GCSE Sciences

Assessment of Practical Skills

Background

The current requirement for the availability of GCSE Sciences in Northern Ireland is restricted to specifications that include the assessment of practical skills within the overall grades awarded. These arrangements are similar to those operating for GCSE Sciences in Wales.

The Awarding Organisations (AOs) AQA, Eduqas (part of WJEC), OCR and Pearson will award their ‘reformed’ GCSE sciences from Summer 2018 based solely on achievement in written papers, in line with Ofqual regulatory requirements.

The Minister for Education (Peter Weir MLA) has asked CCEA, as the Qualifications Regulator here, to consult with key stakeholders – in particular schools – on whether GCSE sciences that include the assessment of practical skills within written papers should be offered in Northern Ireland.

We would welcome your views to assist us to provide advice on this issue to the Department of Education and you can do this by completing an online questionnaire which can be accessed at http://ccea.org.uk/research/

Please Note: The closing date for completion of the questionnaire is Friday 25th November.

This summary includes some detail for each AO. Since common regulatory requirements have been set, these details have similarities. You can find more information about the practical activities on the individual AO websites.

Overview

GCSE sciences offered by AQA, Eduqas, OCR and Pearson

Centres (schools and colleges) are required to certify that candidates have had ‘experience’ of practical work in the laboratory, as detailed in the specifications. Failure to submit this certification (on or before a specified date) is deemed as malpractice/maladministration. Candidates must keep a contemporaneous record of their practical work, as well as the knowledge, skills and understanding derived from the activities.

Science specifications must follow the regulatory requirements relating to apparatus and techniques, so there is a commonality across the AOs in terms of the nature of the practical activities. If some of the practical activities are not undertaken, a candidate can still enter for the GCSE written papers; however, the AOs do caution that the grades awarded may be affected.
The general approach to the assessment of practical skills is to embed questions within the examined assessment units. The examination papers assign at least 15% of the total marks available to assessing practical activities, including both procedural knowledge and investigative skills.

The AOs all offer assessment by way of tiered papers. For the separate sciences – Biology, Chemistry and Physics – there are two papers lasting 1 hour 45 minutes each, to meet the total examination time requirement of 3.5 hours. With the combined science specifications there are six papers, each lasting 1 hour 10 minutes, to meet the total requirement of 7 hours.

**AQA**
The specifications prescribe mandatory practical activities – 10 for Biology, 8 for Chemistry and 10 for Physics. Detailed student worksheets are supplied for each of the activities. These cover the practical activities, apparatus lists, methods, diagrams, results tables, teacher notes and equations, if appropriate.

AQA documentation explicitly states, ‘There is no practical endorsement on certificates.’ Centres are required to sign and return to AQA a practical science statement. This confirms that reasonable steps have been taken to ensure each candidate has:

- completed the practical activities detailed in the specification; and
- made a contemporaneous record of the work they have undertaken and the knowledge, understanding and skills they have derived.

**Eduqas**
There are 12 specified practical activities for GCSE Biology, 12 for Chemistry and 12 for Physics (11 for Foundation Tier Physics). Some of the questions in the following components are set in a practical context:

- Concepts in Biology/Chemistry/Physics; and
- Applications in Biology/Chemistry/Physics.

Some questions are based on specified practical work; others are set in a ‘novel’ context. A resource booklet that includes an unseen article will provide a basis for some of the questions asked.

Candidates must undertake the specified practical work to be suitably prepared for questions in the written examinations. By completing this work they will experience each of the practical techniques which are a requirement.

Centres must also ensure that candidates keep their own records of the practical work that they undertake. For each assessment series centres are required to submit to the Awarding Organisation a practical science statement.

**OCR**
The specifications set out eight mandatory practical activities, called Practical Activity Groups. The activities are exemplified but not prescribed. This means that teachers are free to select the practicals most appropriate for their candidates/centre, so long as they use the apparatus specified and candidates have the opportunity to demonstrate the techniques identified.
Centres must provide a written practical science statement to OCR. This confirms that they have taken all reasonable steps to ensure each candidate has:

- completed the practical activities as set; and
- made a contemporaneous record of the work they have undertaken and the knowledge, understanding and skills they have derived.

**Pearson**

The Physics, Chemistry and Biology specifications each prescribe eight mandatory practical activities. Centres must confirm that each candidate has completed all of these activities; in this way they will be covering all aspects of the apparatus and technique requirements.

Pearson provides a guide that:

- gives examples, from the Sample Assessment Materials (SAMs), of questions relating to the practical activities; and
- includes suggestions on how teachers might introduce the practical activities.

Each candidate must make a contemporaneous record of:

- the work that they have undertaken for the practical activities, and
- knowledge, skills and understanding they have derived.

Centres must complete and submit a practical science statement to confirm that all candidates have completed the mandatory practical activities.