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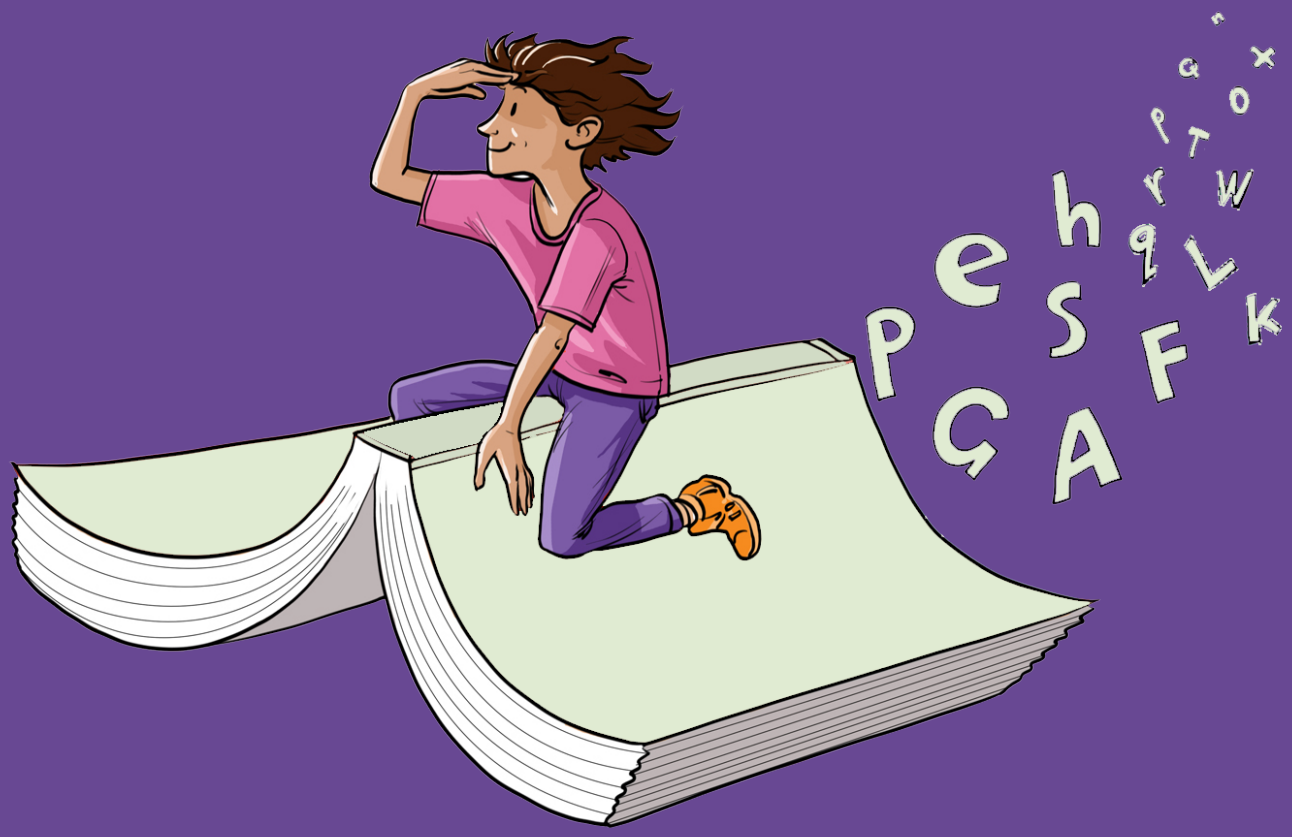
NAMER 2021

The National Assessments of Mathematics and English Reading 2021

CONTEXT REPORT



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Available to download from:
https://doi.org/10.70092/1413183.0325

Kiniry, Joanne.

The National Assessments of Mathematics and English Reading 2021: Context Report / Joanne Kiniry, Anastasios Karakolidis, Sharon M. Nelis, Alice Duggan, Rachel Cunningham, Vasiliki Pitsia and David Millar. Dublin: Educational Research Centre, 2025.

viii, 159p.; tables, graphs : 30cm.
Includes bibliographic references.

ISBN: 978-1-911678-33-5 (Print)
ISBN: 978-1-911678-34-2 (PDF)

1. National Assessments of Mathematics and English Reading (NAMER)
2. Educational surveys – Ireland
3. Educational tests and measurements – Ireland
4. Mathematics (Primary) – Ireland
5. Mathematics (Primary) – Study and teaching – Ireland
6. Mathematics (Primary) – Ability testing – Ireland
7. Reading (Primary) – Ireland
8. Reading (Primary) – Study and teaching – Ireland
9. Reading (Primary) – Ability testing – Ireland
10. COVID-19 Pandemic, 2020 – Educational aspects – Ireland

2025

I Title. II Kiniry, Joanne. III Karakolidis, Anastasios. IV Nelis, Sharon M. V Duggan, Alice. VI Cunningham, Rachel. VII Pitsia, Vasiliki. VIII Millar, David.

372.48209417-dc23

Design: Željka Župnić / www.zeljkazupanic.com
Printed in the Republic of Ireland by: KC Print

How to cite this report:
Kiniry, J., Karakolidis, A., Nelis, S.M., Duggan, A., Cunningham, R., Pitsia, V., & Millar, D. (2025). *The National Assessments of Mathematics and English Reading 2021: Context Report*. Educational Research Centre. https://doi.org/10.70092/1413183.0325

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Preface

This report follows on from *the National Assessments of Mathematics and English Reading 2021: Performance report* (Kiniry et al., 2023) which provides an overview of the performance of pupils on the tests of English reading and Mathematics administered as part of NAMER 2021. The focus of this report (the Context report) is to examine pupil, classroom and teacher, and school factors and pupil achievement. This report will also explore some of the impact of the restrictions placed on schools by the COVID-19 pandemic.

In 2021, for the first time, NAMER included an extended sample of urban DEIS schools. Readers interested in the performance of pupils in DEIS schools and the DEIS context are referred to two separate reports (Gilleece & Nelis, 2023; Nelis & Gilleece, 2023).

Acknowledgements

We would like to express our sincere gratitude to all of the pupils, teachers, principals and schools who participated in this assessment, either in the pilot or main study, and contributed to its success.

The ERC also acknowledges the support of Noreen Fiorentini and her colleagues in the Inspectorate of the Department of Education in overseeing the implementation of the National Assessments in a sample of schools. The ERC wishes to acknowledge the support of members of the National Advisory Committee - Primary.

As authors, we wish to acknowledge the support of colleagues at the Educational Research Centre, who provided support to the NAMER team during a very difficult and protracted project. These include Aidan Clerkin and Jude Cosgrove (former CEOs); John Regan (CEO), Gerry Shiel, who acted as Research Fellow until 2019; Lorraine Gilleece, Sharon Nelis and Caitríona Fitzgerald from the DEIS team who worked on the questionnaire materials and provided help and support with the administration of the study in 2020/2021; Anne Comey, Patricia Gaffney, Lynn Jackson, Imelda Pluck and Cian Ó Raghallaigh, who provided administrative and logistical support; all the casual staff members who made the study possible over the course of two years; John Coyle and Mary Delaney for their support with the selection of samples and the creation of databases; Seán Close, Brenda Donohue, Lynsey O'Keeffe and Sarah McAteer, who assisted with item development and who contributed to the pilot study in 2018/2019; Helena Ní Rócháin, Conall Ó Duibhir and Caitlin Myron who provided support with the translation and proofing of Irish language materials; Emma Kelly for cataloguing information. We wish to acknowledge the statistical support provided by Fernando Cartwright and the assistance of Carmen Robertson (Polymetrika International, Inc.).

Finally, we appreciate the internal review of the report at the ERC by Peggy Lynch and Rachel Perkins (Head of Research), and external review of earlier drafts of this report carried out by colleagues in the Department of Education.

