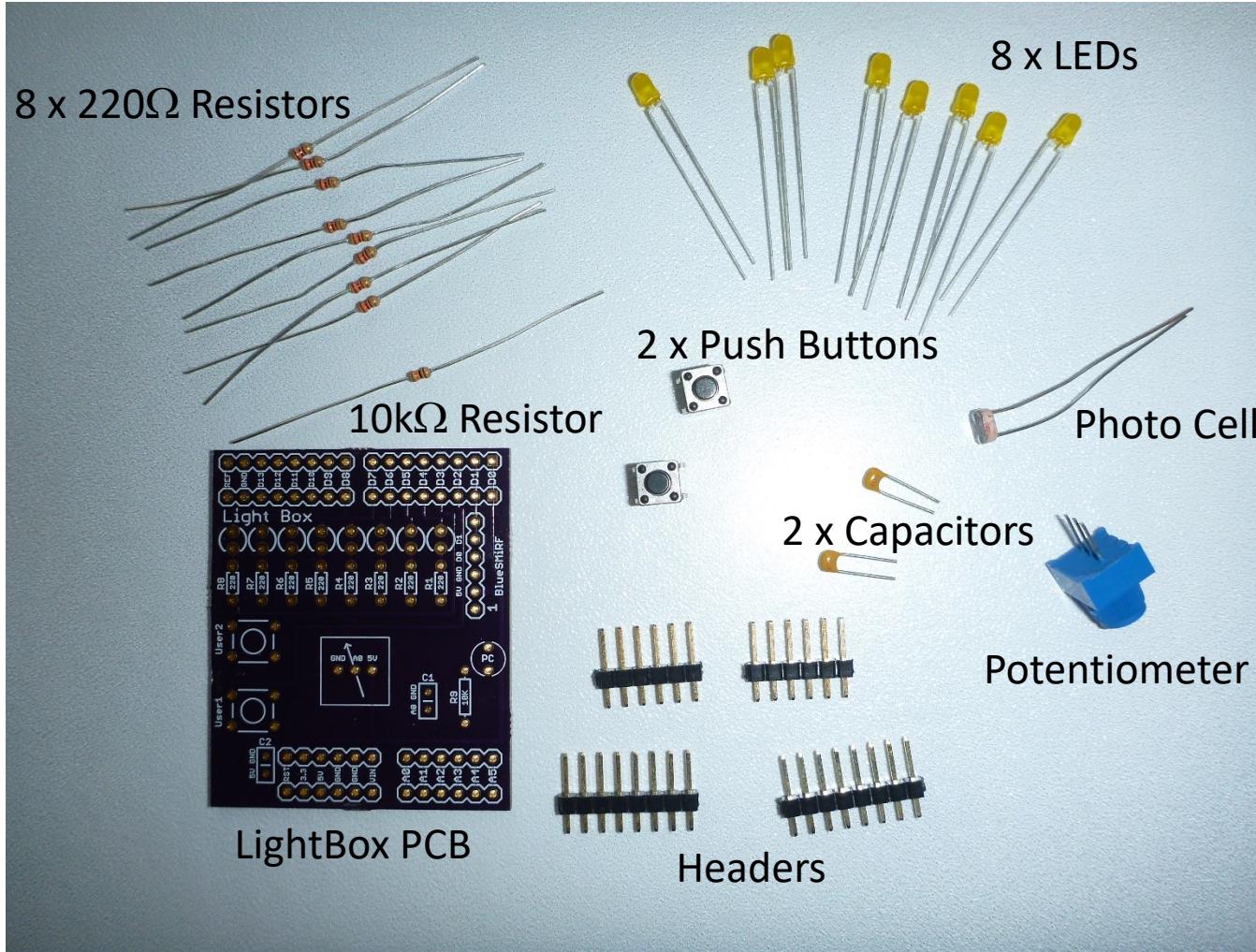


LightBox Assembly Guide

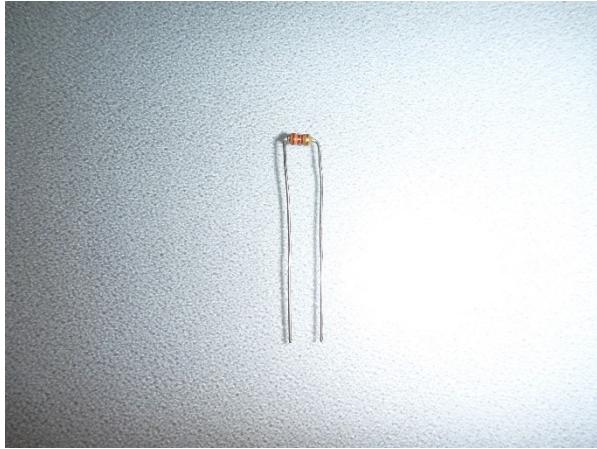
Kevin D'Angelo
Summer 2019

Inventory

