

Light the Loop

Read how a simple circuit makes a bulb light.

S5P2.b "Design a complete, simple electric circuit, and explain all necessary components."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each occurrence of **battery, wire** or **wires, bulb**, and **switch**. Circle details that tell whether the circuit path is complete, because a complete path lets current flow.

A Path for Current

- ① A flashlight can shine because its simple electric circuit gives electric current a complete path. A battery provides energy that pushes charges through the circuit. Metal wires carry the current from one battery terminal to a bulb and back to the other terminal. The bulb changes electrical energy into light and some heat. Every connection must touch firmly so current can travel around the loop.
- ② A switch is a useful control, but it must be placed in the path of the circuit. When the switch is closed, its metal contacts connect, and current can move through the loop. When it is open, the contacts do not connect, so the bulb does not light. A switch does not supply energy. It only opens or closes the path for current.
- ③ Before building a circuit, plan a complete loop. For example, connect one battery terminal to a switch with a wire, connect the switch to one bulb contact, and connect the bulb's other contact to the second battery terminal. If a wire is loose, the switch is open, or the battery is dead, current will not flow and the bulb will not light. Check each component and connection.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What does each of these circuit components do: the battery, wires, bulb, and switch?

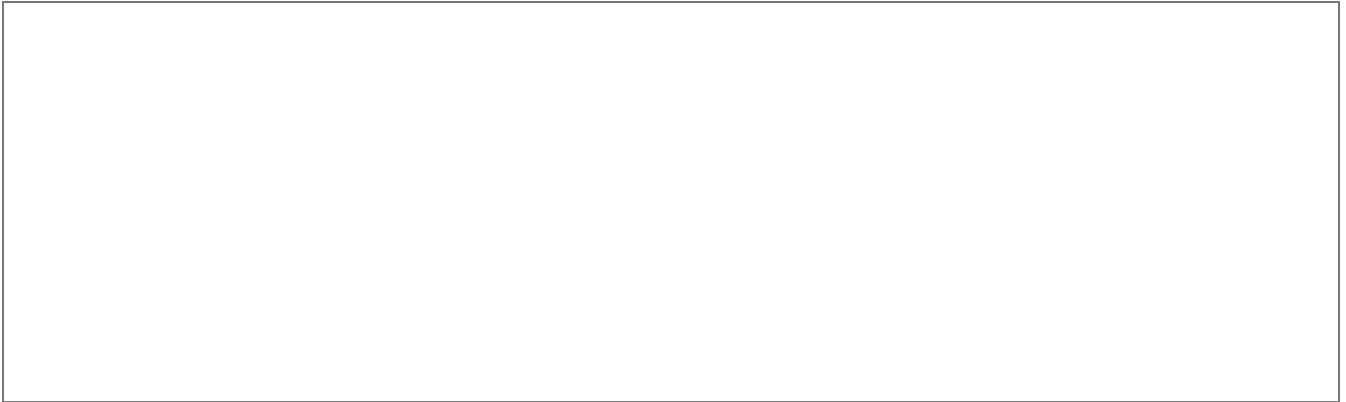
2 Describe the complete path current follows in the example circuit.

3 How is a closed switch different from an open switch in a circuit?

4 Name three problems that could keep the bulb from lighting.

3 YOUR TURN _____ Your own words

Draw a complete simple circuit that could light a bulb. Label a battery, wires, a bulb, and a closed switch, then explain how the components work together.



PART 1 • READ AND MARK

Underline each occurrence of **battery**, **wire** or **wires**, **bulb**, and **switch**. Circle details that tell whether the circuit path is complete, because a complete path lets current flow. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What does each of these circuit components do: the battery, wires, bulb, and switch?	The battery provides energy. Wires carry current. The bulb changes electrical energy into light and heat. The switch opens or closes the path for current.
2	Describe the complete path current follows in the example circuit.	Current travels from one battery terminal through a wire, the switch, and the bulb, then through a wire back to the other battery terminal.
3	How is a closed switch different from an open switch in a circuit?	A closed switch has connected contacts and lets current move through the loop. An open switch has unconnected contacts, so current cannot flow and the bulb does not light.
4	Name three problems that could keep the bulb from lighting.	A wire could be loose, the switch could be open, or the battery could be dead.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Drawing: A battery connects by a wire to a closed switch, then to a bulb, and a second wire returns to the battery. The battery provides energy, and the wires carry current in a complete loop. The closed switch keeps the path connected, and the bulb changes electrical energy into light and heat.

Accept circuit drawings that show a closed loop from one battery terminal through a closed switch and bulb to the other battery terminal. Accept clear labels and an explanation that identifies the battery as the energy provider, wires as the current path, the switch as the path control, and the bulb as the light-producing device.