Wind Wand

Make an LED light up with the power of the wind!

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INTRODUCTION

Make an LED light up with the power of the wind! Using a small motor with a fan blade as a generator is easy. We'll connect an LED using Maker Tape and get it to light up.

TOOLS:

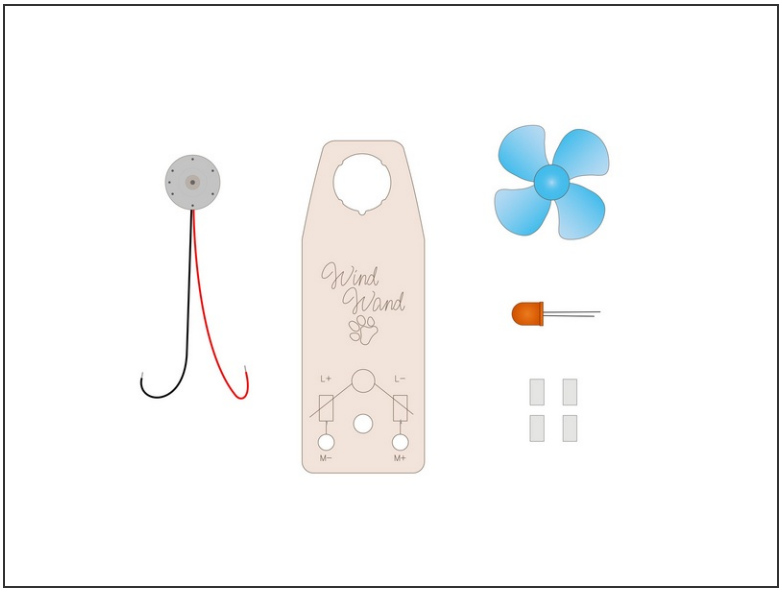
- Scissors (1)
- Compressed Air (1)

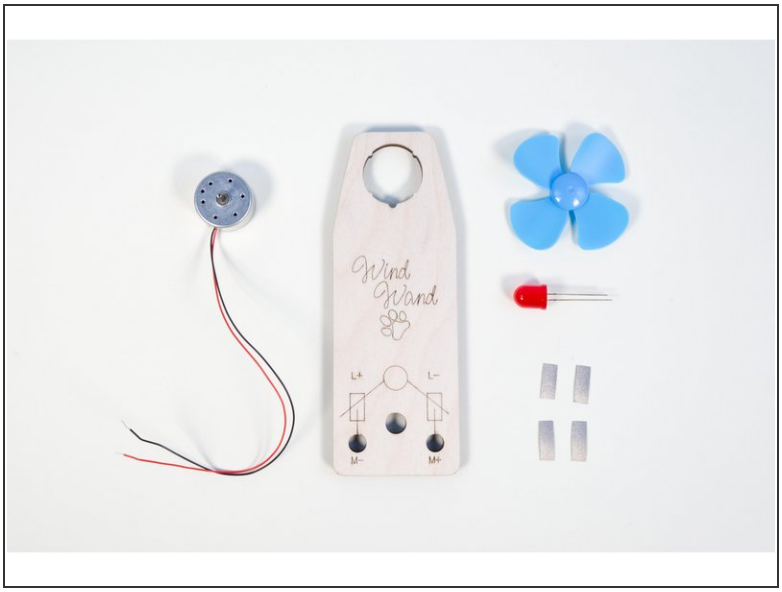
Optional

PARTS:

- Wind Wand (1)

