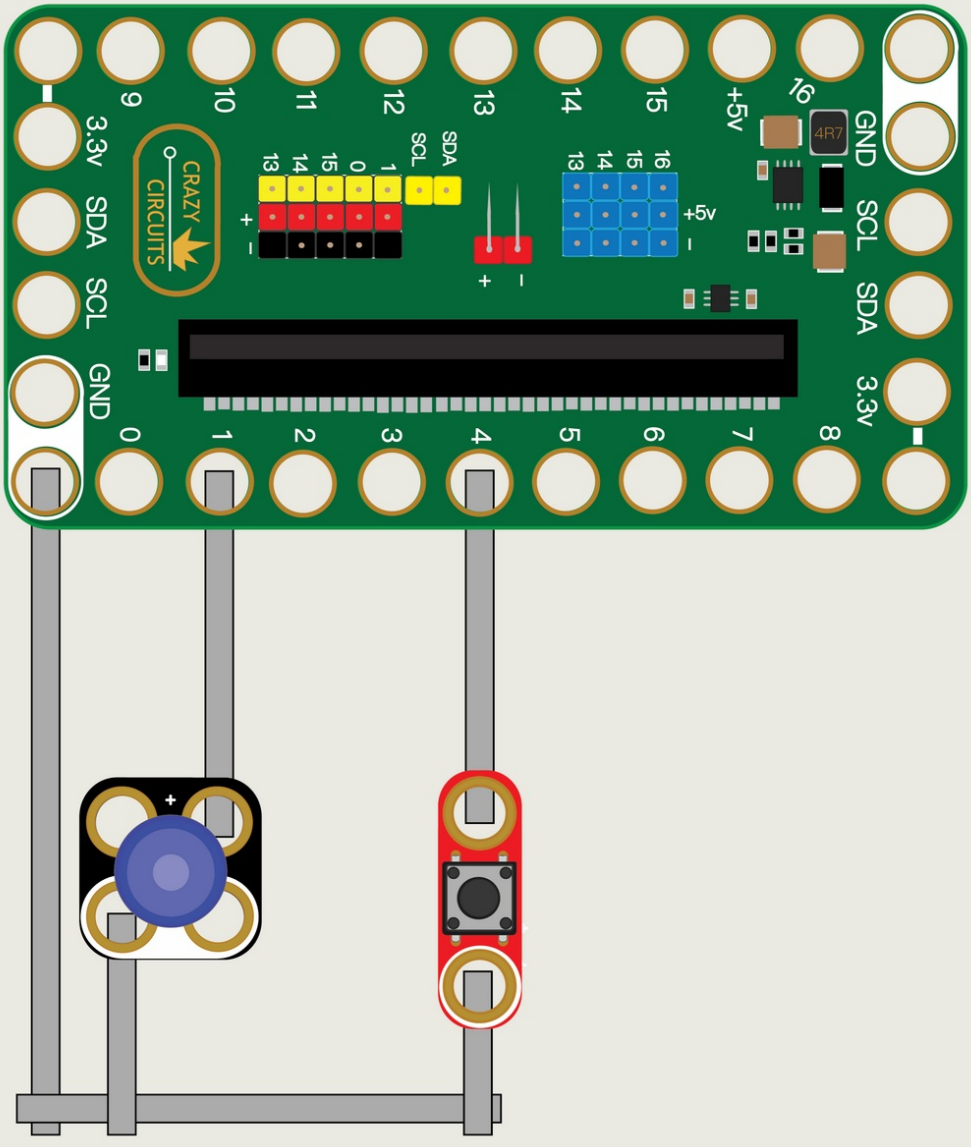
CH4-A - Button Hold

Connect a pushbutton to a Bit Board and control an LED with it.

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INTRODUCTION

Connect a pushbutton to a Bit Board and control an LED with it.

We'll explore how we can use a pushbutton as an input for the micro:bit

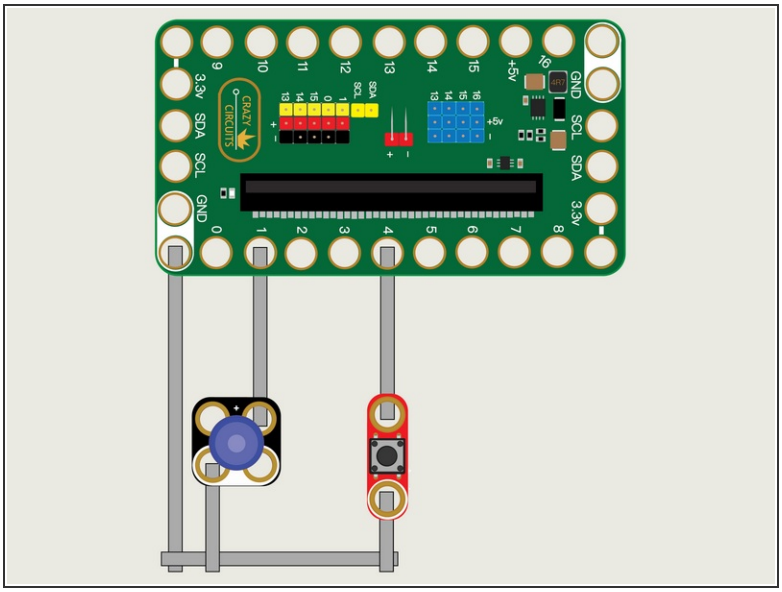
TOOLS:

