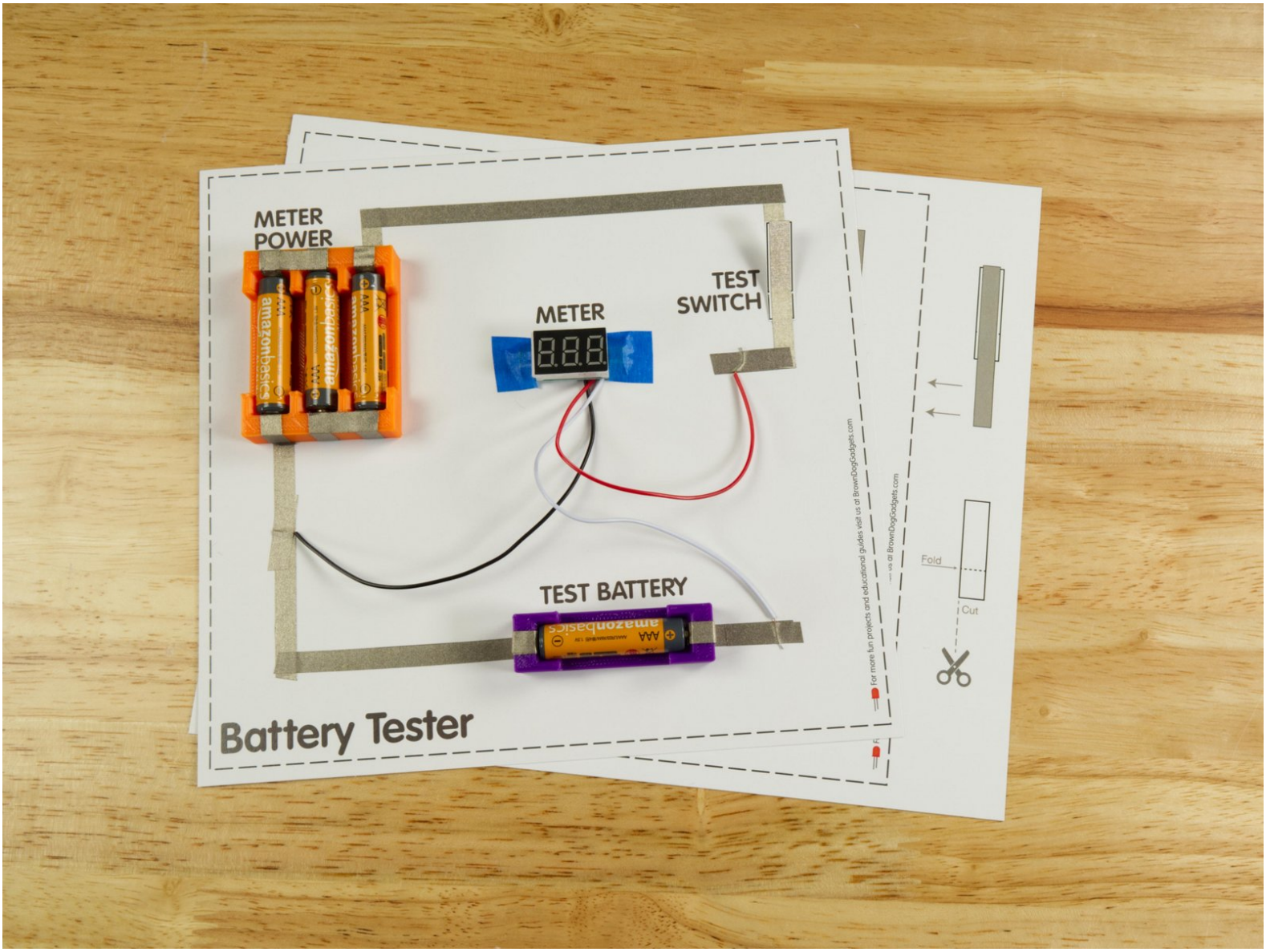
Battery Tester

This advanced paper circuit project uses 3D printed parts, but you could substitute for regular battery holders if you don't have a printer.

Written By: Pete Prodoehl



INTRODUCTION

This advanced paper circuit project uses 3D printed parts, but you could substitute for regular battery holders if you don't have a printer.

