

20 December 2004

To: SQA Co-ordinator
Directors of Education
Chemistry Assessment Panel Members
Customer Accounts Managers

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

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

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Dear Colleague

National Qualifications Update – Chemistry

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

1 Principal Assessor Reports for 2004

Principal Assessor Reports and Senior Moderator Reports for all NQ courses in Chemistry are available on the SQA website (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.

2 Senior Moderator Reports for 2004

The Senior Moderator Reports include general comments on central moderation and specific issues identified for the following areas:

- ◆ Standard Grade Chemistry Practical Abilities
- ◆ NQ Acc 3-AH levels Unit Assessment
- ◆ AH Chemistry Investigation (Unit Assessment).

Standard Grade Practical Abilities

I have had a number of enquiries from centres about an entry in the Senior Moderator's Report relating to the Lather/Current/Voltage/Inks types of investigations and the Senior Moderator has supplied the following to clarify the comment.

The following criteria can be applied during a centre's selection of suitable investigations from the 32 starter questions outlined in the TAPS 3 publication; (1993)

1. the starter question must spawn a reasonable number of independent variables
2. the experimental procedure must be relatively simple for pupils (this is why titration was not included in the starter questions)
3. the chemicals used must be reasonably cheap to supply and do not require a great deal of technician input
4. apparatus used should be readily available.

The investigations recommended in 1993 as fulfilling the criteria listed above are:

- a. Current
- b. Exothermic
- c. Inks
- d. Lather
- e. Rusting
- f. Solute
- g. Sulphur
- h. Urease
- i. Voltage

Others worth considering include Electrolysis and Flow.

Inks, Lather and Current each generate 6 or 7 variables so are a popular choice. Current and Voltage have variables in common so are frequently used in tandem. It was not the intention of Moderators to suggest these topics should never be used as the basis of Standard Grade Practical Investigations but, as in previous years, the suggestion was that centres may wish to vary the topics investigated. This is not possible in some centres due to time/cost constraints but different investigations are used in some centres and this point was noted in the Senior Moderators report. Inks, Lather, Current and Voltage are perfectly valid topics for investigation and there is no suggestion that centres would be penalised for using these tried and tested stalwarts.

Some centres have also asked for a copy of the techniques pro forma. A copy of this is enclosed with this letter.

Advanced Higher Investigation

Appendix 1 of this letter contains an extract from the Senior Moderator's Report on the AH Investigations which details additional advice particularly in relation to assessment for Outcome 1- Develop a plan for an investigation.

One purpose of the investigation is to help promote good scientific practice and as such the 'daybook' should form a proper, working scientific document of the investigation undertaken by the candidate.

It is important that candidates appreciate that the 'daybook' or record of work forms the assessment for the unit. The evidence for unit achievement **must** be marked by the responsible teacher/lecturer and internal moderation is desirable, if resources permit. Successful centres had adopted a strategy of either marking on the 'daybook' when PCs had been passed or using the pro-forma provided in the NAB.

Retrospective moderation of the AH Investigation unit will take place in 2005.

Centres must note that candidates cannot submit the same investigation for both AH Chemistry and for AH Biology. Candidates who do so will incur a severe penalty.

3 Marking Instructions

The marking instructions for the Chemistry Intermediate 1, Intermediate 2, Higher and Advanced Higher 2004 examinations are available on the SQA website.

Please note that an anomaly in the marking instructions in the AH Chemistry specimen paper has been brought to my attention. The specimen paper marking instructions includes the use of half marks. Half marks were never used in CSYS Chemistry and have never been used in the external examination for AH Chemistry. Centres should ensure therefore that half marks are not awarded in centre evidence used for appeals purposes.

The AH Chemistry NAB marking instructions do however occasionally indicate that half marks may be awarded. Centres should continue to apply these marking instructions as published.

4 Electronic Marking of Objective Tests

SQA has decided to adopt electronic marking of the objective test sections of examinations. This will be introduced in the 2005 diet of examinations for AH Chemistry, Higher Chemistry, Intermediate 2 Chemistry and Intermediate 1 Chemistry. This step is being introduced as part of SQA's continuing process of improvements and will mean that candidates will use a new format of answer sheet that will include their pre-printed personalised details. Exemplar materials showing the format of the answer sheets and the instructions for use will be distributed to all centres and posted on the SQA website. This will allow both centres and candidates to become familiar with the new format prior to sitting examinations. Further information is available on the SQA website and centres will be kept informed of progress via the 'NQ News' section.

5 Online Marking Materials

SQA has been leading the development of a new website which will explain how external assessments for National Qualifications are marked. This website is designed specifically for teachers/lecturers rather than candidates or parents and its aims are to explain the principles underlying the marking of assessment evidence and to develop, interactively, the user's skills in applying these principles to a selection of candidate responses. The website is scheduled to be launched nationally late in November 2004 with an initial group of around a dozen high-uptake subjects which includes Chemistry. Details of how to access the website can be obtained from your SQA coordinator.

