

Flashlight Energy Path

Read how a closed circuit carries electrical energy to a bulb.

4.8.C “demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that tell how electrical energy travels in a closed path. Circle the words that name what the bulb produces when the path is closed.

Mina's Flashlight

- ① On a rainy afternoon, Mina uses a small flashlight to look inside a tent. Inside the flashlight are a battery, metal strips, a switch, wires, and a bulb. The battery provides electrical energy. When the parts connect in one unbroken loop, electrical energy can travel from one battery terminal, through the metal parts and bulb, and back to the other terminal.
- ② Mina slides the switch to touch two metal contacts. The closed switch completes the path, so electrical energy moves around the loop. In the bulb, a tiny wire gets very hot as electrical energy changes. The hot wire gives off light, and it also gives off thermal energy. The bulb's glass may feel warm after it has been on.
- ③ If Mina slides the switch away, the metal contacts no longer touch. The path has a gap, so it is open. Electrical energy cannot travel all the way around an open path. The bulb does not light or keep heating. A working flashlight needs a closed path. Its light and warmth are clues that electrical energy is moving through the bulb.

2 ANSWER WITH EVIDENCE Use the passage

1 What action makes the flashlight's electrical path closed?

2 Describe the route electrical energy takes in the closed flashlight path.

3 What two forms of energy does the bulb produce when electrical energy travels through it?

4 What happens to the bulb when the switch leaves a gap in the path? Explain why.

3 YOUR TURN Your own words

Draw a two-panel sketch of a battery, wires, switch, and bulb. In Panel 1, show a closed path with arrows for electrical energy and labels for the bulb's light and thermal energy. In Panel 2, show an open path and write one sentence explaining what happens to the bulb.

---	---

PART 1 • READ AND MARK

Underline the words that tell how electrical energy travels in a closed path. Circle the words that name what the bulb produces when the path is closed. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What action makes the flashlight's electrical path closed?	Sliding the switch so it touches the two metal contacts makes the path closed.
2	Describe the route electrical energy takes in the closed flashlight path.	Electrical energy travels from one battery terminal, through the metal parts and bulb, and back to the other battery terminal.
3	What two forms of energy does the bulb produce when electrical energy travels through it?	The bulb produces light energy and thermal energy.
4	What happens to the bulb when the switch leaves a gap in the path? Explain why.	The bulb does not light or keep heating because electrical energy cannot travel all the way around an open path.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Panel 1: A sketch shows a battery, wires, a closed switch, and a bulb in one unbroken loop, with arrows showing electrical energy moving through the bulb and labels for light and thermal energy. Panel 2: A sketch shows a gap at the open switch and an unlit bulb because electrical energy cannot travel all the way around the path.

Accept equivalent descriptions of a complete, unbroken circuit that returns to the battery. In the student sketch, look for a closed loop, a break in the open loop, energy-flow arrows, and both light and thermal energy labeled for the closed circuit.