TOOLS:

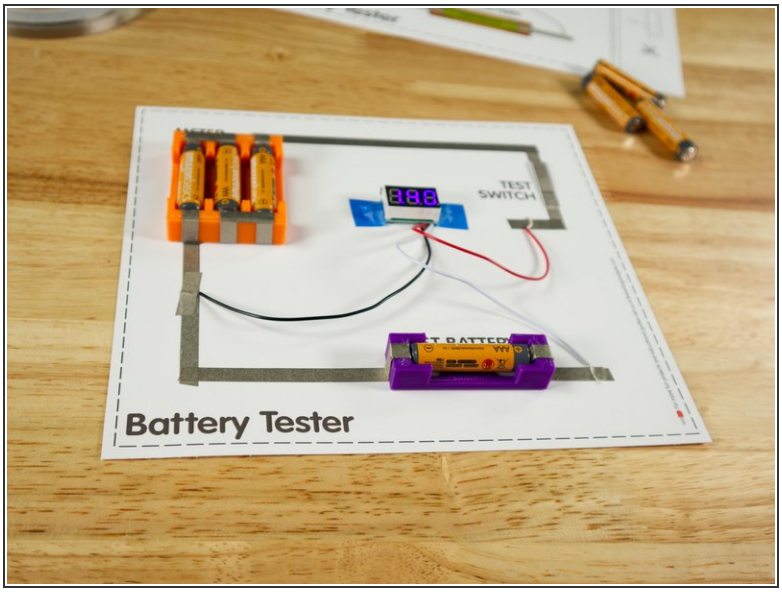
- Scissors (1)
- 3D Printer (1)

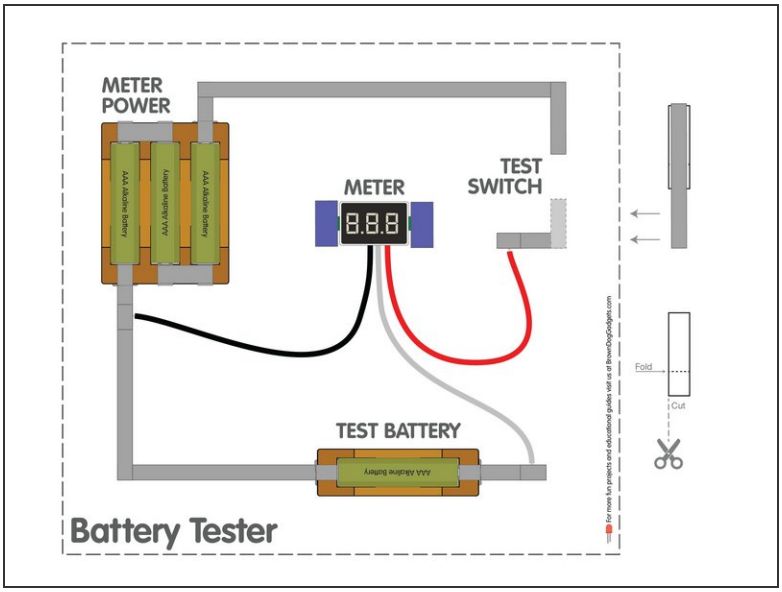
PARTS:

- Maker Tape Battery Holders (2)
- Maker Tape (1)
  1/4" Wide
- Voltage Meter (3 Wire) (1)

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Step 1 — Build a Battery Tester



