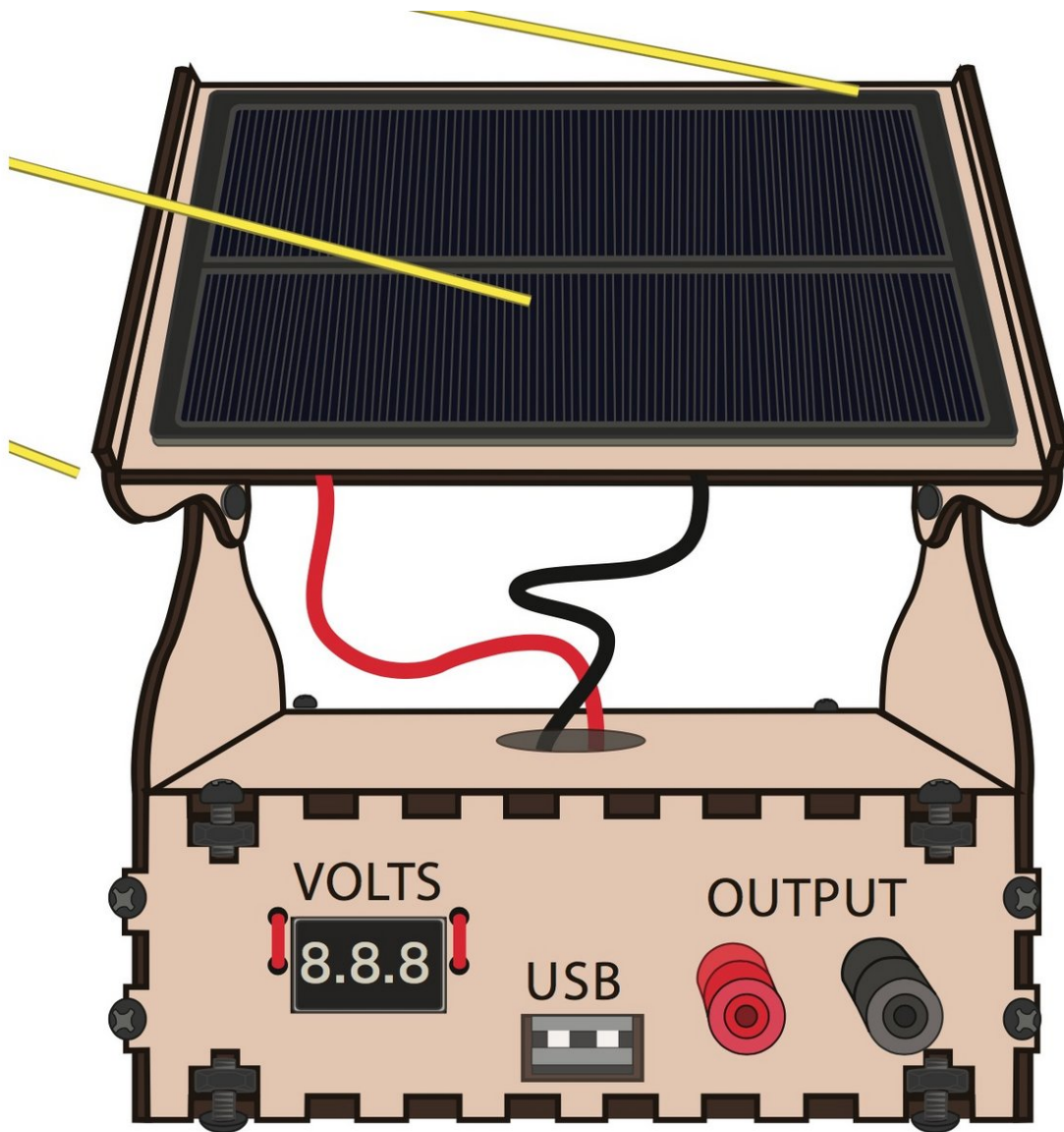




Solar Science Station

Build your own solar data gathering tool for the classroom or use as a science faire project.

