

Examiners' Report/ Principal Examiner Feedback

June 2011

360Science

GCSE Science
Multiple Choice Paper P1b (5010)

GCSE Physics
Multiple Choice Paper P1b (5046)

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5010 Science/ 5046 Physics (P1b) Examiners' Report

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Foundation Tier

There was quite a good performance on old favourites, such as the type of wave used for treating cancer (69%), the idea that our Sun will next become a red giant (67%), and the reason for ultrasound being better than X-rays for scanning a fetus (64%).

Other items taken directly from specification statements, however, did not do so well. 30% correctly noted that X-ray scanning for broken bones was by absorption, the same percentage chose reflection and 29% chose scanning by refraction!

A quote from the Summer 2007 report:

56% correctly identified the orbit of a comet but only 31% recognised that an asteroid also orbited a star. 25% thought the comet orbited a planet while 38% thought that an asteroid did.

This year, although on a different type of question:

59% correctly identified the orbit of a comet but only 52% recognised that an asteroid also orbited the Sun. 41% thought the comet orbited a planet while 48% thought that an asteroid did.

Thus the performance this year was slightly disappointing since there is a specification statement about the orbits of comets, asteroids and planets. As few as 19% realised that both comets and asteroids orbit the Sun.

Recognising a galaxy from its photograph was the most successful item at 85%. A similar selection of a digital signal was a much more commonly asked item but only 52% chose correctly. 44% were able to correctly apply the bifurcating key to identify the 'double nucleus galaxy' shown in a photograph.

Overlap Questions

All common questions efficiently differentiated between Foundation and Higher tier candidates. The largest differences in scores were on questions 22 (15%) and 24 (16%). Four questions (17, 18, 22 and 23) were successfully selected by more than 60% of students, with top scores being for Q23 of 86% for Higher tier candidates and 75% for Foundation tier candidates.

Higher Tier

Candidates scoring less marks overall often fail to consider units. Thus, out of 68% who applied the given equation correctly, only 19% changed the 'g' into 'kg'.

Some situations involved application questions. The science fiction book (of question 32) required students to apply their knowledge of longitudinal and transverse seismic waves to a mythical planet, the structure of which was explained. This was the most successful question at sorting out candidates of different ability. Other questions which differentiated well involved the Aristotle model of the Universe. This, of course, is not specified as knowledge which needs to be learnt; it presented a situation which was intended to be 'unusual'. Consequently, sufficient information was supplied, prior to the questions, to supplement material which is on the specification to enable candidates to answer the questions.

Fairly high scoring items included understanding of action-reaction forces (79%) and the ability to change the subject of an equation to determine the acceleration when given force and mass (67%).

Grade Boundaries

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