CH20-A - Three NeoPixels RGB

Connect three Crazy Circuits NeoPixels to a Bit Board and control them with code.

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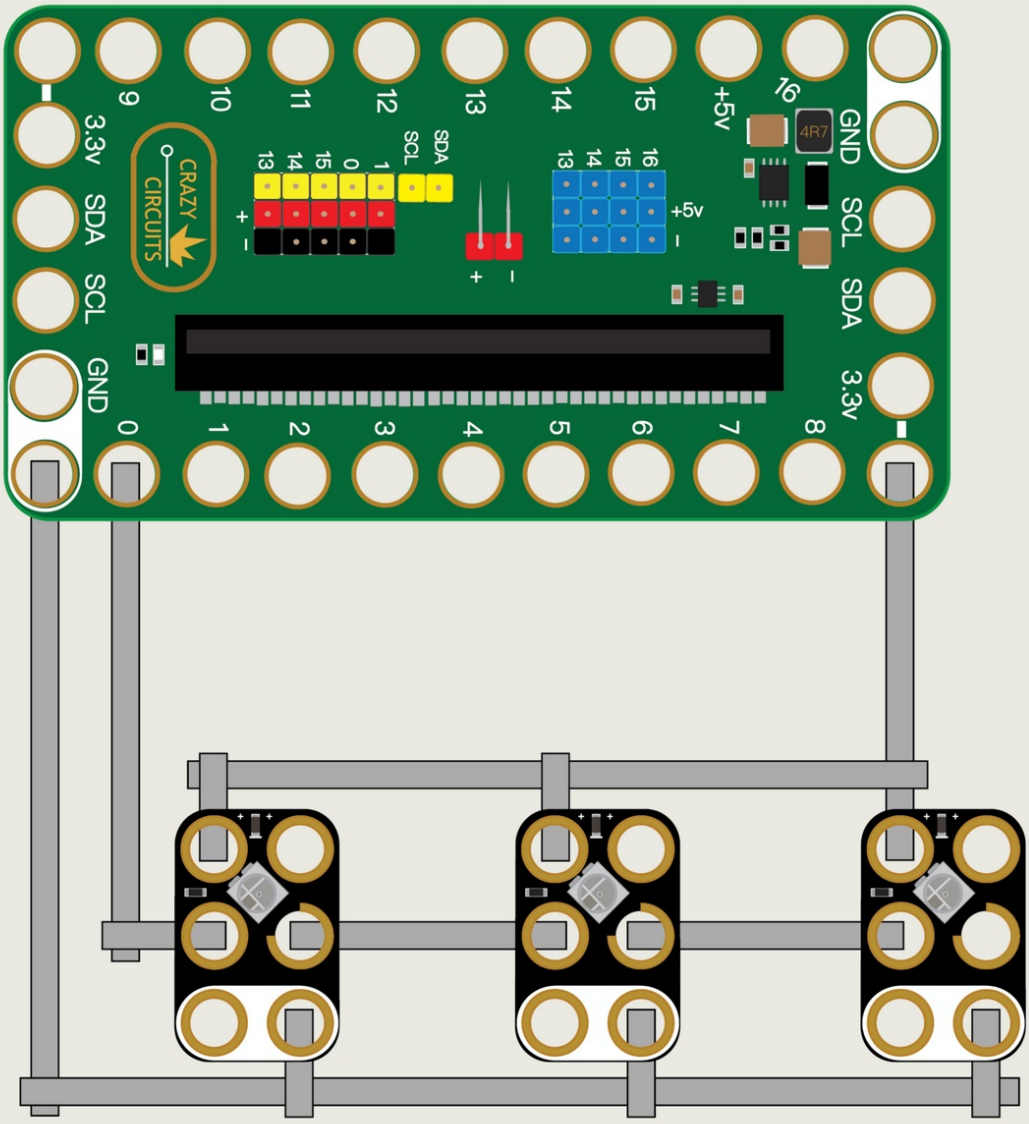


INTRODUCTION

Connect three Crazy Circuits NeoPixels to a Bit Board and control them with code.

We'll explore how to control a series of three RGB LEDs (also called "NeoPixels").

