

Moderators' Report/
Principal Moderator Feedback

Summer 2014

GCSE Astronomy (5AS02)
Paper 01

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GCSE Astronomy

Overview

The controlled assessment forms 25% of the overall mark for this specification. Candidates must undertake two tasks from the lists that are provided in the specification. One task must be drawn from list A, Unaided Tasks, and one task from list B Aided Tasks. Candidates must not do comparable tasks from each list. Thus, if a candidate chooses A1 from the Unaided list, they must not choose B1 from the Aided list. These rules produced a rich variety of tasks that were seen by the moderating team this series. In many cases, the tasks that were chosen complemented the teaching of 5AS01, the written component of the course. Candidates were expected to write the design, analysis and evaluation under a high level of control.

Some candidates produced high-quality work on which, clearly, a great deal of time had been spent. Sadly this was not the case for all candidates. In some cases centre marking was generous. Some candidates gave a long and often unnecessary preamble relating to the history of observations, the mythology of constellations and the structure of celestial bodies before getting to the task in hand. This created a good deal of unnecessary bulk in the material sent for moderation. Centres are recommended to ensure candidates produce a controlled assessment that meets the requirements of the specification and keeps to the point as, in a good number of cases, the time spent on descriptive work could have been better spent by the candidate writing a report that met the criteria in a fuller way.

The most popular tasks for the Unaided section were, A1, Lunar Features, A4, Constellation Drawing and A6, Shadow Sticks. In the Aided list the most popular were B11, Messier Objects, B1, Lunar Features and B4, Constellation Photography.

In some cases candidates failed to undertake the correct task as specified in the approved list in the specification. This was particularly so in the A1/B1, Lunar Features task where a few candidates undertook controlled assessments more akin to looking at phases of the Moon and paid little regard to observing the changing appearance of the three lunar features at different times in the lunar cycle. In the Aided B4, Constellation Photography and B11, Messier Objects tasks, it was not always clear as to whether the images were produced by the candidates or sourced from elsewhere. On occasion little observing information was present to support the images produced. Centres should ensure that candidates meet the requirements as set out in the specification. The specification should be the source of information regarding the tasks. A small number of centres used information obtained from websites that held incorrect or misleading information in relation to the requirements of the tasks.

Centres used robotic telescopes for a number of the Aided tasks to good effect. Where used appropriately the images produced were of high quality and the additional processing of the images gave a useful means of adding detail to the analysis of the chosen task. It should be noted that observations should be images produced from instructions given by the candidate. Pearson Edexcel provides information on the use of Robotic Telescopes in the controlled assessment section of the website, together with other useful material relating to managing controlled assessments.

Design

Many candidates awarded high marks failed to evaluate fully a number of observing sites in the Unaided task or instruments in the Aided task. It was common to see some details about one observing site being given full marks. In addition, the idea of a programme of observations being planned was not evident in the work of many candidates. Intermediate marks were awarded with a closer reference to the criteria, but there was a lack of appropriate astronomical terms in the work of many candidates.

Observations

These were variable in quality in many cases. Quite crude sketches, which were unlabelled, were awarded high marks by some centres. It appears that some centres were unaware of what constituted an excellent programme of observations. For some candidates there was insufficient evidence in the form of data or drawings to make convincing, wide-ranging conclusions. Candidates should provide sufficient observational data to enable full and clear conclusions to be drawn about the problem set in the task title. In a task such as A4, Constellation Drawing, candidates should observe the stars at the best time to see the constellation and when the Moon will not cause observational problems. In the A1/B1, Lunar Features task, the features selected must be visible at the times of observation. In the A6, Shadow Stick task, the timing of readings should enable a good graph to be drawn. Observational details should include date, time, and place, observing and weather conditions.

Analysis

There was good evidence of calculations being undertaken and these were then explained and appropriate conclusions drawn. In other cases high marks were awarded for attempts at using calculations and explanations. A series of unexplained numbers will not give a clear conclusion and hence will elicit a lower mark. As with previous sections, some centres failed to engage with the assessment criteria and awarded high marks for comments and material that were not related to the task. Long descriptions and supplementary material were included in situations where they were not directly relevant. In the A1/B1, Lunar Features task this was particularly the case. There were many candidates who spent a great deal of time discussing how the Moon came into existence and gave a long explanation of its history or the percentage of the Moon that was illuminated by the Sun at each phase. A discussion of the shadow lengths and relative sizes of the features based on measurements taken during the observation would have been more helpful. Similarly, long descriptions of the

history and mythology of the constellations did not provide any support for the A4, Constellation Drawing tasks. Detailed comparisons of observed and actual stellar magnitudes based on reference stars together with colour are expected for the higher mark band. In the B11, Drawing of Messier Objects task, candidates gave descriptions of the various objects that were not creditworthy. More time should have been spent on discussing how the various objects could be rendered more visible by the use of software and filters.

Evaluation

Some candidates clearly need further practice in evaluating their work to enable them to securely meet the requirements of the top mark band. Some candidates spent too much time on general comments about how well or not the task went, rather than objectively discussing the procedure and their means of using data in a context appropriate to the task. Candidates sometimes wasted a good deal of space on unnecessary aspects and then wrote a few lines relevant to the criteria. In many cases feasible suggestions for extensions and improvements were offered, however in a number of cases very high marks were given for non-quantitative statements in situations where a quantitative evaluation could be made. In many tasks calculating errors is a possibility, but this was not seen in the candidates' work. Very general comments such as 'use a better telescope' or 'look for better sites to observe from' were sometimes given high marks erroneously.

The above issues are now fully exemplified by the samples of controlled assessment work, each accompanied by a marking commentary, which are available from the Pearson Edexcel website at:

www.edexcel.com/quals/gcse/gcse09/Astronomy/Pages/default.aspx

Once again, almost all centres correctly administered the controlled assessment tasks and provided their moderator with the correct sample of work, along with the yellow OPTEMS sheet or EDI printout and a Candidate Record Sheet (available on page 59 of the specification) for each candidate and candidate authentication sheets.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