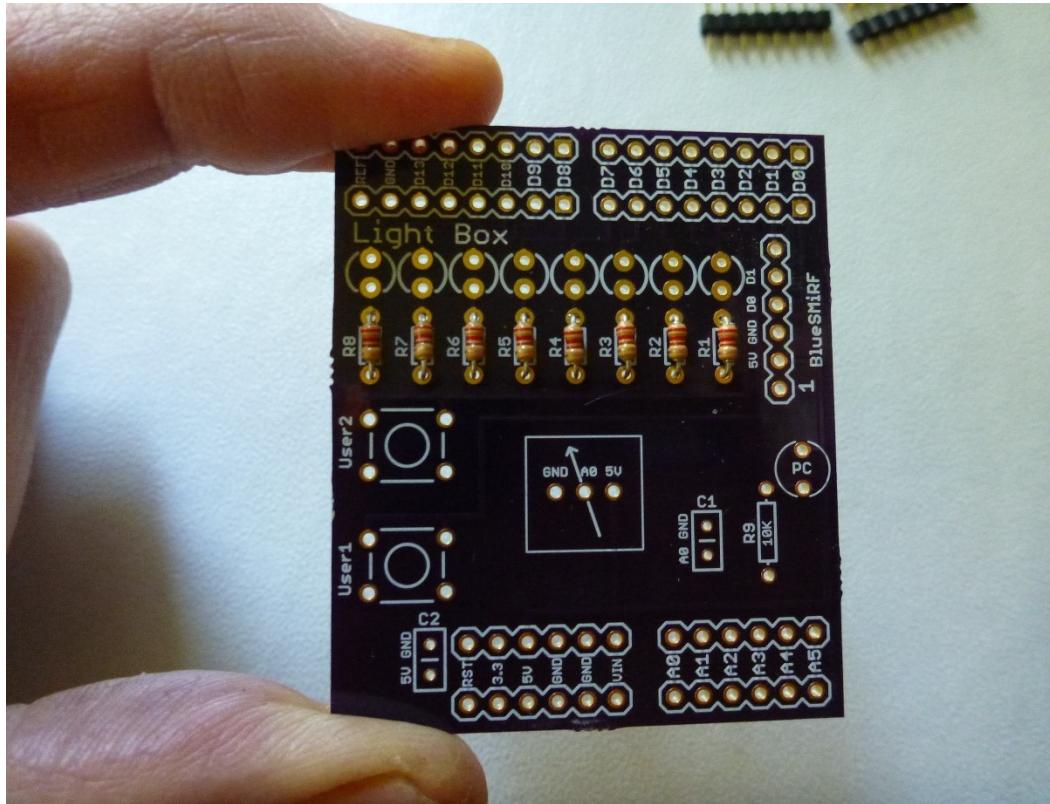


Resistors

The assembly process begins with the resistors because they are the lowest profile components.



