



**General Certificate of Secondary Education**

**Science B 4462 / Biology 4411**

**BLY1F      Unit Biology 1**

**Report on the Examination**

*2009 examination – June series*

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**Science B / Biology**  
**Foundation Tier BLY1F****General**

There were seven questions on the paper. The first five questions appeared only on the Foundation Tier and were targeted at grades E, F and G. The final two questions (termed Standard Demand) were common to Foundation and Higher Tiers. These were targeted at grades C and D.

Candidates should be advised to write in black ink or black ball point pen only as the scanning process involved in on-line marking does not pick up pale colours well. Furthermore candidates should be advised to ensure that if their answers extend beyond the printed lines or space then they should keep these extensions away from the edges of the page as they may be removed during scanning.

Some examiners expressed concern about illegible handwriting this year. Although it is a small percentage, candidates should be aware that if the examiner cannot read the script they will not be awarded any marks for that part.

Fundamental knowledge and understanding of How Science Works in the world at large were tested throughout this paper. This means that candidates should be reminded that it is essential to read all of the question carefully, analyse the information provided and think about their response before writing their answer.

**Question 1**

- (a) (i) The large majority of candidates correctly chose a legal drug. Of the candidates who failed to choose the correct response the vast majority chose an illegal drug.
- (a) (ii) Nearly all of candidates correctly chose nicotine. Only a very small proportion chose carbon dioxide.
- (a) (iii) Three quarters of candidates correctly chose withdrawal symptoms. Almost all the unsuccessful candidates chose high blood pressure.
- (b) (i) Most of the candidates correctly chose scattergram. Nearly all the unsuccessful candidates chose line graph.
- (b) (ii) Three quarters of candidates correctly chose the correct answer but over a quarter of the candidates thought that smoking always reduces birth mass.

**Question 2**

- (a) (i) Two thirds of candidates made a reasonable suggestion. Many of these candidates made intelligent use of the ideas of predation and camouflage. Common unacceptable responses included: There is more space in woodland; wildlife is better adapted for woodland; trees produce more oxygen; there is more water to drink; woodland is a natural habitat.

- (a) (ii) A fifth of candidates gained two marks and nearly a half of the rest gained one mark. Building homes and building roads were the most common acceptable answers. Many candidates misread the question and answered in terms of growing more crops.
- (b) (i) The large majority of the candidates correctly chose fertilisers. Most of the unsuccessful candidates chose herbicide.
- (b) (ii) Nearly all of the candidates correctly chose pesticide. The unsuccessful candidates chose fertilisers or herbicide in almost equal numbers.
- (b) (iii) A third of candidates made a reasonable suggestion. Unsuccessful candidates tended to answer this question in terms of the advantage of living in woodland rather than concentrating on conditions in the river eg the presence of pesticides.
- (c) Two thirds of candidates gained two marks and a further third gained one mark. The majority of successful candidates answered in terms of pollution, although some simply referred to two different pollutants. Many included good references to greenhouse gases and global warming.

### Question 3

- (a) Although the phrase from the diagram was emboldened many candidates ignored this and gave answers such as gland.
- (a) (i) Two thirds of the candidates correctly chose receptor. Unsuccessful candidates mainly chose sharp object or sensory neurone.
- (a) (ii) Three quarters of the candidates correctly chose sensory neurone. Unsuccessful candidates mainly chose receptor or motor neurone.
- (a) (iii) Two thirds of the candidates correctly chose motor neurone. Unsuccessful candidates mainly chose sensory neurone.
- (a) (iv) Over half of the candidates correctly chose muscle. Many candidates ignored the diagram and wrote effector. Unsuccessful candidates mainly chose brain or spinal cord.
- (b) (i) The large majority of the candidates correctly chose eye. Unsuccessful candidates mainly did not name an organ, but rather gave vision or sight.
- (b) (ii) Nearly all of the candidates correctly chose ear. Unsuccessful candidates mainly did not name an organ, but rather gave hearing.
- (b) (iii) Only a tenth of the candidates correctly chose ear. Unsuccessful candidates mainly gave brain or muscle.