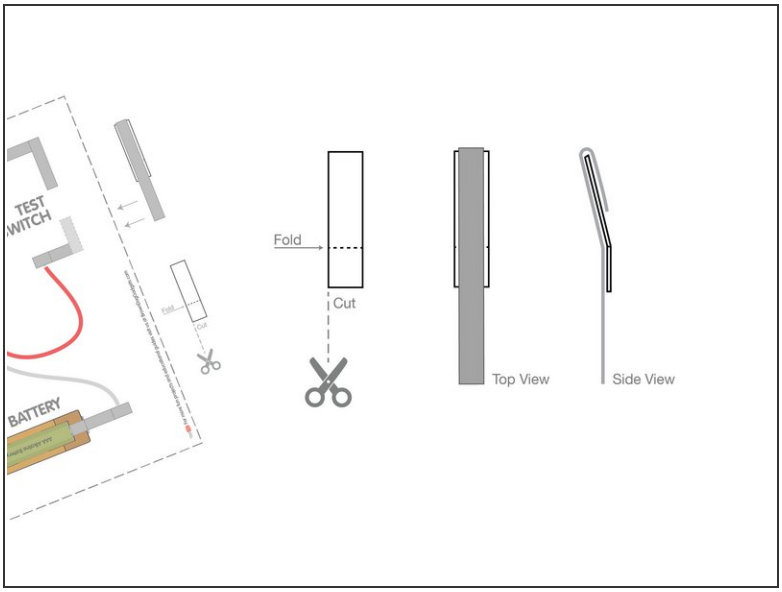


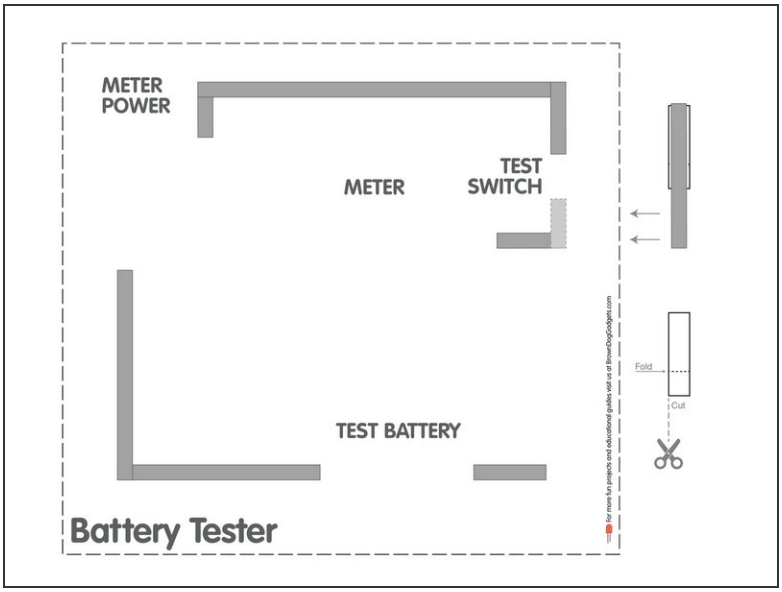
- The attached PDF can be used as a template to create a battery tester for AAA (or AA) batteries.
- If you're like us you may have a whole bunch of AAA batteries around and not know which are new and which are used. This tester will solve that problem.
- The **Meter Power** holds 3 AAA batteries to power the device, and the **Test Battery** holds a single AAA battery.

ⓘ This project uses our 3D Printed Maker Tape Battery Holders but you can always make your own or use standard battery holders.

ⓘ Throughout this guide we'll assume you're using the AAA battery holders, but if you prefer an AA version, make the needed adjustments along the way.

