



## NQ Verification 2015–16 Key Messages Round 1

01

### Section 1: Verification group information

Verification group name:	Chemistry
Verification event/visiting information	Event
Date published:	March 2016

#### National Courses/Units verified:

National 3, National 4, National 5, Higher and Advanced Higher Units

02

### Section 2: Comments on assessment

#### Assessment approaches

Almost all centres verified are using the Unit assessment support packs produced by SQA with a few using prior-verified assessments. Most centres are using the Unit-by-Unit approach with some using the combined approach. At Advanced Higher both package 1 and 2 are Unit-by-Unit approach. The majority of centres submitted evidence for Outcome 2.

Some centres are not using the most recent Unit assessment support packs. The most recent Unit assessment support packs should be used and are available from SQA's secure site. When using the most recent Unit assessment support packs the marking guidance for assessing Assessment Standards 2.1 and 2.2 has been revised from previous versions, centres should therefore refer only to the marking guidance in the most recent Unit assessment support packs.

When a centre accepts responses other than those in the marking guidance there should be annotations to the marking guidance to reflect the additional correct responses. Some centres had made annotations to the marking guidance which was helpful. However, in a few cases the additional responses recorded on the marking guidance were incorrect. Centres should therefore ensure that any additional responses added to the marking guidance are appropriate.

Centres should ensure that assessment instruments used for re-assessment are not too similar to those in the first attempt. When questions are used in the re-assessment that are similar to those used in the first attempt, the level of demand is not equivalent in the re-assessment to that in the initial assessment since candidates would be familiar with the questions.

## **Assessment judgements**

On the vast majority of candidate evidence submitted there were clear annotations where the Assessment Standards had been achieved. The majority of assessment judgements were accurate and reliable. In particular, assessment judgements were more reliable at National 3, 4 and 5. Most centres submitted candidate record sheets to record the assessment decisions which aided the external verification process.

### **Outcome 1**

Only a few centres chosen for verification submitted candidate evidence for Outcome 1. Assessment judgements for Outcome 1 were found to be less reliable than those for Outcome 2. Centres are reminded that in assessing Outcome 1 it is vital that the judging evidence tables contained in the Unit assessment support packs are used to ensure that all aspects of a particular Assessment Standard have been addressed. When selecting an experiment to carry out and assess Outcome 1, centres should ensure that the experiment draws on knowledge and understanding from a key area of the course at that particular level. For example, if an experiment involves rates of reaction then average rate should be calculated if at National 5 level rather than just recording mass changes and plotting a graph.

When assessing Assessment Standard 1.1 at National 3, centres should include assessor comments recording that candidates have been seen to follow procedures safely. Comments could be recorded on an observation checklist. When assessing Assessment Standard 1.5 at National 3, it is essential that candidates give an appropriate point in evaluating which relates to the experiment. Comments relating to behaviour and/or following instructions are not sufficient to achieve the Assessment Standard.

When assessing Assessment Standard 1.2 at National 4, National 5 and Higher, centres should include an assessor checklist to record that candidates have been observed to follow procedures safely. Several centres submitted candidate evidence with an overview record sheet stating Assessment Standard 1.2 had been achieved but with no annotations or checklist to show clearly the basis on which assessment judgements had been made. Centres are encouraged to make use of observation checklists with appropriate comments.

When assessing Assessment Standard 1.3 at National 4, National 5 and Higher, candidates must include raw data. When performing a titration raw data must include the initial and final burette volume. Colour changes at the end point of a titration should be taken as observations and should also be recorded with the raw data.

When completing an Outcome 1 report it is important that candidates are encouraged to make sure that all tabulated results have the correct headings and units and these must be repeated and averaged. The mean values should then be used on any graph resulting from the data.

## **Outcome 2**

When centres are making assessment decisions at National 5, Higher and Advanced Higher, they should consider the appropriate General Marking Principles which can be found in the published Finalised Marking Instructions for each level.