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Abbreviations

BCI	Bonferroni confidence interval
CI	Confidence interval
COVID-19	Coronavirus disease 2019
CPD	Continuing Professional Development
CSO	Central Statistics Office
CTT	Classical Test Theory
DEAR	Drop Everything and Read
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
DLF	Digital Learning Framework
DoE	Department of Education (formerly Department of Education and Skills [DES])
EAL	English as an Additional Language
EAP	Expected a Priori
ERC	Educational Research Centre
GAM	General Allocation Model
ICC	Item characteristic curve
ICT	Information and Communications Technology
IEA	International Association for the Evaluation of Educational Achievement
IRT	Item Response Theory
M	Mean score
MD	Mean difference
MML	Marginal maximum likelihood
NAEP	National Assessment of Educational Progress
NAER	National Assessments of English Reading
NAIMS	National Assessment in Irish Medium Schools
NAMER	National Assessments of Mathematics and English Reading
NBP	National Broadband Plan
NCCA	National Council for Curriculum and Assessment
NCSE	National Council for Special Education
OECD	Organisation for Economic Co-operation and Development
PD	Percentage difference
PDST	Professional Development Service for Teachers, OIDE since September 2023
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PLC	Primary Language Curriculum
PLE	Professional Learning Experience
PMC	Primary School Mathematics Curriculum for Primary and Special Schools
PPS	Probability proportional to size
SD	Standard deviation
SE	Standard error
SEC	State Examinations Commission
SED	Standard error of the difference
SS	Scale score
SSE	School Self-Evaluation
TIMSS	Trends in International Mathematics and Science Study
TPL	Teacher Professional Learning

Statistical Terms

Percent correct scores

Percent correct scores indicate the proportion of items that each pupil answered correctly. The mean percent correct scores achieved by pupils in NAMER are provided for informational purposes only. These are based on item pools that have been modified between the three cycles of the assessment. Comparisons between groups across National Assessments, and within NAMER 2021, should not be made using percent correct scores. Instead, scale scores should be used.

Scale scores

Scale scores take into account not only the number of items answered correctly by each pupil, but also the unique characteristics of each test item, as well as other information (e.g., contextual data). In NAMER 2009, mean scores on all scales and subscales in English reading and Mathematics were set to 250 points, and standard deviations to 50. Scores achieved by pupils participating in NAMER 2014 and 2021 were projected onto the same scales and subscales as those used in NAMER 2009 using Item Response Theory (IRT) scaling.

Standard deviation

The standard deviation is a measure of the dispersion of a set of data from its mean score. The more spread apart the data, the greater the deviation. In a normal distribution, 68 % of the scores are within one standard deviation of the mean, 95 % within two standard deviations, and 99 % within three.

Standard error

Estimates (e.g., mean scores and percentages) presented in this report are based on the sample of pupils selected to take part in NAMER. However, it is unlikely that the 'true' figure (e.g., the overall English reading mean score of all pupils in Ireland) would be exactly the same as the estimate calculated from our sample. Some variation or error around estimates is to be expected. Thus, each estimate has a standard error, which provides information on how accurately the estimate found in our sample reflects the 'true' figure in the population. The 'true' figure is likely to be found in an interval that is about two standard errors on either side of the obtained estimate 95 % of the time, with a similar sample and assessment design.

Proficiency levels

Proficiency levels describe the skills that pupils falling within certain score ranges can demonstrate. There are four proficiency levels, with Level 4 representing the most complex skills and Level 1 the most basic. There is also a 'Below Level 1' category for pupils who did not show the competencies required for the simplest assessment tasks. Proficiency levels are based on mastery of skills, meaning that pupils are consistently able to demonstrate the skills at their proficiency level and the levels below, but are not consistently able to demonstrate the skills exemplifying the levels above them.

In NAMER 2009, pupils were assigned to proficiency levels on the overall reading and Mathematics scales in Second and Sixth classes, such that, for each domain at both class levels, 10 % of pupils were assigned to Level 4 (the highest level), 25 % to Level 3, 30 % to Level 2, 25 % to Level 1, and 10 % to 'below Level 1'. The same score benchmarks used in 2009 within each domain and grade level to assign pupils to the different proficiency levels were used in NAMER 2014 and 2021.

Statistical significance

If the difference between two estimates (e.g., mean scores) or the correlation between two variables is statistically significant, it means that the magnitude of the statistic is unlikely to occur if the relationship were not real. A statistical test has been carried out to determine if the probability of each statistic being observed by chance is less than 5 %. The criterion, or *alpha level* (α), of .05 (5 %) implies that only observed statistics with less than a 1 in 20 chance of occurring are interpreted as significant.

When simultaneously comparing the differences between multiple groups, it is likely that some of them may emerge as significant at the .05 level just because of chance and not because they are truly significant in the population.[1] Therefore, where multiple comparisons are carried out, the criterion for testing each comparison is adjusted to maintain the overall alpha level and protect from Type I error (false positive) (i.e. incorrect rejection of the null hypothesis, that there is no statistically significant relationship between two variables). Alpha levels have been adjusted by applying the Bonferroni correction:

$$\alpha_{adjusted} = \frac{\alpha}{n}$$

where α is the original alpha level (i.e., .05) and n the total number of comparisons.

It should be noted that the Bonferroni correction is considered to be a conservative approach to protecting from Type I error. This approach was also used in analyses of the previous National Assessment data.

Confidence intervals

Confidence intervals provide a range of plausible values within which a statistic of interest is expected to fall. In this report, we use the 95 confidence intervals meaning that we are 95 % certain that the true value of an estimate would fall within the estimated confidence intervals around the observed value.

To compute the confidence intervals around an estimate, the following formula is used:

$$CI = x \pm SE * t$$

[1] If the total number of comparisons approaches 20, at least one of the relationships identified as significant using the .05 alpha level is likely to be incorrectly identified.

Where χ is the observed value (e.g., mean score or percentage), SE is the standard error around this estimate and t is the critical value which is based on the survey design and the significance level.

Correlation coefficients

Correlation coefficients describe the strength of a relationship between two variables on an interval or ordinal scale, such as Reading Vocabulary and Reading Comprehension. The value of a correlation (the r value) ranges from -1 to +1. A positive correlation indicates that as one variable increases, the other does too, while a negative correlation indicates that as one increases the other decreases. A correlation coefficient close to 0 indicates little or no relationship, while the closer the value is to ±1, the stronger the relationship. The following rule of thumb can be used to interpret the strength of the correlation coefficients reported in this volume:

Weak	**< .1**
Weak to moderate	**.1 to .24**
Moderate	**.25 to .39**
Moderate to strong	**.4 to .55**
Strong	**>.56**

Effect sizes

An effect size is a standardised measure of the strength of a relationship between two variables. If both variables have interval or ordinal scales, then the effect size is the correlation coefficient. If one variable describes membership in a group and the other has an interval or ordinal scale, then the effect size is the difference between two means that is expressed in standard deviation units. Mean difference effect sizes in this report were computed using Cohen's d (Cohen, 1988).

Based on benchmarks suggested by Cohen (1988) for mean differences, an effect size of 0.2 can be interpreted as small, an effect size of .5 is medium, and an effect size of .8 is large. However, these benchmarks should not always be interpreted rigidly, because even small effect sizes can have large consequences in some contexts.

This report uses the What Works Clearinghouse (2014) criteria for interpreting effect sizes. Mean differences with effect sizes of 0.25 or higher can be considered substantively important, whether or not the underlying difference is statistically significant. Effect sizes greater than 0.50 are considered large.