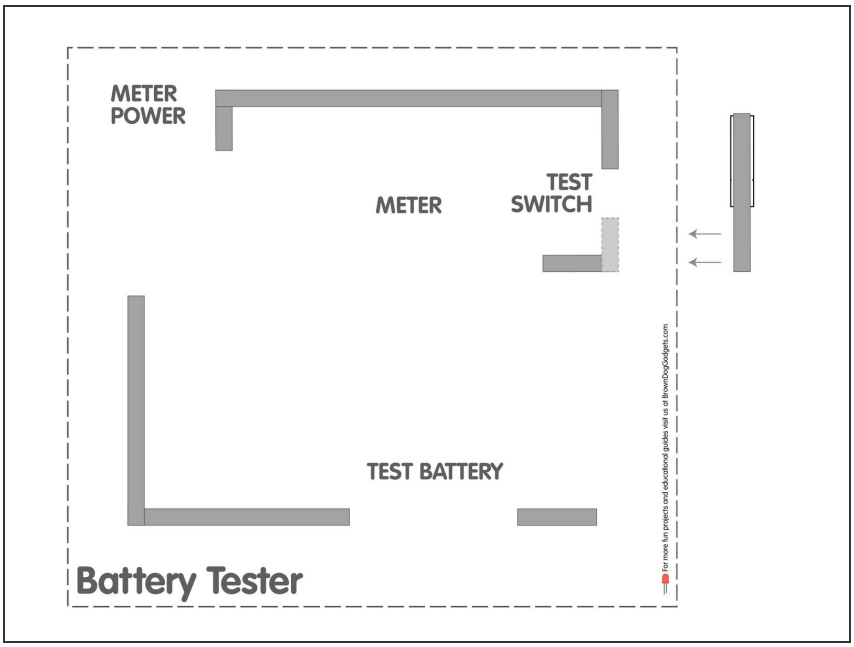
Step 2 — Make the Switch





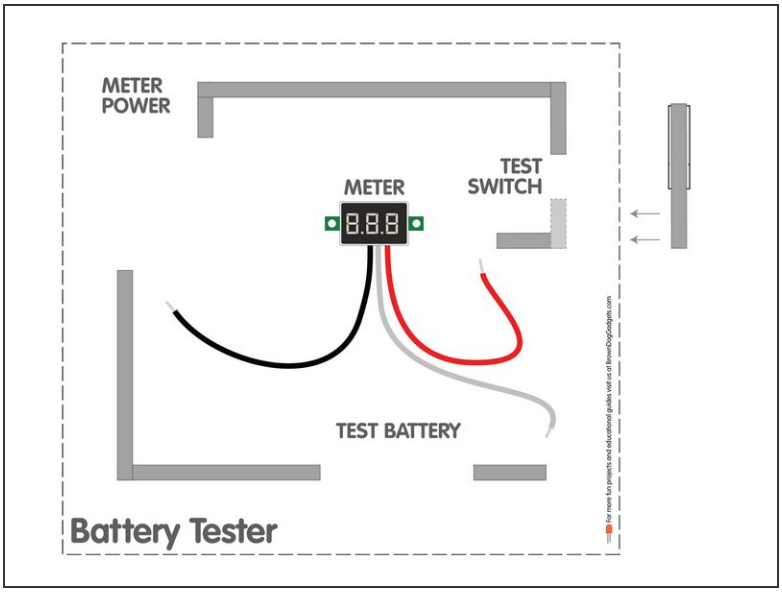
- Start by cutting the paper switch from the side of the template.
  - The switch is the same one you'll find in our Switch - Lever Switch guide.
- After you cut out the switch you'll need to add a fold (along the dotted line) and add Maker Tape that wraps around the switch.
- You can add the tape to the switch now and set it aside, or finish it later after you've added the tape for the circuit paths.

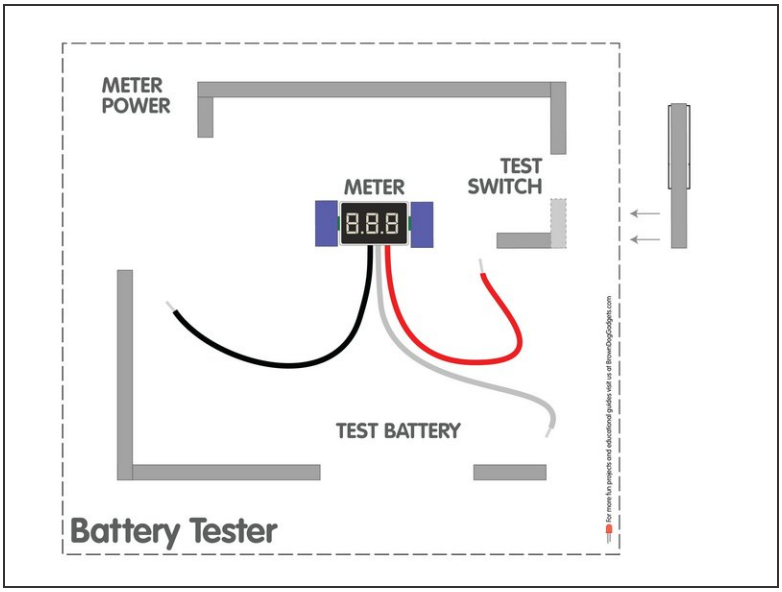
Step 3 — Add the Maker Tape Circuit Paths



- Add Maker Tape as shown on the template.
- You only need to add tape within the dotted border, don't add any to the switch on the right side!
- Remember, Maker Tape can be overlapped and still work just fine since it's conductive on the top and bottom surface, and all the way through!

