

# 11.2 Simple Circuits

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 9 marks

KEY WORDS circuit 电路 • battery 电池 • series 串联 • resistance 电阻

## Objective

Build the skills to answer exam questions on **simple circuits**.

You must be able to:

- identify the parts of a **circuit** 电路 — source, wires, resistor, switch — and their symbols
- describe how a **battery** 电池 maintains a potential difference that drives the current
- trace a complete conducting loop and explain why a break stops the current

## 1 Worked examples

Study these first. Each one shows the method for a question type used later.

### ■ Circuit parts

A simple circuit has a **source** (cell or battery), **wires**, a **resistor** or bulb, and often a **switch** — each with its own symbol.

### ■ What the battery does

The battery maintains a **potential difference** across the circuit, which drives the current around the loop.

### ■ A complete loop

Current flows only around an **unbroken** conducting loop. An open switch (a break) stops the current everywhere.

## 2 Practice

2.1 Name the component that drives the current around a circuit. [1]

2.2 State what happens to the current when the switch is opened. [1]

2.3 Describe a simple series circuit containing a battery, a switch, and a resistor. [2]

## 3 Exam-style questions

3.1 A battery in a circuit provides [1]

- **A** resistance
- **B** a potential difference
- **C** a store of current
- **D** a magnetic field

3.2 Current flows in a circuit only when the loop is [1]

- **A** broken
- **B** complete
- **C** very long
- **D** at high temperature

3.3 A torch contains a cell, a switch, and a bulb.

(a) State what the cell does in the circuit. [1]

(b) Explain why the bulb goes out when the switch is opened. [2]

## Solutions

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**2.1** the battery (or cell).

**2.2** the current stops (the loop is broken).

**2.3** the battery, switch, and resistor are connected in one loop by wires, so the same current flows through each in turn.

**3.1 B.**

**3.2 B.**

**3.3** (a) it maintains a potential difference that drives the current. (b) opening the switch breaks the loop, so no current can flow and the bulb goes out.