

Electricity

KS3 Physics · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Why does a bulb only light when the switch is closed?

Step 1 · Complete circuit

Current only flows round a complete loop from one terminal of the cell back to the other.

Step 2 · Open switch

An open switch leaves a gap, so the loop is broken and no charge flows.

Answer: Closing the switch completes the circuit

Check: A switch is just a controllable gap.

2. Now try one with the steps

In a series circuit, an ammeter before a bulb reads 0.3 A. What does one after it read?

Step 1 · Series rule

Step 2 · Answer

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is the unit of electric current? [1]

2. What is an electric current? [1]

3. How must an ammeter be connected in a circuit? [1]

4. Name two things a circuit needs for a current to flow. [2]

5. In a series circuit, an ammeter before a bulb reads 0.3 A. What does an ammeter after the bulb read, in A? [1]
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6. A parallel circuit has two branches carrying 0.2 A and 0.3 A. What is the current from the cell, in A? [1]
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7. The current from the cell is 1.2 A. One of two parallel branches carries 0.5 A. What does the other carry, in A? [1]
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8. Three identical parallel branches each carry 0.4 A. What is the total current from the cell, in A? [1]
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9. Give two examples of good electrical conductors and two insulators. [2]
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10. A switch in a series circuit is opened. What is the current in the circuit, in A? [1]
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11. What happens to the current and the brightness of the bulbs when more identical bulbs are added in series? [2]
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12. Explain why the current is the same before and after a bulb. [2]
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13. Describe how you would measure the current through one bulb in a parallel circuit. [2]
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14. In a circuit diagram, describe the symbols for a cell, a bulb and a switch. [3]
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4. Before you hand it in

"Current gets used up by each bulb."

Current is the same everywhere in a series loop; energy is what's transferred.

Connecting an ammeter in parallel.

Break the circuit and put the ammeter into the loop (in series).

"The battery stores current."

The battery pushes charge round; the charges were already in the wires.