



**Higher National Qualifications
Internal Assessment Report 2015
Mathematics and Statistics**

The purpose of this report is to provide feedback to centres on verification in Higher National Qualifications in this subject.

Higher National units

General comments

In total, the HN Mathematics and Statistics verification group (142) visited 12 sites in the UK and two international centres (not including China centres). External verification covered a total of 12 subjects at three different SCQF levels.

The Chinese verification activities are detailed in a China-specific report.

In general, the centres visited were found to have a clear and accurate understanding of the national standards for assessment, although some centres deviated from the national standard. Some of the issues arising, both good practice and areas for improvement, are highlighted later in this report.

Unit specifications, instruments of assessment and exemplification materials

The assessors were generally conversant with the unit specifications and exemplification material. In cases where centres had written new assessments, they either followed the pattern of the exemplification in the SQA assessment support packs (ASPs), or submitted material for prior verification. Centres are reminded that, for Mathematics and Statistics assessments, the assessment support packs represent examples of the assessments, and we recommend that centres write their own versions of assessments to suit the nature of the programme in which the unit is embedded.

Evidence requirements

In general, the centres and assessors were meeting all evidence requirements for units. In a few cases assessments were found which did not cover the evidence requirements of the unit specifications correctly, but these issues were resolved in all cases.

Administration of assessments

Most centres visited appeared to be gathering evidence in accordance with the specification requirements (that is, closed-book assessments were being conducted as closed book, etc). In most cases the marking schemes were followed correctly, and consequently assessment decisions were correct.

Internal verification, where applied, appeared to be generally sound across the centres visited, although selection criteria for internal verification varied from centre to centre.

General feedback

In general, centres were providing good feedback to candidates, either through a review of the original assessment paper, or by detailed feedback reports.

Candidates interviewed on the verification visits indicated that they felt that access to assessment, conduct of assessments, and feedback were satisfactory.

Areas of good practice

Many areas of good practice were identified in the course of the visits.

Context

Many centres have contextualised assessments to suit the course of study and to meet the needs of the candidates. This gives the candidates a greater sense of ownership of the subject, as it is possible for them to see how Mathematics relates to their own chosen field in a readily accessible way.

Pre-printed assessment papers

Centres are increasingly preparing assessment papers with spaces for student responses (including pre-printed graph paper, etc as required) making marking and verification easier.

Marking consistency

Marking was generally clear, and of a high standard.

Record keeping

Result record keeping was found to be of a high standard, and material presented for verification was well organised, with class summary sheets.

Digital storage of assessment material

Some units require electronic submissions (particularly using Excel or computer algebra packages). Centres are storing these on computer, rather than printing them for storage.

Feedback

Feedback to candidates was of a generally high level. Centres either used feedback forms, or annotated papers with feedback for discussion with the candidates.

Prior verification

Centres have been submitting newly devised assessments for prior verification. The centres thus have confidence that the assessments are valid. Many centres have agreed to make their prior verified assessments available to other centres through the SQA secure site. Such sharing creates a bank of examples of different assessments, and makes possible sector-wide sharing of approaches and contexts.

Internal verification and cross-marking

Internal verification was generally a satisfactory standard, with good planning and detailed records. Some centres were routinely cross-marking candidate evidence when the mark came near the threshold for achievement.

Standardisation

Records of standardisation meeting were well kept and clear.

Entry requirements

Centres took care to recruit candidates who had the relevant prior knowledge to undertake the Mathematics part of their course.

Candidate support

Students at several centres commented very positively on the teaching and learning experience and the level of support available. Many candidates commented on the consistency and fairness of approach at their centre.

Specific areas for improvement

Some areas of improvement were identified:

Standardisation meetings

Some centres did not produce evidence of standardisation meetings. Centres are reminded to review assessments, marking schemes and approaches on a regular basis, and to keep records of these meetings, as evidence for this is required. Note that in colleges with more than one campus, it is particularly important to make sure that all assessors and verifiers are working to the same standard. Cases have been found where assessors at one campus were accepting responses that assessors at another would not have accepted. Assessments from one campus should be internally verified at another to provide consistency.

Dissemination of external verification reports

Verification reports and other SQA information should be disseminated to the relevant staff within a centre. Some centres failed to pass on to responsible staff information about previous verification visits, and their recommendations.

Internal verification in small centres

In cases where a centre has only a single assessor for Mathematics, the centre must ensure that steps are taken to internally verify assessment evidence. Some centres arrange for suitably qualified staff in other academic areas to undertake the internal verification, others have made arrangements with local schools or other colleges to do this. If in doubt about this, please contact SQA.

