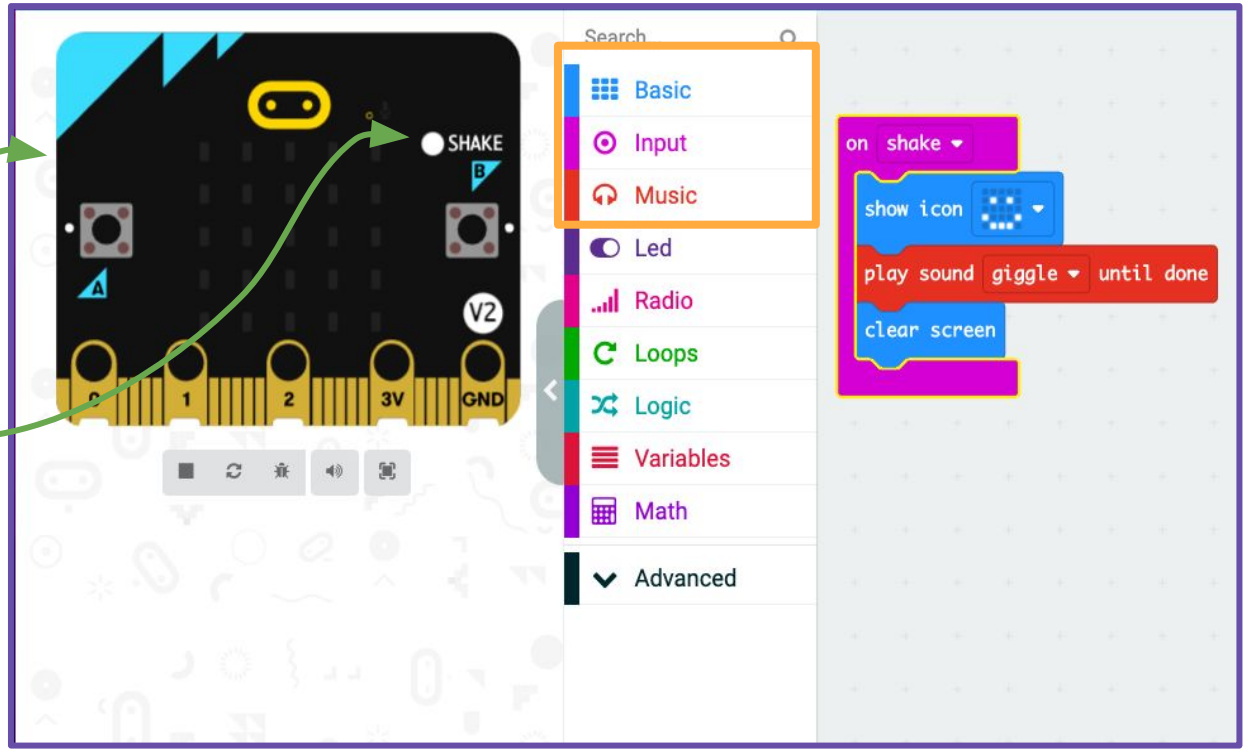
Basics



Run the Simulator to test out code

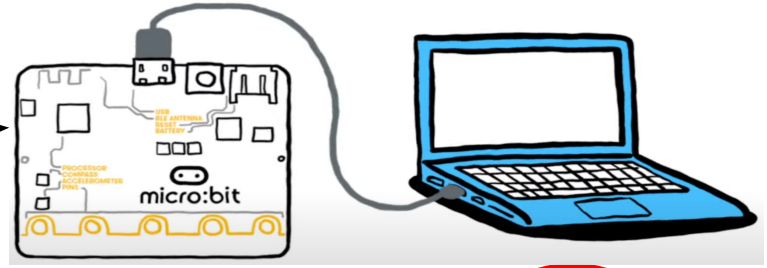
The Simulator is here

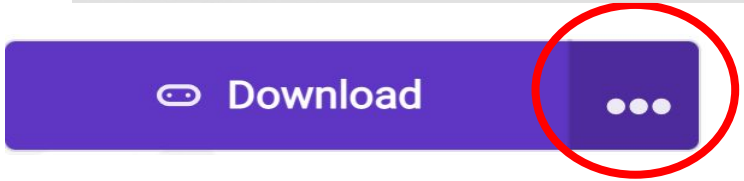
To shake it, click SHAKE

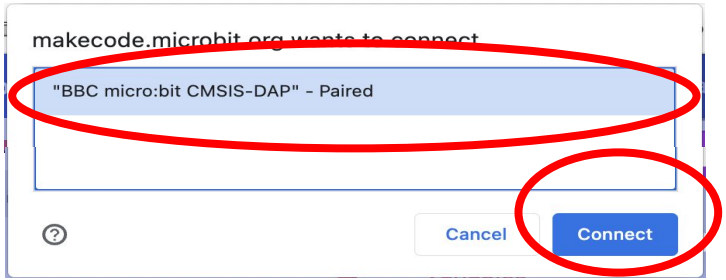


Download the Code

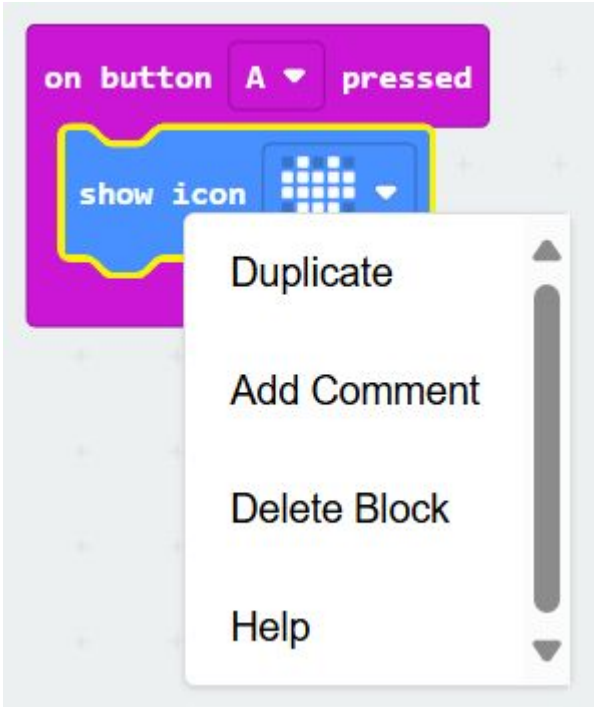
1. Connect your micro:bit to the computer using the USB cable.
2. Select … next to the Download button
3. Select “Connect Device” from the menu
4. Follow the Prompts
5. Pick your device on the connect screen and click Connect
6. Once connected, click Download.







Keyboard & Trackpad Tips!



1. **Click** on a block with ONE finger and **drag** another finger at the same time to easily move it
2. **Click** on a block with TWO fingers at the same time
   a. Click **duplicate** to immediately create another of the same block
   b. Click **delete block** to immediately remove JUST that one block
3. **Drag** TWO fingers close and far apart (like scissors) to zoom in and out in the coding workspace
4. Hit the delete button on your keyboard while selecting a block

