Irradiation, contamination and control

Teacher / technician

YEAR 11 / LESSON 97 / 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: 7.15–7.16. Irradiation, contamination, biological damage and radioactive waste.

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-card sets	1 per pair	15 sets

Immediate safety

Desk-based discussion only. No radioactive materials, powders, contamination demonstrations or waste handling. Do not use glitter or dust as an exposure simulation.

Preparation and delivery

Read alongside the student method

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1. Use hypothetical scenarios without asking pupils to disclose personal medical histories.

2. Keep general concepts distinct from local emergency procedures and avoid promises of zero risk or automatic harm.

Close of lesson

- Collect cards and retain corrected definitions.

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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- Exposure to radiation.
- Unwanted radioactive material on or inside an object/person.
- No; the material remains until managed appropriately.
- It can damage molecules, including DNA, and kill or alter cells.
- It deposits energy over short distances close to internal tissue.
- Activity and radiation hazards can persist, requiring containment, shielding and monitoring.

References and provenance

Pearson Physics specification

IOP: teaching radioactivity

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.