Key Findings

Pupil factors

Pupil background

The country of birth of pupils and English and Gaeilge language usage at home were associated with achievement:

- The proportions of pupils born in Ireland observed in 2021 were similar to those in 2014. At both grade levels the majority of pupils in both Second class (89.0 %) and Sixth class (92.2 %) were born in Ireland. Although pupils born in Ireland had higher achievement scores than their peers who were born in another country, these differences are not statistically significant in 2021 at either grade. This contrasts with NAMER 2014 where pupils born in Ireland had statistically higher mean scores for English reading at second class (Kavanagh et al., 2015).
- Most pupils in Second class (73.6 %) and Sixth class (85.1 %) reported 'always or almost always' speaking English at home. Small proportions of pupils at both Second (4.3 %) and Sixth (2.1 %) classes reporte 'never' speaking English at home. Pupils in 2014 were asked to state the language they spoke most often at home, and 91 % of pupils in Second class indicated that it was English, 1 % indicated Gaeilge, and 8.5 % indicated a different language. The corresponding percentages for Sixth class in 2014 were 92 % for English, 0.4 % for Irish and 7 % for a different language.
- The mean English reading score of pupils in Second class who said they 'never' speak English at home was statistically significantly lower than those who said they 'always or almost always' speak English at home. This is consistent with the results observed in 2014 (Kavanagh et al., 2015).
- The mean Mathematics score of Sixth class pupils who reported 'never' speaking English at home was higher than that of pupils who always or 'almost always speak' English at home, but this difference was not statistically significant. This result is similar to that observed in 2014, when the mean Mathematics score of pupils in Sixth class who said they did not speak English at home was not statistically significantly different from the mean score of pupils who said they did speak English at home (Kavanagh et al., 2015). In 2021, no statistically significant differences were observed at either grade level between pupils who 'always or almost always' speak English at home, and pupils who 'sometimes' speak English and sometimes speak another language.
- About one-fifth of Second class pupils (21.0 %) and 10.6 % of Sixth class pupils reported speaking Gaeilge at home. Pupils who spoke Gaeilge at home had statistically significantly higher mean scores for both Second class English reading (d = 0.18) and Sixth class Mathematics (d = 0.38). In 2014, 16 % of pupils in Second class reported speaking Gaeilge at home, while at Sixth class this proportion was 14 % (Kavanagh et al., 2015).
- In total Sixth class pupils reported speaking 111 different languages other than English or Gaeilge. The five most commonly reported languages at both grade levels were Polish, Romanian, Spanish, French and Lithuanian.
- For the 22.7 % of second class pupils who reported speaking a language other than English or Gaeilge at home, there were no statistically significant performance differences observed between these pupils and their peers who speak English or Gaeilge at home.

Homework

- Most pupils in Second class (86.4 %) reported doing English homework on 'most school days'. The mean reading score of pupils who reported 'hardly ever' doing English homework was 27 score points lower than those who reported doing English homework on 'most school days', this difference was statistically significant (*d* = 0.58).
- Second class pupils (77.0 %) reported doing Mathematics homework 'most school days'. A further 8.8 % completed Mathematics homework '2-3 times a week', 7.2 % 'once a week' and 6.9 % 'hardly ever' completed Mathematics homework.
- Similar proportions of Sixth class pupils completed English homework 'most school days' (84.1 %) as completed Mathematics homework 'most school days' (84.4 %). 10.2 % of Sixth class pupils completed English homework '2-3 times a week', 2.2 % 'once a week' and 3.4 % 'hardly ever' complete English homework.
- The frequency with which Sixth class pupils did Mathematics homework was not related to achievement.
- As in NAMER 2014 (Kavanagh et al., 2015), learning English spellings was the homework activity that Second class pupils reported doing most frequently. In 2021, 81 % of pupils reported that they did this on 'most school days'. The mean reading score of pupils who reported learning English spellings on 'most school days' was statistically significantly higher than both pupils who reported doing so 'some days' (15.1 %, *d* = 0.6), and pupils who reported 'never' doing so (3.8 %, *d* = 0.7).
- Pupils in Second class who reported reading a book or e-book silently 'most school days' (47.6 %) had a statistically significantly higher mean reading score than pupils who reported doing this 'some days' (30.7 %, *d* = 0.2) and than those who reported 'never' doing so (21.7 %, *d* = 0.2).
- Finding information on a computer, mobile phone or tablet was the least commonly reported homework practice for Second class pupils; only 16.6 % reported doing this 'most school days' as part of their English homework. The mean reading score of pupils who used a device to find information most days was statistically significantly lower than pupils who reported completing this activity 'some days' (37.5 %, *d* = 0.5) or 'never' (45.9 %, *d* = 0.3).
- About two thirds of Second class pupils (66.9 %) reported writing something as part of their English homework on 'most school' days, and the mean reading score of pupils in this group was statistically significantly higher than that of pupils who said they 'never' do this (7.3 %, *d* = 0.3).
- The majority of pupils (84.1 %) reported that they spent 'less than an hour' doing Mathematics homework on a school day. These pupils had a mean Mathematics score (264.6) that was statistically significantly higher than the scores of the rest of their peers (more than 2 hours: *d* = 1.0; 1-2 hours: *d* = 0.5; no time: *d* = 0.4).
- Over one-third of Sixth class pupils (35.7 %) reported that they 'never' used a device for Mathematics homework, and these pupils' mean Mathematics score (268.3) was statistically significantly higher than pupils who reported that they used a device 'once or twice a week' (252.3, *d* = 0.4) or 'every day or most days' (249.2, *d* = 0.3).

Reading activities at home – Second class

- Second class pupils who reported reading books on their own for fun 'most days' (41.9 %) had a mean reading score (273.2) that was statistically significantly higher than those of their peers who reported doing so 'some days' (260.3, *d* = 0.3) or 'never' (239.1, *d* = 0.7). However, pupils in 2021 were much less likely to read books or magazines on their own for fun. Statistically significantly more Second class pupils reported 'never' reading a book and magazines or comics on their own for fun in 2021 compared to 2014 (Kavanagh et al., 2015).
- Most Second class pupils (72.6 %) reported reading with a parent at least 'some days' in 2021, however, fewer pupils read with their parents 'most days' in 2021 compared to 2014 (28.0 % vs 33.4 %), and slightly more did so 'some days' (44.6 % vs 42.7 %). Under a third of Second class reported 'never' reading with a parent (27.4 %) in 2021 (Kavanagh et al., 2015).
- The proportion of Second class pupils who reported reading at home with an adult other than their parent in 2021 was statistically significantly lower compared to 2014. In 2021, almost three times as many pupils reported 'never' reading with another adult compared to 2014 (Kavanagh et al., 2015).
- Pupils who reported reading with another adult (e.g., grandparent) 'most days' in 2021 (8.6 %) had statistically significantly lower mean reading scores (240.5) than pupils who reported doing so 'some days' (264.2, *d* = 0.5) or 'never' (262.7, *d* = 0.5).
- Reading magazines or comics for fun was not popular at Second class, with 63.7 % 'never' doing this. Reading magazines or comics often was associated with lower reading performance. Pupils who read magazines or comics for fun 'most days' (15.1 %) have a mean score (262.3) that was statistically significantly lower than that of pupils who reported doing this 'some days' (270.3, *d* = 0.2).
- Reading something online at home with another adult 'most days' (8.6 %) was associated with lower mean reading scores at Second class (240.5). Pupils who did this had statistically significantly lower reading scores than pupils who reported doing this 'some days' (261.4, *d* = 0.5) or 'never' (264.3, *d* = 0.5).
- Similarly, pupils who reported reading something online at home on their own 'most days' (16.8 %) have statistically significantly lower mean reading scores (252.4) than their peers who reported doing this 'some days' (266.1, *d* = 0.3) or 'never' (261.8, *d* = 0.2).

Mathematics strategies – Sixth Class

In general, there was a pattern of higher Mathematics performance among Sixth class pupils who 'agreed' most with the Mathematics strategies mentioned in the questionnaire.

- Pupils who 'agreed' with the statements "I often think about how I can use Maths in everyday life"; "I try to learn as much Mathematics as possible off by heart"; "I often think of other ways to get the answer to a problem" and "I try to understand new ideas in Maths by thinking about what I already know" tended to have statistically significantly higher Mathematics test scores than pupils who 'disagreed' with these statements.