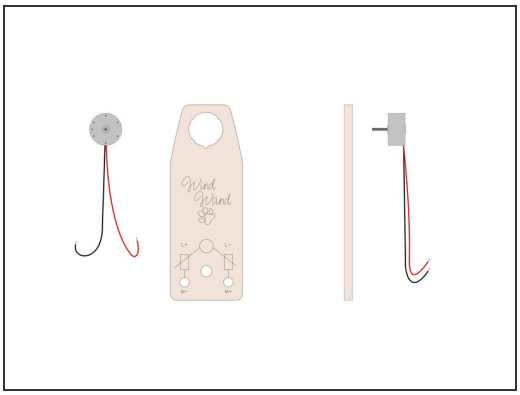
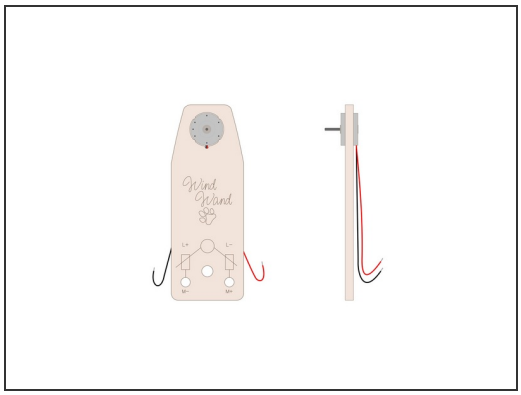
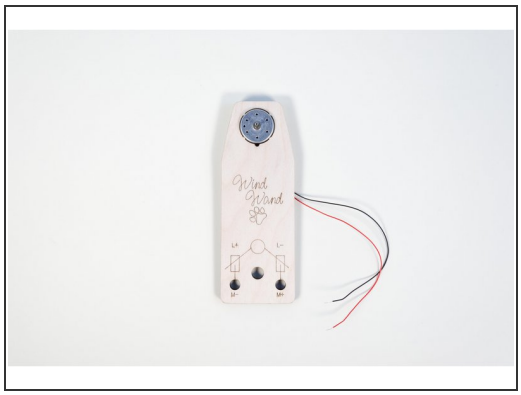
Step 1 — Gather Parts





- You'll need all of the parts from the Wind Wand kit.
- The wooden body, the motor, the fan, and an LED.
- You'll also need four small pieces of Maker Tape. We'll use Maker Tape because it's conductive and will create a good electrical connection for our circuit.

Step 2 — Add Motor

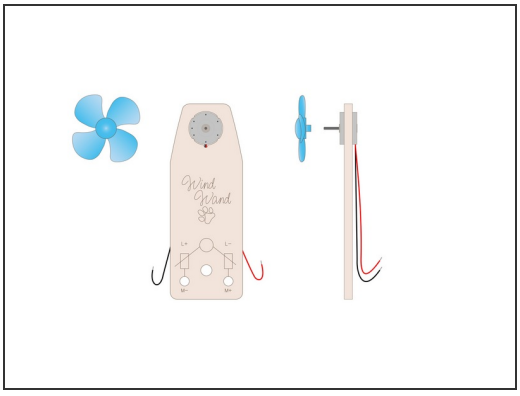
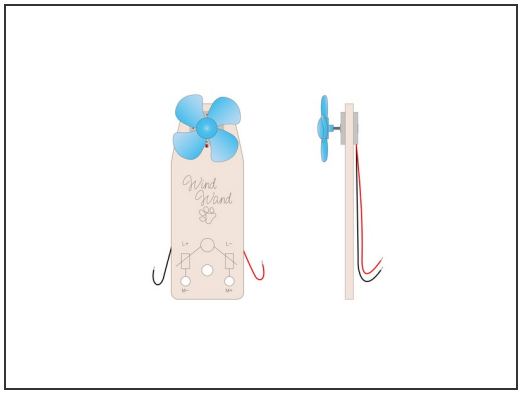
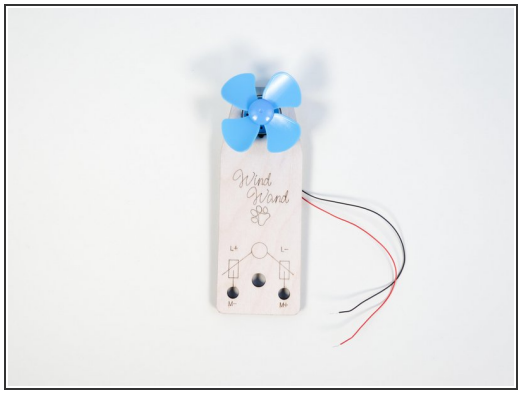




- We'll start by adding the motor.
- Press the motor in from the back of the Wind Wand body.
- It should go about half through an doesn't need to go further. It just needs to stay in place.

