



NQ Verification 2016–17 Key Messages Round 1

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Section 1: Verification group information

Verification group name:	Mathematics
Verification event/visiting information	Event
Date published:	March 2017

National Courses/Units verified:

Mathematics — National 4, National 5, Higher and Advanced Higher
Lifeskills Mathematics — National 3, National 4 and National 5
Mathematics of Mechanics

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Section 2: Comments on assessment

Assessment approaches

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

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

Where centres have adopted a portfolio approach to gathering evidence during the course of learning and teaching, the following should be noted:

- ◆ A clear description of how evidence for individual assessment standards has been judged is required.
- ◆ The instruments of assessment must be secure and not publically available.
- ◆ Assessments must be carried out under controlled conditions and there should be no doubt about the level of support given.

In **Mathematics**, most centres were reducing workload by judging the evidence using an overall unit threshold rather than judging by individual assessment standard.

Thresholds are set as follows:

- ◆ For Numeracy Unit at National 4 — 60% for outcome 1 and 60% for outcome 2.
- ◆ For Mathematics at National 4, National 5 and Higher — 60% for outcomes 1 and 2 combined.
- ◆ For Mathematics, Mathematics of Mechanics, and Statistics at Advanced Higher — 60% for outcome 1.

In **Lifeskills Mathematics**, some centres used pack 2 as the favoured approach with pack 1 being used for re-sits if necessary. Using a threshold approach was the most popular mechanism of demonstrating whether a candidate achieved a pass for an outcome.

Thresholds are set as follows:

- ◆ For Lifeskills Mathematics and Numeracy Units — 60% for outcome 1 and 60% for outcome 2.

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.

Re-assessments

When using a threshold to judge evidence, if a candidate has not met the threshold, assessors must not replace individual questions or groups of questions in an attempt to 'top up' the evidence so that the threshold can be met. A complete re-assessment should be completed, or the centre could judge evidence at assessment standard level.

For all centre-produced assessments, centres should make use of the unit specification to ensure that all the sub-skills are fully covered.

Mathematics

For Higher and Advanced Higher, most centres are making use of questions from other unit assessment support packs to create re-assessments.

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, in the re-assessment, ask for the side instead. Where a context exists, then for any re-assessment the context should be changed.

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 use a different strategy/context.

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. If devising a unit-by-unit re-assessment for Lifeskills, centre should make use of the unit specification to ensure that all areas of content are covered.

Numeracy

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.

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Section 3: General comments

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

Assessments which included cover pages which showed the marks available for each assessment standard/outcome and the decisions reached were effective and removed the need for a separate record of achievement. Care needs to be taken when transferring marks from candidates' scripts to judging evidence tables. In several cases, candidates 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.

Most centres had effective systems of internal verification in place. In some cases, where the assessor and internal verifier disagreed, the final decision was

not clear. In a few cases the internal verification merely 'rubber-stamped' the initial marking and was not effective.

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.
- ◆ Candidates may use any mathematically correct method to answer questions except in cases where a particular method is specified or excluded.
- ◆ 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.
- ◆ A line of best fit should be a single straight line of appropriate gradient which includes the complete range of data given in the question.

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

Centres should make use of the most up to date versions of SQA assessments.

The following **changes** should be noted by centres using older versions of the unit assessment support packs.

Quadratics at National 5

When determining the nature of the roots of a quadratic, the expected candidate responses are:

For $b^2 - 4ac > 0$: 'two real and distinct roots'

For $b^2 - 4ac = 0$: 'one repeated real root' or 'two equal real roots'

For $b^2 - 4ac < 0$: 'no real roots'

Trigonometry at National 5

For candidates who incorrectly use RAD or GRAD on their calculator with or without working, full marks cannot be achieved.

Straight line at Higher

Candidates will be expected to remove brackets and collect any constant terms as part of their final answer, eg $y - 4 = 3(x - 5)$ should be simplified to $y = 3x - 11$ or equivalent.

Centres are also reminded to read previous Key Messages Reports from [2013–14](#), [2014–15](#) and [2015–16](#) 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 the judgement was made should also be included. If a centre does not have the evidence required, they should contact the NQ Verification Team to discuss how to proceed.