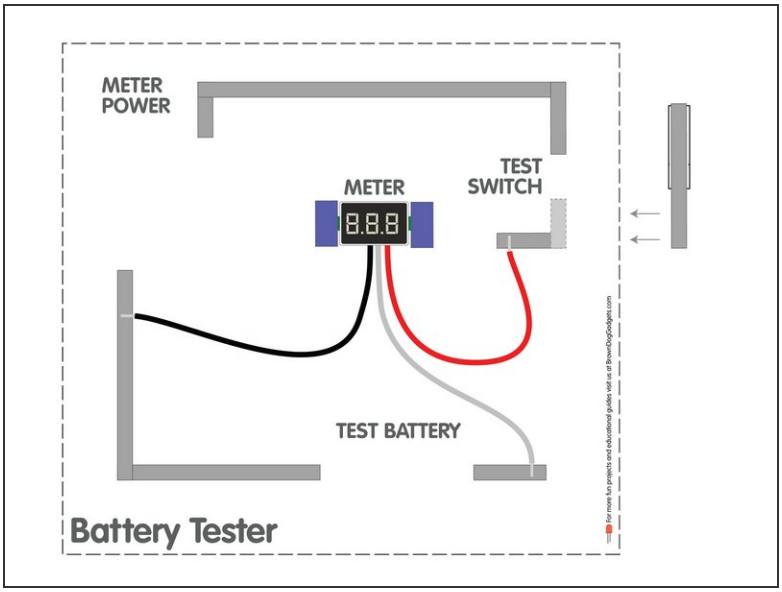
Step 4 — Add the Meter

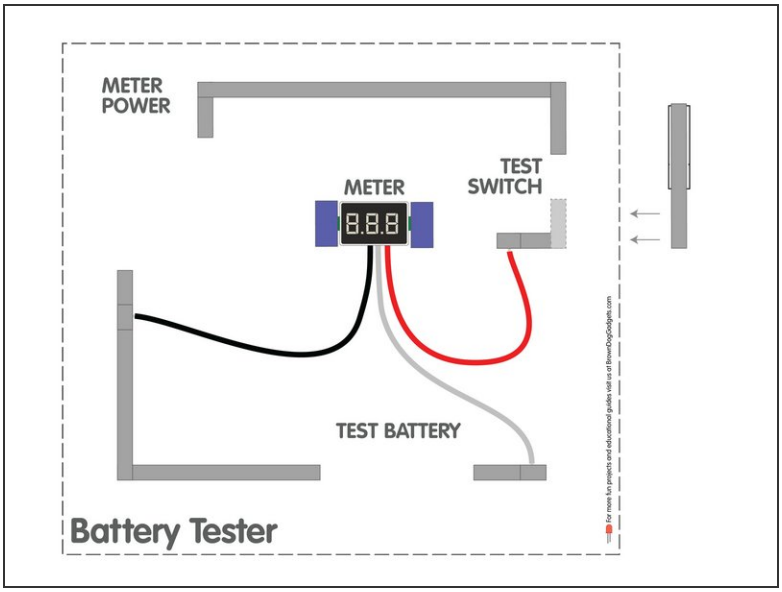




- We placed our meter in the center of the circuit and taped it down as shown.

