

Star Assessments Benchmarking Report 2022/23

Jon Andrews
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Research Area:
School Performance,
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About the Education Policy Institute

The Education Policy Institute is an independent, impartial, and evidence-based research institute that promotes high quality education outcomes, regardless of social background. We achieve this through data-led analysis, innovative research and high-profile events.

Education can have a transformative effect on the life chances of young people, enabling them to fulfil their potential, have successful careers, and grasp opportunities. As well as having a positive impact on the individual, good quality education and child wellbeing also promotes economic productivity and a cohesive society.

Through our research, we provide insight, commentary, and a constructive critique of education policy in England – shedding light on what is working and where further progress needs to be made. Our research and analysis spans a young person’s journey from the early years through to entry to the labour market.

Our core research areas include:

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About Renaissance

Renaissance is a leading provider of assessment and practice solutions that put learning analytics to work for teachers, saving hours of preparation time while making truly personalised learning possible.

Since 1986, our mission has remained the same: To accelerate learning for all children and adults of all ability levels and ethnic and social backgrounds, worldwide.

Today, schools and school groups rely on Renaissance solutions for data and insights to equitably move learning forward. Our assessments, which also now include GL Assessment, offer the ideal starting point to help schools understand their students’ strengths, pinpoint areas of need, and put targeted measures in place. Our teaching and learning programmes then provide effective next steps to drive better student outcomes.

This research, an extension of the work we started in 2020 on behalf of the Department for Education, is testament to our commitment to our mission – providing unique insights into student performance since the pandemic for educators and policymakers alike.

Thanks to the millions of Renaissance Star Assessments administered every year, we can provide the data for this analysis without increasing teacher workload or asking students to take additional tests.

Together, Renaissance Star Reading and Renaissance Star Maths streamline the assessment process with valid, reliable data to deliver the right teaching instruction, at the right time, for the right reason. They provide a complete view of student progress, including achievement and growth measures:

- **Purposeful:** Star provides the data and insight needed to inform teaching decisions.
- **Proven:** Star data is valid and reliable, backed by research, validity studies, and millions of data points.
- **Powerful:** Star utilises learning science, data analytics, and test design to deliver maximum impact in minimal time.
- **Predictive:** Star is highly predictive of performance on Key Stage 2 assessments and other high-stakes tests thanks to statistical linking.

Star Assessments are aligned to the national curriculum, and in addition to this research we have made available Focus Skills Teacher Workbooks that help educators identify the skills a student should prioritise and master to progress. These are available from the [Renaissance website](#).

Acknowledgements

This analysis was carried out in the Secure Research Service, part of the Office for National Statistics (ONS). It contains statistical data from ONS which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates.

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Introduction

This analysis is the second in a series of reports produced by the Education Policy Institute, working in partnership with Renaissance. The purpose of this research programme is to ensure that schools and policy makers have access to robust data on the performance of different pupil groups, so that support is targeted effectively to those who need it most as we continue to recover from the pandemic.

The purpose of this report is to provide benchmarking data to users of Renaissance Star Reading and Renaissance Star Maths assessments. It allows users to see how outcomes for their pupils compare to all pupils nationally – both against averages at different points in the academic year and across the whole attainment distribution. It also shows how these results have changed over time so that schools can better understand the patterns of attainment that they are seeing.

In addition, we have linked data from Star Assessments with attainment data at the end of key stage 2 to allow us to see, for a given level of outcome in Star Assessments, what are the most likely outcomes in these end of key stage statutory assessments.

Results are presented as series of analyses offering insights from the dataset of all Star Assessments followed by detailed benchmarking tables.

The data used in this report

Background

The data analysed in this report is drawn from assessment data from Renaissance Star Reading and Renaissance Star Maths. These provide criterion-based scores that run on a singular scale from year 1 to year 13. Star Assessments are computer-adaptive in nature and adapt to the individual, providing an assessment that identifies gaps in learning from the entirety of the curriculum independent of their current year group. Star Assessments also include a standardised measure which takes account of the pupil's age in years and months.

The Star Reading assessment measures pupils' performance in key reading skills via a brief standards-based test of general reading achievement, administering 34 questions that students complete, on average, in less than 20 minutes. The Star Maths assessment similarly comprises a brief assessment of 24 questions that students complete, on average, in less than 15 minutes. The assessments draw on banks of just over 4,000 items in each of reading and mathematics.¹

Over the course of 2023, Renaissance provided the Education Policy Institute and the Department for Education (DfE) with data comprising assessments undertaken in England between the start of the 2017/18 of the academic year and the end of the summer term of 2022/23.² The Department for Education then carried out a matching exercise to link this data with that in the National Pupil Database which contains a wealth of data on pupil characteristics and assessment outcomes. The Education Policy Institute then used this linked data as the basis for this report.

Data volumes

Renaissance assessments cover all national curriculum year groups; however, the vast majority of tests are completed in year 3 to year 9. Older pupils outside of this range tend to be atypical of the pupil population as a whole. Therefore, as with previous reports, our analysis focusses on this age range.

Figure 1 shows the number of pupils in each group who took at least one assessment in reading in each term of 2022/23 by year group. Each primary year group has approximately 70-80,000 pupils in the autumn term with numbers that are slightly lower in the spring and summer terms. The biggest fall is in the summer term in year 6, which may reflect the fact that key stage 2 assessments in reading, writing, and mathematics are administered at this time. There is a large spike in year 7 (120,000) which is likely to be associated with the transition from primary to secondary school and a pupil's secondary school looking to benchmark attainment on entry, though the number of pupils in year 8 is also well above the rate for younger pupils.

The number of pupils completing assessments in mathematics was much lower. Figure 2 shows how this breaks down by national curriculum year group in 2022/23. Amongst the primary age year groups, the number of pupils is around 10,000 per year group. However, this drops to around 3,000

¹ A more detailed discussion of Star Assessments is available in '*Research Foundation for Star Adaptive Assessments – Science of Star*', Renaissance White Paper, September 2020.

² The data provided for this analysis was restricted to those institutions who instructed Renaissance to conduct the analysis.

in secondary and these pupils are not randomly distributed but clustered in a relatively small number of schools. Therefore, any analysis is likely to reflect the circumstances of those schools rather than be representative of the population as a whole and so analysis of secondary mathematics is more limited in this report.

Figure 1: Number of pupils in each term of the 2022/23 academic year by year group, reading

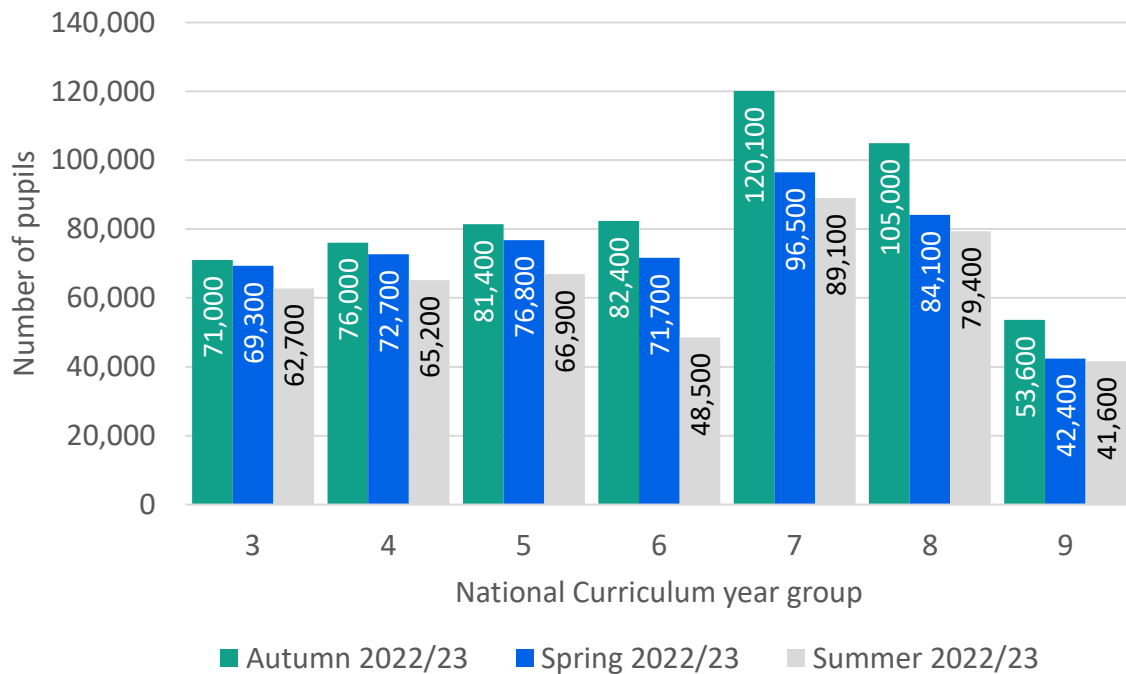
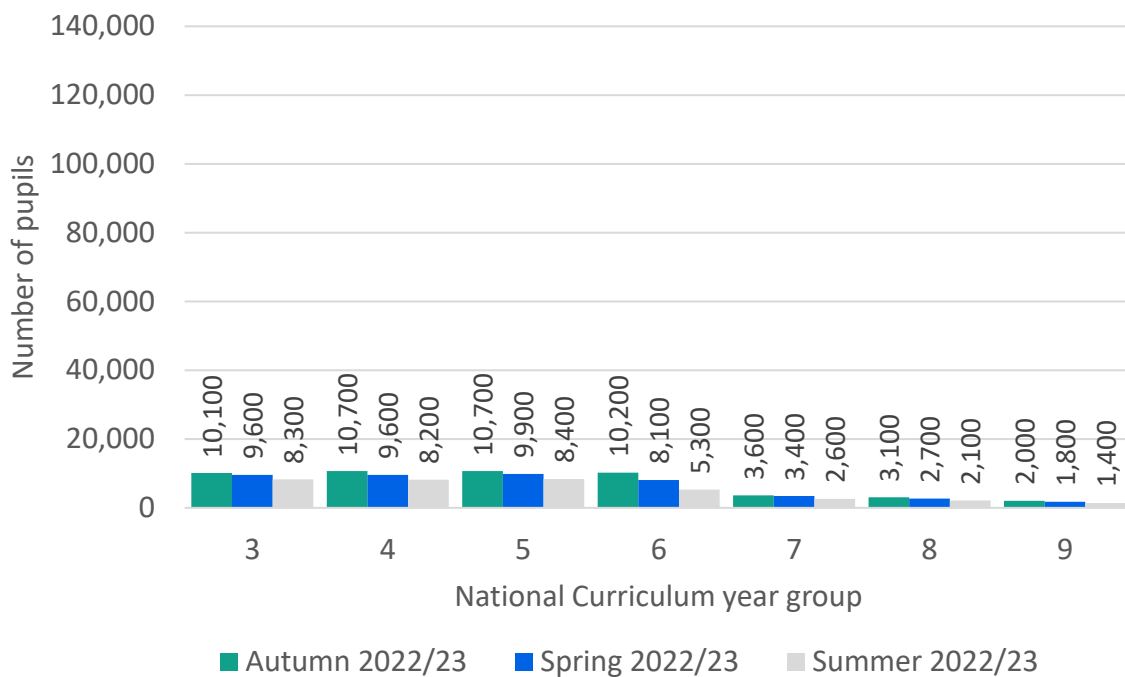


Figure 2: Number of pupils in each term of the 2022/23 academic year by year group, mathematics



Tables in Annex 1 show the full breakdown of pupil numbers across each year, and the numbers used in what we refer to as our “baseline” years, those years prior to the Covid-19 pandemic.

What do Star Assessments tell us about the average outcomes of primary and secondary aged pupils?

The Star Unified Scale score, for Star Reading and Star Maths, runs from 600 to 1,400. Figure 3 and Figure 4 show the average outcome in the autumn, spring, and summer terms of 2022/23 in reading and mathematics.

