



General Certificate of Secondary Education

Applied Science 4861

**APSC4 Using Scientific Skills for the
Benefit of Society**

Report on the Examination

2009 examination – January series

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Dr Michael Cresswell Director General.

General comments

Activities

The majority of centres completed a good range of tasks set in interesting vocational contexts. It was nice to see that the vast majority of candidates had a complete portfolio. Where penalties had been applied this was done correctly. There was still evidence of downloaded material being credited throughout both units 3 and 4. Downloaded material (even if sourced) is not creditworthy unless clearly used and rewritten by the candidate. Some centres were still submitting six pieces of work in unit 3, which is perfectly acceptable but this still needs to be made clearer on the candidate record form.

Assessment

Whilst tick sheets are useful at the front of a piece of work, annotation is also required within the work, it shows the moderator where the evidence can be found, particularly for any section where a certain level of guidance has been given. If the centre has used their own in house tick sheet, they should ensure that it is correct and the marks match those set out by AQA. Centres are reminded of the requirement for internal standardisation where more than one assessor carries out assessment.

Presentation of work to the moderator

Work was generally well presented and centres had adhered to the request not to use bulky folders. It would be helpful if centres punched and tagged work rather than using plastic wallets, staples or paper clips and did not send class work or theory work that was not marked or part of the candidates assessed work.

One of the main problems in this session was the very late arrival of paperwork and the subsequent late arrival of the sample. It is vital that centres adhere to the AQA deadline of the 10th January for marks to be with AQA and moderator and that the sample is sent within five working days of receiving the request. Please also note that if the centre has less than ten candidates entered, all work should be sent to the moderator by the 10th January together with both the yellow and pink copy of the centre mark form.

Further support

Teachers are encouraged to make the full use of the guidance available. The Teachers' Guide gives more detailed information on portfolio marking and should be used together with the 'Coursework Information for Centres' published each year. The 'Coursework Information for Centres' details general information about entries, notes on each of the units including appropriate tasks, administrative procedures and the role of the portfolio advisor. Centres can also access the Ask AQA Science forum from the website.

General

There were very few centres entering this unit in this session. Some centres are only including risk assessments for some and not all of the strands. Risk assessments are required for all pieces of work where a practical has been carried out even if there are no apparent hazards.

The good practice developed in APSC3 should be carried through into APSC4. This includes completion of risk assessments for each investigation.

Lack of a risk assessment for an investigation may result in a candidate not receiving credit for working safely in future series.

Strand A: Monitoring A Living Organism

Some nice examples of investigations were seen. Generally these were done well although there were still some candidates who wrote their plans in the past tense. A plan is an intention to carry out an experiment and should be written in the future tense.

Teacher annotation is essential for the guidance given with both the plan and monitoring of the organism. It is also a requirement that the organism is studied for a period of time appropriate to that organism. For example studying the effect of caffeine on daphnia for a couple of hours is appropriate but looking at the effect of five minutes of exercise on a human is not. Please try to ensure that variables are changed so that the candidate looks at the effect of, for example, fertilisers on plant growth or different temperatures on the growth of organisms for the food industry.

The Information for Centres booklet sets out suitable investigations.

Strand B: Making a Useful Product

It is essential that teacher annotation as to the amount of guidance given making the product and writing the word equation is given. To award 2B6, the factors that affect the rate of reaction must be related to the product made and should be appropriate. Only gaseous reactions are affected by pressure. At stage 3, the balanced chemical equation must be correct. Sometimes, credit was given for an equation that was incorrect or had been corrected by the teacher. This includes the correct use of subscripts in the formulae. The equation should also be accompanied by an explanation of the type of reaction. The equation alone cannot be given credit.

Centres should note the difference between give, describe and explain a use for the product and at stage 3 the impact of the product on society should also be discussed.

Strand C: Assembling an Electronic/Electrical Device

Annotation was better than in previous sessions for the making of the device. However, there are still a number of centres who are crediting the testing of the device based on annotation alone. There must be evidence, such as a comment or preferably a results table, to show that the candidate has tested the device. More centres are now correctly crediting the evaluation of the effectiveness of the device rather than the experiment. However at stage 3 there has been too much leniency where very little evaluation has been credited. Some centres had awarded 3C2 for independently making the device even though alternative tests had not been suggested.

Strand D: Using Machines

An example of a machine and its use in the workplace must be provided in order for candidates to achieve more than one mark. Of those seen, many were forgetting to describe its use in the workplace. Some centres were awarding 2D1 for calculations alone. This is not creditworthy at this stage since the candidate is required to describe and the calculations are credited at stage 3. For both 2D1 and 2D2 some centres were crediting just a couple of sentences where there was very little detail and little use of the keywords required. Most candidates had completed an experiment to gain credit for 3D1 and carried out calculations. The calculations do need to be clearer. Candidates need to include the formulae they have used and give at least one worked example of each. A spreadsheet or table with calculations included are not credited unless it is clear that the candidate has carried these out themselves and shown understanding.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.