



Department
for Education

Understanding Progress in the 2020/21 Academic Year

Initial findings from the spring term

June 2021

**Renaissance Learning, Education Policy
Institute**

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About the research team

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. For more information, visit www.epi.org.uk

About Renaissance Learning

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. Almost 7,000 schools nationwide use data-driven Renaissance solutions to analyse students' abilities and guide high-quality instruction to improve academic outcomes. Founded by parents, upheld by educators, and enriched by data scientists, Renaissance knows learning is a continual journey – from year to year, and for a lifetime. For more information, visit www.renlearn.co.uk

NOTE:

The results in this report have been given clearance at a publication level by the Office for National Statistics (ONS) Secure Research Service. This work was produced using statistical data from ONS. 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.

Introduction and method for measuring learning loss

This ad hoc report presents a brief headline summary of the Education Policy Institute and Renaissance Learning's third assessment of the learning loss experienced by pupils in England as a result of the coronavirus (COVID-19) pandemic. It is based on assessment data from Renaissance Learning's Star Reading and Star Maths in the spring term of the 2020/21 academic year.

These data have been linked with data held by the Department for Education in the National Pupil Database, enabling us to control for a range of pupil characteristics. This is the first time we have analysed assessments undertaken in the spring term 2020/21 and represents an initial assessment of whether pupils lost learning as a result of the national lockdown at the beginning of 2021.

In this report we present estimates of learning loss for pupils in primary schools (covering year groups 3-6). Further breakdowns by pupil characteristics and estimates for pupils in secondary schools will be presented in a subsequent full report.

Timeline of restrictions to in-person learning

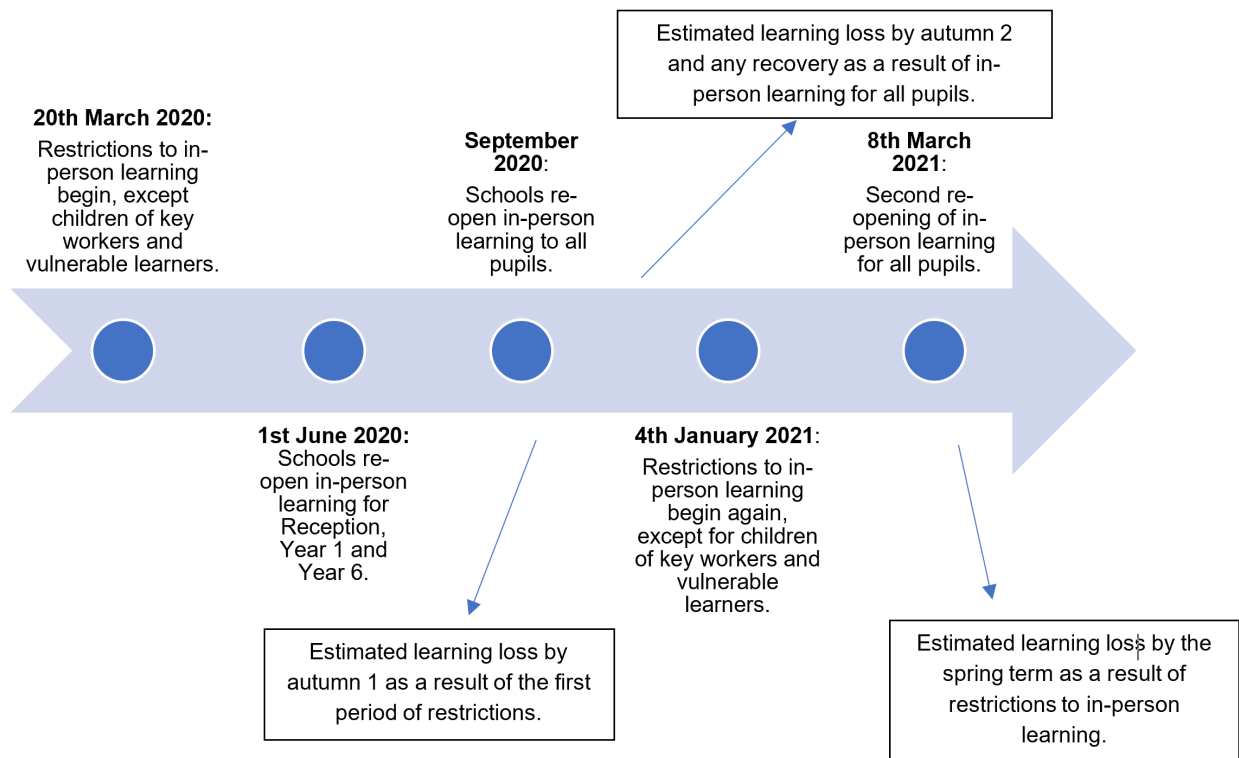
Figure 1 shows the timeline of restrictions to in-person learning during the coronavirus (COVID-19) pandemic and how this relates to our estimates of learning loss.

