



What Makes the Light Turn On?

Vern and the tiny circuit

A SprigKids science story





The dark reading nook

Vern loved quiet books. But when evening came, his reading nook became too dark.

"I have a battery, a lamp, and some wires," he said. "Can I make a path for the light?"



Where the energy starts

A battery stores energy in chemicals. When the circuit is connected, that stored energy can push electric charge around a path.

The lamp is one place where electrical energy can change into light and a little heat.



A circuit is a loop

The battery, wires, lamp, and switch all have to join the same path.

If the path has a gap, the circuit is open. If the path connects all the way around, the circuit is closed.



Open switch

Vern left the switch open.

The path had a gap. Electric current could not travel all the way around the circuit, so the lamp stayed dark.



Closed switch

Click!

Vern closed the switch. The path was complete. Electric current flowed through the lamp, and the lamp changed some electrical energy into light.

"Aha! The lamp did not need magic," said Vern. "It needed a complete path."



Try it safely

Try a low-voltage circuit with a grown-up.

Use: a battery holder made for experiments, insulated wires, a small lamp, and a simple switch.

Connect the pieces in one loop. Press the switch. What changes when you open the path?

Never connect this activity to a wall outlet.



Remember

An open circuit has a break.

A closed circuit has a complete path.

Batteries provide energy. Wires guide charge. A lamp changes some electrical energy into light and heat.

Draw your own circuit. Circle the switch. Is it open or closed?

Grown-up note: This story uses a simple model. In a real circuit, the battery's electric field helps establish current through the conducting path. The key idea for this book is that a complete conducting path is needed for a working circuit.