



SKILLS

Solar [Skills]

18 STEPS

About Project Helping

Kynd Kits are a program of Project Helping, a mental wellness nonprofit. Our mission is to make it ridiculously easy to volunteer because doing good is good for your mental wellness!

[Learn More at ProjectHelping.org](https://ProjectHelping.org)

When You Build a Kynd Kit - The Cycle of Impact



Tips for Building Your Kit

Helpful Tip for Building Your Kynd Kit

- Avoid politics and religion entirely.
- Use appropriate humor.
- Can't think of what to write, draw a picture!
- Use words of affirmation!
- Place a piece of paper in any canvas bag before drawing on the outside. This way, the marker will not bleed through the other side of the bag.
- Please keep your designs gender-neutral, inclusive, and age-appropriate.

Spanish Translation Options



English	Spanish
Be proud of yourself	Siéntete orgulloso/a de ti mismo/a
Thinking of you	Pensando en ti
Sending love	Mandándote amor
You got this!	¡Tú puedes!
You are stronger than you seem, braver than you believe, and smarter than you think.	Eres más fuerte de lo que pareces, más valiente de lo que crees y más inteligente de lo que piensas.
This time will pass and good things are coming your way.	Deberías sentirte orgulloso/a.
Keep moving forward and fighting for that future!	El próximo capítulo de tu vida será mucho mejor.
Thinking of you during this time and sending warm, supportive thoughts your way.	Estaré pensando en ti durante este tiempo y te mando pensamientos cálidos y de apoyo.
Start where you are. Use what you have. Do what you can.	Empieza donde estás ahora. Usa lo que ya tienes. Haz lo que puedas hacer.
I know this won't be easy, but I also know you've got what it takes to get through it.	Sé que no va a ser fácil, pero también sé que tienes lo necesario para poder pasar esto.

STEP 3 OF 18

Skill: Solar

Before You Build

Build a solar-powered charger for someone experiencing homelessness. The majority of unhoused individuals have access to electronics, but they often lack access to power. This way, they can charge their electronics from anywhere.

The Skills Kits were created for you, as the volunteer, to learn a new skill and use it to give back to your community. Learn how to wire a solar-powered charger. You can then utilize this new skill to continue giving back to your community by developing other sustainable

power sources.

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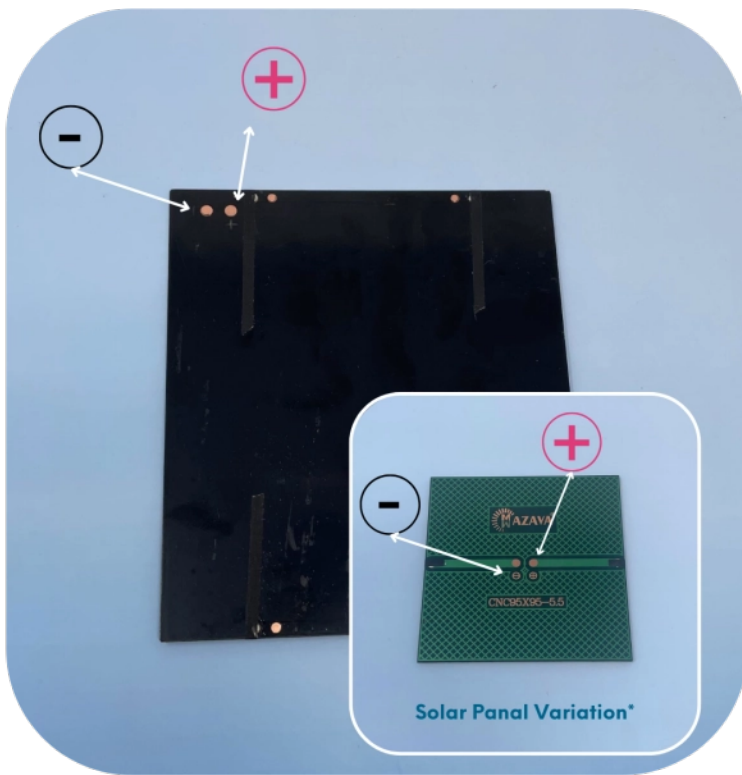
Solar Panels | Step 1

Prepare the Solar Panel

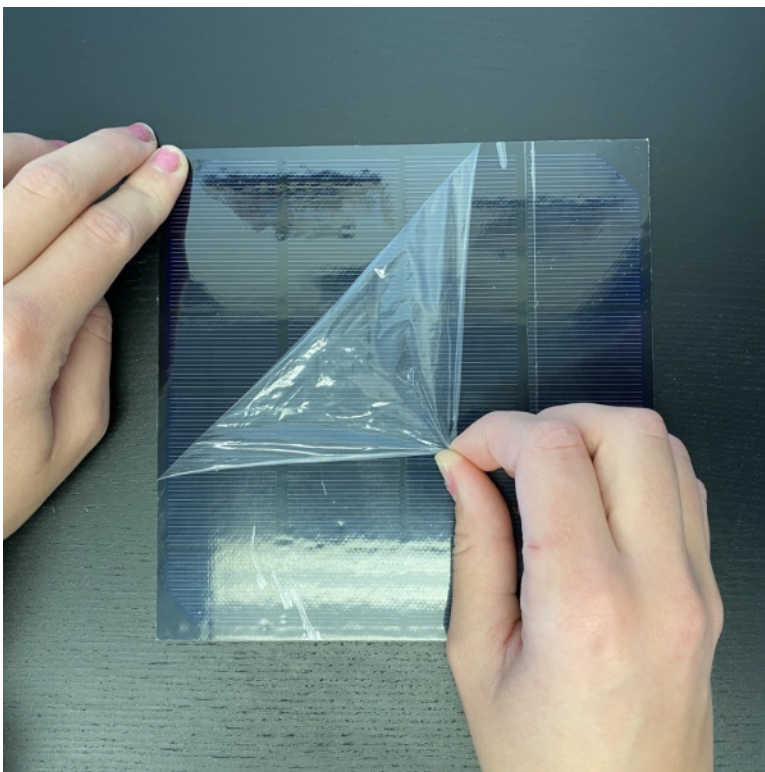
1. Find the following items:
 - Solar Panel
2. Find the positive and negative connections

We use several different panel types, and yours may look different than the image below.

