

Our ref: AS/NQ/Mar08

April 2008

To: Directors of Education
Head teachers
SQA Co-ordinators
Customer Support Managers
Principal teachers of Science
Principal teachers of Chemistry

**For the attention of all staff responsible for
the delivery of National Qualifications in Chemistry**

Action by Recipient
Response required
✓ Note and pass on
Note — update/information only

Contact: Andrew Shield at Glasgow
Direct line: 0845 213 5510
E-mail: andrew.shield@sqa.org.uk

Dear Colleague

National Qualifications update — Chemistry

This letter provides centres with information on developments in National Qualifications in Chemistry.

1. Principal Assessor reports

Centres are reminded that the Principal Assessor reports for the 2007 examination diet are available on the NQ Chemistry subject-specific page of SQA's website (www.sqa.org.uk).

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

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

2. Senior Verifier reports

Centres are reminded that the Senior Verifier reports for 2007 moderation events are available on the NQ Chemistry subject-specific page of SQA's website.

The Senior Verifier reports contain important information on issues regarding internal assessment for the following areas:

- ♦ Standard Grade Chemistry
- ♦ National Units in Chemistry

It is recommended that centres download these reports.

3. **Marking instructions**

The detailed marking instructions for the 2007 Chemistry examinations (Standard Grade, Intermediate 1, Intermediate 2, Higher and Advanced Higher) are available on the NQ Chemistry subject-specific page of SQA's website.

It is recommended that centres download these.

I have received a number of requests from centres seeking permission to use these with or issue them to students. Since the documents are readily available on SQA's website and available for students to access them, it is not necessary for centres to seek permission in this way.

4. **Advanced Higher Chemistry Investigation Guidance**

Centres are reminded that revised Investigation Guidance for Candidates is available on the NQ Chemistry subject-specific page of SQA's website. Centres should make sure that candidates have access to this documentation.

Please note that the submission date for the Advanced Higher Investigation reports is 24 April 2008. (Information on submission dates and deadlines can be found via the Operational Help Centre on SQA's website.)

5. **Guide to Assessment in the Sciences**

A binder titled *Guide to Assessment in the Sciences* has been issued to all centres. The binder draws together appropriate information on assessment from the Arrangements documents, National Assessment Bank material (NABs) and update letters for Biology, Human Biology, Biotechnology, Chemistry, and Science. The binder **does not** replace the Arrangements documents and should be used alongside these. It is intended to provide an easy access point for information on assessment and will be particularly useful to faculty heads, newly qualified teachers (NQTs) and teachers presenting more than one Science. Each centre has received three copies. The Guide is also available to download from SQA's website. Any future updates to the Guide will be made electronically.

A limited number of additional copies are available for purchase at £15 plus p&p by contacting SQA's Customer Contact Centre.

6. **Professional Development Workshop**

A Professional Development Workshop on the standards applied to the marking of the 2007 Higher Chemistry question paper took place on 3 November 2007 at Napier University in Edinburgh. Feedback from the teachers attending was very positive and SQA wishes to thank the Principal Assessor and the Higher Chemistry Examiners involved in preparing the materials and delivering a highly successful event.

7. Appeals

A number of issues arising from appeals are worth highlighting.

Firstly, centres are reminded that they should be referring to the detailed guidance contained in the binder *Estimates, Absentees and Assessment Appeals* and the supplementary advice on Standard Grade Appeals which has already been issued to SQA Co-ordinators.

Common failings continue to be:

No evidence from the latter part of the Course — centres are reminded that, at all levels including Standard Grade, there must be evidence covering all Units. This applies to absentee as well as appeals cases. Appeals for Grades A and B must include evidence for the latter part of the Course beyond the level of demand of the NAB.

Cut-off scores set too low for the standard set in the assessment instrument(s) — it is the centre's responsibility to make sure cut-offs are set appropriately. If the assessment instrument is less demanding, for example there are insufficient A Grade questions, or the assessment instruments are split so that they test parts of the Course, then the cut-offs used should be raised. Setting the cut-off scores too low often gives unrealistic estimates and when the examiners judge the evidence they find it is not compelling.

Retention: insufficient tasks/questions requiring knowledge to be retained over an extended period of time — the various models or types of evidence that could be used are given in the Guidance document. Including questions/integration of work from earlier Units in later assessments would often help strengthen the case for an appeal.

The commercially produced paper, used in its entirety, is not the current year's — it was disappointing to see a number of centres not adhering to the guidance on use of commercial papers. Centres are also reminded that SQA do not validate commercially produced papers. It is the responsibility of the centre to check that the assessment instrument sufficiently replicates the Course assessment, is of an appropriate level of demand, balance, etc and that the marking instructions mirror SQA marking standards/mark allocations, etc.

The local authority/consortium paper, used in its entirety, is not the current year's — local authority/consortium papers are subject to the same rules as commercial papers.

A set of questions has been lifted en bloc from a past paper — past paper includes both SQA and commercial sources. Whilst most centres used a minimum of three sources as required, and mix and matched questions (making alterations where possible), there were some who used blocks of questions, eg all/most of the multiple choice questions from one paper, the mini-prelim/additional evidence all from one paper.

Too much of the assessment instrument used is in the public domain — using questions/tasks without modification that candidates are likely to have seen makes the estimate and evidence less reliable (see pages 23 and 25 of the Guidance document). If a proportion of the questions are 'in the public domain' then cut-off scores would

need to be raised significantly to account for this. When centres are compiling their information on sources of questions to submit as part of the appeals evidence, they should include information on where they have modified questions.

