



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Education

Biology/Human Biology

5411/5413

Specification A

BYA4 Centre-Assessed Coursework

Report on the Examination

2007 examination - January series

Further copies of this Report are available to download from the AQA Website: www.aqa.org.uk

Copyright © 2007 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

General

Most of the candidates entering for this unit test were taking the opportunity to improve on the mark that they had been awarded in June. As such, the better general standard came as little surprise. However, centres are reminded that Unit 4 is an AS Unit and although many candidates will be following an A2 programme of study, tasks must be selected from the AS specification. Thus although candidates may have studied the process of deforestation, this topic forms part of the content of Module 5 and is therefore an inappropriate subject to set for the essay testing skills **I** and **J**.

Centres are reminded that the process of moderation involves selecting a sample and marking this sample against the agreed AQA standard. All work submitted by candidates must be seen, whether or not it formed part of an earlier submission. It is important, therefore, that work sent to moderators contains evidence supporting the marks awarded for all ten of the skills contributing to the new submission. Centres are also encouraged to ensure that they have a safe system for retaining work that is likely to be part of a resubmission. There were a number of instances this year where work had been lost. Clearly, moderators cannot support marks awarded for work they have not seen.

Many centres now routinely make extremely helpful comments on candidates' work, clearly indicating where marks have been awarded or withheld. All moderators are instructed that their prime role is to consider whether, on the evidence provided, they can support the marks awarded by the centre. Comments on the work are, thus, invaluable and can only help the candidates concerned. In view of this, it is disappointing to note that a few centres still do little more than provide a scattering of ticks which only reveal that the assessor has read the page concerned.

The moderating team appreciates all the hard work involved in preparing, selecting and dispatching the sample and its accompanying documentation, and wishes to commend the efficiency of many centres in this respect. Centres are encouraged, however, to check transfer of marks extremely carefully. This year, the number of errors located was significant. In many cases these resulted in a loss of marks for the candidate. While moderators check work carefully for administrative errors of this sort, they only see a sample of the work involved. Some errors clearly go through unnoticed.

Planning (Skills A and B)

Tasks set for planning were generally appropriate for assessment, although the close similarity of the work in some cases suggested that rather too much assistance had been provided. Thus, it is perfectly reasonable at this level to expect candidates to devise a method of collecting gas, so such information should not be provided as part of the brief. Although many of the accounts provided in response to Skill **A** were appropriately detailed, others lacked reference to specific points. There was, for example, usually some mention of the need to maintain pH and temperature constant, but references to buffers and waterbaths were still absent in many cases. Failure to gain credit in Skill **B** was often associated with a lack of attention to factors that would contribute to the reliability of the data. There were still many who failed to equilibrate enzyme and substrate at the experimental temperature before mixing, who did not remove surplus pigment from beetroot before determining pigment loss from the cells and those who selected totally inappropriate times in investigations associated with water potential. Such points were not always noted by those marking the work concerned.

Implementing (Skills C and D)

The necessary supporting material for Skill **C** is now routinely sent and very few centres needed to be remind of this requirement. With Skill **D**, the key to awarding full credit is that the data recorded should make complete sense to another biologist without the need for subsequent clarification. This will be generally be reflected in clear headings for the columns or rows. Some centres still fail to note instances where the Institute of Biology's conventions have not been adopted. Most frequent of these are failing to separate the quantity from its units with a solidus (/), and including units in the body of the table. Please note that credit should only be awarded for the raw data collected at the time of the investigation. Errors in, for example, calculating means or percentages should be ignored and not penalised when assessing this skill.

Drawing (Skill E)

Centres are reminded that this skill required material to be selected from the AS specification. Once again a wide range of inappropriate materials was offered. There can be little justification for choosing to draw giant African land snails, sections through the stem of *Tilia*, or daffodil flowers and bulbs. In some cases, centres have repeatedly failed to respond to comments made in feedback concerning this issue. Not only are they wasting the time of their candidates but marks could justifiably be withheld by moderators on the grounds that the task does not meet the specification requirements. Centres are strongly advised to note the advice provided in *Guidance for Teachers* or to contact their coursework advisor if uncertain of the task set.

Analysing (Skills F, G and H)

The standard of graph drawing (skill **F**) has improved steadily throughout the life of this specification and much of the work is clearly worth the high mark it is awarded. Errors still escape notice, however, and some of these have pronounced effects on the mark awarded. In assessing this skill, it is essential to check such details as the linearity of the scale, labelling of axes and the accuracy of plotting of individual points with care. Many candidates choose, often appropriately, to join points with a curve of best fit. Unfortunately, such curves are often distorted by incorrect assumptions on the part of the candidate. Such assumptions may involve the drawing of a curve as a straight line despite compelling evidence to the contrary, forcing curves to pass through the first and last points in a data set and assuming that all curves start at the origin. Such work was rarely penalised despite these faults representing, in many cases, major errors.

Skill **G** requires candidates to select appropriate biological knowledge to explain the results that they obtained in their investigations. Interpretation of a graph showing the effect of substrate concentration on catalase activity should, therefore, draw on the candidate's knowledge of this aspect of enzyme biology. Credit should not be awarded for detailed accounts of the effect of such other variables as temperature, pH and the presence or absence of inhibitors. Many accounts followed a detailed consideration of trends and patterns with much detailed and accurate background material. Despite the effort clearly put into such work, high marks should not be awarded if the conclusions are unrelated to the data obtained in the investigation.

The criteria for marking skill **H** refer to the need to consider the relative effects of factors which are considered to influence the reliability of data collected. Failure to consider this point means that the maximum mark should not be awarded. Anomalous data still create difficulties for the many who cannot visualise a scientific investigation that does not generate such data. Candidates should be advised to consider the range of values of readings relating to a single value of the independent variable. Where this range is particularly large when seen against the general pattern, there are grounds for considering that the reliability of such readings is suspect. With many candidates, selection of anomalous results seems somewhat arbitrary to say the least.

Communicating (Skill I and J)

Much excellent and interesting work was produced here, and some of it was a pleasure to read. The key to success in this section is usually the setting of a clear and transparent task that offers candidates sufficient scope without being so broad that it is easy to lose sight of the objective. The marks awarded by centres were usually in close agreement with those given by the moderating team.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.