Basic micro:bit I/0

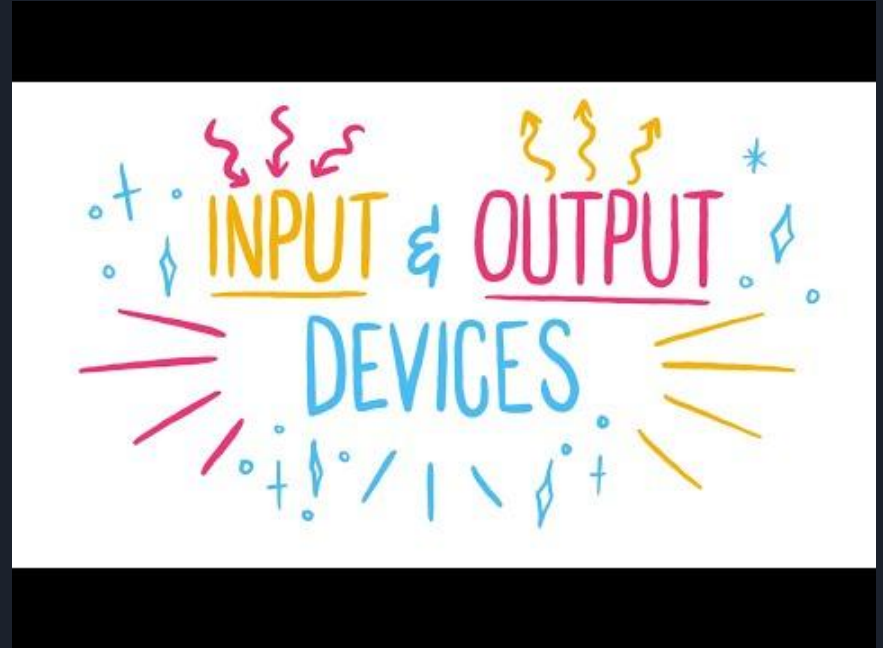Robotics Curriculum
IT Adventures

Lesson Overview

- Learn the basics of I/O

- Learn how to interact with the I/O of the micro:bit

- Use the micro:bit's I/O to control the micro:bit and RVR

What is I/O?

Check out this video by micro:bit to learn about I/O and what it means for us and our platform.

Can you think of any input or output devices you've used today?

Output Examples: LEDs

Let's explore our first output device, the LED array. For now, unplug your micro:bit from the RVR and take a look at it. On one side there is a grid of 25 LEDs or light emitting diodes. These lights are cheap, power efficient, and versatile. Let's see what they can do, implement the code below to see the different ways we can interact with the LEDs:
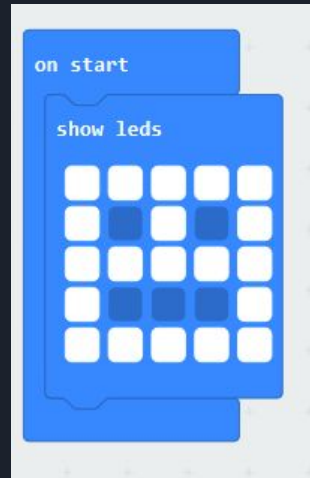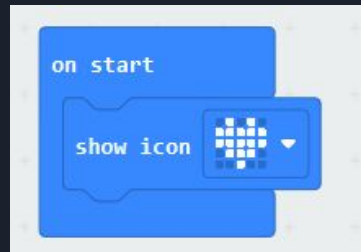
Output Examples: Music

Another output we can control is the speaker on the micro:bit, implement and run the code below:

Why don't both sounds play? Change the code so they both play. After that, explore with the other music blocks and see if you can make a song of your own or implement Mary had a Little Lamb.

Input Examples: Buttons and the Touchpad

Now that we have some output devices figured out, let's move on to inputs. If we look at the the input tab, the micro:bit has a lot of ways to get input, buttons, pins, temperature, and more. For now let's focus on the buttons and the logo (touchpad).

Notice that each input makes its own block, that means you can have the micro:bit do things only when it receives certain inputs, like a button being pressed!

Primary Learning Challenge

Now, let's put everything together. Can you make the micro:bit play a song and show a face when a button is pressed?

Next, make the micro:bit play a tone and show a icon when the touchpad is pressed but stop showing the icon when it is not being touched.

Animate a heartbeat by alternating between pressing A and B and showing different icons when they are pressed. What happens when you press the buttons really fast?

Secondary Learning Challenge

Now, figure out a way to use these inputs to control the RVR!

Program the micro:bit so that the RVR drives forward when A is pressed, drives backward when B is pressed, and turns 90 degrees when the logo is pressed. Then, drive around the room!