



## **National Qualifications 2007**

### **Senior Verifier Report**

**Subject: Biology – Advanced Higher Day Books for the Investigation  
Retrospective Moderation (August 2007)**

**Assessment Panel: Biology**

The purpose of this report is to provide feedback to centres on moderation which has taken place within National Qualifications in this subject.

---

## NATIONAL UNITS

### TITLES/LEVELS OF NATIONAL UNITS VERIFIED

### FEEDBACK TO CENTRES

#### General comments:

All centres contacted for verification evidence returned evidence to SQA for the team to work through.

In the four years this exercise has been carried out there has been a steady improvement in the candidate evidence being submitted.

The evidence submitted by many of the centres with 'ISSUES IDENTIFIED' showed that some centres should be failing candidates on the internally marked element due to a lack of evidence for one or more of the performance criteria for Outcome 1 and 2.

For the purposes of verification, centres are required to submit evidence that candidates have achieved the Performance criteria set out in the 2002 Guidelines. It is recognised that candidates may hold some of this information on computer and only print it out as part of the final report. A photocopy of such information may be added to the daybook and, provided it is signed and dated by staff, may be accepted as evidence for outcome 2. Centres are reminded that the daybook is the main source of evidence and that submission of an entire investigation report, in place of the daybook, is not acceptable.

There was improvement in the number of staff writing on the daybooks and some evidence of staff having an ongoing input to the development or the collecting of evidence for the investigation. This is recommended practice.

Staff should date and sign the daybook at regular intervals and indicate in the daybook where each of the Performance Criteria have been achieved.

#### Outcome 1

- PC(a) - This should be more than a record of raw data. The notes may be brief but should include dated contributions made by staff and other individuals.
- PC(b) - The aims of the investigation should be clearly stated. This should include an overall aim which may bring together a series of related practicals, it should also precede the rest of any practical record.
- PC(c) - While the majority of daybooks did have a hypothesis there was little evidence of moderations made in light of experimental or research work carried out.
- PC(d) - A number of the daybooks sampled saw candidates failing to collect useable results due to poor equipment or problems with the sampling technique(s). These flaws should be spotted, discussed and amended with a record noted in the daybook.
- PC(e) - The need for replicates should progress from the Higher LO3 where mean values are considered more reliable than an individual result, to the idea that replicate treatments should produce identical results.

## Outcome 2

- PC(a) - The collection of experimental data must be the individual work of the candidate and collected with due accuracy.
- PC(b) - The raw data must be recorded in the appropriate format with correct headings and units. Many of the candidate worked sampled contained tables or charts with no heading or units shown
- PC(c) - Experimental information is analysed and presented in the correct format.  
Evaluation discussions should examine the validity and reliability of the conclusions in light of variations evident in the replicates  
Discussion should make clear the links between the biological background and the results obtained.

### Other General Points

Centres are reminded that they are responsible for keeping evidence of internal assessment work and this means that the daybook record, rather than the final investigation report, has to contain the record of achievement by the candidates of the performance criteria.

Centres are advised to use ***Biology Investigation DO34 13/NAB001*** issued in August 2002 (to replace the previous April 2000 copy). This is available to download from the SQA secure website by the centre SQA coordinator.

All candidates should be issued with a copy of the document *Advanced Higher Biology Investigation Guidance* as it is the definitive guide to writing their report. This guidance is available to download from the Biology pages of the SQA website ([www.sqa.org.uk](http://www.sqa.org.uk)).

The daybook should be regarded as the record of the investigation with the Report as the formal written summary of the daybook.

Staff should discuss progress with students regularly and this discussion should focus on what is recorded in the daybook. This would improve the clarity of planning and eliminate many of the issues seen at verification as well as increase the candidates' marks.

Validity and reliability are compromised if there are no replicates and controls and 'lack of time' is not an acceptable excuse as this would constitute a design flaw that should have been spotted, discussed and amended in early meetings with the candidate.

Where centres use a field trip to cover the practical work done in the investigation it is important that each candidate is involved in the planning, background research and protocols. The investigation should be more than an extended practical or related practicals and allow for creativity and discussion.

Where outside school organisations and establishments are involved in providing the 'practical experience' and collection of data, the presenting teacher should take steps to ensure that the work carried out by the candidate is unaided.

### **Advice on good practice and areas for further development:**

Centres should use the recommended criteria for internal verification of the Advanced Higher Investigation NAB.

The Daybook should be treated as the ongoing record of the Investigation with the Report sent for external assessment as the formally written up copy.

Regular discussion of investigation work and what is recorded in the daybook is recommended as it would increase the clarity of planning, eliminate several issues that have arisen in verification and, more importantly, raise candidate attainment.

If computer software is being used to generate graphs, it should be ensured that the axes are scaled properly, and are big enough to correctly represent the data and that they have grids and plotted points for checking values.