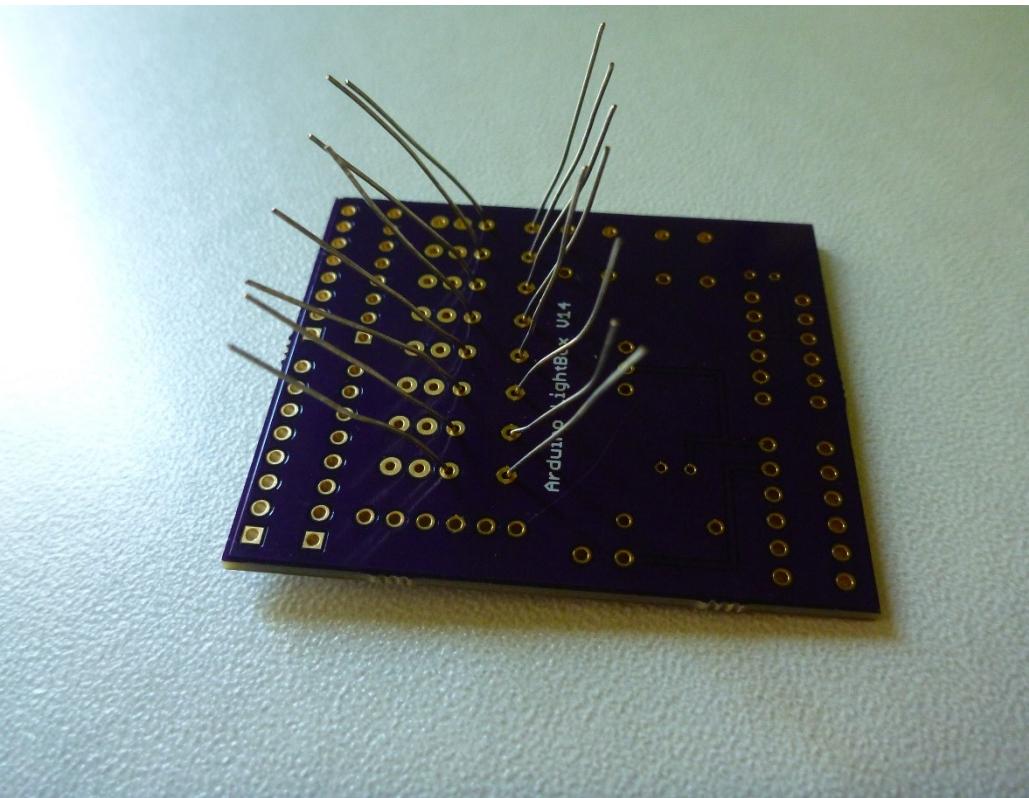
1. Bend Resistors Leads



2. Stuff Resistors

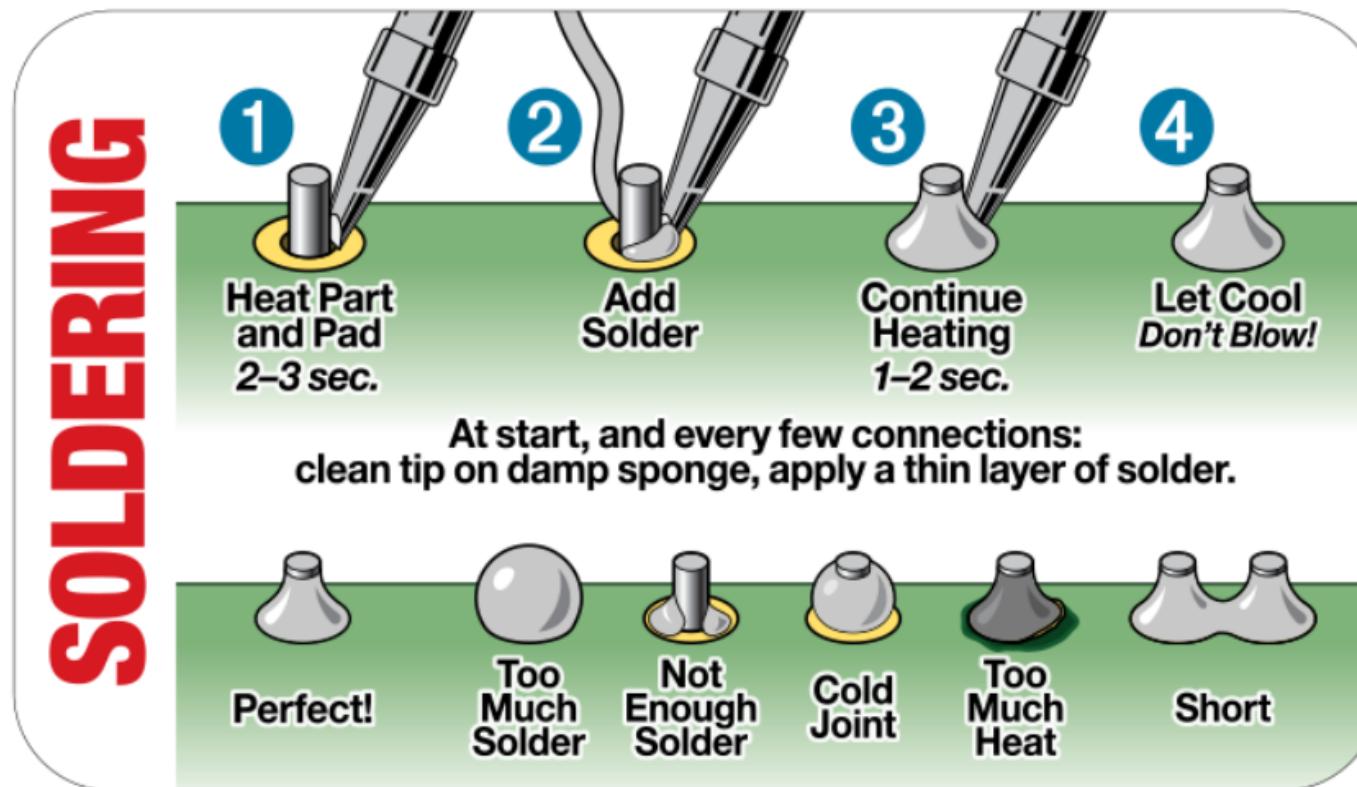
Resistors are not polarized, but they look nice with uniform orientation