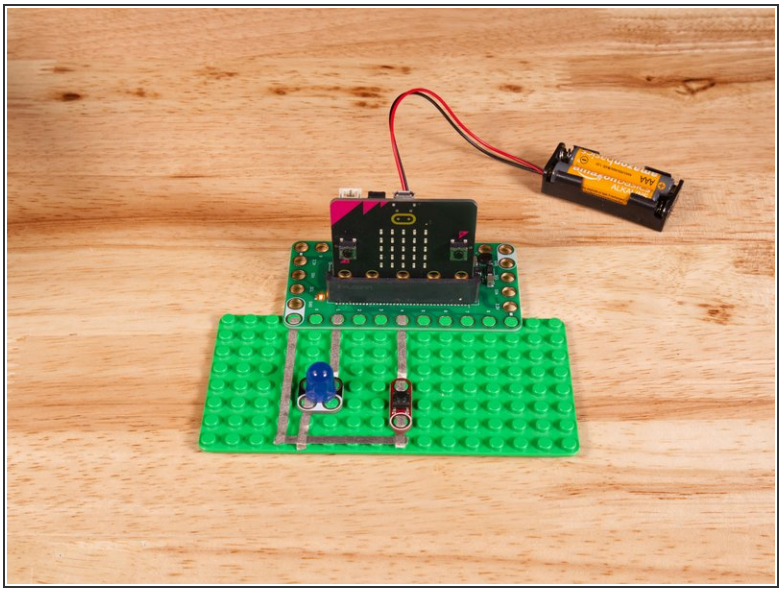
- Computer (1)
- Scissors (1)

PARTS:

- Crazy Circuits Bit Board (1)
- micro:bit (1)
- Maker Tape (1)
  1/8" Wide
- Standard Pushbutton Chip (1)
- Crazy Circuits LED Chip (1)

Step 1 — Connect the Button (and LED)

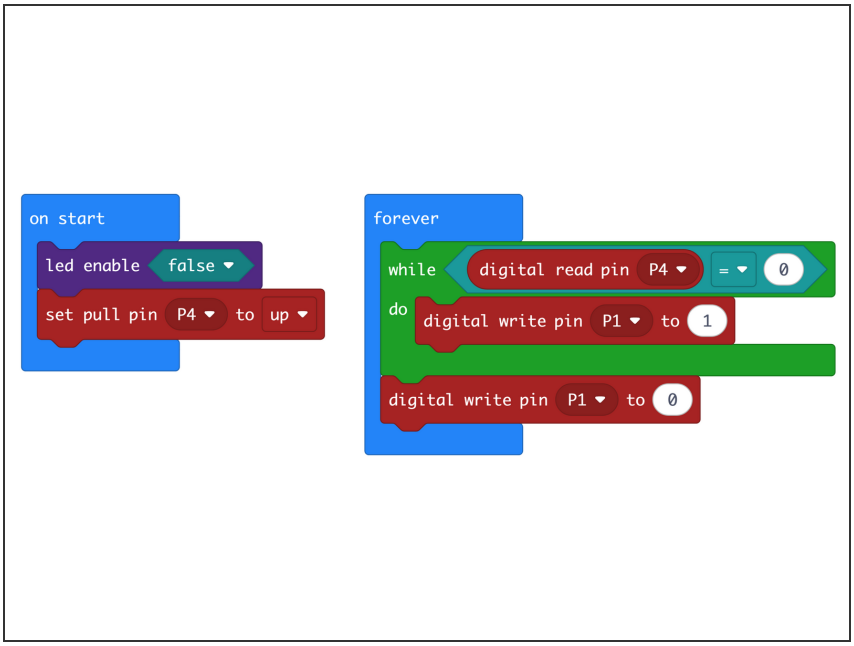




- We'll use **Maker Tape** to connect the Button and LED to the Bit Board on a LEGO baseplate.
- We've already connected an LED in Chapter 1 so our new addition this time is the **Button**.
- We'll connect our **LED** to **Pin 1** and our **Button** to **Pin 4**.
- And of course we'll connect the **Ground** (GND) sides of each component to **Ground** on the Bit Board.

- [ ] You'll notice the **Ground** on the Bit Board (as well as the LED and other Crazy Circuits components we'll use) is color coded **White**.
- [ ] While the LED has **Polarity** our **Button** does not. If you connect it the other way around *it will still work fine*. Not all components have **Polarity**.

