Rocketronics Kit Directions

The Rocketronics kit comes with everything you need to make a picture that teaches circuitry. The circuit pattern suggestion included in the kit is a parallel circuit but you can get creative. For more on circuits, see the circuit tutorial.

Time to complete: 40 minutes

Kit Contents

- One black 5x7 inch (12.7x17.8 cm) card
- One paper with copper tape schematic
- One piece of black cardstock perforated to create a picture stand and battery holder
- Two 3v batteries
- Six feet (1.8 m) of 1/8 inch (3.2 cm) copper tape
- Six white Chibitronic Circuit Stickers
- Paper cutouts
  - One grey rocket
  - One orange rocket
  - One blue rocket
  - One spaceman
  - One alien
  - One planet
  - Stars
- One large paperclip
- Glue dots
- Circuit tutorial schematic

Tools you will need (not included)

- Scissors
- Tape measure or ruler
- Pen or pencil
- A tool with a smooth, flat edge (i.e. a letter opener, a butter knife, etc.)

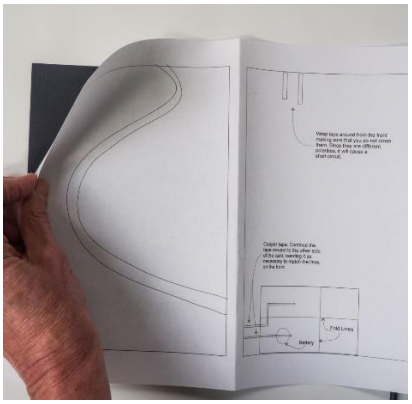
IMPORTANT: Please do the Circuit Tutorial first if you have never built a circuit!!

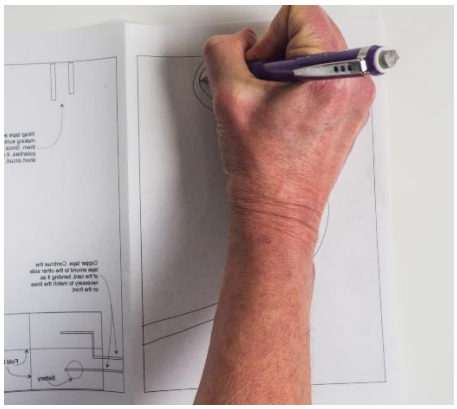
Directions

Step 1: Trace the pattern or draw your own design

- Lay the pattern for the space trail over the black 5x7 inch card.

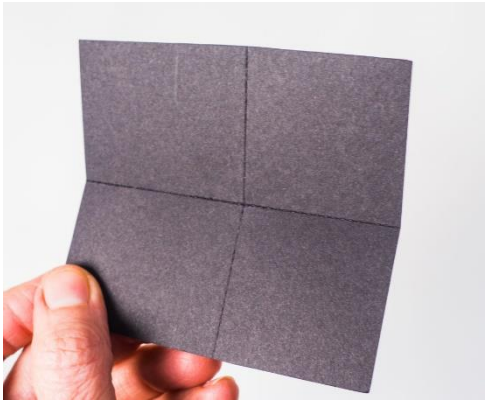
- Take a pencil or pen and trace it, pressing firmly to make an impression of the drawing.
- After removing the paper, you may want to lightly draw over the impression you made from pressing firmly so it is easier to see.

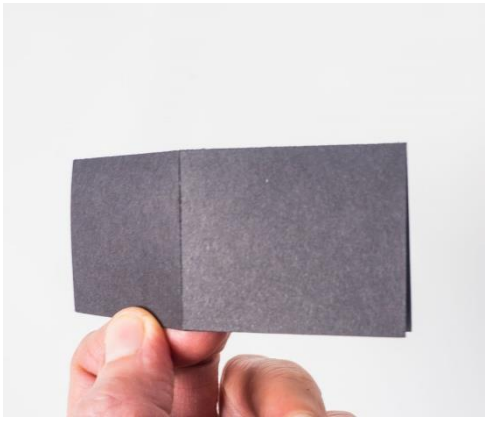




Step 2: Build the picture stand/battery holder

- The picture stand/battery holder is the smaller piece of black cardstock. Note that one side is longer than the other. The shorter side functions as the stand and the longer side attaches to the back of the card to form the battery holder.
- Hold it with the shorter side to the left. Refold the holder along the horizontal fold so the open side is at the bottom.





- Place glue dots on the four corners of the *longer* side, which should be facing you.
- Stick the stand to the card, about 1/4 inch (.6 cm) up from the bottom and ½ inch inch (1.9 cm) in from the left, with the open end pointing down and the short side on the right.

