Static hazards: explaining bonding and earthing

Teacher / technician

YEAR 10 / LESSON 35 / 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: 2.27P. Dangers of electrostatic charge.

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
Scenario cards	1 set per pair	15 sets

Immediate safety

Diagram-based activity only. Do not use flammable liquids, vapours, ignition tests or high-voltage generators. Do not charge pupils or connect classroom equipment to mains earth sockets.

Preparation and delivery

Read alongside the student method

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1. Prepare 15 original scenario-card sets. Teach the causal chain and the distinction between bonding and earthing.

2. Use the HSE reference for the conceptual context, not as a pupil practical method. No live fuel-transfer equipment is part of this lesson.

Close of lesson

- Return scenario cards and keep corrected explanations.

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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- Movement and separation of materials can separate charge.
- It can ignite an appropriate flammable vapour–air mixture.
- Conducting objects to one another.
- Equipment to an appropriate earth system.
- No; the transferred charge and discharge conditions also matter.
- The explanation can be taught without exposing anyone to fuel vapour, sparks or fire.

References and provenance

Pearson Physics specification

HSE: earthing

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.