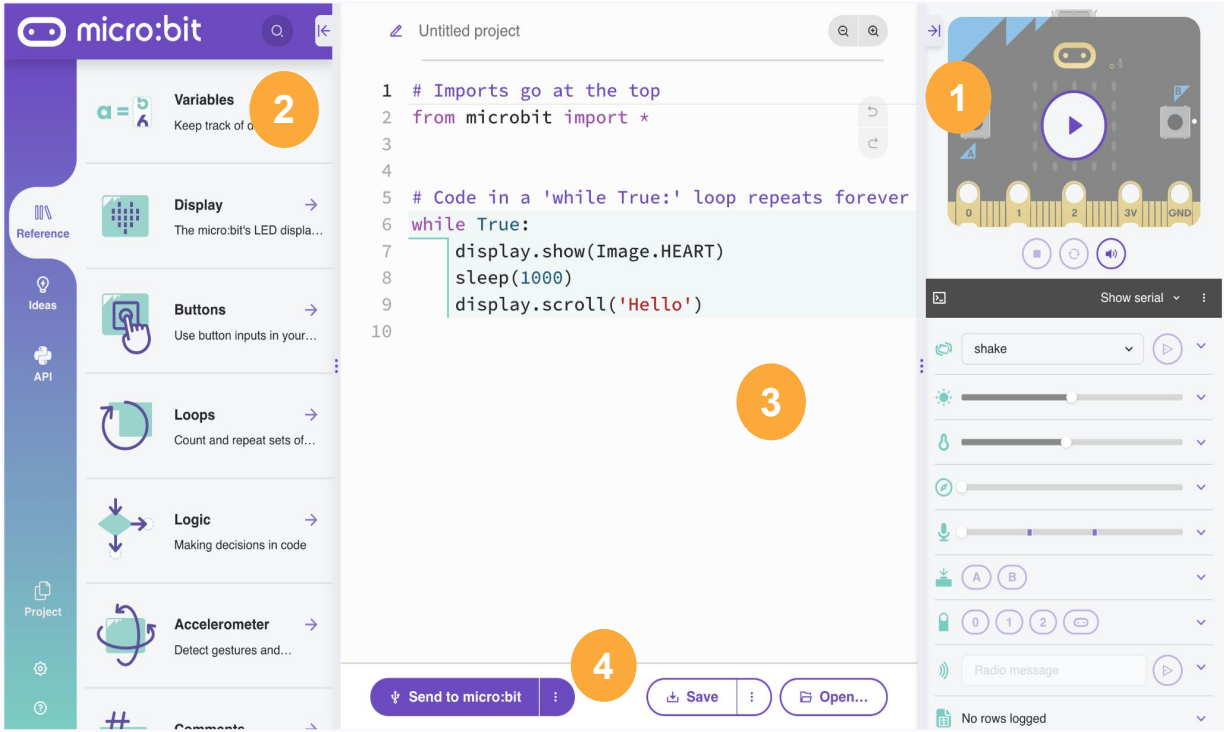
Welcome to Python

https://python.microbit.org/v/3

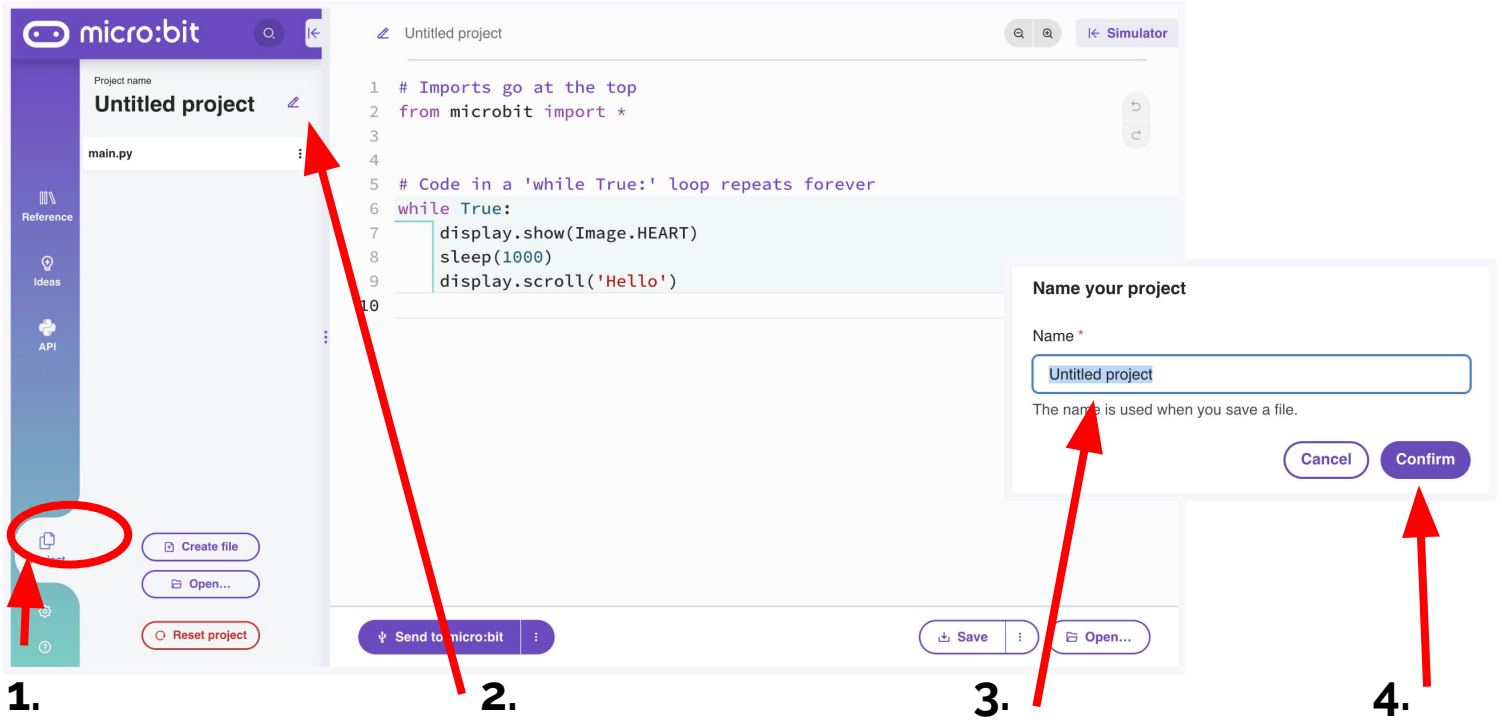
5 minutes

This is the Code Editor

1. Simulator
2. References with different categories of code samples.
3. Programming canvas/editor