Lead Positioning



3. Bend resistor leads out slightly to keep them in place

Soldering 101

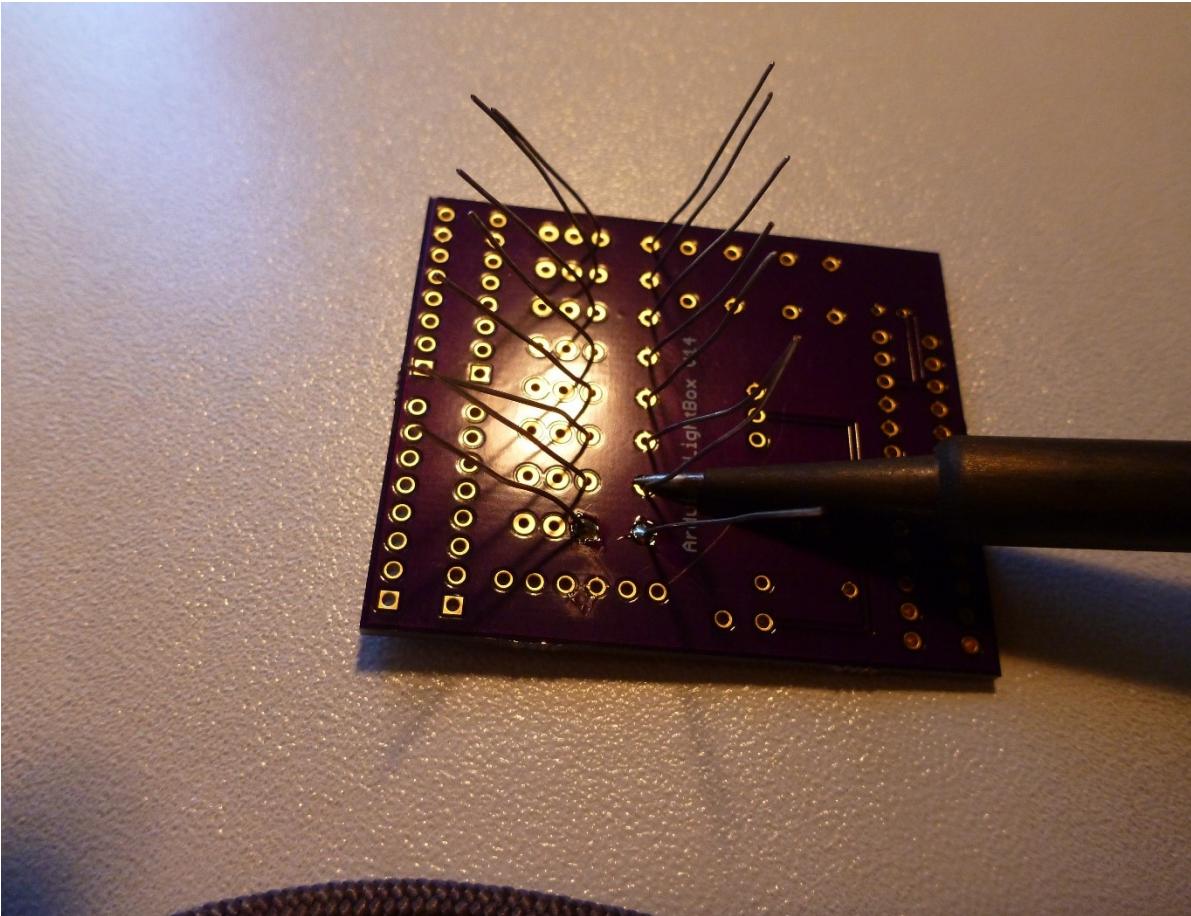


This is a terrific graphic from our friends at Adafruit.

The beginner is likely to see all of these issues, so don't feel bad.