- Sixth class pupils who 'disagreed' that they had to repeatedly go through examples to remember them (28.5 %) achieved a mean score that was statistically significantly higher than that of those who 'agreed' (*d* = 0.2).
- No performance differences were observed based on pupils' level of agreement with the statement "I try to remember every step when doing a problem".

Extra classes outside of school

- The vast majority of pupils in Second class and Sixth class did not attend extra English lessons or Mathematics lessons. However, pupils who did attend extra lessons in English or Mathematics had statistically significantly lower scores in English reading (Second class: *d* = 0.4, *d* =.05, respectively) and Mathematics (Sixth class: *d* = 0.5, *d* = 0.3, respectively).
- The proportion of pupils attending extra English and Mathematics lessons in 2021 was slightly lower than in 2014. In 2014, 6.3 % of Second class pupils and 3.5 % of Sixth class pupils attended extra English lessons, while 3.9 % and 2.1 % did in 2021. In 2014, 7.8 % of Second class pupils and 4.6 % of Sixth class pupils attended extra Mathematics lessons, while 6.9 % and 3.3 % did in 2021 (Kavanagh et al., 2015).

Parents' interactions with pupils – Sixth class

- The four-in-ten pupils whose parents discussed with them how well they were doing in school 'several times a week' had statistically significantly lower mean Mathematics scores (258.0) than pupils who reported their parent(s)/guardian(s) doing this 'several times a month' (265.3, *d* = 0.2) or 'a few times a year' (267.2, *d* = 0.2).
- About three-quarters of pupils (75.4 %) reported that their parents spent time chatting with them 'several times a week'. Pupils who reported that their parent(s)/guardian(s) discussed books, films or television programmes with them 'several times a week' (31.3 %) had a statistically significantly higher mean score than pupils who reported their parent(s)/guardian(s) 'never or hardly ever' did this (246.6, *d* = 0.3).
- The majority of pupils (82.7 %) reported that their parent(s)/guardian(s) ate dinner with them around the table 'several times a week'. These pupils' mean Mathematics scores were statistically significantly higher than those of pupils who reported that their parent(s)/guardian(s) ate dinner with them 'several times a month' (251.6, *d* = 0.3), 'a few times a year' (239.1, *d* = 0.5), or 'never or hardly ever' (234.1, *d* = 0.6).

Activities outside of school – Second class

In general, Second class pupils who participated in activities outside of school, on 'some days', had higher mean reading scores than those who participated 'everyday' or 'never'.

- Most Second class pupils watched TV, films, or YouTube before or after school 'most' (53.8 %) or 'some' (38.8 %) school days. There were no statistically significant differences in mean reading performance between those who watched TV and those who did not.

- Second class pupils who reported that they played games on a computer, console, or online 'some days' had a statistically significantly higher mean reading score (267.5, *d* = 0.2) than pupils who reported playing 'most days'. Almost four-in-ten Second class pupils (39.0 %) indicated that they played games on a computer or console (e.g., PlayStation) or online games 'most days', a further 35.5 % reported playing such games 'some days' and 25.5 % of pupils reported 'never' playing such games before or after school on school days.
- The 49.7 % of Second class pupils who do jobs around the house before or after school on some days had statistically significantly higher mean reading score (266.5, *d* = 0.2) than pupils who did so most days. Only 18.1 % of pupils reported 'never' doing jobs around the house.
- Approximately one-third (32.8 %) of Second class pupils reported that they read books for fun either before or after school on school days, one in four pupils (24.6 %) reported 'never' doing so. The mean reading score of the latter group of pupils (247.3) was statistically significantly lower than that of pupils who reported reading a book for fun 'most days' (271.9, *d* = 0.5).
- Three-fifths of Second class pupils (59.1 %) reported 'never' reading a comic or magazine for fun on school days, and 15.6 % reported doing so 'most days'. These two groups of pupils performed similarly in reading. However, those pupils who read comics or magazines for fun on 'some school days' had statistically significantly higher mean reading scores (269.1) than pupils who reported reading comics or magazines 'most days' (258.3, *d* = 0.2).
- Almost half of Second class pupils (47.2 %) played sports on 'most' school days, a further 35.2 % did so on 'some' school days, and the remaining 17.6 % 'never' did so. Pupils who played sports on 'some' school days achieved a statistically significantly higher mean reading score (268.4) than pupils who played sports 'most' school days (258.9, *d* = 0.2).
- Second class pupils who reported going to extra classes or clubs for music, dance or art on 'some' school days had statistically significantly higher mean reading scores (274.4) than pupils who reported doing so on 'most' days (256.3, *d* = 0.4).
- Attending extra classes or clubs for computers or coding on school days was not a popular after-school activity. The majority of Second class pupils (90.5 %) 'never' attended extra classes or clubs for computers or coding on school days. These pupils and their peers who reported attending such classes or clubs 'some' days (6.5 %) achieved statistically significantly higher mean reading scores ('never' 262.8, *d* = 0.5 and 'some days' 259.2, *d* = 0.4, respectively) than the 3.1 % of pupils who attended such classes or clubs 'most days' (239.1).
- 71.1 % of Second class pupils 'never' used a computer or device to learn a language, while 18.1 % reported doing so on 'some' days, and 10.8 % did so on 'most' days either before or after school. The former two groups achieved statistically significantly higher mean reading scores (268.7, *d* = 0.5 and 262.1, *d* = 0.2, respectively) compared to the latter (247.5).
- Spending time with friends on 'some', rather than 'most' school days was associated with higher mean reading scores (266.2). Over half of pupils (54.6 %) reported spending time with friends either before or after school on 'most' school days (259.0, *d* = 0.2).
- Almost half of the Second class pupils (48.4 %) reported spending time by themselves on 'some' days before or after school. Pupils who 'never' spent time by themselves on a school day had a statistically significantly lower mean reading score (251.2) than pupils who spent time by themselves on 'most' school days (260.8, *d* = 0.1).

- Pupils who reported chatting with friends using a computing device or mobile phone on 'some' days achieved a statistically significantly higher mean reading score (270.1) than pupils who engaged in such activities 'most' days either before or after school (252.9, *d* = 0.4).

Activities outside of school – Sixth class

In general, Sixth class pupils who spent more time, usually more than 1 or 2 hours, on a pastime or hobby on schooldays had statistically significantly lower mean Maths performance.

- Sixth class pupils who watched TV , films or You Tube for more than two hours on a school day either before or after school (23.9 %) achieved a statistically significantly lower Mathematics score (250.5) than pupils who did so for 1-2 hours (264.1, *d* = 0.3), while pupils who did so for less than an hour or spent no time on such an activity on school days had similar mean Mathematics scores (264.2 and 259.1, respectively) to that of pupils who did so for 1-2 hours.
- Sixth class pupils who reported spending no time playing games on a computer/console (e.g., PlayStation, Xbox) or online had the highest mean Mathematics score among their peers (267.5), which was statistically significantly higher than the score of the reference category (i.e., 1-2 hours) (258.3, *d* = 0.2).
- 59.1 % of Sixth class pupils reported spending less than an hour doing jobs at home (e.g., cleaning) on a school day. This group had the highest mean Mathematics score among their peers (265.7), which was statistically significantly higher than the score of the pupils who reported spending 1-2 hours on this activity (257.2, *d* = 0.2). Pupils who spent no time doing jobs at home on school days had the lowest mean Mathematics score among their peers (242.9), which was statistically significantly lower than that of pupils in the reference category.
- More than seven-in-ten pupils reported spending less than an hour or no time reading a book for fun on school days, and more than nine-in-10 pupils reported the same for reading a comic or magazine.
- 42.8 % of Sixth class pupils spend 1-2 hours playing sports on school days. The mean Mathematics performance for this group was higher than that of all other groups, but statistically significantly different only from that of pupils who spent more than 2 hours playing sports (255.8, *d* = 0.2).
- Sixth class pupils who spent 1-2 hours on extra classes or clubs for music, dance, art or languages on school days had statistically significantly higher mean Maths scores (268.5, *d* = 0.2) than the approximately two-thirds of Sixth class pupils (65.7 %) who spent no time on extra classes or clubs for music, dance, art or languages (257.9). Spending more than 2 hours a day on these activities was also associated with statistically significantly lower mean Mathematics score (253.8, *d* = 0.3).
- Most Sixth class pupils (92.8 %) did not attend extra computer or coding classes or clubs. Of the pupils who did report attending such classes or clubs, those who attended for more than 2 hours achieved the lowest mean Mathematics score among their peers (233.8); however, this data needs to be interpreted with caution due to the small numbers of pupils belonging to each of these groups.
- About half (46.9 %) of pupils spent more than 2 hours with friends on school days, with this group achieving the lowest mean Mathematics score (249.7), which was statistically significantly lower than the score of pupils who spent 1-2 hours with friends on school days.