6 Access 3 / Intermediate 1

A number of enquiries have been received relating to entries for Access 3/Intermediate 1 Chemistry. In particular what to do about candidates who have a number of unit passes at Intermediate 1 and a number of units at Access 3, or what to do about a candidate who passes all units at Intermediate 1 but then fails the exam.

Firstly queries regarding entries should normally be made through your SQA coordinator to the CAM (Customer Accounts Manager).

In cases where there is a hierarchy of units, such as between Access 3 and Intermediate 1, candidates can be resultated at either the level above or the level below the one they were originally entered for, on the results submission form. A candidate can therefore be resultated with a mixture of unit passes for different levels (note this does not apply where there is no hierarchy of units). If candidates have been entered for the Intermediate 1 course and they have not passed all the units at that level, the entry should be changed to Access 3.

Deadlines for submissions of entries can be found in the Operational Guide, which can be accessed on-line or from your SQA coordinator. One way round this is to make a dual entry at Access 3 and Intermediate 1 and then withdraw the candidate from one when you know which level they should be entered for, though centres must be aware that they will be charged for each course entry.

In the case of a candidate passing all units at Intermediate 1 and then failing the exam, the candidate will have the unit passes on their certificate, but in order to be credited with the Access 3 cluster they must be re-entered at this level and they would receive an amended certificate at a later date, with no requirement for re-assessment.

7 Appeals

Centres are referred to the SQA publication “**Estimates, Absentees and External Assessment Appeals: guidance on evidence requirements April 2004**”, which contains clear guidance on generating evidence.

Although the success rate for appeals increased for most levels of Chemistry this year, there was still a significant number of centres where the reason for an appeal failing was **incomplete evidence for the course**. It is important that when submitting appeals, the evidence demonstrates candidate attainment across the whole course; this is the case for Standard Grade as well as for National Qualifications at Intermediate 1 to AH levels. Centres are reminded that for an appeal for a grade C a **high scoring** NAB may be submitted as additional evidence, but this is not valid evidence to support an appeal at A or B where additional evidence assessing the course A grade description is required.

Centres are also reminded that only the current year’s commercial papers can be used in their entirety and there is an important caveat that centres must check the standard of these before using them. SQA does not validate commercially produced papers in any way. Unfortunately a significant number of centres did not follow the advice on use of commercial papers this year.

The above document indicates that when compiling a prelim a minimum of three sources of past papers should be used and that questions should preferably be adapted. This applies to SQA past papers as well as past commercially produced papers.

Centres should note that use of questions which are in the specimen paper will affect the reliability of assessment.

It has been noted that some centres use the same prelim every year and it must be recognised that this entails a security risk and therefore affects the reliability of the evidence generated.

Centres should note that sets of questions or a complete section of questions (eg all of Section A) should not be lifted from any one source of past paper.

In setting cut-off scores for prelims, some centres do not take account of the fact that the prelim only covers part of the course and may include some questions which the candidates may have seen before. It is advisable that cut-off scores which are higher than those used in the national examination are applied.

Centres should also take care in the selection of questions in the additional evidence ie that assessment which focuses on those aspects of the course not covered by the prelim. In some cases, there was unacceptable overlap in aspects assessed in the additional test and in the prelim. Some centres offer a second prelim later in the year which covers all three units. While this has the laudable aim of demonstrating performance across the course, it can result in insufficient evidence of performance in the third unit across the package of evidence presented for appeal.

Some centres do not re-evaluate candidates' estimates after the assessment of the later part of the course. Centres should aggregate performance across the prelim and the additional evidence to determine the standard demonstrated. Centres should apply a realistic weighting to the different components; this will vary depending on the model used to generate the additional evidence.

Marking caused a problem in some centres with some evidence being submitted which was not marked and in other cases marking was lenient resulting in over-estimation of performance. In particular, some centres use half marks in the marking of grid questions in Standard Grade Chemistry.

Centres should carefully consider the appropriateness of appeals for candidates who perform close to grade boundaries. Such borderline performance is unlikely to result in a successful appeal.

8 Review of Chemistry National Qualifications Courses

The Scottish Executive Ministerial response to the 3–18 Curriculum Review was published on 1 November 2004. The response stated:

‘A cycle of continuous updating and reform of the curriculum across all areas of learning will begin immediately, starting with the science curriculum 3–18’.

This will require a fresh look at the NQ Chemistry (Access 3 to Advanced Higher) proposals that went out for consultation earlier this year. A Chemistry Subject Advisory Group has been set up to consider the responses to this consultation and to further develop proposals for reviewing these courses. The work of the group is already underway and centres will be kept informed of progress via the update letters and the SQA website. Further consultation will take place in due course.

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

A handwritten signature in black ink that reads "Mary Hoey". The signature is written in a cursive style with a large, looping 'M' and 'H'.

Mary Hoey
Qualifications Manager
NQ Maths and Science Team