



# STAR CONSTELLATION



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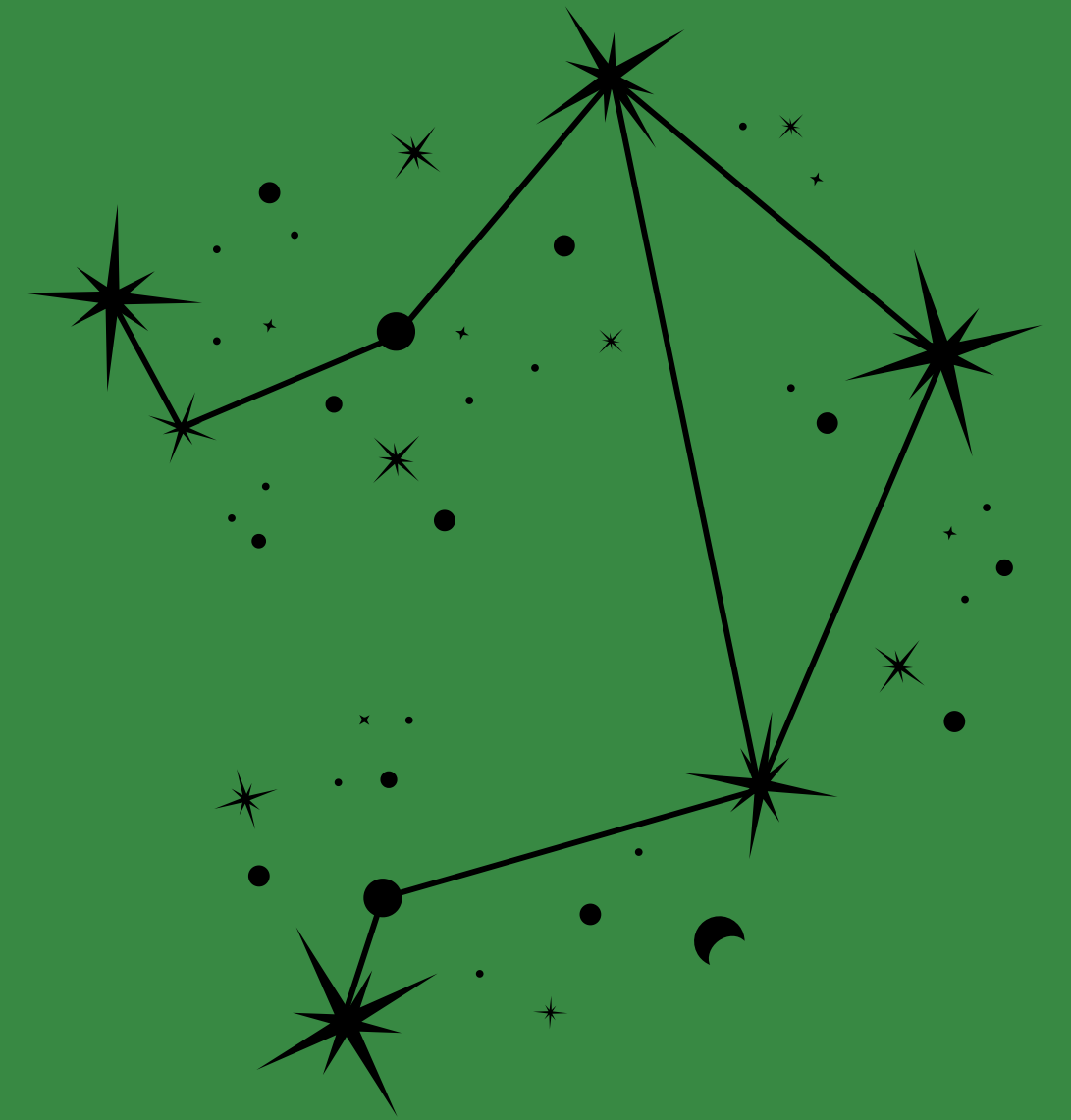
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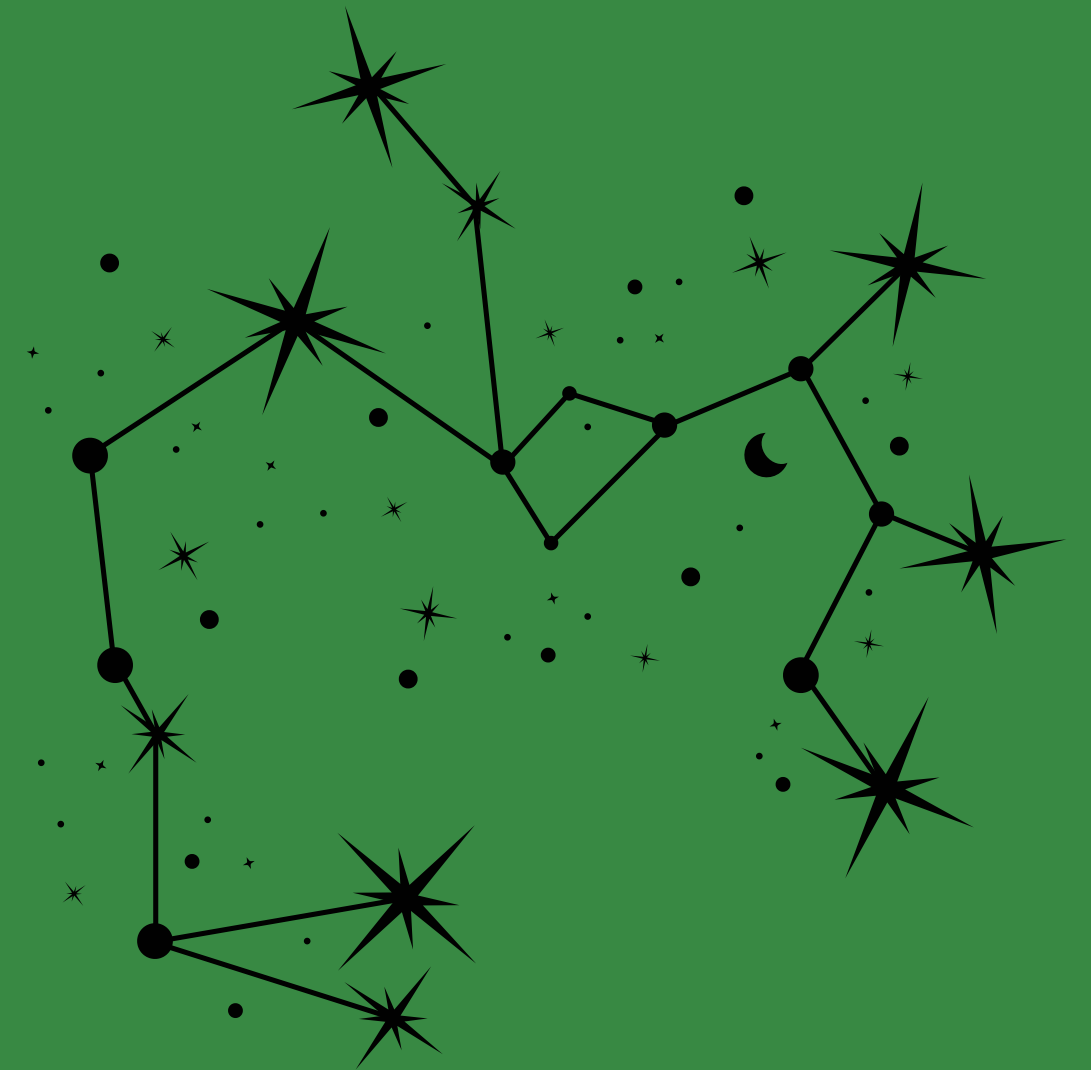
# Overview

Constellations are groups of stars that appear to be close together in the night sky. They are named after mythological figures, animals, or objects. Constellations can be used to help people navigate the night sky and to learn about astronomy. Star constellations can be used to teach students about a variety of topics, including astronomy, geometry, and navigation.



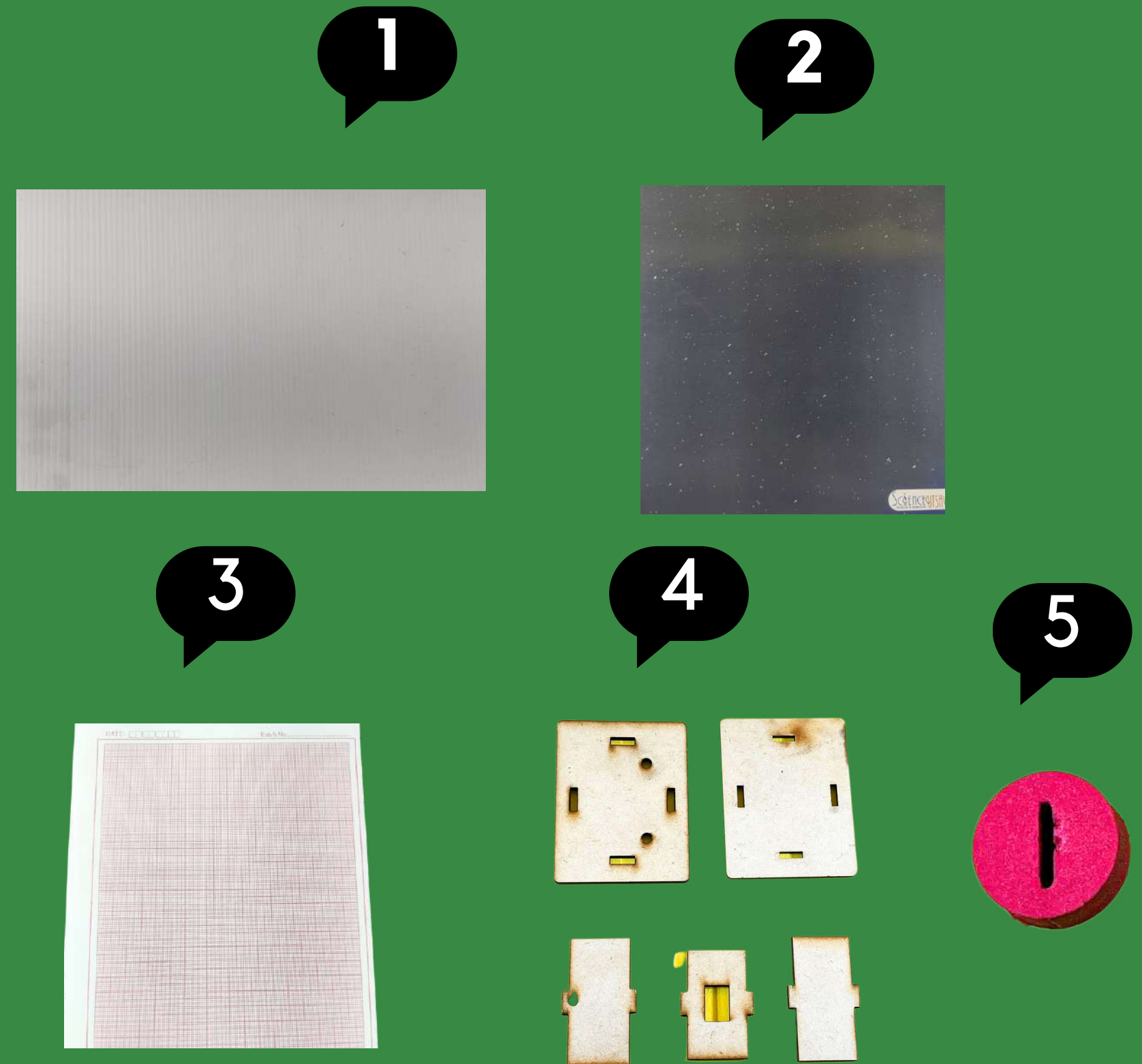
# Engineering challenge

In this simple project, you will be going to design and build a model of a star constellation that should be accurate in terms of the relative positions of the stars in the constellation by using the required materials.



# Materials Required

Sr.No	Name	Qty
1	Corrugated sheet	1
2	Star background template	1
3	Graph sheet	1
4	MDF Segments	1
5	Foam Cell Holder	1



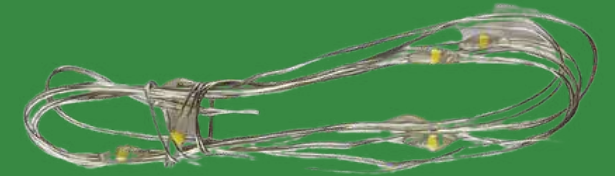
# Materials Required

Sr.No	Name	Qty
6	Nut	1
7	LED Wire	1
8	Bolt	1
9	Cell	1
10	Washer	2

6



7



8



9



10



# Procedure

Peel the given black paper template then paste it on the corrugated sheet.

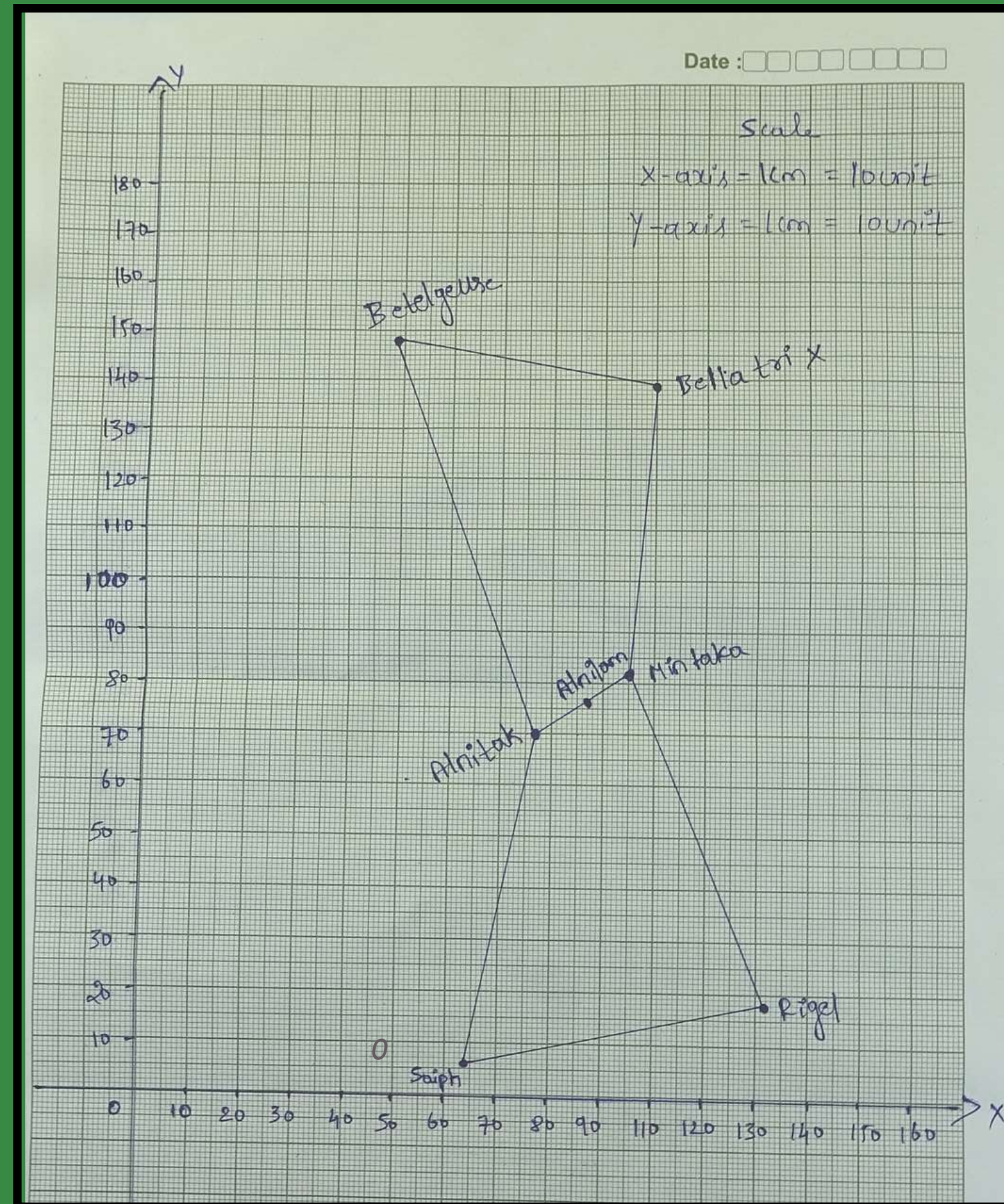


# Coordinates of Orion star

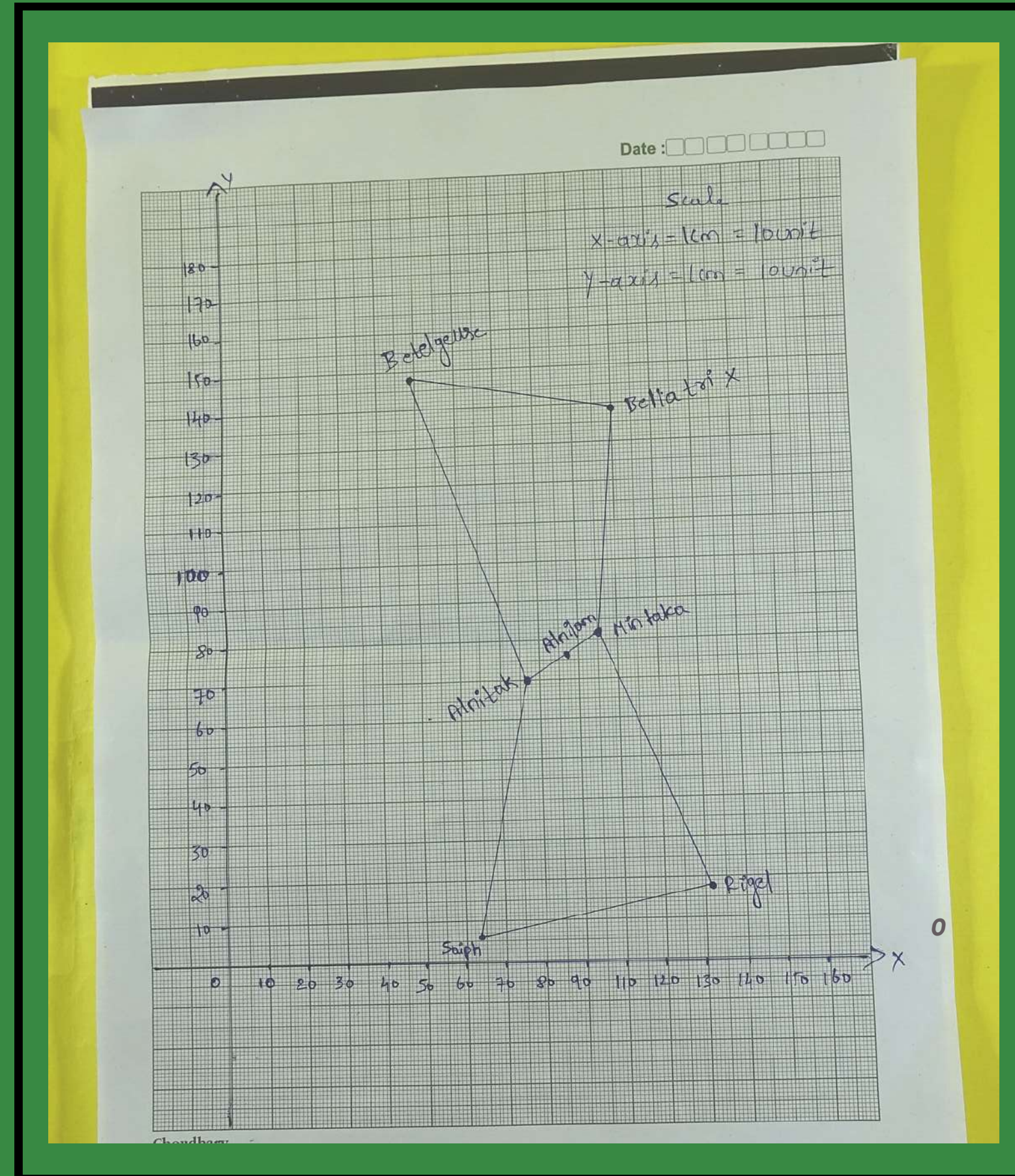
Stars	X-coordinate	Y-Coordiante	Visual magnitude
Rigel	132	18	0.1
Betelgeuse	49	148	0.5
Bellatrix	110	139	1.6
Alnilam	87	76	1.7
Alnitak	77	70	1.8
Saiph	64	6	2.1
Mintaka	95	83	2.2