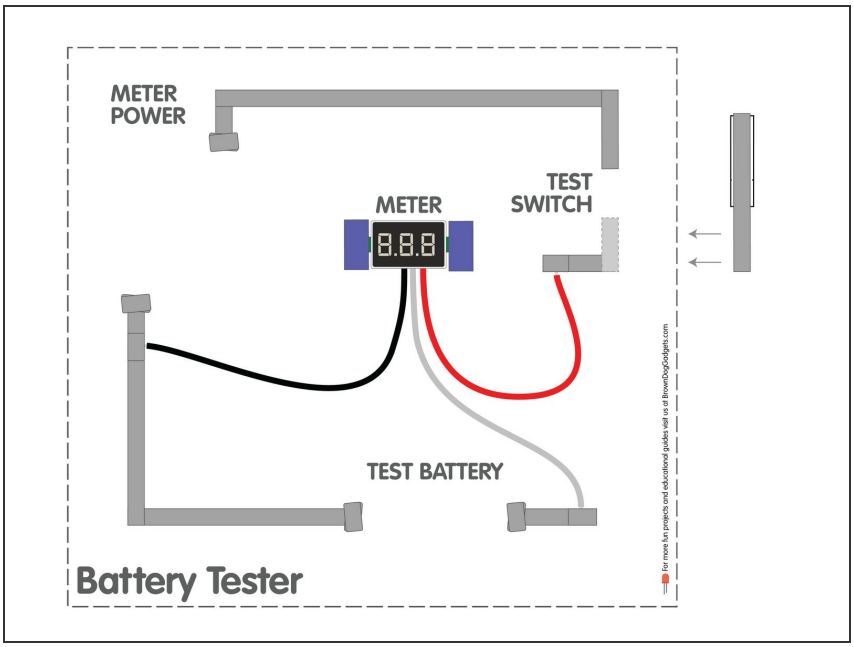
Step 5 — Connect the Meter





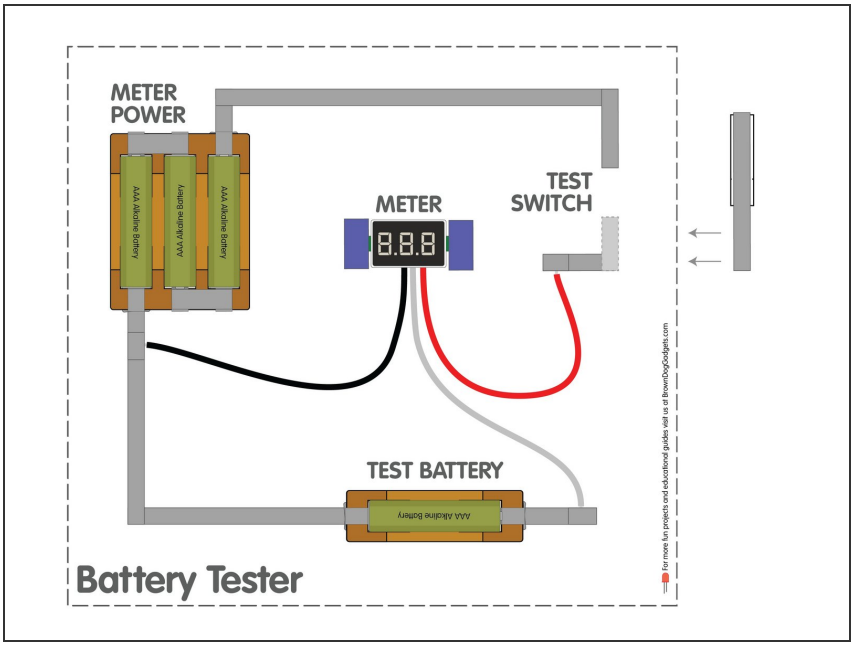
- Place the wires on top of the tape paths as shown, and then tape them down.
- The wires should be long enough to reach where they'll be secure down, but if not just add more Maker Tape to reach them.
- The way the meter works is like this:
  - The red wire is positive power to the meter. Our switch will make sure it's only on when the switch is pressed.
  - The white wire is used to measure the voltage of our test battery.
  - The black wire is ground and needs to be connected to power the meter and to the test battery.

