Star colour and surface temperature

Teacher / technician

YEAR 11 / LESSON 108 / 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: 5.17, 8.7–8.8. Kelvin scale and stellar colour-temperature classification.

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
Star-card sets and calculators	1 set per pair	15 sets

Immediate safety

Paper or screen analysis only. No hot filament lamp, flame, laser or direct solar observation. Never look directly at the Sun.

Preparation and delivery

Read alongside the student method

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1. Give every colour swatch a written colour and temperature label.

2. Keep rounded model values distinct from actual star measurements and do not use a hot lamp demonstration.

Close of lesson

• Collect cards and retain the temperature ordering.

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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- Blue-white at 12000 K.
- Red at 3000 K.
- 5727 °C.
- No; it emits a broad spectrum.
- No; distance and luminosity also matter.
- Printing, displays and colour vision can change colour perception.

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.