



## External Assessment Report 2009

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Subject	Biology
Level	Standard Grade

**The statistics used in this report are pre-appeal.**

**This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.**

# Comments on candidate performance

## General comments

Markers reports indicate that the examination provided a fair assessment of the candidates' abilities in Standard Grade Biology. The overall response of candidates was good and showed less of a discrepancy between marks gained for the Knowledge and Understanding element and for the Problem Solving element than in some previous years. It appears that the great majority of candidates attempted most of the questions in both papers and there did not seem to be any particular questions which they avoided.

Markers comment that candidates lose easy marks due to recurring fundamental faults, namely: the lack of the basic knowledge covered by the Learning Outcomes; the poor use of English and the failure to read questions thoroughly.

## Areas in which candidates performed well

### Credit Level – KU

- Q 2(a) Adverse effects of coal-burning and nuclear power stations
- Q 6(a)(i) Naming osmosis as the mechanism of water movement into a cell from an area of higher water concentration

### Credit Level – PS

- Q 2 (b)(i) Completing a table with data from text
- (b)(ii) Selecting information from a table
- Q 3 (b)(i) Selecting information from a chart
- Q 4 (b)(i) Drawing a conclusion from data in a table
- Q 5 (a)(i) Calculating a percentage
- Q 7 (c)(i) Selecting information from a table
- Q 12(c) Selecting information from text
- Q 13(b)(i) Selecting information from a graph
- Q 14(c) Drawing a conclusion from data in a chart
- Q 15(a)(iii) Calculating a ratio

### General Level – KU

- Q 2 (a) Structure and function of parts of a flower
- Q 3 (a) Structure of plant and animal cells
- Q 4 (a)(i) Identifying an abiotic factor
- Q 5 (a) The use of energy from food
- (c)(i) Structure of the alimentary canal
- Q 6 Structure of the reproductive system
- Q 8 (b)(ii) Naming osmosis as the mechanism of water movement into and out of cells
- Q 14(a) Structure of the ear

### General Level – PS

- Q 1 (a)(i) Using a branching key
- (ii) Selecting information from a key
- (b)(i) Selecting information from a chart
- Q 4 (d) Constructing a pie chart
- Q 10(b) Selecting information from text
- (c)(i) Selecting information from text

- Q 11(a)      Selecting information from a graph
- Q 13(b)(ii)    Selecting information from a chart
- Q 17(a)(i)      Calculating an average
- (b)(ii)    Completing a bar chart
- Q 18(a)(i)      Constructing a line graph
- (ii)      Constructing a line graph
- Q 19(a)      Selecting information from a chart
- (b)      Selecting information from a chart

## Areas which candidates found demanding

### Credit Level - KU

- Qu 1(a) (ii)    Explaining population growth in ideal conditions – candidates failed to include possible contributing factors
- Qu 3(c)        Identifying the growth of a pollen tube as a stage in plant reproduction
- Qu 5(a) (ii)    Explaining differences in survival rates – candidates simply quoted figures from the table or gave the reason as being due to internal compared to external fertilisation
- Qu 8(a) (ii)    Describing a following stage of mitosis – candidates included events following mitosis and lost the mark because of this
- Qu 9(b)        Explaining the need for inelastic tendons – candidates failed to fully explain the link between muscle contraction and the movement of the bone
- Qu 10(b) (ii)   Explaining the link between increased work rate and lactic acid production – candidates failed to mention anaerobic respiration
- Qu 11(c)       Explaining the need for a range of micro-organisms during sewage treatment
- Qu 13(b) (iv)   Explaining why the effectiveness of biological washing powders may decrease at temperatures above 40°C
- Qu 15(c)       Defining discontinuous variation – candidates often gave answers such as ‘ cannot be measured’ and ‘ does not change’, both of which are not acceptable

### Credit Level – PS

- Qu 3(b) (ii)    Drawing a conclusion from data in a chart – candidates tended to simply state facts from the chart
- Qu 6(b) (ii)    Giving a reason why osmosis is not taking place – candidates failed to realise that water was not moving from a high to a lower concentration
- Qu 7(d)        Calculation – many candidates successfully calculated the volume of filtrate produced but failed to subtract the volume of urine in order to determine the volume reabsorbed
- Qu 10(b)(i)    Calculating a percentage increase greater than 100% - many candidates seem reluctant to give percentage answers greater than 100%, others gave 900% as the answer because they did not find the difference in lactic acid concentration before calculating the percentage
- Qu 11(d)       Suggesting a reason for untreated sewage entering a river, using information in a diagram – many candidates said that an earthquake might damage the treatment works, or simply that it was not working properly, despite the question stating that it was working correctly

### General Level – KU

- Qu 4(c) (i)    Defining competition – many candidates answered in terms of fighting between organisms or that they compete with each other
- Qu 8(c)        Naming aerobic respiration as the process requiring oxygen – candidates omitted ‘aerobic’

Qu 14(a) Structure of the eye – there was a marked difference between how well candidates knew the structure of the ear and the eye

### **General Level – PS**

Qu 7(a) (ii) Experimental procedure – candidates were too vague and did not relate their answers to the two test tubes

Qu 11(b) Calculating an average using information from a graph

Qu 17(a) (ii) Explaining the benefit of using a large sample – many candidates answered in terms of the trees themselves being large

Qu 19(c) Selecting information – very few candidates gained this mark simply because they did not read the introductory paragraph of the question

## **Advice to centres for preparation of future candidates**

Candidates must have knowledge of all the information covered by the Learning Outcomes. Centres should consider giving candidates a version of the Learning Outcomes as an aid to revision.

The meaning of terms such as ‘Name’, ‘Describe’, and ‘Explain’ should be clearly explained to candidates. This should be combined with practice in answering questions involving such terms.

The importance of using a ruler when completing graphs and charts should be stressed. The end of a bar chart should be clear, straight and accurate. This applies to horizontal as well as vertical bars.

Candidates should be encouraged to read all the information contained in a question before deciding on their answer. They should be encouraged to restrict their answers to what is asked in the question and not to include other information which could lose them the mark.

Centres should familiarise themselves with published Marking Instructions so that they are aware of required standards and acceptable answers to regularly asked questions. Marking Instructions are available to download from the NQ Biology webpage on the SQA website ([www.sqa.org.uk](http://www.sqa.org.uk)).

## Statistical information: update on Courses

<b>Number of resulted entries in 2008</b>	22319
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<b>Number of resulted entries in 2009</b>	21028
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## Statistical Information: Performance of candidates

### Distribution of overall awards

Grade 1	22.4%
Grade 2	27.8%
Grade 3	26.1%
Grade 4	8.7%
Grade 5	9.6%
Grade 6	4.3%
Grade 7	0.2%
No award	1.0%

### Grade boundaries for each assessable element in the subject included in the report

Assessable Element	Credit Max Mark	Grade Boundaries		General Max Mark	Grade Boundaries		Foundation Max Mark	Grade Boundaries	
		1	2		3	4		5	6
KU	<b>40</b>	27	21	<b>50</b>	26	19	<b>50</b>	17	n/a
PS	<b>40</b>	29	22	<b>50</b>	28	20	<b>50</b>	17	n/a