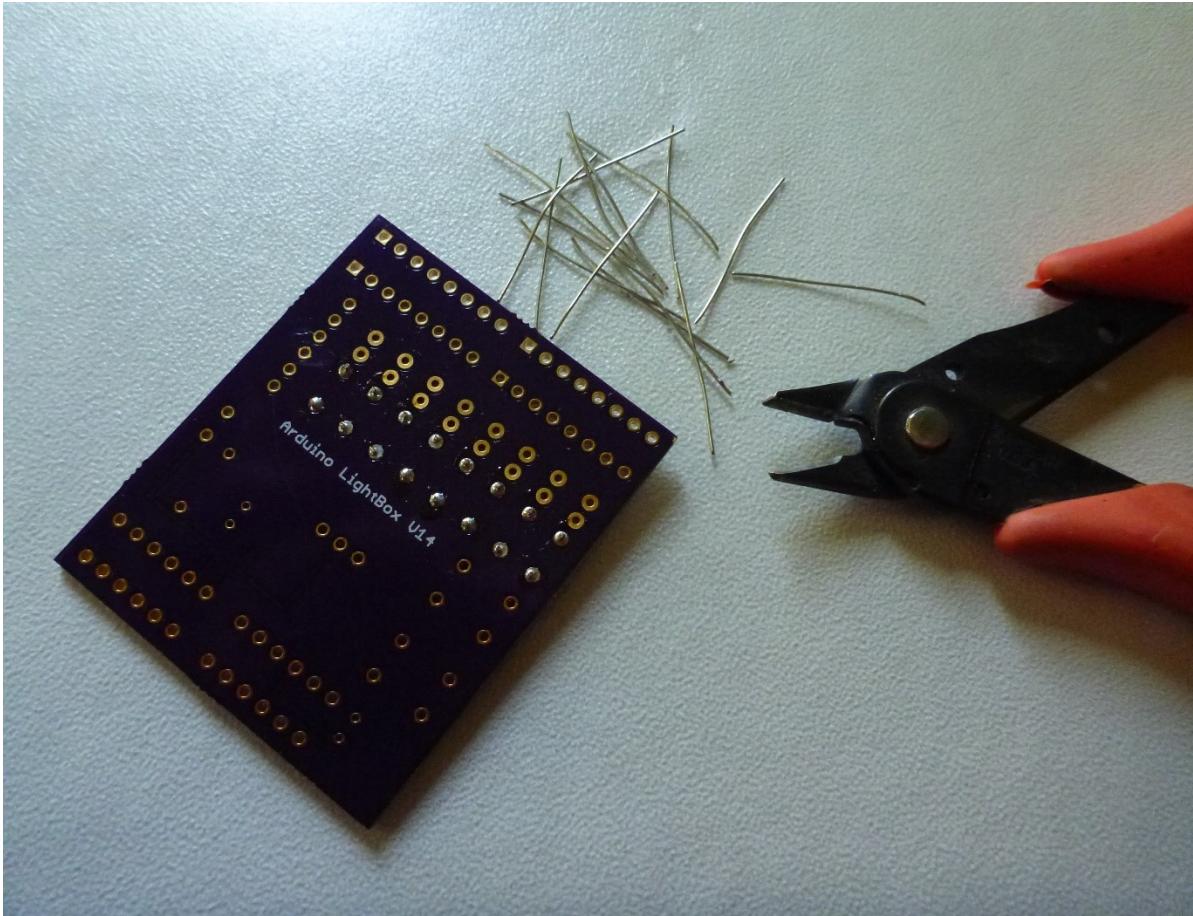
For the whole tutorial visit: <https://learn.adafruit.com/adafruit-guide-excellent-soldering>