There are clear differences in average attainment between year groups, with pupils progressing up the scale both between and within years

- In reading, the average score at the start of key stage 2 (year 3) was 915 points, and this increased to 937 points in the spring term, and 951 points in the summer term.
- Pupils in year 4 and year 5 had average scores of 960 and 997 in reading respectively, and then also increased over the academic year.
- In maths, the average score at the start of key stage 2 was 897 points, and this increased to 920 points in the spring term, and 937 points in the summer term. Pupils in year 4, 5, and 6 started the year with an average of 944, 989, and 1031 respectively.

Younger pupils progress at a faster rate than older pupils

- The differences between year groups are not uniform and the differences between year groups are greater amongst younger than older year groups.
- In reading, in the autumn term of 2022/23 the difference between the average in year 3 and in year 4 was 45 points on the unified scale. Between year 7 and year 8 it was 15 points.
- This differential rate of progress at different ages is less pronounced in maths. In the autumn term of 2022/23, the difference between the mean in year 3 and in year 4 was 47 points on the unified scale, but between year 5 and year 6 it was still 42 points.

Progress appears to be affected by the primary to secondary transition point

- The slowest growth in reading scores amongst primary aged pupils was between the spring and summer terms. Progress between the spring and summer terms in year 6 was about half that seen in year 4 and year 5 (though this may reflect the mix of pupils as fewer pupils take assessments in the summer of year 6.)
- In reading, scores in the first two terms of year 7 are little different from the results at the end of year 6, rather than showing the levels of progress seen in other year groups, suggesting that pupils make slower progress in the year that they typically move to secondary school (though it should be noted that the year 7 cohort represents a different set of schools so there may be other differences between these groups of pupils).

Pupils in secondary maths seem less representative of all pupils, so caution should be applied when comparing with averages

- The average scores in years 7 to 9 are at or below the average of pupils in year 6. This suggests that the mix of pupils who take these assessments in secondary schools is

somewhat different to those in primary schools (it implies that they are generally lower attaining for their age).

- Therefore, we should be cautious in interpreting any results for these groups.

Figure 3: Average (mean) score by year group in 2022/23, reading

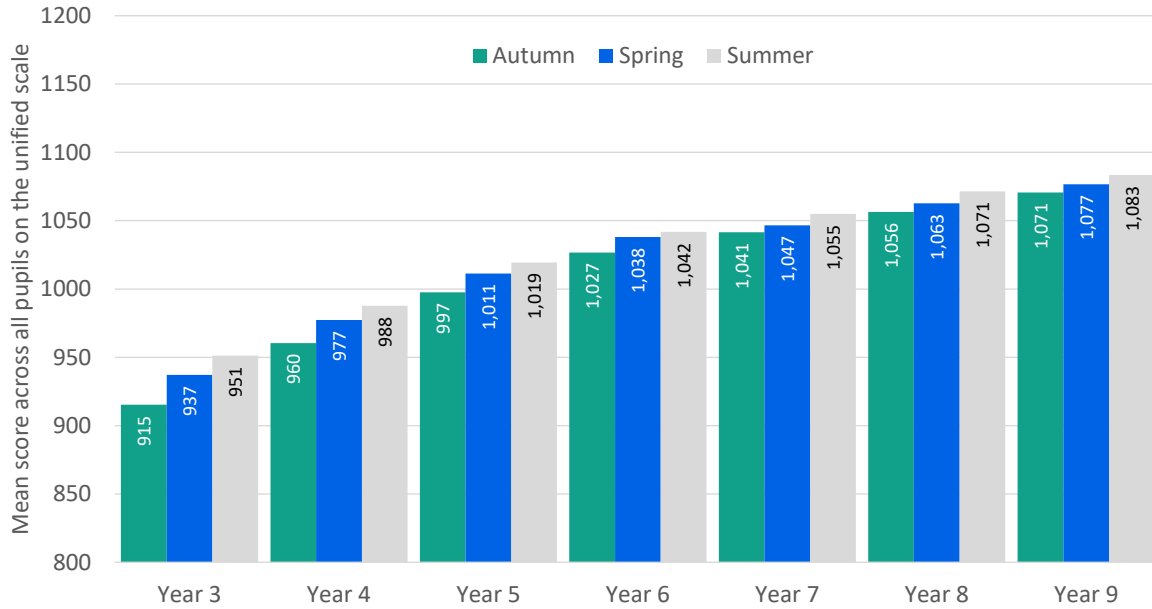
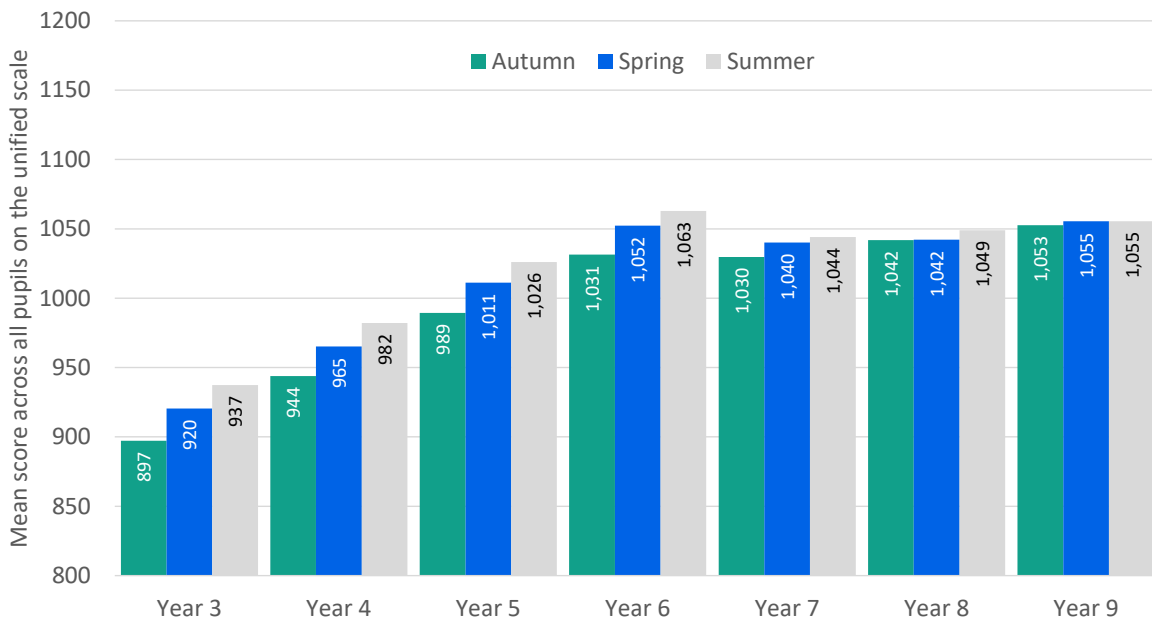


Figure 4: Average (mean) score by year group in 2022/23, maths



What do Star Assessments tell us about the range of attainment amongst pupils?

The Star Unified Scale score allows users to see where the score for a particular pupil fits into the distribution of all scores for pupils in the same year group taking the assessment in the same term. Figure 5 and Figure 6 show scores broken down into bands, each representing 10 per cent of pupils.

There are a wide range of outcomes within every year group, and within every term

Focussing in particular on the autumn term of 2022/23:

- If we compare the average of the top half of attainment and the bottom half of attainment in reading, the difference was typically between 110 and 125 points on the unified scale.³ For example, the top half of attainers in year 3 achieved an average of 978 whilst the bottom half of attainers achieved an average of 853. In year 6, the equivalent scores were 1,083 and 971.
- If we compare the average of the top half of attainment and the bottom half of attainment in *primary* maths, the difference was typically between 100 and 120 points on the unified scale. For example, the top half of attainers in year 3 achieved an average of 949 whilst the bottom half of attainers achieved an average of 845. In year 6, the equivalent scores were 1,091 and 972.
- Amongst secondary aged pupils, the difference between the highest and lowest half of attainment in reading was of a similar magnitude to that seen amongst primary aged pupils. However, the gap in attainment was wider in secondary maths – a difference of over 130 points on the unified scale. For example, the top half of attainers in year 7 achieved an average of 1,111 whilst the bottom half of attainers achieved an average of 977.

The difference between the highest and lowest attaining pupils *within* each year group is considerably greater than the differences *between* year groups

- Combining the results above with the results in the previous section we see that the differences between the highest and lowest attainers in any year group is much larger than the differences between year groups. For example, in year 3 reading in the autumn term we saw that the difference between the top and bottom half of attainers was 125 points on the unified scale. The difference in average attainment between year 3 and year 4 pupils was 45 points.
- This means that high attaining pupils in a year group often out-perform average attaining pupils in a higher year group. For example, high attaining pupils in year 3 achieved an average of 978 points; this is 17 points higher than the average for pupils in year 4 and only 20 points lower than the average for pupils in year 5.
- Conversely, pupils in the bottom half of attainment in year 6 had scores that were on average 27 points lower than the average of pupils in year 5 and only 11 points higher than the average of pupils in year 4.

³ Whilst not directly equivalent, this is similar to comparing the lower and upper quartile.

Figure 5: Distribution of unified scores (in bands of 10 per cent) by term and year group 2022/23 – reading

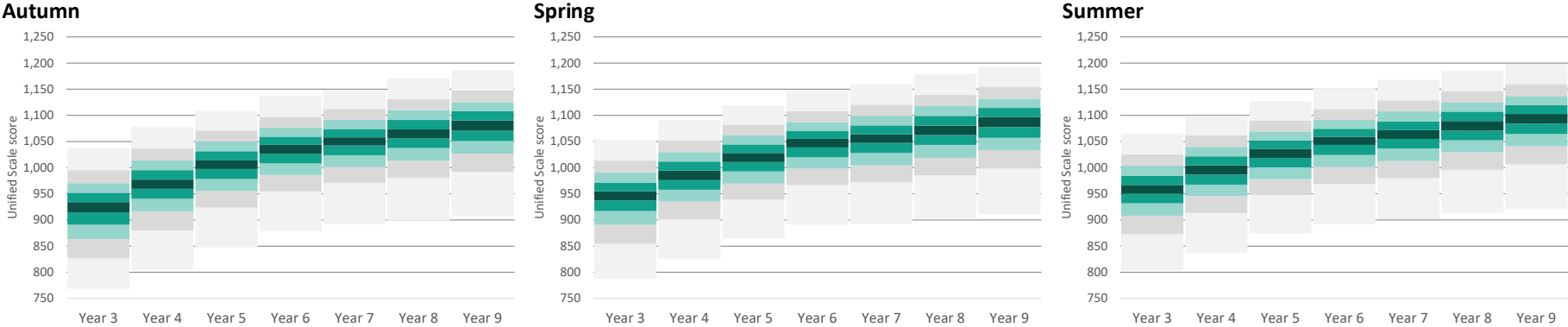
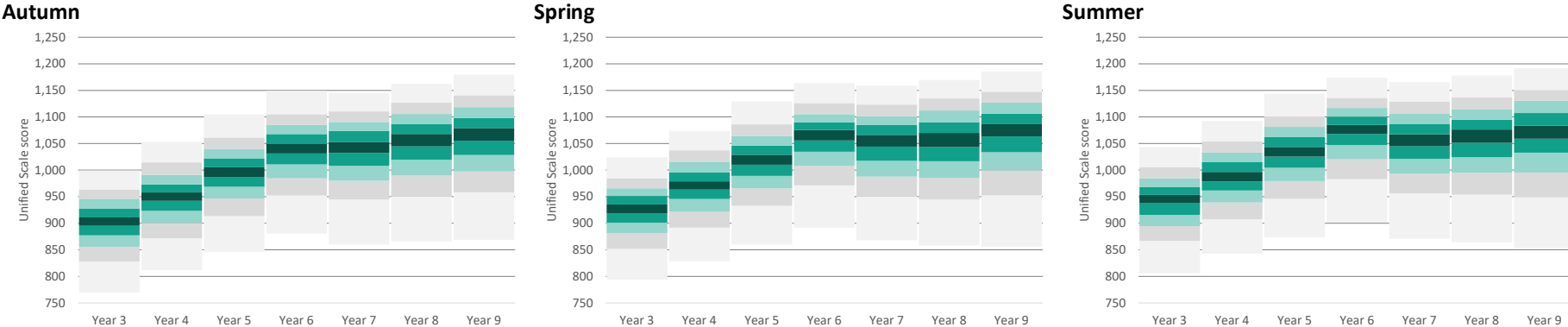


Figure 6: Distribution of unified scores (in bands of 10 per cent) by term and year group 2022/23 – mathematics



What do Star Assessments tell us about how results are changing over time?

