Fission and a model chain reaction

Teacher / technician

YEAR 11 / LESSON 101 / 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: 7.17–7.20. Neutron-induced fission, products and chain reactions.

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
Cards and pencils	1 set per pair	15 sets

Immediate safety

Paper models only. No radioactive materials, projectiles, mousetraps, flames or explosive demonstrations are used.

Preparation and delivery

Read alongside the student method

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1. Prepare the stated illustrative channel with A and Z clearly separated.

2. Keep branching diagrams qualitative; do not present them as reactor construction or operating instructions.

Close of lesson

• Collect cards and retain balanced 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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- Absorption of a neutron by uranium-235.
- 236.
- 236.
- 92.
- Neutrons can escape or be absorbed without causing fission.
- In kinetic energy of fission fragments and other emitted particles.

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.