



# Glowing Hair Flowers with n00ds

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<https://learn.adafruit.com/glowing-hair-flowers-with-n00ds>

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# Table of Contents

<a href="#">Overview</a>	<a href="#">3</a>
<ul style="list-style-type: none"><li><a href="#">• Parts</a></li></ul>	
<a href="#">Assembly</a>	<a href="#">5</a>
<ul style="list-style-type: none"><li><a href="#">• Soldering</a></li></ul>	

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# Overview

Light up your hair with these beautiful iridescent glowing hair flowers. The magical light comes from Adafruit n00ds: a fun, flexible noodle-like LED filament. These little noodles are jam-packed with LEDs and look a bit like EL wire, but with no need for an inverter. They are available in a variety of colors and lengths so you'll be able to find just the right n00d for your project.

This is a fun beginner project that requires a little bit of tricky soldering but no coding or software. Just connect the n00ds to a coin cell battery breakout and they will light up and glow.

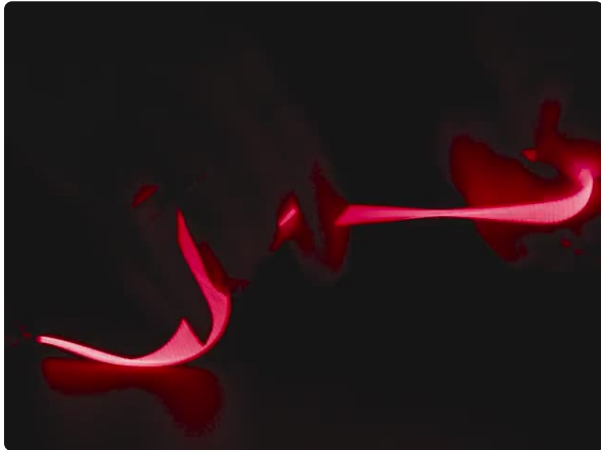
## Materials

Adafruit n00ds come in a variety of colors and lengths. They come in single-ended or double-ended variety. The double-ended variety are a bit easier to solder to: solder a wire to each end. The single-ended variety have both leads on one end, which is perfect for some projects where you don't want to have to double back to the battery, but these are wicked hard to solder to.

For these hair flowers I found the 300mm single-ended n00ds in red, pink, and warm white.



## Parts

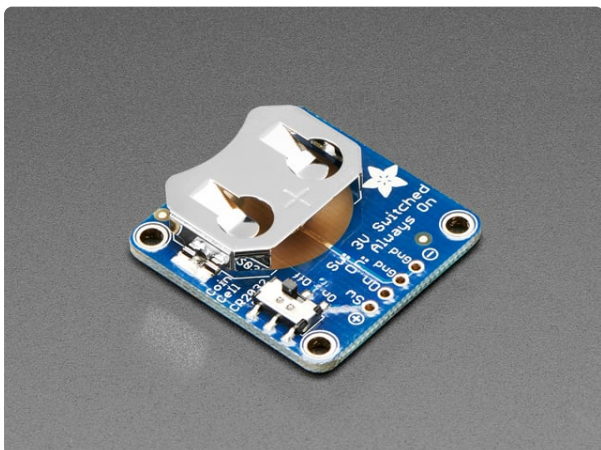


### Single ended n00ds - 300mm long Flexible LED Filament - Red 3V

Our favorite food when hacking on code or electronics is a hot bowl of noodles - and around NYC these are often called 'noods'! What we've got here are flexible LED...

<https://www.adafruit.com/product/6150>

Each 300mm n00d requires 3v of power. These coin cell breakouts used with lithium coin cell batteries provide 3v and come with a handy on/off switch. This is a wonderfully compact way to power your lights -- the whole thing is self-contained with no extra battery boxes or wires to manage.



### 20mm Coin Cell Breakout w/On-Off Switch (CR2032)

Simple but effective - this sewable breakout board has a CR2032 coin cell battery holder soldered on, an on/off switch and 0.1" pitch breakout pins for easy connecting. Great for...

<https://www.adafruit.com/product/1871>



### CR2032 Lithium Coin Cell Battery

A perfect match for our sew-able coin cell holder. This non-rechargeable coin cell is CR2032 sized: 20mm diameter, 3.2mm thick. It...

<https://www.adafruit.com/product/654>

Connect the n00d to the coin cell breakout with silicone stranded wire. Don't skimp and use cheap wire! For wearable projects the wire tends to get flexed a lot, and this wire is a lot less likely to break.



