Electrostatics: controlling charged particles

Teacher / technician

YEAR 10 / LESSON 36 / 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: 2.28P. Photocopiers and inkjet printers.

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
Process diagrams	1 set per pair	15 sets

Immediate safety

Paper modelling only. Do not open printers or photocopiers, handle toner powders, use spray aerosols or operate high-voltage apparatus.

Preparation and delivery

Read alongside the student method

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1. Prepare 15 original process-diagram sets. Keep the model charge signs consistent and distinguish continuous inkjet from other printer designs.

2. Use no appliance disassembly or toner demonstration.

Close of lesson

- Return diagram cards and retain 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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- Electrostatic forces act between the toner and the patterned charged surface.
- The fixing stage, commonly heat and pressure.
- The negative plate.
- The electric force reverses.
- No; this is one specified design.
- The force direction depends on them, and designs differ.

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.