- Turn the solar panel over so you can see the connection points. Arrange the panel so the wording is upright.
- The left terminal is positive (+) and the right terminal is negative (-).



Remove the clear protective covering from the front of the solar panel (if needed)



Solar Panels | Step 2

Prepare the Wires

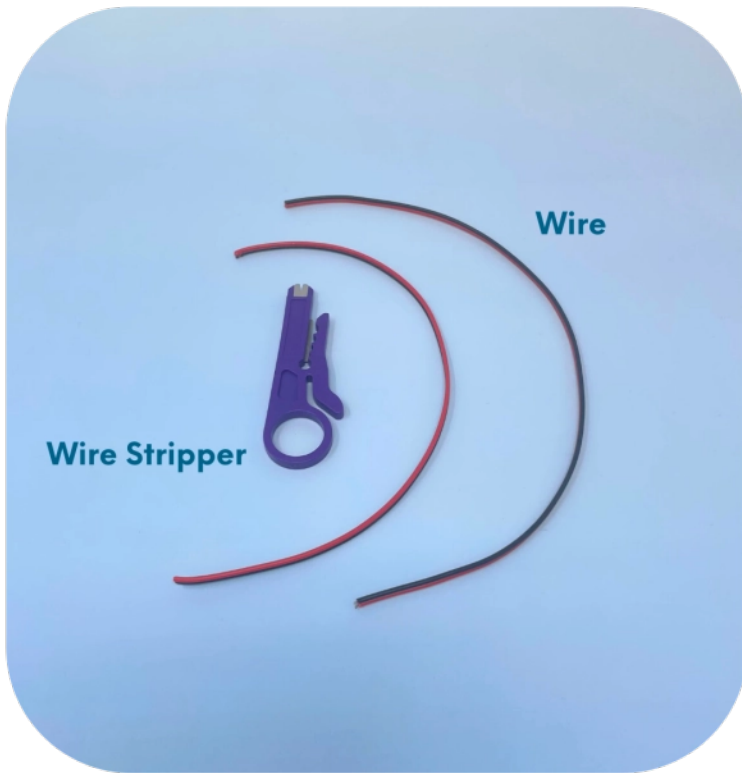
1. Find the following items:

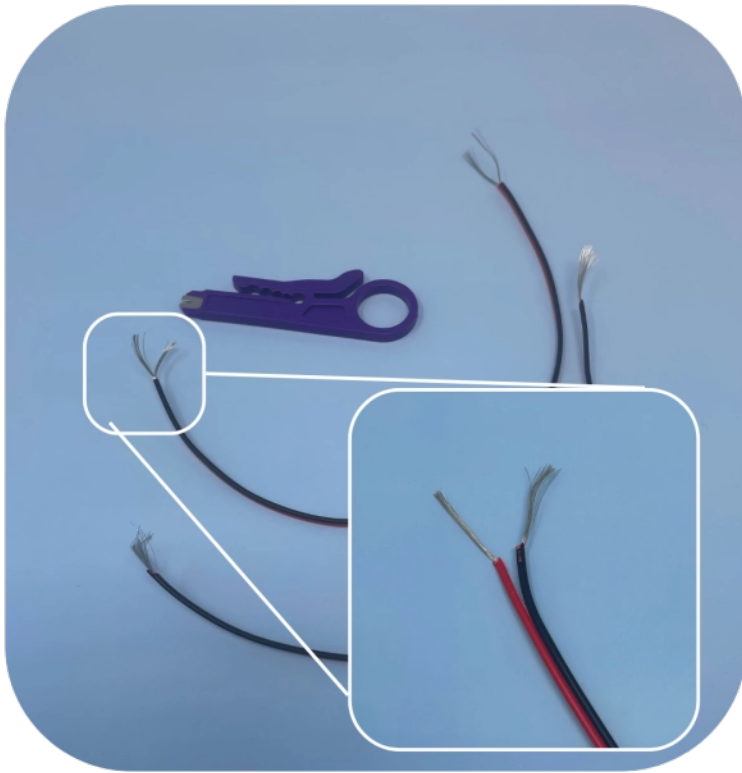
- Red and Black Wire
- Wire stripper

Tip: If you don't have a wire stripper, you can easily use scissors. Make a small cut around the silicon without cutting through the wire, and use your hand to pull off the plastic

1. Split the wire into 2 pieces. Strip the outer coating off of the wires down approximately 2".

- Do **NOT** cut into the black and red wires.
- Do this to **both sides** of the wire.
- You can split the wires fully into 2 pieces, or leave them slightly connected
- There is enough wire. If you mess up, cut the wire entirely and try again!