### Silicone Cover Stranded-Core Wire - 2m 30AWG White

Silicone-sheathing wire is super-flexible and soft, and its also strong! Able to handle up to 200°C and up to 600V, it will do when PVC covered wire wimps out. We like this wire...

<https://www.adafruit.com/product/2006>

The best way I found was to use crimping beads for jewelry to help solder onto the ends. Similar electrical crimped connections with solder will likely work similarly.

### 1 x Crimping Beads for Jewelry Making

Thrilez Crimping Beads for Jewelry Making, 2200 Pieces Crimp Tubes with Crimping Pliers for Earring Necklace Bracelet DIY Jewelry Making(3 Sizes, 4 Colors)

<https://www.amazon.com/Thrilez-Crimping-Jewelry-Necklace-Bracelet/dp/B0BYNBPTWT>

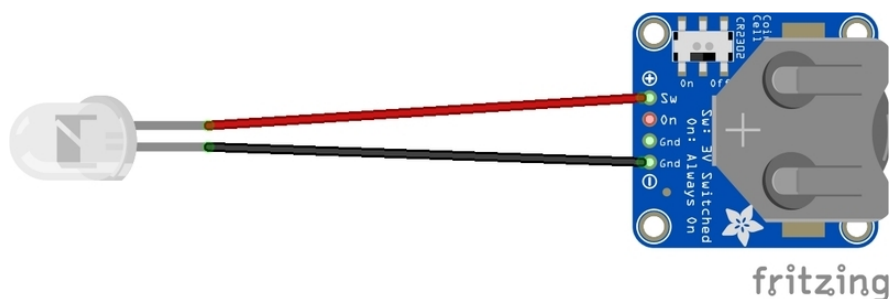
You'll also need soldering supplies: a good soldering iron, solder, and heat shrink tubing.

### Additional Tools & Materials

- [Iridescent Hair Flower](https://adafru.it/1ag5) (<https://adafru.it/1ag5>)
- [Hair clip or barette](https://adafru.it/1ag6) (<https://adafru.it/1ag6>)
- Hot glue gun and/or [E6000 Glue](https://adafru.it/1ag7) (<https://adafru.it/1ag7>)

## Assembly

### Wiring Diagram



Each n00d has two connection points: a cathode, or positive lead, and an anode, or negative lead. You can think of it as one big, noodly LED and treat it accordingly.

Connect the cathode (+) lead to Sw and the anode to Gnd on the coin cell breakout. How to tell which is which? One clue is that there is a tiny dot on the cathode side.



But the surest way to tell is to connect the ends to a coin cell battery and just see which configuration makes the n00d light up. You won't hurt it by hooking it up backwards -- it just won't turn on.

## Soldering

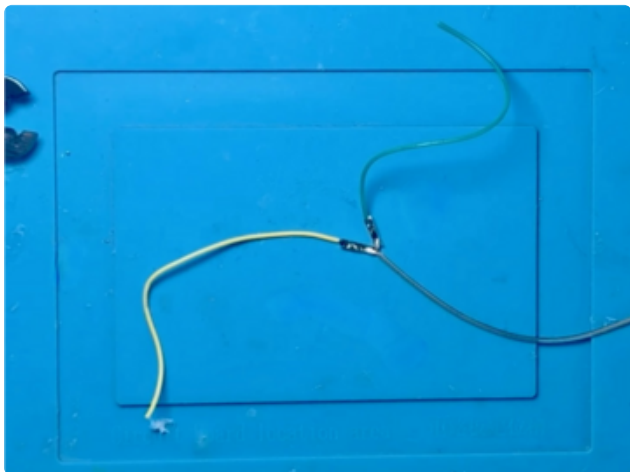
The leads on these single-ended n00ds are WICKED hard to solder to. Not only is it hard to tell which is which, but they are only connectable on one side, and the n00ds like to roll around on your table and get you all confused. Here are some tips to make it easier.

1. Take a deep breath and give yourself some time! I've been soldering for years and it still took me around 20 minutes to get these things working.
2. Don't worry about color coding red and black wires to the anode/cathode. Just use two different colored wires on the two pads and figure it out later.
3. The pads are delicate and like to wrinkle up and twist and break. Instead of soldering directly to the wires, I used a little [metal ferrule from my jewelry making kit](https://adafru.it/1ag8) (<https://adafru.it/1ag8>). I filled it with solder, then used my soldering iron to melt the solder into a little puddle, then pushed the tab into the molten solder until it was buried.