- The 7.5 % of Sixth class pupils who did not spend any time by themselves on school days achieved a statistically significantly lower mean Mathematics score (250.8) than pupils who spent 1-2 hours by themselves (262.2, *d* = 0.2).
- More than one in five pupils (21.6 %) reported spending more than 2 hours on a school day on a hobby not previously mentioned in the questionnaire. These pupils achieved the lowest mean Mathematics score among their peers (250.4), which was statistically significantly lower than the score of pupils in the reference category (263.1, *d* = 0.3).

Pupil attitudes

Liking school – Second class

- About half of Second class pupils (49.5 %) 'like' school, with a further 35.2 % reporting they were 'not sure'. Pupils who 'do not like' school (15.3 %) have mean reading scores that are statistically significantly lower than those of pupils who 'liked' school (*d* = 0.2).
- Pupils in Second class were asked the same question in NAMER 2014, when a greater proportion of pupils (57.5 %) reported that they 'like' school, and a smaller proportion of pupils reported that they were 'not sure' (28.3 %). A similar proportion of pupils in 2014 reported that they 'did not like' school (14.2 %) (Kavanagh et al., 2015).

Sense of school belonging – Sixth class

- Pupils' sense of school belonging was associated with higher mean Mathematics scores.
- Pupils' sense of school belonging was positively correlated with Mathematics performance, and the correlation was weak to moderate (*r* = 0.2).
- About one-quarter of pupils (24.4 %) 'agreed a lot' with the statement "I like being at school". These pupils had statistically significantly higher mean Mathematics scores (272.3) than those who 'agreed a little' (260.2, *d* = 0.3); 'disagreed a little' (258.1, *d* = 0.3); or 'disagreed a lot' (238.6, *d* = 0.7).
- Similar and substantial proportions of pupils 'agreed a lot' that they feel safe in their classrooms (59.0 %) and in the playground (56.3 %). Those who 'agreed a lot' with feeling safe in their classrooms had statistically significantly higher mean Mathematics scores (265.6) than the rest of their peers ('agree a lot': *d* = 0.2; 'disagree a little': *d* = 0.5; 'disagree a lot': *d* = 0.7).
- Pupils who 'agreed a lot' with feeling safe in the playground had statistically significantly higher mean Mathematics scores (266.3) than the rest of their peers ('agree a lot': *d* = 0.2; 'disagree a little': *d* = 0.5; 'disagree a lot': *d* = 0.6).
- Despite more than half of pupils, 'strongly agreeing' that they feel safe in their classrooms and in the playground, approximately 10 % of the sample in each case 'did not feel safe'.
- Almost half (48.9 %) of pupils 'agreed a lot' that they feel they belong at their school. The difference between these pupils' mean Mathematics scores (264.7) and that of their peers who 'agreed a little' (262.9) was about two score-points and was not statistically significant. However, there was a statistically significant difference between the mean scores of pupils who 'agreed a lot' and those who 'disagreed a little' (250.0, *d* = 0.3) or 'a lot' (232.9, *d* = 0.7) with this statement, favouring those who 'agreed a lot'.

- Approximately three-fifths (58.1 %) of pupils agreed 'a lot' with the statement "Teachers at my school are fair to me", and a further 30.3 % agree 'a little'. Pupils who 'disagreed a lot' (2.3 %) had a mean Mathematics score that was statistically significantly lower than that of pupils who 'agreed a lot' (*d* = 0.5).
- More than half of pupils in Sixth class (58.8 %) 'agreed a lot' that they are proud to go to their school, while almost one-third (32.1 %) 'agreed a little'. Pupils who 'disagreed' with this statement (9.1 %) achieved mean Mathematics scores statistically significantly lower than pupils who 'agreed a lot' ('disagree a little': *d* = 0.3; 'disagree a lot': *d* = 0.5).
- The majority of pupils (83.0 %) 'agreed a lot 'with the statement "I have friends in school", and a further 13.9 % of pupils 'agreed a little'. Pupils who 'agreed a lot' achieved a mean Mathematics score (261.8) statistically significantly higher than pupils who 'disagreed a little' (249.8, *d* = 0.3) or 'disagreed a lot' (231.1, *d* = 0.6).

Attitudes towards reading – Second class

- The majority of Second class pupils had positive attitudes towards reading, and having more positive attitudes was associated with higher reading performance. There were no statistically significant differences in the proportions of Second class pupils who indicated that they 'agreed/ strongly agreed' with statements measuring their attitudes towards reading between NAMER 2014 and NAMER 2021. Although the mean reading scores of those pupils were, for the most part, slightly lower in 2021 when compared to 2014, these were not statistically significantly different (Kavanagh et al., 2015).
- Almost 40 % of pupils 'strongly agreed' with the statement "I like reading". These pupils statistically significantly outperformed those who 'agreed' (258.5, *d* = 0.3) and 'disagreed' (239.6, *d* = 0.7). Pupils who 'strongly agreed' with the statement "I really want to do well at reading" (60.6 %) achieved a statistically significantly higher mean reading score (263.8) than those who 'disagreed' (238.7, *d* = 0.5).
- Just over half (52.1 %) of pupils 'agreed' that their teacher thinks they are good at reading, while a further 42.2 % 'strongly agreed'. Although pupils who 'agreed' achieved the highest mean score (263.4), this was not statistically significantly different from the score of those who strongly 'agreed' (261.0). Those who 'strongly agreed' with this statement performed statistically significantly higher than their peers who 'disagreed' (242.2, *d* = 0.4).
- Nearly three-quarters of pupils either 'strongly agreed' (35.2 %) or 'agreed' (39.6 %) that they like to tell their families about what they are reading. No statistically significant performance differences are observed in mean scores between pupils who 'agreed' or 'disagreed' with this statement.
- Second class pupils did not seem to like talking to their friends about what they are reading, with over half of them (54.7 %) 'disagreeing' with the statement. These pupils' mean reading score (259.7) was statistically significantly higher than that of those who 'strongly agreed' (251.3, *d* = 0.2).
- Most pupils (66.9 %) 'strongly agreed' that they like to read about things that they are interested in, while a further quarter of pupils 'agreed'. Those who 'agreed' (25.0 %) and 'disagreed' (8.1 %) performed statistically significantly lower than those who 'strongly agreed' (*d* = 0.2 and *d* = 0.7, respectively).

- Most Second class pupils perceived themselves as good at writing and spelling words in English, with more than nine out of 10 pupils 'strongly agreeing' or 'agreeing' with the relevant statements. Pupils who 'disagreed' with these statements (7.6 % and 8.6 %, respectively) achieved mean reading scores that were lower by 23.5 and 31.2 score-points, respectively, than the scores of those who 'strongly agreed', and these differences are statistically significant (*d* = 0.5 and d = 0.7, respectively).

