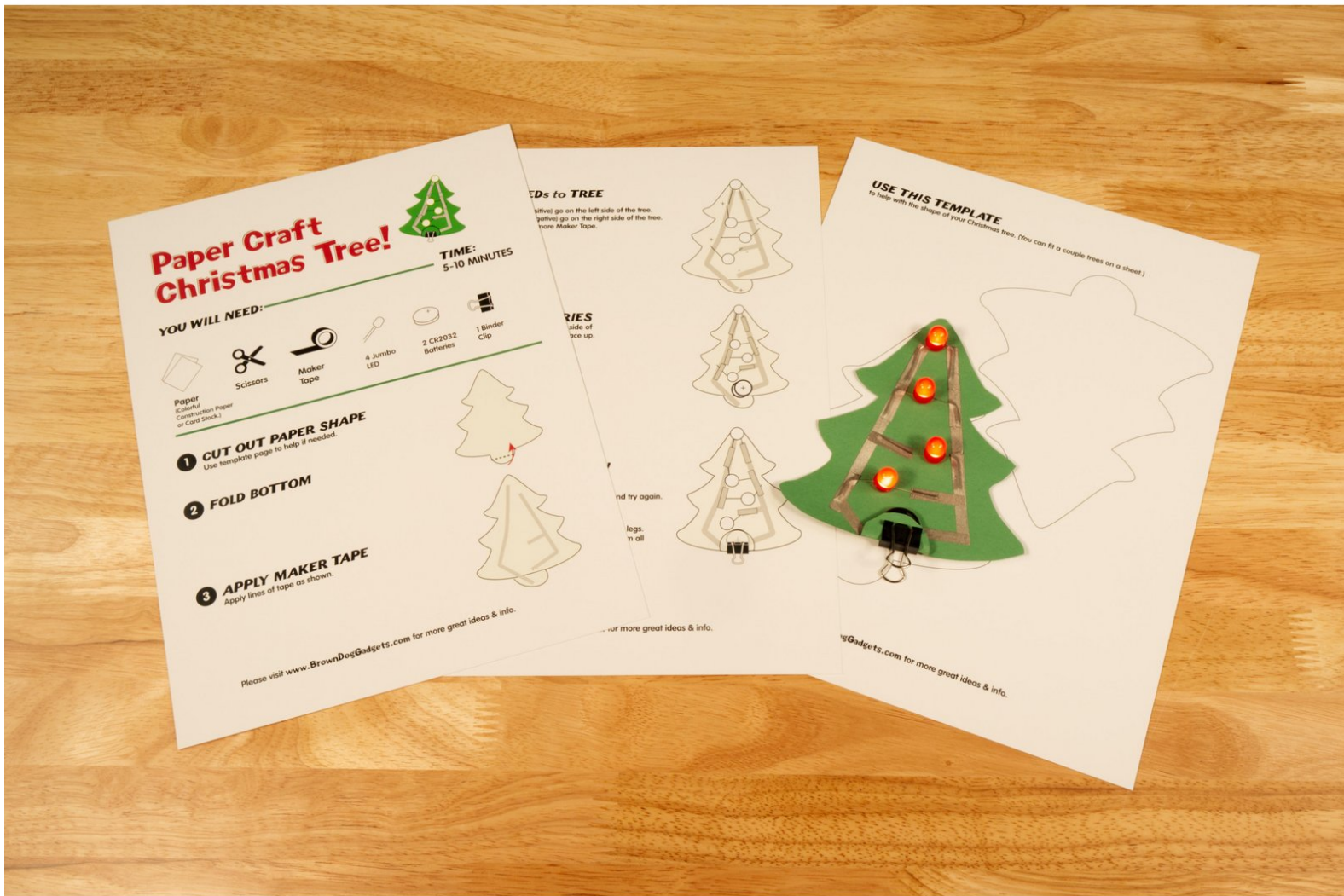# Christmas Tree

Create your own light up Christmas Tree using conductive Maker Tape and LEDs. The best part is, you'll never need to water it.