Aggregated evidence, in this case, does not justify an upgrade — examiners encountered a number of cases where the centre had not aggregated the evidence submitted, eg prelim and mini-prelim. When the evidence was aggregated the overall level of attainment did not support the grade being appealed for.

Further information on common failings is included in the Guidance document.

8. Access 3/Intermediate 1

As notified previously to SQA Co-ordinators, a system for automatically crediting candidates with an Access 3 Course award when they pass all Units at Intermediate 1 but fail the Intermediate 1 exam was introduced last year. Centres no longer need to submit dual entries, for candidates in this position, to ensure a Course award.

Centres are reminded that where candidates fail to achieve Units at Intermediate 1 level but pass at Access 3, the entry level should be amended for those Units passed at Access 3 (Units passed at Intermediate 1 level should be left at that level). Centres are also reminded that candidates who achieve Units either entirely at Access 3 level or with a mix of Access 3 and Intermediate 1 passes cannot achieve an Intermediate 1 Course award. In this case it is recommended that the Course entry level is altered to Access 3 so that candidates receive a Course award.

9. Higher and Advanced Higher data booklet

Centres are to be issued with a new stock of the Higher and Advanced Higher Chemistry data booklet for the 2008 diet (publication code BB4274). The supply will be for **examination use only**. Centres are advised to update the current version (BB3574), published in January 2007 for classroom use. The amendments required to January 2007 copies are listed in Appendix 1.

SQA Co-ordinators should pass currently held examination stationery stocks of the Higher and Advanced Higher Chemistry data booklet (BB3574) to departments for use in class.

Please note that data booklets for other levels are not affected and centres should retain their current stocks of these for use in the 2008 examination diet and beyond.

At the time of writing, SQA currently has 1,500 copies of the January 2007 version (BB3574) in stock. These will be made available for purchase, through the usual channels, at the reduced price of 50p rather than the current price of £1.50, but centres should be aware that they require the corrections listed in Appendix 1.

10. Multiple-choice question writing

Each year SQA holds multiple-choice question writing events, where teachers are invited to attend a weekend training event (Saturdays), after which they are asked to produce a set number of questions for possible inclusion in the Chemistry Item Bank, from which the examination questions are selected.

Participants are paid for attending the training events and writing the questions. I am seeking to extend the pool of writers we use, so if any Chemistry teacher is interested in becoming involved they should complete the application form in Appendix 3 of the **April 2007 update letter** (available to download from SQA's website) and return it to me. I would ask that applicants give full details of teaching experience including levels taught and the years in which these were taught. Please avoid generalisations such as 'All levels — 1990 onwards'.

You do not need to have worked for SQA as a Marker, Examiner, etc, and new or recent recruits to Chemistry teaching are as welcome to apply as established teachers. I cannot guarantee that everyone who applies will be selected but we will hold your details for events in the future.

11. NABs

An exercise was undertaken last year to add the surround information to all of the NABs. Unfortunately, in the process of adding the information and converting the files to pdf format, a number of errors were introduced. We are currently undertaking a further exercise to identify and correct these errors. Initially amended versions were being posted as they were completed; however this has proved problematical for some centres so the remaining NABs to be corrected will be posted once all the work has been completed. It is also our intention to provide a detailed list of the remaining corrections for centre reference.

Centres were advised at the original time of issuing that it was not necessary to replace their current stocks of NABs, since the exercise was mainly to add the surround information, and this advice continues to apply.

Centres are also reminded that it is permissible to annotate marking instructions for NABs since there are often alternative acceptable answers. If selected for verification, centres should submit a copy of any annotated marking instructions.

12. Markers

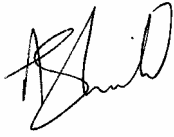
The reserve lists for marking Chemistry examination papers are lengthy and unfortunately this can mean it is some considerable time between applying to become a Marker and actually joining a marking team.

We will, however, be looking for Markers for the Investigation report at Advanced Higher in the future. Anyone interested in being considered for marking the Investigation report should complete a Marker application form. Markers should have three years recent experience of presenting candidates at the appropriate level.

If you have previously applied to become a Marker with SQA your details will already be held on file, but if you had not indicated that you would like to be considered as a Marker for the Investigation reports then you should contact the Marker helpline or complete one of the reserve marker updates which are sent out periodically.

If you are interested in becoming a Marker, please contact our Marker Helpline on 0131-561 6825 or e-mail: markers@sqa.org.uk

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

A handwritten signature in black ink, appearing to read 'ASD', written in a cursive style.

Yours sincerely,

Andrew Shield
Qualifications Manager
NQ Directorate

Appendix 1

Amendments to Higher and Advanced Higher Chemistry data booklet Publication code: BB3574, published January 2007

Page 2

Symbol for Thallium corrected to **Tl**. (currently reads *Ti*)

Electron arrangement for Rubidium corrected to 2,8,18,**8**,1 (currently reads 2,8,18,18,1)

Electron arrangement for Strontium corrected to 2,8,18,**8**,2 (currently reads 2,8,18,18,2)

Page 4

Melting point of Argon corrected to **-189** (currently reads -249)

Page 5

Spelling of **covalent** corrected in the key (currently reads *convalent*)

Page 6

Formula for dinitrogen tetroxide corrected to **N₂O₄** in the table of Melting and Boiling Points of Selected Oxides (currently reads N₂O₂)

Page 12

Units removed from the heading for K_a in the Dissociation Constants of Selected Species (currently reads *mol l⁻¹*, there should be no unit)