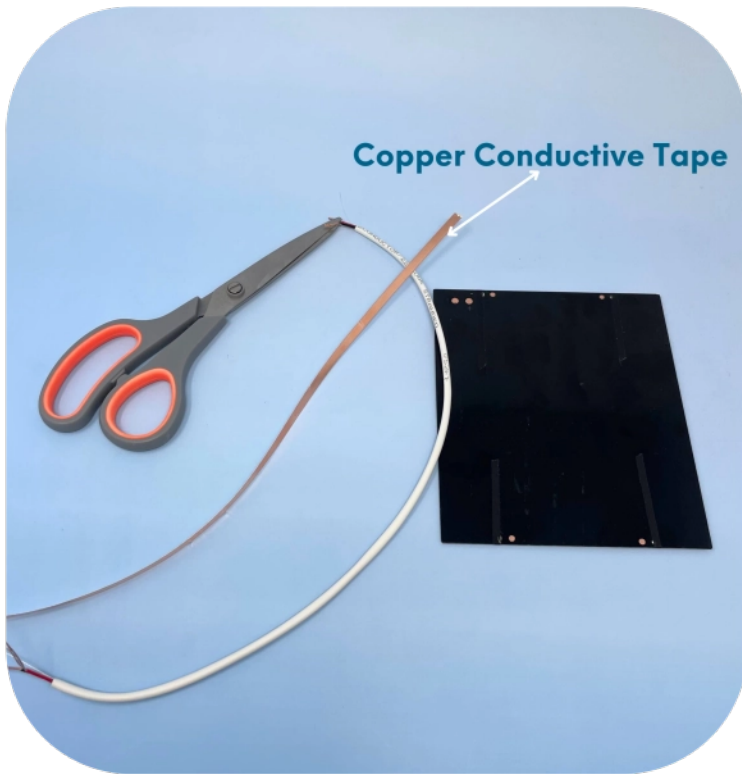
STEP 6 OF 18

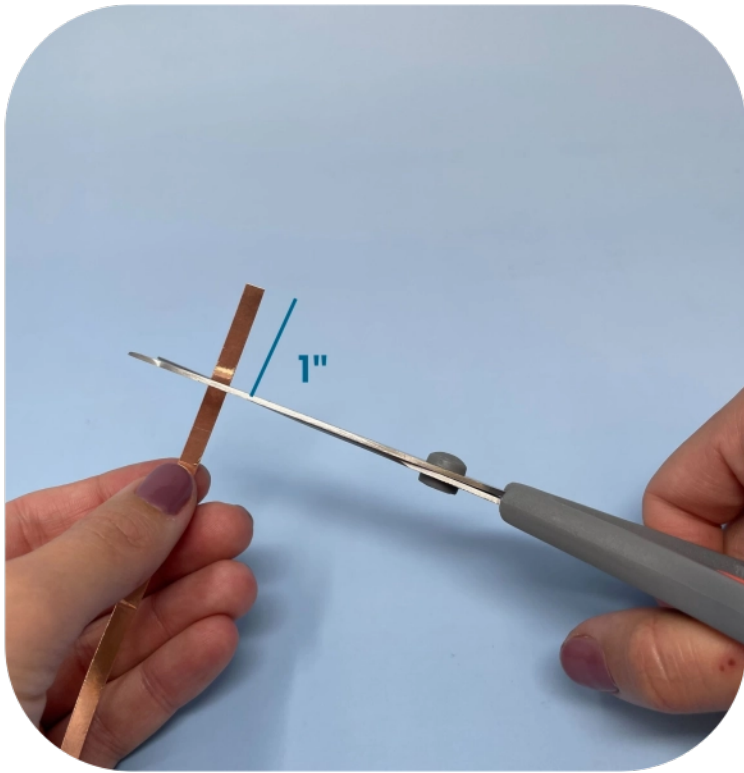
Solar Panels | Step 3

Prepare the Conductive Tape

1. Find the following items:
 - Conductive Tape
 - Scissors
2. Locate the long strip of copper conductive tape.

3. Cut two strips of conductive tape approximately 1" long.





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Solar Panels | Step 4

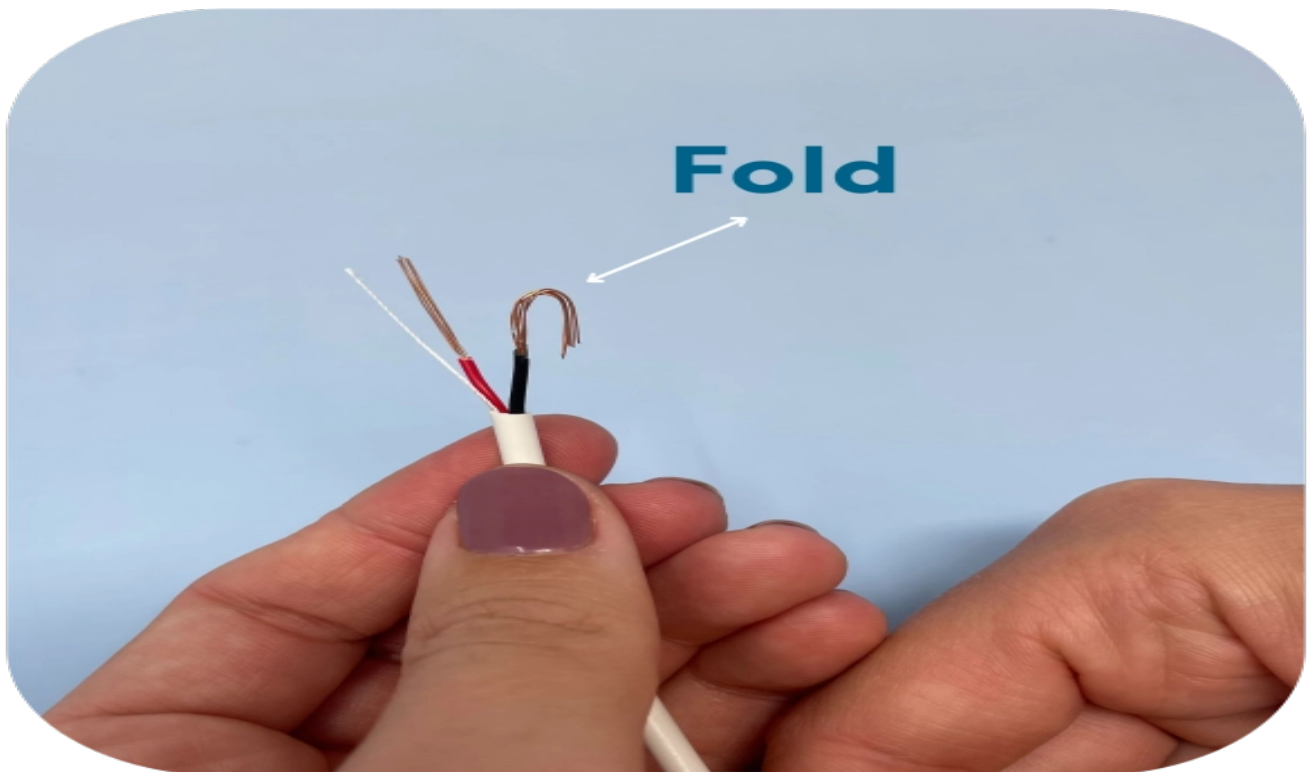
Attach the Wires to the Solar Panel

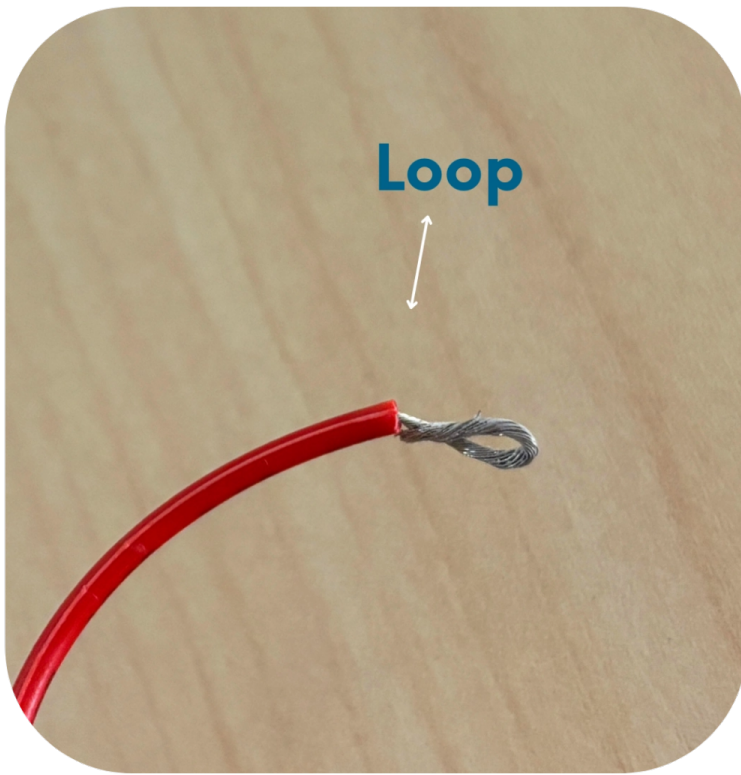
1. Find the following items:
 - Solar panel
 - Wire (stripped)
