

Our ref: MM/NQ/Jan07

24 January 2007

Directors of Education
SQA Co-ordinators
Biology Assessment Panel Members
Customer Account Managers

**For the attention of all staff responsible for the delivery
of National Qualifications in Biology/Human Biology and Biotechnology**

Action by Recipient
Response required
x Note and pass on
None — update/information only

Contact Name: Margot McKerrell
Direct Line: 0845 213 5509
E-mail: margot.mckerrell@sqa.org.uk

Dear Colleague,

National Qualifications update — Biology, Human Biology and Biotechnology

This letter provides centres with information on developments in National Qualifications in Biology, Human Biology and Biotechnology.

Communication between SQA and practitioners is of high priority and I can be contacted through the e-mail address and the direct phone number noted above, and also via the e-mail link on the Biology, Human Biology or Biotechnology pages of SQA's website (www.sqa.org.uk). The Qualifications Officer is Paula Greenwood and she can be contacted by e-mail (paula.greenwood@sqa.org.uk) or by telephone (0845 213 5512).

1. Principal Assessor reports

The Principal Assessor reports for the 2006 diet of examinations are available on the NQ Biology, Human Biology and Biotechnology subject-specific pages of SQA's website (www.sqa.org.uk).

The Principal Assessor reports contain information on candidate performance, statistical information on candidate entries and grade boundaries, and advice to centres for preparing future candidates.

It is recommended that centres download these reports as they contain information that may be used to inform teaching and learning.

2. Senior Moderator reports

The Senior Moderator reports include information on the moderation events carried out in 2006 and specific issues identified for the following areas:

- ◆ Standard Grade and National Units in Biology, Human Biology and Biotechnology
- ◆ Advanced Higher Biology daybooks

It is recommended that centres download these reports as they contain information on issues regarding internal assessment.

3. Marking instructions

The detailed marking instructions for Biology (Standard Grade, Intermediate 1, Intermediate 2, Higher and Advanced Higher), Higher Human Biology and Biotechnology (Intermediate 2 and Higher) are available to download from the relevant subject-specific pages of SQA's website.

4. Arrangements documents

Centres are advised to ensure that they are using the most current editions of the Arrangements documents. They are available to download from the relevant subject-specific pages of SQA's website. The following is a list of the most current editions and publication dates:

Subject	Edition	Publication date
Biology (Access 3)	Fourth	June 2002
Biology (Intermediate 1)	Fourth	June 2002
Biology (Intermediate 2)	Fourth	June 2002
Biology (Higher)	Fifth	June 2002
Biology (Advanced Higher)	Sixth	January 2006
Biotechnology (Intermediate 2)	Fifth	March 2004
Biotechnology (Higher)	Fifth	March 2004
Human Biology (Higher)	Fifth	June 2002

5. Online Objective Tests for Biotechnology External Assessment

Diet 2006 saw the successful introduction of the first online National Assessment in Biotechnology. Candidates were given the opportunity to sit an onscreen version of Section A (the objective test section) of Intermediate 2 and Higher Biotechnology and to submit their responses directly to SQA. Approximately half of all candidates presented for these examinations made use of this facility. It is anticipated that this opportunity will be available again in 2007 and centres involved will be contacted in due course.

6. **Advanced Higher Biology Investigations**

Candidates undertaking investigations in behaviour and exercise physiology using human participants

SQA has been advised by the British Psychology Society (BPS) that, where an investigation involves human participants, it may be regarded as psychological research. There are ethical principles to be considered when an investigation involves human participants, and it is important to consider the potential risks to participants, especially those under the age of 18. It is the responsibility of the centre to ensure that candidates are aware of the guidelines and the need to observe them.

Centres are therefore advised to become familiar with the documents *The Ethical Principles for Conducting Research with Human Participants (2006)* and *Guidelines for Minimum Standards of Ethical Approval in Psychological Research*, both of which may be downloaded from the BPS website (www.bps.org.uk).