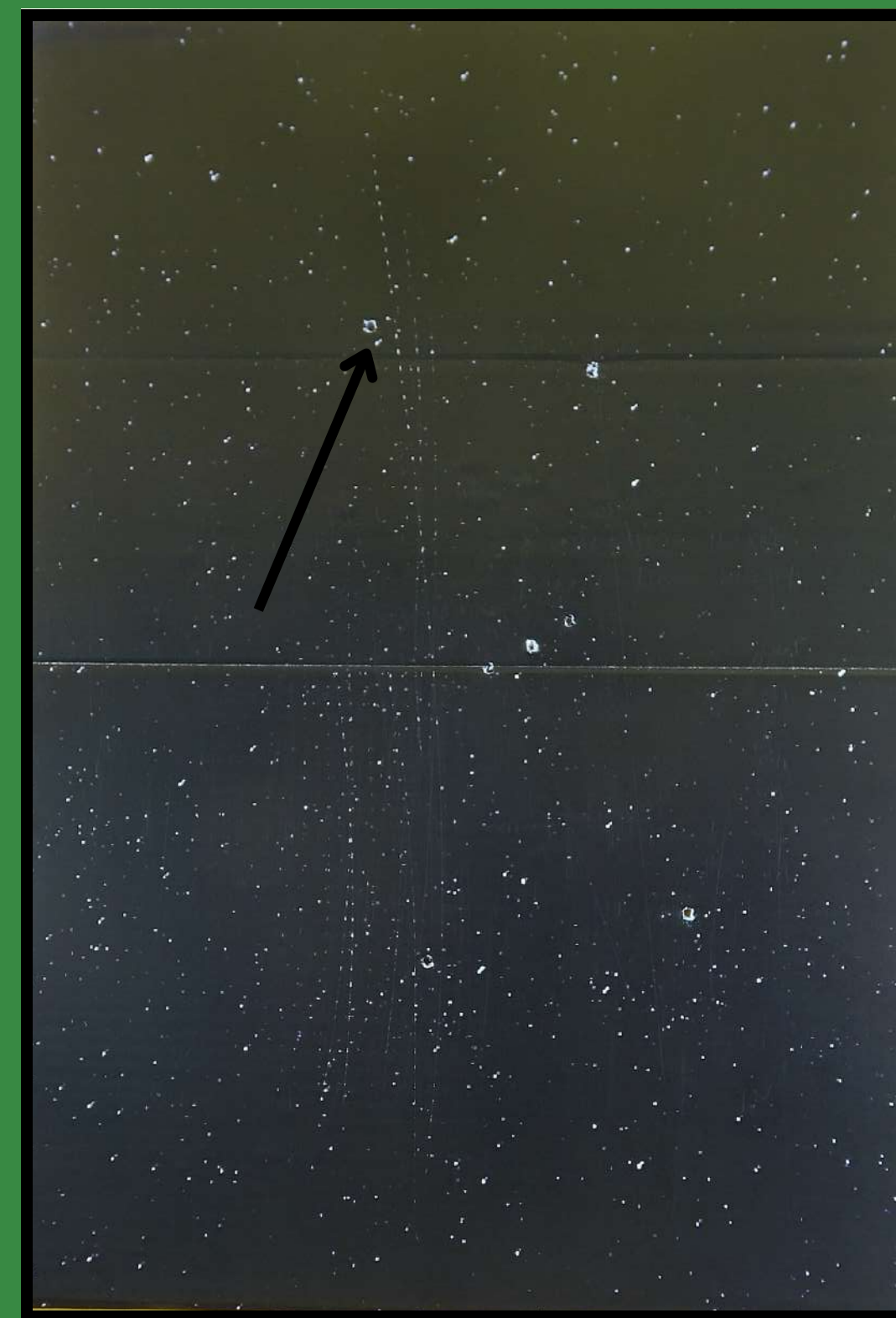
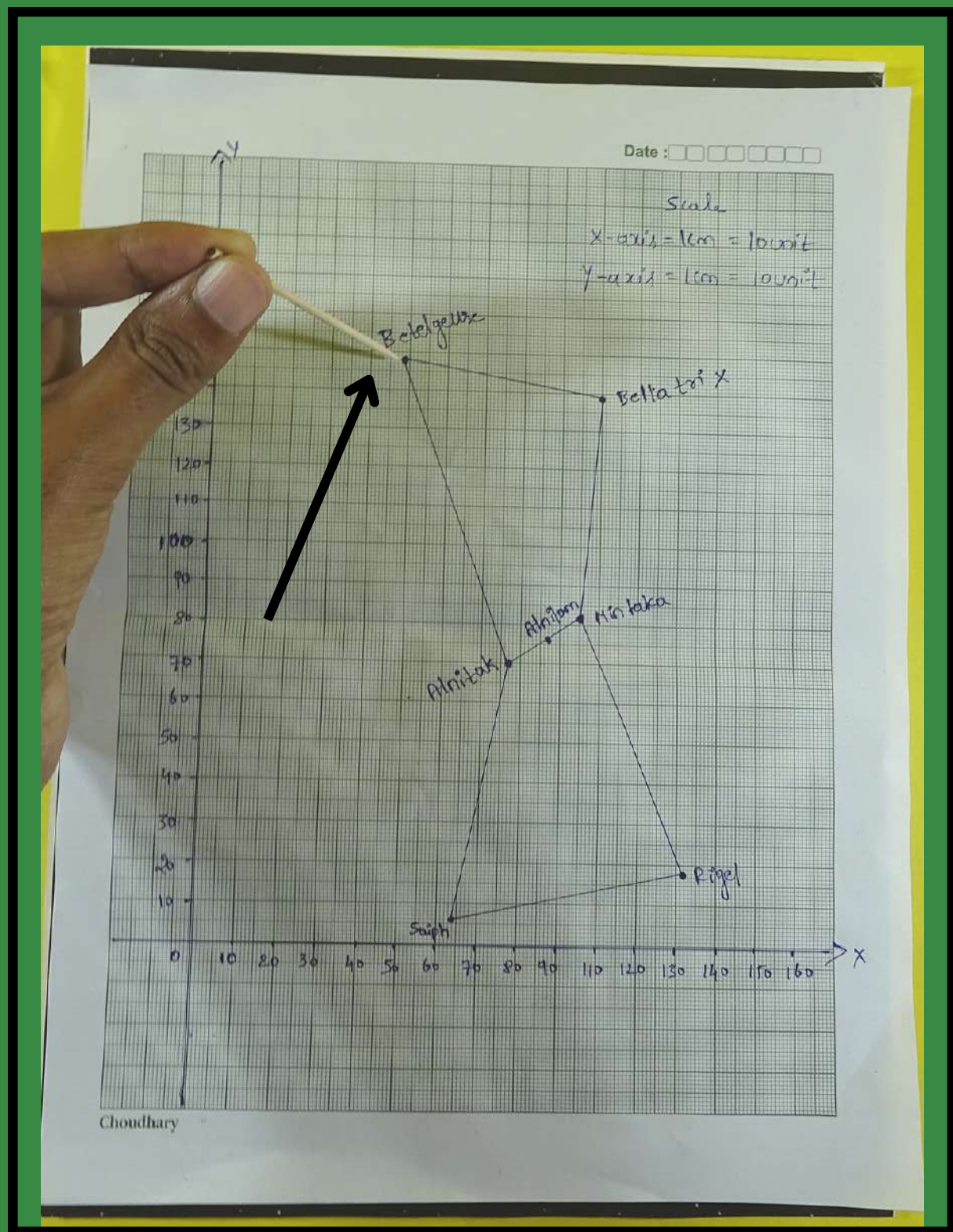
# Draw graph for the given coordinates of Orion star



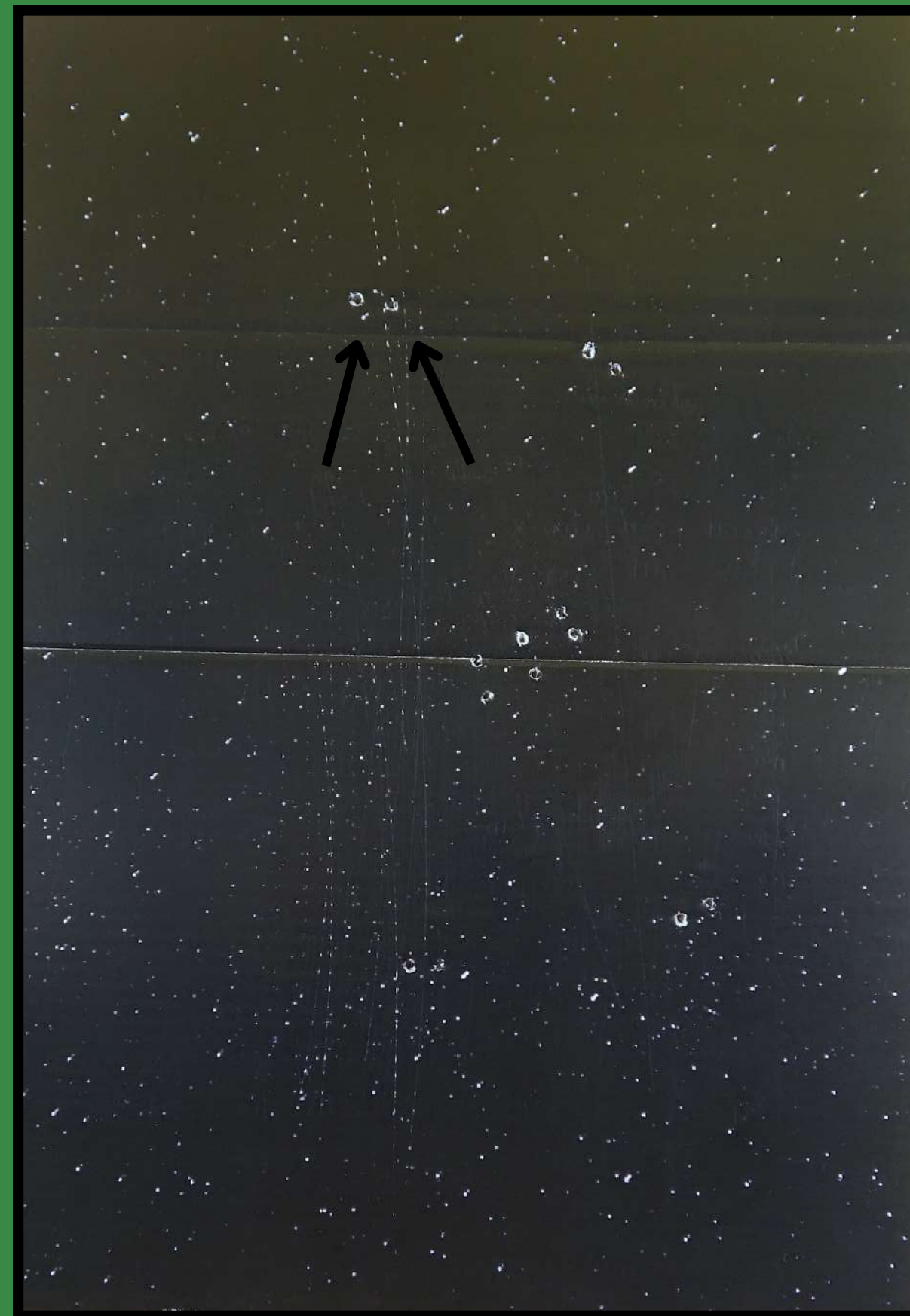
Place the graph sheet on the corrugated sheet.



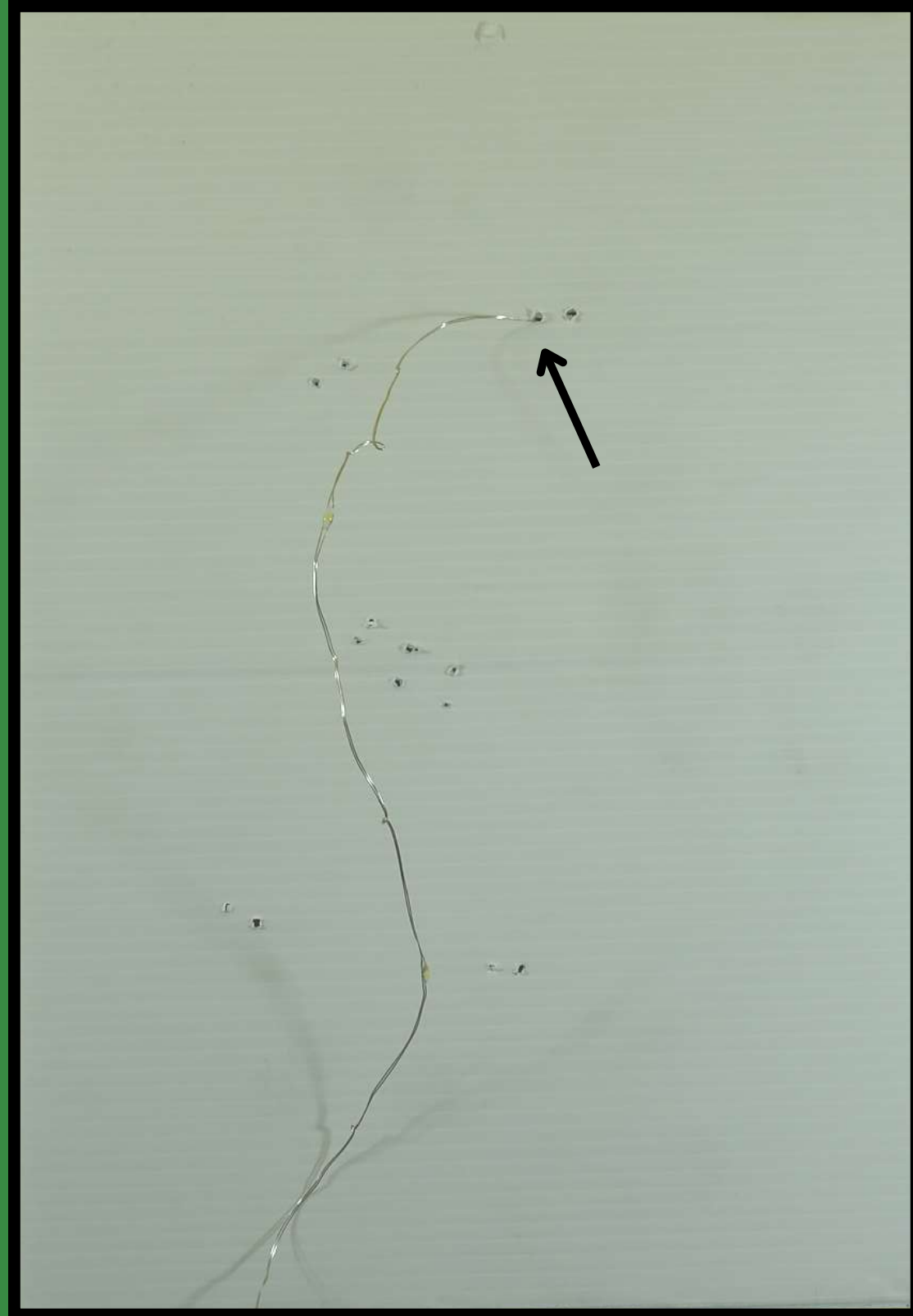
Align the graph sheets so they are properly positioned. Using a toothpick, carefully make a holes ( make hole for all stat points) in the corrugated sheet, using the star as a reference point as shown