Written By: Joshua



INTRODUCTION

Build your own solar data gathering tool for the classroom or use as a science faire project. Record local solar data using the build in solar panel and volt meter.



TOOLS:

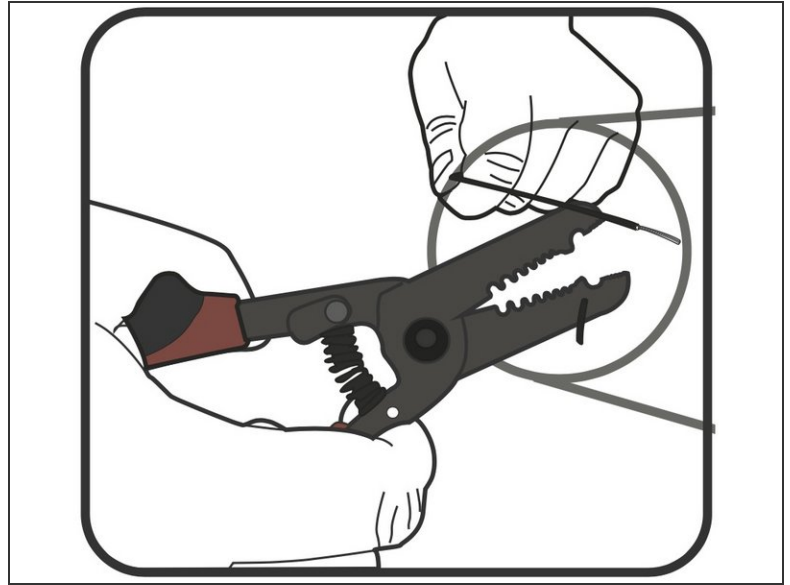
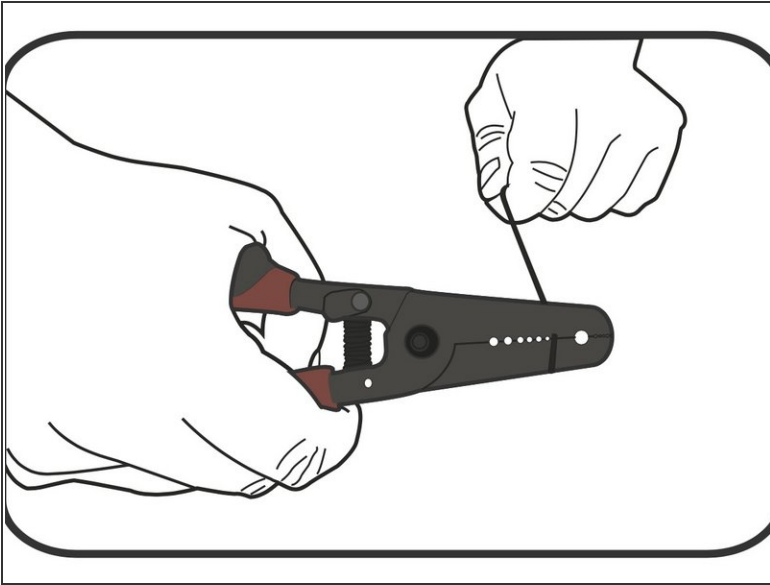
- [Screw Driver](#) (1)
- [Wire Stripper](#) (1)



PARTS:

