

Supplies

LED Sewing Kits that includes an LED (light-emitting diode), CR2032 battery, a sewable battery holder, and conductive thread

Permanent marker

Hand sewing needle

Small tipped needle nose pliers

Craft knife

Scissors

Anti-fray glue, such as Fray Check

Finished art quilt

The items in RED should have a parent's help!

1. Make your design that you want to put lights into and completely finish it (quilting, binding, etc). Make sure you have easy access to the back of the project (For example, if you are making a pillow, and want your lights on the front, finish your pillow but don't put in the pillow insert until you are finished sewing your circuit)
2. LEDs have one long leg and one short leg. The longer leg is the positive lead on the LED. Using your permanent marker, color the longer leg right next to the plastic base of the LED. This is so you can tell which one is which once you bend the legs into shape.

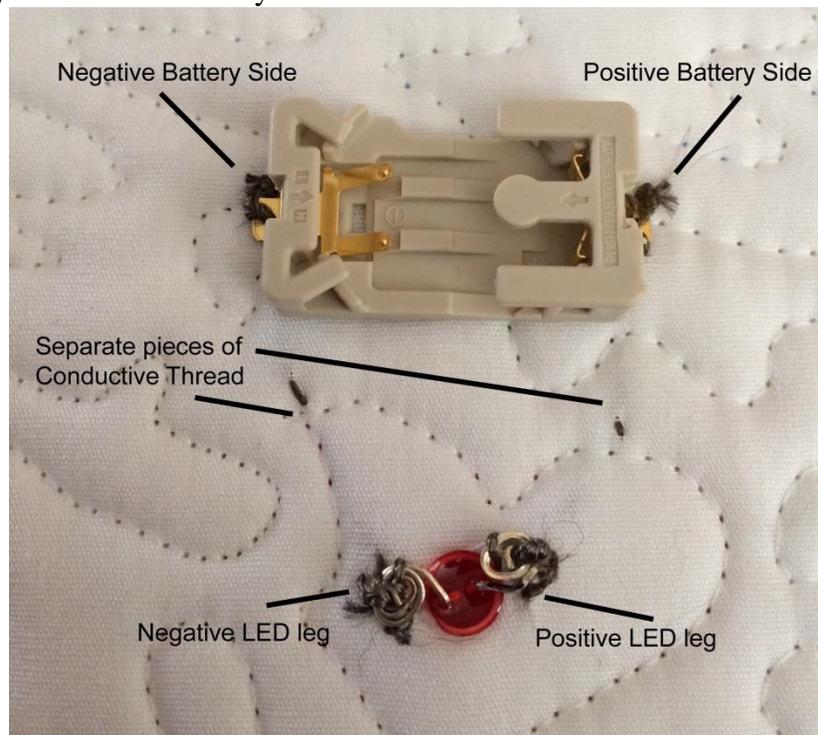


See how one leg of this LED is marked with the marker? That's the POSITIVE leg.

3. **Using your needle nose pliers, grab one of the LED legs by the tip and slowly and carefully twist the leg into a spiral shape as close to the plastic base as possible. Using the pliers, carefully bend the spiral outward so that it will lay flat on the back of your quilt.** Do the same with the other leg. Once finished, make sure you can still tell which is the positive lead by looking for your permanent marker's mark.
4. Select the spot on the front of your art quilt where you want your LED to be inserted. **Using your craft knife, poke a hole in your quilt top through all layers**

small enough for the LED to push through. You may need to make your hole X shaped to not distort the quilt top too much. If so, use your scissors to snip off the points of the X so they do not cover the LED. If you are concerned about fraying at the LED site, use a very small amount of Fray Check to seal your edges. (Do not do this while LED is inserted, as Fray Check will not come off of the plastic section of your LED. Wait until dry to insert your LED if using Fray Check.)

5. Place your sewable battery cover on your quilt back in a location near your LEDs. It should be at least an inch away. I like to put mine close to the bottom of the quilt. Note on the battery holder which is your positive and negative lead. You may need to angle your battery holder so that your conductive threads will not cross to reach your holder.
6. Using the conductive thread and hand sewing needle, and using a running stitch, just through the back fabric of your quilt, connect the positive lead on your LED to the positive end of the battery holder. Starting with the Battery Holder side first will hold it in place while you travel to your LED with the conductive thread. Be sure to use large secure knots. Make several passes through the LED spiral leg and the battery holder to ensure a good connection. Do the same for the negative leads. **NOTE: Be sure NOT to let your threads cross each other or you will short out your LED and battery!**



See the marker mark on the Positive side of the LED?

7. You can use a very tiny amount of Fray Check on the conductive thread knots as the thread is slippery and can unravel.

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8. Insert your battery into the holder following the positive and negative marks on the battery. Enjoy the light show!

Notes and tips:

Choose a project that is not meant to be washed. If you must clean the quilt, remove the battery, and use a very lightly damp cloth to wipe the surface of the quilt only.

I used a children's book on circuitry to learn more about how these electronics work, as those books are very easy to follow for beginners.

Remove the battery from the holder and store in a safe place. You can even make a pocket for it on the back. Don't leave it stored there for long periods of time (ie, months) in case it becomes damaged and damages your quilt.

Resources:

<http://shop.muppin.com> – LED Sewing kits – including LEDs, conductive thread, battery holders, and batteries.

www.muppin.com

Please don't hesitate to ask me for help on this project!

Cheryl Sleboda
www.muppin.com