



NQ Verification 2014–15

Key Messages Round 1

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Section 1: Verification group information

Verification group name:	Physics
Verification event/visiting information	Event and visiting
Date published:	March 2015

National Courses/Units verified:

Physics (National 3, National 4, National 5 and Higher) Unit assessments

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Section 2: Comments on assessment

Assessment approaches

Centres should make sure that they are using the most up-to-date version of the Unit assessment support packs and that they provide appropriately assessed evidence that matches the requirements of the Assessment Standards.

The level of the assessment instrument selected by the centre to assess Outcome 1 should be at the appropriate level for the Course being taken by the candidate. The activity chosen for Outcome 1 should have a clear link to a key area of the Unit being assessed and the structure of the report should follow the advice provided within the Unit assessment support pack.

For all Outcomes, it would be of benefit if centres marked on the candidate scripts where an Assessment Standard is achieved as this would aid both internal and external verification.

All centres used the assessment instruments supplied in the Unit assessment support packs, from the original draft versions to the most up-to-date version.

All centres selected for verification this time followed the process of assessing the minimum of a single key area for Assessment Standard 2.1 and did not divide it up into smaller sections, even when the portfolio approach was being used.

It should be noted that when a question requires a value to be given as the response then a unit is also required for the response to be correct. The unit is not required only where the answer is written into a table of results where the units are in the column heading, or where the quantity is dimensionless, eg refractive index.

Candidates should be given the opportunity to make accurate statements for all the key areas of each Unit. If a candidate needs to be re-assessed for 2.1 then there are two possible approaches to re-assessment. The candidate could be given another test covering all of the key areas within a Unit and if they get 50% or more of the responses correct they would pass 2.1. Alternatively, the centre could analyse the candidate's performance in each key area in the first test and then re-assess the candidate on those key areas in which they performed poorly (taken to be less than half the opportunities correct). In the second example, the candidate would pass if they scored 50% or more of this re-assessment. You would not add the original assessment and the re-assessment together and apply a 50% threshold.

To illustrate this second point, suppose a test for Assessment Standard 2.1 covered a Unit with four key areas and the number of questions in each key area was 1, 4, 4, and 3 respectively. In the test, the candidate scored 1/1, 1/4, 2/4 and 1/3, so they scored 5/12 and therefore they have not passed Assessment Standard 2.1 for the Unit. The centre could then choose to re-assess this candidate on the second and fourth key areas. If the centre re-assessment for this candidate consisted of, for example, three questions on each of these two key areas and the candidate scored 3/6 in this re-assessment, they have passed Assessment Standard 2.1.

All centres who sent in evidence for Assessment Standards 2.2 and 2.3 made sure that it linked to an appropriate key area within the Unit and level being studied. All candidates selected an application that demonstrated physics theory and explained how the application had an effect on society or the environment. It was clear that both Assessment Standards were being assessed through the use of a single situation to allow the physics theory to be linked to the application and its effect.

The Unit-by-Unit approach was applied by the majority of the centres selected for round 1 to assess Assessment Standards 2.1 and 2.4 and the use of the investigation topics suggested in the Unit assessment support pack for Assessment Standards 2.2 and 2.3.

Assessment judgements

Outcome 1 requires the candidates to demonstrate experimental/practical skills through practical experimentation. It is usual to allow candidates to demonstrate all the Assessment Standards required through the use of a single experimental/practical investigation. If this does not allow all the Assessment Standards to be successfully achieved then it is possible to split the six Assessment Standards into independent assessments.

Assessment standard 1.1 should **not** be split up into smaller assessment items, eg at National 5, and Higher, all six pieces of evidence for Assessment Standard 1.1 should be achieved in one single plan for an experimental procedure. Where a candidate does not pass AS1.1 because of one of the six pieces of evidence either being incorrect or missing then it is appropriate to allow the candidate to redraft the response. Alternatively, the candidate may produce a plan for a different experiment/investigation in which all six pieces of evidence are present and correct.

It is important that centres select an experimental procedure/practical investigation that can cover all Assessment Standards though full participation by the candidate rather than selecting an activity that results in some standards requiring to be covered separately later. An example of this is in the use of simulated radioactivity experiments where the candidate only record values from a computer simulation so cannot evaluate the procedure effectively.

Candidates should be supported in making a clear aim at the start of the experimental/practical technique to allow an effective conclusion to be made in connection with the stated aim.

During the process of planning an investigation it is not necessary for the candidates to make explicit statements indicating the dependent and independent variable as long as it is clear what is going to be altered and how and what is going to be measured and how. The description of the procedure to be carried should be clear and in sufficient detail to allow it to be carried out by another person with no need for additional information.