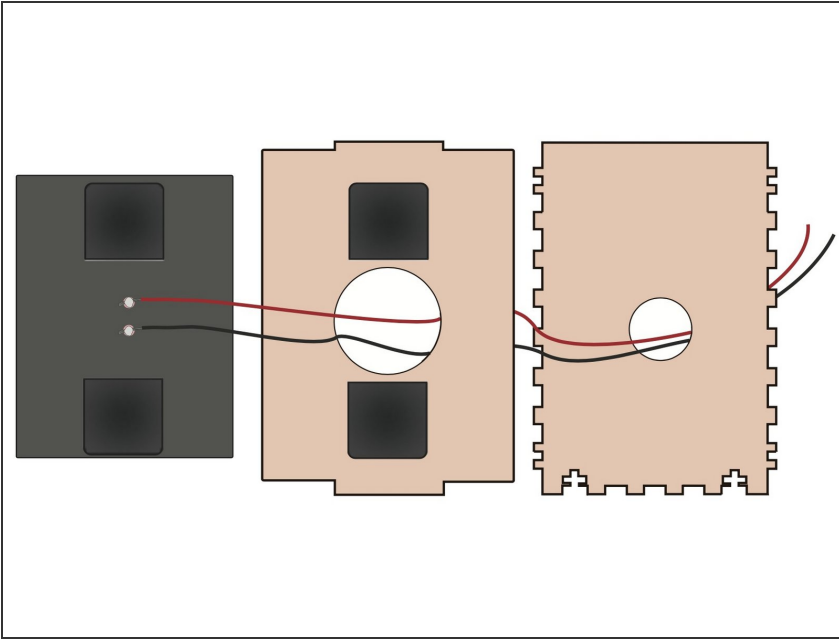
- [Solar Science Station Kit](#) (1)

Step 1 — Strip The Wire



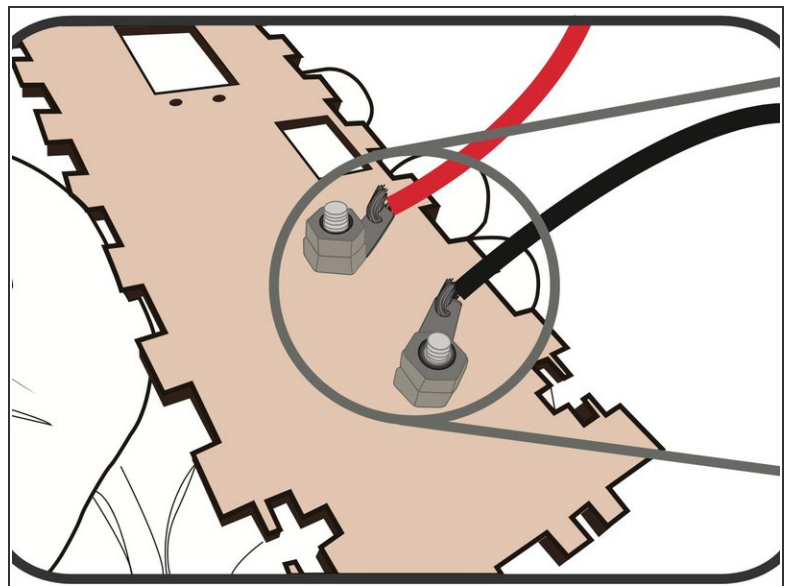
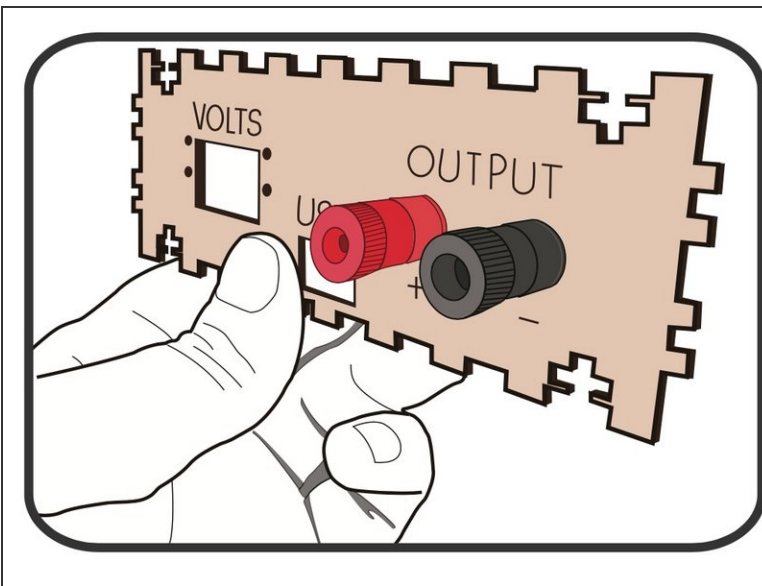
- Cut the red and black stranded core wires in half. These are the two long wires in the kit.
- Strip both ends of all the stranded core wires. (The ones you just cut)
- Do the same for the solar cell.
- Optional: If you're using a battery holder, also strip the wire on it.