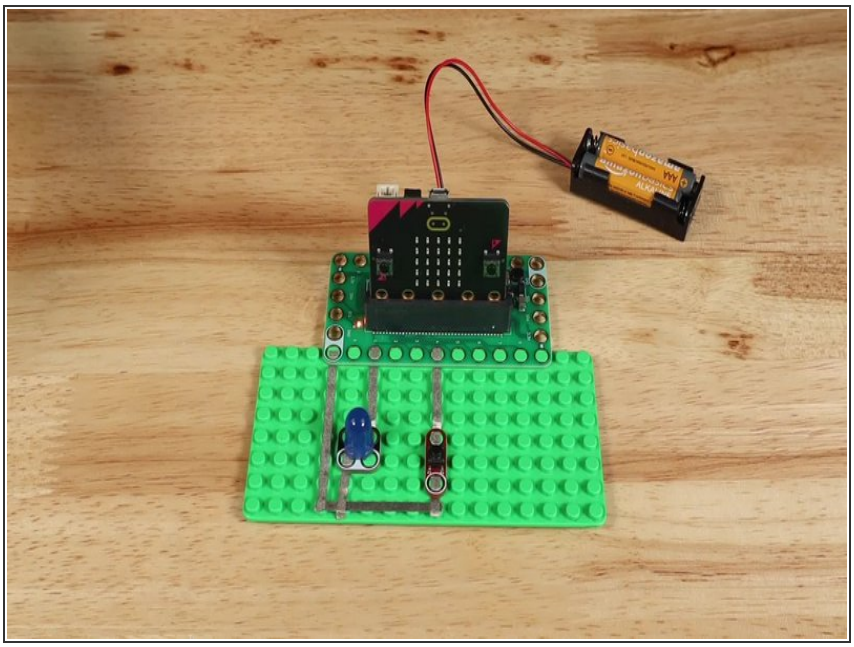
Step 2 — Load the Code



- If you've never used a micro:bit before you'll want to check out this guide: Bit Board V2 Setup and Use
- We're going to load the following code for our **Button Hold** program: https://makecode.microbit.org/_Psd1HsW3r...
- This code will *turn on* the LED while the button is pressed. If you release the button the LED will *turn off.*
- We are using a set pull pin block. This will set **Pin 4** to **up**, or **high**, or **1**. (All three terms mean the same thing in this context.)
- Basically we are *turning on* **Pin 4** by applying a voltage to it. When we press the button we are connecting the pin to **Ground** and **Pin 4** goes to **low** or **0**, which is what we'll look for in our code.

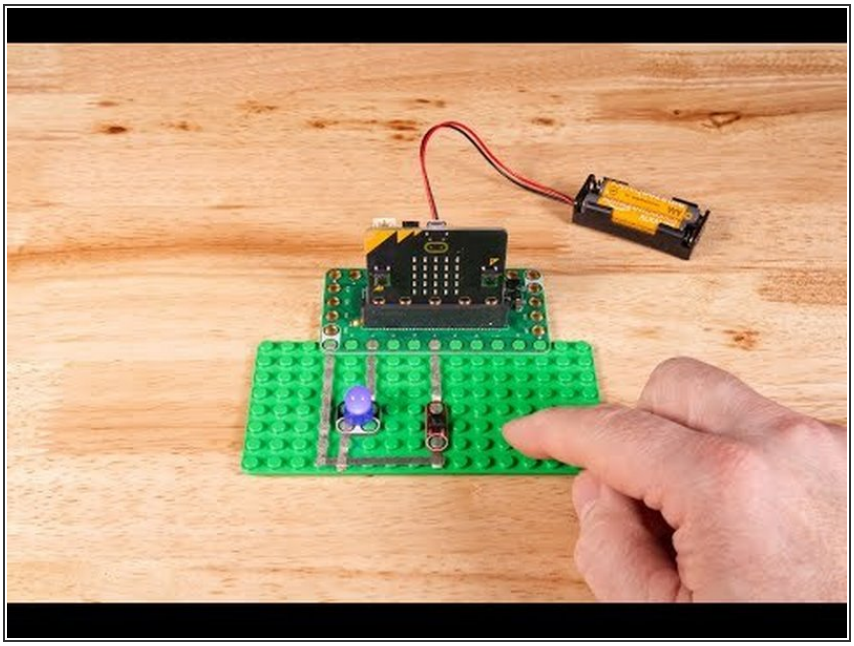
In this specific case it could be said we are "pulling the pin to **Ground**" when we press the button. But don't get **up** and **down** when used to describe the state of a pin conflated with the physical "up" and "down" of a button.

Step 3 — Test it Out!



- Once the code is loaded it should start running immediately.
- ⓘ You can power the micro:bit via the USB cable you used to load the code or you can use a battery pack plugged into the Bit Board.
- The LED should turn on when the button is pressed and held down, and then turn off when the button is released.

Step 4 — Follow Along



- Follow along with our recorded Live Stream!
- ⓘ You can watch the full video of us walking through this project, along with explaining and exploring the code: https://www.youtube.com/live/sWfe8znn6C0