4. Toolbar which features a Download button



Renaming Your Project



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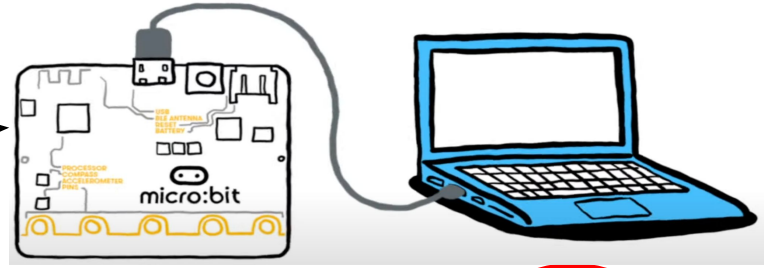
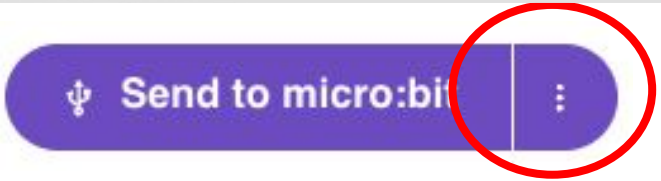
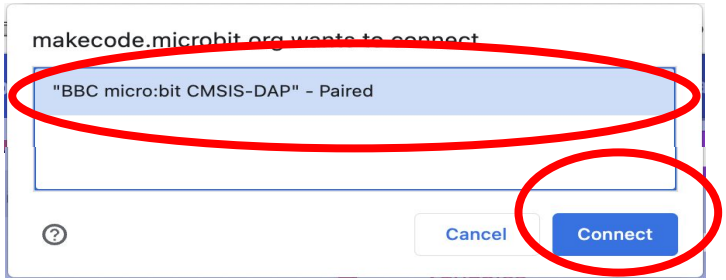




