

Our ref: MH/TH

6 January 2004

  
SCOTTISH  
QUALIFICATIONS  
AUTHORITY

To:  
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Action by Recipient
Response required
Note and pass on
None – update/information only

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Dear Colleague

**National Qualifications Update – Biology, Human Biology, Biotechnology**

This letter is intended to provide centres with an update on National Qualifications and should be passed to the member of staff responsible for Biology, Human Biology and Biotechnology.

**1 Principal Assessor Reports and Senior Moderator Reports for 2003**

Principal Assessor Reports and Senior Moderator Reports for all NQ courses in Biology are available on the SQA website ([www.sqa.org.uk](http://www.sqa.org.uk)).

The Principal Assessor Reports include details of statistical information on entries; grade boundaries at C, B and A; comments on candidate performance including areas where candidates performed well in the external assessment, where candidates had difficulty with the external assessment and areas of common misunderstanding.

When developing assessments used to provide estimates of candidate performance and evidence for appeals, centres should use this information on grade boundaries with caution together with the information on derived grades and on the success of previous appeals to help inform the determination of their own grade boundaries.

The Dairy Council has expressed concern regarding the references to traces of antibiotics in milk (Q12 of the Standard Grade Biology General paper). As a result, centres are referred to the Dairy Council's 'Yoghurt Factsheet' for information. This advice is outlined in the Standard Grade Biology PA report.

The Senior Moderator Reports include general comments on central moderation and specific issues identified.

Chairman: Sir John Ward CBE  
Chief Executive: Anton Colella BA(Hons), Dip Ed

recognised Scottish Charity number SC 026097

The Senior Moderator report for Standard Grade Practical Abilities raised concern about the use of the practical 'Bursting Plant Cells'. This is one of the recommended practicals for Standard Grade Investigation. However, centres should note that for Standard Grade the context should be in relation to osmosis and not to the chemical nature of the cell membrane.

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The Senior Moderator report on National Qualifications raises concerns about a number of practicals which some centres are carrying out in a way that does not allow all PCs to be demonstrated. Appendix 1 lists the experiments where particular care should be taken.

## **2 Marking Instructions**

The marking instructions for the Biology (Intermediate 1, Intermediate 2, Higher and Advanced Higher Biology) and Higher Human Biology 2003 examinations are available on the SQA website.

## **3 Assessment of Outcome 3 and Investigations**

Centres should note that where candidates are sent to other centres for Outcome 3 practical work and for AH Investigations it is the presenting centre that is responsible for assessment of candidates' work. Arrangements therefore need to be in place to ensure that the presenting centre's teacher/lecturer is present during practical work to meet all internal assessment requirements.

## **4 Revised Arrangements documents**

Centres should note that the current versions of arrangements documents for all Biology, Human Biology and Biotechnology courses are dated June 2002. A hard copy was sent to SQA co-ordinators. Copies can also be downloaded from the SQA website ([www.sqa.org.uk](http://www.sqa.org.uk)).

## **5 Advanced Higher Biology Investigation**

Revised guidance information was sent out to centres in August 2003. The document is also available to download from the SQA website ([www.sqa.org.uk](http://www.sqa.org.uk)).

Centres should note that candidates should not submit the same investigation report for more than one AH course.

## **6 NABs**

SQA has recently posted all NABs on-line and centres can access the secure website via their SQA co-ordinator who can register with the website using a password.

Any comments/errors relating to the existing NABs should be forwarded to Mary Hoey.

**7.1 Advanced Higher Biology**

As from 2005, the structure of the AH examination will change. There will be no change to Section A. Section B will be made up of structured, data handling and extended response questions on the mandatory units and Section C will be structured questions on the optional units.

A revised arrangements document detailing this change to the external assessment specification as well as clarification to depth of treatment of content throughout the course will be issued to centres on CD-ROM by April 2004. A specimen paper illustrating the new exam will be issued to centres before June 2004.

**7.2 Intermediate 2 and Higher Biotechnology**

The changes being made to these courses in order to reduce the internal assessment load for these courses are detailed in Appendix 2 of this letter.

Revised arrangements documents detailing these changes will be issued to centres on CD-ROM by April 2004 (subject to validation).

I hope the contents of this letter are helpful to you. Please do not hesitate to contact me if you need further clarification.

Yours faithfully



Mary Hoey  
Qualifications Manager  
NQ Maths and Science team

**Biology Subject Update Letter (November 2003)**

**Outcome 3 Experiments**

Centres should take care with the following experiments to ensure that the design of experiments is sufficiently complex and generates quantitative data which meets the demands of PC (d).

**Intermediate 2 Biology**

- Demonstrate osmotic effects in model cells
- Demonstrate the specificity of enzymes
- Investigation into changes in body temperature in changing environmental conditions.

**Higher Biology**

- The chemical nature of the plasma membrane
- Extraction and separation of leaf pigments by paper chromatography (ensure that Rf values are included for PC(d))
- Separation of photosynthetic pigments by means of thin layer chromatography (ensure that Rf values are included for PC(d))
- Dehydrogenase activity in yeast (recommend determining the effect of temperature or pH).

**Higher Human Biology**

- Tests for carbohydrates
- Bile salts and lipase activity (recommend investigating concentrations, temperature, pH)
- Testing 'artificial urine' samples (recommend use of standard curve of calculations to identify unknown)
- The serial position effect
- Learning using a finger maze
- The ability of the brain to suppress impulses
- Factors which improve retrieval for long-term memory.

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**Biology Subject Update Letter (November 2003)**

**Changes to Intermediate 2 and Higher Biotechnology (Session 2004/2005)**

**Intermediate 2 Biotechnology**

**National Course Specification**

**Course Details**

No change.

**National Unit Specification:**

**D038 11 The Biology of Micro-organisms**

**Statement of Standards**

Outcome 3: outcome, performance criteria and evidence requirements are being amended.

**Support Notes**

Guidance on Approaches to Assessment for the units includes:  
revised guidance on Outcome 3 is given.

**D039 11 Working with Micro-organisms**

**Statement of Standards**

No change.

**Support Notes**

No change.

**D040 11 Biotechnology Processes**

**Statement of Standards**

Outcome 3: outcome and evidence requirements are being amended.

**Support Notes**

Guidance on Approaches to Assessment for this unit: Additional advice is given for Outcome 2.

## **Higher Biotechnology**

### **National Course Specification Course Details**

Assessment: a section is inserted which clarifies details of the Instruments for Internal Assessment.

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### **National Unit Specification: D041 12 Microbiology**

#### **Statement of Standards**

Outcome 3: outcome, performance criteria and evidence requirements are being amended.

#### **Support Notes**

Guidance on Approaches to Assessment for the units includes:  
revised guidance on Outcome 3 is given.

### **D042 12 Microbiological Techniques**

#### **Statement of Standards**

No change.

#### **Support Notes**

No change.

### **D035 12 Biotechnology**

#### **Statement of Standards**

Outcome 2: outcome and evidence requirements are being amended.

#### **Support Notes**

Additional advice is given in the content and context of the unit.

Guidance on Approaches to Assessment for this unit: Additional advice is given for Outcome 2.