Now that you’ve finished section 2 of the board and have finished soldering the LEDs, you’ll begin testing your LEDs.

**Testing**

Testing is always an important part of the electronics manufacturing process, as it helps to reduce the amount of error that can happen during any part of the manufacturing process. Within the scope of this project, testing can reduce the difficulty of the debugging for later steps. Inserting testing into any project can set a benchmark, when done correctly, that can show all of the tested components to be functioning, which can help to reduce the amount of troubleshooting that is needed when a problem does appear.

Testing the functionality of the LEDs is critical before finishing area 3 of your board because it can ensure the functionality of the LED array before moving on to another potentially buggy area, the audio response area.

**How to Test**

Each LED that is soldered to wires and attached to the board connections has three built-in LEDs, a red, blue, and green LED. To ensure complete functionality, testing all three of these LEDs and all of the other components that you have installed to the board is necessary. For this assignment, write a simple Arduino program to use the input from the potentiometer you installed to control the colors of the LEDs in order to cycle through all of the LED colors. To accomplish this, you will need:

* PRISM kit assembled to part 2
* Computer with Arduino software
* Starter file on PolyLearn

To begin, attach your Arduino to your computer using the USB OTG cable provided in you kit. Then, open the Arduino software and open the starter file from PolyLearn. This file will have instructions inside of it to continue this testing phase.

After you have finished programming the board, show your instructor the full functionality and continue.

// to be added to:

After part 3:

**Hardware and Software**

The connection between hardware and software can sometimes be confusing and convoluted, but through this tutorial, you’ll learn how the software programmed on the Arduino connects to the hardware that you just finished soldering.

**Arduino**