



# Qualification Verification Summary Report

## NQ Verification 2018–19

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### Section 1: Verification group information

Verification group name:	Biology
Verification event/visiting information	Event/visiting
Date published:	June 2019

#### National Courses/Units verified:

H207 73	National 3	Cell Biology
H20A 74	National 4	Biology Assignment — added value unit
H207 74	National 4	Cell Biology
H208 74	National 4	Biology: Multicellular Organisms
H209 74	National 4	Biology: Life on Earth
H207 75	SCQF level 5	Biology: Cell Biology
H208 75	SCQF level 5	Biology: Multicellular Organisms
H209 75	SCQF level 5	Biology: Life on Earth
H4KD 76	SCQF level 6	Biology: DNA and the Genome
H4KE 76	SCQF level 6	Biology: Metabolism and Survival
H4L8 76	SCQF level 6	Human Biology: Human Cells
H7W5 77	Advanced Higher	Biology: Cells and Proteins
H7W7 77	Advanced Higher	Investigative Biology

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### Section 2: Comments on assessment

#### Assessment approaches

Most centres used the published unit assessment support packs (UASPs) which meant that there were generally few problems concerning the approach to assessment.

However, a small number of centres used older versions of the unit assessment support packs. Centres are reminded to use the most up-to-date versions and corresponding marking guidance.

**Outcome 1: The candidate will apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of the unit to carry out an experiment/practical investigation.**

Some centres which indicated that the candidate evidence submitted was complete did not provide an outcome 1 report for their candidates. Centres are reminded that complete evidence must include evidence for both outcome 1 and outcome 2 and candidates cannot be awarded a pass for a unit until a pass has been achieved for **both** outcomes. Centre staff are reminded that evidence of outcome 1 is transferable between freestanding units at the same level.

**SCQF levels 3–6**

*Assessment standard 1.1*

There is still evidence of centres not providing opportunities for candidates to meet the planning aspect of assessment standard 1.1. Some reports suggested that all candidates from a class had been provided with both the protocol and materials to carry out an experiment/practical investigation, with no evidence to suggest that they had been individually involved in the planning of the investigation. This means that they could not meet assessment standard 1.1. Centres are reminded that candidates must be given the opportunity to meet all of the assessment standards for this outcome. Centres are therefore expected to ensure that contexts that allow active planning by all candidates are chosen for investigations.

Some candidates provided aims that were unclear and therefore were unable to draw suitable conclusions. In addition to this, some candidates provided dependent variables that were not appropriate to the aim and/or did not include all controlled variables that could affect the results.

*Assessment standard 1.2*

All centres recorded that candidates had followed safety procedures safely on an observation checklist. Centres are reminded that, whilst candidates are not required to discuss safety as part of their outcome 1 report, including assessor comments as part of the checklist is an example of good practice.

*Assessment standard 1.4*

The majority of candidates presented their raw data in both table and graph format. Centres are reminded that tables require headings that adequately reflect the data. Candidates must also include the units for their data. When presenting the data in a graph, the labels must match those included as table headings. Where the table headings are inadequate, centres can accept labels which are an improvement at this stage.

**Advanced Higher Biology**

The achievement of outcome 1 in either of the units: *Biology: Cells and Proteins* and *Biology: Organisms and Evolution* cannot be used as evidence of the achievement of outcome 1 in the *Investigative Biology* unit of the course. However, the achievement of outcome 1 in the *Investigative Biology* unit can be

used as evidence of the achievement of outcome 1 in the other two units of the course; there is no requirement to match assessment standards.

Most centres used a pilot study to meet the assessment standards for this outcome within the *Investigative Biology* unit; others used the initial stages of their Advanced Higher project. This was in the form of either a written report or a daybook. In some instances these were used together as a means of providing the evidence to meet all of the assessment standards.

#### *Assessment standard 1.3*

Centres are reminded that this assessment standard encompasses the ethical issues relevant to the investigation. Investigations that involve the use of micro-organisms must include some comment on the ethical issues around their use. Where there are no ethical issues related to the investigation, the candidate must state this within their evidence.