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**Question 4**

- (a) A third of candidates gained three marks, a half gained two marks and a further tenth gained one mark. The most common correct responses were killed by poachers and land available disappearing. Better candidates often fully explained their answers eg elephants killed by poachers resulting in fewer elephants to breed therefore a reduction in the population. Many candidates copied the phrase lots of leaves rather than stating that there would be fewer leaves or trees. Several candidates were distracted by the idea that elephants live in large herds and linked this with poachers being able to kill them more easily, having already given the idea of elephants being killed by poachers. Another distraction was that elephants live for 70 years; candidates connected this idea with elephants being old or not able to reproduce.
- (b) Only just over a tenth of candidates gained three marks, a quarter gained two marks and a further third gained one mark. These cloning methods were not understood. Many candidates appeared to make random choices. The most common mistake was to confuse adult cell cloning with tissue culture.

**Question 5**

- (a) (i) A fifth of candidates gained two marks and a further third gained one mark. Most candidates correctly noted that 2 deaths per 100 births occurred in 1845. However, only a small minority realised that they should multiply this number by 6. Those candidates who did realise that they should multiply by 6 frequently did so against 7 (the number of deaths per 100 on ward 1 rather than ward 2). Weaker candidates frequently gave answers of 200 or 600.
- (a) (ii) Three quarters of the candidates correctly stated that ward 2 was the safest because there were fewer deaths. Some unsuccessful candidates merely quoted figures from the graph. Others misread the key or were under the impression that the data referred to infant mortality. A significant number of candidates did not appear to understand the term, per hundred, in the vertical axis title.
- (b) (i) Half of the candidates plotted the two bars correctly. Unsuccessful candidates usually drew the bars with heights of 3.2 and 1.2 respectively. Candidates should be encouraged to bring both a ruler and a sharp pencil to the examination.
- (b) (ii) Three quarters of the candidates correctly described the effect of hand washing on the death rate. Common errors included simply quoting the number 3 from the table or comparing data from ward 1 with ward 2 rather than comparing the data from 1848 to previous years.
- (b) (iii) Over half of the candidates gave a reasonable suggestion. The concept that washing pathogenic microorganisms off hands leads to a decreased death rate was usually well described but often in a wide and colourful manner. Weaker candidates frequently stated that diseases rather than microbes would be washed off the hands.

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**Question 6**

- (a) A good half of the candidates gave a satisfactory description. Weaker candidates often merely referred to wings rather than describing shape or size. Other candidates gave features which were not visible on the photograph eg light body or bones. A significant number of candidates linked tail shape with stability rather than with speed as required by the question.
- (b) Over three quarters of the candidates gave a satisfactory suggestion involving the lack of insects in winter. Many candidates were content merely to state the obvious it is cold. The word too was often misspelt as to. Others answered in terms of adaptations to cold.
- (c) (i) Half of candidates gained two marks and a further quarter gained one mark. Often the main failure was a lack of understanding what competition meant. The most common error was to refer simply to the birds flying at different heights rather than feeding. Many concentrated on calculating the number of months the birds were apart or together, without mentioning overlap or arrival and departure dates.
- (c) (ii) Only a fifth of the candidates gave a satisfactory suggestion. Many gave the one word answer food, ignoring the information in the rest of the question. A significant number answered mates.

**Question 7**

- (a) Nearly half of the candidates correctly identified two control variables, and a further quarter correctly identified one. Significant numbers of candidates gave the independent variable (diet programme) or the dependent variable (mass change).
- (b) A third of candidates gave two correct conclusions, and a further quarter gave one correct conclusion. Many candidates lost marks by using the comparative rather than the superlative, eg better rather than best. Significant numbers explained what conclusions to look for without stating what these conclusions actually were, such as could show which diet was effective or how many people lost mass.
- (c) A quarter of candidates gained two marks, and a further sixth gained one mark. Many candidates ignored the cost and merely wrote about the most effective diet. Others acknowledged that the Atkins book was cheap but did not link this to the relative effectiveness of the method.
- (d) Only a tenth of candidates gained two marks, and a further half gained one mark. Many candidates exhibited a woeful ignorance of the relationship between exercise and mass lost by referring to sweating, sweating fat and burning sweat. Relatively few candidates mentioned metabolic rate. Even fewer correctly related energy to food or to fat stores.

**Mark Ranges and Award of Grades**

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