

LED Bracelet

Leader Guide



Fashion

through science

MODULE



We are
Engineers!



Movement
Improvement



Marvelous
Materials



Smart
Clothing



Patternmaking
Tools n' Tech

Big Picture

Young designers will apply knowledge of electronics to create a wearable, light-up LED bracelet.

What's the goal?

By the end of this activity, young designers will understand how to create a working parallel circuit and incorporate electronics into fashion design.

Tips

- Extra helpers are essential for this activity if you have more than 5 young designers
- Straight lines are easiest to sew
- Remember polarity! Having the young designers keep the positive line always on top and the negative always towards the bottom as they sew can help keep this straight

Materials

What they need: (per group)

- Conductive thread
- 3mm LEDs, white or colored, up to 3 per designer
- 1 Hand sewing needle
- 1 3V Coin-cell battery (CR2032) per designer
- Coin-cell battery holder
- Marking chalk/disappearing ink pens
- Felt or foam
- Felt or foam shapes for decoration
- Snaps for fastening
- 4 X AA battery pack with wire leads (6 volt)
- Space Dough or commercial Play-Doh

Prep Time: 60 Minutes
Activity Time: 60 Minutes
Difficulty: Level 2



- Don't squeeze the LED metal tails too hard or bend them back and forth too many times or they will break.
- Loose components (LEDs) may be secured with regular thread

VOCABULARY

Circuit: A path for an electrical current to flow.

LED: light-emitting diode

Polarity: Batteries have a positive and negative terminal. Electricity flows from the positive to the negative end.

Preparation

- Mock-up the circuit using Dough. The ends of the bracelet will act as a switch for the LED's. Leave a break in the Dough (Figure A), then close it to show how fastening the bracelet will complete the circuit (Figure B).

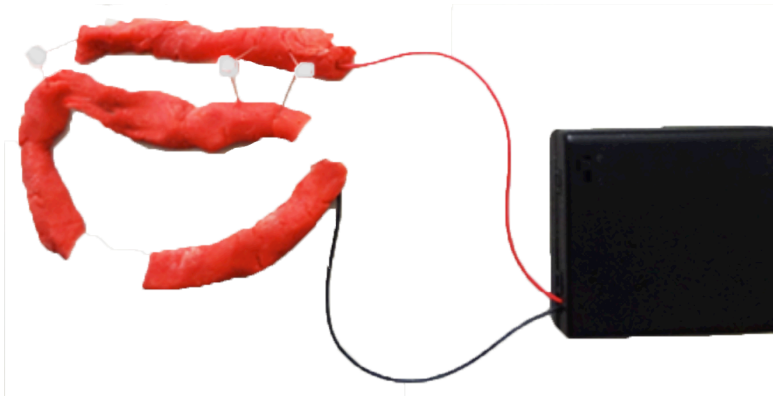


Figure A

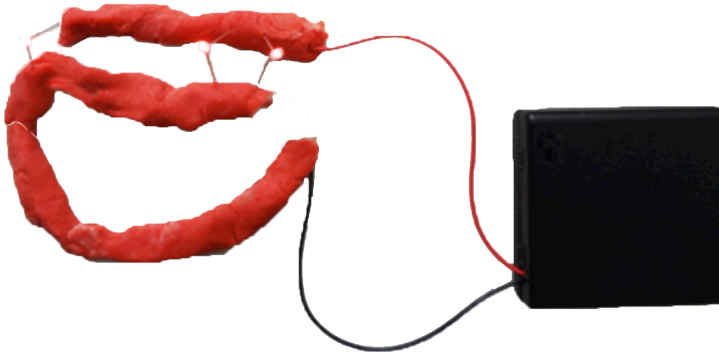
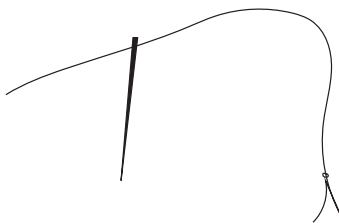


Figure B

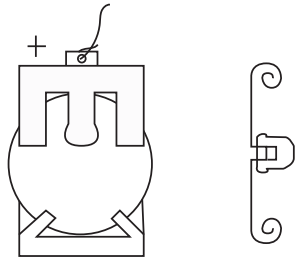
- Cut out a bracelet shape of felt or foam that fits the young designer's wrist

Let's get started!

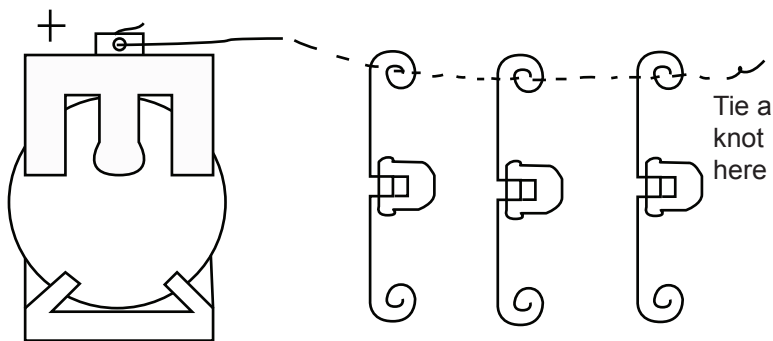
1. Introduce the activity, the electrical components, and the tools. Remind designers about the features of a parallel circuit.
2. Have the designers thread their needles with conductive thread and tie a knot at the end.



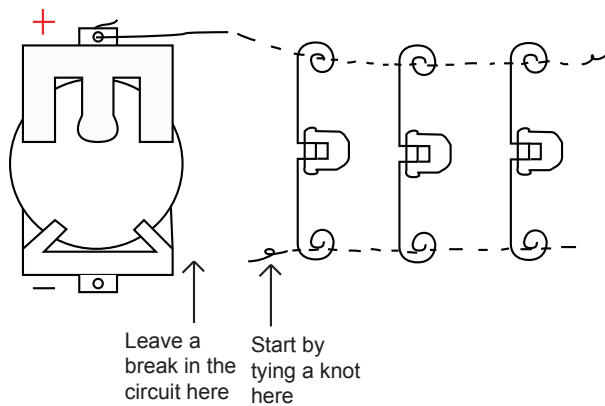
3. Tie a knot onto the positive end of the battery terminal.



4. Arrange the 3 LEDs onto the bracelet.
5. Sew along the positive trail over the curled LED legs.

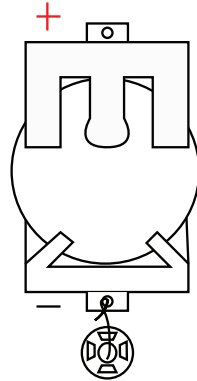


6. Sew along the negative trail leaving a break in the circuit.



7. At the end of the line of stitches sew a snap to the underside of the bracelet.

8. Tie a knot at the negative terminal of the battery and sew a snap on the right side of the bracelet



9. Add decorations and insert the coin cell battery
10. When you snap the two ends together the bracelet should light up!

