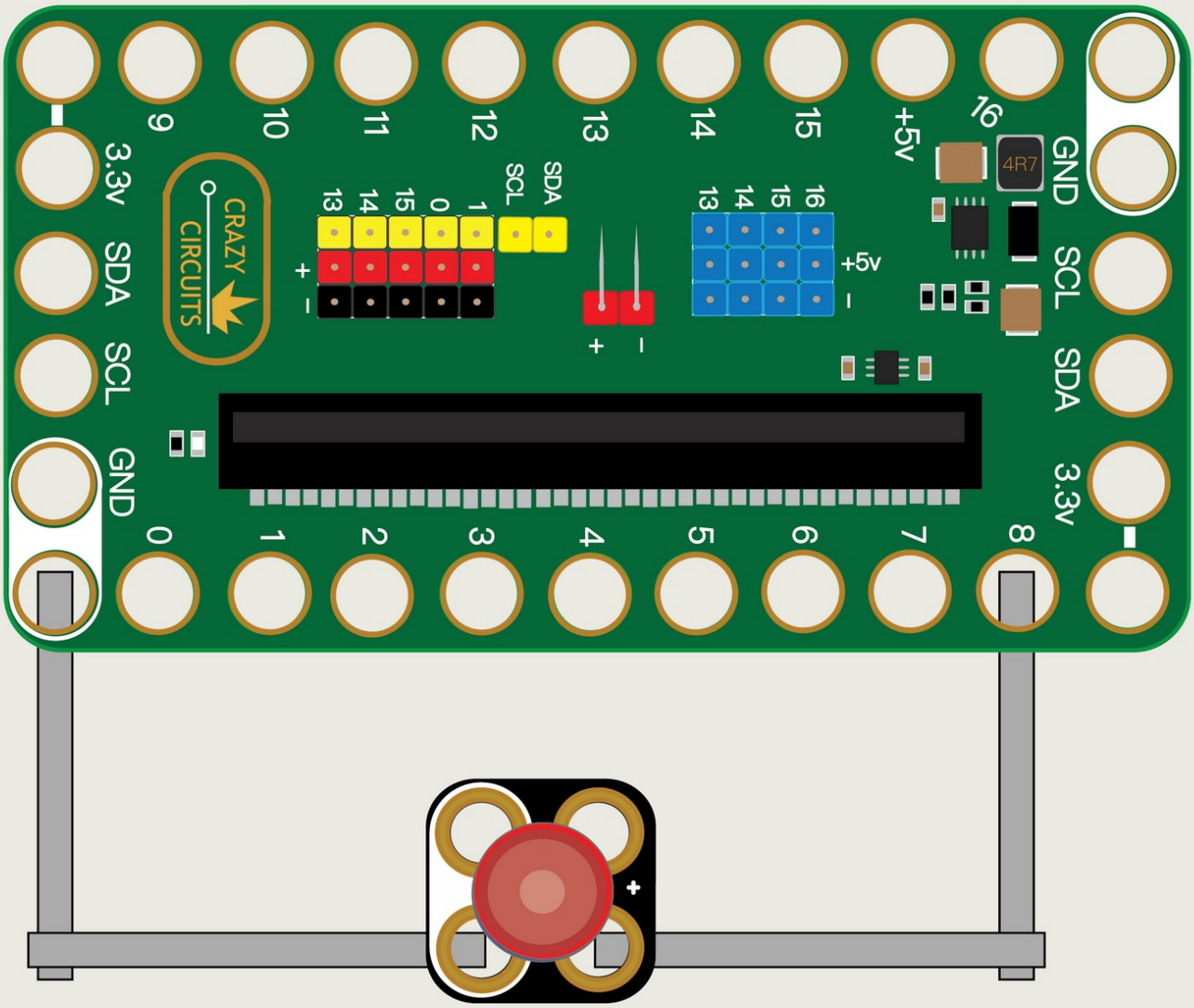
CH1-B - LED Fade

Connect an LED to a Bit Board and control it with a micro:bit

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INTRODUCTION

Connect an LED to a Bit Board and control it with a micro:bit

We'll make the LED fade from off to the full brightness in steps using **PWM** (Pulse Width Modulation).