ⓘ It should be a good pressure fit, but if it's too tight you can lightly sand or cut away part of the notches on the inside of the hole.

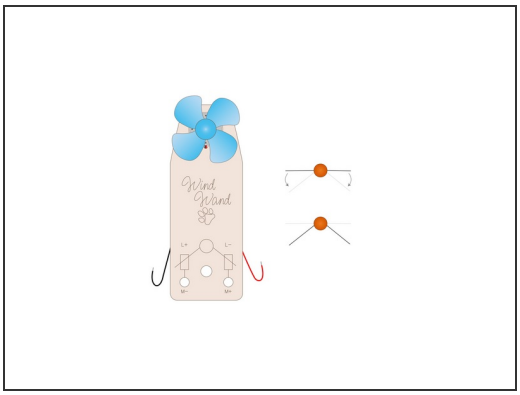
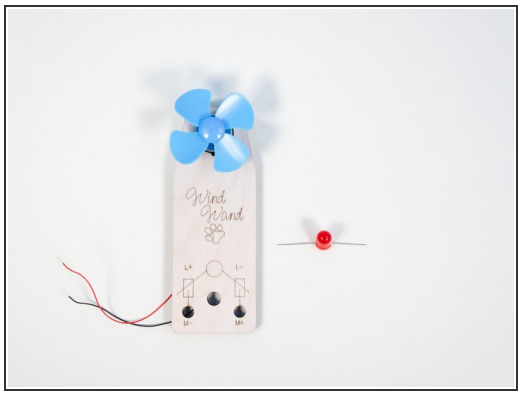
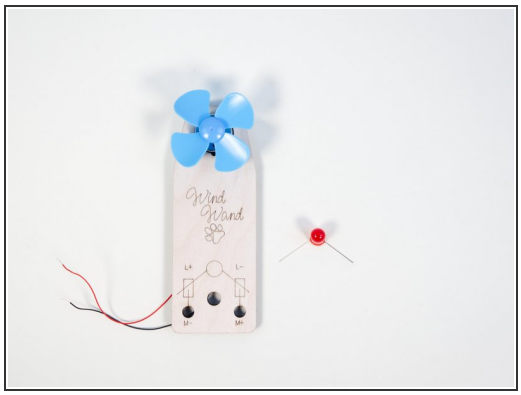
ⓘ If the motor fit is a bit loose you can try to add a piece of tape around the body of the motor.

Step 3 — Add Fan Blade

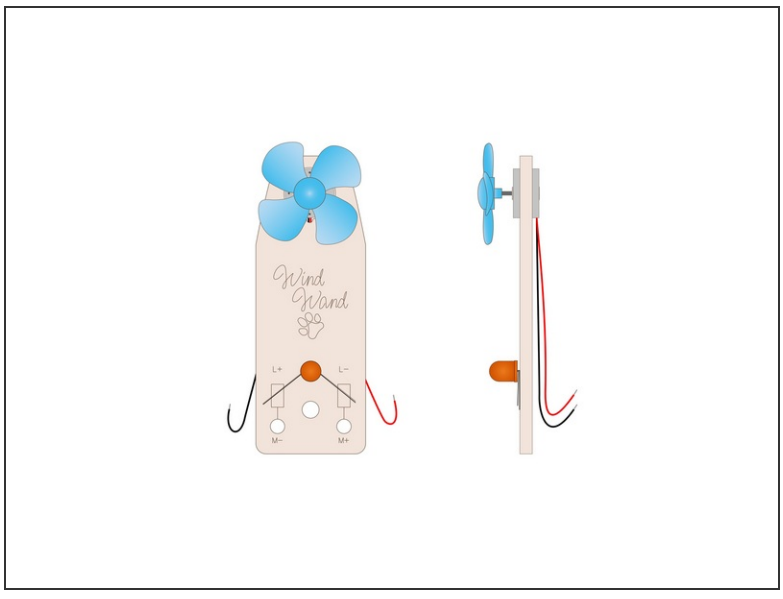
- Add the fan blade. It should easily press fit onto the shaft of the motor.

