Stellar evolution: two pathways

Teacher / technician

YEAR 11 / LESSON 107 / 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: 8.9–8.10. Evolution of Sun-like and more massive stars.

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
Stage-card sets	1 per pair	15 sets

Immediate safety

Desk-based sequencing only. No heat sources, balloons, bright lamps or solar viewing are used.

Preparation and delivery

Read alongside the student method

YEAR 11 / LESSON 107 / PHYSICS + SCIENCE (DOUBLE AWARD)

1. Provide two separate tracks and enough cards for each; do not force all remnants into one line.

2. Distinguish the name planetary nebula from planet formation and label pathway limitations.

Close of lesson

• Collect cards and retain corrected pathway 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

YEAR 11 / LESSON 107 / PHYSICS + SCIENCE (DOUBLE AWARD)

- Sustained core hydrogen fusion.
- A red-giant stage.
- A compact hot stellar remnant that cools.
- A neutron star or black hole, depending on conditions.
- No.
- Its energy output and fuel-consumption rate rise greatly with mass.

References and provenance

Pearson Physics specification

NASA: star types

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.