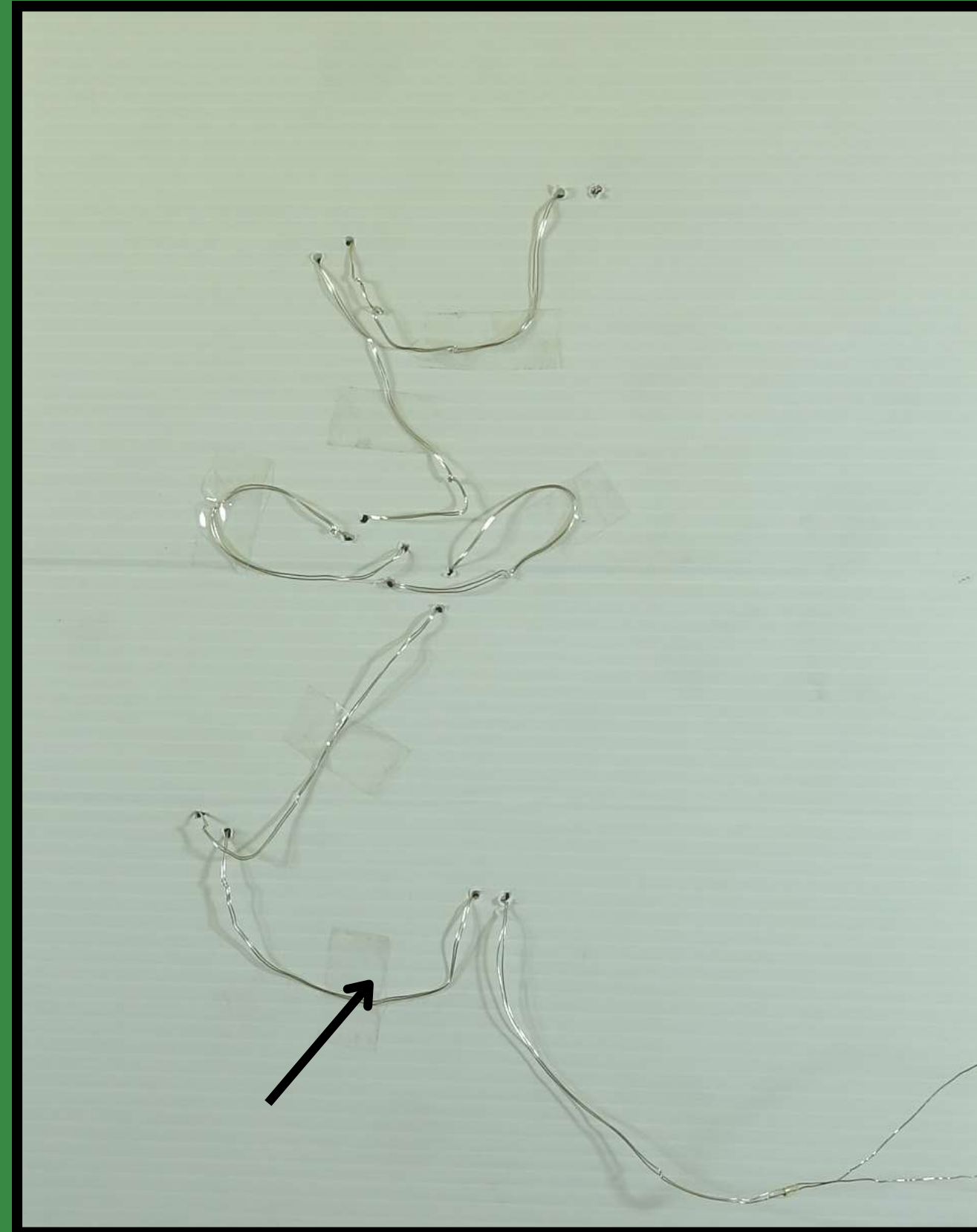
**Make an additional hole on each traced point as indicated**



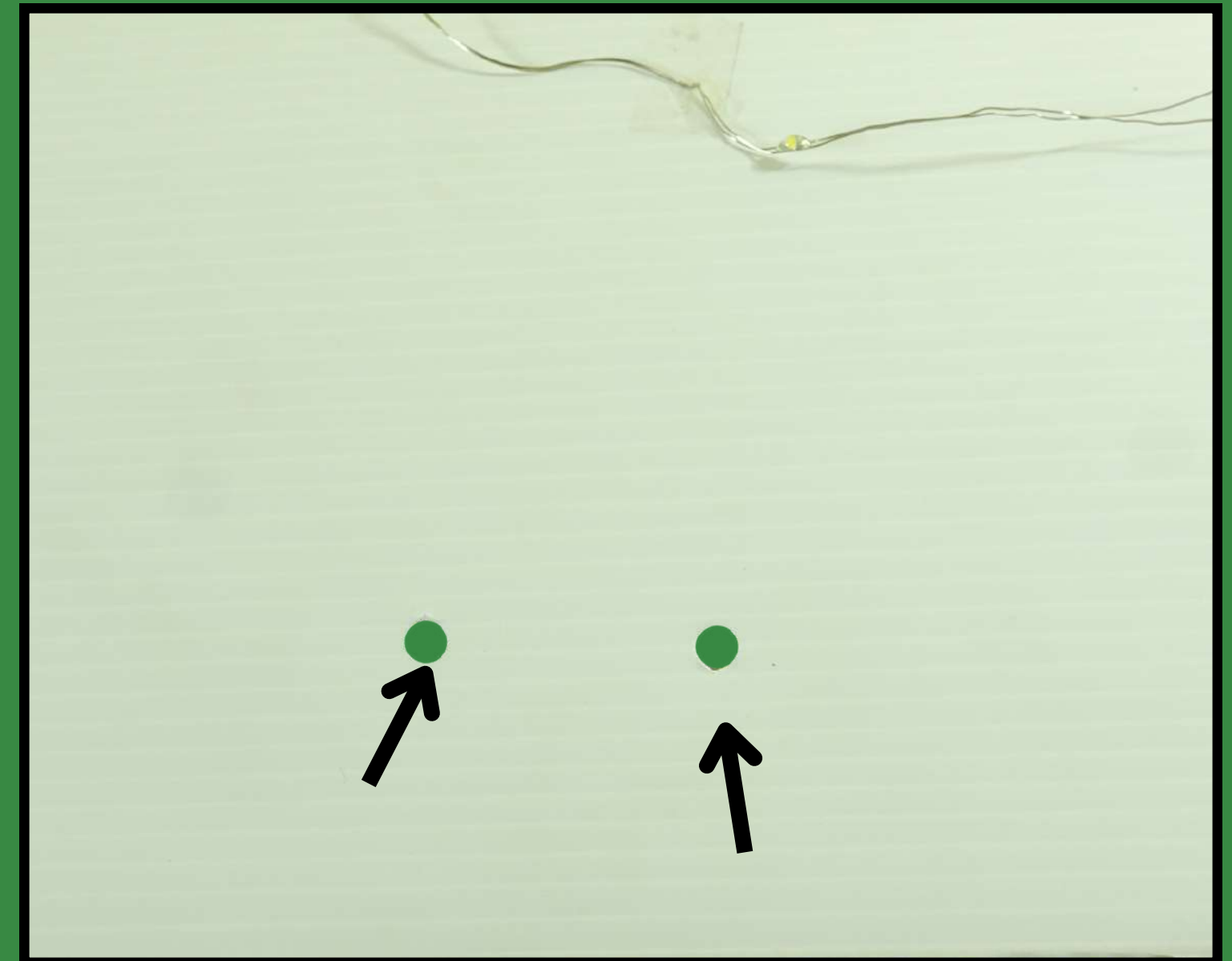
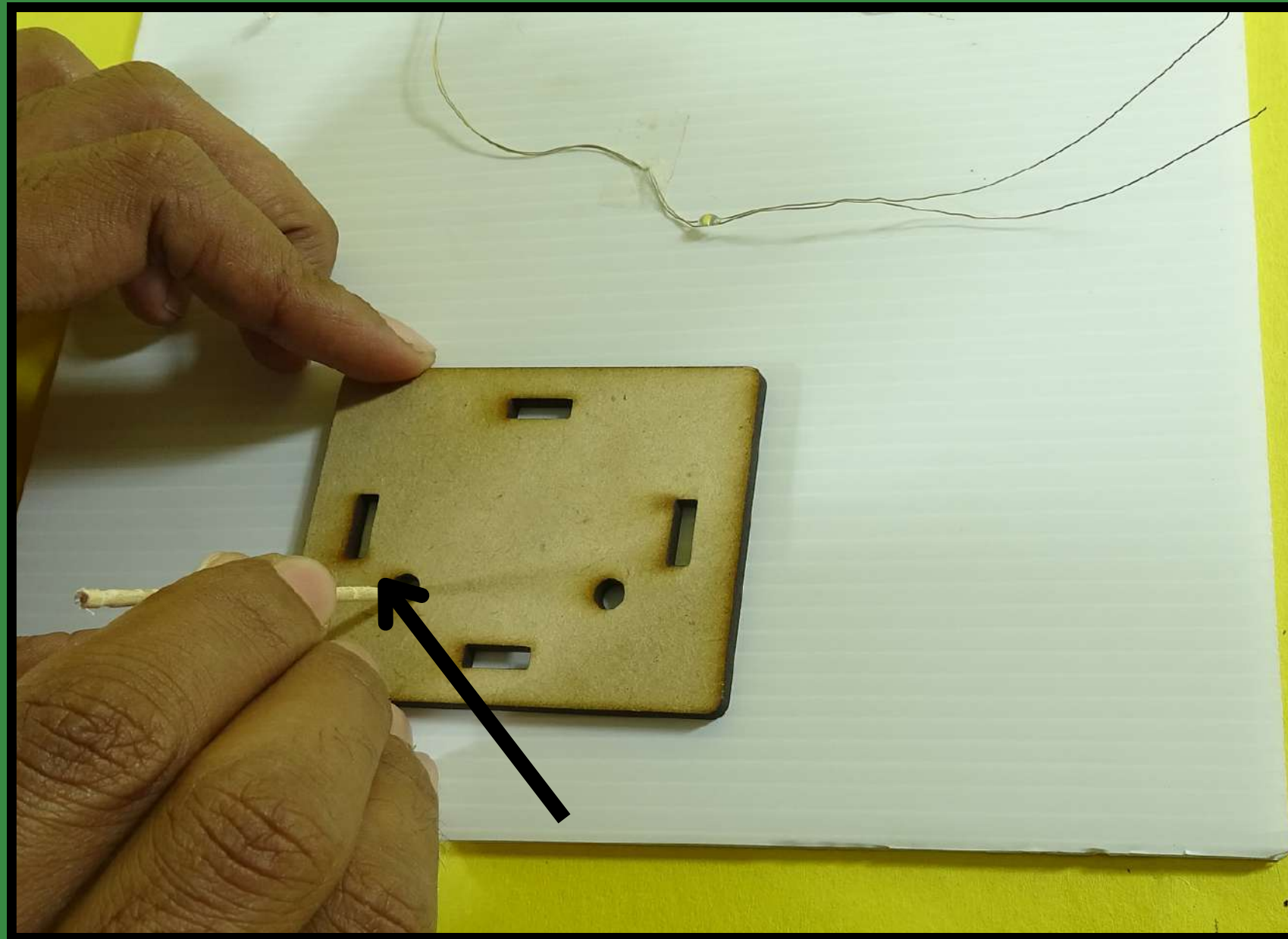
**Insert the provided serial LED through the hole from the back. ( Insert the LED to all star points)**



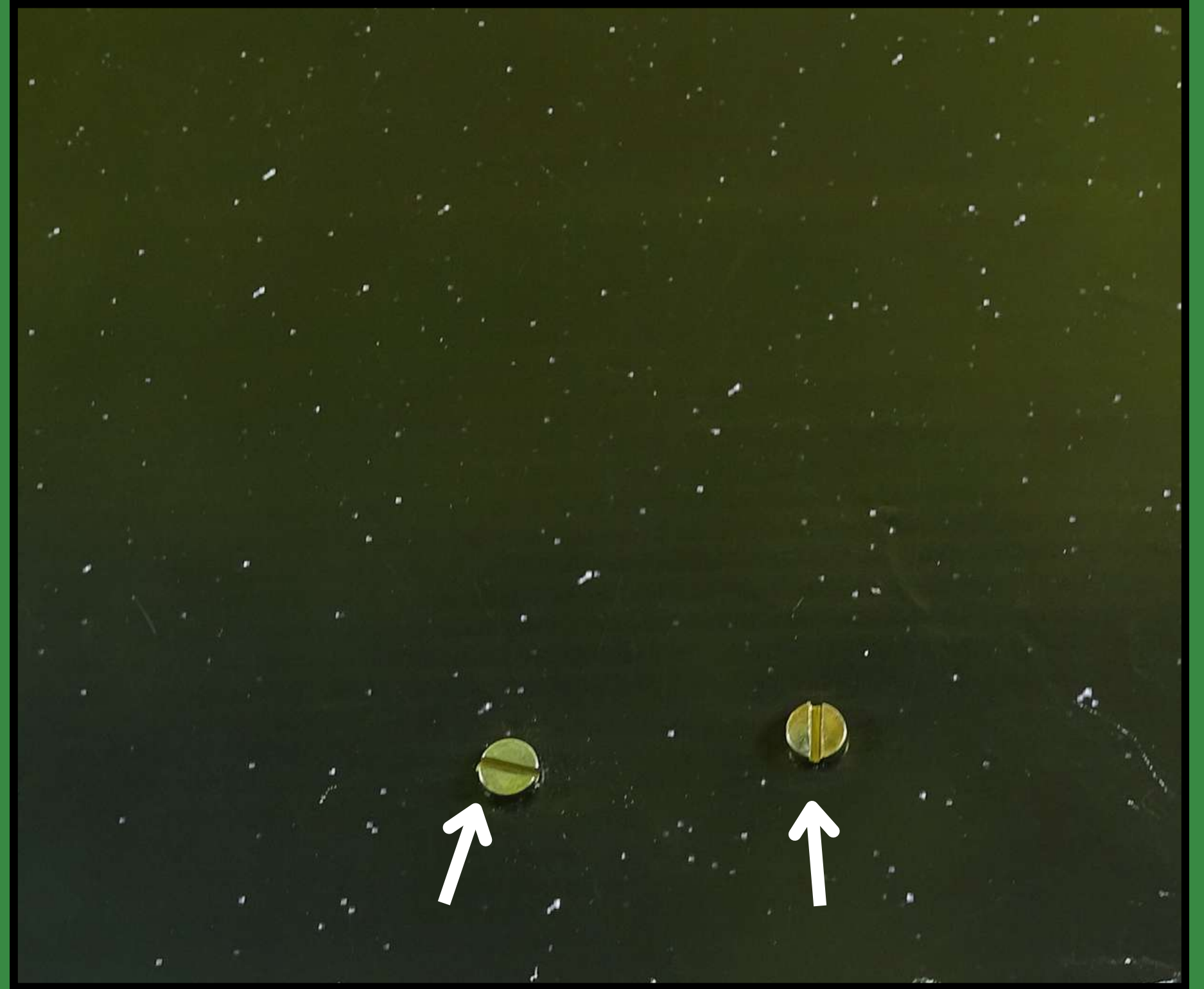
**After inserting the LED into the holes,  
secure the LED wires with cello tape**



**Create a hole in the corrugated sheet by using a toothpick or scissors, using the reference hole in the MDF as shown.**