We can use historic results on the Star Unified Scale score to compare how average scores have changed over time and, in particular, compare results in 2022/23 with results prior to the pandemic. We can also combine all year groups together to reach an overall view of how attainment now compares to before the pandemic.⁴

Results in primary reading are typically at or above pre-pandemic norms

- All average scores for primary year groups in reading were at or above the pre-pandemic average with the exception of the autumn and spring term for pupils in year 3 (Figure 7).
- The small negative outcome for pupils in Year 3 is unlikely to be educationally significant. As shown previously, younger pupils typically make around 45 points of progress a year, so a difference of 1.4 in the autumn term for pupils in year 3 in comparison to the baseline score equates to around one and a half weeks of learning.
- Scores in primary reading are slightly higher than for pre-pandemic cohorts. Across all terms and all year groups, results in primary reading were 0.02 standard deviations higher than prior to the pandemic. This is equivalent to 0.5 months of learning.

On average, results in secondary reading are very slightly behind pre-pandemic norms but the pattern of results are inconsistent

- Results in the autumn term ranged from being above pre-pandemic scores in Year 7 (by +2.0) and below in Year 8 (-2.5). Results in the spring term for reading amongst secondary year groups were below pre-pandemic averages (by up to 3.8 points on the unified scale). However, results in the summer term again were more in line with pre-pandemic averages.
- Across all terms and all year groups, results in secondary reading were 0.01 standard deviations lower than prior to the pandemic. This is equivalent to around 0.4 months of learning.

On average, results in mathematics are behind pre-pandemic norms in both primary and secondary schools

- Amongst primary year groups, results were below pre-pandemic norms in every year group and in every term.
- Across all terms and all year groups, results in primary maths were 0.11 standard deviations lower than prior to the pandemic. This is equivalent to around two months of learning.
- Across all terms and all year groups, results in secondary maths were 0.16 standard deviations lower than prior to the pandemic. This is equivalent to over four months of learning.

⁴ Note that in this section we convert changes into months of learning to aid understanding. These are derived from the typical rates of progress and standard deviations included in Annex 1.

Figure 7: Outcomes in 2022/23 in comparison with pre-pandemic norms by year group, reading⁵

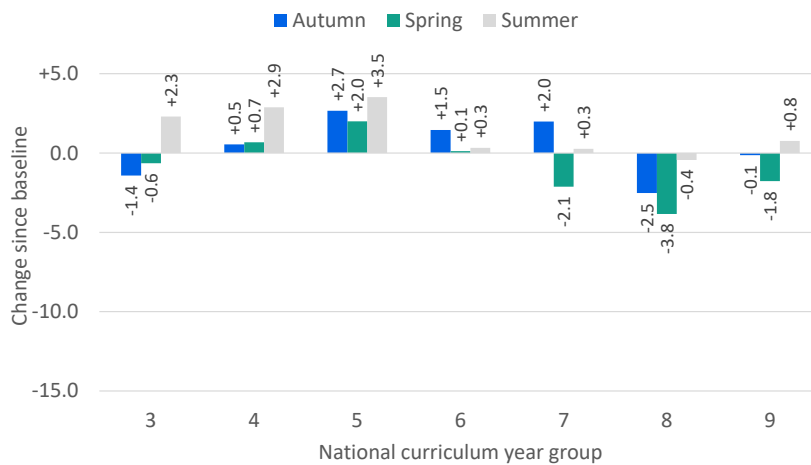


Figure 8: Outcomes in 2022/23 in comparison with pre-pandemic norms by year group, maths⁶

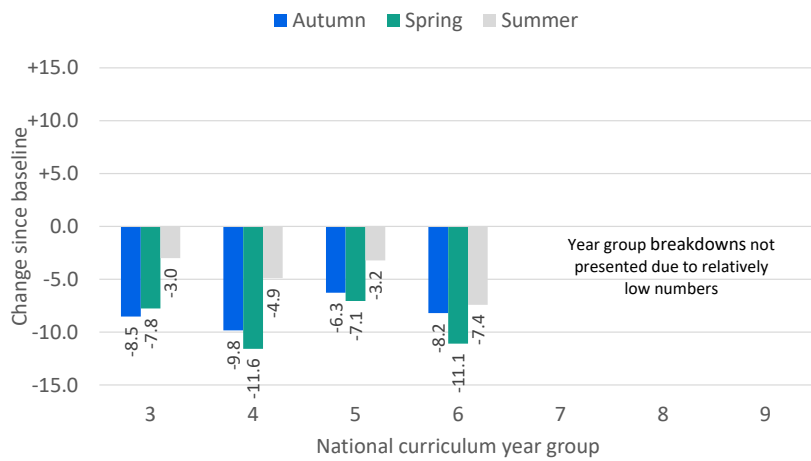
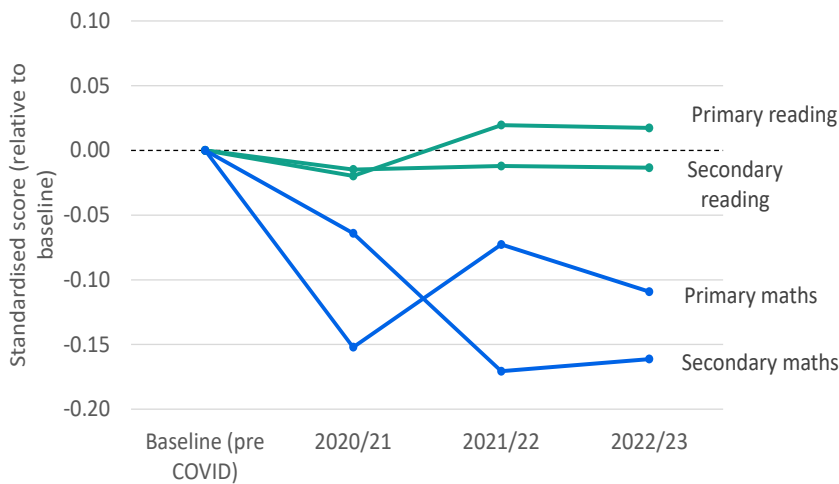


Figure 9: Overall change in average attainment over time by phase using standardised scores⁷



⁵ Differences of up to 0.8 are typically not statistically significant in this analysis. Pupil numbers and standard deviations are provided in Annex 1.

⁶ Differences of up to 2.5 are typically not statistically significant in this analysis. Pupil numbers and standard deviations are provided in Annex 1.

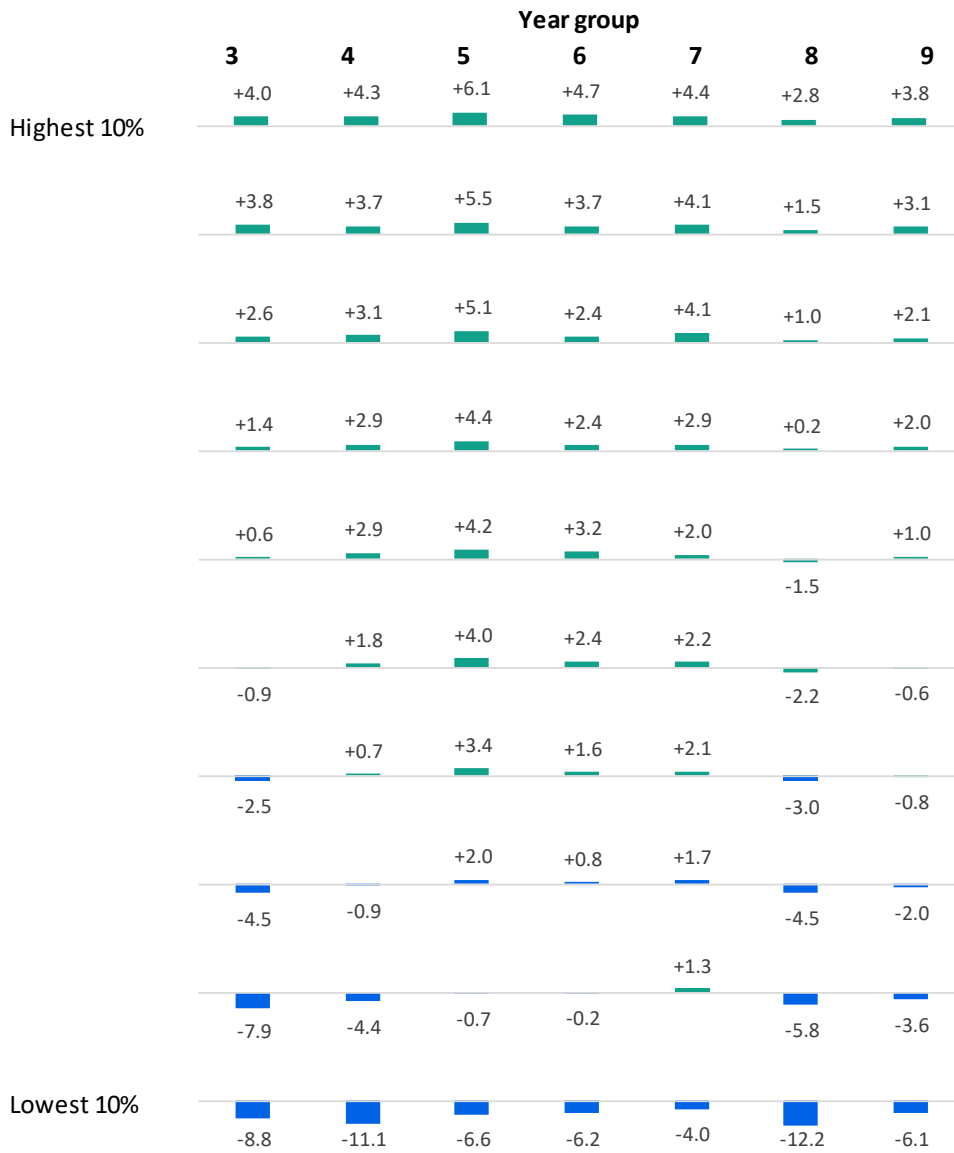
⁷ We have combined scores across all year groups by standardising the average score against pre-pandemic norms for that year group, in that term, in that subject such that the pre-pandemic averages all have a mean of 0 and a standard deviation of 1. A score above zero means results are higher than pre-pandemic norms.

While results in reading are typically at or above pre-pandemic norms, this is not consistent across the attainment distribution

In Figure 10 we repeat the same analysis but this time break down attainment into 10 equally sized groups (the highest attaining to the lowest attaining 10 per cent of the pupil population).

- Amongst the highest attaining 10 per cent of pupils, attainment in reading is typically over 4 scaled score points higher than it was prior to the pandemic. While the scale of differences varies, pupils higher up the attainment distribution are on average now doing better than their peers prior to the pandemic.
- Amongst the lowest attaining 10 per cent of pupils, average attainment in reading is typically at least 6 points lower than it was prior to the pandemic. While the scale of differences varies, we see that pupils lower down the attainment distribution are now doing worse than their peers prior to the pandemic.
- In other words, while on average results are at or above pre-pandemic norms there is a widening gap in attainment between the top and bottom of the distribution.