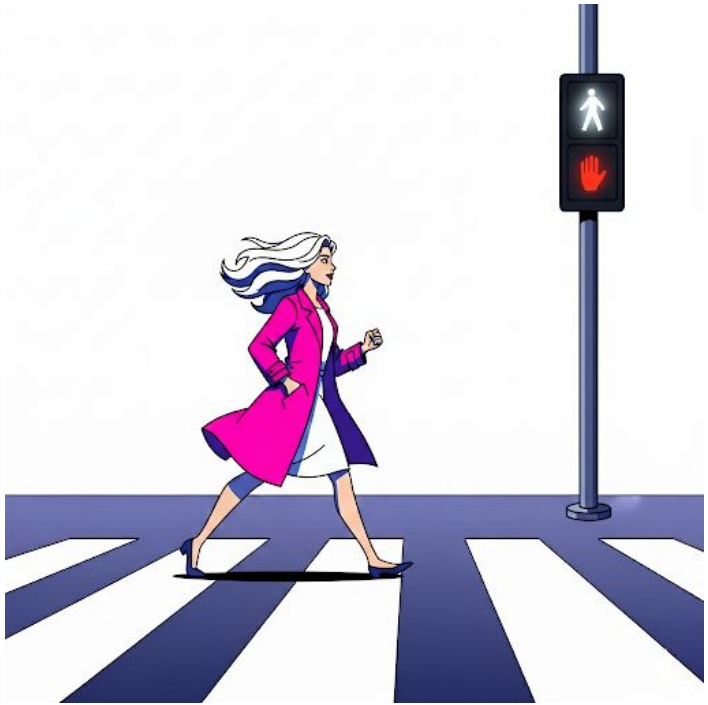


Walk Sign Mission

15 minutes

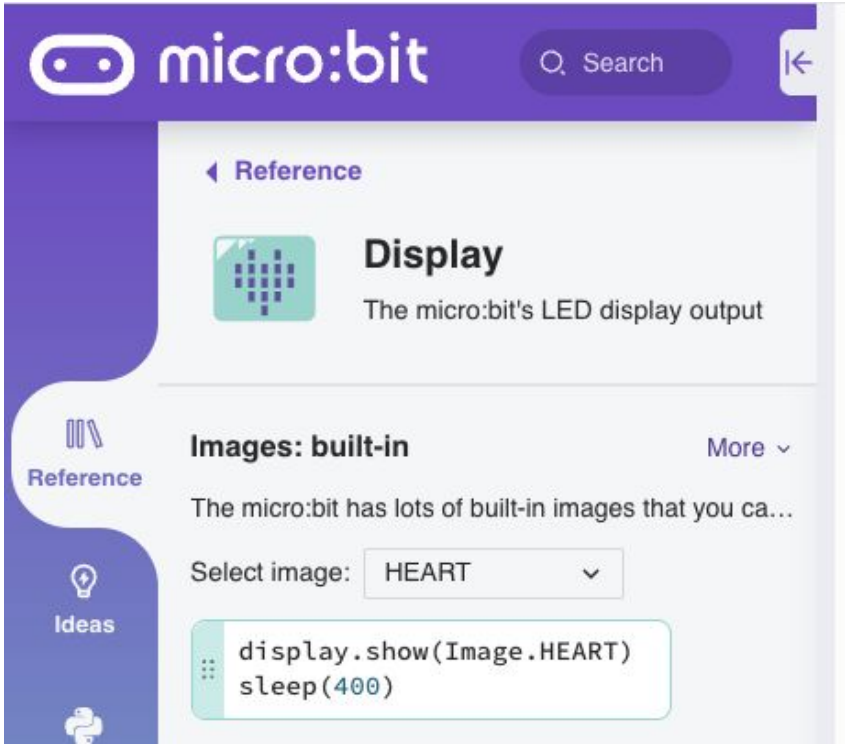
Your mission

Show a signal for Walk and Don’t Walk on the micro:bit LED screen



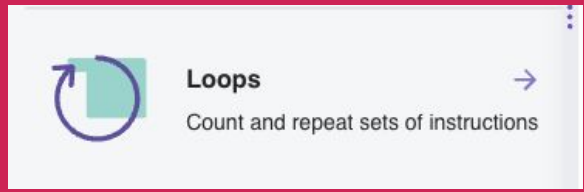
Go to: https://python.microbit.org/v/3

Find this reference tab and start coding



Done early?

Can you get the signals to cycle every 5 seconds?



Solutions

```
# Imports go at the top
from microbit import *
# 'while True:' loop repeats forever
while True:
    display.show(Image.HAPPY)
    sleep(5000)
    display.show(Image.NO)
    sleep(5000)
```

Sharing

10 minutes

Talking about our work

One person at a time

Show and describe your program

Explain the choices you made

Speaking

I chose to _____ instead of _____ because _____.

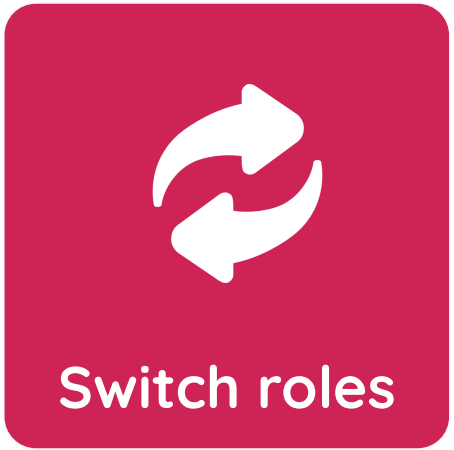
At first _____ didn't work, so I fixed it by _____.

Listening

I like how you _____.

Did you think about _____?

Your turn



Make a change

10 minutes

Improve the System

How can you modify the system to accommodate blind pedestrians?

List ideas on the board!

Return to: Code

Change the system based on the design discussion. **Does your program still work?**

Reflection

5 minutes

Reflection

How did changing the **users** in your **simulation** affect your program?

What are you hoping to learn more about in **our next lesson**?