

National Reference Test Results Digest 2022

Introduction and background

The National Reference Tests (NRTs) in maths and English language are a key source of evidence used by Ofqual in setting grade boundaries for GCSEs. They are taken in around 300 schools by a representative sample of approximately 20,000 pupils. Students are selected to take either an English or a maths test, and they are given one of 8 different test booklets. The questions in the test booklets overlap so that each question is included in 2 booklets. Performance across all booklets in a subject is linked statistically. The questions in the tests remain the same each year which makes it possible to measure changes in student performance from one year to the next. For example, in 2017, there was an increase in GCSE maths grades at grade 7. The NRT also showed an increase in ability at Grade 7 level, demonstrating that the increase in GCSE grades did in fact demonstrate an improvement in ability rather than an issue with the exam. The tests focus on providing information about performance at the 7/6, 5/4, and 4/3 grade boundaries. Ofqual has contracted the NFER to develop, administer, and analyse the NRT tests. This report evaluates whether test items remain robust. It also provides information about student performance in the tests compared to previous years.

Key points

Test booklets in 2022

- NFER analysis shows that the English test booklets functioned well, and similarly to previous years. They were challenging, with few students attaining over 40 marks and average scores less than half of the available marks. Maximum raw scores ranged from 40 to 47 across the 8 booklets, showing a wider range compared to 2021 where maximum raw scores were between 41 and 43. The scores were well spread out, allowing discrimination between the students.
- The average percentage of students attempting each item was over 90 per cent for all booklets, indicating that the students were engaging with the test and attempting to answer most questions.
- The mean ability scores for students were similar for all the tests, confirming that the random allocation of pupils to tests had been successful. The results also showed that the level of difficulty of the 8 tests was fairly consistent, with only small differences between them.
- A full item analysis was carried out for each English test, in which the difficulty of every question and its discrimination were calculated. These indicated that all the questions had functioned either well or, in a few cases, adequately and there was no need to remove any items from the analyses.
- The maths tests also functioned well. The maximum score, or one mark short of it, was attained on all booklets. The average scores were, again, slightly less than half marks for most booklets which is similar to 2021, but lower than in earlier years of the NRT. Standard deviation shows that the scores were well spread out.
- The average percentage of students attempting each item (between 84 and 88 per cent) is similar to the percentages seen in 2021, although lower than in 2020. As has been the case in previous years, the average percentage of students attempting each item for maths was also lower than that seen for the English test.
- A full item analyses for the maths tests indicated that all questions had functioned either well or, in a small number of cases adequately.
- The mean ability scores for students were similar for all the tests, confirming that the random allocation to tests had been successful. The results also showed that the level of difficulty of the 8 tests was fairly consistent, with only small differences.

Performance in English in 2022

- The objective of the NRT is to get precise estimates of the percentages of students each year achieving at a level equivalent to three key GCSE grades in 2017: these key grades are 4, 5, and 7. For the NRT in 2017, these baseline percentages were established from the 2017 GCSE population percentages.
- Year on year comparisons since 2017 suggest that performance in English has declined relative to 2021. There had previously been a small decline in the percentage of students achieving at-or-above in both grades 4 and 5 from the baseline in 2017 to 2019, but 2020 had seen an upturn in performance, bringing performance much closer to that seen in 2017. This performance then remained stable in 2021, despite the impact of school closures due to the pandemic but appears to have declined in 2022 back to similar levels of performance as seen in 2019.
- At grade 7 and above, performance has been relatively consistent across the years, with a slight improvement in 2020 and 2021 and now a drop back to the level seen in the earlier years of the NRT.
- The NRT English data shows that there are no statistically significant differences in performance



between 2020 and 2022 at any of the 3 grade boundaries.

Performance in maths in 2022

- As for English, baseline percentages for the NRT in maths were established from the 2017 GCSE population percentages of students achieving grades 4,5, and 7.
- Analysis shows a fairly steady increase in the percentage of students achieving at-or-above all 3 grade boundaries from 2017 to 2020, followed by a sharp drop in 2021, back to around the 2017 level of performance. In 2022 there was a slight improvement at grades 4 and 5, suggesting some recovery, while performance at grade 7 and above is stable.
- NFER was asked to compare the performance in 2022 with the performance in 2020 at each of the 3 grade boundaries. The NRT maths data shows that there has been a statistically significant drop in performance between 2020 and 2022 at all three grade boundaries. The differences at grades 5 and 7 and above are significant at the 1 per cent level of significance, whereas the difference at grade 4 and above is significant at the 5 per cent level.

The full documents can be downloaded from:

https://www.nfer.ac.uk/media/5026/national_reference_test_results_digest_2022.pdf