Step 6 — Add the Tape Loops



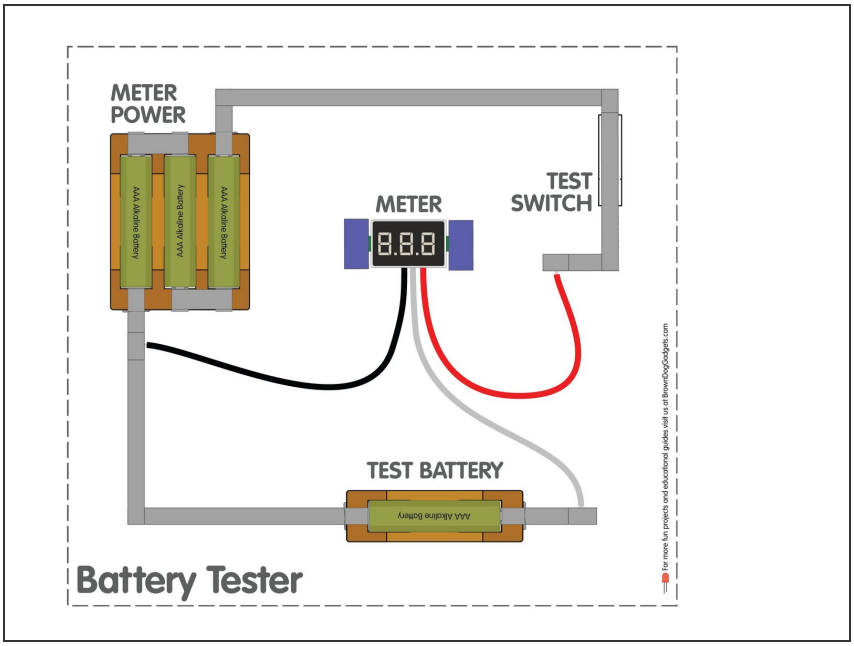
- If you've done any of our Paper Crafts projects you're probably familiar with how we use a "Tape Loop" to hold down and connect a CR2032 Coin Cell battery...
- We're using the same method here. Make four tape loops and add them as shown on the template.

Step 7 — Add the Battery Holders



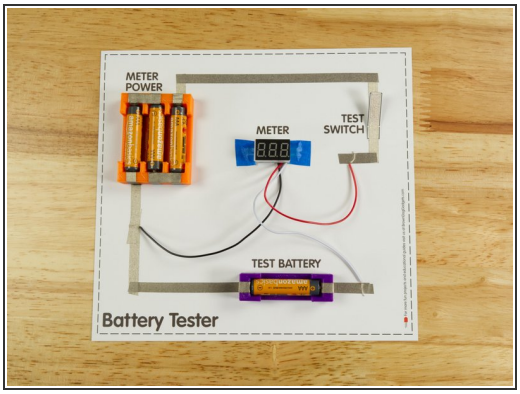
- If you haven't made your battery packs yet, make your Maker Tape Battery Holders before this step!
- Add in your battery holders, making note of the polarity.

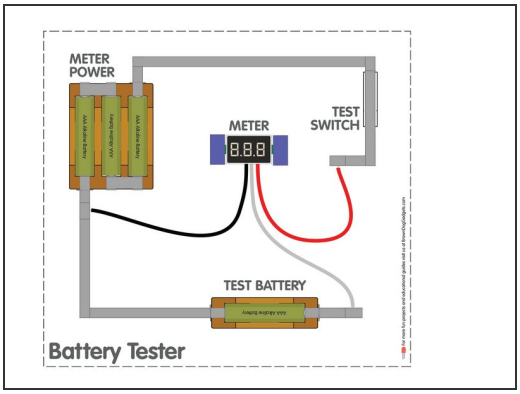
Step 8 — Add the Switch

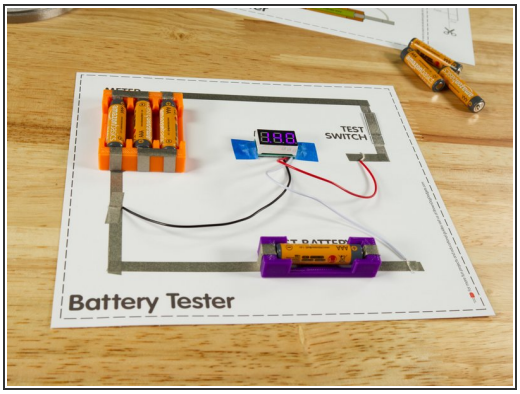


- Finally, add the switch we made in Step 2.
- Once you've got all the pieces in place you're ready to try your Battery Tester!

Step 9 — Test it Out!







- With everything in place all you need to do is press the **Test Switch** and read the meter.
- If your battery is 1.50 or higher that's a fresh battery! 1.40 or lower? It's not dead yet, but it's pretty weak!