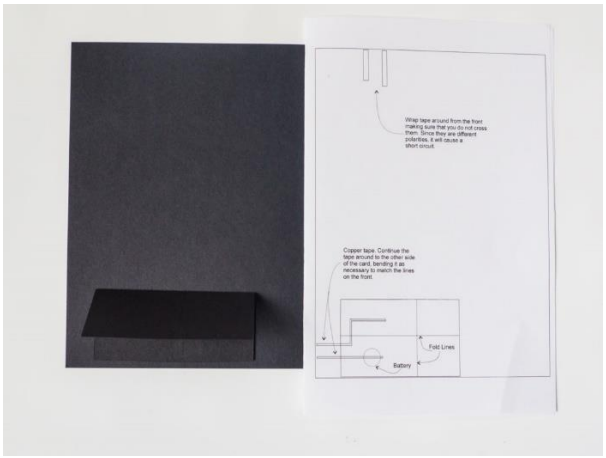
Step 3: Get familiar with the Chibitronic Circuit Stickers

- The Chibitronic stickers are polarized so one side needs a positive connection and the other side needs a negative connection.
- The Chibitronic stickers have the positive charge on the broad side of the sticker.
- Note the gold strips on the lights. The undersides of the lights have the same strips. When you build your circuit, these are the conductive surfaces that you need to ensure are in contact with the copper tape.
- The adhesive on the stickers is conductive so it helps to make sure you have a consistent connection.
- When you complete the design, it is still important to make sure that the stickers are in firm contact with the copper tape.

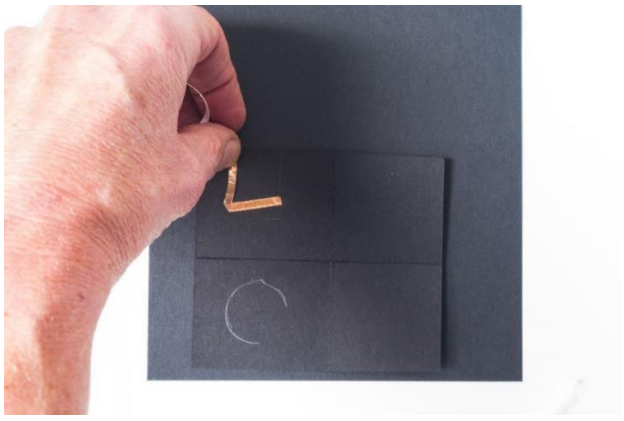
Step 4: Adhere the copper tape to make the negative connection

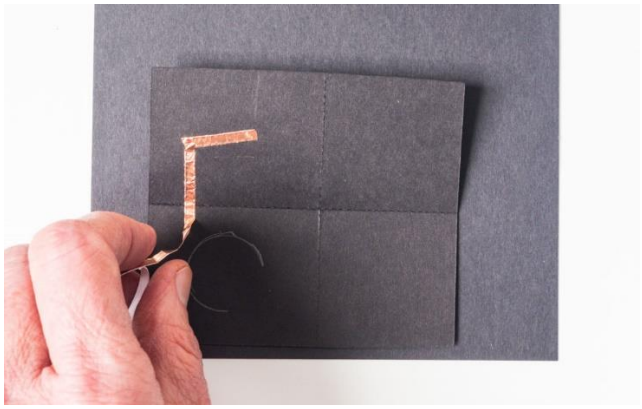
The next step is to place the copper tape. This card has two pieces of tape. One makes the negative connection, and the other forms the positive connection. We will place the tape for the negative connection first. Use the schematic as your guide for this step:

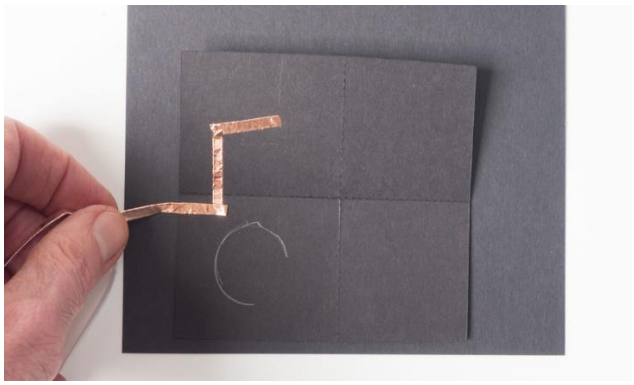
- To make sure the tape is placed so that a good connection is made with the battery, start by marking the approximate battery location for reference.



- The make the negative connection, cut a piece of tape about 15 inches (38.1 cm) long.
- Start to remove the backing on one end and lay it horizontally, starting along across the top left side quadrant of the battery pack so that, when the pack is closed, the line of tape will be across the top of the battery.
- When you get near the left edge, fold the tape up then back down on itself to make a corner. Place the tape vertically, continuing just over the fold line.
- Create another corner to turn the tape to the left.





