Atoms, nuclei and isotope notation

Teacher / technician

YEAR 11 / LESSON 91 / 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: 7.2–7.3. Atomic structure, proton number, nucleon number and isotopes.

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
Particle-label sets	1 per pair	15 sets

Immediate safety

Paper models only. No radioactive materials, samples or radiation apparatus are used.

Preparation and delivery

Read alongside the student method

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1. Prepare clearly labelled proton, neutron and electron symbols. Use words and symbols as well as colour.

2. Check isotope notation with A above Z at the left of the element symbol. Distinguish mass number from averaged relative atomic mass.

Close of lesson

- Collect reusable labels and retain nuclear 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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- Protons.
- Protons plus neutrons.
- 8.
- Same proton number, different neutron numbers.
- 10.
- No; the proton number is unchanged.

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.