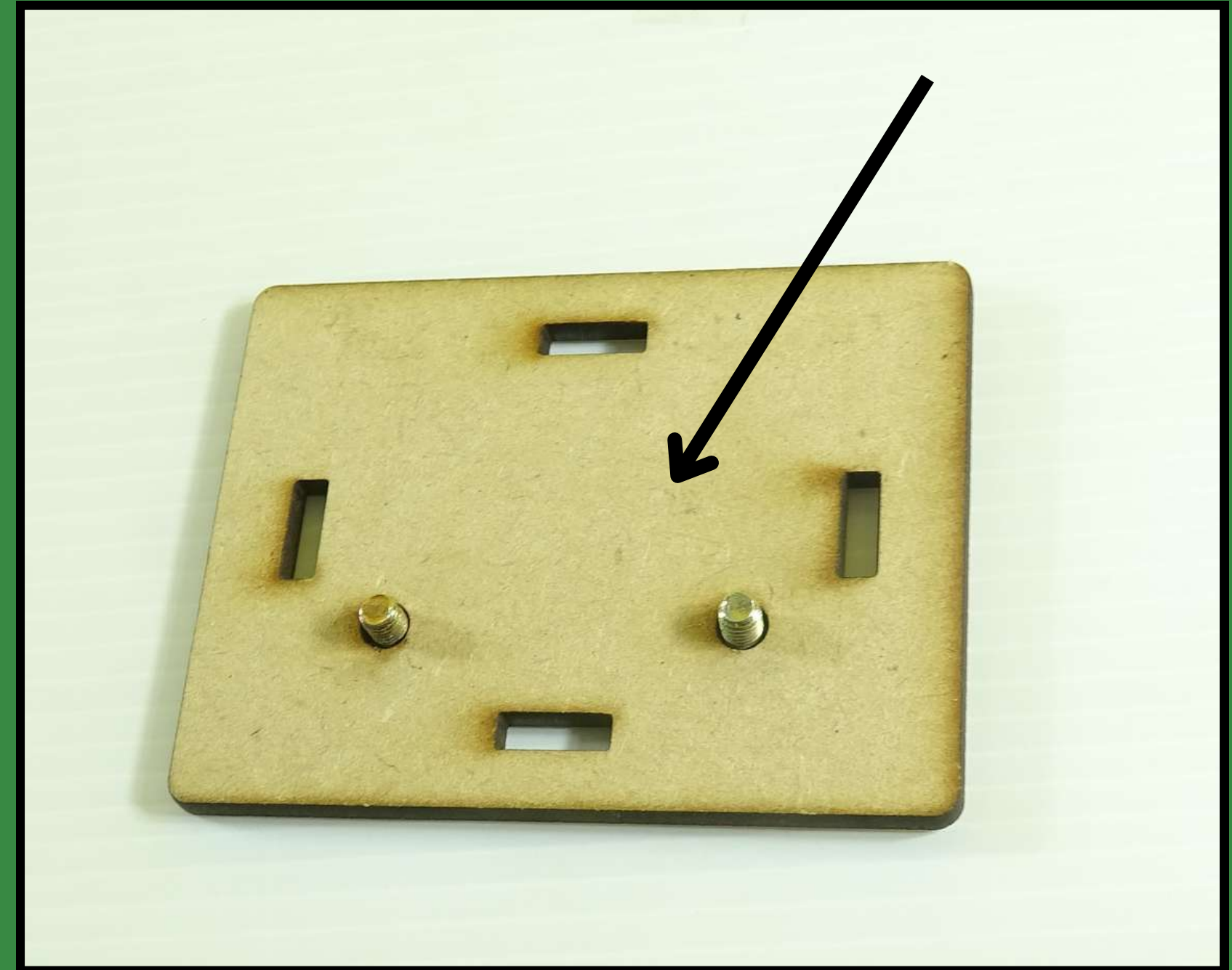
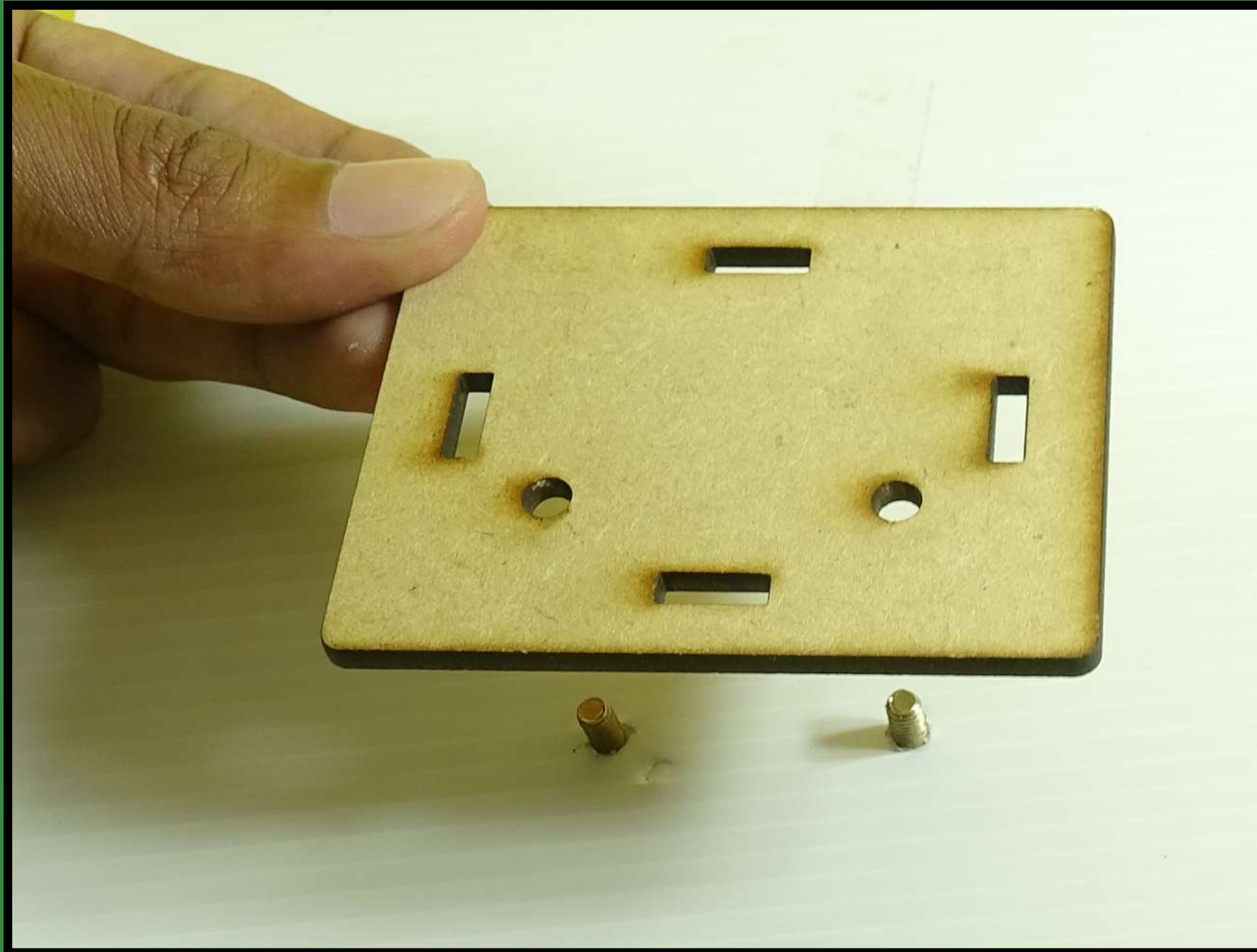


**Place the bolt through the front face  
of the star template as demonstrated.**

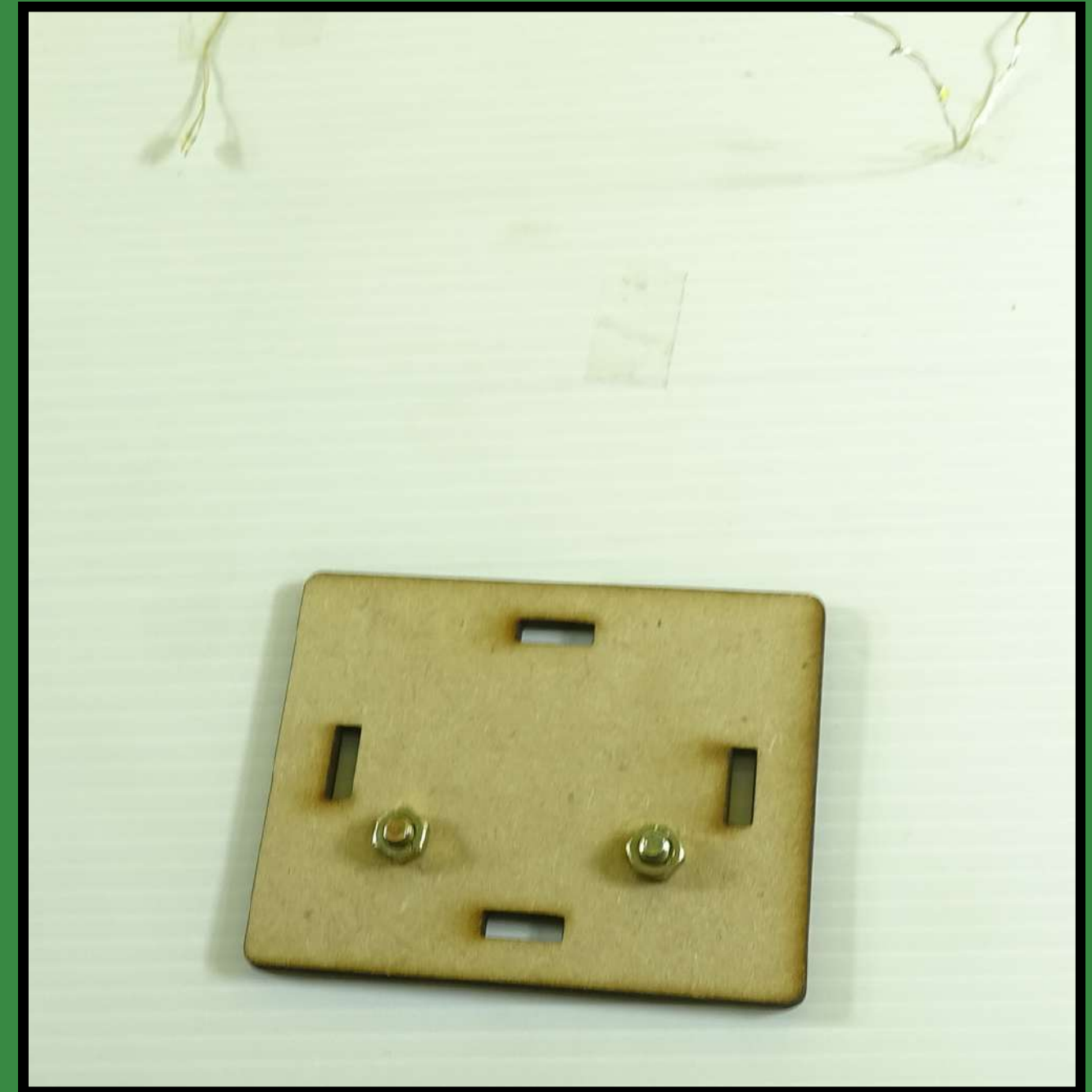
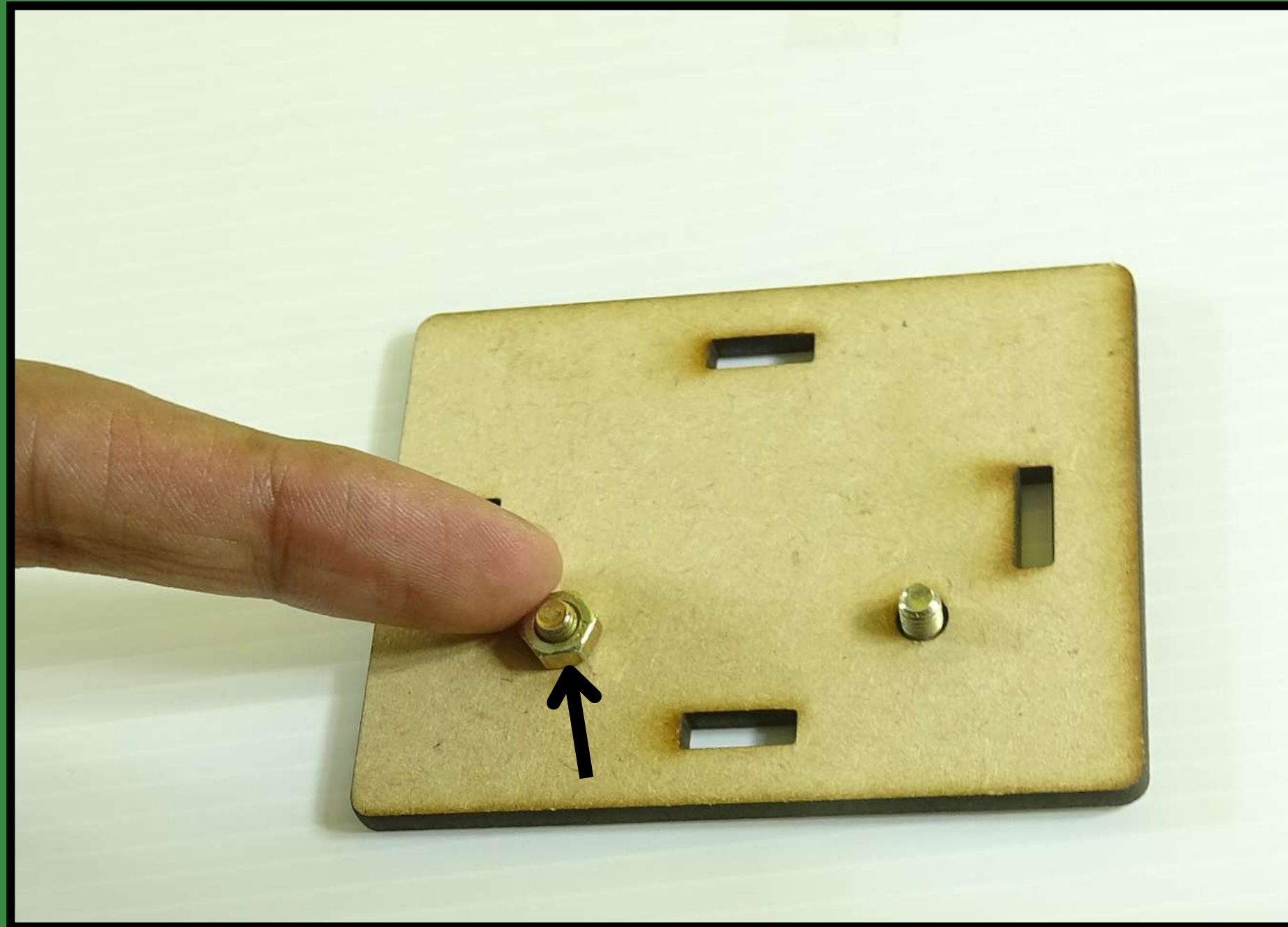




**Position the MDF piece onto the bolt as indicated.**



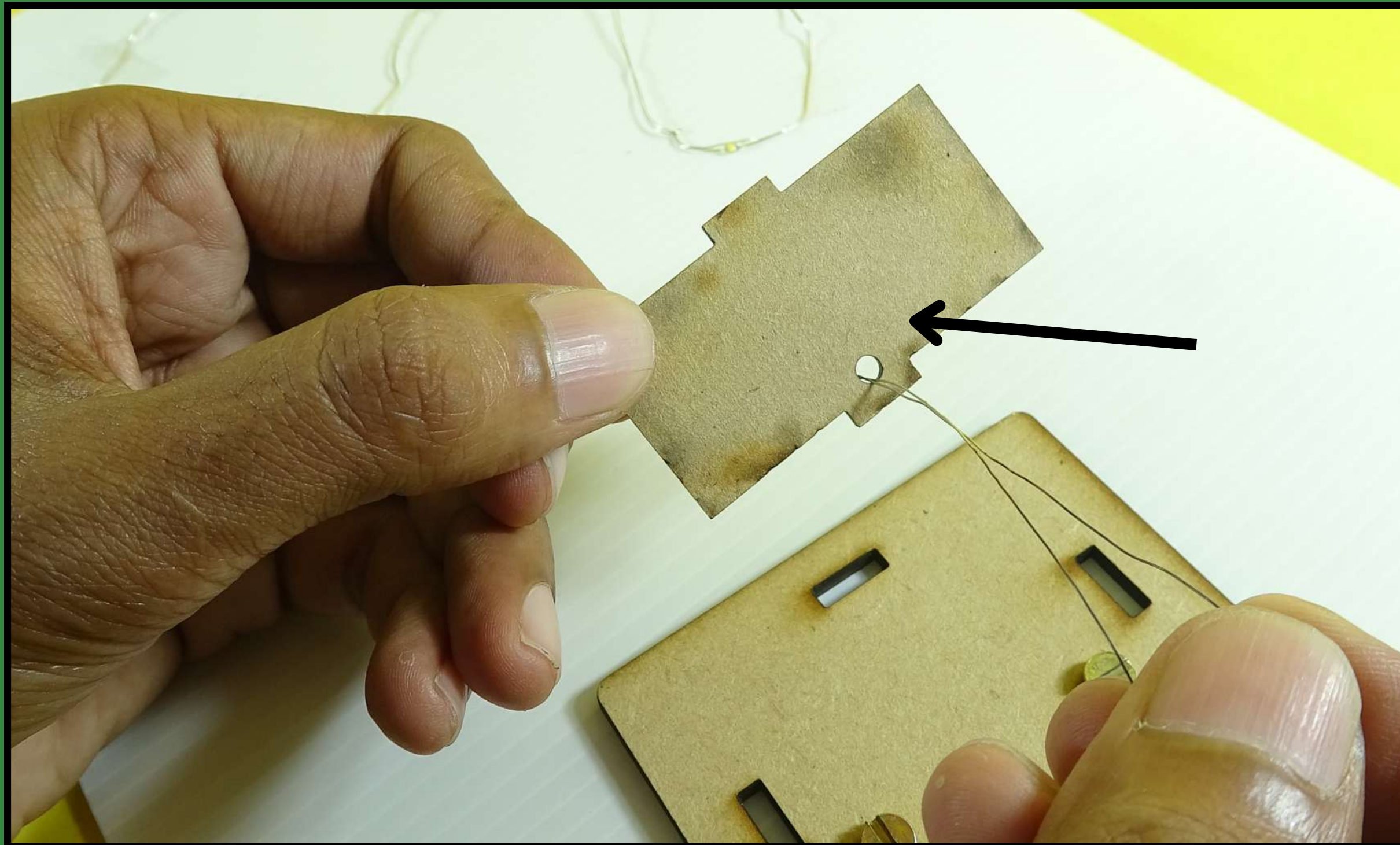
**Secure the MDF by tightening with nuts,  
following the provided demonstration.**



