Space physics

Physics Paper 2 | 5 questions, 6 marks each

GCSE science 6-mark questions

This topic online

Name: _____ **Date:** _____ **Score:** _____ **/ 30**

Plan before you write: jot down the 6 or more ideas you need, then put them in a sensible order. For compare questions give both sides of each point; for evaluate questions use the information and finish with a conclusion.

1 Astronomers are studying a young star that has about fifteen times the mass of the Sun.

Describe the life cycle of this star, from its formation to the end of its life.

Separate science only

(6 marks)

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2 Ethan reads that the Sun, the planets and their moons all formed from the same cloud of material about 4.6 billion years ago, and that the Sun has been shining steadily for most of that time.

Explain how the Sun and the planets formed, and why the Sun has stayed a stable size for billions of years.

Separate science only

(6 marks)

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3 **Higher tier | Separate science only**

A weather satellite moves in a circular orbit around the Earth at a constant speed.
Engineers later move it to a lower circular orbit, closer to the Earth.

Explain how the satellite can be accelerating even though its speed is constant, and explain why it must travel faster in the lower orbit to stay in a stable orbit.

(6 marks)

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4 A student researched the light from five distant galaxies. Red-shift tells you how much the wavelength of a galaxy's light has increased compared with the same light from a source on Earth.

Galaxy	Distance in millions of light years	Red-shift (increase in wavelength as a fraction)
P	100	0.007
Q	250	0.018
R	400	0.029
S	600	0.043
T	800	0.058

Use the data to describe the pattern, and explain how this kind of observation supports the Big Bang theory.

Separate science only

(6 marks)

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5 Jupiter orbits the Sun. Io is one of Jupiter's moons. A space probe has also been placed in orbit around Jupiter to take photographs.

Compare the orbits of Jupiter, Io and the space probe. In your answer refer to what each one orbits, the force involved and whether each is natural or artificial.

Separate science only

(6 marks)

End of questions | Total 30 marks

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