Our first assessment of learning loss was based on assessments in the first half of the autumn term 2020/21 (which we refer to as autumn 1). It looked at the impact of the first national lockdown on pupils' learning.

Our second assessment of learning loss was based on assessments in the second half of the autumn term 2020/21 (which we refer to as autumn 2). It looked at the extent to which any learning losses were recovered once schools were re-open to in-person learning for all pupils.

There was a second round of restrictions to in-person learning at the start of the spring term 2020/21. In this report we provide an analysis of assessments taken in that term to estimate the cumulative effect of restrictions and re-openings. By comparing these estimates with those made earlier in the year we can estimate the effect of the second period of restrictions.

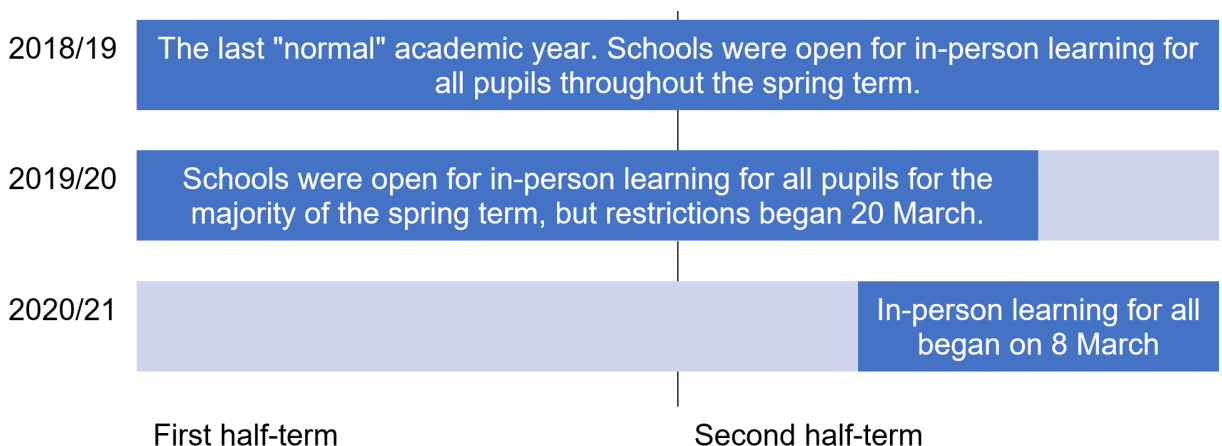
Figure 1: Timeline of restrictions to in-person learning during the academic year 2020/21



Methodology for estimating expected progress and learning loss

In our previous analysis, we calculated an expected outcome for pupils based on what they had previously achieved (broadly at the same point in the previous academic year) and the historic rates of progress for pupils with similar prior attainment and pupil characteristics. We retain the same principles in this analysis. However, we are constrained by the effects of the first national lockdown on our preferred measure of prior attainment and the model for calculating expected progress. Figure 2 shows how restrictions to in-person learning varied in the spring term in each of the last three academic years.

Figure 2: Restrictions to in-person learning in the spring term 2018/19 – 2020/21



Whether schools were open for in-person learning for all pupils affected the volume of assessments undertaken. In the 2019/20 academic year, most assessments took place before the middle of March 2020 and the first national lockdown. We therefore do not have prior attainment data that covers all of the spring term. Because of this we have used results in the first half of the autumn term in the previous academic year to measure prior attainment (i.e. one year and one term previously) to ensure consistent coverage.

When we come to consider learning loss during 2020/21, we are primarily interested in outcomes for pupils after schools opened to in-person learning for all pupils on 8th March 2021. We compare the progress of this group with pupil progress in 2019/20, but as illustrated above, we do not have consistent time periods in the spring term in each of the two years over which to compare results.

Because there is no single optimal way of comparing outcomes in the spring term we present:

- estimated learning loss based on all results from any point in the spring term (which we refer to as the 'all spring term' approach); and also
- estimated learning loss based on all results in the second half of the spring term (which we refer to as the 'second half of spring term' approach).

