

## Light Up Bag

1. Program your Gemma to make a pattern using 2 or more LEDs.
2. Decide where you want to place your Gemma and your LEDs. You can use the pattern on the back of this page to layout different ideas.
3. Trace your circuit so that each LED is connected to a pin and GND, make sure none of the paths intersect (if they have to, add a piece of fabric between the lines so they don't touch).
4. Using the conductive thread, sew the Gemma onto the purse and follow your traced lines to the LEDs. Make sure to use small stitches.
5. Using embroidery thread, sew your own design onto your purse.

### MATERIALS

2 Coin batteries  
1 Battery holder  
Gemma  
LEDs  
Needle  
Conductive thread  
Embroidery thread  
Purse  
Colored pencils

### Troubleshooting:

Be sure to check every connection! Are the LEDs connected in the right direction (positive is where it is supposed to be and negative is where it's supposed to be)? Make sure there are no short circuits!



## What can you do now?

Now you know how to use copper tape, conductive thread, LEDs, and a Gemma! But what can you do with all of these things? There are some project ideas below which you can try, or you can come up with your own project.

Use LEDs and copper tape to make a design that lights up.



Use LEDs and conductive thread to make a bracelet that shines when you wear it.

