Electricity resources: fossil and nuclear fuels

Teacher / technician

YEAR 10 / LESSON 30 / PHYSICS ONLY

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

Coverage and delivery

Physics only: 4.18P, 4.19P. Non-renewable electricity resources.

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
Diagram cards	1 set per pair	15 sets

Immediate safety

Desk-based diagram and evidence activity. No fuels are burned and no radioactive sources, steam boilers or mains circuits are used.

Preparation and delivery

Read alongside the student method

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1. Prepare 15 diagram-card sets and 30 booklets. Keep the numerical example labelled as invented practice data.

2. Explain radioactive waste by the need for shielding, containment and long-term management; do not suggest that ordinary pupils handle it.

Close of lesson

- Return cards and retain the completed comparisons.

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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- It transfers energy mechanically through a rotating shaft.
- It transfers energy electrically using electromagnetic induction.
- Energy released by nuclear fission heats the working system.
- 350/1 000 × 100 = 35%.
- No; construction, fuel extraction, waste and decommissioning also matter.
- Their usable stocks are not replenished on human timescales.

References and provenance

Pearson Physics specification

EIA: electricity generation

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.