



## External Assessment Report 2009

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Subject	Biology
Level	Intermediate 2

**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

Most candidates had been well prepared by their centres for the external assessment and communication skills showed a small improvement. Fewer candidates left blank answers and most attempted both extended response questions. However, as in previous years, some candidates performed poorly and may have been entered at an inappropriate level. Other candidates must be congratulated on their ability to demonstrate a very high level of skills in Biology.

Candidates performed well in Section B this year but performance in Section A was slightly poorer than last year.

In Section C some candidates gave very good answers covering all aspects of the question and consequently gained excellent marks. Most candidate answers lacked knowledge and/or detail and so had difficulty gaining the full range of marks.

### Areas in which candidates performed well

**Section A** – Questions 1, 3, 18, 21 and 23

**Section B** – Questions 1(a) (i); 2(b); 3(c) (i); 5(a) (i); 7(a) (ii); 9(c)(i); 11(a)(i); 12 (a) which required the *identification* of the following

the active site of an enzyme;  
the type of respiration used in brewing;  
the process of fertilization;  
parts of the respiratory system.  
urine sample with lowest urea;  
the altered variable in an investigation;  
the role of greenfly in the food chain;  
human activity affecting finches;

*plus*

Question 1 (b)	protein composition of enzymes
Question 2 (d)	plotting points on a graph
Question 2 (e)	prediction of a result
Question 5 (a)(ii)	completion of a pyramid of energy
Question 6 (a)	calculation of a ratio

**Section C** - Question 1B Description of osmosis in plant and animal cells

### Areas which candidates found demanding

Fewer candidates than expected were able to answer the following questions correctly.

<b>Section B</b>	Question 2(c)	explanation of reason for repeating an experiment
	Question 2 (d)	use of correct scale and label on graph
	Question 4(b)(ii)	few candidates gave ‘oxygen debt repaid’
	Question 5(b)	few candidates recognised the definition of species
	Question 8(b)	most candidates used unacceptable anthropomorphic terms such as ‘like’ or ‘prefer’

The following questions were intended to be more challenging and operated as such.

<b>Section B</b>	Question 3(b)	many gave energy as a substance
	Question 4 (a)(ii)	drawing a conclusion – few covered all 3 solutions as in the aim
	Question 6(c)	few showed a clear understanding of co-dominance
	Question 7(a)(iii)	few knew that anther cells had a double set of chromosomes
	Question 7(b)	poor language skills to explain the need for haploid gametes
	Question 11(b)(ii)	few realised they were being asked to describe reabsorption
	Question 12(b)(ii)	few realised that the volume was 2 litres at the start of the breath
	Question 13(b)(ii)	poor knowledge of function of relay fibres in the reflex arc
<b>Section C</b>	Question 2A	Functions of the liver and pancreas – poorer than expected
	Question 2B	Role of antibodies and phagocytosis

## Advice to centres for preparation of future candidates

Centres are advised to refer to the Biology pages of the SQA website [www.sqa.org.uk] as these provide the most up-to-date information needed to prepare future candidates

These pages contain the most recent *Arrangements Document [4<sup>th</sup> Ed Pub June 2002]* as a guide to the type of course materials which should be used. Other useful materials are available, such as *Biology Update Letters* and the *Understanding Standards Website* for CPD.

The *Marking Instructions* for each year's external assessment are also on the website. These allow centres to see general and specific advice for marking Biology assessments and so gauge the level of detail required for specific topics. This should help to inform marking of internal assessments.

Guidance is also available on how to construct prelims to meet SQA requirements for robust Appeals evidence. This will also help to prepare future candidates by ensuring that they have experience of an assessment of a similar structure and level to the external assessment.

[INT2 Biology - p62 of the document *Estimates, Absentees and Assessment Appeals (2009)* ].

### Graphs

The graph work of candidates is usually good however 3 problem areas were highlighted this year in Section B Q2(d).

1. Many candidates had missing or incomplete labels on the Y-axis. Students should be encouraged to copy the complete label from the results table to avoid this error.
2. Many candidates used an inappropriate scale which resulted in the plotted line filling less than 50% of the grid. In this year's example the Y axis scale should have started at 40 to allow this criteria to be met.
3. A few candidates extrapolated the plotted line to find the answer to the prediction question. This was an appropriate method but candidates should be advised that the extrapolated line should be different from the plotted line (eg solid line then dotted).

### Conclusions

Few candidates used their skills from the Outcome 3 report. The Candidate Advice for this report advises candidates to '*relate the conclusion to the aim*'. Few candidates looked at the stem of Question 4 which stated the aim as '*an investigation into the effect of adding three different solutions to three pieces of muscle tissue*'. This would have alerted them to the need to cover the effect of all three solutions in their conclusion.

## Extended Response

Many candidates only answered one part of the question chosen in Section C, so reducing the number of marks available to them.

- Q2A Many unexpectedly poor answers giving a very sketchy account of the functions of the liver and the pancreas, often with no reference to their role in digestion or processing of absorbed materials.
- Q2B In comparison this option was usually well done with both parts more fully covered.

Underlining the main areas to be answered before starting the answer should be encouraged and so should rereading of the question once candidates think their answer is complete.

Use of the marking instructions from past papers to mark their own work or the work of peers may help candidates to see that they can only gain full marks by answering all areas of the question

## Statistical information: update on Courses

<b>Number of resulted entries in 2008</b>	6755
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<b>Number of resulted entries in 2009</b>	6924
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## Statistical information: Performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark - 100				
A	20.8%	20.8%	1442	71
B	23.8%	44.6%	1648	59
C	24.5%	69.1%	1697	48
D	11.5%	80.6%	796	42
No award	19.4%	100.0%	1341	-

## General commentary on grade boundaries

- While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.
- Each year SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.
- The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- Where standards are comparable to previous years, similar grade boundaries are maintained.
- An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in say Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.
- SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.