Step 4 — Prepare LED

- Take the LED and splay the legs outward in opposite directions.
- Make note of the **Positive** (longer) leg and **Negative** (shorter) leg. You'll want the **Positive** leg on the left side, to match the "**L+**" on the Wind Wand body.
- Once the LED legs are straight out in opposite directions carefully bend them down to approximately 45 degrees as shown.

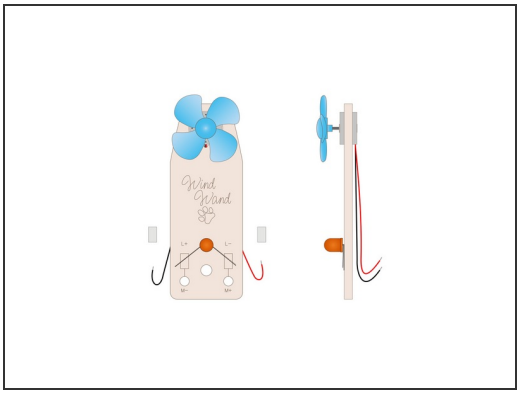
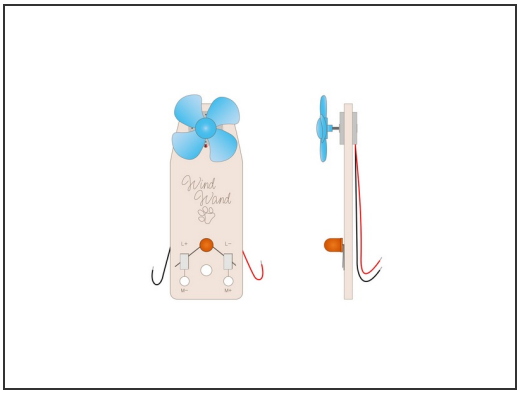
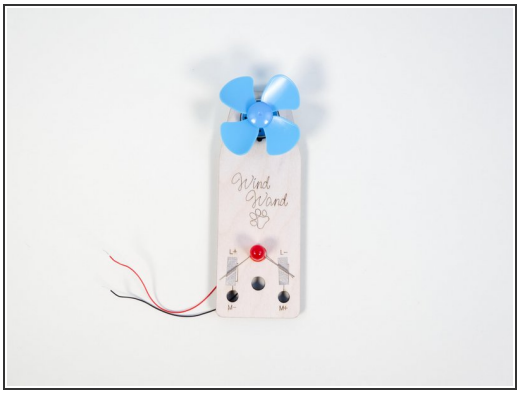
Step 5 — Add LED




- Add the LED onto the front of the Wind Wand body with the legs matching the lines.

Remember! The longer leg is **Positive** and needs to be on the left side.

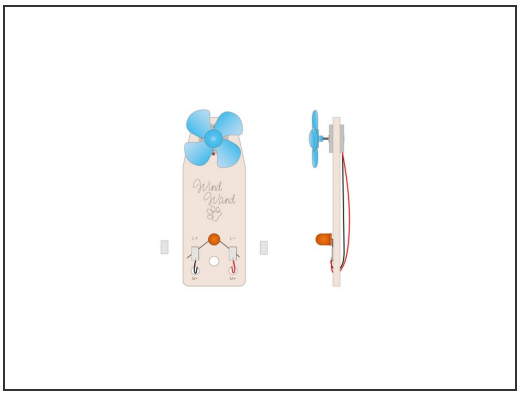
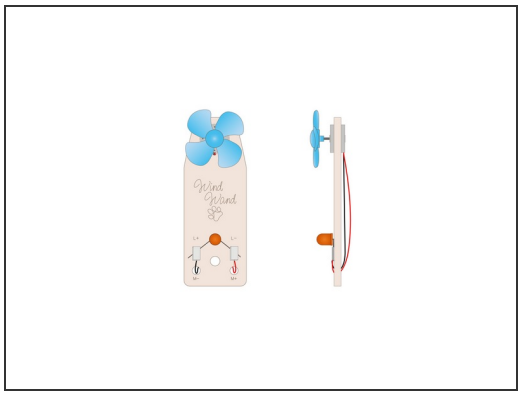
Step 6 — Add Maker Tape

- You'll need two short pieces of Maker Tape. Each about 12mm long (or about half an inch).
- Use the two pieces of Maker Tape to hold the LED legs down to the surface of the Wind Wand.

