



NQ Verification 2014–15

Key Messages Round 2

01

Section 1: Verification group information

Verification group name:	Chemistry
Verification event/visiting information	Event and visiting
Date published:	June 2015

National Courses/Units verified:

H21M 74 Chemistry Assignment (National 4) Added Value Unit
H4KK 76 Researching Chemistry (Higher)

02

Section 2: Comments on assessment

Assessment approaches

H21M 74 Chemistry Assignment (National 4) Added Value Unit

Outcome 1 should relate clearly to a key area from one of the other three Units of the Course. It is important that the activity used is at the appropriate level for the Course, the topic and activity should be suitable to allow the Assessment Standards to be met and care should be taken not to set too difficult an activity for Unit assessment. For the evidence for this Unit, it would be of benefit if centres marked on candidate scripts where an Assessment Standard, or any part of an Assessment Standard, is achieved as this would aid both internal and external verification.

Assessment Standard 1.1 must relate to a key area from any of the Units covered within the Course and at the appropriate National 4 level being studied. It is important that candidates select an application that can demonstrate chemistry theory and explain how this application has an effect on society or the environment. Evidence for this Assessment Standard is likely to be produced during Stage 1: the research stage of the assignment and may be found in a candidate's log or journal. Supplementary evidence may be through observation and/or supplementary questioning.

For Assessment Standard 1.2, the candidate must produce evidence of the use of a minimum of two sources for the research stage. Information/data could be selected or collected from the internet, books, newspapers, journals, publications, practical activity or any other appropriate source. Only one of the sources of information or data may be from a practical activity carried out by the candidate. These two relevant sources of information/data should be recorded in such a way that they could be retrieved by a third party (there is no need to follow a formal referencing system). If one of the sources is an experiment/practical activity, then the title and the aim of the experiment should be recorded. Evidence for this Assessment Standard is likely to be produced during Stage 1: the research stage of the assignment and may be found in a candidate's log or journal. The information gathered for this Assessment Standard must be appropriate and sufficient to progress to Stage 2: the communication stage of the assignment.

Assessment Standard 1.3 requires one of the original sources of data to be presented in a different and appropriate format. The presentation of information/data must be in a suitable format, eg a diagram, flowchart, table, graph, chart, key, summary or other appropriate format. This must include the correct use of title, labels and units where appropriate, and be sufficient to convey the information/data. Candidates should not be penalised if there are only minor omissions/errors to the presentation and there is sufficient detail to convey the information/data.

For Assessment Standard 1.4, the candidate is required to explain the impact the chosen topic has on the environment or society, in terms of appropriate chemistry. The impact can be either positive or negative but must be backed-up with chemistry theory and make some reference to the candidate's processed data/information.

Assessment Standard 1.5 is where the candidate brings all the Unit work together and communicates the overall findings in an appropriate way. This includes a clear aim and a final evaluation of the evidence presented by the candidate. Most of the centres selected for verification used the standard scientific report to convey the relevant information/findings however a few centres used posters or PowerPoint presentation for this assessment.

H4KK 76 Researching Chemistry (Higher)

There are two Outcomes for this Unit — Outcome 1: Literature research and Outcome 2: Practical research. Assessors should ensure that any evidence submitted is each candidate's own work.

The topic must draw on one or more of the key areas of Higher Chemistry and candidates may be given questions relating to relevant background information or chemical theory that is unfamiliar to candidates, to help direct their research.

Outcome 1: Literature research

For Assessment Standard 1.1, Candidates should make a clear statement describing their research topic. This should use Higher Chemistry terms and

ideas that demonstrate a clear understanding of the topic. Candidates should ensure they make a record of the sources they use with enough detail so that they could be retrieved by a third party. Candidates may do some research outwith school but assessors must monitor progress to ensure it is each candidate's own work.

