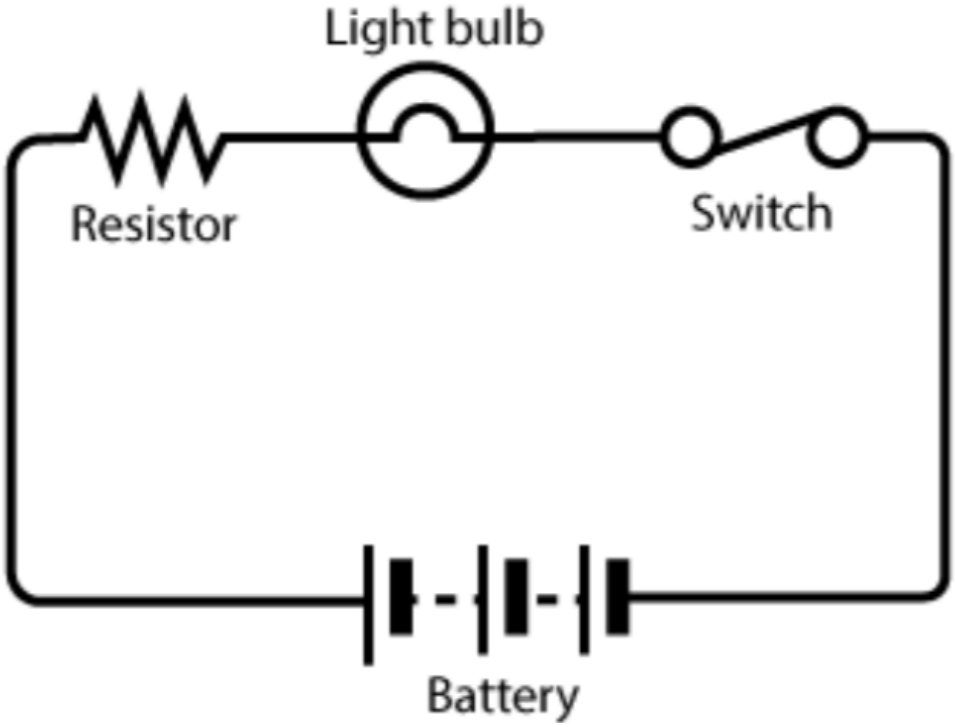
Circuits-01

Q1) Create a circuit design with symbols. It should use appropriate component symbols and map out circuit pathways

Answer



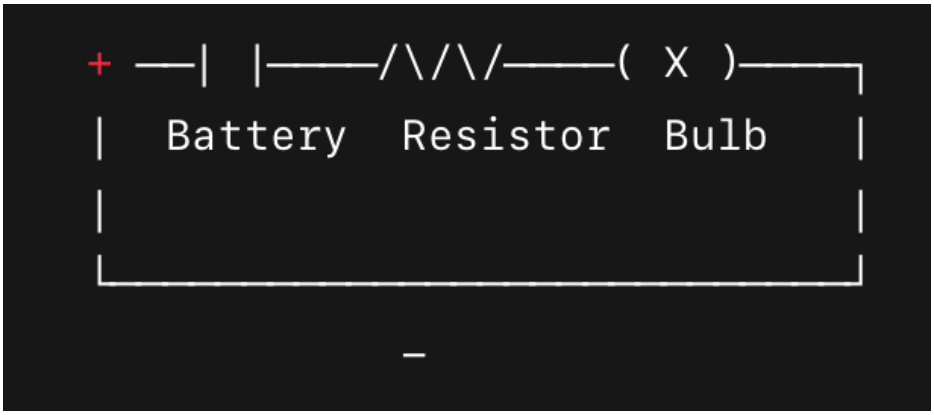
- **Battery** (cell symbols at the bottom)
- **Resistor** (zig-zag)
- **Light bulb** (lamp symbol)

How it works

When the switch is closed, current flows from the **battery**, through the **resistor**, then the **light bulb**, and back to the battery, completing the circuit and lighting the bulb.

Q2) Create a working circuit that has 3 components. The circuit must be in series or parallel

Answer



The circuit consists of **three components** connected in a **series configuration**:

1. **Battery** — provides the electrical energy needed to power the circuit.
2. **Resistor** — limits the current flowing through the circuit to protect other components.
3. **Light bulb (lamp)** — converts electrical energy into light, serving as the output device.

How the Circuit Works

- The **battery** provides a voltage difference, creating an electric potential that pushes electrons around the circuit.
- Current flows out from the **positive terminal** of the battery.
- The current first passes through the **resistor**, which restricts the amount of current to prevent damage to the bulb.
- The current then flows through the **light bulb**, causing the filament inside the bulb to heat up and emit light.
- Finally, the current returns to the **negative terminal** of the battery, completing the circuit loop.
- Since all components are connected **in series**, the current through each component is the **same**.
- If any one component is disconnected or fails, the entire circuit stops working because the loop is broken.