 - Two strips of copper conductive tape

2. How to:

- **To Know:** Red wire is positive (+), black wire is (-)
- Using the copper tape, tape the red wire to the positive (+).
- Tape the black wire to the negative (-).

Tip: Fold the wire to make a small loop, so more of the wire is touching the solar panel, for better surface connectivity. Do this to both wires.





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Solar Panels | Step 5

Adding the Copper Tape

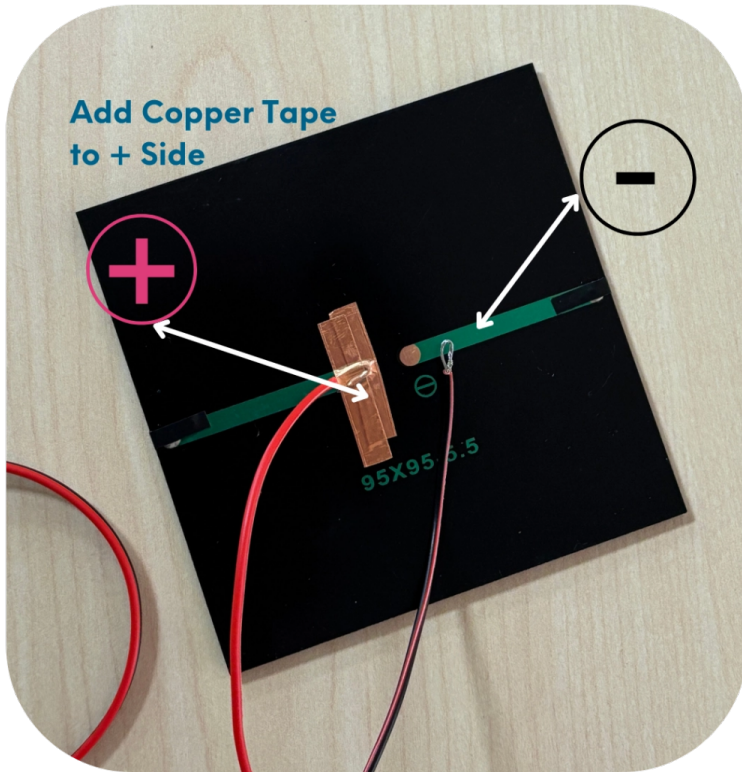
Press firmly on the tape to hold the wires down securely.