ⓘ Give the tape a good press to ensure a solid electrical connection.

Step 7 — Connect Motor

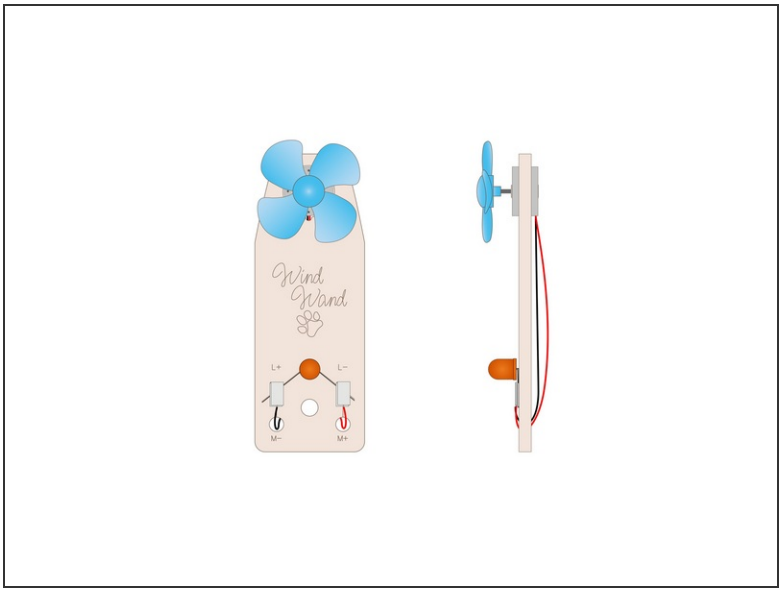

- We'll now connect the motor wires to the LED legs.
- Cut two more pieces of Maker Tape, the same length as the previous pieces.
- Thread the black and red wires through the holes in the Wind Wand body.
- Connect the **black** wire from the motor (**M-**) to the **Positive** leg of the LED (**L+**) and the **red** wire from the motor (**M-**) to the **Negative** leg of the LED (**L-**).

⚠ Wait! Isn't that backwards!? Usually **black is Negative** and **red is Positive**, so it appears we're connecting things *backwards*, but we are not...

⚠ Since we are using the Motor to **generate electricity** instead of **powering the motor with electricity** we need to reverse the polarity.

Make sure the wires are securely held down with Maker Tape to ensure a good connection.