### 1 x Crimping Beads for Jewelry Making

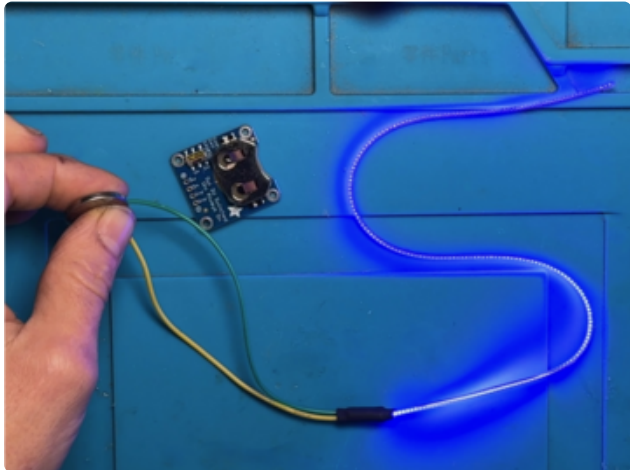
Thrilez Crimping Beads for Jewelry Making, 2200 Pieces  
Crimp Tubes with Crimping Pliers for Earring Necklace  
Bracelet DIY Jewelry Making(3 Sizes, 4 Colors)

<https://www.amazon.com/Thrilez-Crimping-Jewelry-Necklace-Bracelet/dp/B0BYNBPTWT>



Solder the metal ferrules onto the pins. Be sure to get solder touching both the top and the bottom of the solder pads. Only one of those sides is "active" and I found it was most reliable to just bury the pads in solder.

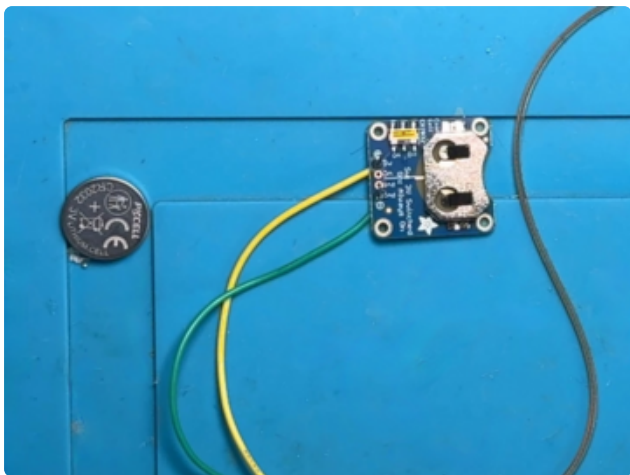
Solder two different colored wires into the other end of the crimps.



Strip a little shielding off the other end of the wires. Test your connections by touching the bare ends of the wires to each side of a coin cell battery. If it doesn't light up, try flipping the battery around and touching the other sides.

If you use the connection pads instead of the battery, make sure the switch is "ON".

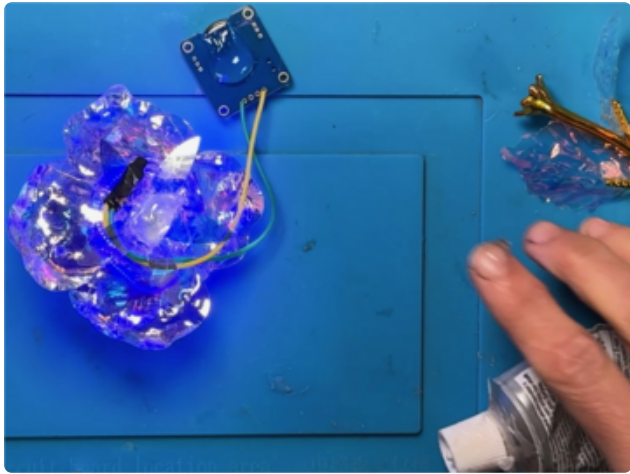
Once you've got light, take a look and note which wire is on the + side -- this is your positive, or cathode wire. The other is your anode, or negative / ground wire.



Solder your cathode (+) to SW on the coin cell breakout, and solder your anode (-) to G. Insert your battery and flip the switch to "on" and your n00d should light up!



Remove the stem from the flower by unscrewing it. The rest of the flower will want to fall apart. Use a blob of E6000 glue on the end of the screw to secure it back together.



Finish up by winding the n00d around in between the petals and secure the other end with another dab of glue in the center of the flower.

Glue the coin cell breakout to the back of one of the petals, and glue a hair clip onto the back of the flower so you can clip it to your hair or a hat.