Pupils' self-rated skills in English – Second Class

- More than half (53.7 %) of pupils rated themselves as 'very good' at English reading and these pupils' reading performance was statistically significantly higher than that of pupils who rated themselves as 'good' (251.7, *d* = 0.5) or 'needing to improve' (218.3, *d* = 1.3).
- The majority of pupils (81.9 %) rated their ability to speak English as 'very good'. These pupils achieved a mean reading score that was statistically significantly higher than their peers' who rated themselves as 'good' (248.0, *d* = 0.4) or 'needing to improve '(221.4, *d* = 0.9). Over four-fifths of pupils rated themselves as 'very good' (39.7 %) or 'good' (43.3 %) at writing a story in English.
- Pupils who described themselves as 'needing to improve' (17.0 %) performed statistically significantly lower than those who rated themselves as 'very good' (*d* = 0.3). Fewer pupils rated themselves as being 'very good' at writing a story in English (39.7 %) than reading or speaking English (53.7 % and 81.9 %, respectively).

Mathematics confidence – Sixth class

- Pupils' Mathematics self concept was positively correlated with Mathematics performance, and the correlation was strong (*r* = 0.6).
- Pupils who indicated 'higher' levels of self-concept and confidence in Mathematics tended to score higher than pupils who indicated 'lower' levels of confidence. The performance differences between the 'highest' and 'lowest' confidence groups were substantial, ranging from 41.9 score-points for the statement "I worry that I will get poor marks in Maths" to 85.2 score-points for "I get good marks in Maths", with differences exceeding 60 score-points for most statements. Statistically significant differences in performance were seen across all of the component statements related to Mathematics confidence.

Use of digital devices at school and at home

Use of computer devices at school

- Substantial proportions of Second class pupils, ranging from 38.1 % to 87.2 %, reported that they 'hardly ever' or 'never' used computing devices for a wide range of activities at school.
- The activities for which pupils reported more frequent use of computing devices were to play games to learn things, find information on the Internet, and practise Mathematics. Pupils who used computing devices to engage in various activities 'most days' achieved statistically significantly lower mean reading scores compared to their peers who used them less frequently ('some days' or 'hardly ever' or 'never'), with effect sizes ranging from *d* = 0.2 to *d* = 0.6.

- The most commonly performed activity among Sixth class pupils using digital devices at school was finding information on the Internet. Approximately 72.4 % of pupils engaged in this activity 'once or twice a week' or 'a few times a month'.
- Substantial proportions of Sixth class pupils, ranging from 33.0 % to 44.4 %, reported using digital devices in school at least 'a few times a month' to practise Mathematics, take a quiz or test, solve Mathematics problems, work on a project with other children in their class, and play games to learn things or for fun.
- Relatively small proportions of pupils, ranging from 4.0 % to 19.9 %, reported using digital devices in school 'at least a few times a month' to read an e-book, do art/drawing/design, meet with children in another school online, do coding, and build a robot (e.g., Lego Robots).
- Sixth class pupils who used computing devices to engage in various activities more frequently achieved statistically significantly lower mean Mathematics scores compared to their peers who used them less frequently, with effect sizes ranging from d = 0.2 to d = 1.0.

Use of mobile phones at home – Second class

- Substantial proportions of pupils, ranging from 46.4 % to 73.4 %, used a mobile phone on 'most' or 'some days'. Pupils tended to use a mobile phone more frequently for playing games alone or with others, speaking with friends, and accessing schoolwork from their teacher. Pupils who 'hardly ever' or 'never' engaged in these activities using a mobile phone performed statistically significantly better than their peers who did so most days (effect sizes ranging from d = 0.2 to d = 0.4), while, in most cases, the former group of pupils also outperformed their peers who engaged in these activities some days.

Mobile phone use – Sixth class

- Pupils who spent 'more than 2 hours a day' using a mobile phone had the lowest mean Mathematics performance (249.1), which was statistically significantly lower than that of pupils who used a mobile phone for '1-2 hours' (d = 0.3). Approximately one-in-ten Sixth class pupils (9.2 %) reported spending 'no time' using a mobile phone on school days, with these pupils achieving a statistically significantly higher mean Mathematics score (275.2) than their peers who reported spending '1-2 hour's using a mobile phone on school days (264.7, d = 0.2).
- Just under a third of pupils (32.0 %) reported that they spent 'more than 2 hours' chatting with friends using a computing device or mobile phone on school days. These pupils achieved a mean Mathematics score (244.6) that was statistically significantly lower than that of those who spent '1-2 hours' chatting with friends (263.1, d = 0.4), while pupils who reported spending 'less than an hour' on this activity achieved a mean Mathematics score (271.7) that was statistically significantly higher than that of the group that did so for '1-2 hours' (263.1, d = 0.2).

Family rules for digital device usage – Sixth class

- Most Sixth class pupils indicated that there were rules around the use of digital devices in their family, with only 24.6 % indicating that there were no rules and that they could do what they

liked. Pupils who 'strongly agreed' that there were no rules in their family around the use of digital devices achieved a statistically significantly lower mean Mathematics score (241.1) than pupils who 'strongly disagreed' (264.4, *d* = 0.5).

- 63.8 % of pupils 'strongly agreed' or 'agreed' that their parents would limit the amount of time they could spend on digital devices. Pupils who 'strongly disagreed 'with this statement achieved a statistically significantly lower mean Mathematics score (242.0) than pupils who 'strongly agreed' (272.9, *d* = 0.6), 'agreed' (266.2, *d* = 0.5), and 'disagreed' (252.3, *d* = 0.2).
- More than four-in-ten Sixth class pupils (43.8 %) reported that that their parents allowed them to play any computer games they liked. Pupils who 'strongly agreed' with this statement had a statistical significantly lower mean score (246.3) than pupils who 'strongly disagreed' (263.8, *d* = 0.4). Equal proportions of pupils (13.7 %) 'strongly agreed' and 'strongly disagreed' with the statement "My parents only allow me to play certain games". Pupils who 'strongly disagreed' with this statement achieved a statistically significantly lower mean Mathematics score than the rest of their peers ('strongly agree': *d* = 0.3; 'agree': *d* = 0.4; 'disagree': *d* = 0.2).
- Most Sixth class pupils indicated that their parents knew a lot about their online activities (23.3 % 'strongly agree' and 51.7 % 'agree'), there was a substantial proportion (25.1 %) who indicated that their parents did not. Pupils who 'strongly disagreed' with the statement achieved a statistically significantly lower mean Mathematics score than the rest of their peers ('strongly agree': *d* = 0.3; 'agree': *d* = 0.5; 'disagree': *d* = 0.4).
- 2.1 % of pupils 'strongly agreed', and 7.1 % 'agreed', that they only used digital devices for schoolwork. These pupils achieved mean Mathematics scores (237.6 and 236.4, respectively) that were statistically significantly lower than pupils who 'strongly disagreed' (264.0) with the statement ('strongly agree': *d* = 0.5; 'agree': *d* = 0.6).

Use of digital devices during COVID-19 school closures

- Sixth class pupils were more likely than Second class pupils to use a computer or laptop for schoolwork 'most days' during COVID-19 school closures (53.0 % vs 38.4 %). Although there are no statistically significant differences in performance based on the frequency with which pupils at either grade used a computer or laptop for schoolwork during COVID-19 school closures, Sixth class pupils who 'hardly ever' or 'never' did so achieved a lower mean Mathematics score (257.0) than the rest of their peers.
- Approximately four-in-ten (37.5 %) Second class pupils reported that they 'hardly ever' or 'never' used a tablet for schoolwork during COVID-19 school closures. These pupils achieved a statistically significantly lower mean reading score (256.5) than pupils who used a tablet 'most days' (266.5, *d* = 0.2). At Sixth class, there were no statistically significant differences in performance based on the frequency with which pupils used a tablet for schoolwork during COVID-19 school closures.
- Second and Sixth class pupils who 'hardly ever' or 'never' used mobile phones for schoolwork during COVID-19 school closures achieved statistically significantly higher mean reading (264.5) and Mathematics scores (266.6) than their peers who used mobile phones for schoolwork 'most days' (Second class: *d* = 0.1; Sixth class: *d* = 0.2).