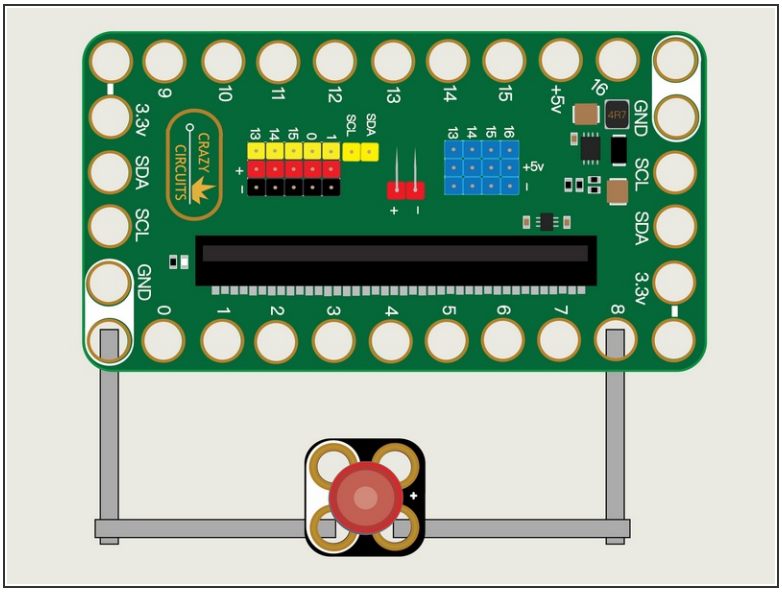
TOOLS:

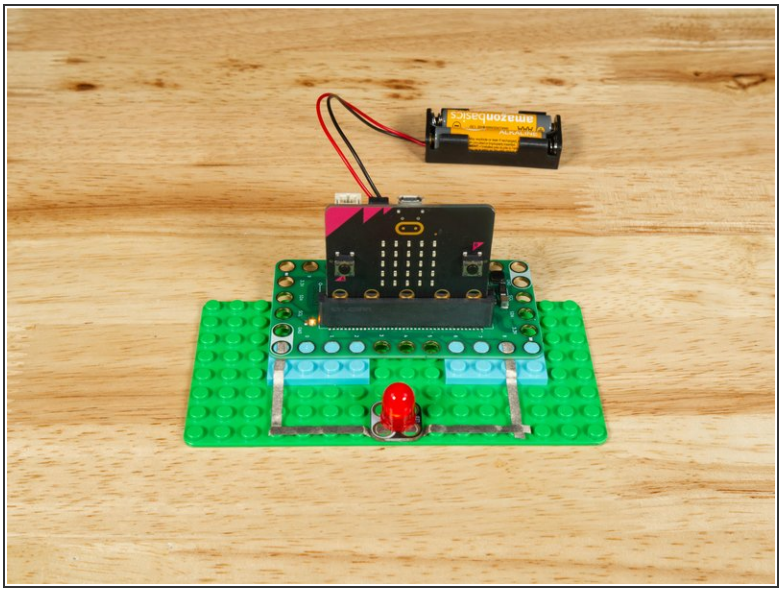
- Computer (1)
- Scissors (1)

PARTS:

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

Step 1 — Connect the LED





- We'll use **Maker Tape** to connect the LED to the Bit Board on a LEGO baseplate.
- Connect the **Negative** (-) side of the LED to a **Ground** (GND) hole on the Bit Board.
- Connect the **Positive** (+) side of the LED to **Pin 8** on the Bit Board.