Step 2 — Add Velcro



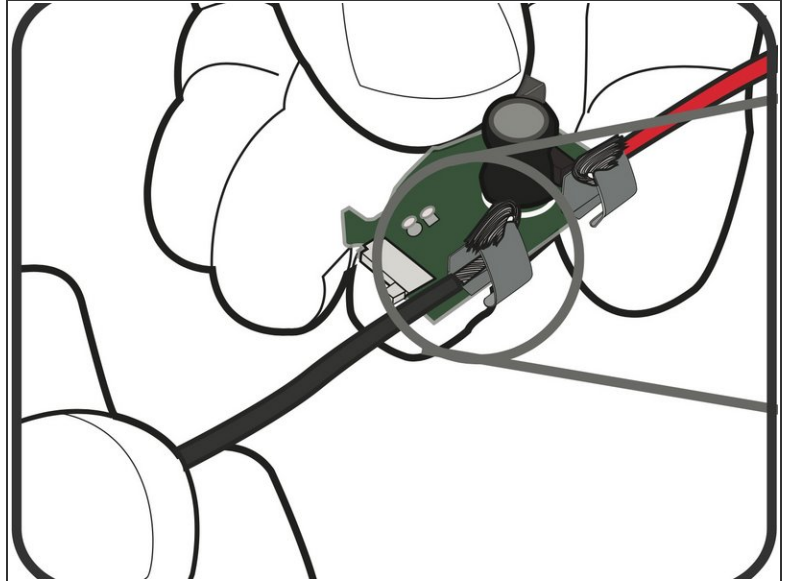
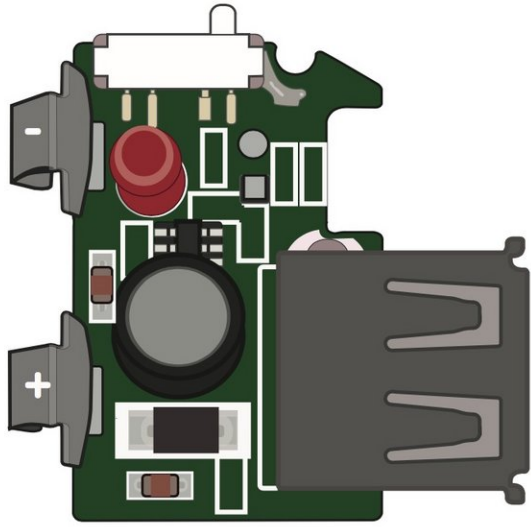
- Add velcro the back of the solar panel and the wooden mount.
- Weave wires from the solar cell through the two wooden pieces shown in the diagram. (The ones with the big holes in them.)
- Using the velcro, stick the solar cell to it's wooden mount.