Figure 10: Change in mean score by decile (autumn term 2022/23 versus baseline), reading⁸



⁸ Underlying pupil numbers and standard deviations for these measures are provided in Annex 1.

Linking outcomes in Star Assessments with outcomes at the end of key stage 2

In this section we explore the relationship between outcomes in Star Assessments with pupils' later outcomes in key stage 2 assessments in each of reading and mathematics.

In a 2017 study, Renaissance linked Star Assessments with key stage 2 assessments for the first time.⁹ The study looked at Year 6 pupils who took both assessments around the same time. It found a high correlation between Star Assessments and key stage 2 outcomes and has since been used by schools to identify whether pupils are on track to reach the expected standard at key stage 2.

As a longer time series of data is now available, this new analysis builds this understanding of the relationship further by linking outcomes earlier in the key stage directly with outcomes in key stage 2 assessments. It explores the relationship between the outcomes in Star Assessments at the start of year 3, year 4, year 5, and year 6 and outcomes in key stage 2 reading and mathematics.

Describing the relationship between Star Assessments and outcomes at the end of key stage 2

We assess the relationship between Star Assessments and key stage 2 with regression analyses of attainment at key stage 2 against Star Assessments in the autumn term of year 3, year 4, year 5, and year 6.

Figure 11 (reading) and Figure 12 (mathematics) illustrate these regressions, with a full set of regression outputs provided in Annex 2. These analyses show:

- There is a positive correlation between outcomes in assessments in Star Reading and key stage 2 reading, and assessments in Star Maths and key stage 2 mathematics – in other words, and as would be expected, pupils who have scored highly on the unified scale in Star Assessments tend to go on to achieve highly on scaled scores at key stage 2 and vice versa.
- Around half of the variation in key stage 2 outcomes in each of reading and mathematics can be “explained” by pupil prior attainment in Star Assessments. As we have seen in previous reports, the pattern of attainment in Star Assessments has later been seen in key stage 2 assessments. So taken in aggregate, these assessments provide a good indicator of the most likely average outcomes at key stage 2.
- The strength of the relationship increases for older year groups – i.e. as results in Star Assessments are closer in time to the key stage 2 assessments. In reading, around 45 per cent of the variation in outcomes can be explained by looking at outcomes in year 3, and this increases to 55 per cent when looking at outcomes in year 6.
- There is still a considerable amount of “unexplained variation” in pupil outcomes. There are likely to be a wide range of factors that cause this including the assessments covering different aspects of learning, the different rates of progress that individual pupils make, the

⁹ Renaissance, *Relating results from Renaissance Star Reading and Renaissance Star Maths to the Key Stage 2 standardised attainment tests*, September 2017. Updated in 2023 to reflect the new Unified Scale score. <https://renaissance.widen.net/s/9hnp5pdjqs>

systematic differences between the progress of different pupil groups, and that in any assessment some pupils will perform better or worse than would be expected.¹⁰

Figure 11: Regression analysis of scaled scores in key stage 2 reading against prior attainment in Star Reading

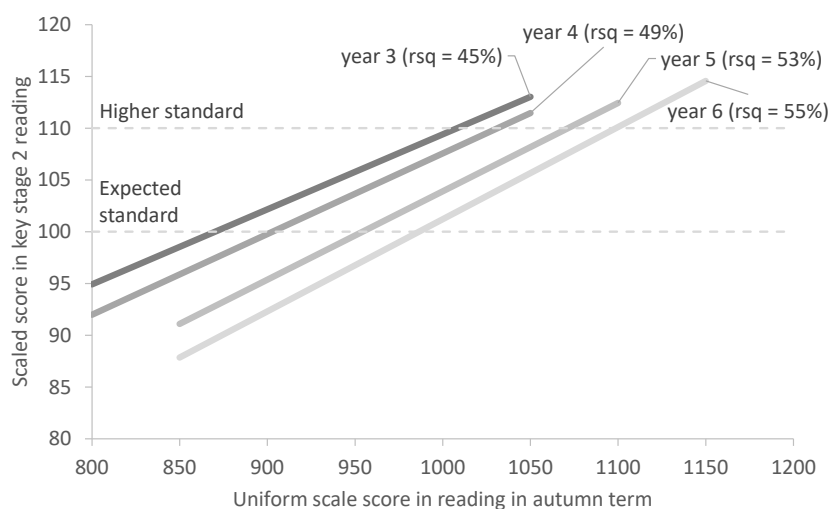
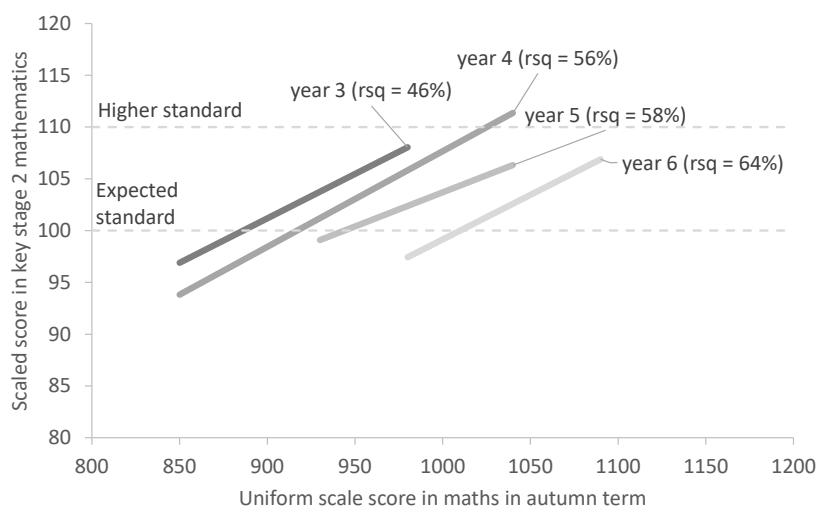


Figure 12: Regression analysis of scaled scores in key stage 2 mathematics against prior attainment in Star Maths



¹⁰ The degree of unexplained variation is of a similar magnitude to that seen in the Department for Education’s Progress 8 measure for measuring progress between key stage 2 and key stage 4. For a school, the average difference between a model “prediction” and what a pupil achieved is taken as a measure of “school effectiveness”.

In the past, what proportion of pupils with a particular level of outcome on the unified scale have gone on to achieve the expected or higher standard at key stage 2?

We now explore the range of outcomes at key stage 2 for any given level of prior attainment. We use key stage 2 outcome data from 2018, 2019 and 2022.¹¹ Figure 13 (reading) and Figure 14 (mathematics) show the proportion of pupils that achieved the higher standard and the expected standard across our analysis dataset and in national results. They show that in terms of key stage 2 attainment, pupils in the Renaissance dataset are very similar to all pupils nationally, though pupils in the Renaissance dataset are slightly less likely to be below the expected standard at key stage 2.

¹¹ The extent to which each is used depends on the year group being looked at. The earliest Renaissance data is from 2017/18, so the key stage 2 cohort in 2017/18 only captures Star Assessments in year 6 and so is only included in that year group's analysis. The key stage 2 cohort in 2021/22 on the other hand is included in analysis for all four year groups – year 6 pupils (2021/22), year 5 pupils (2020/21), year 4 pupils (2019/20), and year 3 pupils (2018/19).

Figure 13: the proportion of pupils achieving the expected and higher standard in reading at the end of key stage 2, in the Renaissance dataset and across all pupils nationally in 2018, 2019, and 2022.

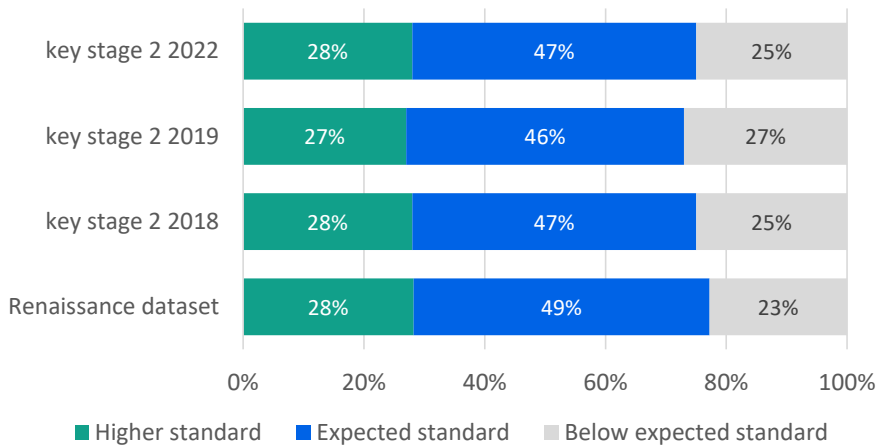
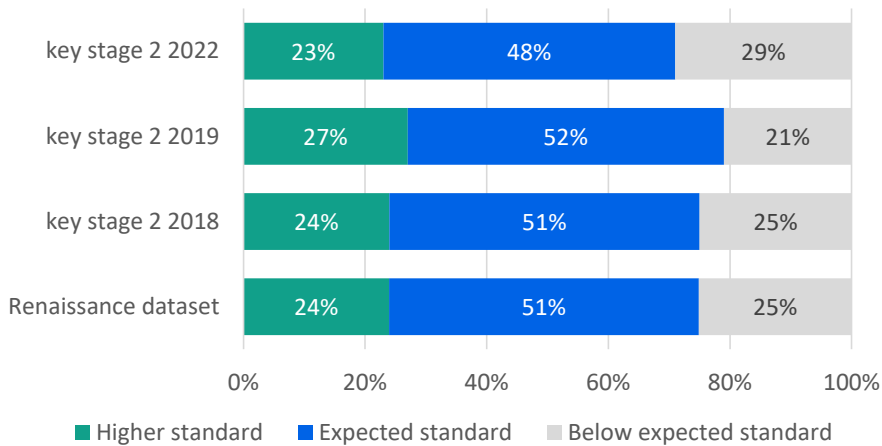


Figure 14: the proportion of pupils achieving the expected and higher standard in mathematics at the end of key stage 2, in the Renaissance dataset and across all pupils nationally in 2018, 2019, and 2022.



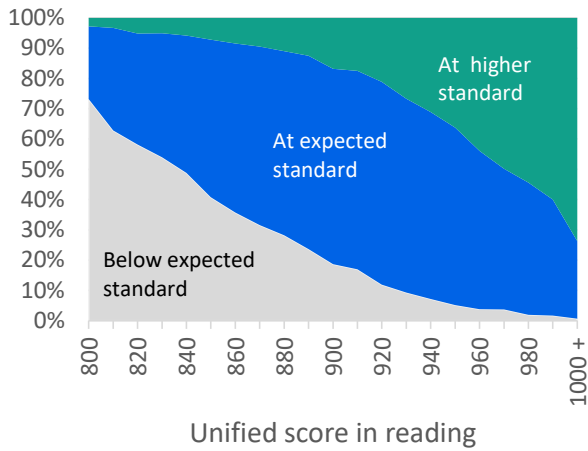
In Figure 15 (reading) and in Figure 16 (mathematics), we calculate the proportion of pupils achieving the higher standard, the expected standard, or below the expected standard in key stage 2 assessments by their level of attainment. They show that:

- As expected, the propensity to achieve the expected standard or above is related to outcomes on the unified scale.
- Pupils at the lower end of the unified scale are far more likely than average to be below the expected standard at key stage 2, similarly, those at the higher end of the unified scale are far more likely than average to be at the higher standard at key stage 2.
- But at every point along the unified scale there are pupils who are below the expected standard, at the expected standard, or at the higher standard.

