NQ verification 2022–23 round 2

Qualification verification summary report

Section 1: verification group information

Verification group name:	**Physics**
Verification activity:	**Event**
Date published:	**June 2023**

National Units verified

Unit code	Unit level	Unit title
H256 74	SCQF level 4	Physics: Electricity and Energy
H258 74	SCQF level 4	Physics: Dynamics and Space
H25A 74	SCQF level 4	Physics: Waves and Radiation
J26L 75	SCQF level 5	Physics: Electricity and Energy
J2CK 75	SCQF level 5	Physics: Dynamics and Space
J2CL 75	SCQF level 5	Physics: Waves and Radiation
J20A 76	SCQF level 6	Physics: Electricity
J20B 76	SCQF level 6	Physics: Our Dynamic Universe
J20C 76	SCQF level 6	Physics: Particles and Waves
J2B6 77	SCQF level 7	Physics: Rotational Motion and Astrophysics
J2B8 77	SCQF level 7	Physics: Electromagnetism

Section 2: comments on assessment

Assessment approaches

Most centres have followed the advice given in previous verification summary reports and are now using the holistic assessment packs, Outcome 2: Assessment activity 2 – test 1 or test 2 to assess their candidates. These tests have marks allocated and a cut-off score, and are marked according to the Physics: general marking principles. For each unit, there are two tests available on the SQA Secure site.

Centres that used these tests had far fewer issues at verification than those that attempted to use the original unit assessment support (UAS) packs.

A very small number of centres used the original unit-by-unit UAS packs to assess their candidates, using the original 'atomistic' approach of assessing each assessment standard (AS) independently and assessing each problem-solving skill independently. Using this approach, candidates must answer at least 50% of the questions testing AS 2.1 (making accurate statements) correctly **across the key areas** of the unit to pass this assessment standard. Candidates do not have to answer at least 50% of the accurate statement questions correctly for every key area. To pass AS 2.2 (solving problems), candidates must pass all of the problem-solving skills individually. As the evidence for problem-solving skills is transferable across units, centres can use evidence generated in one unit to provide evidence for the other units. Evidence for AS 2.1 is not transferable between units. One or two centres using this approach indicated that their candidates had evidence for AS 2.2 in a different unit but did not include that evidence in their verification sample. However, most of the centres that followed the original 'atomistic' approach did so successfully.

A very small number of centres used the original unit-by-unit UAS packs but attempted to use them as single holistic assessment instruments.

Some of these centres had allocated 1 mark to every question, including the problem-solving questions, and then applied a 50% cut-off to the total. This is not a valid approach, as it is not one of the two options outlined either in the UAS packs or the unit specifications.

One or two centres had allocated marks to questions, including allocating 3 marks to calculations as instructed in the UAS packs. However, these centres had not followed the instructions that to use the original UAS packs in this way, they must adapt them by either adding or replacing questions, in particular with physics calculation questions. As detailed in previous verification summary reports, using the original UAS packs without following the instructions on adaptation is not a valid approach.

To use the original UAS packs with marks and a 50% cut-off score, centres **must** adapt them by adding additional 'standard 3-mark calculation' type questions that assess processing.

We strongly advise centres to change to using the current holistic outcome 2 assessments provided by SQA, as most centres have done, rather than attempting to use the original UAS package 1: unit-by-unit approach as a holistic assessment. The original UAS packs should be used only where a centre is following the original 'atomistic' assessment approach.

Assessment judgements

Where centres used the newer Outcome 2: Assessment activity 2 – test 1 or test 2 holistic assessments, almost all assessment judgements were accurate and reliable. There were a few instances where centres had not applied the Physics: general marking principles accurately. In these instances, centres tended to be lenient in their application of the marking instructions.

Where centres used the original 'atomistic' UAS package 1: unit-by-unit approach, assessment judgements were accurate and reliable.

Where centres had attempted to use the original UAS package 1: unit-by-unit approach as a holistic assessment without following the instructions on how to adapt them (by adding

calculation-based questions and allocating 3 marks to these), as the assessment approach was not valid, the assessment judgements could not be classed as reliable.