For Assessment Standard 1.4 at National 4, National 5 or Higher, or Assessment Standard 1.3 at National 3, candidates should be encouraged to draw a valid graph where the results/aim clearly demonstrate that this is appropriate. This gives the candidates two opportunities to achieve this Assessment Standard as the table of results or the graph can be used and the achievement of half of the opportunities to demonstrate the Assessment Standard applies. The units and headings of the table of results must be correct as is the need to have correct labels and units on the graph. It is also important to mark the origin on the graph, where required, as per the general marking instructions.

It is important that assessors record on the candidates' scripts where they decide that an Assessment Standard is achieved. This would aid the internal verification of the candidate work and eventually the external process.

For a candidate to pass Assessment Standard 2.1, the minimum requirement is that half the responses must be correct across the whole Unit for each assessment instrument used. It is also important that detailed marking instructions are used, and annotated if/where appropriate when the centre accepts an alternative answer from those suggested. It is also important that an assessment grid is produced to show which key areas are being covered by each question to demonstrate the number of opportunities per key area the candidates are given.

It is important that centres note that it is half of the opportunities to make correct statements that cover the Assessment Standard and not half of the responses for each key area. This means that some key areas might not be 'passed' but the candidate can still have passed Assessment Standard 2.1. Some of the assessment items have been split into two parts to help the candidate meet the minimum competence for the Unit award, but the answers to the two are required for one response, so centres should take care to mark this clearly on the marking scheme and the candidate evidence. A few centres counted these as two separate responses which could advantage some candidates but disadvantage others.

When the portfolio approach is used the achievement of 50% of the statements being made for Assessment Standard 2.1 still applies and should be checked at the end of the Unit when summing up of the successful responses is made and checked against the total number of opportunities given to make accurate statements.

To pass Assessment Standard 2.4 it is important that evidence exists for successful achievement of each problem solving type associated with the level of study: three types for National 3 and National 4 and four types for National 5. Again the candidate must get at least half of the opportunities correct for each of the problem solving type questions to demonstrate successful achievement of that type of skill. This also applies to the three problem solving types at Higher.

The use of a recording grid for this Assessment Standard would make it clear when a candidate has achieved that skill.

For Assessment Standards 2.2 and 2.3 at National 3, National 4 and National 5, it is important that the candidates include sufficient physics knowledge at the appropriate level of study.

The majority of centres recorded clear assessment decisions both on the candidate scripts and on an appropriate recording sheet to allow verification to be made. During the internal verification process it is vital that the verifiers' markings are clearly visible and any final decision where any difference of opinion is made is clearly marked.

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

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Section 3: General comments

In the achievement of Outcome 1 it is possible for the candidates to get the same set of results as others in the group as they can carry out any practical/experimental work in groups. When it comes to the write-up it is important that the rest of the evidence for the Assessment Standard is the individual candidate's work and not a joint planning or final report.

It should also be noted that it is possible to get candidates to redraft the final reports where they have not passed particular Assessment Standards. Candidates can be given appropriate feedback to help focus the redraft but care should be taken not to give model answers or prompts that give an inappropriate amount of guidance. For example, identifying to a candidate that they have omitted the units from a table of results for Assessment Standard 1.4 is acceptable but telling the candidate what the unit should be would not be appropriate.

Centres are reminded that as part of the SQA processes for a centre to be authorised to present candidates for a Course, an effective internal verification process must be in place. This allows the centre to check that each candidate is given the same opportunities and that the standards being applied in by one member of staff are the same as other staff in that centre. During external verification it is important that evidence is supplied to demonstrate this internal verification process, not only in the provision of a school/department policy but on the effective use of the policy on the candidates' work.

When a centre is selected for external verification it should only submit one Unit for each level being verified, ie if National 4 and National 5 are being sent then one Unit for the candidates at National 4 and one for the candidates at National 5 should be submitted for verification. It is also important that if only one Assessment Standard is being submitted for verification but the evidence contains some evidence for another Assessment Standard, then the centre must make it clear what evidence should be verified. For example, a centre submits evidence for an end of Unit assessment that covers both Assessment Standard 2.1 and 2.2 at Higher but only the Assessment Standard 2.1 has been submitted for verification, perhaps because final assessment decisions have not yet been made on the evidence for AS2.2, then the centre should make this clear within their submission for verification. Some centres did not do this and had indicated an overall pass for a student, even though the evidence showed that only AS2.1 had been achieved.