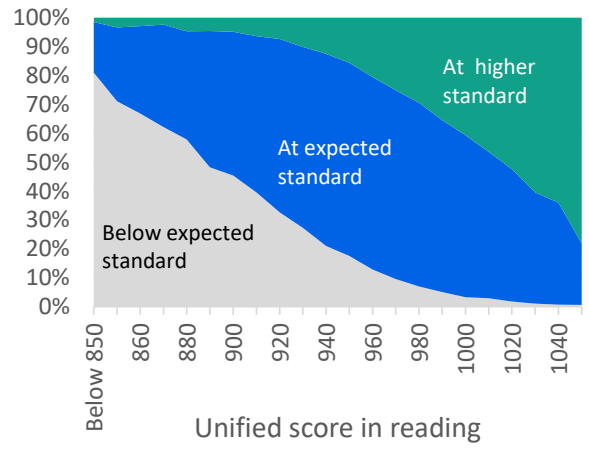
A full breakdown of these rates of attainment is provided in Annex 2.

Figure 15: the proportion of pupils achieving the expected and higher standard at the end of key stage 2, by level of attainment in Star Reading earlier in the key stage.

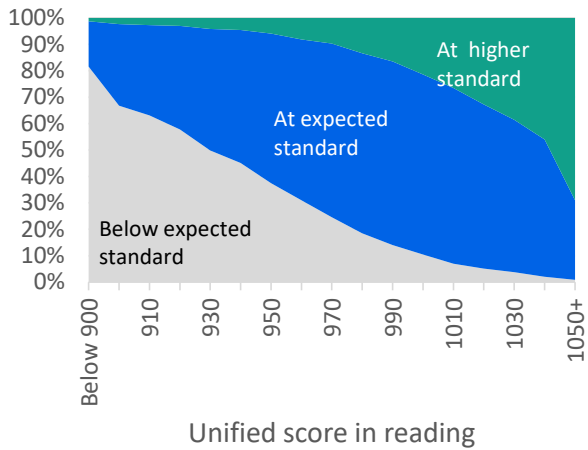
Start of year 3



Start of year 4



Start of year 5



Start of year 6

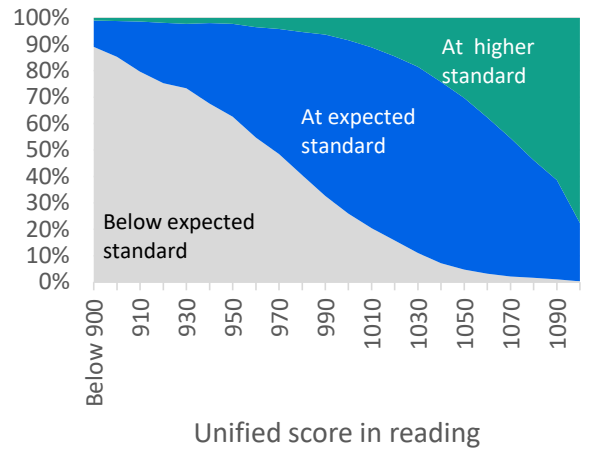
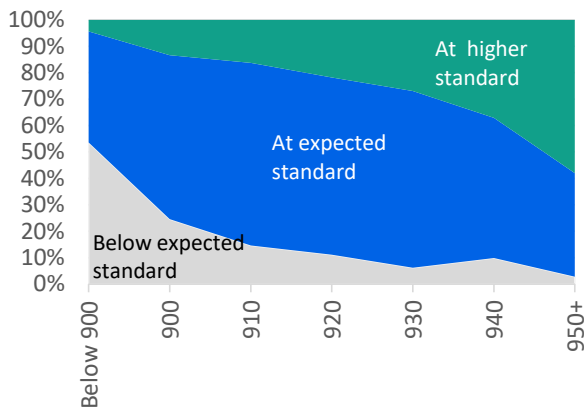


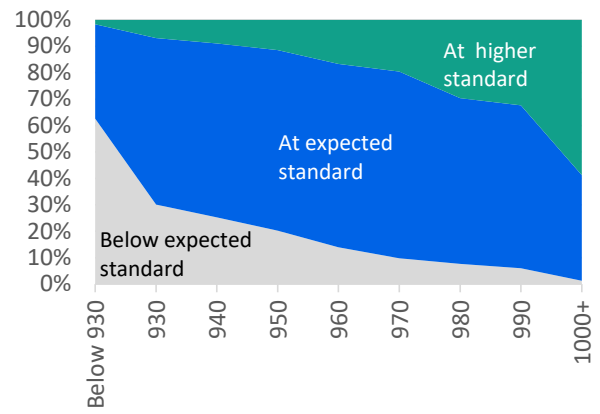
Figure 16: the proportion of pupils achieving the expected and higher standard at the end of key stage 2, by level of attainment in Star Maths earlier in the key stage.

Start of year 3



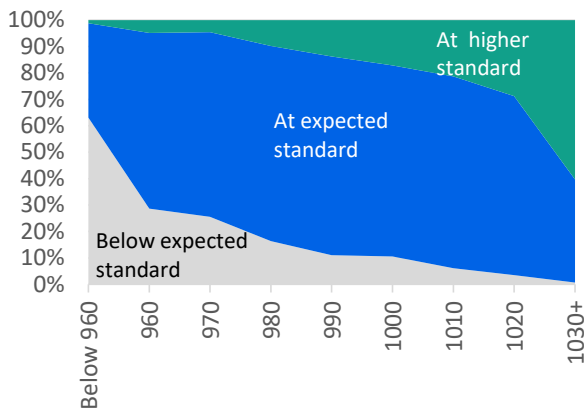
Unified score in maths

Start of year 4



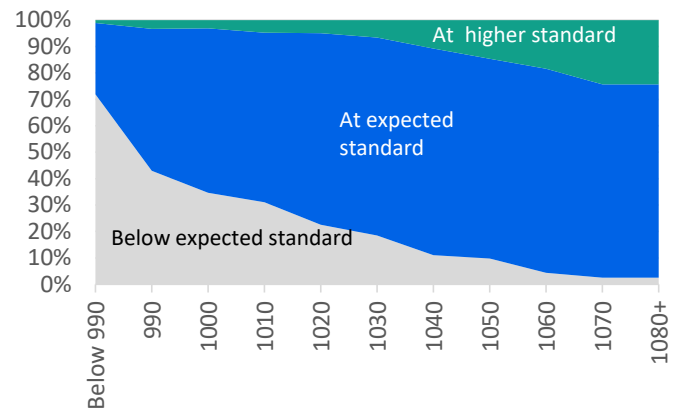
Unified score in maths

Start of year 5



Unified score in maths

Start of year 6



Unified score in maths

Annex 1: Benchmarking Tables

Table 1A: Mean outcomes at different parts of the attainment distribution in reading – autumn term, baseline

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	117,115	916.7	73.2	+/-0.4	3	11,725	11,576	11,649	11,760	11,530	12,059	11,400	12,023	11,674	11,719	
4	121,187	959.9	72.8	+/-0.4	4	12,196	12,092	11,975	11,923	12,272	12,087	12,188	12,417	12,102	11,935	
5	125,275	994.8	70.5	+/-0.4	5	12,514	12,614	12,726	12,446	12,186	12,981	12,363	12,661	12,054	12,730	
6	115,965	1025.2	70.0	+/-0.4	6	11,624	11,566	11,812	11,365	11,359	11,485	12,253	11,231	11,819	11,451	
7	236,301	1039.5	70.4	+/-0.3	7	23,621	23,279	23,871	23,434	24,456	23,521	22,577	23,895	24,137	23,510	
8	190,097	1058.8	72.9	+/-0.3	8	18,889	18,962	19,115	18,729	19,217	18,623	19,070	19,225	19,248	19,019	
9	76,554	1070.7	76.5	+/-0.5	9	7,680	7,656	7,596	7,690	7,830	7,493	7,429	7,697	7,850	7,633	
					Number of pupils	3	777.2	835.1	868.3	893.3	915.4	933.5	950.7	967.9	991.4	1032.4
						4	815.9	884.0	917.5	939.7	957.6	974.1	992.4	1011.1	1033.3	1073.5
						5	854.1	924.6	953.6	974.7	993.5	1009.7	1027.0	1044.8	1065.4	1102.0
						6	884.9	954.8	985.4	1006.4	1024.3	1040.6	1056.9	1073.9	1093.5	1131.8
						7	896.4	969.1	999.8	1021.6	1040.2	1055.9	1071.0	1087.2	1108.1	1144.8
						8	911.1	986.1	1017.8	1040.5	1058.1	1074.6	1090.9	1109.0	1129.7	1168.3
						9	913.6	995.7	1028.8	1052.0	1071.2	1088.9	1106.1	1123.0	1144.5	1183.0
					Mean score	3	26.5	11.4	8.2	6.9	5.5	5.2	4.6	5.7	7.9	23.1
						4	35.8	11.8	7.4	5.7	4.6	4.9	5.5	5.8	7.4	21.4
						5	42.4	10.7	6.6	5.7	4.9	4.9	4.8	5.5	6.7	21.8
						6	45.4	10.4	7.6	5.2	4.9	4.6	4.9	4.9	6.9	21.8
						7	46.7	10.4	7.1	5.8	4.9	4.3	4.3	5.1	7.0	20.4
						8	49.8	11.7	7.5	5.5	4.9	4.6	4.9	5.5	7.2	20.4
						9	53.2	12.3	7.9	5.7	5.5	4.9	5.0	5.1	7.5	21.0
					Standard deviation	3	26.5	11.4	8.2	6.9	5.5	5.2	4.6	5.7	7.9	23.1
						4	35.8	11.8	7.4	5.7	4.6	4.9	5.5	5.8	7.4	21.4
						5	42.4	10.7	6.6	5.7	4.9	4.9	4.8	5.5	6.7	21.8
						6	45.4	10.4	7.6	5.2	4.9	4.6	4.9	4.9	6.9	21.8
						7	46.7	10.4	7.1	5.8	4.9	4.3	4.3	5.1	7.0	20.4
						8	49.8	11.7	7.5	5.5	4.9	4.6	4.9	5.5	7.2	20.4
						9	53.2	12.3	7.9	5.7	5.5	4.9	5.0	5.1	7.5	21.0

Table 1B: Mean outcomes at different parts of the attainment distribution in reading – autumn term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	71,021	915.3	77.4	+/-0.6	Number of pupils	3	7,059	7,171	7,126	6,975	7,088	7,372	6,926	7,229	6,964	7,111
4	75,971	960.4	76.9	+/-0.5		4	7,538	7,606	7,492	7,637	7,904	7,268	7,612	7,561	7,814	7,539
5	81,368	997.5	74.0	+/-0.5		5	8,178	8,084	8,264	8,227	8,079	7,898	8,340	8,231	7,852	8,215
6	82,407	1026.7	72.9	+/-0.5		6	8,249	8,264	8,216	8,287	8,360	8,260	8,092	8,010	8,424	8,245
7	120,096	1041.5	72.7	+/-0.4		7	11,985	12,119	12,175	11,589	12,396	11,629	12,396	11,581	12,164	12,062
8	104,981	1056.3	77.1	+/-0.5		8	10,439	10,609	10,520	10,499	10,499	10,192	10,685	10,440	10,577	10,521
9	53,642	1070.6	79.6	+/-0.7		9	5,393	5,259	5,446	5,246	5,538	5,378	5,254	5,304	5,533	5,291
					Mean score	3	768.4	827.2	863.8	890.8	914.5	934.1	952.1	970.5	995.2	1036.4
						4	804.8	879.5	916.6	940.5	959.5	977.0	995.3	1014.2	1037.0	1077.8
						5	847.5	923.8	955.6	978.1	997.5	1013.9	1031.4	1049.8	1070.8	1108.1
						6	878.7	954.6	986.2	1008.0	1026.7	1043.7	1059.3	1076.3	1097.1	1136.5
						7	892.4	970.4	1001.5	1023.7	1042.4	1057.9	1073.9	1091.3	1112.2	1149.1
						8	899.0	980.3	1013.3	1037.5	1055.9	1073.1	1091.0	1110.0	1131.2	1171.1
						9	907.5	992.1	1026.8	1051.1	1070.6	1090.0	1108.0	1125.1	1147.6	1186.7
					Standard deviation	3	24.2	12.7	9.0	7.2	6.0	5.5	4.9	6.2	8.1	22.7
						4	36.2	13.5	8.1	6.1	5.2	4.9	5.5	5.9	7.7	21.9
						5	44.5	11.9	7.1	5.9	4.8	5.0	5.2	5.5	7.0	21.5
						6	48.9	11.2	7.7	5.4	5.1	4.7	4.5	5.2	7.2	22.1
						7	49.3	11.2	7.1	5.9	4.9	4.2	4.8	5.2	6.9	20.7
						8	53.0	12.1	7.7	6.0	4.9	4.8	5.5	5.5	7.4	20.8
						9	56.6	12.5	8.5	5.7	5.7	5.5	4.9	5.2	8.0	20.9

