Electricity review: circuits and explanations

Teacher / technician

YEAR 10 / LESSON 37 / PHYSICS + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Record actual measurements separately from labelled practice examples.

Coverage and delivery

Shared Physics / Double Award: Review of circuit concepts; electrostatic extension is Physics only.

Allow about 60 minutes. Follow the student sequence and use the answers to check reasoning.

Requisition • class of 30, working in 15 pairs

Item	Per pair / setup	Class total
Booklets	1 per learner	30
Circuit-diagram sets	1 per pair	15 sets

Immediate safety

Desk-based review. Do not build the deliberately faulty or short-circuit diagrams. No power supplies or static generators are used.

Preparation and delivery

Read alongside the student method

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1. Prepare 15 diagram sets including one open switch and one deliberately faulty bypass circuit. Mark the latter clearly as a diagnosis task, not a construction instruction.

2. Assign the electrostatics extension only to Physics-only learners; provide the open-circuit alternative for Double Award.

Close of lesson

• Return diagram sets and retain corrected work.

Check before teaching

Check the cards, reference data and quantities against this requisition. Keep the staff answer guide separate until the checking stage. Supplied numerical practice datasets are labelled examples; they are not class measurements.

Answers and teaching notes

Expected explanations • do not give as experimental observations

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- A complete conducting loop and a suitable source of potential difference.
- No; charge is conserved while energy transfers.
- They are equal in a steady series circuit.
- It can produce a large current and heating.
- It breaks the conducting loop.
- Negative; Double Award alternative: explain the broken loop without requiring electrostatics.

References and provenance

Pearson Physics specification

Prepared 22 November 2026. Original wording, tables and questions. Sources inform the concepts and technique; the lesson scope and classroom quantities are explicitly described here. No laboratory trial or final school risk approval is claimed.