Marking clarity

Some marking schemes were found to be unclear (usually insufficient breakdown of marks in each question). Marks should be awarded consistently in line with general SQA marking practice. In cases where a marker is unsure about how a mark should be allocated, advice from another assessor or the cognate lead for the area should be sought. In cases where there is genuine ambiguity in the marking scheme, this should be clarified and documented.

Some assessment support packs contain assessments with ambiguous marking schemes. Centres are asked to alter the marking schemes to make the allocation of marks unambiguous in their own assessments.

Care should be taken when marking to show where marks are awarded, and the totals should also be shown clearly. SQA recommends the use of our general marking symbols, which can be obtained from the website. Marking allocation should be clear, whether a mark is awarded or not.

Note that half marks should not be used.

Marks for numeracy

Marks should be awarded for the particular knowledge and skills being tested. Marks can be awarded for numerical accuracy in an answer, but these should be kept to a modest level. A few unit specifications imply that marks need not be deducted for numerical errors, but errors in numeracy should be penalised where they occur.

Working shown and implicit marks

Marks should normally be awarded only where working is shown. In algebraic 'short' steps, marks can be awarded implicitly, but it should be made clear on the marking scheme when this is possible. Extended pieces of work must show working.

Follow-through marking

Some centres did not award follow-through marks. In cases where an error is made, subsequent marks should still be awarded where appropriate. In general, an error should be penalised only once, unless the working is eased subsequently.

Clarity of wording

The wording of some questions was found to be ambiguous or unnecessarily complicated. Care should be taken to minimise uncertainty when preparing assessment instruments, and it should be clear to the candidate exactly what is required to obtain the available marks. Marks should not be awarded for processes not asked in the question (unless the context makes this obvious). Assessment writers should remember that some candidates may not have English as a first language, and unnecessarily complicated wording should be avoided.

Use of assessment support packs (exemplars)

Centres using assessment support packs from the secure site as assessments for Mathematics and Statistics should consider writing their own assessment for both initial and re-sit assessment. If many centres use the same assessment, then this creates issues about the integrity of the assessment. An increasing number of prior verified assessments are available on the SQA secure website. Centres writing their own assessments should ensure that all performance criteria are met.

Use of formulae and instruction sheets

Centres may provide formulae sheets where appropriate. Many ASPs contain formula sheets. The formulae sheets should collate required formulae, but they should not be presented in a way which explains how to apply them, or leads candidates through the problems. Only formulae at the correct SCQF level should be included. Calculator instruction sheets should not be used for closed-book assessments.

Similarity of alternative instruments of assessment

Alternative instruments of assessment should be of a similar standard, but should be sufficiently different from each other that candidates will not be able to predict the content of the assessment. Question order could be changed from one assessment instrument to the next. In cases where performance criteria are sampled, different samples should be selected in different assessment instruments.

Remediation not permitted

Some candidates who had failed to meet the required threshold for a pass were given the opportunity to remediate (or 'fix') an error in the original paper. Very few units in VG142 allow for any form of remediation. In cases where the assessment is by exam, a candidate who fails to meet the required threshold or performance criteria in the first attempt of an assessment should re-sit the entire outcome using a different instrument of assessment unless the unit specification, ASP, or prior verified assessment indicates otherwise. In some cognate areas a candidate who obtains a mark of, say, 40% is given the chance to remediate assessments up to the threshold of 60%. This does not apply to Mathematics and Statistics assessments. In cases where assessment is by project or report submission then correction and resubmission would be appropriate. Note that third attempts at assessments should be permitted in exceptional circumstances only.

Internal verification

Some centres did not provide evidence of internal verification processes. Evidence of internal verification must be produced for an external verification visit. Centres are recommended to internally verify units selected for external verification prior to a verification visit.

A wide range of internal verification selection strategies were used, including random sampling. Deliberately selecting assessment papers at or near the threshold for a pass is recommended to prevent errors in assessment decisions being made. In cases where systematic errors in assessment practice or marking are found (for example, where some aspect of the assessment is being performed incorrectly), then all assessments in the group should be checked, re-marked or re-assessed accordingly.

Where internal verification has taken place, the verifier should re-mark the paper in a different colour of ink (green, for example), with discrepancies noted and resolved.

Assessment material availability

In cases where a candidate has attempted an assessment and made a re-sit attempt, all pieces of assessment evidence should be made available for verification.

Higher National graded units

There were no graded units verified in the HN Mathematics and Statistics (142) area.

SVQ awards

There were no SVQ awards verified in the HN Mathematics and Statistics (142) area.