For the purposes of this analysis, we take 8th March 2021 (i.e. the date of school reopening for in-person learning for all) as the start of the 'second half term' of spring 2020/21. While the second half term began at the end of February, we felt that this gave a more directly comparable set of circumstances for pupils sitting assessments.

We present measures of learning loss in terms of a ‘scaled score’ and in terms of months of progress.¹

Limitations of estimates of learning loss

The key limitations are:

- The ‘all spring’ approach may *underestimate* learning loss since our data for 2020/21 is largely drawn from the end of the spring term, whereas our data for 2019/20 includes a large number of assessments taken at the beginning of the spring term. In other words, we are looking at assessments that were, on average, taken slightly later in the school year and we would normally expect outcomes to be higher the later assessments are taken in the school year.²
- The ‘second half of spring term’ approach may *overestimate* learning loss since we are comparing pupils who had just returned to the classroom after an extended period away with pupils who are over half-way through a term in school. In other words, learning may not have been truly ‘lost’, they may simply be out of practice with the material being assessed in comparison to our control group.

The two estimates should therefore be taken together as indicative of the likely scale of learning loss.

Because of the much smaller sample sizes, estimates for secondary-aged pupils are sensitive to the exact model specification. We will provide further analysis for this group in a subsequent full report.

¹ The Star Assessments ‘scaled score’ is a continuous scale where pupil scores increase as they move through the school system. At the start of Key Stage 2, pupils taking an assessment typically achieve around 250 points on this scale. By the final year of primary school (year 6) this increases to around 550 points, and by year 9 to around 750 points on this scale.

² We attempt to control for this to a certain extent by including a factor of days between tests within the model.

Estimated learning loss by the end of the spring term 2020/21

Approach 1: Estimates of learning loss in reading and mathematics using the 'all spring term' approach

Figure 3 shows our estimates in scaled score terms for assessments taken during the spring term of 2020/21.

In Star Reading:

- primary-aged pupils achieved 22.0 scaled score points lower than similar pupils in 2019/20;
- this is equivalent to a shift in the primary attainment distribution of 0.11 standard deviations.

In Star Maths:

- primary-aged pupils achieved 27.8 scaled score points lower than similar pupils in 2019/20;
- this is equivalent to a shift in the primary attainment distribution of 0.23 standard deviations.

Figure 4 translates these estimates into months of progress. By the end of the spring term, primary-aged pupils had experienced a learning loss in reading equivalent to 2.0 months of progress. In mathematics, primary-aged pupils experienced a much greater learning loss of 3.1 months.

Figure 3: Estimated mean learning loss by the spring term, in scaled score points, in reading and mathematics (primary-aged pupils only)³