#### *Assessment standard 1.4*

Some centres misinterpreted the guidelines for making assessment judgements for assessment standard 1.4 in the *Investigative Biology* unit. Centres are reminded that this assessment standard has three separate requirements. Candidates must firstly record their observations/measurements in a planned and organised way. Candidates must then discuss the measuring devices used (or should have been used) providing detail of the method used to collect measurements with accuracy and precision. Candidates must finally demonstrate that the precision and accuracy of their results has been considered.

### **Outcome 2: Draw on knowledge and understanding of the key areas of this unit and apply scientific skills.**

Most centres used the unit-by-unit approach to assess outcome 2 for SCQF levels 3–6, using a single test with marks and a cut-off score. Centres applied the appropriate threshold of 50% or more of the **total** marks available in a single unit to achieve a pass for this outcome.

Some centres used a portfolio approach to assess outcome 2 for SCQF levels 3–6. When using a portfolio approach, candidates must achieve 50% of the marks available for assessment standard 2.1 in each unit and 50% of the total marks available for assessment standard 2.2 across the units.

All centres used the unit-by-unit approach to assess outcome 2 at Advanced Higher level.

### **H20A 74 National 4 Biology Assignment — added value unit**

All centres used the National 4 Biology Assignment (added value unit assessment). Much of the evidence submitted for verification was in the form of a written report, and in many instances it was clear that this had been produced to meet the requirements of a National 5 coursework assignment. This approach can be adopted at the discretion of the centre; however, centres must appreciate that in such cases there will inevitably be a different emphasis in the assignment

at each level. For example, at National 4 level the issue being investigated must have some relevance to the environment/society. Centres are reminded that candidates must be provided with the opportunity to meet all assessment standards within the added value unit to ensure that no candidate is disadvantaged.

It is important that the activity used to generate evidence is at the appropriate level and care should be taken to ensure that this is not too demanding for unit assessment. Where a candidate fails to achieve the outcome in their first assessment opportunity, it is not necessary for them to redraft their entire report or presentation. Redrafting the relevant part(s), or adding some supplementary evidence to demonstrate that they have achieved the required number of marks would be sufficient. Evidence produced to meet the requirements of a National 5 assignment will not necessarily allow candidates to achieve a pass for this unit and in many instances some redrafting will be required; specifically, assessment standards 1.1, 1.2, and 1.4.

## **Assessment judgements**

Centres must ensure that their assessment decisions and internal verification decisions are clear.

Marking guidance provided in the unit assessment support packs is not intended to be exhaustive of all possibilities and can be modified. Centres are reminded that all modifications should be clearly identified on the marking guidance and that any modifications are of an equivalent standard to the existing guidance. A number of centres applied this rule effectively, annotating their marking guidance, detailing acceptable alternative answers and also unacceptable answers. Where this rule was not applied effectively, centres showed inconsistencies in their assessment judgements. Centres are reminded to discuss the marking guidance prior to the use of an assessment in order to improve consistency in the application of the marking guidance.

Some centres' assessment judgements were not in line with national standards. The most common issue was leniency in the application of the marking guidance. Centres are reminded that a rigorous, accurate and consistent application of assessment judgements is essential. This can be facilitated by effective internal verification procedures within a centre.

## **H20A 74 National 4 Biology Assignment — added value unit**

Many centres subdivided the individual requirements for each assessment standard into a checklist, detailing the sub-points within each assessment standard. This is good practice, assisting candidates and assessors in ensuring that all aspects of each assessment standard had been addressed. The following specific points relate to issues from the individual assessment standards.

*Assessment standard 1.1 — Choosing, with justification, a relevant issue in biology.*

Almost all candidates were able to make some form of statement regarding the issue being investigated. However, the justification for choosing this must include a statement explaining the relevance of the issue to the environment/society, which was rarely included or correct. As there is also a requirement to explain the impact of the issue on the environment/society for assessment standard 1.4, it is clearly critical for this to be considered carefully at the outset when candidates are selecting their topics for research.

