

DIY FLASHLIGHT

Making a DIY flashlight is a fun and engaging way to teach students about electricity and circuits.

INSTRUCTIONS:

STEP 1: Cut a piece of card stock to cover one end of your paper tube and tape. Make a hole and poke your lightbulb through the paper. Tape to secure if necessary.

STEP 2: Cover the body of the flashlight with card stock and tape. Decorate if desired.

STEP 3: Punch two holes about an inch apart, near the other end of the tube.

STEP 4: Push in your paper fasteners and secure.

STEP 5: Attach one wire from your circuit to one fastener using electrical tape or an alligator clip. Attach another wire to the second fastener in the same way.

STEP 6: Attach your paper clip to one fastener and then rotate it so it touches the other fastener. Your lightbulb should turn on!

Materials

Battery holder
2 AA or AAA batteries
Small LED bulb
Electrical tape
Wires
(with alligator clips or stripped ends)
Cardboard tube
Paper clip switch
Scissors or craft knife
Tape or hot glue
Card stock
Decorative materials



THE SCIENCE

An electric circuit is a path through which electricity flows. For the flashlight to work, the circuit must be closed, meaning there is an unbroken path from the battery, through the wires and LED, and back to the battery. The paper clip acts as a switch, that you can control the breaking and repairing of the circuit. The batteries provide stored chemical energy, which is transformed into electrical energy as the current flows. The LED (light-emitting diode) then converts this electrical energy into light energy, illuminating the flashlight.

DIY Flashlight Observations

Use this worksheet to process and evaluate your work.



Did your flashlight work? Why or why not?

Why do the bulbs light up when the paperclip touches both fasteners?

How does the switch affect the flow of electricity in the circuit?

How is this flashlight similar to or different from a store-bought flashlight?

What did you learn?