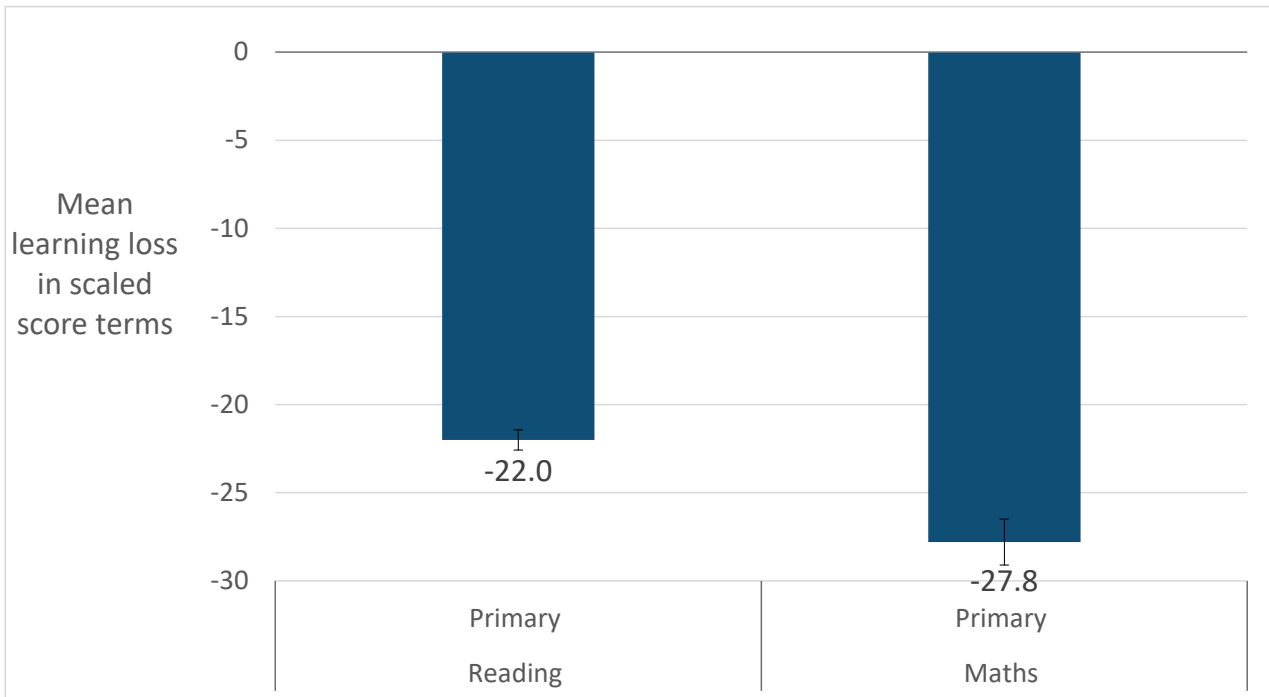
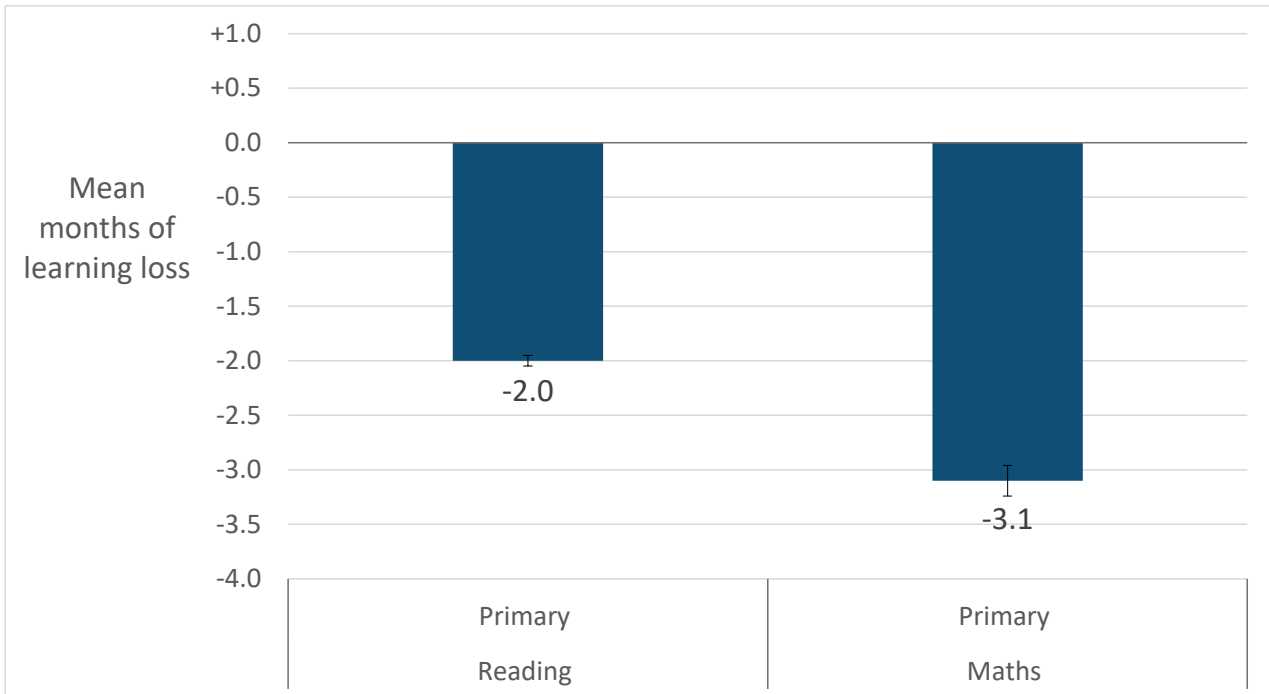


Figure 4: Estimated mean learning loss by the spring term, in months, in reading and mathematics (primary-aged pupils only)



³ The vertical lines on each chart represent the 95% confidence interval for the estimate of learning loss.