Further information may be found in the document *Higher Psychology Research Investigations (revised February 2005)*, specifically *Part 4: Ethical Guidelines* and *Appendix 1: ATP Guidelines for Students*, which can be downloaded from the NQ Psychology page of SQA's website. (Please note that the majority of this document contains specific guidance for candidates undertaking Higher Psychology which does not apply to Advanced Higher Biology candidates).

Appendix 1 of this letter contains some points that centres may wish to consider when candidates are undertaking investigations using human participants.

7. **Review of NQ Servicing Units**

SQA is currently rationalising and modernising the portfolio of NQ Units, known as servicing Units, which are not component Units of NQ National Courses.

A consultation exercise was undertaken by SQA with centres who currently utilise servicing Units in the cognate areas 140 (Biology/Human Biology) and 141 (Science). As a result of this consultation, some servicing Units, with little or no uptake in the past three years, will be removed from the NQ catalogue as from August 2008. Other Units will be updated in terms of content and/or assessment over the next two to three years. Further consultation was undertaken with the Scottish Wider Access Programme (SWAP) organisations and with Nurse Training Institutions to determine the impact of the removal of servicing Units from the portfolio. The outcome of this consultation was that component Units of National Courses can be used to replace the deleted service Units.

A full list of Units to be removed from the catalogue and a proposed timetable of when Units will be updated is given in Appendix 2 of this letter. Please note that the proposed timetable for the updating of the servicing Units is for guidance only.

8. Progression statistics

Statistics showing the progression of candidates from Standard Grade Biology to Intermediate 1, Intermediate 2 and Higher Biology, based on candidate results in diet 2005, are given in Appendix 3 of this letter. These tables are included for information for centres.

9. Understanding Standards

9.1 Understanding Standards website

The Understanding Standards website (www.understandingstandards.org.uk) is designed specifically for practitioners. A username and password are required to access it, which can be obtained from your SQA Co-ordinator. The website explains the underlying principles of marking assessment evidence and allows teachers and lecturers to develop their skills by applying these principles to marking a selection of candidate responses from recent SQA past papers. The website currently includes interactive marking of Higher Biology candidate responses and has been updated recently to include responses from the 2005 question paper. It is anticipated that Intermediate 2 Biology and Higher Human Biology will be included in the website in the near future. Also being developed is marking guidance for the Advanced Higher Biology Investigation 'daybook' and it is anticipated that this resource will be available on the website by the end of 2007.

9.2 Professional Development Workshop

A Professional Development Workshop on the standards applied to the marking of the Advanced Higher Biology 2006 question paper and the investigation report took place in November 2006 in Edinburgh. This was attended by 60 delegates from across Scotland. SQA extends its thanks to the Principal Assessor and Senior Examiner of Advanced Higher Biology who prepared and delivered the workshop with great success and enthusiasm.

10. Appeals

Centres are advised that an updated and revised edition of the document *Estimates, Absentees and Assessment Appeals: Guidance on evidence requirements (October 2006)* is available on SQA's website and can be downloaded from all subject-specific pages.

Centres are reminded that, when submitting evidence for appeals, the evidence must demonstrate candidate attainment across the whole Course. This applies to all levels of qualifications. Also, a high scoring NAB can be submitted as evidence for an appeal at C grade, but it is not valid evidence to support an appeal for a B grade or an A grade. These require additional evidence assessing the Course A Grade description.

11. Marker recruitment

Teachers and lecturers are invited to apply for marking in the forthcoming diet of examinations. NQ Marker recruitment application forms are available to download

from the NQ Marker section of SQA's website (www.sqa.org.uk). Prospective Markers are advised that three years' experience of presenting candidates in their chosen subject and level is normally required to become a Marker.

12. Review of Biology National Qualifications Courses

A meeting of the Biology Subject Advisory Group took place in November 2006. The group met to discuss the proposals made in 2004/2005 to review Higher Biology, Advanced Higher Biology and Higher Human Biology. It was agreed by the group that further work is needed on the proposed changes before widespread consultation is carried out.

