



NQ Verification 2015–16 Key Message Reports

Verification group name:	Mathematics
Levels	N3 – Advanced Higher
Date published:	October 2016

This Report combines all Verification Key Messages for the academic session 2015-2016.



NQ Verification 2015–16 Key Messages Round 1

01

Section 1: Verification group information

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

National Courses/Units verified:

Mathematics — National 4, National 5, Higher and Advanced Higher

Lifeskills Mathematics — National 3, National 4 and National 5

Advanced Higher Statistics

Mathematics of Mechanics

02

Section 2: Comments on assessment

Assessment approaches

The vast majority of centres used SQA assessment support packs. At National 3, National 4 and National 5 level, a Unit-by-Unit approach to assessment was favoured in both Mathematics and Lifeskills Mathematics. For Higher and Advanced Higher Mathematics, assessment by Assessment Standard was favoured, often making use of questions from SQA Unit assessment support packs. For Advanced Higher Statistics and Mathematics of Mechanics, most centres took a Unit-by-Unit approach.

Where centres that are externally verified make amendments to either the assessment or marking guidance and judging evidence table, then these changes should be submitted along with the candidate evidence.

In Mathematics, centres were judging the evidence at Assessment Standard level — ie where all the relevant subskills are assessed and a candidate demonstrates a pass if they achieve at least half of the marks for each Assessment Standard for National 4 and National 5, and more than half marks at Higher and Advanced Higher.

In Advanced Higher Statistics, all the verified assessment judgements were from the Data Analysis and Modelling Unit or Outcome 1 of the Statistical Inference Unit.

Centres are reminded that they can use either the Assessment Standard approach or subskills approach in Higher and Advanced Higher and that using both methods with particular candidates may avoid a re-assessment.

In Lifeskills Mathematics, some centres used Pack 2 as the favoured approach with Pack 1 being used for resits if necessary. Using a threshold approach was the most popular mechanism of demonstrating whether a candidate achieved a pass for an Outcome.

In Numeracy, using a threshold approach was the most popular mechanism of demonstrating whether a candidate achieved a pass for an Outcome. However, centres must be vigilant that if a candidate does not reach the threshold for an Outcome, then perhaps they could still achieve a pass by assessing the individual Assessment Standards. When using this approach, only three marks for units can count towards the threshold — one for money, one for time and one for measure.

The threshold approach can only be used for an Outcome not across a Unit.

Centres are reminded that candidates may pass using either a threshold method at Outcome level or passing each individual Assessment Standard. Centres should use the approach that is most favourable for the candidate.

Re-assessments

Mathematics

For Higher and Advanced Higher, most centres are making use of questions from other Unit assessment support packs to create re-assessments. For all centre-produced assessments, centres should make use of the Unit Specification to ensure that all the sub-skills are fully covered.

Outcome 1

For Outcome 1 questions, contexts are not always applicable so 'changing the numbers' may be the only option (eg factorising a sum of terms with a numerical common factor). However, if the original question was, for example, a sine rule question where the angle was asked for, then the re-assessment should ask for the side instead. Where a context exists, then it should be changed for any re-assessment.

Outcome 2

For this Outcome, re-assessment of either Assessment Standard should be attached to a different sub-skill from that used in the original assessment or a different strategy/context should be used.

For all centre-produced assessments, centres should make use of the Unit Specification to ensure that all areas of content are covered.

Lifeskills Mathematics

Where possible, the contexts should be changed, eg if initial assessment is time management in the context of cooking then the re-assessment could be time management in the context of planning a journey.

Numeracy

Re-assessment of Assessment Standard 1.2 must cover all items mentioned in the judging evidence table.

When making re-assessments for Numeracy, centres need to ensure that a different context is used and that the questions cover the required Assessment Standards especially 1.4 and 1.5. There are multiple assessments available for Numeracy at National 4.

Assessment judgements

The majority of centres made reliable decisions across the assessments submitted.

03

Section 3: General comments

There were many examples of excellent marking, where a tick or cross was evident for every mark.

There were positive examples of cross-marking and other evidence of effective internal verification. In a few cases where there was a discrepancy between the assessor and the verifier it was unclear what the final judgement was. While this may not affect the candidate within the verification sample, the final decision made by the centre may have an impact on other candidates and so final decisions should be recorded and shared with the other assessors in the centre.

Care needs to be taken when transferring marks from candidates' scripts to judging evidence tables. In one case, a candidate did not achieve the pass they were entitled to. These tables should also be updated after internal verification has taken place to ensure that the final judgements recorded are accurate and reliable.

The following issues were identified with marking:

- ◆ The most common mistake in marking is the lack of follow-through marking. Where a candidate has made a mistake, the subsequent marking must be checked to see if further marks can be awarded according to the marking guidance.
Working subsequent to an error must be followed through, with possible full marks for the subsequent working, provided that the level of difficulty involved is approximately similar.

- ◆ Where the units required in the answer differ from those given in the question, the final mark should only be given if the candidate's answer includes the correct units. The omission of units should only be penalised once in any assessment opportunity.
- ◆ In general, if an answer requires rounding, then the unrounded answer must be stated first.
- ◆ Candidates may use any mathematically correct method to answer questions except in cases where a particular method is specified or excluded.
- ◆ In general, as a consequence of an error perceived to be trivial, casual or insignificant, eg $6 \times 6 = 12$, candidates lose the opportunity of gaining a mark.
- ◆ Where a transcription error (paper to script or within script) occurs, the candidate should normally lose the opportunity to be awarded the next process mark.
- ◆ When making any assessment judgement, assessors should allow for minor rounding errors if these do not affect the demonstration of the mathematical skill being assessed.

More information on marking can be found in the [Mathematics Marking Guidance](#) document which is published on the Mathematics pages of SQA's website.

