# Radioactivity in medicine: signal and treatment

Teacher / technician

YEAR 11 / LESSON 99 / 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: 7.14. Medical uses of radioactivity.

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 and diagrams | 1 set per learner | 30 sets |
| Calculators | 1 per learner | 30 |

## Immediate safety

Hypothetical paper study only. No sources, medicines, bodily samples or medical-device operation. Do not ask pupils to disclose personal treatment histories.

# Preparation and delivery

Read alongside the student method

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**1.** State clearly that the numerical activity is not a clinical dosage.

**2.** Provide neutral hypothetical examples and separate physical decay from biological clearance.

## Close of lesson

• Retain calculations and collect diagrams.

## 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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- To provide an external measurable signal.
- Time for activity or the expected undecayed population to halve.
- 200 Bq under the stated assumption.
- No; they are different processes.
- Diagnosis obtains information; treatment intentionally deposits energy to affect tissue.
- No; energy, distribution, duration and dose are also relevant.

## References and provenance

Pearson Physics specification

IOP: teaching radioactivity

IAEA: nuclear medicine for diagnosis and treatment

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.