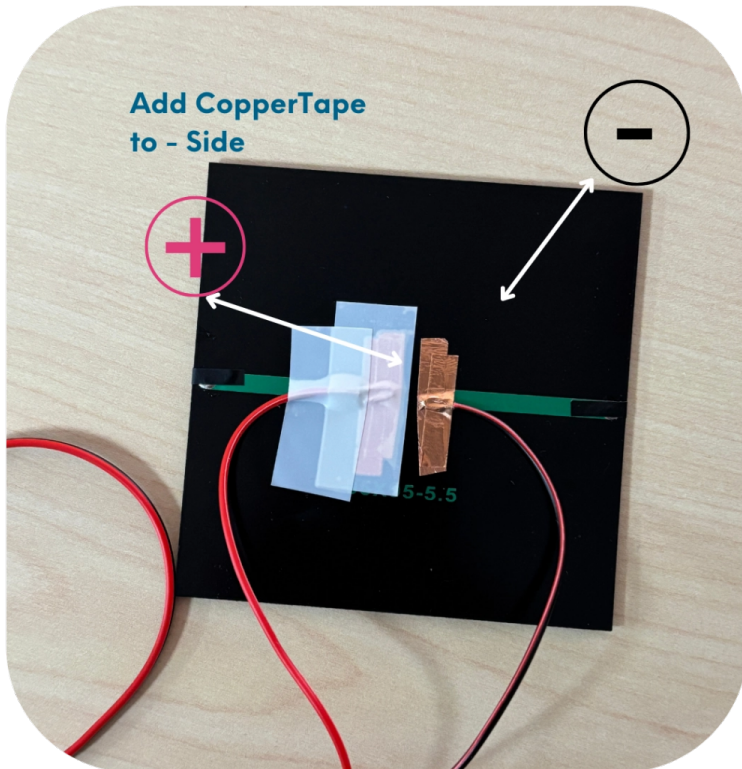
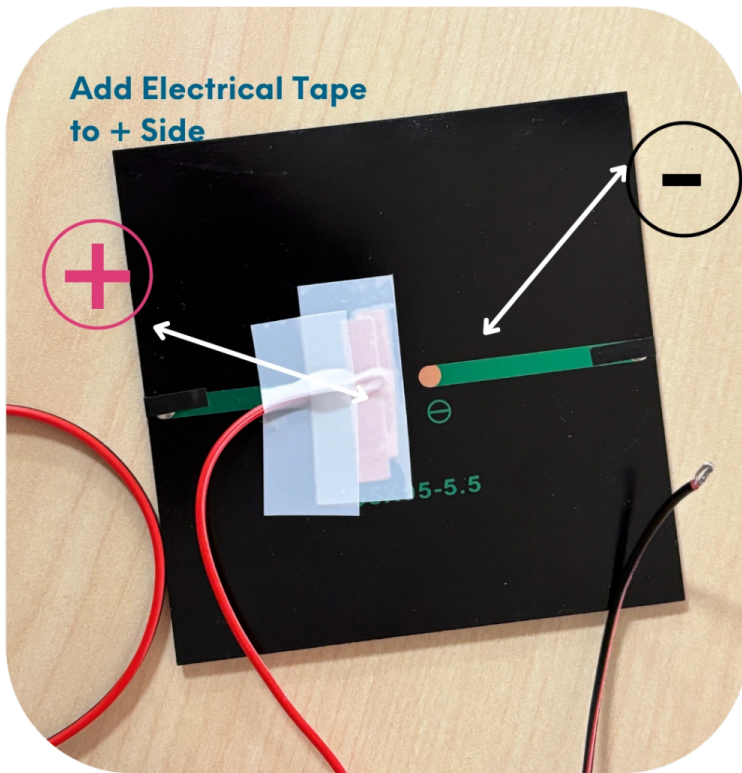
Tip: Do one side fully before moving on to the next.

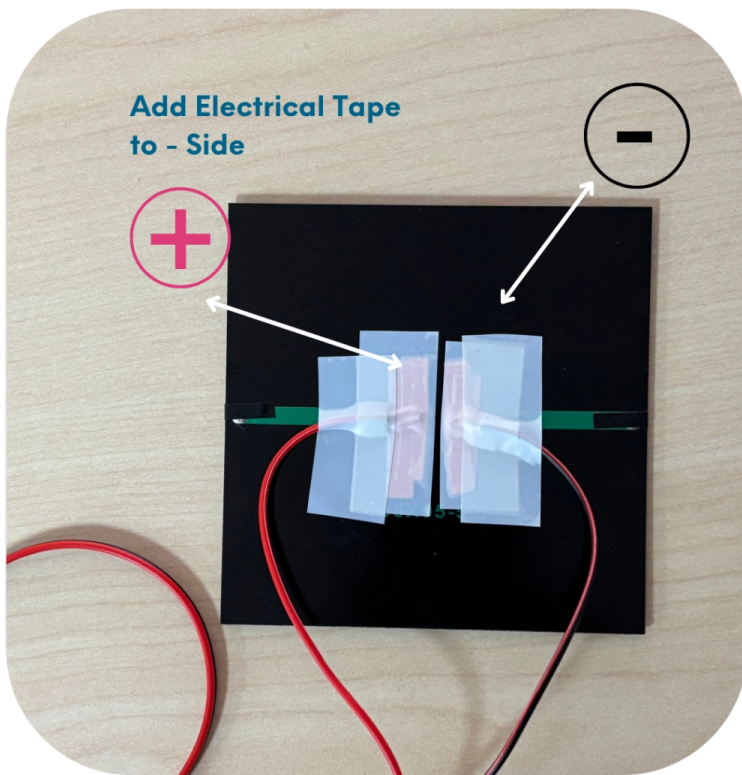
Wires must firmly and securely touch the surface of the +/- points!! You can use several pieces of tape to improve it. The stronger the connection between panel and wires, the

more stable the circuit.

