

Regulatory Summary

GCSE Maths Sample Assessment Materials: Post-research Review



Summary

Following the accreditation of the reformed GCSE maths specifications, concerns were expressed about differences in the difficulty of exam boards' sample assessment materials and in their approach to the assessment of problem solving. We conducted a programme of research to evaluate whether the concerns were valid and the differences sufficient to undermine the teaching, learning and assessment of GCSE maths.

The research comprised four complementary evaluations of exam boards' sample assessments, the differences between them and the consequences of those differences. More information about the original research programme, including the full report, can be found on our website.¹

In summary, we found that the difficulty of the higher tier sample papers of all the exam boards compared well with that of a range of already high-performing countries. However, we concluded that OCR, Pearson and WJEC Eduqas needed to refine their higher and foundation tier papers to sufficiently differentiate across student abilities, and AQA needed to lift, to some extent, the expected difficulty of their foundation tier papers.

Actions taken

Since publication of our research, the exam boards have been working to modify their sample assessment materials to reflect the findings. To give us confidence that exam boards have addressed the issues raised, we have used an evaluation process consisting of two elements.

1. A qualitative element in which maths subject experts evaluated the assessments on the basis of compliance with content coverage, assessment objective weighting and assessment objective allocation requirements.

¹ www.gov.uk/government/publications/gcse-maths-final-research-report-and-regulatory-summary

2. A quantitative element, using a comparative judgement methodology very similar to that used in Study 1 of our main research, allowing us to quantitatively evaluate the expected difficulty of the sample assessments.

Both of these elements were used to evaluate the new submissions (phase 2) made by all exam boards at the end of May. The findings from those reviews were then used to determine whether or not further qualitative and/or quantitative reviews should be conducted (phases 3 and 4).

As a result, at the end of this process, all four exam boards, AQA, OCR, Pearson and WJEC Eduqas have produced revised sample materials which have addressed the actions agreed following on from our research. Therefore, the final sample assessments represent a greater consistency of difficulty between exam boards while mitigating the risk of the assessments not differentiating effectively across the full ability range of GCSE maths students. A technical report documenting the outcomes of the quantitative evaluations can be found on our website.²

The differences between the expected difficulty of the sample materials developed by exam boards following this process compared with those from the original sample assessment materials, can be seen in figure 1. It is clear from this plot that the comparability of expected difficulty has improved through this process.

What next?

Exam boards will begin to publish the sample assessments developed through this process from 30th June.

It is the sample assessment materials that have been produced as a result of this process which teachers and students should use to provide an indication of the approach to the live assessments. We expect exam boards to label these sample materials on their websites (and other modes of publication) so that they are clearly identifiable over any other specimen papers which exam boards have produced or may produce in the future.

In the lead up to the first assessment of the reformed GCSE maths specifications in 2017, we will be closely monitoring the development of the live assessments. This will allow us to ensure, as far as is possible, that the difficulty of the actual assessments mirrors that articulated in these sample materials. There will, inevitably be some difference between the actual difficulty of assessments between exam

² www.gov.uk/government/publications/gcse-maths-post-research-review-and-regulatory-summary

boards. However, procedures for setting standard grade boundaries will be in place to compensate for variations in difficulty.

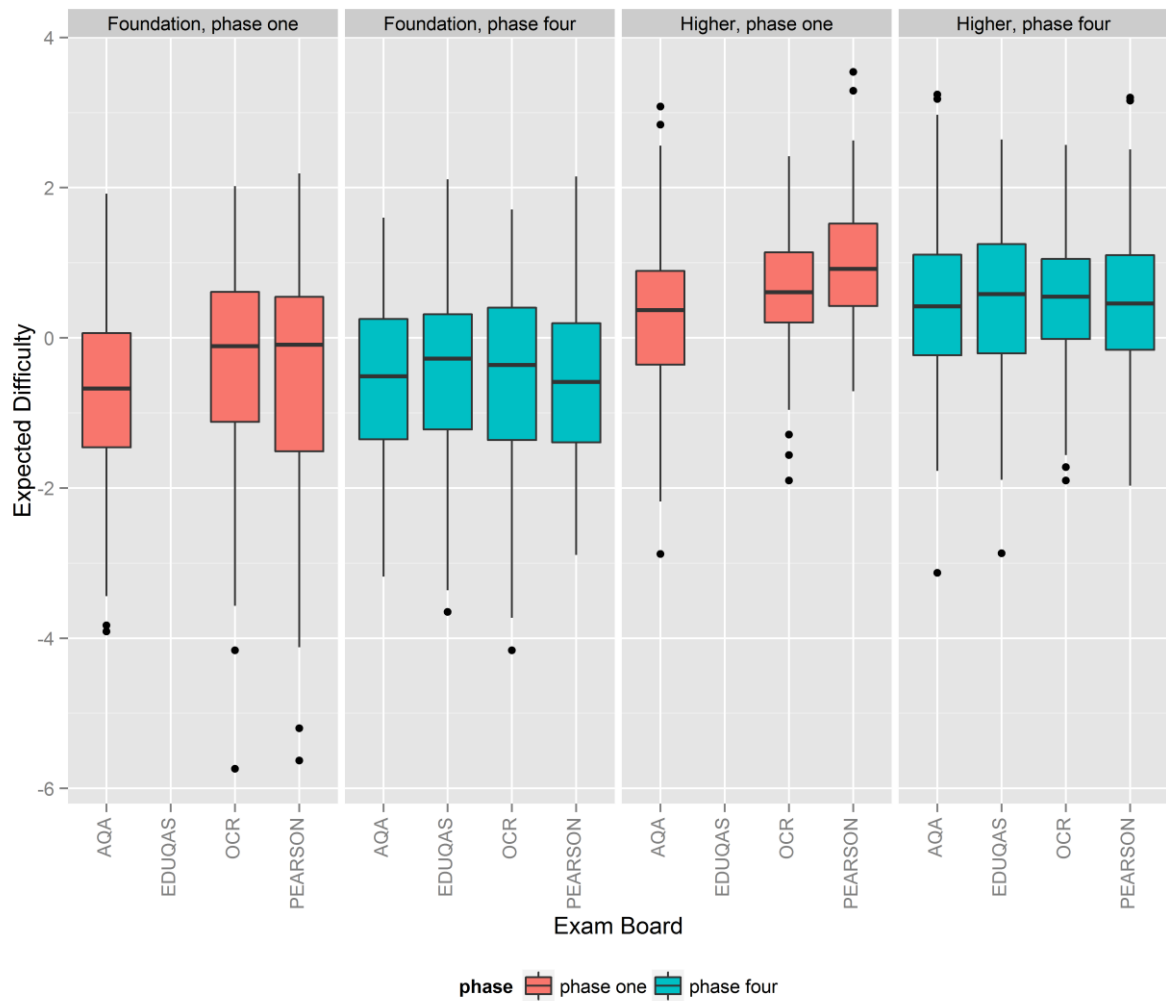


Figure 1. Box plots showing relative expected difficulty, as judged in the quantitative review, for the original (phase 1) and final (phase 4) sample assessments