

## Principal Assessor Report 2003

**Assessment Panel:**

Biology

**Qualification area**

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

Biotechnology — Higher

## Statistical information: update

<b>Number of entries in 2002</b>	
<b>Pre appeal</b>	10
<b>Post appeal</b>	10

<b>Number of entries in 2003</b>	
<b>Pre appeal</b>	23

## General comments re entry numbers

There has been a 56% increase in the number of entries from 2002. This is a very welcome trend, which we hope will continue. The number of presenting centres increased from 2 to 3 with one Further Education College and one Secondary School entering candidates for the first time. One FE college, which presented in 2002, did not enter candidates this year.

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

Maximum mark = 130

Grade boundaries expressed as percentage of mark in brackets

Year	Upper A	A	B	C
2002	110 (84.6%)	91 (70%)	78 (60%)	65 (50%)
2003	110 (84.6%)	91 (70%)	78 (60%)	65 (50%)

### 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 are the same as in 2002.

## Comments on candidate performance

### General comments

The percentage of candidates with no awards gave great cause for concern. The PA and QM carried out an analysis of these scripts, discussed the poor performance of candidates and the possibility of supporting the centres concerned.

### Areas of external assessment in which candidates performed well

Candidates performed most strongly in Section A (multiple choice) with a mean mark of 20.5 out of 30. The mean mark for Sections B and C was 47.9 out of 100.

Section A contained more Unit 1 questions which candidates are generally more comfortable with.

In Section B the overall candidate response was strong in the following areas:

- Structure and function of microbes
- Stages in Gram staining
- DNA electrophoresis
- Fermenters
- Tissue culture
- Experimental question on *Botrytis*
- Graph drawing.

### Areas of external assessment in which candidates had difficulty

In Section B there were several areas which posed difficulties for candidates:

- Questions involving predictions, explanations, giving reasons, comparing trends, describing relationships, calculations
- Embryo cloning and somatic cell cloning
- Transgenic plants
- Production costs.

Section C

These questions proved demanding with the practical question on sterilisation techniques being handled better than the others. This was attempted by the majority of candidates.

The role of blood cells in antibody production was poorly completed.

## **Recommendations**

### **Feedback to centres**

- It is absolutely vital that centres are using the updated Higher Biotechnology arrangements document (Fourth edition- June 2002) for content and clarification of content depth.
- Centres are tending to overestimate candidate performance at all levels.
- More opportunity should be given to develop skills needed to answer extended response questions effectively.
- Unit 2 content seemed to be well understood by the majority of candidates.