

Principal Assessor Report 2003

Assessment Panel:

Biology

Qualification area

**Subject(s) and Level(s)
Included in this report**

Biology – Intermediate 1

Statistical information: update

Number of entries in 2002	
Pre appeal	629
Post appeal	629

Number of entries in 2003	
Pre appeal	1370
Post appeal	

General comments re entry numbers

The satisfactory increase in the number of entries is most likely the result of this course being offered to candidates in S3/4 as well as in S5. The increased numbers in 2002 reflected this and it is believed that this further significant increase in 2003 is for the same reason. More schools are offering candidates a choice of Intermediate 1 courses in the science area and ceasing to offer Standard Grade Science.

General comments

The increase in the number of candidates, who in the past would have followed the Standard Grade Science course, may explain the change in the nature of the cohort. A change was apparent in 2002 and is even more so in 2003. There is an increase in the proportion of weaker candidates who have been unable to reach the standard required for course certification. These may be candidates who would have performed at Foundation Level.

Grade boundaries at C, B and A for each subject area included in the report

Maximum mark = 75

Grade boundaries expressed as a percentage of mark in brackets

Year	Upper A	A	B	C
2002	63 (84%)	52 (69.3%)	44 (58.7%)	37 (49.3%)
2003	63 (84%)	52 (69.3%)	44 (58.7%)	37 (49.3%)

General commentary on passmarks and grade boundaries

- While SQA aims to set examinations and create mark schemes which will allow a competent candidate to score a minimum 50% of the available marks (notional passmark) and a very well-prepared, very competent candidate to score at least 70%, it is almost impossible to get the standard absolutely on target every year, in every subject and level
- Each year we therefore hold a passmark meeting for each subject at each level where we bring together all the information available (statistical and judgmental). 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 senior management team at SQA
- We adjust the passmark downwards if there is evidence that we have set a slightly more demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- We adjust the passmark upwards if there is evidence that we have set a slightly less demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- Where the standard appears to be very similar to previous years, we maintain similar grade boundaries
- 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 are different. This is also the case for exams set in centres. And just because SQA has altered a boundary in a particular year in say Higher Chemistry 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
- Our main aim is to be fair to candidates across all subjects and all levels and maintain standards across the years, even as syllabuses evolve and change

Comments on grade boundaries for each subject area

The grade boundaries were the same as those used in 2001 and 2002 as it was felt that the paper was of the same standard and that marking quality had been satisfactory.

Comments on candidate performance

General comments

There were more candidates doing very well and gaining Upper Band A, but fewer candidates achieving the standard for Band A. Significantly fewer candidates achieved Band B passes. Although the proportion gaining a C Band was about the same as in 2002, there were more candidates unable to reach the standard required to pass.

Areas of external assessment in which candidates performed well

In Section A candidates performed well in the following areas (based on statistics):

- The blood test to detect leukaemia
- *Recognising the correct presentation of results as a bar chart*
- *Extracting information from a table and drawing a conclusion*
- Recognising the effect of regular exercise on recovery time and resting pulse rate
- Identifying whey as the liquid formed when protein is clotted during cheese making
- Naming the technique illustrated as immobilisation
- Identifying the results of using biological washing powders
- *Extracting information from a graph and identifying the optimum temperature for the washing powder*
- Identifying the food storage area in a seed
- Recognising the conditions for seed germination.

Again it is good to see so many knowledge areas in the above list. The problem solving questions in the list above were demanding questions and so this performance is very satisfactory.

Candidates performed well in the following areas of Section B (based on comments of the markers):

- *Selecting information from a passage and using it to answer questions*
- Health risks associated with smoking cigarettes
- Effects of anorexia on the body
- *Calculating an average*
- *Selecting information from text and using it to complete a table*
- *Completing a bar chart*
- Effects of drinking alcohol
- Naming the growing points of a plant.

It is interesting to note that the majority of the questions in which candidates achieved success came from the same unit – Unit 1: Health and Technology.

Areas of external assessment in which candidates had difficulty

Section A

- *Calculation of percentage increase*
- *Calculation of total volume of air breathed in one minute*
- *Identifying a suitable control*
- *Extracting information from a diagram and identifying the factors under investigation.*

It is interesting to note that these are all questions assessing problem solving and they were questions which had been intended to identify Band A performance.

Section B

In this section good performance was seen in those questions intended to perform to meet the C grade description. The list below contains mainly those areas or skills which were assessed by questions designed to meet the A grade description or those which are known to be more difficult.

Questions relating to Unit 3: Growing Plants, were not done well and simple KU questions were not attempted by many weaker candidates.

- Term to describe the volume of air breathed in or out of the lungs in one normal breath
- Describing the effect of the lack of regular exercise on the strength of the muscles.
- The use of a sphygmomanometer.
- Naming “potting on” as the process shown in a series of diagrams.
- Describing an indication that a plant needs to be potted on.
- Naming capillary matting.
- Naming a substance which can be used to retain water in compost.
- Naming “dead heading” as a process required by an illustrated plant.
- *Describing how to compare the germination of different seeds.*
- Describing the result of a resazurin test on milk
- Explaining why fermentation continues in cask-conditioned beers.

The above list contains predominantly KU questions. Overall problem solving questions were answered well.

Areas of common misunderstanding

Section B

Question 6 – many candidates simply gave the title of the leaflet.

Recommendations

Feedback to centres

There is evidence to show that candidates are improving their skills as a result of the practical work being carried out and that reinforcement and consolidation of knowledge is taking place in Unit 1: Health and Technology. Candidate responses to questions on Unit 3: Growing Plants suggest that perhaps less practical work is being done in this unit.