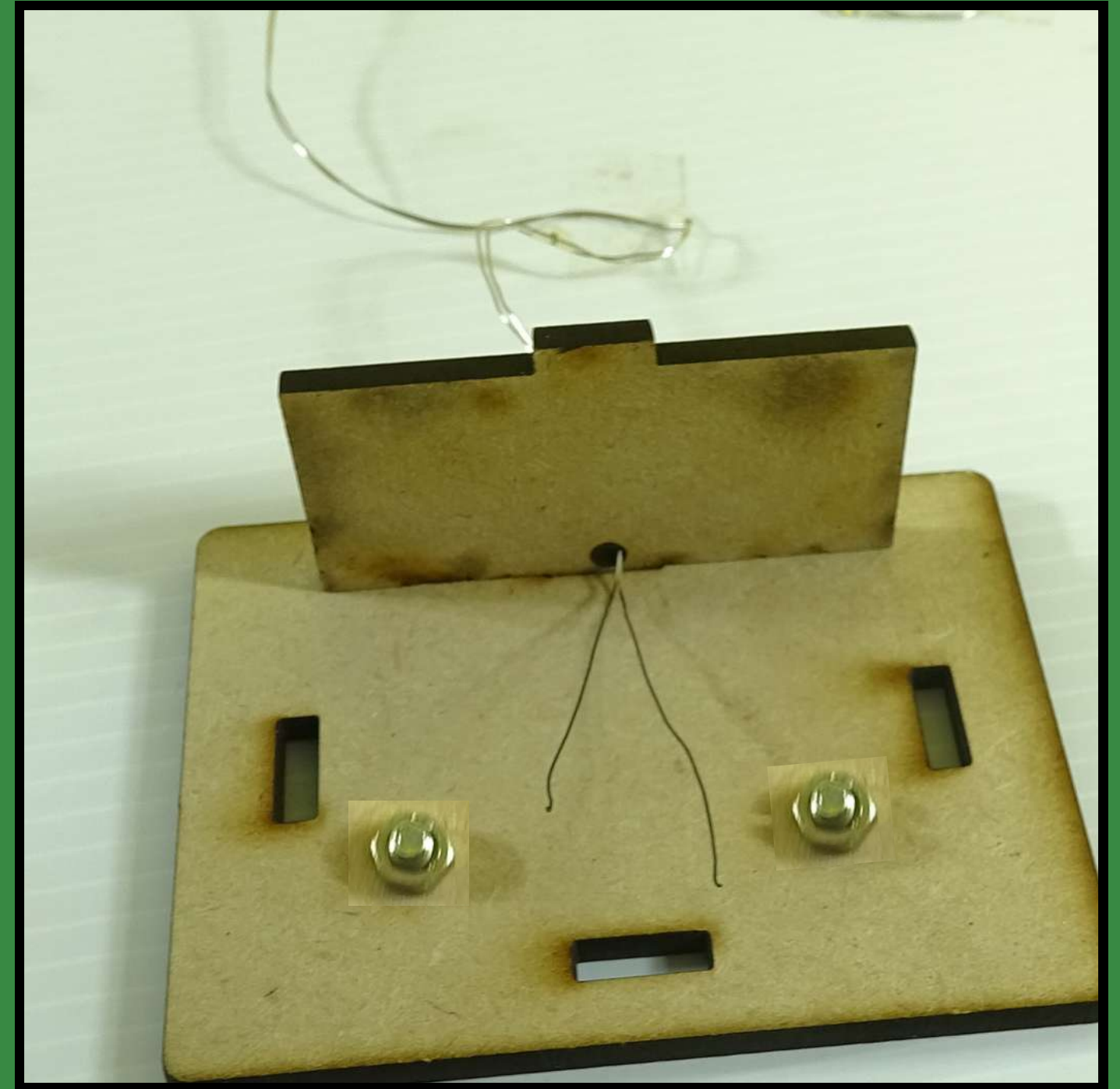
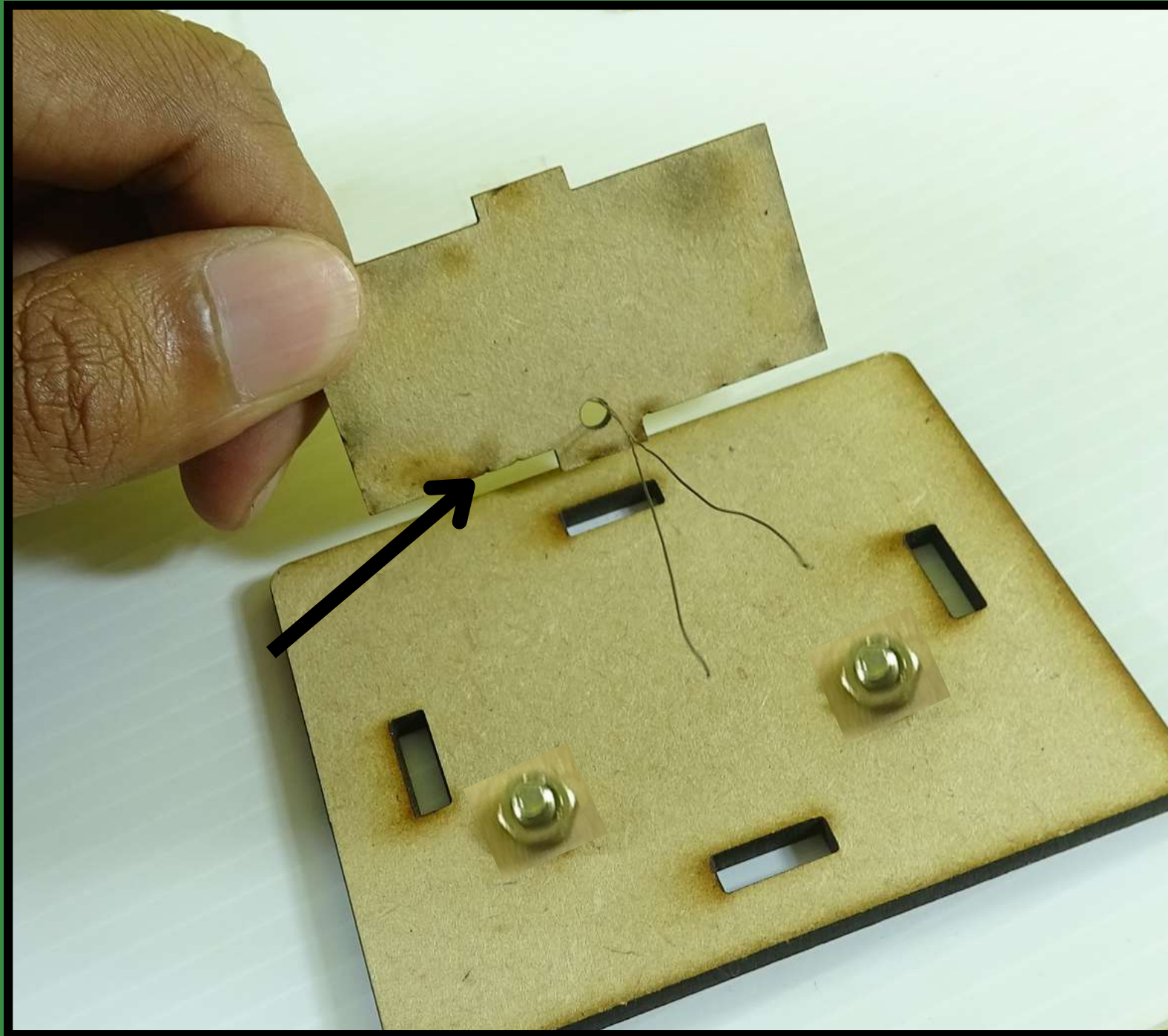
**Insert the LED wires into the  
MDF hole as demonstrated**



**If the MDF parts are loose, use cello tape.  
If the MDF parts are tight, use sandpaper.**



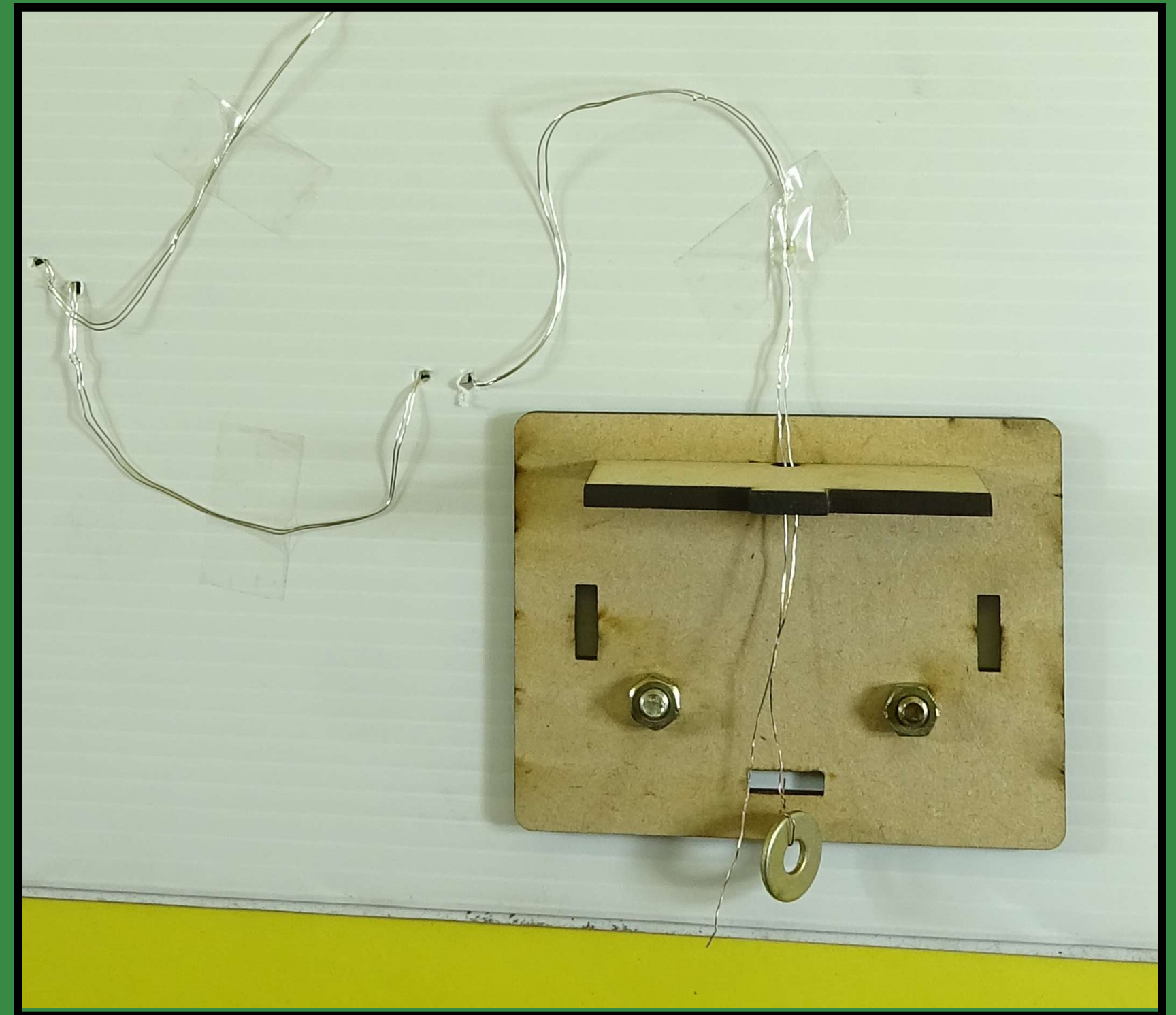
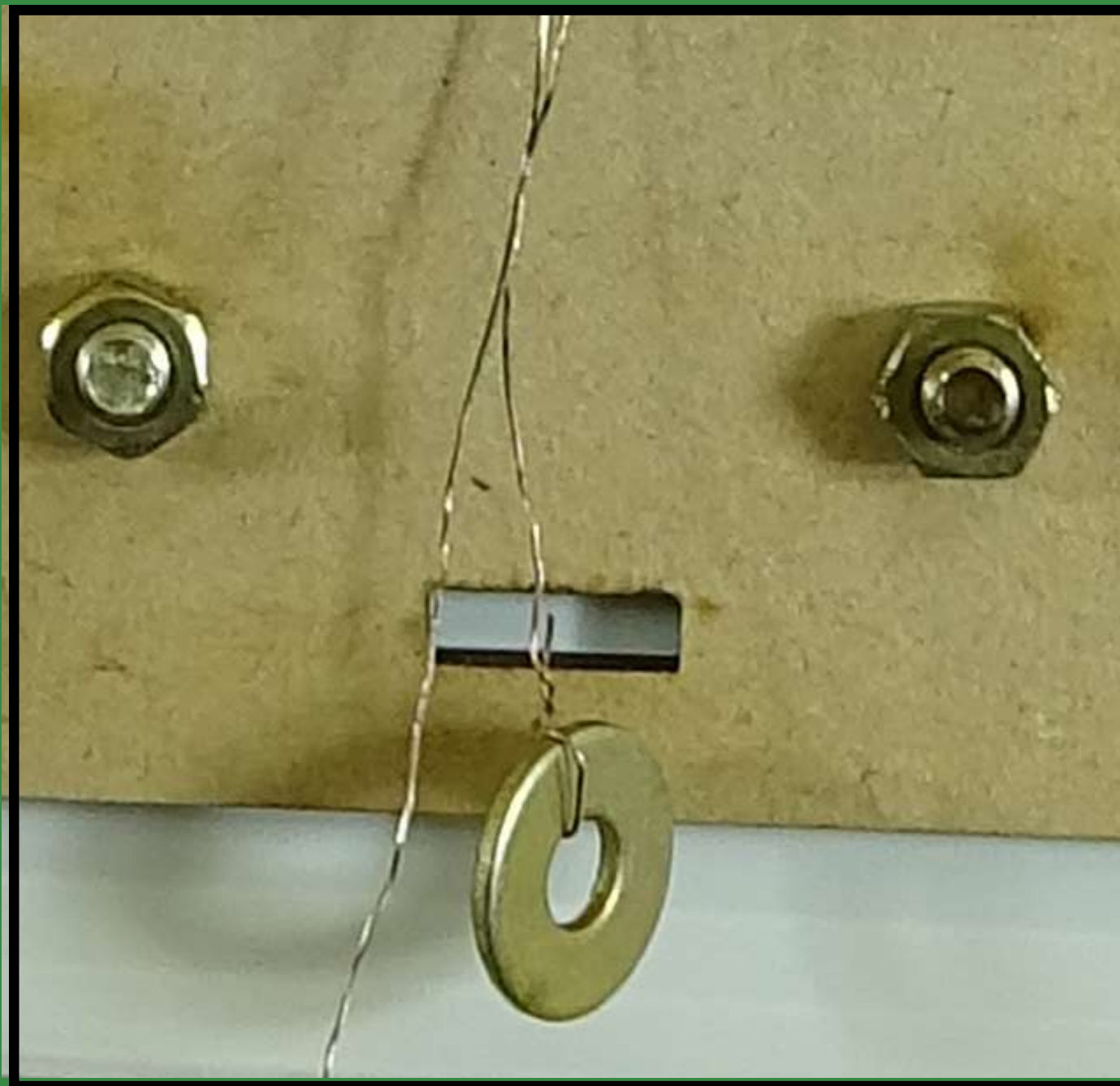
**Insert the LED wires connected MDF to base MDF hole as demonstrated**



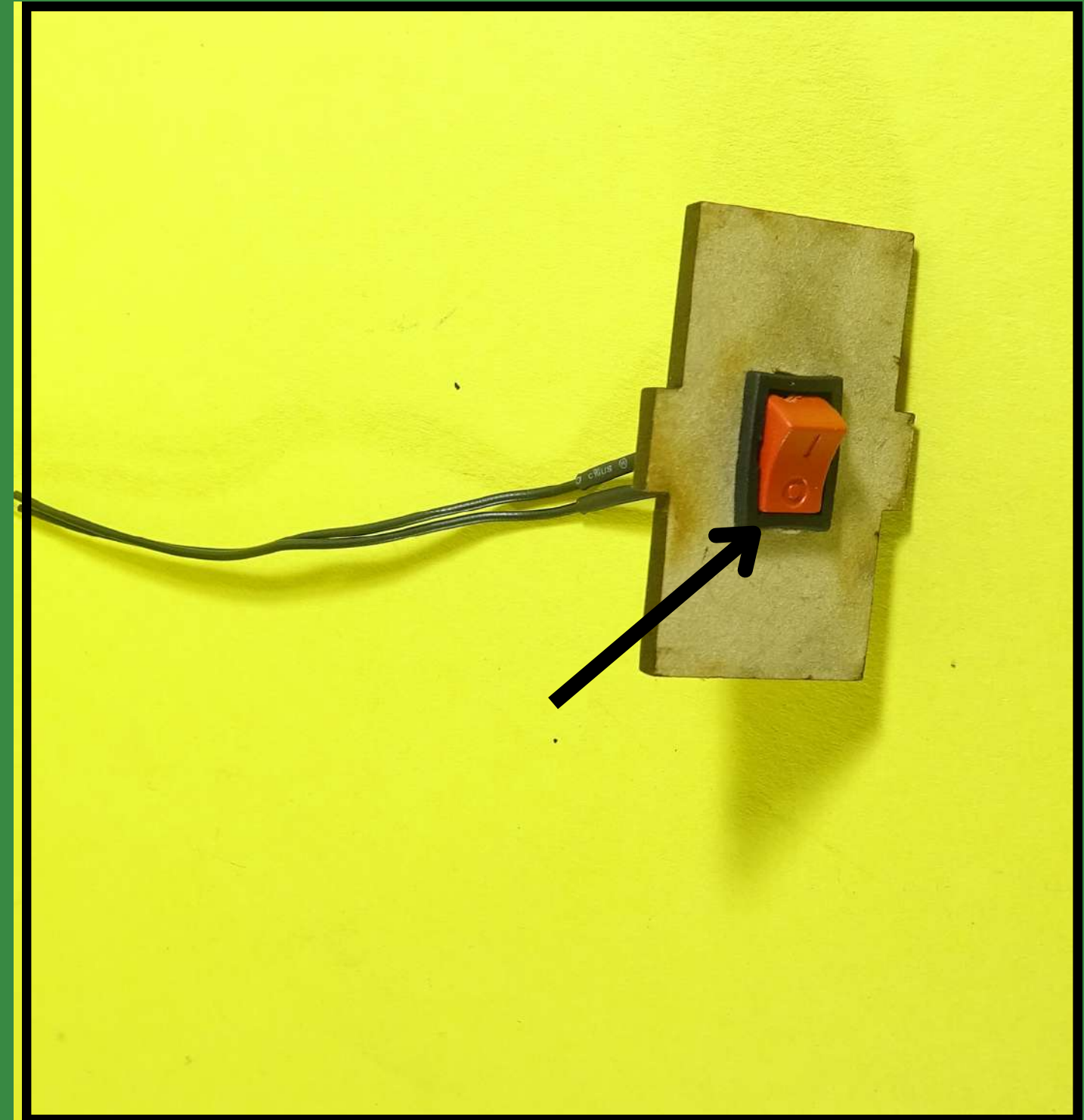
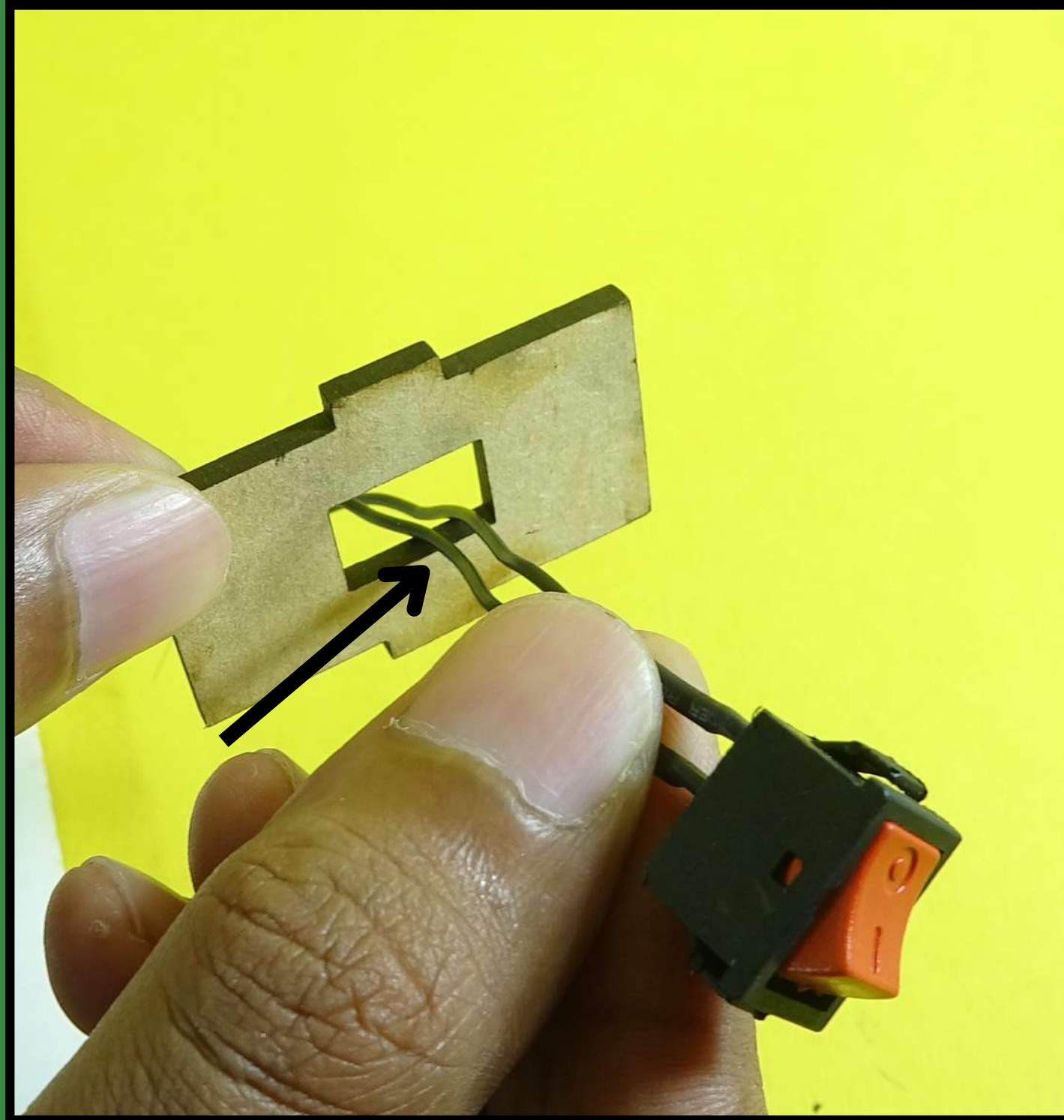
**Position the LED wire on the battery cell to identify the positive and negative terminals of the LED.**