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

Yours sincerely

A handwritten signature in black ink that reads "Margot McKerrell". The signature is written in a cursive style with a large 'M' and 'K'.

Margot McKerrell
Qualifications Manager

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Appendix 1

Points for consideration when undertaking an Advanced Higher Biology Investigation using human participants

- ◆ Be familiar with the British Psychology Society website (www.bps.org.uk).
- ◆ Be familiar with the following documents:
 - The Ethical Principles for Conducting Research with Human Participants* (2006)
http://www.bps.org.uk/downloadfile.cfm?file_uid=5084A882-1143-DFD0-7E6C-F1938A65C242&ext=pdf&restricted=true
 - Guidelines for Minimum Standards of Ethical Approval in Psychological Research*
http://www.bps.org.uk/downloadfile.cfm?file_uid=B0FA9065-1143-DFD0-7EC4-3DEC336C2ADA&ext=pdf&restricted=true
 - Higher Psychology Research Investigations* (revised Feb 2005)
specifically *Part 4: Ethical Guidelines* and *Appendix 1: ATP Guidelines for Students*, which can be downloaded from the NQ Psychology page of SQA's website (www.sqa.org.uk).
- ◆ All research should be considered from the viewpoint of the participants' psychological and physical well-being. This is of particular importance when primary-school age pupils are involved.
- ◆ Socially sensitive research should be avoided (eg topics such as eating disorders).
- ◆ Participants must be made aware of the nature, purpose and, if appropriate, the consequences of the investigation.
- ◆ This allows **informed** consent to be obtained from parents/guardians or head teachers. Records of this should be kept.
- ◆ Investigations involving intentional deception should not be undertaken.
- ◆ Participants should understand that they can withdraw from the investigation at any time and that their data will be destroyed if requested.
- ◆ Information gathered during an investigation must be treated confidentially.
- ◆ Physiological investigations, in particular, may suggest physical problems of which participants are unaware. A strategy should be in place to cope with this (but remember that school equipment may not be very reliable).
- ◆ Inform participants of the outcomes of the research/investigation but be careful of any unintended significance which could be placed on this.

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Appendix 2

Table 1: Units to be deleted from the NQ catalogue from August 2008

Unit Title	Unit Number	Cognate group	Comment
Biochemistry	EB70 13	140	
Biotechnology	EB1G13	140	
Cell Biochemistry	D13M 12	140	
Cellular pathology	DOK2 12	140	
Clinical Microbiology and Immunology	EBEL 13	140	
Enumerating Microorganisms	D13S12	140	
Evolution	EB1J12	140	
Genetics	D13N 12	140	
Growth Limitation and Sterilisation Methods	EA4L 12	140	
Histology	EB3812	140	
Human Physiological Processes	D13K12	140	Lapsed 2005. Has been removed from the 2006/2007 NQ catalogue
Introducing Biotechnology	D13H12	140	
Introducing Microbiological Techniques	EA3M11	140	
Introducing Microscopy and Specimen Preparation	EB3611	140	
Microscopy Techniques	EB3512	140	
Nucleic Acids and Protein Synthesis	D13L 12	140	
Physiological Processes in Animals	D13R12	140	
Plant Physiological Processes	D13P 12		
Risk Assessment and Limitation in Microbiology and Biotechnology	EB1F13	140	
Separating Microorganisms	EA3N12	140	
Techniques in Food Microbiology	DOKL11	140	
Experimental Investigation in Science	ED6W13	141	
Introducing Science	EA4809	141	
Measuring and Recording in Science	EA4910	141	