BE SURE THE COPPER TAPE STRIPS AND WIRES DO NOT TOUCH





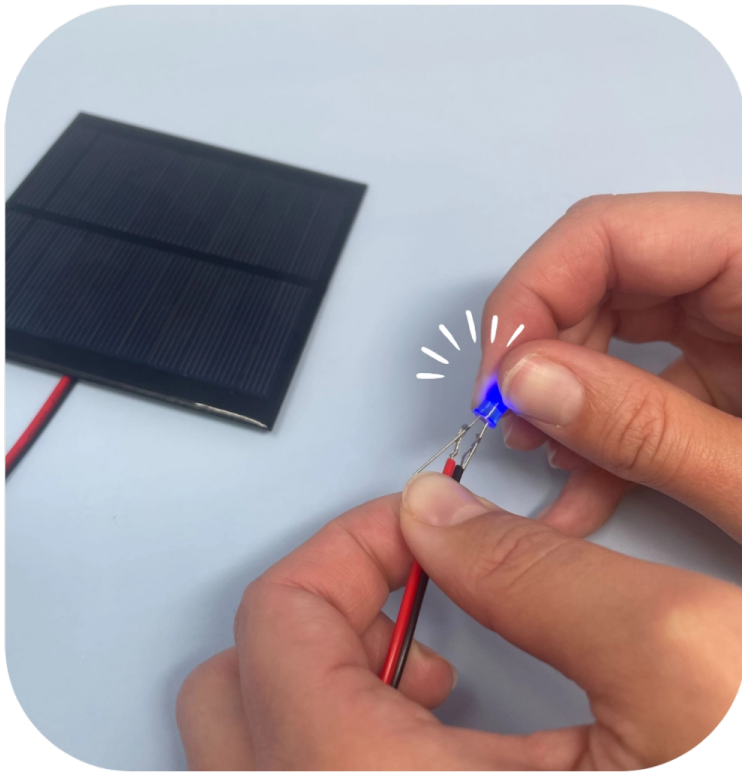


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Solar Panels | Step 6

Test the Connection

1. Turn the solar panel over and expose it to a **STRONG** and **DIRECT** light source such as a lamp.
2. Take a diode (pictured below) – hold the long pin to red wire & short pin to black wire.
3. The diode will light up if the connection is stable and the circuit is correct.



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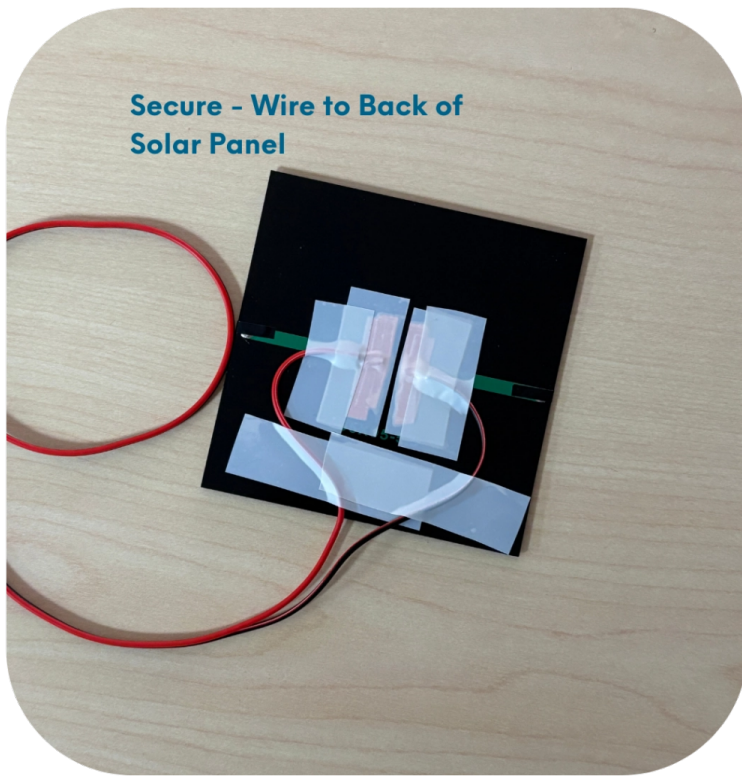
Solar Panels | Step 7

Secure the Connection

After you confirm your connection is good, it is time to secure the wires to the back of the solar panel.