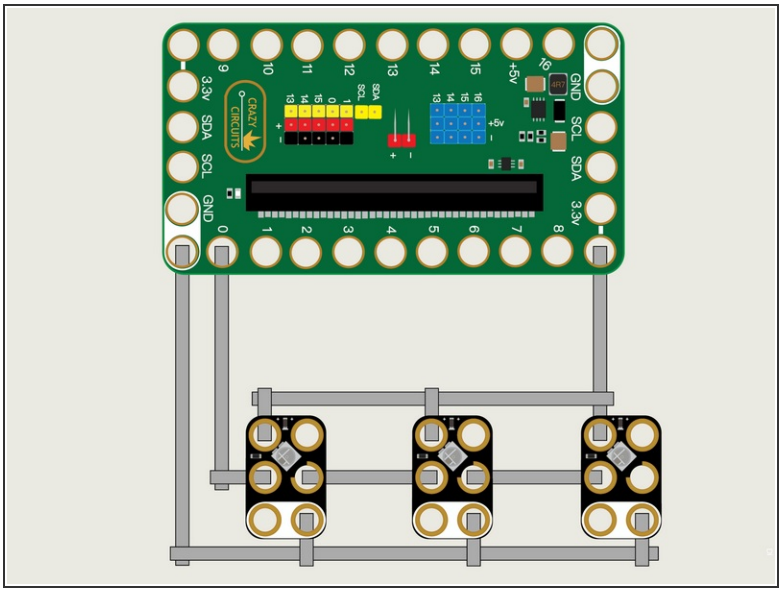
TOOLS:

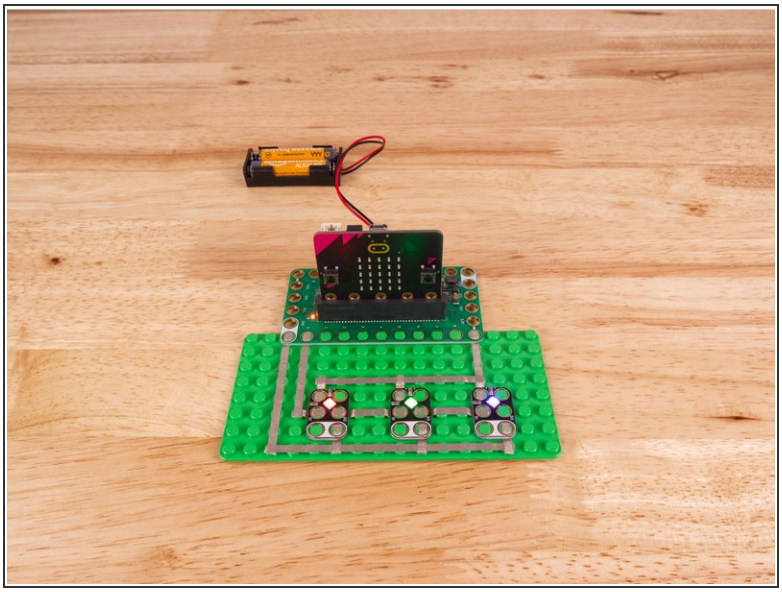
- Computer (1)
- Scissors (1)

PARTS:

- Crazy Circuits Bit Board (1)
- micro:bit (1)
- Maker Tape (1)
  1/8" Wide
- NeoPixel Chip (3)

Step 1 — Connect the NeoPixels





- We'll use **Maker Tape** to connect the three NeoPixels to the Bit Board on a LEGO baseplate.
- The NeoPixels need to be **chained together**. You'll notice the labels **DI** and **DO** on each one. These stand for **Digital Input** and **Digital Output**.
- From the Bit Board, **Pin 0** connects to the **DI** (center hole) of the NeoPixel on the left side. We then connect the **DO** from the first one to the **DI** of the second one, and so on...

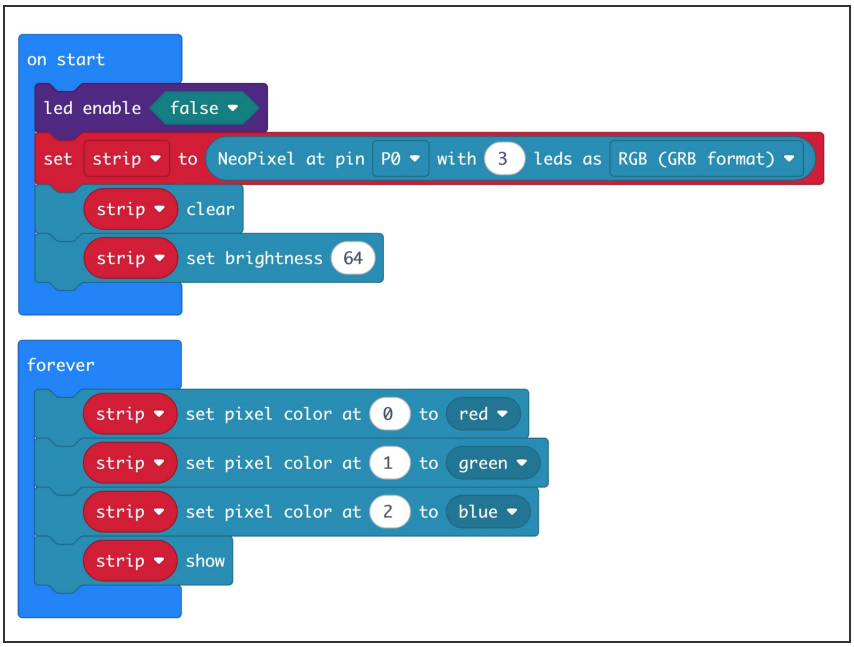
ⓘ Make sure you don't bridge the connection of **DI** and **DO** beneath a NeoPixel, or that will short the circuit and bypass that NeoPixel. (If one does **not** light up, check for this.)