Table 2A: Mean outcomes at different parts of the attainment distribution in reading – spring term, baseline

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	69,496	937.7	72.0	+/-0.5	Number of pupils	3	6,890	7,107	6,840	6,795	7,116	7,117	6,880	6,845	6,944	6,962
4	70,057	976.6	71.2	+/-0.5		4	6,948	7,150	6,939	7,198	6,764	6,893	7,205	6,848	7,192	6,920
5	69,732	1009.3	69.2	+/-0.5		5	6,917	6,959	6,969	6,937	7,182	6,804	7,196	6,971	6,720	7,077
6	58,107	1037.9	68.9	+/-0.6		6	5,850	5,778	5,937	5,667	5,796	5,831	5,805	5,952	5,766	5,725
7	124,764	1048.8	71.0	+/-0.4		7	12,419	12,391	12,721	12,617	12,064	12,641	12,583	12,613	12,226	12,489
8	99,702	1066.5	73.0	+/-0.5		8	9,899	10,152	9,682	10,416	9,822	10,095	9,784	9,662	10,141	10,049
9	39,375	1078.4	77.0	+/-0.8		9	3,974	3,842	4,095	3,812	4,020	3,989	3,845	3,936	3,917	3,945
					Mean score	3	796.3	860.5	893.8	918.0	936.6	953.8	969.6	988.2	1010.0	1050.2
						4	834.1	904.7	935.4	956.9	974.3	992.0	1008.8	1026.4	1047.5	1086.5
						5	871.2	939.5	967.6	990.2	1007.9	1024.8	1040.9	1058.3	1077.9	1114.1
						6	899.4	968.9	999.3	1020.3	1037.9	1054.0	1069.1	1084.6	1104.8	1142.6
						7	905.2	977.9	1008.7	1030.9	1048.6	1064.5	1080.3	1097.6	1118.2	1155.9
						8	918.4	994.3	1025.5	1047.9	1066.1	1083.0	1099.9	1116.9	1137.4	1175.5
						9	920.4	1002.4	1036.6	1059.6	1079.1	1097.4	1114.6	1131.4	1153.2	1190.7
					Standard deviation	3	32.0	12.2	8.2	5.7	5.1	4.5	5.0	6.0	7.2	22.5
						4	39.4	12.0	7.1	5.1	4.9	5.2	4.9	5.1	7.3	21.4
						5	43.4	10.3	7.0	6.0	4.9	4.6	5.0	5.2	6.2	21.4
						6	46.4	10.8	6.7	5.5	5.0	4.4	4.3	4.8	6.9	21.2
						7	47.9	10.9	7.2	5.8	4.6	4.7	4.6	5.5	6.5	20.1
						8	50.7	11.8	7.3	5.7	4.9	4.9	4.9	4.9	7.6	20.0
						9	53.5	12.1	8.2	5.7	5.4	5.2	4.6	5.4	7.1	20.8

Table 2B: Mean outcomes at different parts of the attainment distribution in reading – spring term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	69,265	937.1	75.5	+/-0.6	3	6,879	6,904	6,903	6,970	7,214	6,858	6,605	7,102	6,854	6,976	
4	72,654	977.3	75.1	+/-0.5	4	7,301	7,338	7,044	7,554	6,942	7,591	7,054	7,180	7,308	7,342	
5	76,825	1011.3	72.2	+/-0.5	5	7,635	7,632	7,731	7,911	7,561	7,821	7,494	7,845	7,464	7,731	
6	71,683	1038.0	72.0	+/-0.5	6	7,123	7,160	7,274	7,029	7,411	7,069	7,117	7,300	7,131	7,069	
7	96,461	1046.6	75.8	+/-0.5	7	9,701	9,622	9,722	9,565	9,728	9,819	9,270	9,902	9,457	9,675	
8	84,143	1062.7	78.4	+/-0.5	8	8,431	8,402	8,253	8,770	8,256	8,265	8,738	8,191	8,461	8,376	
9	42,363	1076.6	80.0	+/-0.8	9	4,249	4,225	4,143	4,369	4,241	4,162	4,380	4,212	4,165	4,217	
					Number of pupils	3	787.7	854.6	890.8	917.1	937.2	954.7	970.8	990.3	1013.5	1053.3
						4	825.1	901.3	935.1	957.8	976.1	994.4	1011.7	1029.7	1051.6	1090.4
						5	864.9	939.4	969.7	992.7	1010.8	1028.0	1044.5	1061.6	1082.4	1119.6
						6	891.2	966.4	998.0	1019.8	1038.7	1054.9	1070.5	1087.2	1107.7	1146.4
						7	892.6	972.2	1004.2	1028.0	1047.3	1063.8	1080.7	1099.0	1120.4	1159.5
						8	902.9	985.5	1019.0	1043.6	1062.3	1080.2	1098.9	1117.4	1139.0	1178.6
						9	911.5	998.4	1033.5	1056.9	1077.3	1096.6	1114.2	1131.7	1154.6	1192.5
					Mean score	3	31.0	13.2	8.6	6.3	5.6	4.6	4.9	6.5	7.5	21.8
						4	40.6	13.2	7.5	5.7	4.8	5.5	4.9	5.4	7.4	20.6
						5	45.9	11.2	7.3	6.1	4.9	4.9	4.6	5.4	6.6	21.4
						6	47.7	11.4	7.1	5.7	5.2	4.4	4.6	5.2	6.9	21.6
						7	51.5	11.4	7.4	6.3	4.9	5.0	4.9	5.8	6.7	21.1
						8	54.2	12.1	8.2	6.0	5.2	5.2	5.4	5.1	7.9	20.8
						9	57.0	12.7	8.0	6.0	5.7	5.1	4.9	5.8	7.5	21.2
					Standard deviation	3	31.0	13.2	8.6	6.3	5.6	4.6	4.9	6.5	7.5	21.8
						4	40.6	13.2	7.5	5.7	4.8	5.5	4.9	5.4	7.4	20.6
						5	45.9	11.2	7.3	6.1	4.9	4.9	4.6	5.4	6.6	21.4
						6	47.7	11.4	7.1	5.7	5.2	4.4	4.6	5.2	6.9	21.6
						7	51.5	11.4	7.4	6.3	4.9	5.0	4.9	5.8	6.7	21.1
						8	54.2	12.1	8.2	6.0	5.2	5.2	5.4	5.1	7.9	20.8
						9	57.0	12.7	8.0	6.0	5.7	5.1	4.9	5.8	7.5	21.2

Table 3A: Mean outcomes at different parts of the attainment distribution in reading – summer term, baseline

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	68,391	949.0	72.3	+/-0.5	Number of pupils	3	6,843	6,833	6,894	6,957	6,420	7,022	7,027	6,734	6,871	6,790
4	68,382	984.9	71.7	+/-0.5		4	6,780	6,779	7,096	6,639	6,732	7,148	6,524	7,011	6,739	6,934
5	67,794	1015.9	70.1	+/-0.5		5	6,779	6,694	6,981	6,519	6,931	6,658	6,931	6,806	6,770	6,725
6	48,871	1041.5	70.1	+/-0.6		6	4,854	4,905	4,970	4,909	4,928	4,726	4,883	4,841	4,989	4,866
7	125,112	1054.7	72.1	+/-0.4		7	12,396	12,546	12,517	12,696	12,176	12,467	12,784	12,761	12,266	12,503
8	97,791	1071.8	74.1	+/-0.5		8	9,741	9,827	9,578	10,038	9,970	9,671	9,745	9,746	9,595	9,880
9	36,931	1082.7	77.9	+/-0.8		9	3,689	3,651	3,815	3,646	3,610	3,703	3,648	3,801	3,733	3,635
					Mean score	3	805.8	872.9	906.6	929.8	947.9	963.2	980.6	1000.0	1021.4	1062.1
						4	840.9	912.2	943.4	964.4	982.8	1001.1	1017.5	1034.6	1056.1	1094.1
						5	875.7	945.0	974.9	997.2	1014.5	1031.6	1047.9	1065.2	1085.1	1122.0
						6	899.0	970.7	1002.5	1024.5	1042.3	1058.2	1072.8	1088.5	1108.8	1147.3
						7	908.7	982.3	1013.4	1036.5	1054.5	1070.5	1086.9	1104.8	1124.9	1163.3
						8	921.0	998.6	1030.4	1052.9	1071.7	1089.0	1106.0	1122.9	1144.1	1181.3
						9	921.7	1006.1	1041.0	1064.3	1083.6	1101.5	1118.6	1136.2	1158.4	1195.6
					Standard deviation	3	34.2	11.9	8.1	5.9	4.6	4.6	5.4	5.4	7.4	22.4
						4	40.7	11.3	7.6	5.2	5.4	4.8	4.7	5.4	7.2	20.8
						5	44.4	10.6	7.5	5.1	5.3	4.6	4.9	5.2	6.5	21.0
						6	46.3	11.6	7.0	5.5	4.9	4.3	4.3	4.9	6.9	21.3
						7	48.7	11.3	7.2	5.9	4.6	4.6	4.9	5.5	6.7	20.2
						8	52.8	11.7	7.4	5.7	5.2	4.9	4.9	5.0	7.2	20.3
						9	55.9	12.4	8.0	6.1	5.2	5.2	4.6	5.9	7.2	20.8