1. Locate the electrical tape
 - Cut two strips of electrical tape approximately **2" each**.

2. Use the tape to secure the wires to the back of the solar panel.



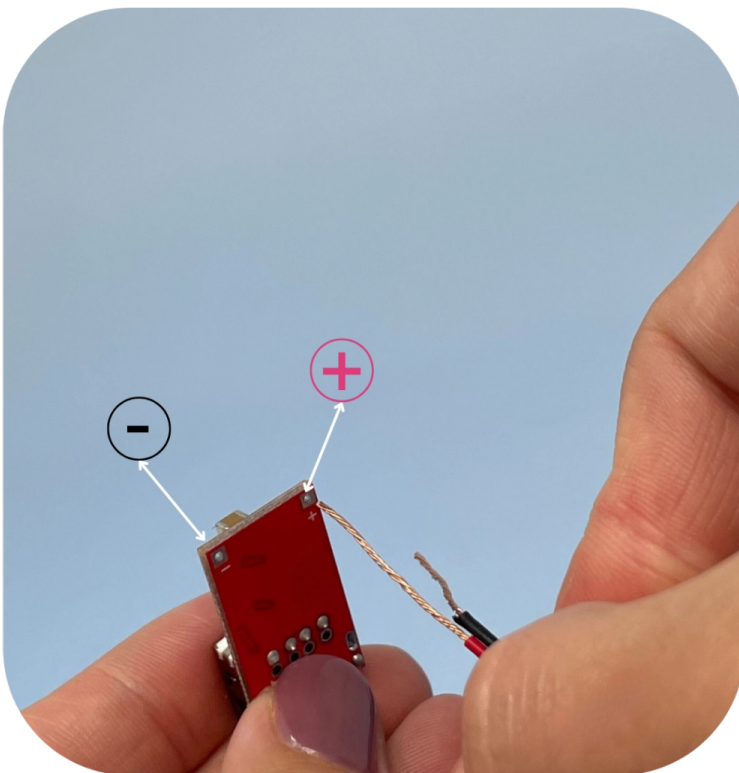
STEP 11 OF 18

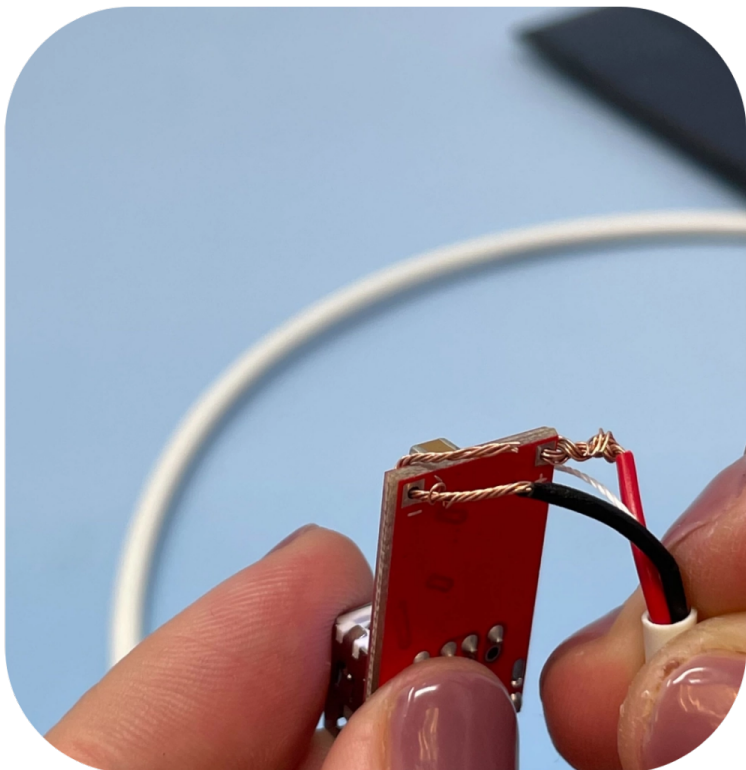
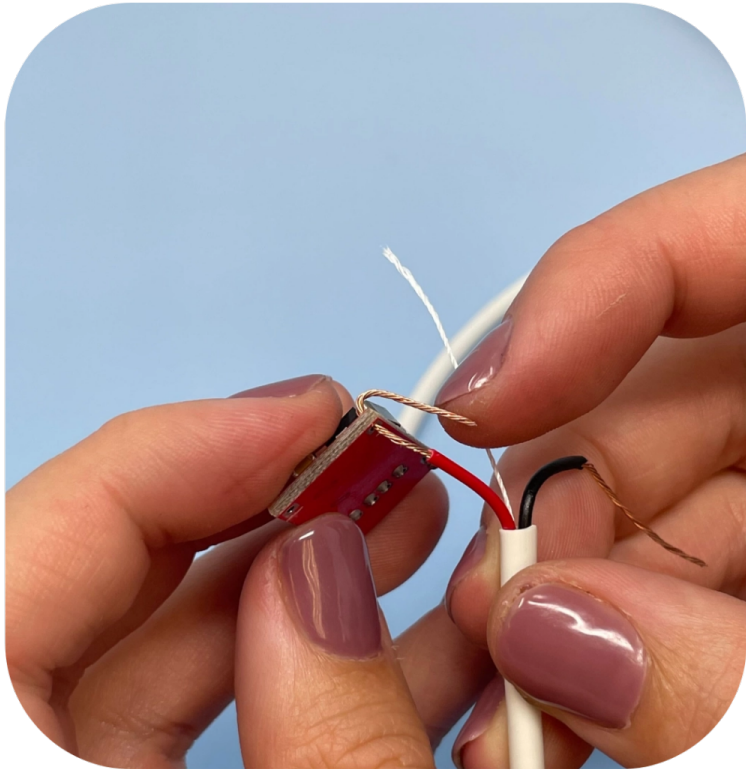
Solar Panels | Step 8

Connect the Charging Board

1. Locate the USB Charging Board
 - **Gray wire connectors are optional.**

2. Find the positive (+) and negative (-) connections on the back of the USB Charging Board.
3. Connect the wires to the USB Charging Board
 - Tightly roll the ends of the wire so they slide into the small openings of the USB Charging Board.
 - First, put the red wire into the positive (+) opening.
 - Put the wire halfway into the opening and loop it to twist the wire around itself to secure it in place.
 - Next, put the black wire into the negative (-) opening.
 - Again, put the wire halfway into the opening and loop it to twist the wires around itself to secure it in place.