- You'll also need to connect the three NeoPixels to **Ground** (GND) and to **3.3v** as shown.

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

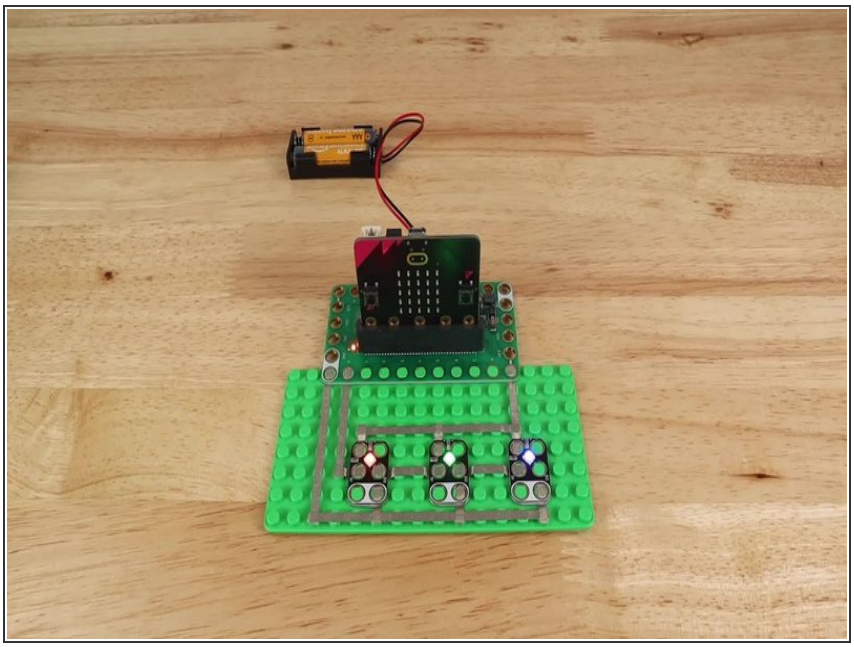
☑ The **3.3v** hole on the Bit Board is labeled and is actually two holes right next to each other on the Bit Board. (There is a small line showing the connection between them.)

Step 2 — Load the Code



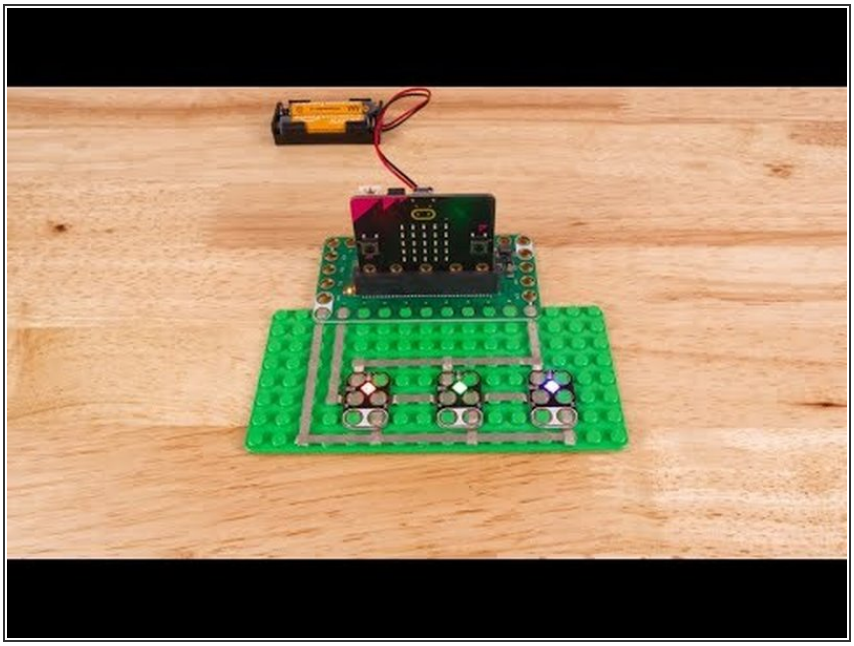
- If you've never used a micro:bit before you'll want to check out this guide: Bit Board V2 Setup and Use
- We're going to load the following code for our **Three NeoPixels RGB** program: https://makecode.microbit.org/_7iR1j46U5...
- This one is pretty simple. After adding the **NeoPixel(s)** in the setup we clear the strip and set the brightness. Also note that we've set the number of **leds** to **3**.
- In our forever loop we're just setting the color for each of the three NeoPixels. We specify the location in the string of NeoPixels as well, starting at **0**.

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.
- You should see the NeoPixels light up. The left one will be **red**, the middle one with be **green**, and the right one will be **blue**.

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/_pM0oZnZ9wQ...