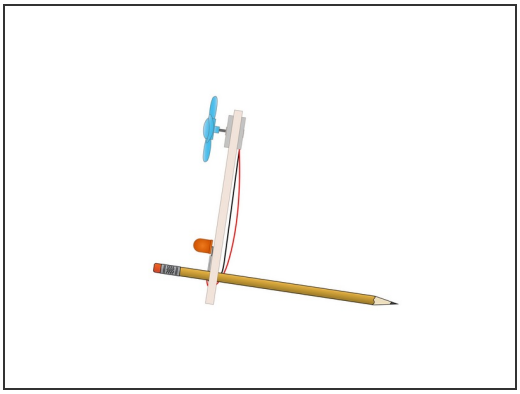
Step 8 — Wind Wand Complete

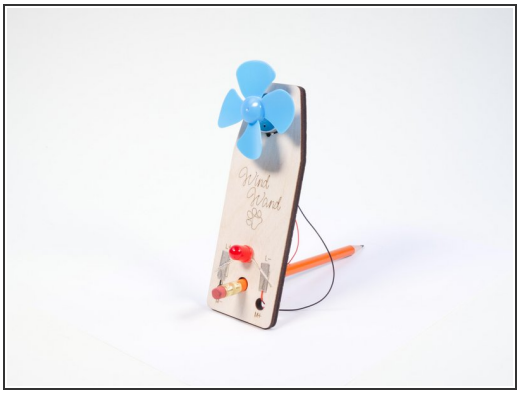


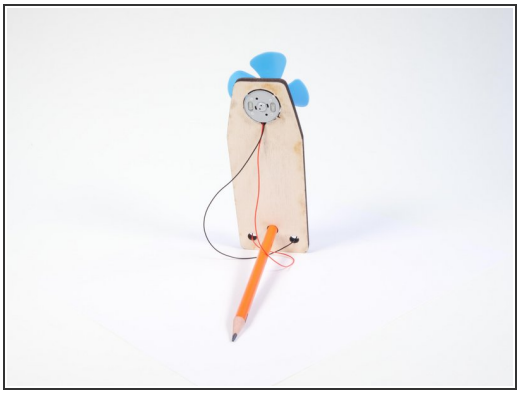


- Your Wind Wand is now complete, and ready for testing!

Step 9 — Add a Pencil

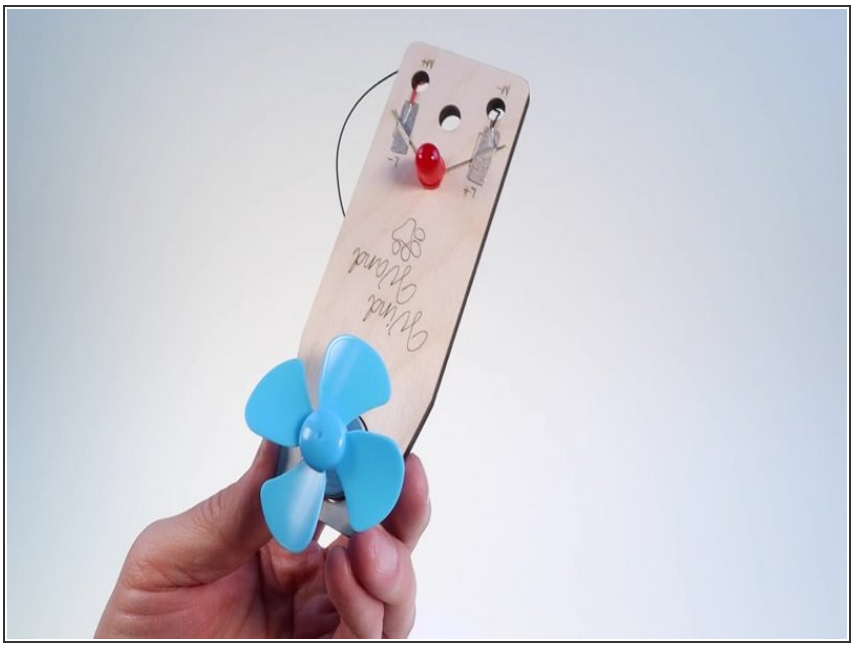






- One more thing! We added a hole in the center of the Wind Wand so you can easily stand it up with a pencil.

Step 10 — Test it Out!



- Try to light up the LED!
- We first tried by blowing on the fan blade with a huge breath... and it worked!
- We then used a can of compressed air and that worked even better!
- Next we used a desktop fan, and got that to work as well.

Step 11 — More Air!



- If you find it a bit difficult to light up the LED by blowing on it (or just want to lower the number of people

blowing their breathe in a closed area) consider using compressed air instead.

- Compressed air comes in cans, and is typically used as a "duster" to clean out dust from computers and other equipment.
- A warning with the cans is that they should be used in an upright position, not pointed downward, so hold your Wind Wand upright, do not lay it on a table...
- And note that the cans are meant for short bursts, not sustained use, and can get **very** cold when you spray too much. So we do have another suggestion...

ⓘ This Rechargeable Air Duster is a reusable solution with a long-lasting battery and no freeze-ups.

Step 12 — And More Air!



- Someone asked if a desk fan would work and... it does!
- You can use a fan and test how close you need to move the Wind Wand to it to get the fan spinning and the LED to light up.