When assessing the Nature's Chemistry Unit at National 5 and Higher or the Organic Chemistry and Instrumental Analysis Unit at Advanced Higher, candidates are often required to draw full structural formulae or name compounds. Centres are reminded, as stated in the General Marking Principles, that the misuse of punctuation when naming compounds should not be a reason not to award a correct response. For some questions it is essential when naming particular compounds that the full systematic name is given as per the marking guidance. For example if candidates are required to state the name of a propanol molecule a correct response would incorporate a number '1' or '2' depending on the particular isomer. When candidates are required to draw a full structural formula with a branch or functional group such as a hydroxyl group a correct response would show the chemical bonds correctly connected. For example, where a correct response for a question requires a methyl branch to be joined to a carbon chain a bond drawn to 'H3' rather than 'C' would be an incorrect response.

Where a particular question requires units to be included in the answer, the units must be correct. When the units are given in the question, for example 'state the energy released, in  $\text{kJ mol}^{-1}$ ', a correct response would not require units but if a candidate included incorrect units this would be regarded as an incorrect response.

When assessing the Chemical Changes and Structure Unit at Higher using the Unit assessment support pack Unit-by-Unit approach, package 1 — questions 1, 6 and 7 were found to be poorly assessed with assessment decisions not always being reliable. A correct response for question 1 would include the term 'successful' when referring to an increase in the number of collisions. A correct response for question 6 must include both the type of bonding and the structure. The word 'covalent' with no indication of network would not be sufficient for a correct response. In answering question 7 candidates must clearly describe that when graphite sublimes covalent bonds are broken or when fullerene sublimes only weak intermolecular forces or London dispersion forces are broken.

Rigorous, accurate and consistent application of a marking guidance is essential in assessing Outcome 2. This can be facilitated by effective internal verification procedures within a centre.

Centres are encouraged to check the addition of correct responses when assessing Assessment Standard 2.1. Addition errors when totalling the number of correct responses resulted in a few instances of candidates being wrongly assessed as having achieved or not achieved the Assessment Standard.

It is also important that assessors record clearly on the candidate evidence where they decide that an Assessment Standard has been achieved. This would aid the internal verification of the candidate assessment and eventually the external verification process. It is also important that the centre applies the internal verification procedures and clearly demonstrates what the final decision is after any disagreement with the original assessor.

03

### **Section 3: General comments**

This session in Round 1, centres were either selected for verification in Chemistry for Units at National 3, 4 and 5 or for Units at Higher and Advanced Higher. The vast majority of centres were found to be using a valid approach and made reliable assessment decisions.

Some centres submitted candidate evidence for more than one Unit at a particular level. Centres are only required to submit candidate evidence for one Unit, for example if a centre was submitting evidence for Higher Chemistry for Assessment Standard 2.1 the assessment for Chemical Changes and Structure would be sufficient. There is no requirement to submit the evidence for Assessment Standard 2.1 for Nature's Chemistry as well. A centre is free to choose which Unit to submit candidate evidence for at each level. It must choose the same Unit for all candidates at any one level, but it can choose different Units for different levels.

When assessing Assessment Standard 2.2, centres should ensure that questions are assigned correctly. On several occasions centres had wrongly assigned or recorded which questions were processing and which were predicting. Many centres have clearly indicated on assessments which type of problem solving skill is being assessed. A few centres had wrongly assigned the various problem skills either on the assessment or on the candidate record sheets. All centres are advised to ensure that problem solving skills are correctly assigned.

Almost all centres submitted candidate evidence which had been internally verified. For external verification purposes, evidence should be supplied to demonstrate the internal verification process, not only in the provision of a centre/department policy but on the effective use of the policy on the candidates' work.

It is important that centres record clear assessment decisions both on the candidate scripts and on an appropriate recording sheet to allow both internal and external verification to be carried out effectively. During the internal verification process it is vital that the verifier's markings are clearly visible and any final decision, especially where there was a difference of opinion, is made clear. For some evidence submitted, it was not clear what the final decision was.