Soldering The LightBox



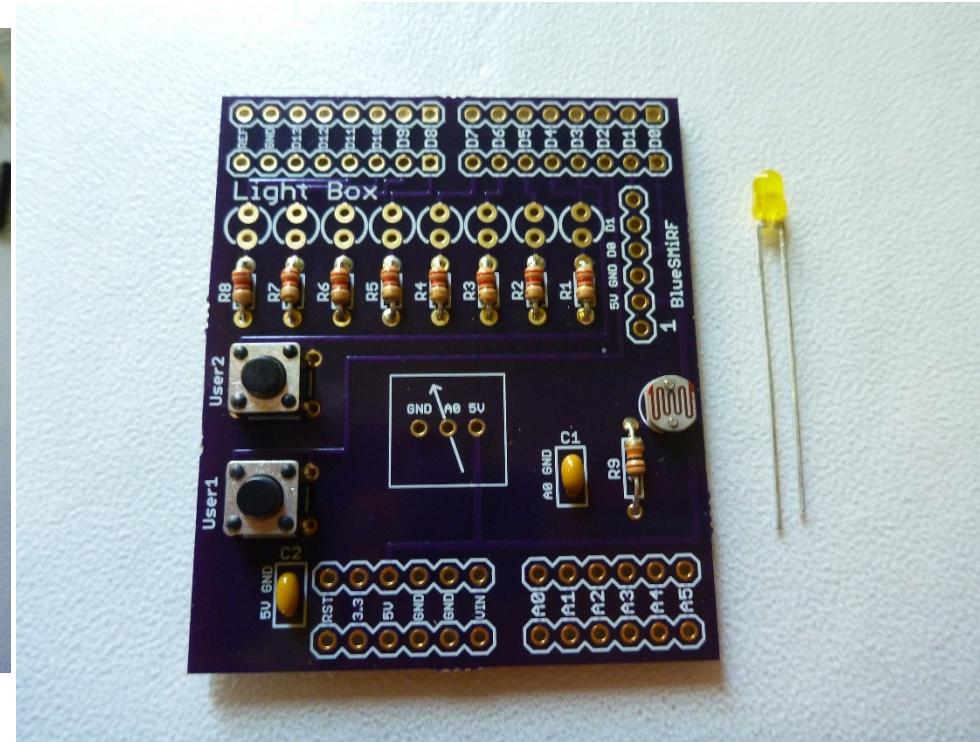
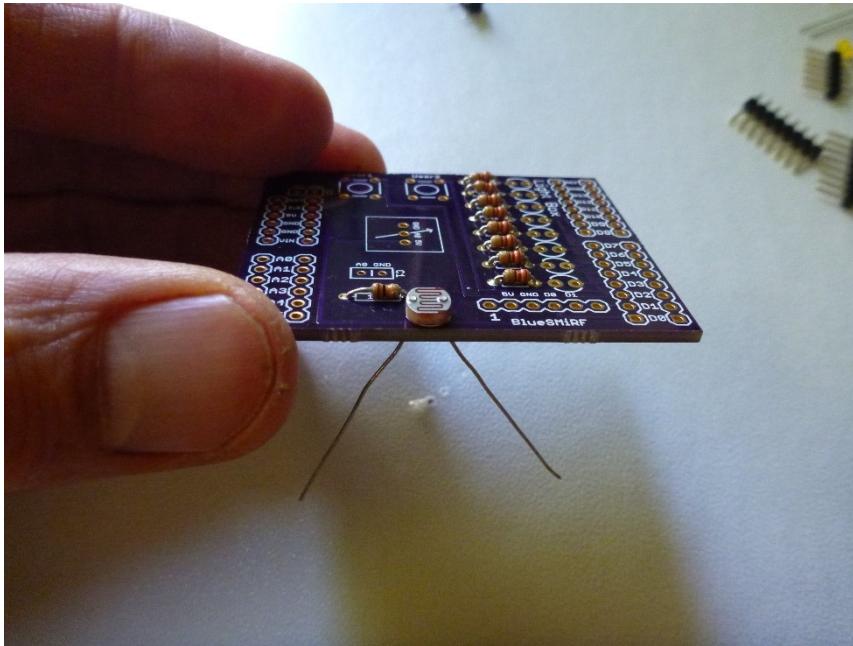
4. For best heating, get as much surface area of the iron onto the pad by positioning the iron as shown. Wait a few seconds, then feed solder onto pad, NOT onto iron tip. Watch it flow.

Lead Trimming



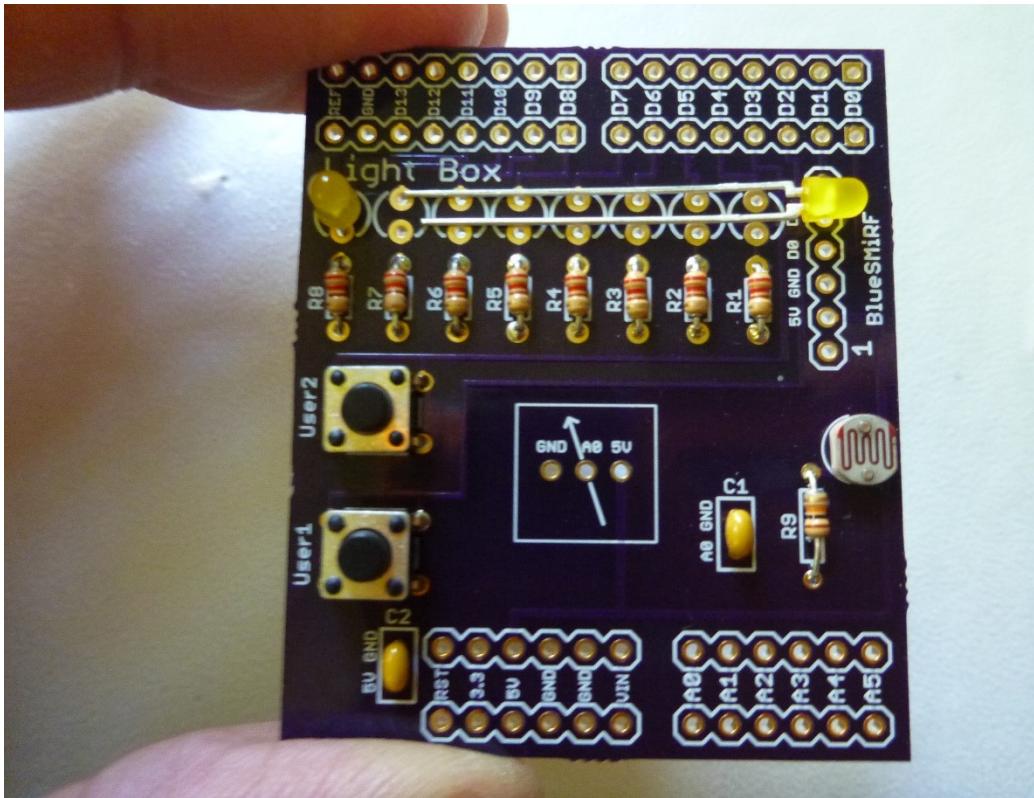
5. Trim off the pesky leads close to the PCB.
Be careful of your neighbor because they can become projectiles
when cut.