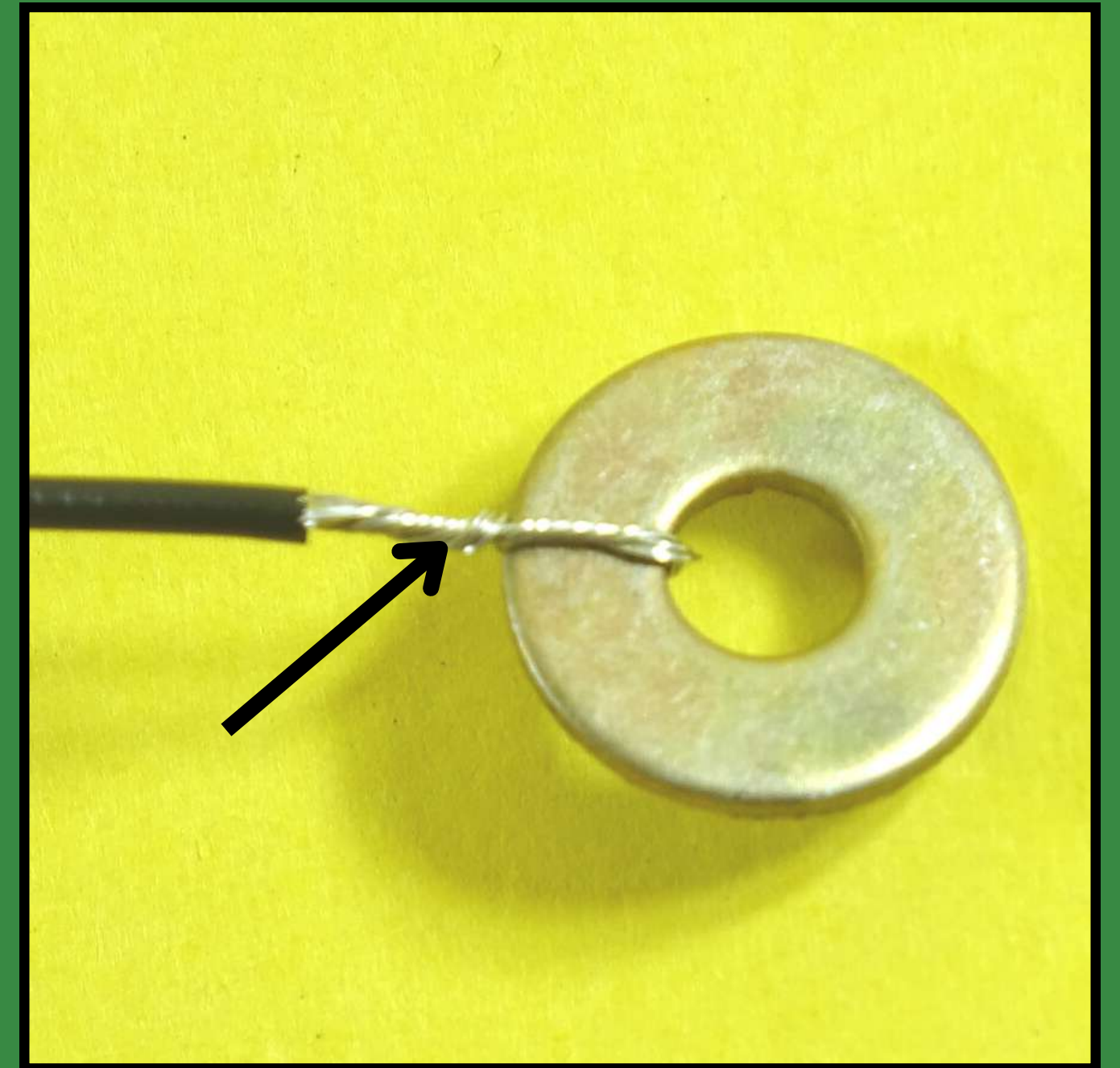
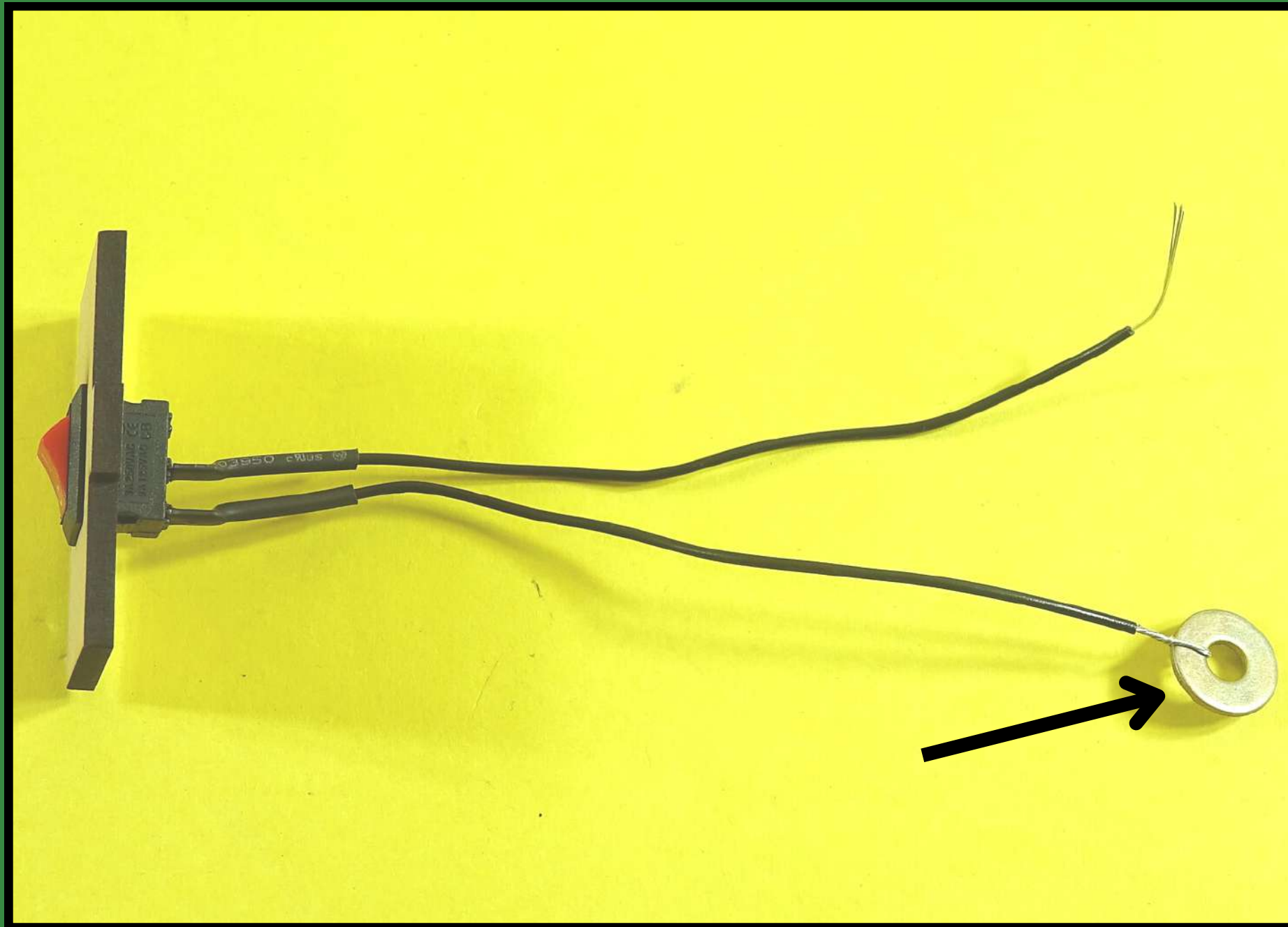
**Insert the washer into the positive terminal of the LED, as indicated.**



**Insert the rocker switch into the MDF as shown**

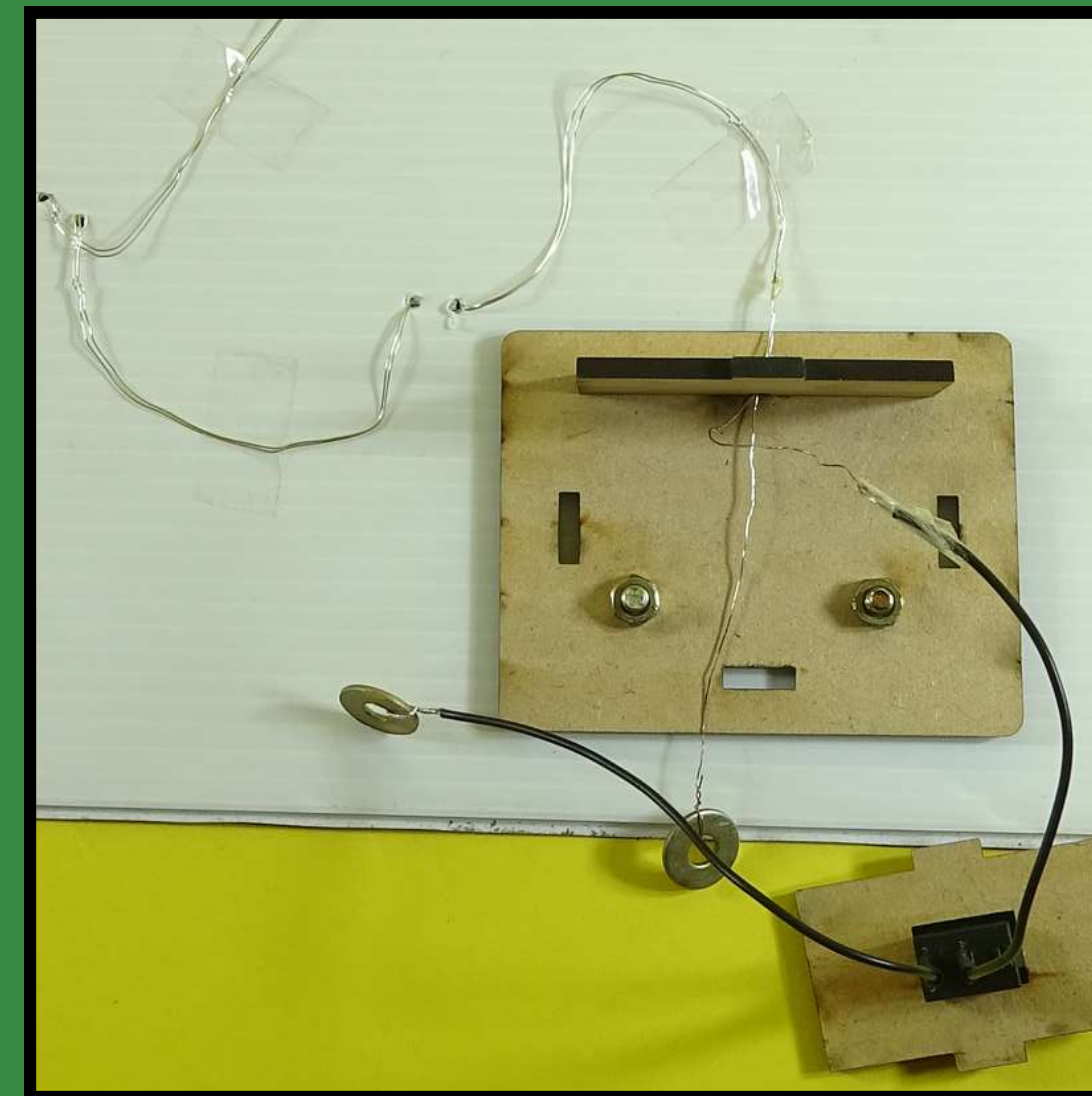
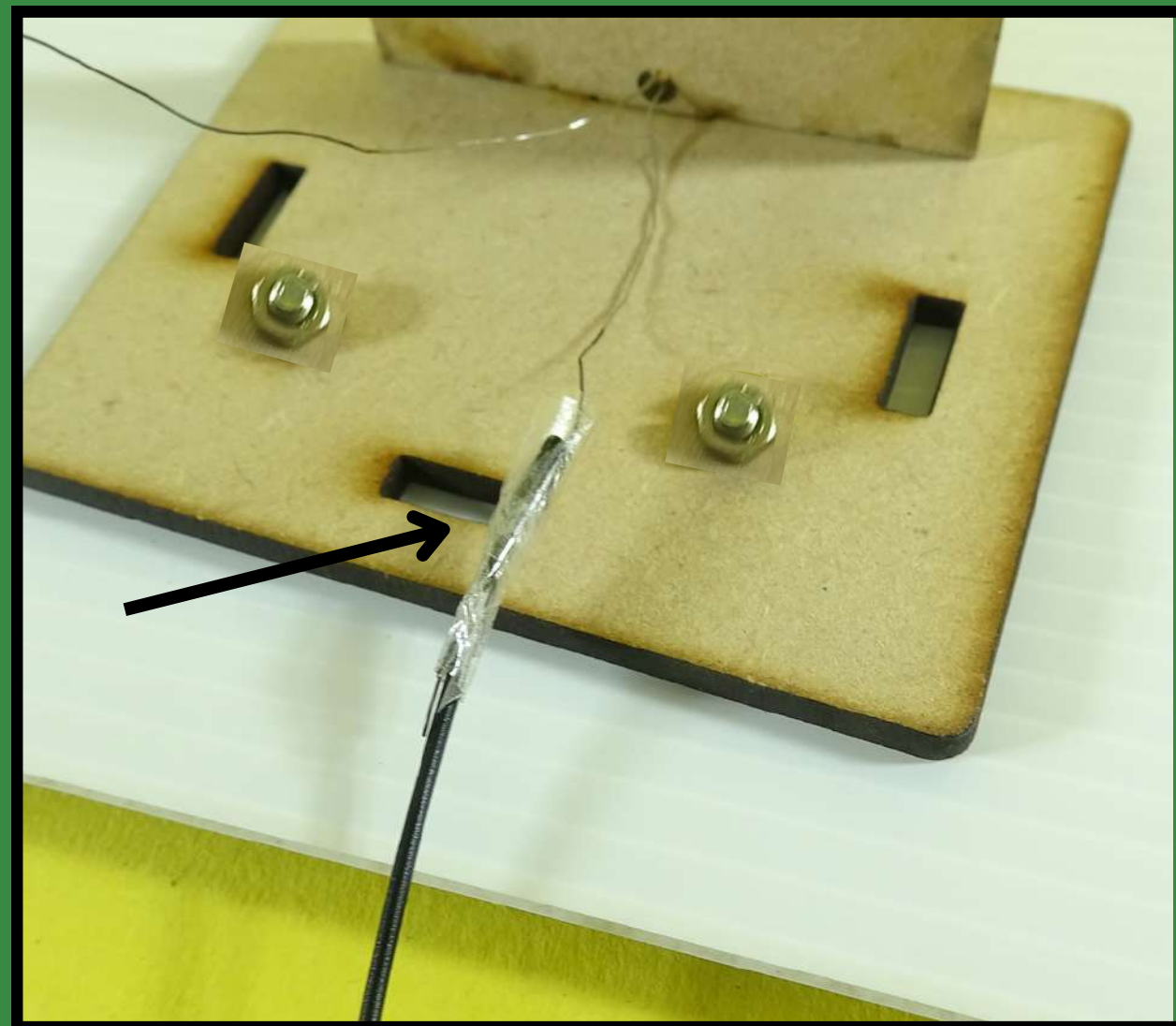
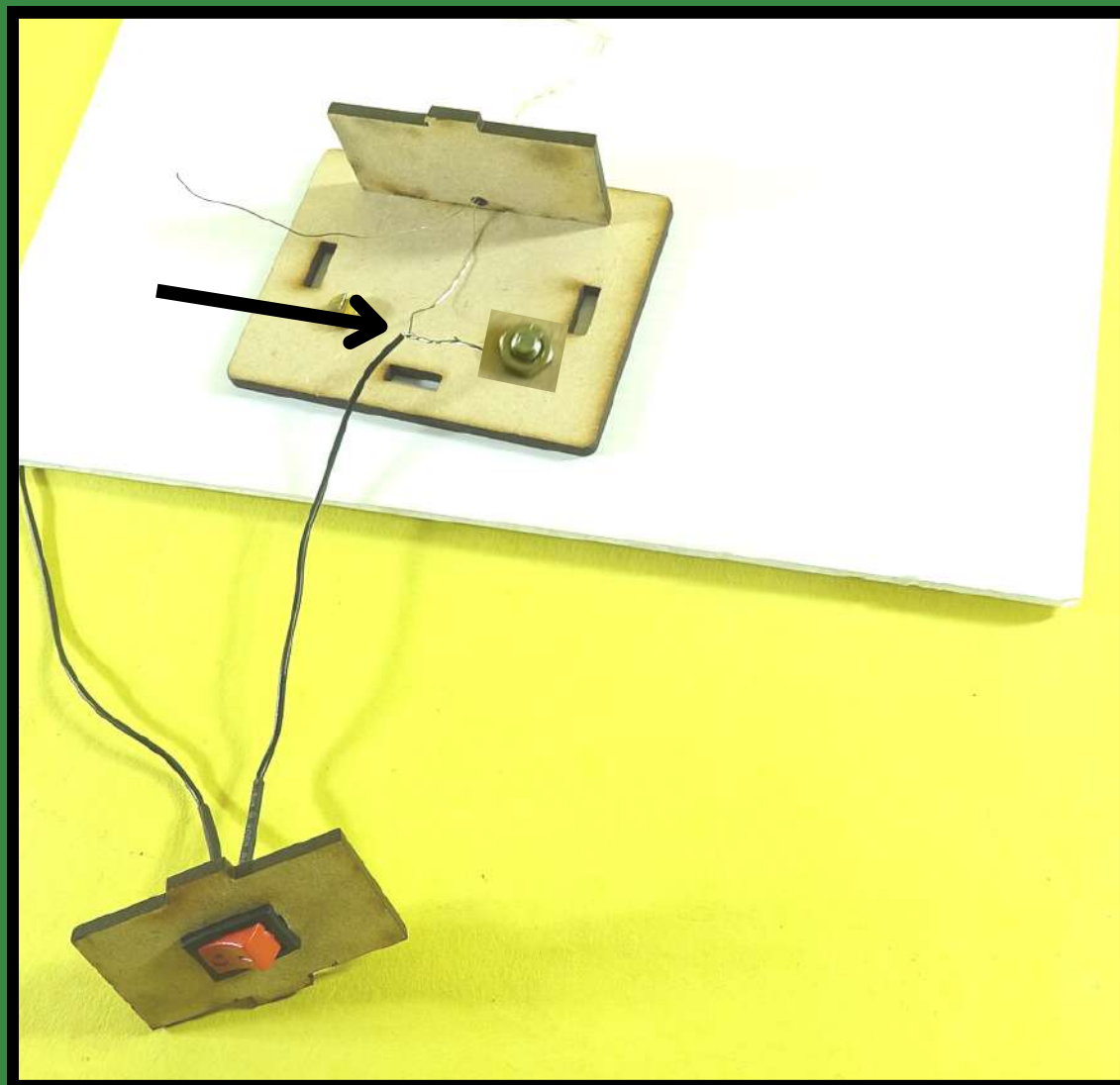