Written By: Joshua

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INTRODUCTION

Create your own light up Christmas Tree using a few LEDs, a CR2032 battery (or two) and some Maker Tape.

There's a full-color version as well as a black & white version that makes a great coloring activity.

You can make this project (and many more!) with our **Paper Circuits Kit**.

🔧 **TOOLS:**
- Scissors (1)

⚙ **PARTS:**
- Paper Circuits Kit (1)

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Step 1 — Cut Out the Tree

- Print off the template, trace it, and cut out your tree.

- If you plan on freehand cutting your body, be sure to read all the directions first. Pay special attention to how we create the battery holder.

Step 2 — Apply Maker Tape to Tree

- Apply Maker Tape as shown.

- ⚠ Don't let the tape on the left side overlap the tape on the right side. One side will be negative and one will be positive. so if they touch you'll have a "short circuit".

- When making the small offshoot bits of tape, press down firmly on the overlapping parts. This will help the connection.

- ⓘ 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!

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Step 3 — Lay Out The LEDs

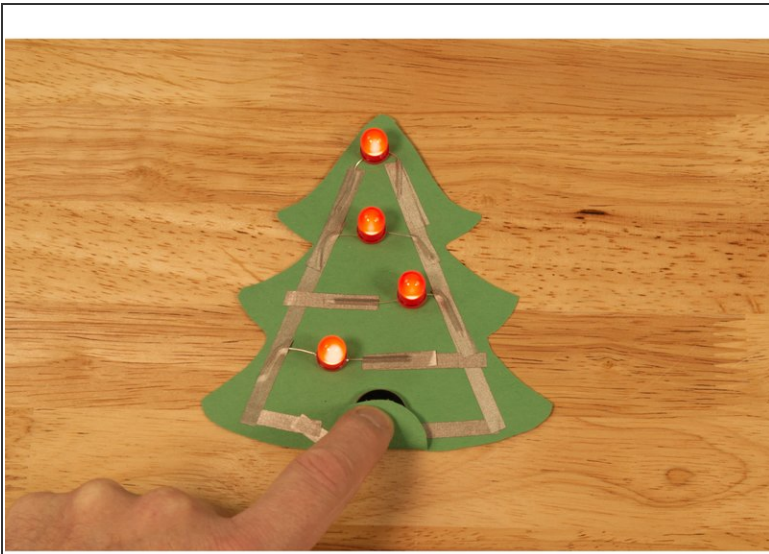- Lay out your LEDs. Bending the legs as needed.

⚠ On LEDs the long leg is **positive** and the short leg is **negative**. For this project we want all long legs pointing left and all short legs pointing to the right.

Step 4 — Tape Down LED Legs

- Use a piece of Maker Tape to secure down each of the legs.

- Do this to all LED legs.

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Step 5 — Test with a Battery

- Place a battery in your circuit so that the negative side is touching the tape that leads to the right side of the tree.

- Fold over the tab at the bottom so the positive side tape (from the left side of the tree) is touching the top of the battery.

- All of the LEDs should light up!

⚠ If one or all of the LEDs do not light up, try flipping over your battery. You may have one or more of the LEDs reversed.

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Step 6 — Add a Binder Clip

- Once your circuit is complete and works properly you can add a binder clip to hold the battery in place.

- At this point your Christmas Tree is done, but we have a few more tips...

Step 7 — Add Tape Loops

- While the binder clip works great to hold the batter in place, we can also use two loops of Maker Tape to turn our circuit on.

- Add a small loop of Maker Tape to the tape on the tree where the battery will sit, and another loop to the top of the battery.

- You can then fold the tab over and the tape should hold it in place and light up your circuit!

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Step 8 — Add More Power

- One fresh CR2032 battery should be enough to light up your tree, but if it seems dim you can add a second battery.

- If you use a binder clip it should still be able to fit over two batteries.

- If you are using Maker Tape loops just add another loop between the two batteries to stick them together.

- ⓘ Make sure you stack the batteries so the negative sides are facing down (towards the tree) and the positive sides are facing up (towards you).

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