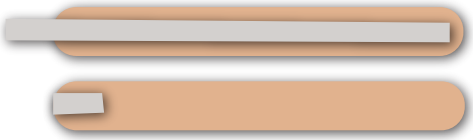
LED Lightsaber

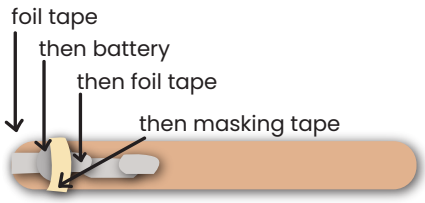
Collect

- Large popsicle stick
- 3-volt coin battery (CR2032)
- Kyber crystal (5mm or 10mm LED)
- Aluminum foil tape (found at the hardware store)
- Masking tape
- Scissors
- Plastic drinking straw

Build a circuit

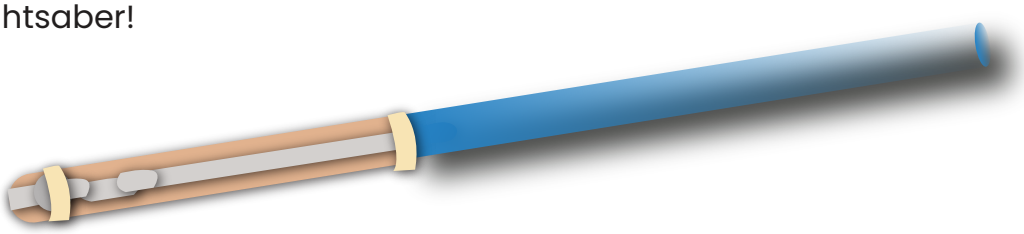
1. Cut the aluminum foil tape into a long strip about 1/4 of an inch wide and long enough to wrap around the popsicle stick lengthwise.
2. Start at one end of the stick and run a strip of foil tape to the opposite end, leaving one inch hanging off the end.
2. Wrap this extra inch over to the other side (side 2).
3. Put the negative side of the button battery on top of the extra inch of tape on second side.
4. Take a shorter peice of foil tape and fold and fold over an inch on each end, leaving the strip sticky in the middle. This will be your switch.
5. Place the switch on the stick so that one of the folded ends lies overtop of the positive side of the battery.
6. Use masking tape to sandwich the battery between the two pieces of foil tape.
7. Add a third piece of foil tape that runs from underneath the folded piece and goes to the end of the stick.
8. Clip the LED bulb to the end of the stick with the longer leg touching the foil on side 2 (battery side) and the shorter leg touching the foil on side 1 (non-battery side)
10. Wrap tape around the legs to secure the bulb in place.





11. Push a drinking straw onto the LED end of the popsicle stick.

Heads up! This step isn't necessary, but we think it makes the flashlight you just created look like a mini-lightsaber!



Troubleshooting Tips

- The sticky side of the foil tape is not conductive. Make sure to make connections one with the shiny side of the tape.
- If the light still doesn't turn on, check to make sure the positive side (long leg) of the LED is touching the strip of foil that leads to the positive side of the battery.

What's happening?

The lightsaber's circuit allows electricl current to flow from the power source of the battery, through the conductive foil tape, through the LED, and back to the power source to complete the circuit. The switch works by creating a gap or break in the circuit so that the current does not reach the LED. When the switch is up circuit is open and won't work. When the switch is down, the circuit is closed and the electrical current can get through to power the LED.