Approach 2: Estimates of learning loss in reading and mathematics using the 'second half of spring term' approach

Figure 5 shows our estimates in scaled score terms for assessments taken during the second half of the spring term of 2020/21.

In Star Reading:

- primary-aged pupils achieved 23.0 scaled score points lower than similar pupils in 2019/20;
- this is equivalent to a shift in the primary attainment distribution of 0.12 standard deviations.

In Star Maths:

- primary-aged pupils achieved 30.7 scaled score points lower than similar pupils in 2019/20;
- this is equivalent to a shift in the primary attainment distribution of 0.26 standard deviations.

Figure 6 translates these estimates into months of progress. By the end of the spring term primary-aged pupils had experienced a learning loss in reading equivalent to 2.3 months of progress. In mathematics, primary-aged pupils experienced a much greater learning loss of over 3.6 months.

Figure 5: Estimated mean learning loss by spring 2, in scaled score points, in reading and mathematics (primary-aged pupils only)

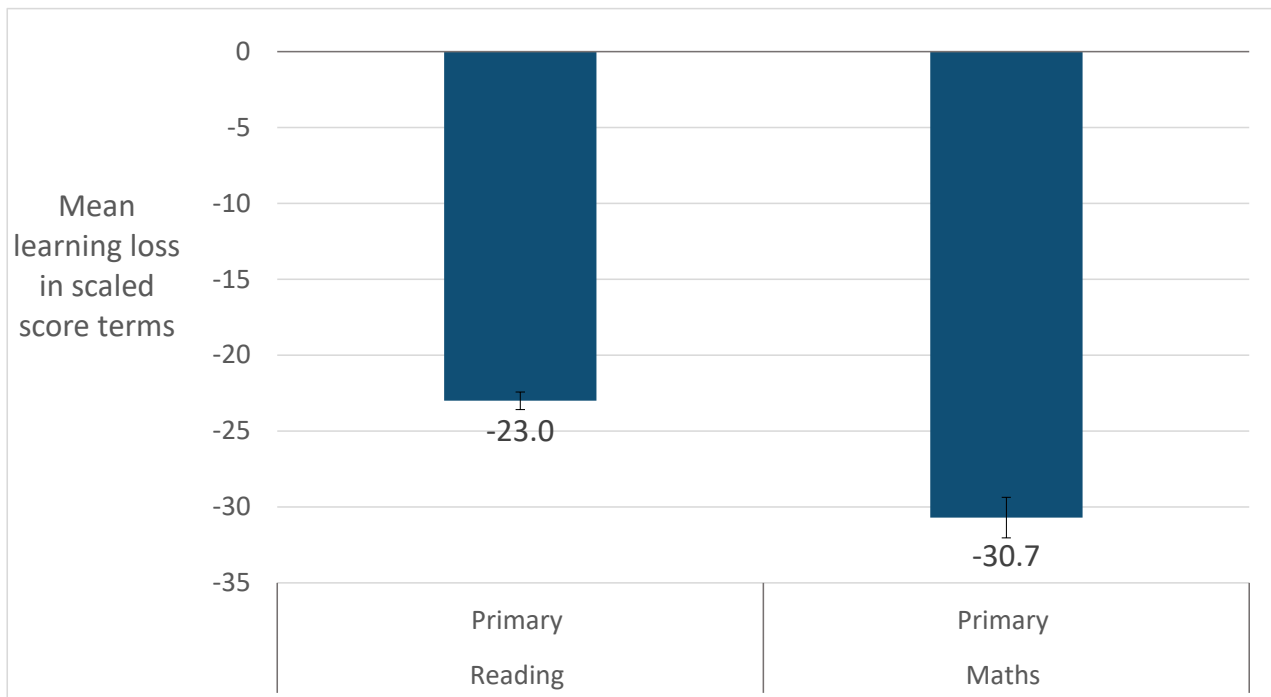
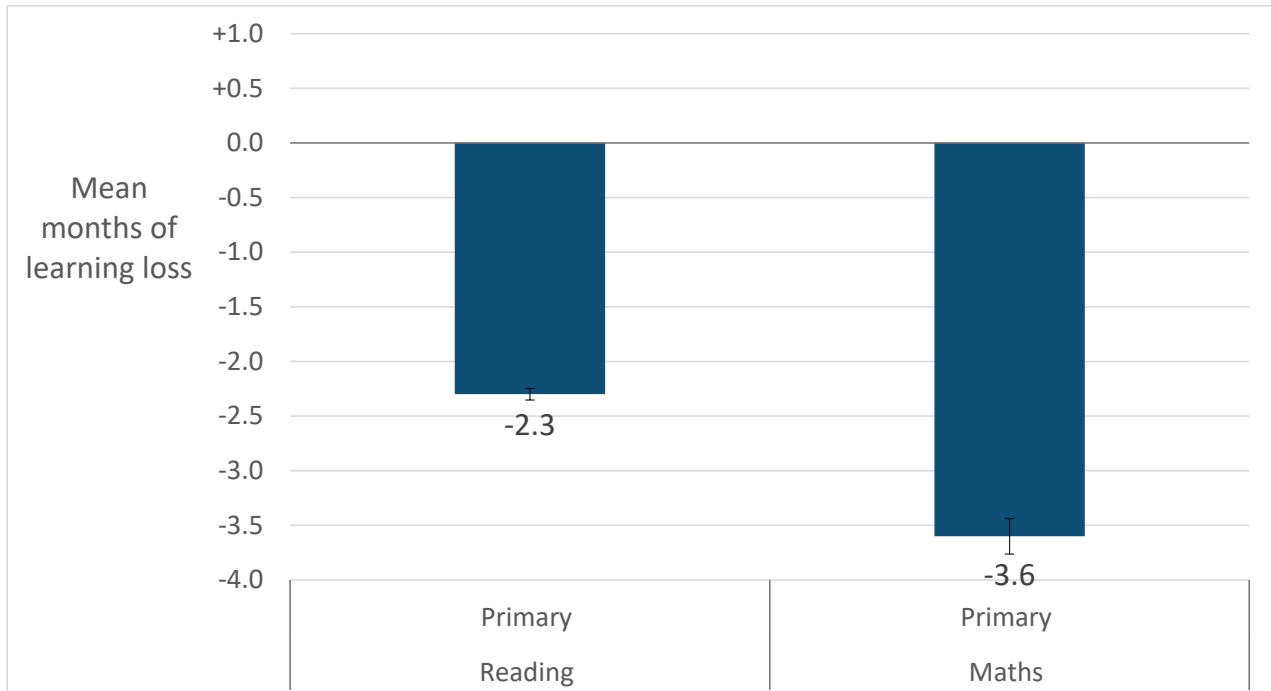