- Sixth class pupils who reported using mobile phones for schoolwork 'some days' during COVID-19 school closures also achieved a statistically significantly higher mean Mathematics score (263.5) than those who did so 'most days' (266.6, *d* = 0.1).
- Second class pupils were more likely than Sixth class pupils to use the TV (e.g., Home School Hub, Cúla 4) for schoolwork during COVID-19 school closures. Although no statistically significant differences in performance are observed among Second class pupils based on the frequency with which they used the TV for schoolwork during COVID-19 school closures, Sixth class pupils who used the TV for schoolwork during COVID-19 school closures 'most days' achieved a statistically significantly lower mean Mathematics score (247.0) compared to their peers who did so 'some days '(263.6, *d* = 0.4) or 'hardly ever' or 'never' (263.6, *d* = 0.3).

Teacher and classroom factors

Background on teachers and classes

- A higher proportion of female teachers than male teachers was reported at both Second (86.7 % vs 13.3 %) and Sixth class (57.7 % vs 42.3 %). At both grade levels, there was an increase in the proportion of pupils taught by male teachers since 2014. There was no association between teacher gender and pupils' achievement in either English reading or Mathematics.
- In NAMER 2021 the majority of teachers had permanent status. This was true at both Second (77.9 %) and Sixth class (85.8 %). The proportion of teachers with permanent status was slightly lower than that recorded for both class groups in NAMER 2014 (Kavanagh et al., 2015). There was no statistically significant association between teacher status and performance at either Second or Sixth class.
- At Sixth class, 20.7 % of teachers had more than 20 years teaching experience and 19.6 % had five years or less. At Second class, there was a higher proportion of newly qualified teachers (29.4 % with 1-5 years teaching experience) and a smaller proportion of teachers with more than 20 years' experience (13.4 %). In 2021, Second class and Sixth class pupils were taught by teachers with an average of 11.8 and 13.5 years' teaching experience, respectively. In most cases there was no statistically significant association between teaching experience and pupil performance. However, at Second class, pupils taught by teachers with more than 20 years' experience achieved a statistically significantly higher mean reading score than that of pupils who were taught by teachers with one to five years' experience. This finding should be interpreted cautiously as there may be confounding variables (Kavanagh et al., 2015).
- More than one-in-ten pupils at both Second and Sixth class were taught by teachers who had studied Mathematics as a specialist subject in their degree or equivalent (11.6 % vs. 13.9 % , respectively). There was no statistically significant difference in the mean Mathematics scores of Sixth class pupils based on whether their teacher had studied Mathematics as a specialist subject.
- Fifty percent of Second class pupils and 54.2 % of Sixth class pupils were taught by teachers who indicated that they had no additional qualifications relating to their work as a teacher. 23.3 % of Second class pupils and 31.2 % of Sixth class pupils were taught by teachers who reported having a Certificate or Diploma. 26.7 % of Second class pupils and 14.5 % of Sixth class pupils were taught by teachers with a Master's or PhD/EdD. There is an increase in the proportion of pupils

taught by teachers with advanced degrees since 2014 (Kavanagh et al., 2015). For the most part, there were no associations between these additional qualifications and pupil performance on English reading or Mathematics. However, at Second class, pupils of teachers with a Master's or PhD achieved a mean reading score (253.3) that is statistically significantly lower (by 12 score-points) than that of pupils whose teacher had no additional qualifications (265.7, *d* = 0.3).

- In terms of additional responsibilities, 4.3 % of Second class pupils were taught by teachers with additional responsibility for English in their school, while 19.2 % in Sixth class were in this category. There was no statistically significant association between teachers holding such a position for English and Second class pupils' reading performance. Just under five percent (4.7 %) of Second class pupils and 15.8 % of Sixth class pupils were taught by teachers with additional responsibility for Mathematics. There was no statistically significant association between this variable and Sixth class pupils' Mathematics performance.
- Looking at Teacher Professional Learning (TPL), 34.3 % of Second class pupils were taught by teachers who had attended no external TPL on the teaching and learning of English. 41.0 % of pupils were taught by teachers who had attended external TPL for English for between one and four days. Large proportions of Second class pupils were taught by teachers who had attended no in-school TPL either outside or inside Croke Park Agreement (CPA) hours (42.5 % and 31.5 % , respectively). About one-quarter (23.9 %) of Second class pupils were taught by teachers who had attended online TPL related to English for one to four days and for 34.9 % of pupils, five to eight days. Given the more common nature of remote teaching during these years due to COVID-19, it is worth noting that 51.0 % of Second class teachers had attended no training in distance learning, including elements such as blended learning and remote teaching. External TPL for the teaching and learning of Mathematics among Sixth class teachers was far less common than for English at Second class, with 58.1 % of pupils being taught by teachers who had not attended such TPL in the two years before NAMER 2021. Responses regarding TPL for distance learning for Mathematics were broadly similar to those for English at Second class, with over half of pupils (53.7 %) taught by teachers who attended no TPL on this topic. There were no associations between pupil performance and teacher attendance at any type of TPL for the relevant subject (English reading for Second class and Mathematics for Sixth).
- The majority of pupils in Second class (70.1 %) and in Sixth class (76.2 %) were taught in single-grade classrooms. Just under 4 % of Second class pupils (3.8 %) and 1.7 % of Sixth class pupils were taught by teachers responsible for four grade levels. There were no statistically significant associations between the number of grade levels taught in a pupil's classroom and mean achievement scores in either English reading or Mathematics.
- Average class sizes are consistent with those reported in the last cycle of NAMER. The mean number of pupils in single-grade Second classes was 24.8, while, at Sixth class, the mean number for single-grade classes was 26.2. There was no association between class size and performance on either Second class reading or Sixth class Mathematics.
- Teachers of Second class reported allocating an average of 294.8 minutes per week to the teaching of English. Teachers of Sixth class reported spending an average of 299.3 minutes per week on the teaching of Mathematics. This represents an increase of 16.1 minutes since 2014 in Mathematics teaching, which is in line with the Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2011).

Teaching and assessing English and Mathematics

- Considering practices for English, more than 90 % of pupils at Second class were in classrooms where phonological or phonemic awareness and strategies were taught at least weekly, 52.5 % of pupils were taught by teachers who covered basic comprehension skills in 'most or all lessons', and 55.0 % were taught strategies to improve reading fluency equally as frequently. 39.5 % of pupils were in classrooms where the teaching of digital comprehension skills either 'rarely or never' occurred. Oral language was a key feature of Second class English lessons, with most pupils taught by teachers who developed children's receptive and expressive oral language skills at least weekly (89.9 % and 93.2 %, respectively). 50.5 % of pupils were taught by teachers who engaged children in writing narrative texts 'at least weekly', with 25.7 % for informational texts or reports. 31.3 % of pupils were in classrooms where they engaged in reading or writing poetry 'at least weekly'. Engaging children in dramatising stories in English lessons was one of the least common teaching practices.
- In terms of instructional practices for Mathematics at Sixth class, the most commonly reported practice was engaging pupils in implementing mathematical procedures; 75.7 % were in classrooms where this occurred in 'most or all lessons'. 89.0 % of pupils were taught by teachers who taught strategies for problem solving at least weekly, while the corresponding percentage for encouraging pupils to use multiple strategies for solving the same problem was 90.3 %. Teaching and reviewing mathematical vocabulary were also commonly covered in most pupils' Mathematics lessons (88.1 %, at least weekly).
- The frequency of the implementation of paired/shared reading with a parent or adult volunteer is likely to have been affected by the circumstances over the 2020/2021 period (when interactions between pupils and adults from outside their classroom was prohibited for infection control reasons) with 60.2 % of Second class pupils in classrooms where this initiative had 'never' been implemented in the current school year. In NAMER 2014, paired reading was one of the most commonly used initiatives (Kavanagh et al., 2015). Second class teachers also reported infrequent use of the First Steps initiatives (Reading, Writing, and Oral Language) and 64.0 % of Second class pupils were taught by teachers who reported never using First Steps Writing in the classroom. About seven in ten Second class pupils (70.2 %) were in classrooms where Drop Everything and Read (DEAR) was implemented 'at least weekly'. Guided Reading and Jolly Phonics were also popular, with the majority of pupils in classrooms where these were implemented either 'monthly' or 'weekly' (76.1 % and 73.0 %, respectively). The weekly use of Jolly Phonics has increased from 49.3 % in 2014 to 60.7 % in 2021 (Kavanagh et al., 2015).
- At Sixth class, the most commonly used Mathematics initiative was Paired Maths with another pupil, with 71.3 % of pupils in classrooms where this was implemented monthly or more often. Only 5.7 % of pupils were taught by teachers who reported that Paired Maths with a parent or adult volunteer took place either 'monthly' or 'weekly'. In 2021, 45.5 % of Sixth class pupils were in classrooms where the Maths for Fun programme was implemented either 'monthly' or 'weekly'. Teachers' responses in 2021 suggest an increase in the frequency of the implementation of Mathematics initiatives in the classroom, when compared with 2014 (Kavanagh et al., 2015).
- The use of digital tools in lessons was similar across the grade levels. At Second class, 43.9 % of pupils were provided with digital tools to learn basic skills (including spelling and phonics) at least