Step 3 — Banana Sockets



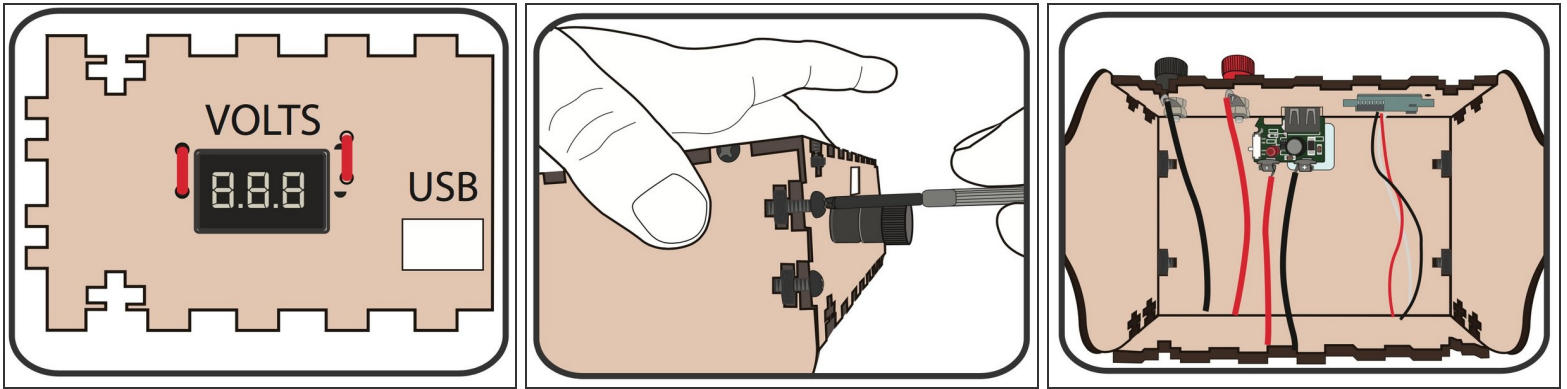
- Screw the red and black Banana Sockets to the wooden face.
- Attach one of the stripped wires to each of the Banana Sockets.
- If they're not staying in place, try putting the wire between the two screw nuts and tightening them down.

Step 4 — USB Circuit



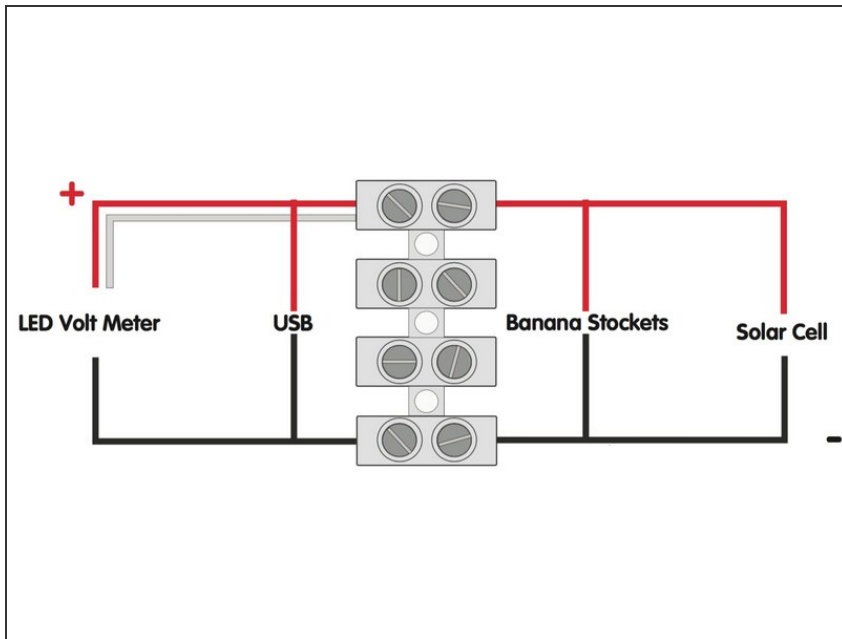
- Move the small white switch so that it is next to the negative terminal.
- Using your remaining stranded core wire, wrap the exposed metal ends around two metal terminals on the USB circuit.
- Tip: If you're having issues, use your wire strippers and expose more wire. This will make things easier for wrapping.