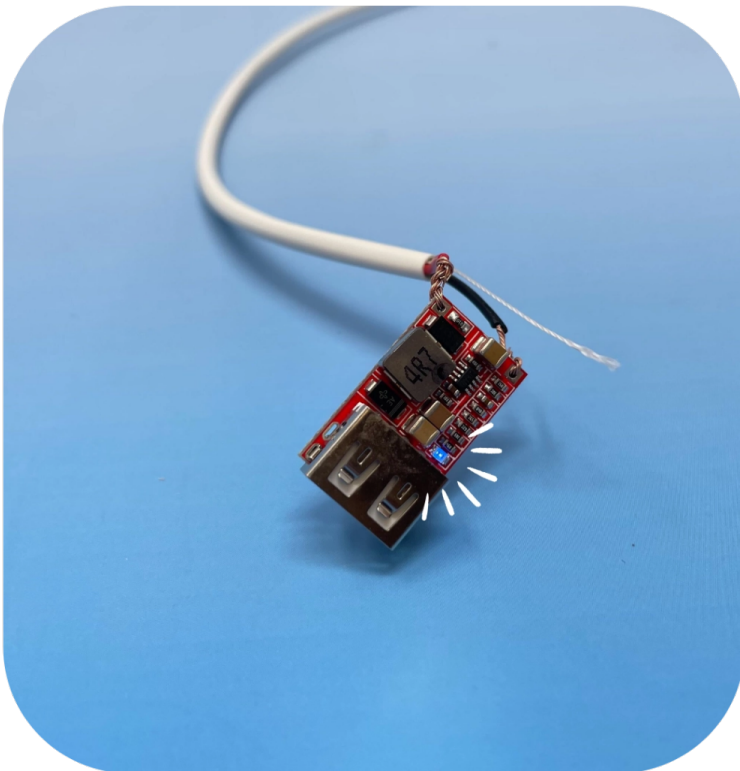




Solar Panels | Step 9

Confirm the USB Charging Board Connection

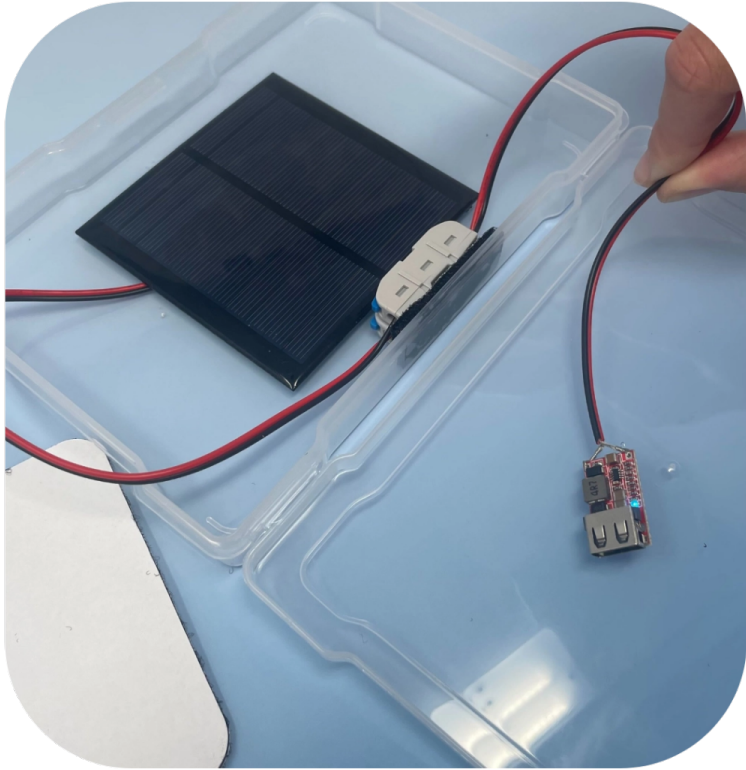
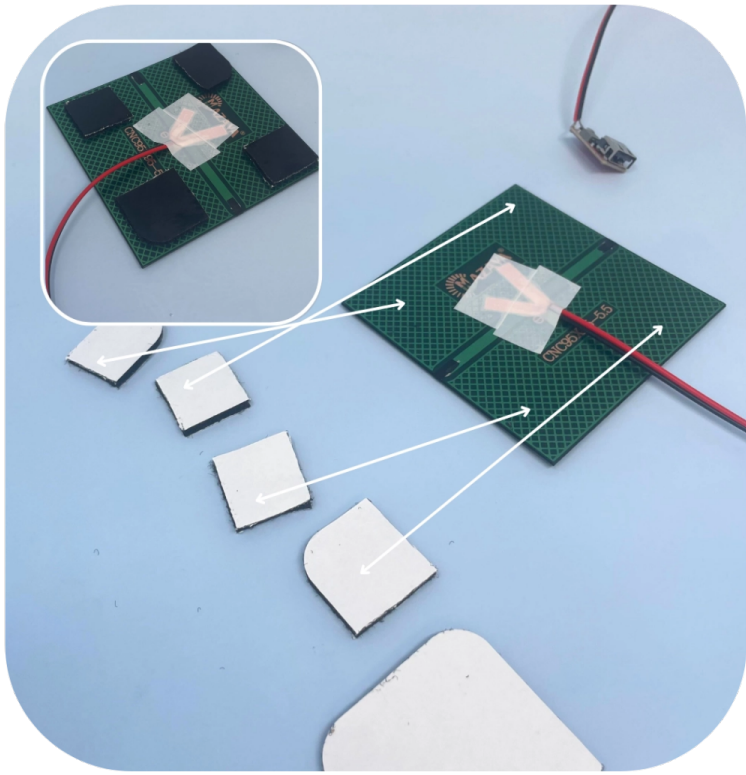
1. Hold solar panel under direct & strong light source.
2. If the connections are secure and your panel is capturing enough light, the small red LED on the top of the USB Charging Board will light up.



Solar Panels | Step 10

Attach the Solar Panel to the Case

1. Find the following items:
 - Completed Solar Panel & USB Charger
 - Protective Box
 - Velcro
2. Cut the velcro into smaller pieces.
3. Remove the white backing and place velcro on the back of the solar panel.
4. Secure the solar panel in the bottom of the case.
 - Position the solar panel so the wire is running into the bottom of the box.
 - Press down firmly on the corners to secure the velcro to the box.
 - Place the wire splitters along the inner side of the case.
 - Test that the box closes with the solar panel attached to the lid.



Solar Panels | Step 11

Make a Cover

Using the blank piece of paper, markers, and clear, double-sided sticker, make a cover for your case.

1. Decorate the paper.
2. Cut the clear adhesive into four pieces and stick them to each corner of the paper.
3. Place the paper facing down inside the lid of the case. This will make sure you can see your masterpiece on the outside!





Solar Panels | Step 12

Trouble Shooting

Wire Prepping

- If you mess up, you have enough wire included in your kit to cut everything off, and restart

Diode is Not Lighting Up

- Make sure your positive and negative wires and copper tape do not cross or touch
- Make sure the red wire is attached securely the positive and the black is attached securely to the negative.
- Your wires should not be exposed, they should be fully covered by conductive tape.

USB is Not Lighting Up

- Reconnect your wires through the USB
- Make sure it is a secure connections by putting the wire through the holes, and then twisting them around each other for a secure connection.

- Make sure black wire goes through the negative and red wire goes through the positive.

STEP 16 OF 18

Pack the Skill: Solar Kit

- Close the case and place it in the original box.
- Include any leftover materials in the original box.

STEP 17 OF 18

Register My Kit (Optional)

Register your kit

To register and track your kits, you must visit the online instructions.

Registering your kit is optional.

STEP 18 OF 18

Thank You!

When you build a Kynd Kit, you create layers of impact for yourself and the community. We appreciate your time and your support of our mission.

Cheers,

The Project Helping team