Version 1.0: 0809

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Applied Science 8771/8773/8776/8779

SC01 Investigating Science at Work

Report on the Examination

2009 examination - June series

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Set and published by the Assessment and Qualifications Alliance.

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General Comments

The number of candidates entered for the portfolio units has again increased this year and many centres have continued to guide their candidates to achieve well. These units have generated much high quality work from centres. Credit should be given to both teachers and candidates in making considerable effort to meet the expected standards.

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The random sampling of accredited centres confirmed the value of the accreditation process - with centre marking being confirmed as being in line with AQA standards in most cases, but with a small number showing some "slippage" leading to loss of accreditation.

(The accreditation scheme is used were centres have demonstrated that they are able to mark to the required AQA standards. Under the scheme AQA will accept centre marks without the need to complete the moderation process.)

Portfolio issues

Portfolio construction remains a concern with some candidates, and it is evident that further centre guidance is needed. However, it is very important that centres continue to provide the opportunity for candidates to demonstrate flair and individuality. It is easier for moderation if portfolio structure matches the structure of the unit. Centres are also advised to monitor portfolios during their production as some candidates continue to produce unreasonably large portfolios.

For some units, it appears that the level of expectation of the quality of portfolio content and/or the outcomes that candidates are able to produce are set too low. A number of centres are still judged to have marked candidates work too generously and where this was the case, centres marks were deemed out of tolerance by the moderator and had to be reduced.

Some of the causes of overgenerous marking included:

- Misinterpretation of the requirements of unit
- Too much work on non-essential areas and/or too little on required aspects
- failure to fully complete aspects of the unit as required in the "Banner", in such cases work should assesses in line with the guidance given in section 9.2 of the teachers' guide
- Over-lenient interpretation of the assessment grids
- Lack of rigour in marking/assessment of work – incorrect science accepted, incorrect calculations marked as correct, incorrect statements accepted, praise for work which is of poor quality, marks allocated for work for which there is no evidence – or no supporting teacher comment (# in the assessment grids)
- Poor candidate skills in practical activities leading to a lack of precision and unreliability in results
- A lack of description by the centre assessor of candidate's level of practical skills, their awareness of safety procedures and degree of autonomy (marked # in the assessment grids) and resulting inconsistencies between the marks awarded by the assessor and the portfolio evidence
- The inclusion of materials down-loaded from the internet either passed as the candidates own work or not referenced in the portfolio

As stressed at AQA standardising meetings held in autumn 2008, in communications sent to centres and in last year's Principal Moderators report, it is imperative that centres make it very clear to candidates that the incorporation of text downloaded from the Internet into portfolios is plagiarism and must not be tolerated.

Centres are reminded that many issues and points of guidance made in the 2008 Principal Moderators exam report are still valid and this remains a valuable source of information for centres seeking to improve there portfolios.

Unit 1 – Investigating Science at Work

Some centres continue to allow candidates to include inappropriate organisations in the summary (see 2008 Principal Moderators Report) and allow candidates to study an inappropriate single organisation where there are no scientifically qualified staff, and few, if any, scientific processes used. In such cases, candidates inevitably find it difficult to access the higher mark bands.

A significant number of candidates rely on a single source of information for their in depth study, again falling short of both the depth and breadth of evidence required to reach the higher mark bands.

The Survey and Summary

High scoring portfolios avoided the following problems, which were often seen in low scoring portfolios:

- Too few research methods actually used
- Over-reliance on Internet based research
- Too few or too many organisations in the initial survey
- Inappropriate organisations such as hairdressers, petrol forecourts, retail outlets, etc in the survey
- Summaries which include far too much, or far too little, information
- Simplistic indications of the science used
- Cut and paste information from company websites with little or no reference made to it
- Global, international or, simply, non-local companies

The in-depth study of a single organisation

High scoring portfolios generally followed the following pattern:

- Selection of an appropriate organisation (here, appropriate means that it offers opportunities to address all the required assessment criteria to a high level)
- Comprehensive research using a combination of methods such as visits, questionnaires company information etc
- Comprehensive research into the nature of the work and scientific processes used in the organisation. Examples of organisations that have proved particularly successful this year include opticians, vets, dentists, hospital departments (e.g. radiology), breweries, water companies (especially if including analytical services), power stations, although there are many other options
- Descriptions of the skills and qualifications of the scientifically qualified staff – linked to the scientific processes and their roles and responsibilities within the company

- An account of how ICT is used – again linked to the scientific processes and skills of the employees. [Good portfolios seen often had an excellent section on computer monitoring, feedback and control with good pictorial or diagrammatic information to substantiate explanations. For analytical work, the use of computer or robotic control, electronic data analysis, etc can also be discussed]
- How health and safety is applied, including specific links to the scientific processes and examples of risk assessments used. Photographic evidence from a visit of specific instances where health and safety is applied has been used to good effect. The work on health and safety follows directly from a complete consideration of the guidelines (legislation) relevant to the company, and the constraints placed on the work of the organisation
- Commercial and legal constraints under which the company operates were considered in detail. A consideration of funding, investment, competition, quality assurance, responsibilities to comply with Government Agency requirements, FSA, Ofwat, NICE, ISO, Government targets, Customs and Excise, etc, etc as appropriate
- A full consideration of the impacts on the community using the guidelines set out in the Specification

In addition candidate autonomy and the structure and clarity of the portfolio must be considered.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.