

Examiners' Report/ Principal Examiner Feedback

March 2011

GCSE

360Science

GCSE Additional Science
Multiple Choice Paper B2 (5015/01)

GCSE Biology
Multiple Choice Paper B2 (5027/01)

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Examiners' Report that require the help of a subject specialist, you may find our **Ask The Expert** email service helpful.

Ask The Expert can be accessed online at the following link:

<http://www.edexcel.com/Aboutus/contact-us/>

Alternatively, you can contact our Science Subject Advisor directly by sending an email to ScienceSubjectAdvisor@EdexcelExperts.co.uk. You can also telephone 0844 576 0037 to speak to a member of our Science Subject Advisor team.

March 2011

Publications Code UG026851

All the material in this publication is copyright

© Edexcel Ltd 2011

5015 Additional Science/ 5027 Biology (B2) Examiners' Report

March 2011

Overall, the performance of the foundation tier candidates was slightly better than the higher tier candidates with the less able candidates performing mainly as expected on their section of the paper. On the higher tier, a number of candidates were challenged by some of the material covered with several questions providing discriminatory evidence that could be used to distinguish between the best performing candidates at A* and A grade and those performing at the lower grades offered on the higher tier of the paper.

Foundation Tier (Question 1-16)

Questions 1 to 7 on the foundation tier of the paper were answered well by the candidates with many making correct judgements. Well over 90% of candidates arrived at the correct answer for questions 1 to 5 although candidate performance dropped slightly on question 7 where 67% of the candidates chose the right option. Only the least able candidates in this case were unable to link eutrophication with process 4 as shown on the diagram and of these, there was clear confusion as to whether process 2 or process 5 was involved.

Questions 9 to 12 were answered less well by candidates although the nature of the material covered in this section tends to pose a challenge to candidates as shown by statistics from previous examination series. Many candidates are still very unsure of the function of various cell structures and in this case less than half of the candidates were able to state the function of the cell membrane. Even fewer candidates identified part W on the diagram as the nucleus which is a concern with nearly as many incorrectly naming it as the cytoplasm. Only the more able candidates on this tier of the paper understood that genes code for proteins (question 12) with almost an equal number of candidates giving amino acids as their answer.

Again, a few candidates struggled with a couple of the questions in the 'Keeping Fit' section and it was disappointing that only 38% of candidates were able to interpret the graph correctly to arrive at the correct answer of 3 (minutes). A fair number of candidates (35%) did not recognise that the drop in the graph at 4 minutes signified the end of the exercise and therefore included the time that it took the pulse rate to drop back to normal in their calculation. 23% of candidates calculated the exercise time from the start of the graph to 10 minutes and thus arrived at the incorrect answer. Many candidates recognised that glucose and oxygen were necessary for aerobic respiration and this was very pleasing. Those that fared less well for question 15 gave a range of responses with the most popular being option C, oxygen and lactic acid.

Overlap Questions (Questions 17-24)

Candidates at both tiers performed as expected across the majority of these questions although the performance of higher tier candidates was fairly disappointing for question 19. Only 69% of candidates recognised that the plant would absorb carbon dioxide from the water which is quite low when compared to the 54% of candidates on the Foundation tier answering this correctly. The statistics for question 17 were pleasing at both tiers and despite the minor complexity in the wording of the options, it is clear that many candidates thought carefully about their answer using the data given in the table. Questions 21 to 24 were again answered well by candidates at both tiers. Most candidates were able to use the table of information about the moths to arrive at the correct option for

question 21 and similarly for question 22 a good number of candidates read the information given in the stem to give the correct reason for an increase in the number of light coloured moths.

Higher Tier (Question 25-40)

The first two sections of the higher tier paper showed performance that was generally disappointing. As in previous examination series, candidates show a lack of understanding of the function of various mineral ions in growth and only 25% of candidates arrived at the correct response for question 27. Material of this nature might better be taught through practical activities where candidates have the opportunity to plan, carry out and analyse the results of their own investigations into the function of various mineral ions in plants. Question 30 also proved to be challenging for some candidates. A number of candidates were unable to arrive at the correct definition for osmosis although they should be familiar with this process as highlighted in the specification (glossary). Similarly for question 31, just over half the candidates knew the function of the xylem and phloem vessels again both glossary terms that candidates are expected to define and apply in a context.

Graphical analysis did not prove to be a problem for the majority of candidates. The majority of candidates correctly identified the point at which photosynthesis increases most rapidly for question 32. A large proportion of candidates were not able to demonstrate the higher level skills required to answer the next question correctly – many were not able to link a lack of light to the plateau on the graph which indicated a constant rate of photosynthesis.

A good number of candidates were able to order the diagrams showing the stages of mitosis for question 37. 65% of candidates arrived at the correct option for this question which is pleasing and indicates a fair level of understanding of the mitotic processes. Fewer candidates, however, were able to give the correct evidence to prove that the cell was dividing by mitosis; 42% of candidates got this question right with the next popular answer being option B.

Questions 39 and 40 gave expected results. Only the most able candidates were able to give the correct information for protein synthesis with more candidates incorrectly opting for option A. Only 22% of candidates were successful in answering the final question with the most popular answer being option B. This indicates some misunderstanding amongst higher tier candidates on the fine details of protein synthesis or possibly a case of not reading the statements thoroughly before attempting an answer.

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>

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts NG18 4FN

Telephone 01623 467467
Fax 01623 450481

Email publications@linneydirect.com

Order Code UG026851 March 2011

For more information on Edexcel qualifications, please visit www.edexcel.com/quals

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: 190 High Holborn, London WC1V 7BH