Figure 6: Estimated mean learning loss by spring 2, in months, in reading and mathematics (primary-aged pupils only)



Trends in estimated learning loss during 2020/21

We now look at how estimates of learning loss in the spring term compare to the first and second half of the autumn term to understand how pupils' learning had changed throughout the 2020/21 academic year.

We separately compare our results using the 'all spring term' and 'second half of spring term' approaches against the estimated learning loss in both the first and second half-terms of autumn. To ensure that we are comparing the same pupils over time we have restricted this analysis to the pupils that undertook assessments in all three time periods (the first and second half of the autumn term, and the spring term/second half of the spring term). This allows us to build a consistent picture of how pupils have been affected by the pandemic and how they were affected by schools re-opening.

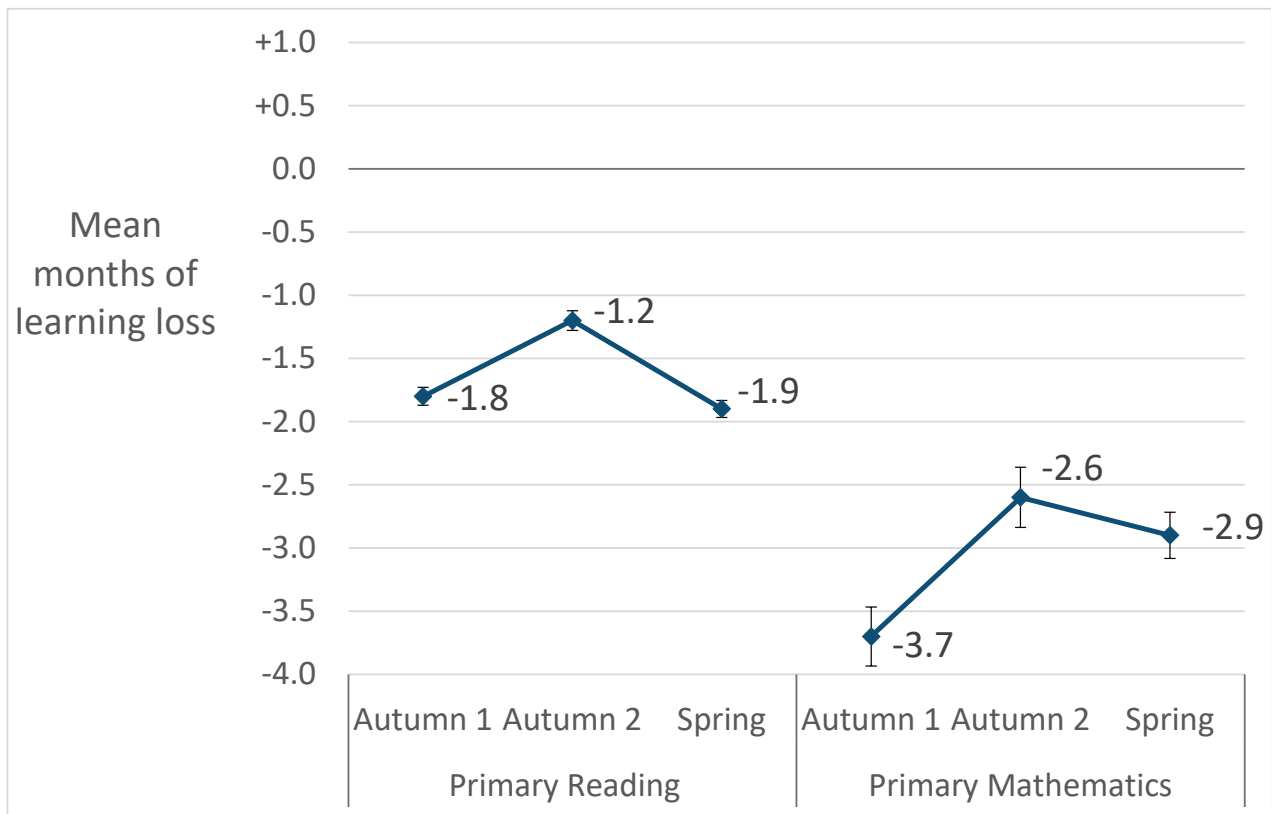
Approach 1: Trends in estimated learning loss in reading and mathematics using the 'all spring term' approach

Figure 7 presents the estimated learning loss in months using the 'all spring term' approach for Star Reading and Maths assessments for primary aged pupils, alongside the equivalent in autumn 1 and autumn 2. We find that:

- there was notable further learning loss in primary reading with the learning loss for this cohort worsening by 0.7 months from our estimate of learning loss in autumn 2, resulting in an estimate of learning loss in the spring term of 1.9 months;
- primary mathematics learning losses over the academic year 2020/21 have a similar pattern to what we find for primary-aged pupils in reading – the learning loss estimated in autumn 1 of 3.7 months decreases to 2.6 months by autumn 2 but then increases to 2.9 months by the spring term. The difference between the estimated learning loss in the second half-term of autumn and the estimated learning loss in the spring term was not statistically significant.

This analysis suggests there was further learning loss in primary schools in England, particularly in reading, following restrictions to in-person learning in early 2021.

Figure 7: Estimated mean learning loss autumn 1, autumn 2 and all spring term, in months, in reading and mathematics (primary-aged pupils only)



