

Impact of Covid-19 on attainment: analysis three years on

March 2023

This paper represents our findings from data derived from our digital versions of Progress Test Series in English, maths and science. This is an update in our analysis to understand the impact of Covid-19 and associated school disruption on our children's learning.

In 2022, further (though much more modest) returns to pre-pandemic levels of attainment were witnessed in English and science, while performance in maths overall remained in line with 2021.

However, there remain areas of concern. Although the range in school means has narrowed, there are still a greater number of schools whose scores are below those achieved pre-pandemic. Furthermore, the gap between Free School Meals (FSM) pupils and their peers has continued to grow in English and maths.

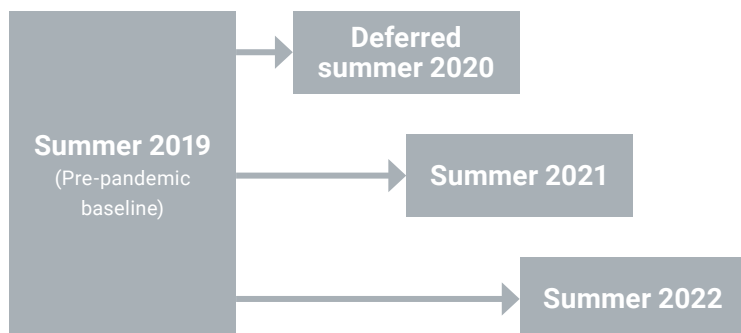
We hope that this analysis will be helpful for schools to understand what they are seeing in their own data in the context of the wider picture of schools across the UK and overseas. We will continue to monitor and follow trends on the impact of Covid-19, and research where schools have had the most impact in supporting learners.

Methodology

The main score we use in our digital attainment tests is called the 'standard age score' (SAS). Student attainment is benchmarked against a norm group of performances, derived from children of the same age, which is representative of the UK student population.

A child whose level of attainment is where we would expect, given this norm group and age expectations, receives a score of 100 (with standard deviation of 15). Scores above 100 suggest a level of attainment above age expectations, and scores below 100 suggest a level of attainment below age expectations.

Our initial analysis (labelled cohort 1 in the diagram overleaf) conducted in 2020 compared schools which sat tests between 2018 and 2019 with the same schools' results in 2020. Several significant differences were detected in this cohort and we wanted to check whether scores on average maintained these differences in subsequent cohorts or if they continued to change. In this updated analysis, we therefore include data from schools who took assessments pre-pandemic, in 2019, with the same schools who tested in 2021. Schools were matched within each cohort to ensure comparability. The process was then repeated for 2022.



Schools in our analysis include primary and secondary schools in England, independent schools, state schools in Northern Ireland, and schools outside of the UK (international schools).

Group	Cohort 1		Cohort 2		Cohort 3	
	2019	2020	2019	2021	2019	2022
Progress Test in Maths (PTM)	311,293	152,786	273,212	269,680	284,544	311,652
Progress Test in Science (PTS)	103,876	55,947	98,364	98,514	100,000	118,353
Progress Test in English (PTE)	268,652	137,661	261,548	256,656	273,788	297,431

Table 1: Number of **students** in each cohort sample

Main findings

In a normal year, without the impact of Covid-19, we would expect little variation from the mean score of 100 within a population (further detail about this is in our previous report, GL Education, 2021). Any difference in scores greater than 3 SAS points is deemed as significant when considering such large datasets. Table 2 highlights in yellow where the SAS difference was greater than 3 SAS points.