Table 3B: Mean outcomes at different parts of the attainment distribution in reading – summer term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	62,739	951.3	74.2	+/-0.6	3	6,280	6,325	6,243	6,226	6,391	6,297	6,138	6,219	6,298	6,322	
4	65,239	987.8	74.2	+/-0.6	4	6,543	6,401	6,526	6,607	6,638	6,353	6,640	6,443	6,537	6,551	
5	66,947	1019.4	72.0	+/-0.5	5	6,711	6,592	6,701	6,789	6,599	6,925	6,589	6,541	6,742	6,758	
6	48,451	1041.8	73.5	+/-0.7	6	4,880	4,756	4,879	4,880	4,880	4,726	4,865	4,793	4,906	4,886	
7	89,112	1055.0	75.8	+/-0.5	7	8,966	8,885	9,033	8,659	9,209	8,538	8,898	9,223	8,649	9,052	
8	79,427	1071.3	77.5	+/-0.5	8	7,987	7,884	8,138	7,790	7,774	8,262	7,808	8,098	7,643	8,043	
9	41,554	1083.5	79.2	+/-0.8	9	4,168	4,155	4,229	4,143	3,976	4,161	4,148	4,175	4,212	4,187	
					Number of pupils	3	803.5	873.1	908.3	931.8	950.3	966.8	984.5	1003.7	1025.7	1065.4
						4	837.3	913.3	945.5	967.6	986.9	1004.3	1021.5	1039.8	1061.6	1099.4
						5	874.2	947.8	978.0	1000.5	1018.5	1036.0	1052.5	1069.2	1089.6	1127.4
						6	891.6	968.7	1001.4	1024.3	1043.6	1059.1	1074.4	1091.1	1111.9	1151.0
						7	901.5	980.2	1012.5	1036.7	1055.0	1071.6	1088.5	1107.5	1128.7	1167.7
						8	913.6	995.7	1029.5	1052.3	1070.7	1089.1	1107.1	1124.4	1146.7	1185.4
						9	920.8	1006.3	1040.9	1064.4	1084.3	1102.7	1119.5	1137.0	1159.7	1198.1
					Mean score	3	35.3	12.3	8.4	5.8	4.9	4.9	5.5	5.3	7.4	21.4
						4	42.2	11.9	7.5	5.8	5.6	4.5	5.2	5.6	7.6	20.5
						5	47.3	10.9	7.4	5.3	5.2	4.9	4.6	5.2	6.9	21.2
						6	49.2	11.7	7.2	6.0	4.9	4.2	4.6	5.2	6.9	21.4
						7	51.8	11.6	7.9	6.0	4.8	4.6	5.2	5.8	7.2	21.0
						8	56.3	12.0	8.1	5.4	5.1	5.5	4.9	5.5	7.4	21.1
						9	58.1	12.7	7.8	6.2	5.6	5.2	4.6	5.9	7.5	21.5
					Standard deviation	3	35.3	12.3	8.4	5.8	4.9	4.9	5.5	5.3	7.4	21.4
						4	42.2	11.9	7.5	5.8	5.6	4.5	5.2	5.6	7.6	20.5
						5	47.3	10.9	7.4	5.3	5.2	4.9	4.6	5.2	6.9	21.2
						6	49.2	11.7	7.2	6.0	4.9	4.2	4.6	5.2	6.9	21.4
						7	51.8	11.6	7.9	6.0	4.8	4.6	5.2	5.8	7.2	21.0
						8	56.3	12.0	8.1	5.4	5.1	5.5	4.9	5.5	7.4	21.1
						9	58.1	12.7	7.8	6.2	5.6	5.2	4.6	5.9	7.5	21.5

Table 4A: Mean outcomes at different parts of the attainment distribution in mathematics – autumn term, baseline

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	10,400	905.8	62.1	+/-1.2	Number of pupils	3	1,036	1,029	1,060	1,008	1,068	1,015	1,055	1,040	1,032	1,057
4	10,509	953.7	65.1	+/-1.2		4	1,048	1,063	1,060	1,028	1,022	1,106	1,053	1,009	1,080	1,040
5	11,459	995.6	70.4	+/-1.3		5	1,157	1,115	1,161	1,132	1,161	1,165	1,158	1,121	1,146	1,143
6	10,838	1039.6	74.2	+/-1.4		6	1,093	1,064	1,083	1,107	1,110	1,067	1,085	1,055	1,106	1,068
7	6,017	1039.1	80.2	+/-2		7	600	613	594	613	587	616	610	568	622	594
8	4,265	1058.5	82.1	+/-2.5		8	426	426	424	426	425	424	426	421	447	420
9	1,939	1061.7	94.3	+/-4.2		9	194	195	193	196	191	194	195	189	198	194
					Mean score	3	783.3	842.1	868.3	888.3	904.1	918.2	934.1	950.3	966.5	1000.7
						4	827.1	887.2	913.7	935.0	952.1	966.7	981.9	997.5	1018.4	1058.2
						5	860.0	924.3	954.4	974.6	991.5	1007.9	1024.7	1043.9	1067.5	1108.0
						6	892.4	964.8	996.3	1019.1	1039.6	1056.3	1074.1	1091.0	1111.9	1152.8
						7	877.0	955.7	990.2	1015.5	1040.0	1062.1	1082.2	1098.8	1118.9	1152.4
						8	893.9	976.2	1008.3	1034.9	1059.4	1080.0	1097.3	1115.4	1138.2	1180.1
						9	874.6	961.6	1001.6	1035.8	1067.8	1089.3	1107.5	1128.0	1148.9	1202.4
					Standard deviation	3	36.0	9.6	6.6	4.9	4.3	4.0	5.0	4.3	5.6	23.0
						4	36.1	9.8	6.1	5.9	4.3	4.3	4.3	4.9	7.5	22.7
						5	41.5	10.6	7.0	5.2	4.4	4.9	4.9	6.0	7.8	27.0
						6	47.8	11.2	7.5	6.0	5.5	4.6	5.5	4.5	8.0	26.8
						7	46.6	12.8	7.9	6.9	6.9	6.5	5.0	4.7	7.0	21.6
						8	52.3	11.8	7.7	8.1	6.4	5.5	4.5	6.3	6.3	31.5
						9	51.9	12.7	9.4	10.7	8.2	4.7	5.9	6.2	7.3	39.9

Table 4B: Mean outcomes at different parts of the attainment distribution in mathematics – autumn term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	10,111	897.3	66.2	+/-1.3	Number of pupils	3	1,012	1,016	987	1,035	992	1,004	1,034	1,013	995	1,023
4	10,651	943.9	68.9	+/-1.3		4	1,075	1,049	1,068	1,094	1,017	1,065	1,061	1,085	1,061	1,076
5	10,687	989.4	73.4	+/-1.4		5	1,064	1,071	1,079	1,082	1,029	1,114	1,035	1,081	1,079	1,053
6	10,231	1031.4	76.5	+/-1.5		6	1,019	1,015	1,028	1,057	992	1,051	1,025	985	1,047	1,012
7	3,630	1029.8	82.5	+/-2.7		7	361	364	369	357	367	365	355	368	363	361
8	3,083	1042.0	86.1	+/-3		8	308	304	308	313	306	310	317	309	303	305
9	2,027	1052.6	90.2	+/-3.9		9	199	205	206	197	209	200	199	208	200	204
					Mean score	3	769.2	827.8	855.5	877.3	895.1	910.9	927.8	946.1	963.0	999.1
						4	811.7	871.6	900.4	923.3	942.1	957.9	972.9	990.9	1014.4	1052.8
						5	845.7	913.4	946.5	968.6	987.2	1005.2	1022.2	1039.8	1061.1	1104.8
						6	880.3	952.2	984.6	1010.6	1031.2	1049.0	1067.8	1085.1	1105.2	1149.1
						7	860.0	944.8	980.1	1008.0	1032.3	1053.2	1073.7	1090.4	1110.4	1145.2
						8	866.0	950.5	989.9	1019.5	1044.7	1068.0	1086.7	1105.5	1126.8	1162.1
						9	868.7	958.2	997.3	1028.5	1055.3	1079.1	1097.9	1118.5	1140.8	1179.7
					Standard deviation	3	34.1	9.5	6.6	5.8	4.9	4.3	5.6	4.9	5.3	25.7
						4	35.2	10.1	7.3	6.0	4.7	4.4	4.6	5.5	7.2	23.5
						5	42.5	11.2	7.9	5.7	4.8	5.6	4.7	5.4	7.4	29.4
						6	44.2	11.9	8.2	6.5	5.5	4.8	5.9	4.2	7.9	29.0
						7	49.1	13.9	8.9	7.7	7.2	5.1	5.5	4.9	6.9	17.9
						8	47.8	13.9	9.9	7.8	6.6	6.7	4.6	6.3	6.4	26.5
						9	54.6	13.9	9.4	8.4	7.4	5.6	5.5	6.5	6.1	28.4

Table 5A: Mean outcomes at different parts of the attainment distribution in mathematics – spring term, baseline

All pupils					By parts of the attainment distribution												
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%		
3	6,218	928.2	63.7	+/-1.6	3	618	632	597	636	631	619	602	625	631	627		
4	6,129	976.8	66.4	+/-1.7	4	603	625	614	611	599	636	616	602	612	611		
5	6,695	1018.3	72.9	+/-1.7	5	672	679	666	683	666	639	685	675	662	668		
6	5,924	1063.4	74.3	+/-1.9	6	595	581	600	585	586	631	573	580	606	587		
7	2,850	1051.9	76.4	+/-2.8	7	283	290	287	282	288	287	283	281	293	276		
8	1,785	1060.2	81.9	+/-3.8	8	178	178	177	185	178	182	170	180	177	180		
9	951	1068.8	92.8	+/-5.9	9	95	94	97	95	96	93	95	96	96	94		
					Number of pupils	3	618	632	597	636	631	619	602	625	631	627	
						Mean score	3	803.6	864.7	891.3	909.3	925.6	941.2	955.3	970.4	989.5	1029.9
							4	850.3	907.5	936.7	957.4	972.4	987.4	1003.4	1021.4	1044.9	1086.2
							5	878.9	946.7	975.0	994.3	1011.1	1028.9	1050.0	1071.4	1093.1	1135.4
							6	910.5	988.5	1021.9	1047.8	1067.1	1084.3	1096.5	1113.3	1134.0	1169.4
							7	901.7	970.3	1001.5	1028.6	1054.5	1074.0	1091.3	1107.2	1129.0	1163.3
							8	897.9	978.3	1009.0	1037.3	1063.8	1082.7	1097.2	1113.5	1138.3	1183.7
					9		890.8	970.2	1009.1	1040.0	1071.1	1092.9	1111.3	1131.8	1154.6	1216.6	
					Standard deviation	3	38.1	10.0	6.2	4.8	4.6	4.3	4.0	5.0	6.3	26.5	
						4	34.3	9.9	7.0	4.8	4.2	4.6	4.5	6.1	7.7	24.9	
						5	40.1	11.0	6.4	4.9	5.0	5.3	6.6	5.8	6.7	28.4	
						6	52.6	10.9	9.1	5.8	5.7	4.1	3.7	5.9	6.0	30.0	
						7	44.0	11.4	7.9	8.0	6.1	5.4	4.5	4.9	6.4	24.6	
						8	56.4	10.8	8.1	9.4	6.2	4.8	3.7	6.5	6.3	35.3	
						9	49.5	13.6	8.8	8.7	8.0	5.3	5.6	6.1	7.7	44.3	

Table 5B: Mean outcomes at different parts of the attainment distribution in mathematics – spring term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Standard deviation	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	9,589	920.5	65.4	+/-1.3	Number of pupils	3	963	958	974	971	951	943	956	950	970	953
4	9,577	965.2	70.2	+/-1.4		4	950	957	960	985	935	976	918	1,004	938	954
5	9,914	1011.2	76.7	+/-1.5		5	994	983	1,011	966	1,017	991	977	979	1,003	993
6	8,106	1052.3	78.3	+/-1.7		6	811	820	797	813	799	822	799	808	811	826
7	3,429	1040.1	84.8	+/-2.8		7	343	343	346	339	350	333	346	347	339	343
8	2,709	1042.2	91.5	+/-3.4		8	273	269	274	268	275	267	274	266	275	268
9	1,809	1055.4	96.4	+/-4.4		9	180	183	181	184	181	181	176	184	180	179
					Mean score	3	794.1	851.8	881.0	901.1	918.1	935.3	951.2	965.8	984.6	1024.0
						4	828.3	891.7	921.5	945.7	963.4	978.9	995.8	1015.7	1037.1	1073.7
						5	860.0	932.7	965.8	989.2	1010.1	1028.9	1046.1	1064.2	1086.2	1129.2
						6	891.6	971.1	1008.1	1034.6	1055.7	1075.6	1089.8	1105.0	1126.0	1163.9
						7	868.0	950.5	987.7	1017.5	1044.1	1066.3	1084.9	1101.1	1123.2	1158.9
						8	858.0	944.5	985.2	1016.6	1043.3	1070.0	1090.1	1112.1	1134.8	1169.5
						9	855.7	952.5	999.5	1033.6	1063.4	1086.2	1106.1	1126.9	1147.4	1185.4
					Standard deviation	3	34.1	10.3	6.5	5.4	4.9	5.0	4.3	4.2	6.7	23.9
						4	38.8	9.4	8.1	6.1	4.2	4.9	5.2	5.6	7.5	23.3
						5	44.9	12.7	7.5	6.0	5.8	5.1	4.9	5.9	7.1	27.6
						6	48.5	13.0	8.9	6.5	6.2	4.8	3.7	5.3	6.6	31.0
						7	49.6	13.4	9.6	7.9	6.9	6.9	4.1	5.7	7.2	23.9
						8	46.6	14.5	10.8	7.7	7.4	7.3	5.2	7.0	6.1	27.0
						9	56.2	17.5	12.4	9.7	8.6	5.3	6.1	6.4	5.8	33.2

