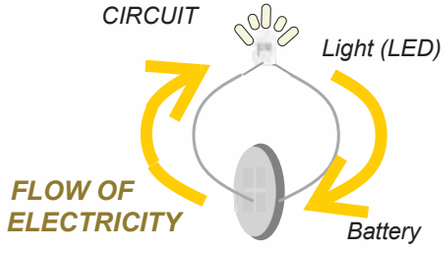
# LIGHT UP SCHOOL CASE

## Circuit Basics:

A circuit is a closed path through which electricity flows. The simplest circuit we can work with is a battery connected to a light. The light turns on when electricity flows from the battery, through the light and back to the battery.




**Conductive** materials allow the flow of electricity. Conductors are usually made out of metal such as paper clips, copper tape, and aluminum foil. In this project, we'll use conductive thread to carry the electricity.

## Supplies:

Electronics | Felt | Conductive Thread | Needle | Shapes

*Additional recommended materials (not included):*

Scissors | Hot Glue Gun | Craft Glue

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## A Tour of your board

### Tilt Switch

A tilt switch opens and closes an electrical circuit based on its angle. This switch helps control your circuit. When you hold the switch vertically the metal ball inside touches the conductive ends - closing the circuit! *Tip: If the 2nd LED flickers or doesn't turn on, shake the board to loosen up the metal ball inside.*

### 2 LEDs

LED stands for Light Emitting Diode and they turn electricity into light. These components allow you to light up your projects. They have a positive (red) and negative (white) side.


### Battery Pack/ On-Off Switch

The battery will power your circuit. It stores electricity that makes your circuit light up, shake and more. The battery pack has a positive side marked in red and a negative side marked in white. Tip: Insert replacement battery with the positive side up. The on/off switch can help you control when your circuit is powered on.

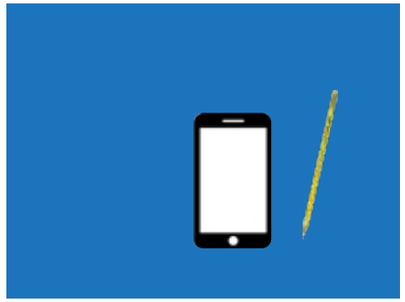
Quick Tip: Look for metal contact to determine which part of the component is conductive

# Make your Light up case:

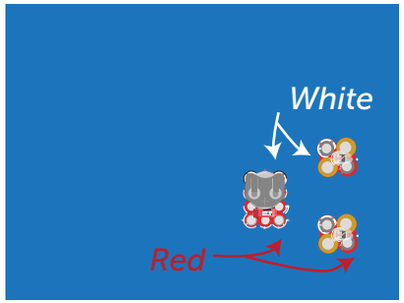
1. Start by removing components off the board by rocking each one back and forth with a pencil. In this project, we'll use the battery pack and both LEDs. To learn how to use the tilt switch and instructional videos on how to make this project, please visit our website at *www.lectrify.it*.


Battery LED LED

2. To make your school case, you'll be folding the felt in half. The size of the case will be up to you, but remember to leave an inch or two along the sides so that you can seal it later. It might help to use your cell phone or pencil as a guide to determine the right size.

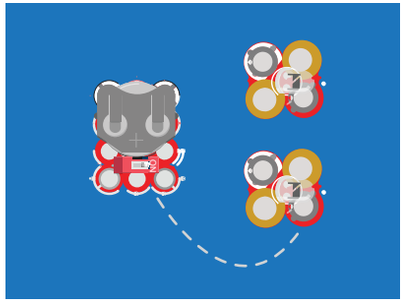


3. Place the battery and LEDs on the right side of your felt. Use the color coding on the components to orient them in the same direction. In the example below, notice the white corners facing up and the red facing down.

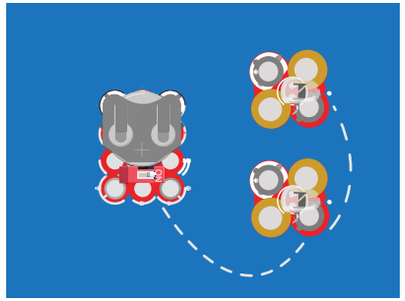



4. Conductive thread looks like regular thread except it has metal fibers in it to conduct electricity.

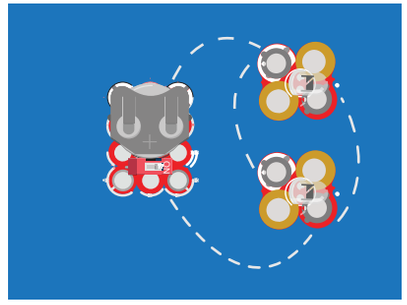
Thread your needle then stitch a few loops through the red metal hole on corner of the battery. Weave the thread to the red metal hole on the first LED. Make several loops to secure it in place.



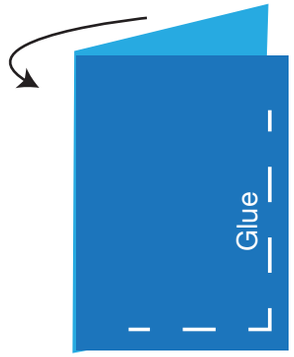
5. Continue weaving the conductive thread from the red side of the LED to the red metal side of LED #2. Make several loops then tie the stitch off and cut any loose ends.



6. Use the conductive thread to connect the white metal corner of the battery to the white metal side of the LED. Weave the thread several times before continuing to the white side of the second LED. Make several loops then tie the stitch off and cut any loose ends.

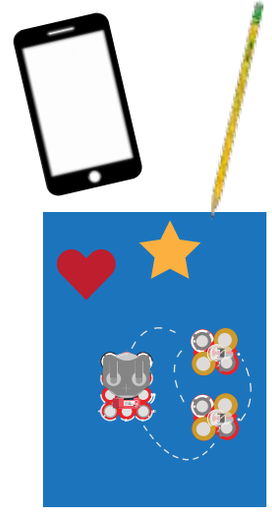


7. Turn the felt over. Use a hot glue gun or craft glue on the bottom and right side of the felt. Fold the felt over to seal.




Back

8. Design your case using the felt shapes or any other craft material. Turn the on/off switch and see your LEDs light up!



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