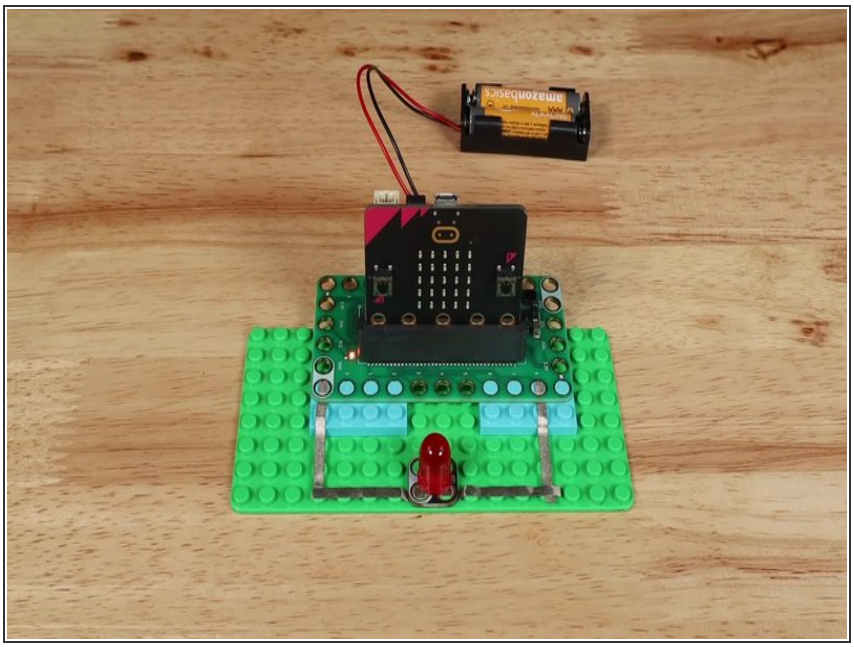
☑ You'll notice the **Ground** on the Bit Board (as well as the LED and other Crazy Circuits components we'll use) is color coded **White**.

Step 2 — Load the Code



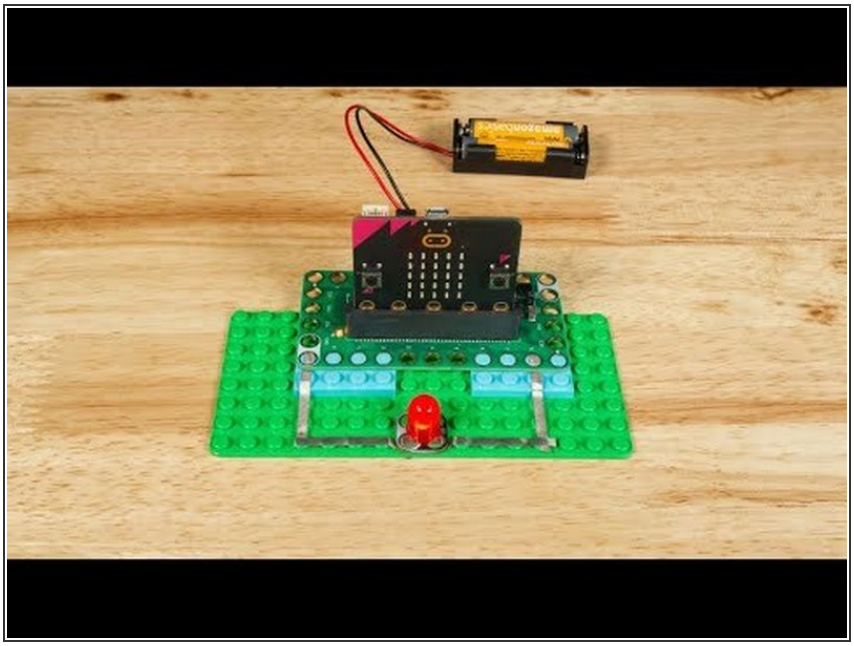
- If you've never used a micro:bit before you'll want to check out this guide: Bit Board V2 Setup and Use
- We're going to load the following code for our **LED Fade** program: https://makecode.microbit.org/_ArzM1u7Lt...
- This code will make the LED gradually get brighter waiting a half second between each step.
- The analog write command can be set to anything between **0** (off) and **1023** (full brightness).
- We can choose which pin will be affected using the drop down control in the analog write command. Here it is set to **Pin 8**.
- While digital write allowed us to turn an LED on or off, analog write allows for more control over the brightness of the LED.

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 start off then get gradually brighter in three steps.

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://youtube.com/live/z8ONp1Q9ZV0