Photo Cell, Push Buttons and Capacitors



Next, install the $10k\Omega$ resistor followed by (in order of increasing profile)
The Photo Cell
The Push Buttons
The Capacitors

LED Polarity



The LEDs are the next larger profile components, so they are next.

The longer lead is the positive terminal, or ANODE.

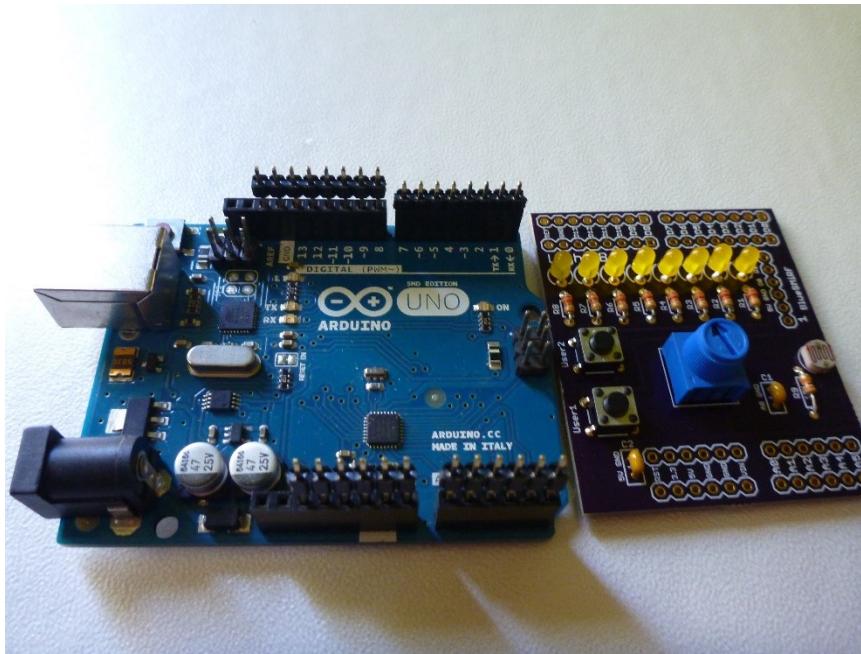
VERY IMPORTANT: Orient the LEDs so that the Anodes face the top.

Stuff and solder the LEDs one at a time to stay neat.

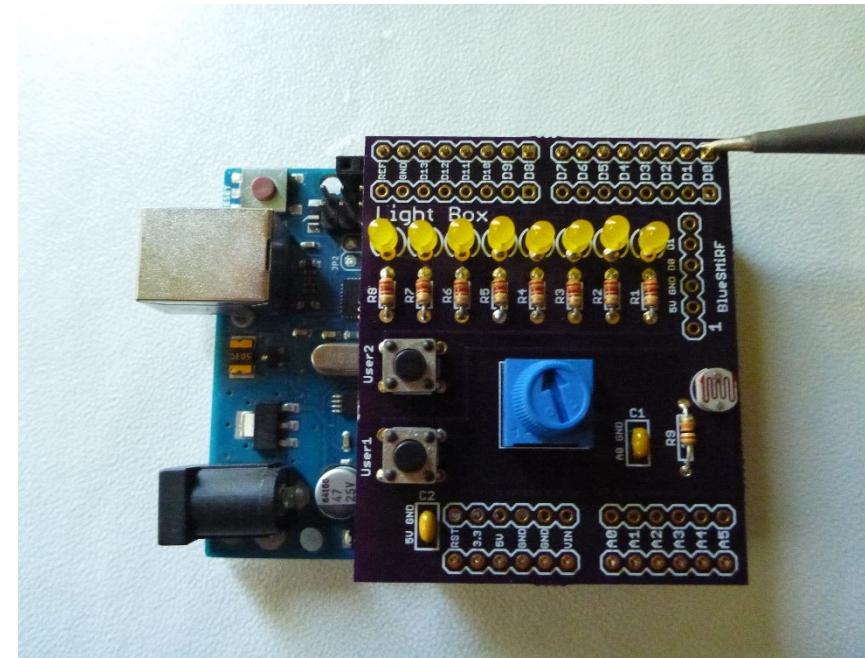
Be careful to solder the LEDs so they line up nicely together.