School type	PTM			PTS			PTE		
	2019 to 2020	2019 to 2021	2019 to 2022	2019 to 2020	2019 to 2021	2019 to 2022	2019 to 2020	2019 to 2021	2019 to 2022
England State Primary	-6.6	-1.3	-2.1	-5.5	-3.1	-2.5	-3.4	-1.8	-1.6
England State Secondary	-4.0	-1.8	-1.6	-3.0	-2.5	-1.7	-2.9	-2.0	-0.2
England Independent	-2.6	-0.3	-0.4	-5.3	-0.8	0.3	-2.7	-0.2	-0.2
Northern Ireland	-3.4	-3.1	-1.9	-2.2	-1.7	-3.3	-2.4	-2.5	-1.7
International Schools	-4.9	0.4	-1.1	-6.2	1.3	-0.1	-3.0	1.0	0.2

Table 2: PT Series average score differences by school type

This shows that:

- On average, school attainment has remained in line with that witnessed in 2021.
- In the summer of 2022, a similar proportion of schools experienced drops in their mean SAS for science and maths relative to 2019 (as witnessed in summer 2021). For English, however, an increase in the number of schools improving their mean SAS has been observed.
- Although a number of mean scores have dropped compared to last year's analysis, all differences (except for Northern Ireland's science) are within 3 SAS points of 2019 performance.
- Independent schools have maintained the return to pre-pandemic levels across all subjects, with less than 1 SAS point difference across all subjects.
- Schools in Northern Ireland have closed the gaps seen in maths and English that were still present in 2021 (maths SAS -3.1 to -1.9 and English SAS -2.5 to -1.7). As previously noted though, there is now a drop of 3.3 SAS points in science compared to 2019. However, when considering this finding it is important to bear in mind that only five schools in Northern Ireland were present in the data for PTS, whereas, by way of contrast, 465 schools in Northern Ireland were included in that used for PTM. Therefore, caution should be exercised in any conclusions drawn concerning Northern Ireland's schools since the small number represented in the PTS sample are unlikely to be representative of the country.

We were able to provide some further insights into subgroups of students, including gender and deprivation, as measured by students labelled by schools as FSM.

Gender analysis

When broken down by gender, none of the observed differences between the 2019 and 2022 cohorts were significant (the largest being the 2.1 SAS drop by girls in maths).

As in the 2021 data, pre-Covid subject trends were again present, i.e. no difference between genders in science, girls outperformed boys in English, and boys performed more strongly in maths.

Free school meals

We looked at differences between students who are labelled by schools as FSM and their peers. This is often used in the UK as an indicator of deprivation.¹

- In English, both non-FSM and FSM pupils experienced a drop in their scores from 2019 but neither decrease is significant (FSM pupils had the larger decrease of 2.5 SAS points). The gap in performance between the two groups has widened, though; from 6.6 SAS points in non-FSM pupils' favour in 2019 to 7.9 SAS points in 2022.
- In maths, FSM pupils on average scored 3.1 SAS points less in 2022 compared to 2019. As in English, the performance gap between the non-FSM and FSM groups has increased; in 2019, non-FSM scored 6.8 SAS points more than their FSM-eligible peers, while in 2022 they outscored them by 8.1 SAS points.
- In the 2022 science cohort, both non-FSM and FSM groups had lower average SAS scores in 2022 than in 2019 but each was within 0.5 SAS points of their 2019 score. Non-FSM pupils continue to outperform the FSM group by 8.2 SAS points in 2022, which is almost unchanged from 2019.

¹ It has been noted that FSM may not be as accurate an indicator of deprivation; however, in the absence of any other indicator in our dataset we have felt it still important to report on FSM

Spread of school mean scores

Using data from our Progress Test in Maths as an example, we can look at comparisons of the spread of school mean SAS over the different years. Figure 1 shows how much of an increase and decrease was observed year to year in school mean SAS comparing 2018 to 2019, (blue), 2020 to 2019 (red), 2021 to 2019 (green) and 2022 to 2019 (yellow).

Normally, we would expect some variation in a school's mean scores from year to year, though less variation by school than by student. Some school mean scores will rise, others will fall; but the majority would normally register changes near zero. If Covid-19 had not had an impact, then the red, green and yellow lines in the graph would have the same distribution as the blue line which signifies pre-pandemic spread.

Figure 1 shows the slight improvement in scores witnessed in 2022 compared to 2021, which is due to more schools experiencing small drops in mean SAS than last year. This is evidenced by the similarity in distributions across most of the score range, apart from where the double-peak occurred in 2021. The lingering presence of a second peak suggests there may be groups of schools that are struggling to a greater degree than their peers to overcome the impact of lockdown.