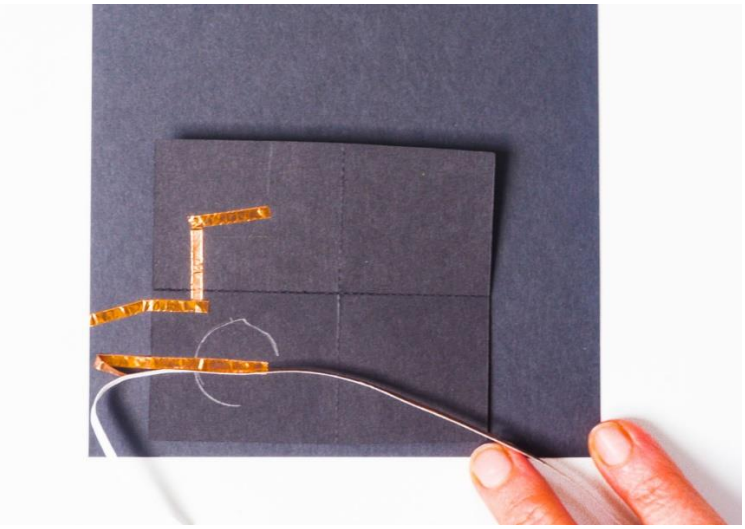


- Continue to place the tape to the edge of the card, being careful to align it with the upper line you traced on the front of the card
- Turn the card over and continue the tape along the upper trace line on the front. Bend the tape and press it frequently to make the curve.

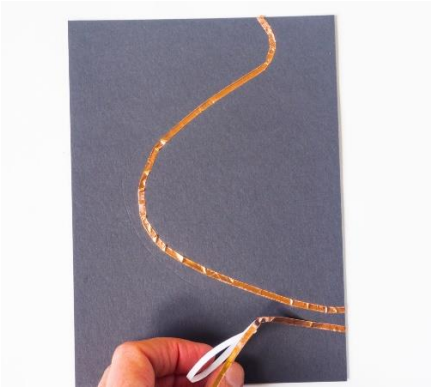
- When you reach the top of the card, flip the card over and extend the tape an inch or so down the card. The distance doesn't matter. It's just to make the top of the card smooth and so the tape doesn't come up easily.

Step 5: Adhere tape to connect the positive circuit

- Cut another piece of tape about 14 inches (35.5 cm) long. Begin to remove the backing on one end and place it horizontally across the bottom left section of the battery holder, making sure it is over the mark you made for the battery placement.



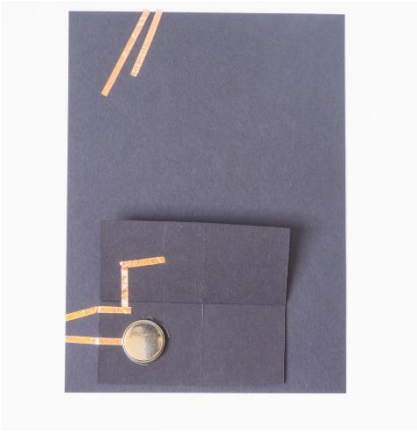
- Continue applying the tape across the card to the edge, then fold the card over and continue to adhere the tape along the bottom trace line. Bend and stick the tape to the card frequently to make the curve. Try to keep the tape about 1/8 inch (3.175 mm) below the other piece of copper tape.
- Follow the line up and over the top of the card. Secure the tape an inch or so down the back of the card.

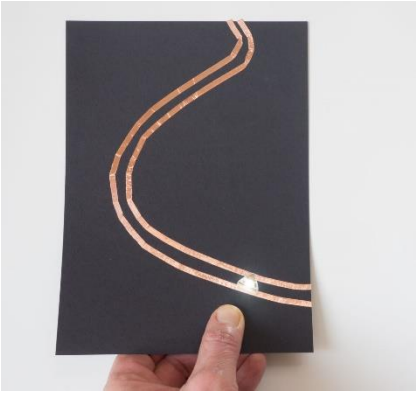


- Press any wrinkles out of the tape using a tool with a smooth flat edge.

Step 6: Test the Connection

- Take a Chibitronic sticker and press it firmly over the gap in the copper tape. The positive, wide side of the triangle should be on the bottom piece of copper tape and the point of the triangle on the upper piece of copper tape.
- Turn the card over and place the battery on the battery holder, positive side down.
- Close the battery holder, turn the card over and, holding the battery firmly in place, see if the light is lit.





Troubles with the connection? Check the troubleshooting guide at the end of this document.

Step 7: Finish building the circuit

- Place the remaining two stickers across the gap in locations you like.
- Test the circuit again to make sure everything works.

Step 8: Decorate

- Use the glue dots to attach the cut outs to the picture
- Secure the battery with the paper clip and you are finished!

Having trouble with getting your LED circuit to work?

Try the following:

- Make sure the positive side of the light is connected to the copper tape or wire that is touching the positive side of the battery.
- Make sure the battery is in firm contact with the copper tape.
- Is the positive side of the battery touching the negative copper tape or vice versa?
- Does the copper tape have any rips that are breaking the connection?
- Are there any places where the positive side of the tape or wire touches the negative side without going through a light? This would be a short circuit.
- Make sure the conductive edges of the lights are overlapping the copper tape enough to make a good connection.
- Firmly press around the edges of the lights and anywhere the copper tape overlaps to make sure the connection is good.
- Try a different battery.