Step 5 — Build The Body



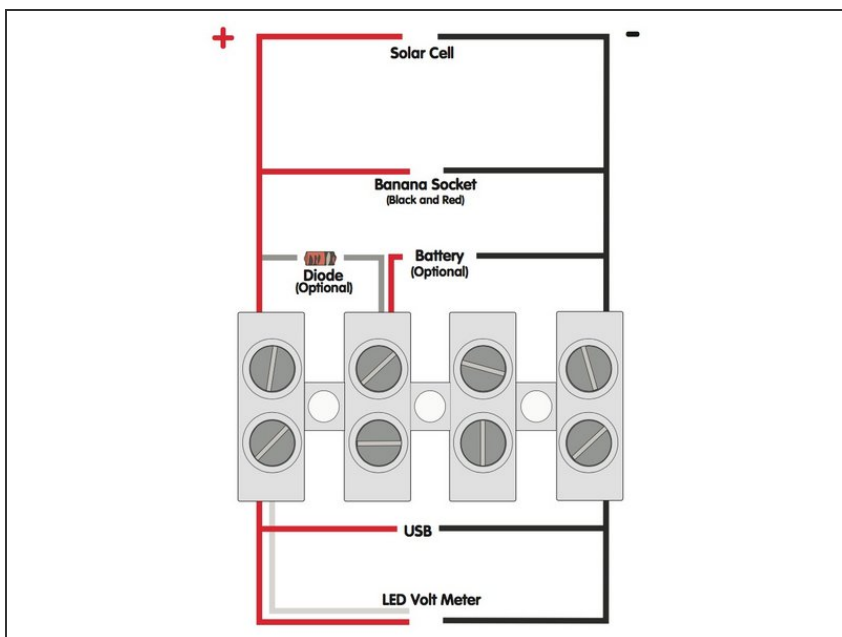
- Cut the Solid Core Wire in half and use it to secure the Volt Meter into the face.
- Using the screws, assemble the main body of the project. (Don't use the solar cell part from Step 2 yet.)
- Use foam tape to secure the USB circuit into place.
- Your Science Station should look like the the third picture, with the wires hanging free.

Step 6 — Wire Things Up



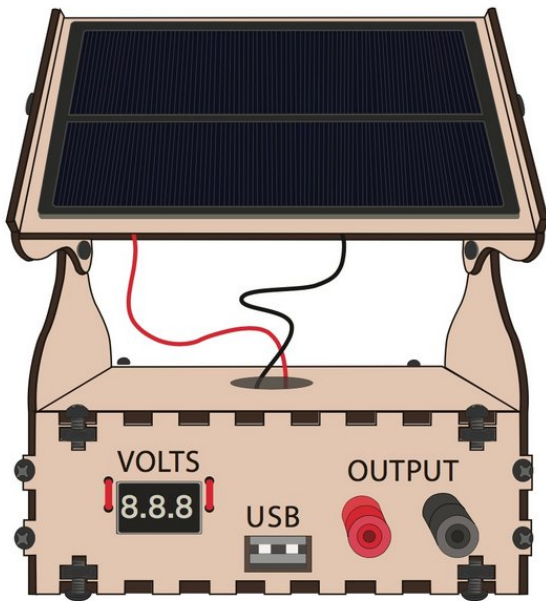
- Start by connecting all the Black, Negative wires, together.
- Follow the example diagram above, and put two black wires on one side of the terminal block and two on the other. They're now connected.
- Do the same thing with all the Red, Positive, wires. (And the white wire from the Volt Meter.)
- Attach half to one side of the Terminal Block and half to the other side.
- Note: You won't be using the two middle spots on the Terminal Block unless you're using a battery holder.

Step 7 — Battery Holder



- If you're using an optional Battery Holder & Rechargeable Batteries you'll want to follow this diagram.
- Note: Be sure to pay attention to which way your Diode is facing. The black bar should be on the same side as all your Red, Positive, wires.

Step 8 — Attach The Solar Cell



- Screw your remaining parts together.
- Take this project outside and test in bright, full, sunlight. The LED Volt Meter will automatically power on when enough sun is shining.
- **Note:** You need real sunlight. Artificial light does not work.

Try taking basic data readings throughout the day. Try recording voltage readings at 3-4 angles and at each cardinal directions (North, South, East, and West). Do this over several days. Graph your data.