*Assessment standard 1.2 — Researching the issue*

The majority of candidates included relevant information/data from two sources in their evidence.

Some candidates used an experiment/practical activity as one of the two sources of data. If this approach is adopted it is important to ensure that it is clearly linked to an issue that satisfies the criteria for assessment standard 1.1, ie it has an impact on the environment/society. Centres are reminded that where this is the case then the title and aim must be recorded as the reference for this source. This must be separate from the title and aim of the investigation itself.

*Assessment standard 1.3 — Processing and presenting appropriate information/data*

Most candidates provided evidence of presenting one of their pieces of information/data in a different way to that found in the published source. In many instances, this was in the form of a graph or table but these were not always completed with the accuracy required at this level. Where a candidate chooses to present information/data in one of these formats, the correct headings, labels, scales and units are required.

*Assessment standard 1.4 — Applying knowledge and understanding of biology relevant to the issue.*

There is no requirement for the topic to include an application of biology. Guidance should be given to candidates in the initial stages of choosing a topic to ensure that this is an assessment standard they can meet. Centres are reminded that marks can only be awarded for descriptions or explanations of underlying biology that are relevant to the issue being investigated. Candidates can only access the third mark for this assessment standard if the impact is explained/described using some knowledge of biology.

*Assessment standard 1.5 — Communicating the findings of the investigation*

Centres are reminded that candidates are required to draw a conclusion or to summarise their findings and that this must be backed up by the evidence in the investigation.

## **H7W7 77 Advanced Higher Investigative Biology Unit**

### **Outcome 1**

Centres generally made good overall assessment judgements using the detail provided in the judging evidence tables. The following specific points relate to the individual assessment standards.

#### *Assessment standard 1.1 — Designing investigative procedures appropriate to the aim*

Most centres indicated that candidates had met this assessment standard when there was a lack of evidence for all of the evidence requirements. Centres should note that there are several evidence requirements needed to meet this assessment standard. Issues arose where candidates devised an inappropriate aim. Centres should help candidates identify suitable topics for investigation and devise an aim that will allow them to meet the other assessment standards. Candidates must also formulate a hypothesis or question based on the aim. The procedures should be described in enough detail to show that they are appropriate to the aim of the investigation. These should indicate that the candidates have at least considered the:

- ◆ use of suitable controls (negative and/or positive)
- ◆ control of confounding variables
- ◆ need for repeated measurements, ie replicate treatments or samples
- ◆ need for repeated experiments, ie independent replication

It should be clear in the evidence provided that the main confounding variables have been considered. Some candidates chose to list these separately which allowed the candidate, the assessor and the verifier to see if they had been considered appropriately.

#### *Assessment standard 1.2 — Taking account of ethical considerations*

Most candidates met this assessment standard. Where an investigation had particular ethical considerations, candidates had addressed these appropriately. However, centres are reminded that where there are no ethical considerations candidates must include a statement indicating that they have considered this.

#### *Assessment standard 1.3 — Identifying potential hazards, assessing associated risks and applying appropriate control measures*

Most candidates met this assessment standard. Most centres used a risk assessment form which allowed candidates to show that as well as being aware of the hazards they had controlled these appropriately when carrying out their investigation. Both of these elements are required to meet this assessment standard.

Whilst it is appropriate to record the assessor judgement of a pass for this assessment standard with a candidate record sheet, centres are reminded that evidence for this judgement must be included within the candidate report and/or daybook.

*Assessment standard 1.4 — Collecting data with precision and accuracy*

Some centres indicated that candidates had met this assessment standard when there was a lack of evidence for all of the evidence requirements. Centres should note that there are several evidence requirements needed to meet this assessment standard.

Most candidates recorded their measurements/observations in a planned and organised way. The most common format used was a table of results which was appropriate for their data. However, these tables were occasionally not completed with the accuracy required at this level. Centres should ensure that candidates use appropriate headings and units in tables.