Table 6A: Mean outcomes at different parts of the attainment distribution in mathematics – summer term, baseline

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	6,819	940.4	66.0	+/-1.6	3	672	687	688	690	688	676	657	716	662	683	
4	6,753	987.0	69.1	+/-1.6	4	679	677	651	678	692	655	689	668	689	675	
5	7,210	1029.3	76.3	+/-1.8	5	717	717	734	708	723	720	738	715	719	719	
6	4,357	1070.4	75.6	+/-2.2	6	435	443	439	432	417	435	444	443	428	441	
7	3,359	1052.9	77.5	+/-2.6	7	336	336	331	340	337	347	331	333	337	331	
8	1,961	1063.3	81.5	+/-3.6	8	194	199	195	195	195	202	189	202	192	198	
9	1,054	1069.4	92.3	+/-5.6	9	104	107	103	107	103	110	104	107	104	105	
					Number of pupils	3	811.8	872.2	900.9	920.1	938.8	955.6	970.0	985.4	1004.3	1044.9
						4	854.0	916.6	946.5	966.4	982.5	997.8	1014.2	1034.6	1058.9	1096.8
						5	883.1	951.1	981.0	1002.5	1022.4	1044.2	1066.4	1086.1	1106.0	1149.6
						6	915.2	994.2	1028.0	1055.2	1075.5	1090.7	1104.4	1121.5	1140.4	1178.3
						7	900.6	973.0	1002.2	1027.5	1054.2	1076.0	1092.0	1108.3	1131.1	1165.4
						8	902.7	981.3	1014.0	1041.7	1064.7	1083.0	1097.8	1116.8	1140.5	1188.8
						9	890.7	976.2	1011.2	1039.4	1066.8	1090.6	1110.8	1133.7	1157.8	1215.5
					Mean score	3	38.0	10.4	6.1	5.4	5.2	4.5	3.9	5.0	5.8	27.4
						4	41.1	10.1	7.0	4.9	4.5	4.4	5.0	6.1	7.9	22.3
						5	40.0	11.6	7.0	5.8	5.9	6.6	6.1	5.3	6.6	26.3
						6	52.9	11.9	9.4	6.4	5.4	3.8	4.4	5.6	5.1	32.8
						7	49.7	11.6	6.9	7.3	7.1	5.9	3.9	5.7	7.1	25.1
						8	54.1	11.8	7.7	8.1	6.1	4.7	4.5	6.9	6.7	39.6
						9	55.1	13.2	7.0	9.5	7.2	6.2	6.3	6.4	8.0	41.1
					Standard deviation	3	38.0	10.4	6.1	5.4	5.2	4.5	3.9	5.0	5.8	27.4
						4	41.1	10.1	7.0	4.9	4.5	4.4	5.0	6.1	7.9	22.3
						5	40.0	11.6	7.0	5.8	5.9	6.6	6.1	5.3	6.6	26.3
						6	52.9	11.9	9.4	6.4	5.4	3.8	4.4	5.6	5.1	32.8
						7	49.7	11.6	6.9	7.3	7.1	5.9	3.9	5.7	7.1	25.1
						8	54.1	11.8	7.7	8.1	6.1	4.7	4.5	6.9	6.7	39.6
						9	55.1	13.2	7.0	9.5	7.2	6.2	6.3	6.4	8.0	41.1

Table 6B: Mean outcomes at different parts of the attainment distribution in mathematics – summer term, 2022/23

All pupils					By parts of the attainment distribution											
Year group	Number of pupils	Mean score	Std dev	Confidence interval	Year group	Lowest 10%	Second 10%	Third 10%	Fourth 10%	Fifth 10%	Sixth 10%	Seventh 10%	Eighth 10%	Ninth 10%	Highest 10%	
3	8,271	937.4	67.6	+/-1.5	Number of pupils	3	824	826	813	832	869	820	804	848	806	829
4	8,238	982.1	71.6	+/-1.5		4	828	814	815	872	805	814	821	812	825	832
5	8,420	1026.1	77.3	+/-1.7		5	836	843	853	843	855	826	854	833	819	858
6	5,306	1062.9	78.1	+/-2.1		6	533	539	530	521	536	529	543	525	521	529
7	2,606	1044.0	85.7	+/-3.3		7	261	263	259	262	256	256	264	261	266	258
8	2,114	1049.0	90.8	+/-3.9		8	211	215	212	206	212	212	214	206	212	214
9	1,415	1055.5	99.3	+/-5.2		9	142	138	145	140	141	141	142	143	142	141
					Mean score	3	805.6	866.8	894.6	915.8	937.5	953.3	967.9	984.3	1005.3	1042.9
						4	842.8	907.7	939.1	961.5	978.7	996.4	1014.9	1033.3	1054.3	1092.5
						5	873.1	946.2	979.4	1004.5	1025.3	1043.6	1062.4	1081.4	1101.2	1143.8
						6	901.9	983.0	1020.3	1047.2	1067.9	1085.1	1100.5	1116.9	1136.0	1173.7
						7	870.6	956.4	993.2	1021.2	1044.9	1067.4	1087.0	1105.8	1128.5	1165.5
						8	864.2	953.8	995.2	1024.2	1051.3	1076.4	1094.9	1114.8	1137.2	1177.9
						9	853.5	949.3	995.5	1032.8	1059.0	1083.5	1107.4	1130.8	1149.9	1191.7
					Standard deviation	3	35.1	10.2	7.2	5.8	5.9	3.9	4.3	5.2	7.2	21.7
						4	40.7	10.4	7.8	5.5	4.8	5.4	4.6	5.9	6.7	23.8
						5	44.6	12.4	7.9	6.9	5.4	5.2	5.9	5.3	6.9	27.0
						6	51.5	13.1	9.2	6.1	6.0	4.3	4.6	5.2	5.6	31.0
						7	56.0	12.2	9.8	7.2	6.6	5.9	5.6	5.9	7.2	28.1
						8	48.9	15.1	9.3	7.7	7.4	5.8	5.2	6.1	7.3	31.0
						9	61.9	15.1	12.3	9.8	7.2	6.1	7.8	5.8	5.3	34.6

Annex 2: The relationship between Star Assessments and outcomes at key stage 2

Table 7: Regression outputs of key stage 2 scaled score (dependent variable) vs Star Unified Scale score (independent variable). Scale score taken as outcome in the autumn term of the academic year

	Year group	Degrees of freedom	Constant		Unified score		F	R-sqr
			Value	Std error	Value	Std error		
Star Reading	3	108,483	36.913	0.2307	0.072	0.0002	87043.7	0.445
	4	48,095	29.673	0.3509	0.078	0.0004	45954.4	0.489
	5	254,563	18.503	0.1616	0.085	0.0002	285226.0	0.528
	6	341,509	12.199	0.1418	0.089	0.0001	425847.0	0.555
Star Maths	3	10,660	23.910	0.8420	0.086	0.0009	8990.1	0.458
	4	4,801	15.331	1.1375	0.092	0.0012	6032.5	0.557
	5	24,250	22.611	0.4477	0.080	0.0004	33245.9	0.578
	6	35,577	13.203	0.3624	0.086	0.0003	63053.4	0.639

Table 8: Percentage of pupils achieving the expected standard and higher standard in key stage 2 reading by prior attainment in Star Reading

Year 3	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990	1000 +
At higher standard	3%	3%	5%	5%	6%	7%	8%	9%	11%	13%	17%	17%	21%	27%	31%	36%	44%	50%	54%	60%	74%
At expected standard	24%	34%	37%	41%	45%	52%	56%	59%	61%	64%	65%	66%	67%	64%	62%	59%	52%	46%	44%	38%	26%
Below expected standard	73%	63%	58%	54%	49%	41%	36%	32%	28%	24%	19%	17%	12%	9%	7%	5%	4%	4%	2%	2%	1%

Year 4	Below 850	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990	1000	1010	1020	1030	1040	1050+
At higher standard	2%	3%	3%	2%	5%	5%	5%	6%	7%	10%	12%	16%	21%	25%	29%	35%	41%	46%	52%	60%	64%	78%
At expected standard	17%	26%	30%	35%	37%	47%	50%	54%	60%	63%	67%	67%	67%	65%	64%	60%	56%	51%	46%	38%	35%	21%
Below expected standard	81%	71%	67%	62%	58%	48%	45%	40%	33%	27%	21%	18%	13%	10%	7%	5%	3%	3%	2%	1%	1%	1%

Year 5	Below 900	900	910	920	930	940	950	960	970	980	990	1000	1010	1020	1030	1040	1050+
At higher standard	1%	2%	3%	3%	4%	5%	6%	8%	10%	13%	17%	21%	27%	33%	39%	46%	69%
At expected standard	17%	31%	34%	39%	46%	50%	57%	61%	66%	68%	69%	68%	67%	62%	58%	52%	30%
Below expected standard	82%	67%	63%	58%	50%	45%	37%	31%	25%	18%	14%	10%	7%	5%	4%	2%	1%

Year 6	Below 900	900	910	920	930	940	950	960	970	980	990	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100+
At higher standard	1%	1%	1%	2%	2%	2%	2%	4%	4%	5%	6%	8%	11%	15%	18%	24%	30%	38%	46%	54%	61%	78%
At expected standard	10%	14%	19%	23%	24%	31%	35%	42%	47%	54%	61%	66%	68%	70%	70%	69%	65%	59%	52%	45%	38%	22%
Below expected standard	89%	85%	80%	75%	73%	68%	63%	55%	49%	40%	33%	26%	20%	16%	11%	7%	5%	3%	2%	2%	1%	0%

Table 9: Percentage of pupils achieving the expected standard and higher standard in key stage 2 mathematics by prior attainment in Star Maths

Year 3	Below 900	900	910	920	930	940	950+
At higher standard	4%	13%	16%	22%	27%	37%	58%
At expected standard	42%	62%	69%	67%	67%	53%	39%
Below expected standard	54%	25%	15%	11%	6%	10%	3%

Year 4	Below 930	930	940	950	960	970	980	990	1000+
At higher standard	2%	7%	9%	11%	17%	20%	30%	32%	59%
At expected standard	36%	63%	66%	68%	69%	71%	63%	62%	40%
Below expected standard	63%	30%	25%	20%	14%	10%	8%	6%	1%

Year 5	Below 960	960	970	980	990	1000	1010	1020	1030+
At higher standard	1%	5%	5%	10%	14%	17%	21%	29%	60%
At expected standard	36%	67%	70%	74%	75%	72%	73%	68%	39%
Below expected standard	63%	29%	26%	16%	11%	11%	6%	4%	1%

Year 6	Below 990	990	1000	1010	1020	1030	1040	1050	1060	1070	1080+
At higher standard	1%	3%	3%	5%	5%	7%	11%	15%	18%	24%	24%
At expected standard	27%	54%	62%	64%	73%	75%	78%	76%	77%	73%	73%
Below expected standard	72%	43%	35%	31%	23%	18%	11%	10%	4%	3%	3%