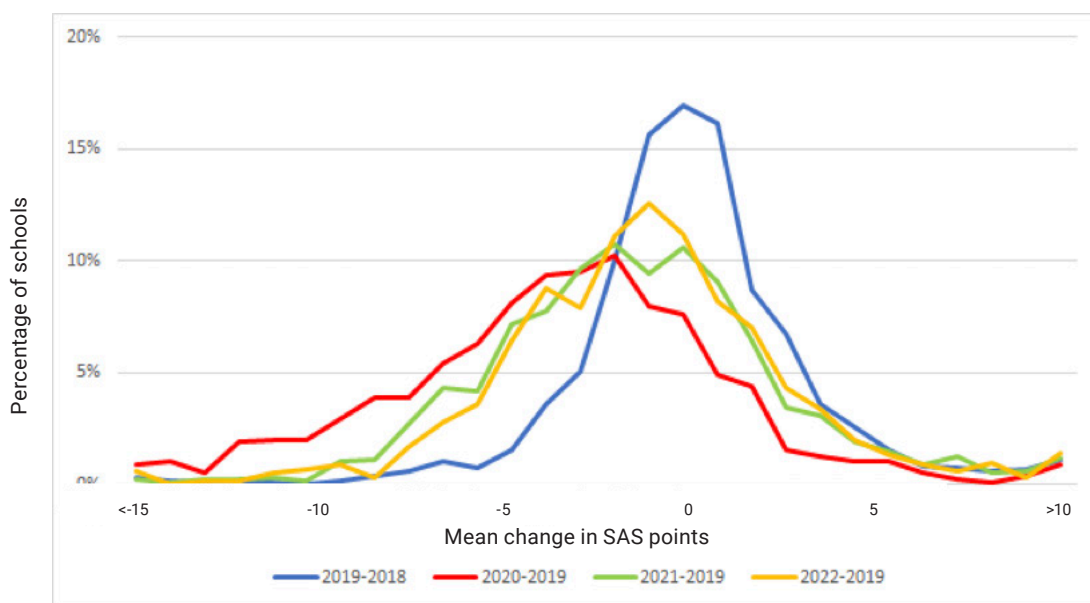


Figure 1: School mean SAS change in maths

The chart shows how more schools are still seeing drops in average SAS score and fewer schools are seeing increases compared to 2019. The difference is particularly pronounced in the lower end of the scale; in 2019, a drop of 3 SAS points would place a school in the bottom 11%, whereas in 2022 such a drop places them in the bottom 31%. Therefore, there are still many individual schools that require help in returning to attainment levels before the pandemic.

What does this mean for your school?

The above data provides a view of the large-scale trends across schools that tested in the autumn of 2020, and summers of 2019, 2021 and 2022. The findings may therefore differ from the data in your own school and that of individual cohorts and groups. What is most important is to understand the SAS scores in your school.

To that end, there are five key questions you should ask of your own data:

1. Do you see a similar trend in your school compared to the findings above? Comparing your data to the national benchmark will allow you to see how your school has adapted during the pandemic in comparison to others.
2. How does your data compare with other assessment data you have for each student? This will help you triangulate what you know about each student.
3. What does the data look like by key groups and at an individual level? Mean score ranges remain wide, which means there is a risk of more students falling behind. Use the curriculum content and question level analyses in individual and group reports to understand what is going on in more detail.
4. Can you identify areas of comparative success? These will allow you to celebrate and share best practice internally. Use the curriculum content analysis to identify gaps or successes at cohort level and to support future curriculum planning.
5. Can you separate short-term impacts on student scores from longer-term patterns? The latter may need further investigation with follow-on assessments on reading, for example.

If you have any further questions about your data, we're here to help.

Please contact us on **0330 123 5375** or email us at **assessment.insights@gl-assessment.co.uk**.

This analysis was carried out and written up by Adam Rabiasz, Senior Statistician at GL Assessment.