There should be information within the evidence of the instruments/methods used to make measurements; these should be appropriate to generate data that is within a suitable range and of suitable accuracy and precision, eg it would be inappropriate to use a measuring cylinder to measure volumes with precision and accuracy. Centres should advise candidates to consider the results generated from their investigation. Some candidates had results which showed a wide variation yet they failed to consider the implications, ie was there an issue with their procedure that led to this variation?

*Assessment standard 1.5 — Using initial results to develop or confirm procedures in the experimental design*

Most candidates met this assessment standard. The focus of this assessment standard is the initial results. Most candidates had met this assessment standard by reviewing the results of a pilot study. Candidates should review their initial results and decide if further steps are needed, eg modifying the procedure. The reasons for any modifications should be explained and described. Where candidates are confirming that a procedure is appropriate for future work they should state what this work would be.

## **Outcome 2**

Candidates are no longer required to pass each assessment standard (2.1, 2.2, 2.3 and 2.4) independently. Where a candidate achieves 50% or more of the total marks available in a single unit assessment they pass outcome 2 for this unit.

Some centres showed good practice by discussing and amending the marking guidance before the assessments for this outcome were used. However, where this is the case care should be taken to ensure that alternative answers meet the national standard demonstrated in the original SQA unit assessment support packs. Underlining and/or bracketing words in an answer often changes the level of difficulty and, as a result, these should be used with caution. Some centres showed some degree of leniency in their application of the marking guidance. Centres are advised to apply the agreed marking guidance and use internal verification to ensure that all candidates are assessed accurately, fairly and consistently to national standards.

## Section 3: General comments

A number of centres selected for verification failed to provide the required sample of candidates. Guidance on generating the required sample of candidates is provided in the [Generating the evidence sample](#) document on the NQ external verification web page.

Centres are reminded that SCQF levels 5 and 6 are verified during the round 2 verification event. When selected to submit a sample of candidate evidence for round 2, centres should carefully review the documentation received to ensure that the sample of evidence submitted for candidates is for the appropriate level.

Centres must ensure that accurate details are entered on the verification sample form and candidate evidence flyleaf, and on the centre's candidate assessment record or equivalent. Centres are reminded that, where the evidence is indicated as being 'complete' on the candidate flyleaf, the sample should include the evidence for **both** outcome 1 and outcome 2. When submitting evidence for only one outcome, the centre should indicate that the evidence is 'interim' on the candidate flyleaf.

Before submitting evidence for external verification, centres should ensure that they have referred to the guidance documents. Guidance on evidence required for external verification of units is provided on the NQ quality assurance web page ([www.sqa.org.uk/cfeqa](http://www.sqa.org.uk/cfeqa)).

Centres are reminded that they can choose which unit to select for each level of verification. Centres must choose the same unit for all candidates at any one level. Centres can choose different units for different levels.

Centre staff are reminded that all centres offering SQA qualifications must have an effective internal quality assurance system that ensures that all candidates are assessed accurately, fairly and consistently to national standards. Centres selected for external verification are expected to provide details of their quality assurance processes. Most centres choose to do this by submitting a copy of their internal verification and moderation policy document.

Some centres provided evidence of their internal verification processes and some of these showed good practice by including notes from the internal verifier and demonstrating how assessment judgements were made. This often included some evidence of internal verification having taken place, specifically cross-marking. However, this did not always lead to consistent, reliable assessment judgements being made, specifically the marking guidance was leniently applied.

Centres are advised to record any decisions taken during their internal verification process with appropriate statements on the candidates' work or an attached pro forma, ensuring it is clear where candidates have met an assessment standard. Clear annotation by assessors on the candidate evidence, indicating where aspects of each assessment standard have, or have not, been met is very helpful for candidates, other assessors and verifiers. This makes clear what has been achieved, and what has yet to be achieved. Assessor comments



on particular assessment judgements are also useful in helping to make it clear why these judgements have been made.

Centres should review their internal verification processes to ensure that they are effective. Centres are advised to refer to the [NQ Internal Verification Toolkit](#) for further guidance.