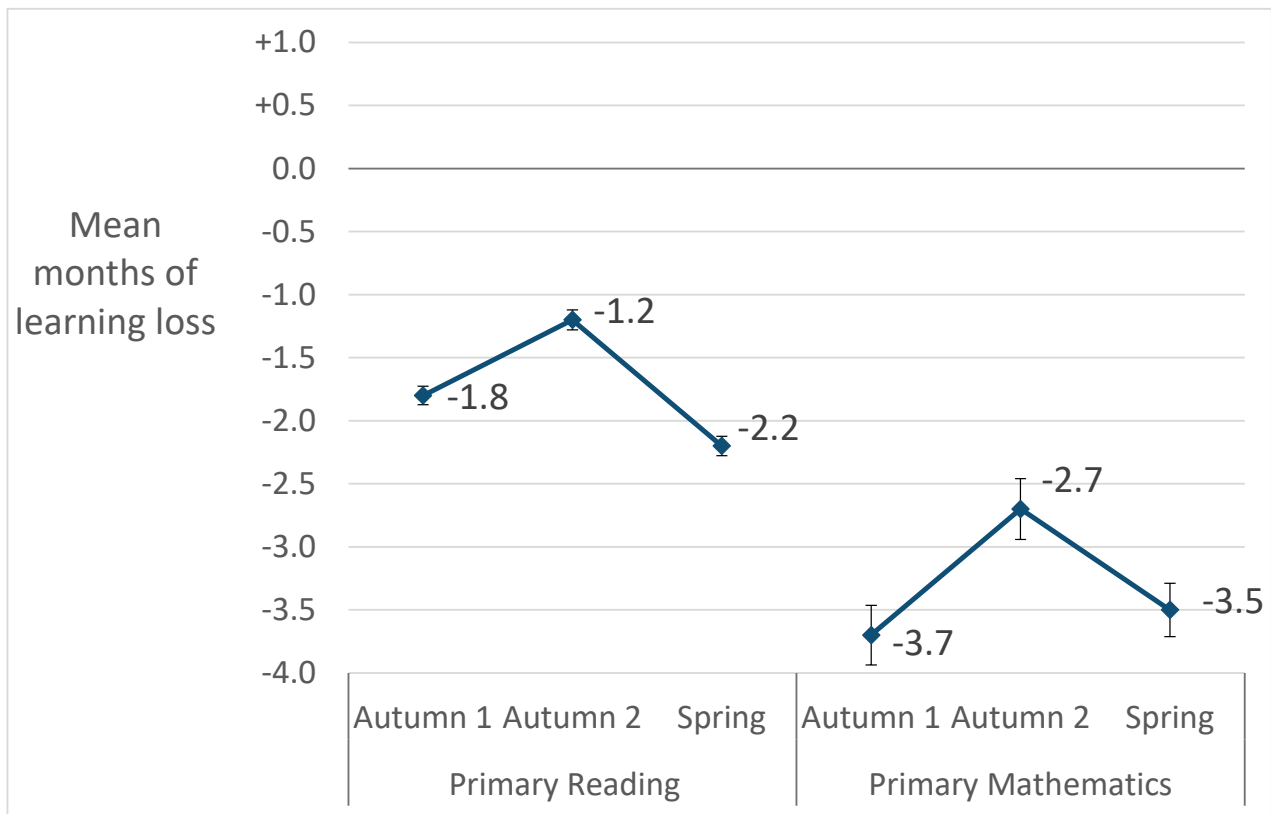
Approach 2: Trends in estimated learning loss in reading and mathematics using the ‘second half of spring term’ approach

Figure 8 presents the estimated learning loss in months using the ‘second half of spring term’ approach for Star Reading and Maths assessments for primary-aged pupils, alongside the equivalent in autumn 1 and autumn 2. We find that:

- there was notable further learning loss in primary reading with the learning loss for this cohort worsening by 1 month from our estimate of learning loss in autumn 2, resulting in an estimate of learning loss by the second half of spring term of 2.2 months;
- primary mathematics learning losses over the academic year 2020/21 have a similar pattern to what we find for primary-aged pupils in reading – the learning loss estimated in autumn 1 of 3.7 months decreases to 2.7 months by autumn 2 but then increases to 3.5 months by the second half of the spring term.

This alternative approach suggests that there were further learning losses in primary schools in England in reading and mathematics following the restrictions to in-person learning in early 2021.

Figure 8: Estimated mean learning loss autumn 1, autumn 2 and spring 2, in months, in reading and mathematics (primary-aged pupils only)



Annex – Sample Sizes

The table below outlines the sample sizes used in each of the estimates presented in the report:

Model Type	Estimate	Sample Size
'All spring term' approach (Figures 3 & 4)	reading scaled score	165,207
	mathematics scaled score	11,764
	reading months	165,207
	mathematics months	11,764
'Second half of spring term' approach (Figures 5 & 6)	reading scaled score	155,807
	mathematics scaled score	11,050
	reading months	155,807
	mathematics months	11,050
Trends in learning loss, 'all spring term' approach (Figure 7)	reading - autumn 1	87,535
	reading - autumn 2	87,535
	reading - spring	87,535
	mathematics - autumn 1	7,195
	mathematics - autumn 2	7,195
	mathematics - spring	7,195
Trends in learning loss, 'second half of spring term' approach (Figure 8)	reading - autumn 1	83,418
	reading - autumn 2	83,418
	reading - spring	83,418
	mathematics - autumn 1	6,855
	mathematics - autumn 2	6,855
	mathematics - spring	6,855



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