



# LED Wands

**Challenge:** students will apply the basic principles of electrical engineering to conduct a circuit about a wooden dowel that will power an LED

**Goal:** demonstrate the skills needed to produce a circuit and develop a knowledge of electronics

## Discussion Points:

- How does the LED light up?
- What do you need in a circuit?
- What is a conductor?
- What does a battery do in a circuit?

## Materials:

- 12" x 1/2" wooden dowels
- LEDs
- Batteries
- 2' strips of 1/4" copper tape
- Electrical tape
- Hot Glue

## Steps:

- 1.) Make note of which side of the LED is longer. Bend the shorter side of the LED around one end of the dowel.
- 2.) Wrap copper tape around the shorter side of the LED. Continue taping this piece down the length of the rod stopping about 1/3 from the bottom.
- 3.) Take a long piece of copper tape and wrap it around the longer side of the LED. Tape that same piece of copper tape along the length of the rod and over the positive side of the battery which should be facing out on the other end.
- 4.) Take a piece of copper tape about and tape it to the negative side of the battery which will be facing down against the rod.
- 5.) Twist the same piece of tape back around so it sticks to the rod and wrap it to the other side of the rod where the short LED and tape is.
- 6.) Turn the same piece of tape so it's now parallel and below the other tape. Tape it to the rod until it's about an inch from the other piece and tape the end back underneath so no sticky part is showing to make a "switch."