**Insert the washer to switch any one wire, as demonstrated  
(NOTE:- Ensure that the metal part of the wire makes contact  
with the washer.**

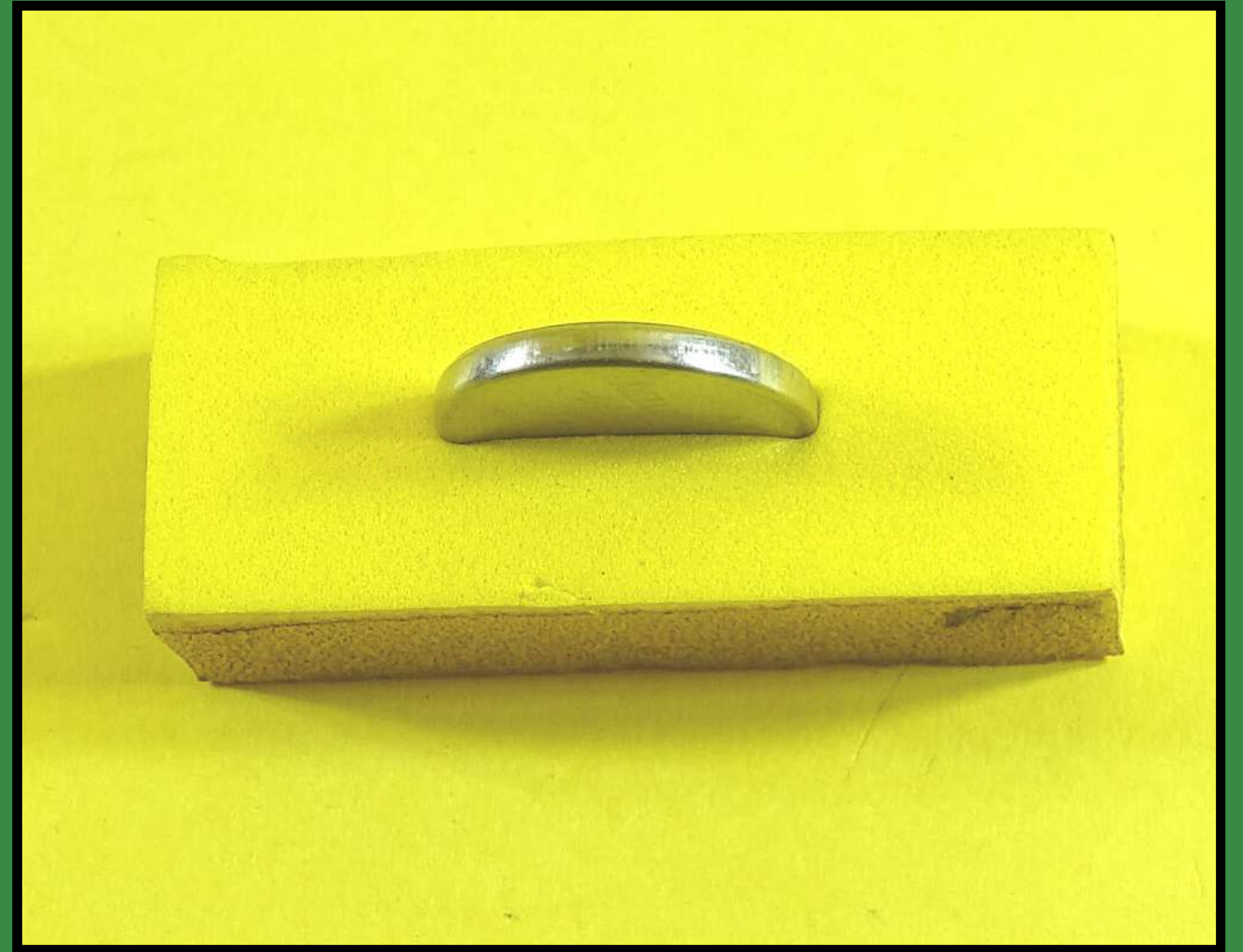
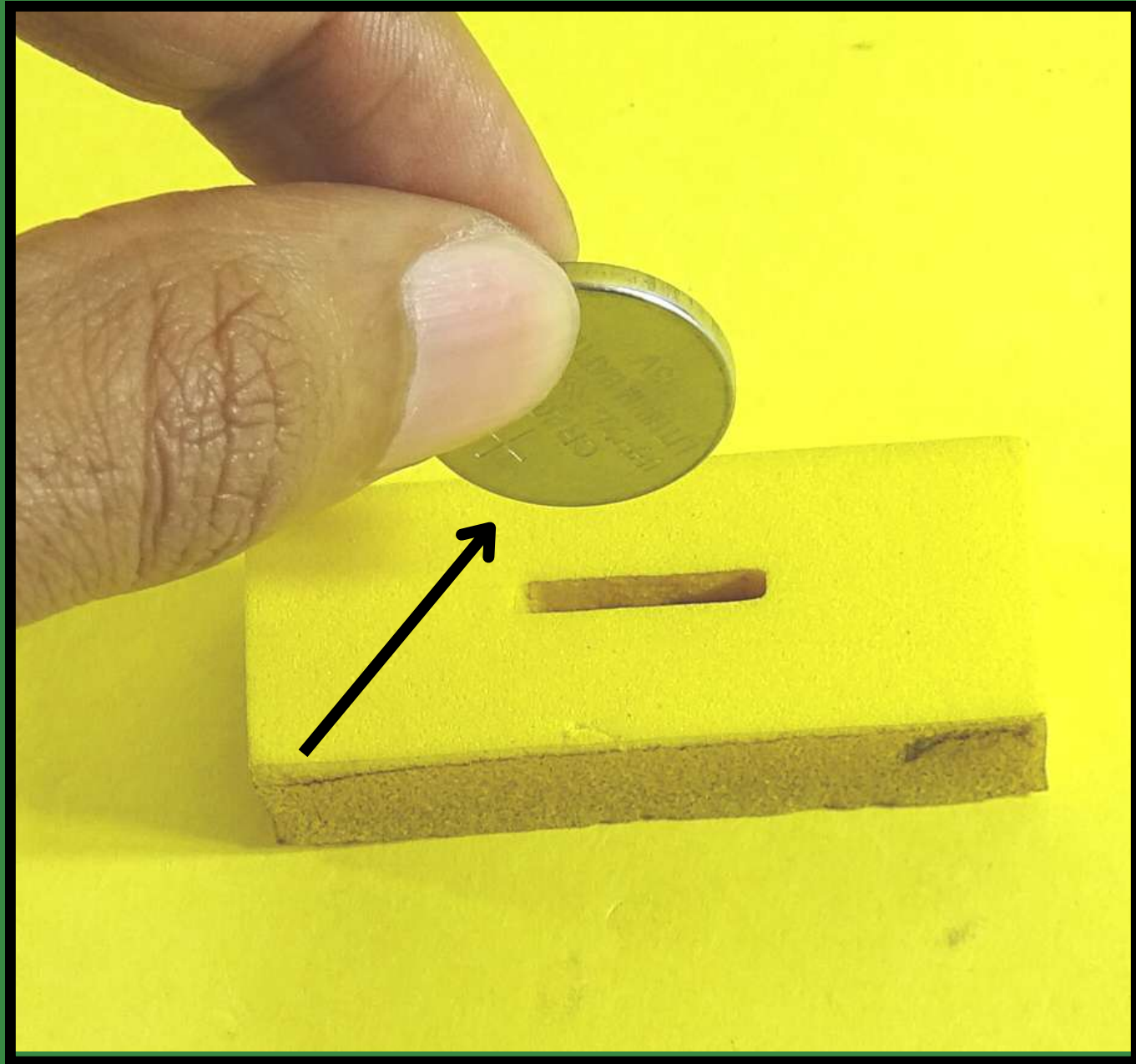




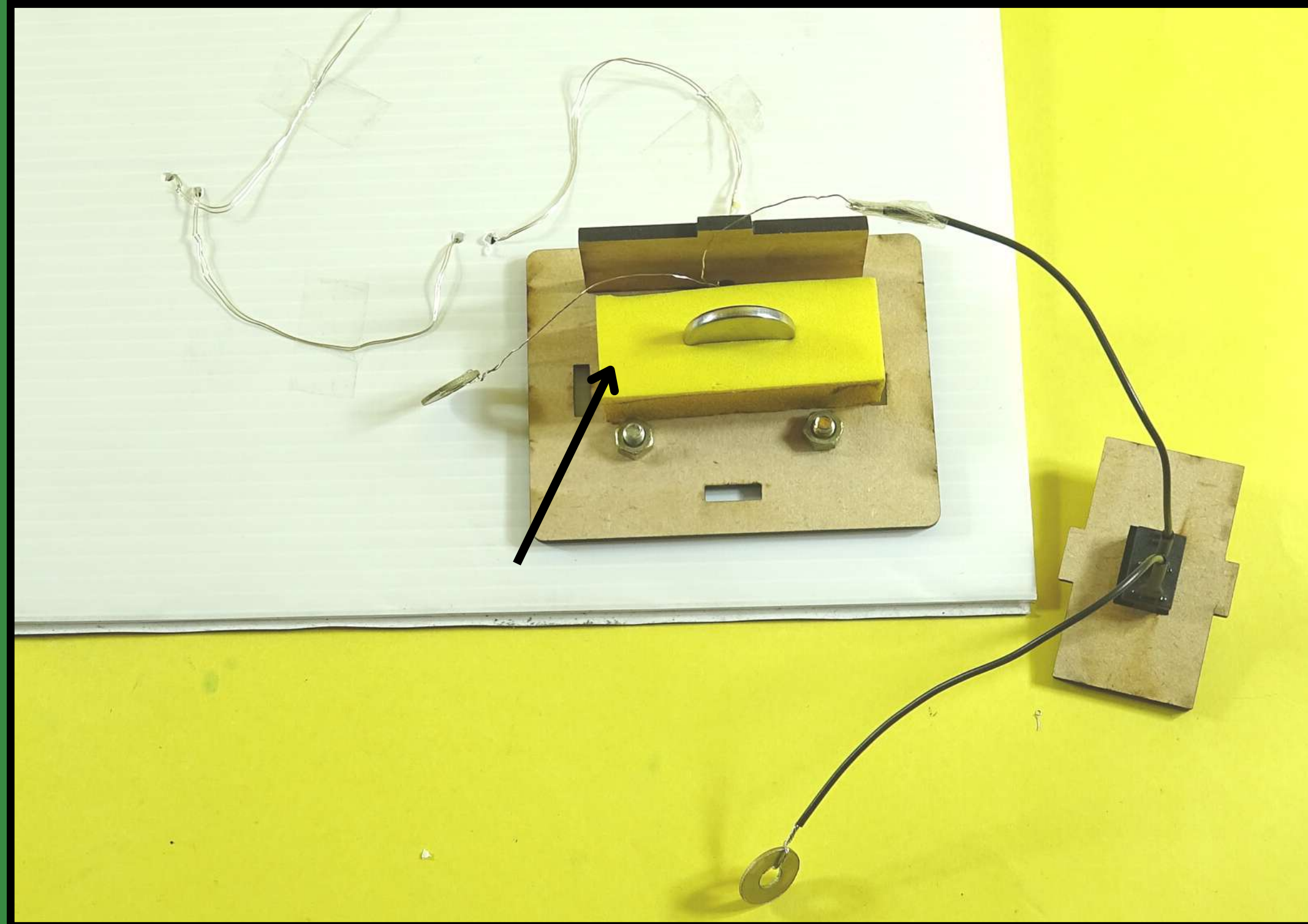
**Connect the negative side of the LED to one of the black wires of the switch and insulate them using cello tape as shown**