Potentiometer and Headers

1. Solder the Potentiometer with the arrow oriented as shown on the PCB

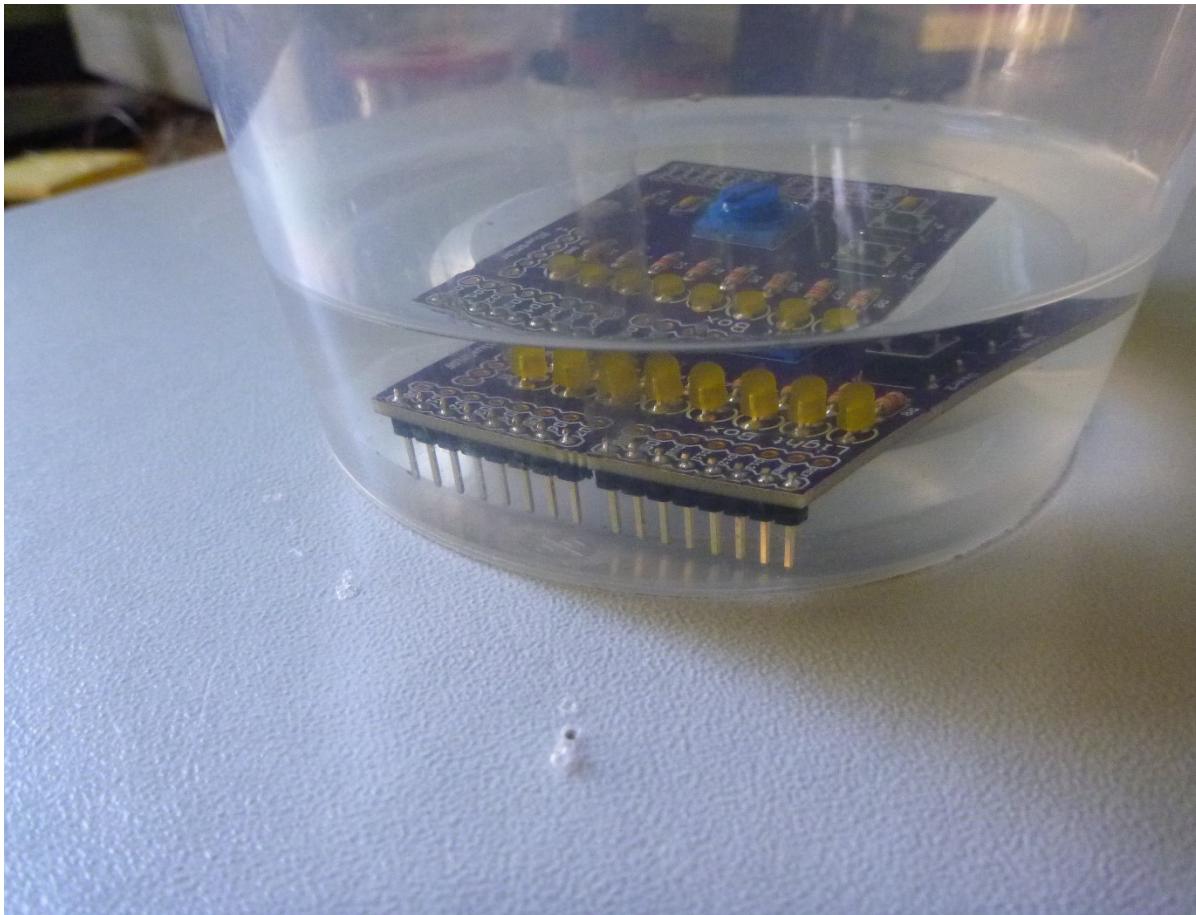


2. Use the Arduino as a guide by inserting
The headers as shown



3. Carefully place the LightBox on top of the headers
and solder them in place from the top.

PCB Cleaning



When finished soldering, give the LightBox an alcohol bath to remove the flux residue from the soldering process. Swish it around, tooth brush it maybe, and air dry. Use 99% Isopropyl alcohol from the drug store (lower concentrations will leave residue).