

**GCSE Physics B (Twenty First Century Science)**  
**J259/01** Breadth in Physics (Foundation Tier)

**Question Set 12**

- 1 Nina is writing a report about the Solar System.  
She has written an introduction.

The planets in our Solar System all move around the Sun.  
They orbit in perfect circles and in the same direction.  
Each planet has at least one moon orbiting it.  
The planets and their moons are all made of rock.

- (a) Identify **two** mistakes in Nina's introduction.

[2]

- (b) Nina wants to include a section about how the Solar System was formed.

Describe how the Solar System was formed.

[2]

- (c) Nina researches how the Sun releases energy. She finds this information in a textbook.

The Sun releases energy by nuclear fusion. The Sun emits about  $4 \times 10^{26}$  J of energy every second. As a result, its mass falls by about 4 billion kilograms every second.

Explain why nuclear fusion causes the mass of the Sun to decrease.

[1]

**Total Marks for Question Set 12: 5**

---

# OCR

Oxford Cambridge and RSA

## **Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge