

Examiners' Report/
Principal Moderator Feedback

Summer 2013

GCE Physics (6PH03)
Paper 1A / 1B: Exploring Physics

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Summer 2013

Publications Code UA036634*

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Principal Moderator's Report Summer 2013
6PH03 AS coursework:

There are two routes assessment for this module: internal moderation (1A) and external marking (1B). The same assessment criteria are used for each route, and unless otherwise stated the comments below apply to both routes.

Many candidates showed that they had gained useful skills from their course and produced some excellent work.

The assessment criteria are published and should be made available to all candidates: they should be read in conjunction with this report. For the 1A route, annotation using the marking codes is required. The moderators were pleased to receive helpful notes, including details of internal moderation. For both routes any briefing notes given to candidates should be sent with the scripts. For several centres this year moderators/examiners found difficulty in deciding whether they were looking at visits or case studies, and also what was the aim of the experiment.

The report on the visit or case study

This section is the only part where word processing is allowed: not all centres enforce this. Some interesting new visits were seen, including several museums with science themes. Case studies should not be on the experiment to be carried out but on the application or use of a physics principle. For example, a case study on a building could be followed by the determination of the Young Modulus for a material used in the building.

Whether a case study or a visit is carried out, all references must be acknowledged. Although referencing was generally good, if using a case study three different **types** of sources must be used rather than three different web pages. The date on which a website was used must be given. There appeared to be fewer examples this year of indiscriminate cutting and pasting. Without the inclusion of the briefing notes given to candidates it is not possible for examiners or moderators to know whether or not to award S6.

Despite their placement at the end of the marking grid, the report marks are meant specifically for the summary. The mark for R2 cannot be given when subheadings are used only in sections other than the summary

Experimental Skills

Some centres continue to use 'investigations' rather than the determination of a constant. The best experiments are simple ones, with a clear unambiguous aim, which allow candidates a choice of method and which point to a clear numerical conclusion via a graph in order to give candidates access to the later criteria in the analysis section, in particular A6 and A7. Centres are reminded that candidates must work individually for the practical.

Planning

The planning should be marked separately from the implementation and analysis: it should be written before the experiment is carried out and like the experiment must be carried out individually. Once a candidate has begun implementation of the experiment, no further planning marks can be given for planning points made in any subsequent work. The plan should include all relevant equations, details of planned calculations and justify assertions about choice of measuring instruments. For P3 and 5, reference should be made to the size of expected quantities and this related to the size of the scale division on the instrument to be used.

When commenting on whether repeat readings will be necessary (P9), candidates should support their comment with some reasoning. "I will draw a graph" without further qualification is not sufficient for the award of P11: full details of all data treatment are expected for this criterion. If all details of the planned procedure have been given, an additional step by step method is not required (P14): although this is a safety net for many candidates.

In **Implementation and Measurement** the majority of candidates scored highly. For M1 students are expected to give consistent and realistic numbers of significant figures in their measured values. Some candidates explained in planning that they would make measurements with a metre rule because it had a precision of ± 0.5 mm and then recorded results only to 0.1 m: they should not then be awarded M1. They are also expected to record any repeated values for measurements such as the radius of a wire. Most candidates used units correctly, but not always in the conclusion. At least six sets of measurements are expected.

Analysis

A surprising number of candidates found it difficult to draw a line of best fit, forcing it through favoured points rather than drawing it to represent the overall trend. When describing the trend (A5) candidates should use precise scientific language; general comments such as a 'positive correlation' do not merit the award of this criterion. Some centres teach uncertainties very well, however, in other centres few examples of percentage uncertainty in even one quantity were seen. Conclusions (A11) did not always match the findings or the aim: centres that do not provide candidates with an analytical title put their candidates at a disadvantage.

Administrative matters

There are exemplar and guidance materials, and relevant forms on the Edexcel websites but it was clear that not all centres had accessed the latest versions of these. Centres are reminded to use the most up-to-date paperwork, which includes record sheets to be signed by the candidate and teacher: this is an Ofqual Code of Practice requirement.

Moderators and examiners were very grateful to those centres that ensured that work for each candidate was written on one side of the page, clearly in three parts, held together by a long treasury tag, named, and with pages numbered. Some centres are still using plastic envelopes for candidate work: these are time consuming for moderators and examiners particularly if the sheets inside are not numbered and are in the wrong order. Details of briefings given to candidates (for both 1A and 1B) and details of internal standardisation (for 1A) should be provided. For the 1A submission route, work must be annotated, preferably with Edexcel codes near where marks are awarded, and incorrect physics marked as such.

The attention of all centres is drawn to the Ask the Expert and other coursework support including podcasts: details are on the Edexcel website.

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