A few particular issues with marking are worth highlighting.

Unless a quantity is dimensionless or being entered into a table that includes a unit in the column heading, candidates should always include a unit in their final answer. A few centres were awarding marks to final answers even though the candidate had not included a unit.

Where a calculation follows on from a 'show' question, candidates must use the value they were asked to show in the previous part in the subsequent calculation. A few centres were awarding marks where a candidate had determined an incorrect value for the show question and then used the incorrect value in the subsequent calculation. Centres should treat this as incorrect substitution (Issue 16 — Physics: general marking principles).

A small number of centres applied the marking instructions leniently, and accepted answers that lacked specificity or 'filled in the gaps' in a candidate response. Assessors must not adopt an approach of 'I know what they mean' and extrapolate from candidate responses. They must mark only what the candidate has written.

Verifiers encountered two particular examples of this type of marking during the verification process:

- Some centres accepted 'cancer' as a hazard from UV rather than 'skin cancer'. Cancer, on its own, is not specific enough for centres to award the mark.
- Some centres accepted 'to see broken bones' rather than 'detecting broken bones' or 'producing an image of broken bones'. The question asks for a use of X-rays (as part of the electromagnet spectrum) rather than a use of X-ray images or X-ray photographs. As human eyes cannot detect X-rays, 'to see broken bones' lacks the necessary accuracy to be considered an accurate statement.

Most centres employed an internal verification process to validate the centre decisions. However, not all centres recorded the final decision for any disagreements between the assessor and the internal verifier. Centres must make final assessment decisions clear and include evidence of professional dialogue between the assessor and internal verifier in those cases.

Section 3: general comments

Most centres submitted the original candidate evidence for verification. However, a few centres submitted photocopies, which made the verification process more difficult. In particular, it was often impossible to tell which marks or annotations were the assessor's and which were the internal verifier's, or what the final decision was in cases of disagreement between the two. Centres must submit the original evidence produced by candidates to SQA, rather than photocopies. Where centres are uploading evidence digitally, the scans should be in colour so that verifiers can distinguish between the assessor's and internal verifier's annotations.

Centres are still not sure about the proper use of ‘interim’ or ‘complete’ evidence for the type of evidence being sent for verification. Centres should mark the evidence as ‘complete’ when a full unit has been assessed, even if the candidate has not passed the unit at that stage. It is the centre’s judgements on the evidence submitted that are being verified, rather than the candidate’s final result. Where the evidence shows that a candidate has failed a unit, the centre may still re-assess them after the verification event and change the decision, should the candidate subsequently pass the re-assessment. Centres should mark the evidence as ‘interim’ only when they have not completed the assessment for a unit, for example, when there is still an outcome or an AS to be assessed.

Although centres in the verification sample were accepting alternative answers to questions, none had adapted the marking instructions to include these responses. Centres should annotate the marking guidance wherever necessary to allow consistency of marking between different assessors in the same centre. Any adaptations must be correct physics and follow the Physics: general marking principles.

There were a small number of instances where candidates had been allowed to or asked to amend or add to their answers to some questions after the assessment was completed. Where a candidate’s writing means that the response can’t be interpreted, it may be appropriate to ask them to clarify what they have written. However, where the candidate’s response to a question is readable, it is never appropriate to ask them or direct them to review, amend or add to that response.

Some centres tended to be lenient in their marking of borderline pass/fail candidates. It is important that the same national standard is applied to all candidates in all centres.

A small number of centres sent in evidence for more than one unit per candidate, even for holistic assessments. Where centres have used a holistic approach to assessment (preferably one of the Outcome 2 Activity 2 tests), they should send evidence for a single unit for each candidate. Where centres are following the original atomistic approach to UAS package 1 unit-by-unit approach, evidence for a single unit should be included unless the candidate has evidenced the problem-solving skills for AS 2.2 in different units. In that case, centres should include all of the appropriate evidence from across the units to support their assessment decisions. Centres should ensure they identify where the evidence for each AS and each problem-solving skill is within the overall evidence supplied for each candidate.