

The Simple Circuit Book



Materials & Tools

Two sheets of cardstock (same size)
X-acto knife
Copper Tape
Coin Cell Battery
Clear tape
Glue Stick

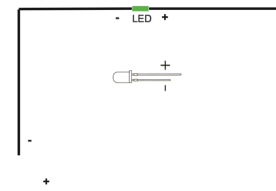
1. Fold each sheet in half.

2. Select the sheet you want to be the interior of the card. Cut two lines in the center of the folded edge. The cuts should be perpendicular to the fold and 1-2 inches long.

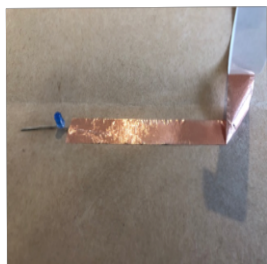


3. Fold the cut section, then open the card and pop the cut section out so it folds in the opposite direction of the original fold. This piece will support your pop-up element.

4. Use the diagram to place the LED and copper tape in the inside of the second sheet of paper. Note: the copper tape does not need to be a perfect square/ rectangle.



5. Place the LED. The short leg is the Negative end and the long leg is the Positive end. Turn out the legs of the LED so they lie flat. The LED should be placed near the fold in the paper and in the center so that it will be beneath the pop-up element. Leave enough space on the outside edges to glue the two pieces of paper together.



6. Place a piece of copper tape over the positive leg of the LED. Place the tape as smoothly as possible. When you get to the corner of the rectangle, instead of cutting the tape, turn the tape back on itself and then fold down towards the other direction. Complete the three sides of the positive side.

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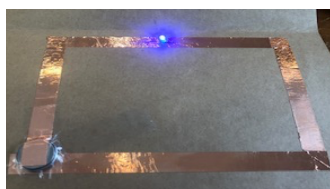
7. Follow the same process to create the negative side of the circuit. When you get to the end, pull out a little extra tape and fold it back on itself to create a tab.

8. Place the coin cell battery so its positive side (look for the "+") touches the positive side of the copper tape. Place the copper tape tab over the negative side of the battery. Press down on the tab to make sure the LED lights up. Tape down the battery with clear tape, making sure that the LED stays lit.

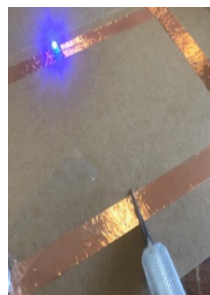


Note: If the LED doesn't light up, smooth down the copper tape and make sure the battery is securely placed.

9. Now, take your X-Acto knife and make a thin slice in the copper tape opposite from the LED. This will break the circuit and your LED will go out. Don't worry! We're going to make a switch to turn your LED on and off.



10. Place the first piece of paper on top of the paper with the circuit. Put a small piece of copper tape on the back side of the first paper so that it lines up with the bottom segment of the circuit. Pressing down on this will act as a switch to turn on the light.



11. Put glue around the edges of the card base. Carefully place the card top, making sure that the fold matches. Press down around each edge to make sure the two pieces are affixed.

12. Glue whatever image/ shape you'd like to serve as the pop-up element to the front of the pop-up mechanism.