Table 2: Units to be reviewed from April 2007 until March 2010

Unit title	Unit number	Cognate group	Date for review/comments
Anatomy and Physiology of Animals	E9L1 11	140	2007/2008
Animal Survival Behaviour	EB39 12	140	2007/2008
Causes and Prevention of Disease	D13E 10	140	2007/2008 — Review taking account of developments in SGA Care Intermediate 2 (G5A211)
Human Body Function for Care Support workers: An Introduction	D1CW 10	140	2007/2008
The Human Body	D13F 10	140	2007/2008 — Review taking into account developments in: <ul style="list-style-type: none"> ◆ SGA Intermediate 2 Care (G5A2 11) ◆ SGA Intermediate 2 Hairdressing and Beauty services (G5BR11) ◆ SGA Intermediate 2 Care sport and Leisure (G5BO 11)
Foetal development and Human Growth	EA4J 12	140	2007/2008
Microbiology for Healthcare	DC4H 11	140	2007/2008 — Review with respect to a change of name only so that it can be used as a generic microbiology Unit
Introducing Biological Cells	EB34 11	140	2008/2009 — Review in collaboration with possible Int 1/Int 2 Human Biology development
Introducing Reproduction and Inheritance	D13G 11	140	2008/2009 <ul style="list-style-type: none"> ◆ Review in collaboration with possible Int 1/Int 2 Human Biology development ◆ Review taking into account developments in SGA Care Int 2 (G5A2 11) and in SGA Care H (G5A3 12)
Introducing Microbiology	D13J 11	140	2008/2009 — Review taking into account developments in: <ul style="list-style-type: none"> ◆ SGA Hairdressing and Beauty Services: Beauty Higher (G5BS 12) and Hairdressing Higher (G5BT 12)
Introducing Flowering Plants	EA3H 10	140	2008/2009
Experimental Procedures - Biology	D934 12	140	2009/2010
Experimental Procedures - Science	D937 12	141	2009/2010
Introducing Science Investigation Skills	DORE 10	141	2009/2010 — Review taking into account SGA Hairdressing and Beauty Services Int 2 (G5BR 11)
Science and Technology in Society	DORF 11	141	2009/2010
Science in Context 1	DORD 11	141	2009/2010 — Review taking into account SGA Hairdressing and Beauty Services Int 2 (G5BR 11)
Science in Context 2	D940 11	141	2009/2010 — Review taking into account: <ul style="list-style-type: none"> ◆ SGA Hairdressing and Beauty Services: Beauty Higher (G5BS 12) ◆ SGA Hairdressing and Beauty Services: Hairdressing Higher (G5BT 12)
Science Investigation Skills	D941 11	141	2009/2010 — Review taking into account: <ul style="list-style-type: none"> ◆ SGA Hairdressing and Beauty Services: Beauty Higher (G5BS 12) ◆ SGA Hairdressing and Beauty Services: Hairdressing Higher (G5BT 12)
Science Practical Skills	D942 10	141	2009/2010 — Review taking into account SGA Hairdressing and Beauty Services Int 2 (G5BR 11)

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 Appendix 3

2005 Intermediate 1 Results							
SG Results 2004	A	B	C	Pass	D	No Award	Total
1							
2						1	1
3	8	4		12			12
4	6	7	2	15		1	16
5	4	3	1	8		1	9
6			1	1		3	4
7							
No Award							
Total	18	14	4	36	0	6	42

2005 Intermediate 2 Results							
SG Results 2004	A	B	C	Pass	D	No Award	Total
1	33	16	1	50			50
2	149	333	188	670	25	19	714
3	78	387	594	1,059	244	178	1,481
4	1	19	70	90	67	148	305
5	1		6	7	10	55	72
6					2	8	10
7							
No Award						1	1
Total	262	755	859	1,876	348	409	2,633

2005 Higher Results							
SG Results 2004	A	B	C	Pass	D	No Award	Total
1	1,358	1,148	721	3,227	174	143	3,544
2	41	258	527	826	353	534	1,713
3		5	14	19	30	122	171
4					2	3	5
5							
6							
7							
No Award							
Total	1,399	1,411	1,262	4,072	559	802	5,433