Centres are also reminded to read previous Verification Key Messages Reports from [2013–14](#) and [2014–15](#) and to use the [Understanding Standards materials](#) to support the assessment process.

When submitting candidate evidence for verification, centres are reminded that the evidence should be complete for at least a full Assessment Standard. It should be clear that an assessment judgement has been made by the centre and information on how these judgements were made should also be included. If a centre does not have the evidence required they should contact NQ Verification to discuss how to proceed.



NQ Verification 2015–16 Key Messages Round 2

01

Section 1: Verification group information

Verification group name:	Mathematics
Verification event/visiting information	Event
Date published:	June 2016

National Courses/Units verified:

H22H 74	Mathematics Test (National 4) added value unit
H228 74	Lifeskills Mathematics Test (National 4) added value unit
H95Y 46	Statistics

02

Section 2: Comments on assessment

Assessment approaches

There were still a number of centres providing evidence which was based on the old version of the unit specification. Centres must ensure they make use of a unit assessment which meets the current unit specification. Centres should use the latest versions of all SQA assessment support packs, or refer to these in the construction of new assessments. In particular, additional notes have been added to marking instructions to assist assessors in making decisions.

Mathematics added value

Most centres chose to use SQA assessment support packs; some centres made appropriate minor alterations by replacing some questions with others carefully selected from *Mathematics Test (National 4) Added Value Unit — additional questions*.

Re-assessments, where seen, were mainly constructed using questions from *Mathematics Test (National 4) Added Value Unit — additional questions*.

Some centres chose to construct a test using questions from a range of sources (SQA assessment support pack, *Mathematics Test (National 4) Added Value Unit — additional questions*, Standard Grade General past papers, Intermediate 1 past papers and original questions).

When a test is constructed it must:

- ◆ be presented as a test consisting of two parts: part one (non-calculator) and part two (calculator allowed)
- ◆ consist of questions drawn from the list of the skills described in the bullet point lists in the evidence requirements of the added value unit specification for National 4 Mathematics
- ◆ cover a range of skills from all three of the component units
- ◆ have between 43 and 47 marks (paper 1: 14–16 marks, paper 2: 29–31 marks) to include 7 to 9 mathematical reasoning marks between the two papers

The questions in each part of the test can be presented in any order. Decisions about the order of the questions may depend on the question length, level of challenge and the amount of working required by the candidate.

Centres are strongly encouraged to submit their own assessments to SQA for prior verification so they can be confident that their assessments meet the national standard.

Centres may find the [National 4 Mathematics Added Value Unit Analysis Grid](#) helpful.

Lifeskills added value

Most centres chose to use the SQA assessment support packs; some centres made appropriate minor alterations by replacing some questions with others carefully selected from *Lifeskills Mathematics Test (National 4) Added Value Unit — additional questions*.

Re-assessments, where seen, were constructed using questions from *Lifeskills Mathematics Test (National 4) Added Value Unit — additional questions*.

Centres may find the [National 4 Lifeskills Mathematics Added Value Unit Analysis Grid](#) helpful.

Statistics

All centres were making use of the latest version of the unit assessment support pack for Statistics.

Assessment judgements

Mathematics added value

The majority of centres made reliable judgements.

Centres are reminded that care should be taken in transferring marks to record grids and in the totalling of these marks.

Lifeskills Mathematics added value

The majority of centres made reliable judgements.

In money calculations, candidates must not give their answer to one decimal place. Where this occurs the final mark is not usually available.

Statistics

A number of centres had annotated their marking instructions with additional notes to ensure that consistent decisions were being made across the cohort.

Some centres provided additional feedback on the questions and marking instructions, explaining where they felt additional clarification would be helpful and this will feed into a revised version of the UASP which will be published in August 2016.

For outcome 2, candidates who created a report which included the charts and tables within the answers to the questions were more consistently marked by centres. Where candidate responses appeared in supplementary tables and graphs on additional pages, there were some examples of marks being awarded twice or not being awarded at all.

Some centres provided evidence where annotations were made on the record sheet by both the assessor and internal verifier. These gave a clear overview of the final assessment judgements. Such samples were very consistently judged.

Centres should encourage candidates to proof-read their typed solutions to outcome 2 to ensure that any typographical errors are not significant — eg in the typing of specific data points.

03

Section 3: General comments

Centres should use latest versions of all SQA assessment support packs, or refer to these in the construction of new assessments.

There were many examples of excellent marking and internal verification. However, some centres did not make final marking decisions clear in the event of disagreements between the assessor and the internal verifier. Once a final decision has been made, this should be shared with other centre staff.

Centre staff are reminded that all centres offering SQA qualifications must have an effective internal quality assurance system in place which ensures that all candidates are assessed accurately, fairly and consistently to national standards. Centres can refer to the Internal Verification Toolkit available here: www.sqa.org.uk/IVtoolkit

Some centres are not consistently applying follow-through marking. Where a candidate has made an error, subsequent working must be checked to see if further marks can be awarded according to the marking instructions. On some occasions, this resulted in candidates with deserving responses being recorded as 'not achieved'.

It was not always clear to see which marks had been awarded. Centres are encouraged to show clearly where marks have been awarded to candidates in accordance with the marking instructions.

Some centres did not take appropriate care when marking questions involving scatter graphs and line of best fit. All points must be carefully checked for accuracy. A line of best fit must be drawn as a single straight line. Candidates should be reminded that a line of best fit may not pass through the origin.

Where there is a mark specifically given for rounding, the unrounded answer must be given first, so the assessor can be confident that correct rounding has taken place.

When comparing fractions, eg in probability questions, candidates should be given credit for using any appropriate method (equivalent fractions, decimals or percentages).