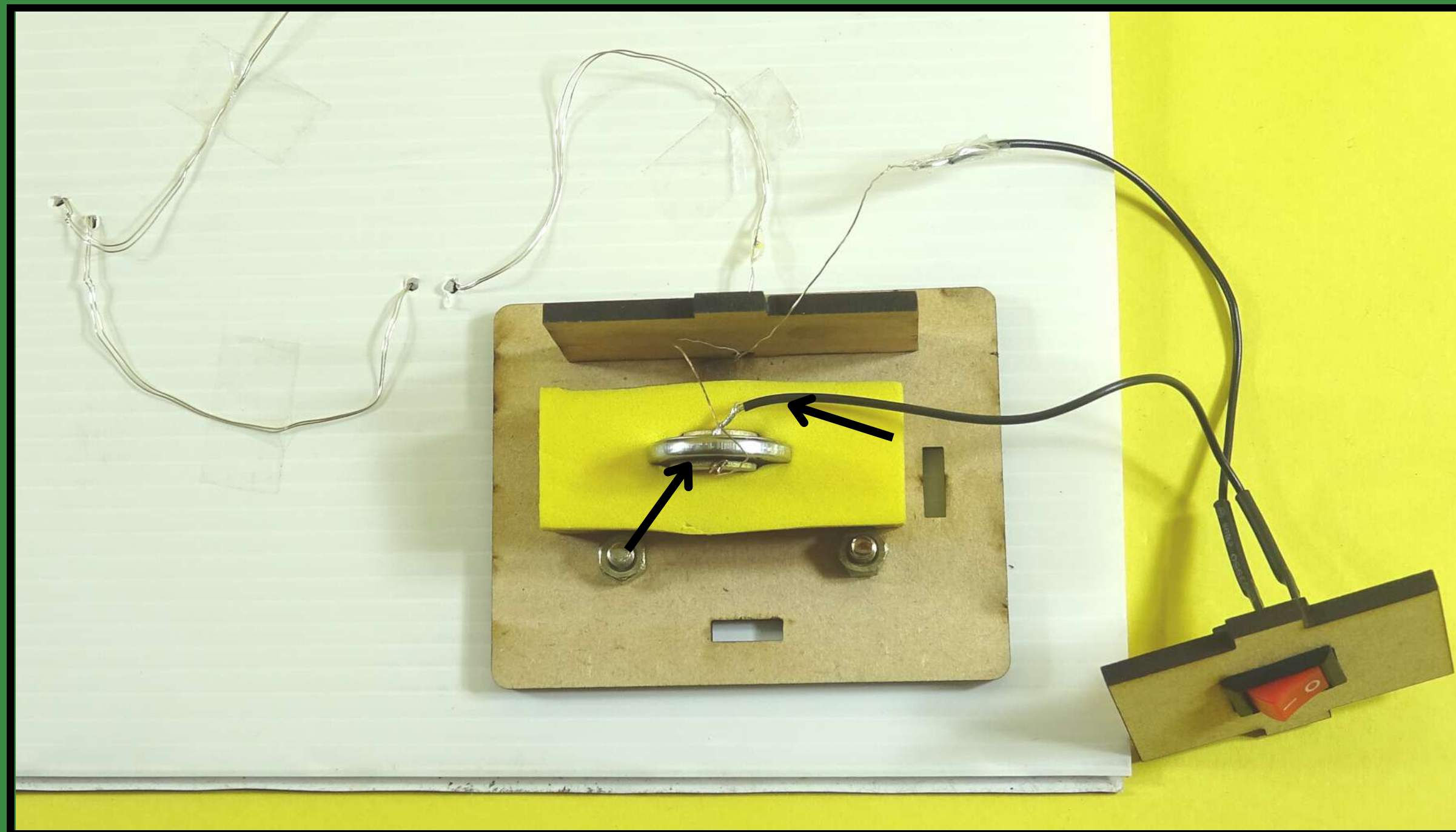
**Insert the cell into the foam cell holder as demonstrated.**



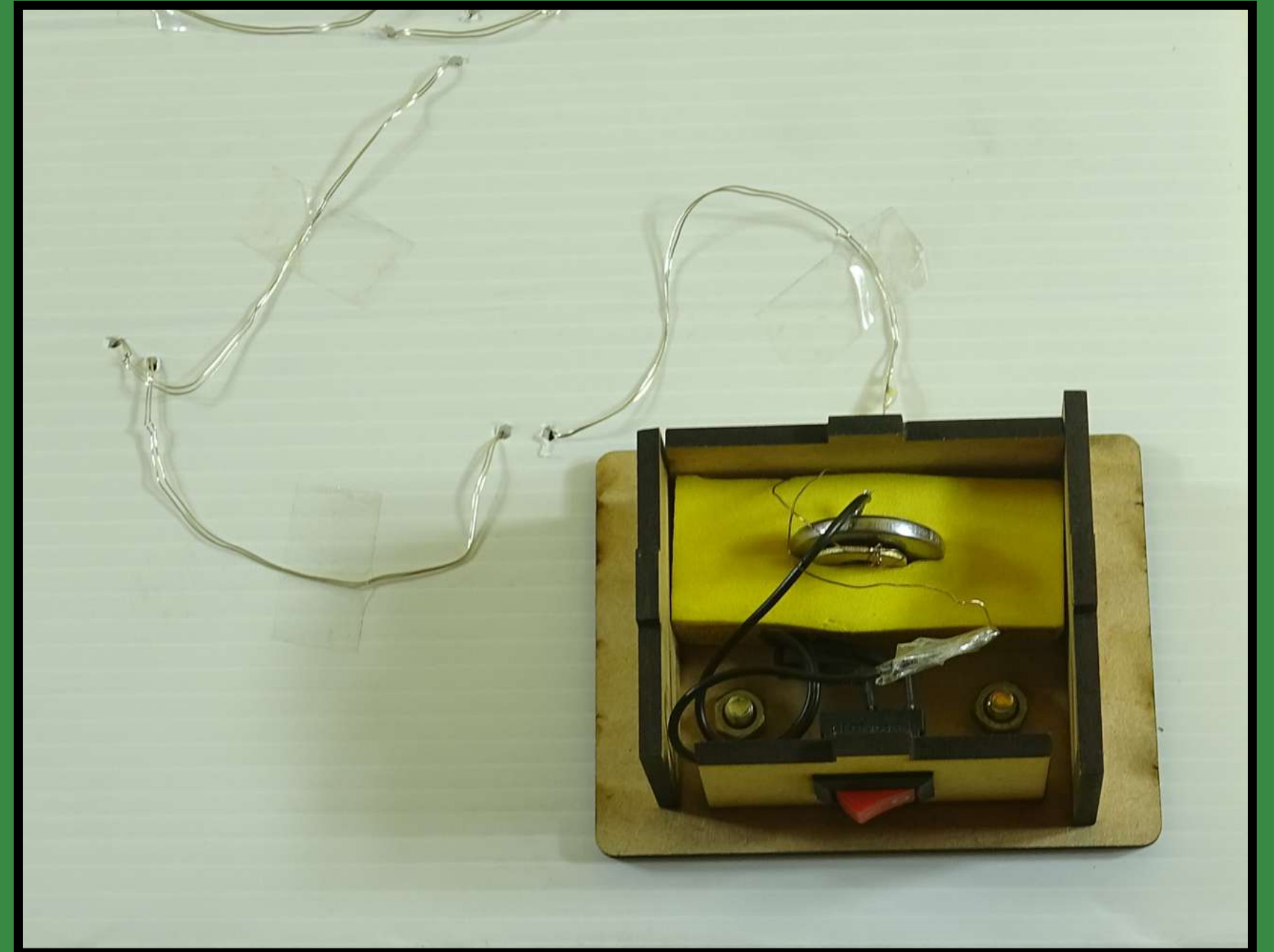
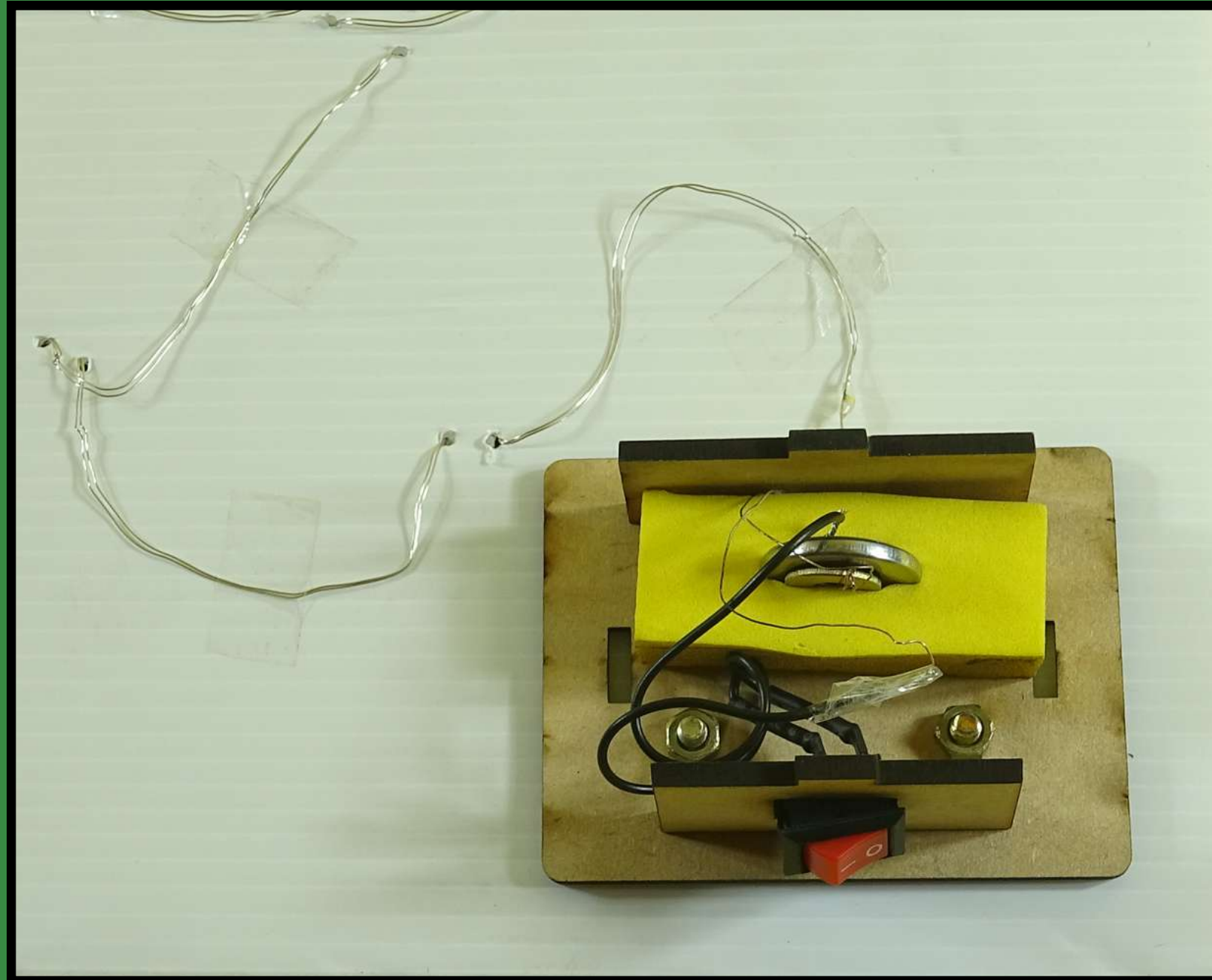
**Position the cell holder foam onto the base MDF as demonstrated**



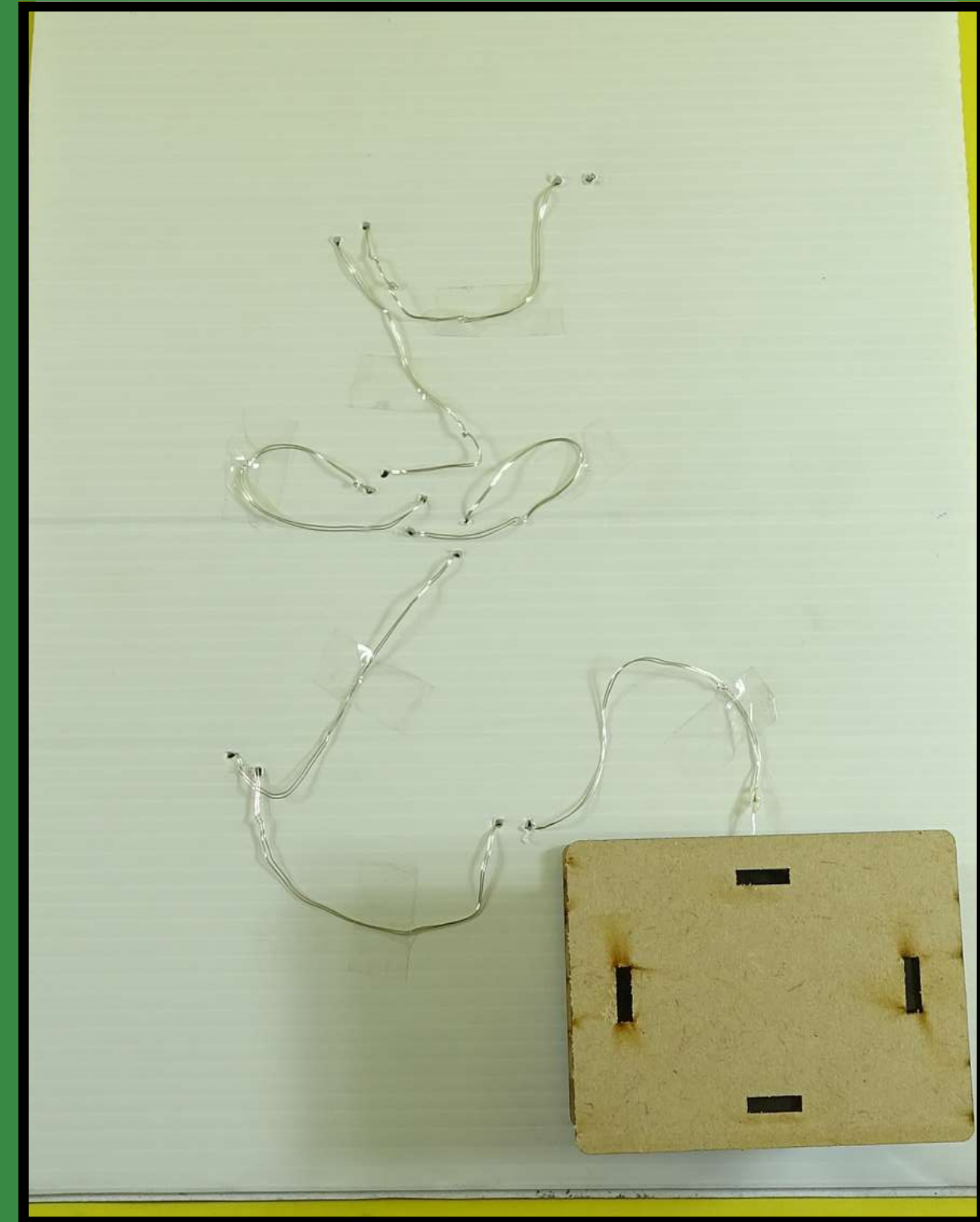
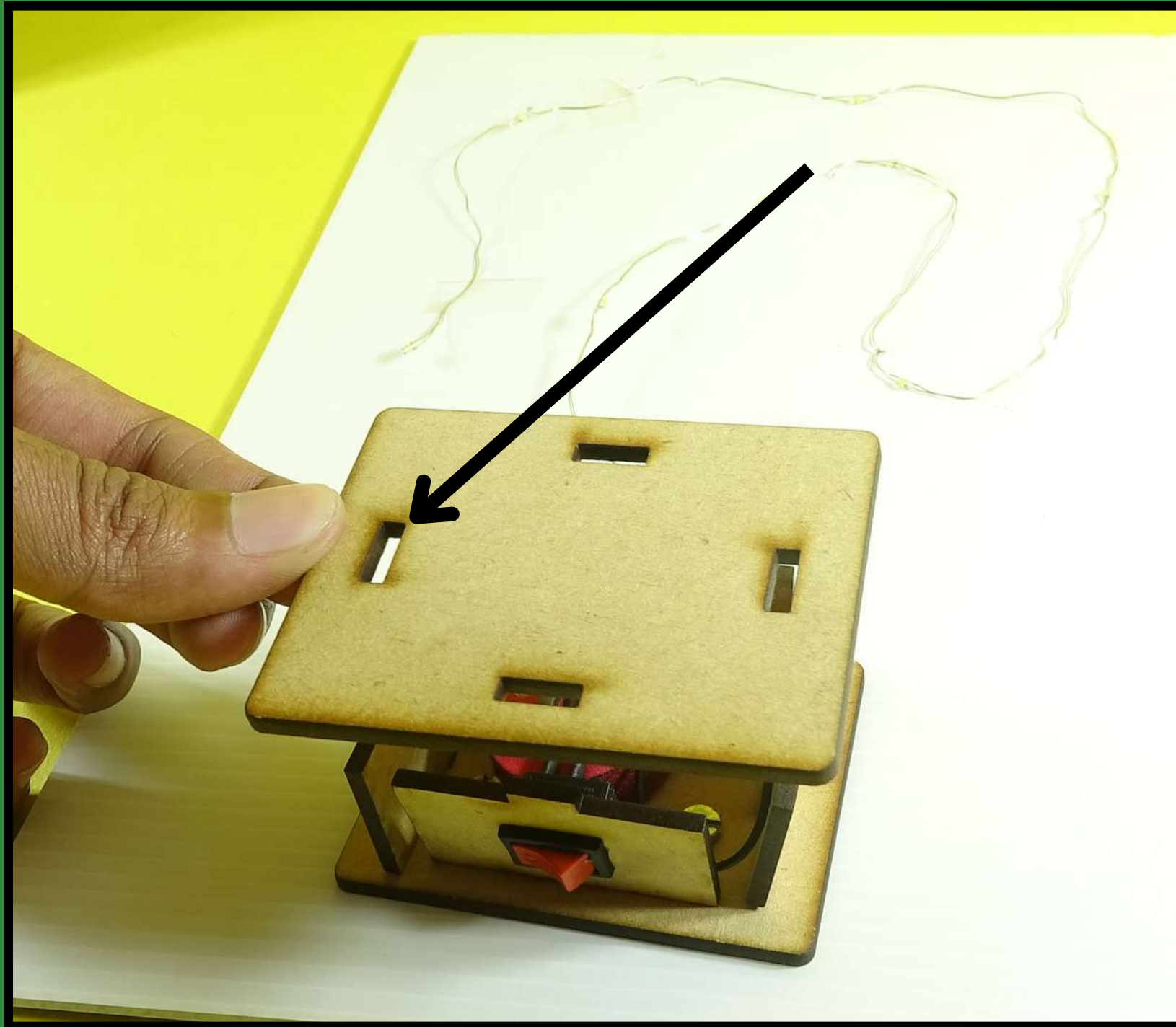
**Connect the washer connected LED wire to the positive side of the cell, and connect the washer connected switch's black wire to the negative side of the cell, as demonstrated.**



**Attach the switch part to the base MDF and connect the other side parts to the base part as demonstrated. Make sure to keep all wires inside the MDF box as shown.**



**Place the top part of the MDF and close the circuit box as demonstrated.**



**Turn on the switch to observe the star constellation**



# HOW DOES IT WORKS?

Stars are very far away from Earth. They appear to be close together in the night sky because they are in the same direction from Earth. Constellations are groups of stars that appear to be close together in the night sky.

In this project, the stars are projected in the same relative positions as they appear in the night sky. This allows you to see the constellations as they would appear if you were looking at them in the sky.