Outcome 2 Research Stage 2.1

There are two Assessment Standards for the research stage —
2.1 Planning/designing the practical investigation, including safety measures and
2.2 Carrying out the practical investigation safely, recording detailed observations/measurements and results correctly. Candidates can work in groups to do the planning and experiment but candidates must individually meet the evidence requirements of Outcome 2. Assessors should record on a checklist that candidates have followed procedures safely. Evidence should include a plan of the practical investigation and a record of the observations/measurements made including labels and units.

Assessment judgements

H21M 74 Chemistry Assignment (National 4) Added Value Unit

Assessment Standard 1.1 was well assessed by all centres with the identification of an area of chemistry clearly shown with justification for the choice at the beginning of the candidates' work. All topics, within the evidence submitted by centres, clearly linked to a key area of the National 4 Chemistry Course as required.

Some centres incorrectly recorded a candidate as not having achieved Assessment Standard 1.2 if the candidate did not include a title and aim as a reference for a practical investigation, even though they had also included two other valid referenced sources that could be retrieved by a third party. In these cases, the Assessment Standard had been achieved by the candidate giving two other sources and so they should have been recorded as having achieved Assessment Standard 1.2. For this Assessment Standard it is important that any source website addresses are given in full to allow the data to be checked with the minimum requirement for the assessor to search for it. For verification purposes, the centre should include the candidate's log book in the verification sample and this should include the relevant data/information from the sources they have researched.

For Assessment Standard 1.3, when presenting appropriate information on a graph, major and minor grid lines should be present in order to enable the checking of the accuracy of the processing. If a graph is used as a source of data to be processed into another form it must also contain major and minor grid lines for the same reason. The units and headings on a table of results must be correct as is the need to have correct labels and units on a graph. Where appropriate, it is also important to mark the origin on the graph.

To achieve Assessment Standard 1.4, candidates must explain about the impact(s) on society/environment using relevant chemistry and they must make reference to the processed data they have presented. A few centres incorrectly recorded candidates as having achieved Assessment Standard 1.4 when they had given insufficient chemistry or had not related the issue(s) to the processed data using chemistry at the appropriate level.

Candidates do not need an overall conclusion to achieve Assessment Standard 1.5, they need only sum up ideas, issues or findings; but when they present data they do need to make conclusions from that.

H4KK 76 Researching Chemistry (Higher)

In order for Assessment Standard 1.1 to be achieved there needs to be sufficient chemistry and candidates need to show a clear understanding of the chemistry, using terms and ideas correctly and at an appropriate level for Higher. This should include equations for reactions, explanations of relevant chemistry ideas and terms such as intermolecular bonding, chemistry of functional groups etc. Some centres had interpreted 'statement' as meaning a sentence (or two); at Higher level the statement should have sufficient chemistry for the candidate to clearly demonstrate their understanding of the topic, and may well run to several paragraphs or even a number of pages.

For Assessment Standard 2.1, candidates should state a clear aim for the practical experiment. They are also required to include a detailed description of how the practical research investigation should be carried out with appropriate safety considerations. The method can be a print out or photocopy. The plan should include experiments to be carried out, the apparatus and materials required and any relevant points that are required to ensure consistency and a 'fair' experiment. If candidates are working in groups this should also include individual roles and responsibilities for all members of the group. Centres should ensure that all candidates include a clear description of the measurements which will be made during the practical investigation and any observations that should be recorded.

For Assessment Standard 2.2, there should be evidence, such as a check list, to show that the candidate was involved in the practical work and worked safely. Candidates should record raw data, including observations in the 'day book'. Experiments should be repeated when appropriate to do so. When titration experiments are performed, candidates should have concordant titres and burette readings should be recorded to the appropriate level of precision.

03

Section 3: General comments

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. However, a good number of centres made it clear where candidates had achieved each Assessment Standard and where verification took place.

Centres are reminded that, as part of SQA processes for a centre to be authorised to present candidates for a Course, an effective internal verification process is in place. This allows the centre to check that each candidate is given the same opportunities and that the standards being applied by one member of staff are the same as other staff in that centre. For external verification purposes, it is important that evidence is supplied to demonstrate this internal verification.