once a week. Digital tools were also used, at least weekly' to comprehend online texts (28.4 %), to find information online (25.4 %), and to read electronic books (20.5 %). There were no statistically significant associations between Second class pupils' mean reading performance and the frequency of use of digital tools in English lessons for the purposes specified. At Sixth class, between 46.9 % and 62.4 % of pupils were in classes where the teacher reported that digital tools were 'rarely or never' used for the mathematical purposes listed in the survey. Digital tools were most commonly used for understanding concepts and problem solving. There were no statistically significant associations between Sixth class pupils' mean Mathematics performance and the frequency of use of digital tools in Mathematics lessons for the purposes specified.

- At Second class, popular assessment methods with weekly use included teacher-designed tasks (67.4 %), teacher-designed tests (59.7 %), analysis of spelling errors (64.1 %), and self-assessment by children (58.1 %). Reflective journals and computer-based tests were used to a much lesser extent. In 2014, 60.5 % of Second class pupils were in classrooms where self-assessment by children was used monthly or more often (Kavanagh et al., 2015); in 2021, the corresponding proportion was 82.0 %. While the use of computer-based tests was relatively infrequent in both NAMER cycles, there was a notable increase in their use between 2014 and 2021. The use of diagnostic tests has also increased since the last NAMER cycle.
- Teachers' level of confidence in a number of areas was examined:
    - Firstly, teachers reported their confidence in teaching English to children with specified needs. At Second class, 39.3 % of pupils were taught by teachers who reported that they were 'very confident' in identifying pupils' learning difficulties in English, with a further 55.7 % taught by teachers reporting to be 'somewhat confident'. Teachers reported reasonably high levels of confidence in working with children with learning difficulties in English reading or writing (37.2 % were 'very confident' and 60.5 % 'somewhat confident'). Teachers also reported high levels of confidence in working with children with oral language difficulties. More than three-quarters of pupils were in classrooms where their teacher was either 'very' or 'somewhat confident' in teaching EAL (English as an Additional Language) pupils (79.8 %) and those with specific learning difficulties (86.9 %). It should be noted that 20.2 % of pupils were taught by teachers who were 'not confident' in working with EAL pupils.
    - Secondly, teachers reported on their confidence in teaching aspects of literacy, with 71.3 % of Second class pupils taught by teachers who were 'very confident' in their ability to teach basic reading skills. Large proportions of pupils were taught by teachers indicating high levels of confidence in teaching literacy across the curriculum (65.4 % 'very confident'; 33.7 % 'somewhat confident'), and engaging children in the writing process (59.4 % 'very confident'; 38.3 % 'somewhat confident').
    - Thirdly, teachers' confidence in using digital tools and teaching English remotely was examined. About 20.8 % of Second class pupils were taught by teachers who reported feeling 'very confident' in using digital tools to teach reading and writing, while an additional 61.5 % of pupils were taught by teachers who were 'somewhat confident'. In addition, 21.4 % were taught by teachers who were 'very confident' in developing oral language remotely, while the corresponding percentages for remote teaching of English reading and writing were 28.7 % and 24.6 %, respectively.

- Fourthly, teachers reported on their confidence in teaching Mathematics to children with specified needs. About four-in-10 Sixth class pupils (42.9 %) were taught by teachers who were 'very confident' in identifying pupils' learning difficulties in Mathematics, while more than half of pupils (54.1 %) had teachers who were 'somewhat confident' in this area. Almost all pupils (98.1 %) were taught by teachers who were either 'very' or 'somewhat confident' in working with children who have learning difficulties in Mathematics. Also, 97.6 % of Sixth class pupils were taught by teachers who reported feeling 'very' or 'somewhat confident' in extending higher-achieving pupils' mathematical understanding.
- Fifthly, teachers were asked about their confidence in teaching aspects of Mathematics. About six-in-10 pupils were taught by teachers who were 'very confident' in teaching children to reason mathematically and to solve two-step Mathematics problems (59.2 % and 60.4 %, respectively). Similarly, teachers' confidence was high in relation to communication in Mathematics. Teachers also expressed high levels of confidence in teaching numeracy across the curriculum. Confidence levels were comparatively lower for engaging children in mathematical projects, with 17.1 % of Sixth class pupils taught by teachers who were 'very confident' in this area and 29.4 % with teachers who indicated that they were 'not confident'.
- Lastly, teachers' reported on their confidence in using digital tools and teaching Mathematics remotely. About one-fifth (21.4 %) of Sixth class pupils were taught by teachers who were 'not confident' in using digital tools to teach Mathematics, while 15.5 % of pupils had teachers who were 'very confident' in this area. 17.0 % of pupils were taught by teachers who were 'not confident' in supporting or teaching Mathematics remotely.

- At Sixth class, 95.7 % of pupils were taught by teachers who felt their knowledge of Mathematics in general was at least strong, while the corresponding proportion for knowledge about teaching Mathematics was 92.1 %. Pupils whose teachers reported that their knowledge of Mathematics was 'very strong' had a mean Mathematics score that was statistically significantly higher (by almost 20 score-points) than that of pupils with teachers who indicated that their knowledge 'needs further development' (*d* = 0.4). The same pattern was observed for knowledge about teaching Mathematics.

Impacts of system-level, school-level, and personal factors on the teaching and learning of English

- About one-fifth of Second class pupils were taught by teachers who felt that curriculum change, such as the Primary Language Curriculum, had a 'large positive' impact on the teaching and learning of English in their classroom, while the corresponding proportion for a 'small positive' impact was 42.9 %. Almost two-thirds of pupils were taught by teachers who reported either a 'small' or 'large positive impact' of the Literacy and Numeracy Strategy (2011-2020).
- More than three-quarters of pupils were taught by teachers who felt that school-level planning for English and targets for raising literacy standards had a 'large' or 'small positive impact' on the teaching and learning of English in their class (78.8 % and 77.5 %, respectively). More than half of

pupils in DEIS schools were taught by teachers who reported 'no impact' of the elements of the DEIS strategy on the teaching and learning of English, with small proportions of pupils being taught by teachers reporting a 'small' or 'large negative impact'. A lack of digital devices was viewed as having a 'negative impact' to some extent by teachers of 54.6 % of pupils, although 44.1 % of pupils had teachers who felt that this factor had 'no impact'.

- Nearly three-quarters of Second class pupils (72.6 %) were taught by teachers who indicated that CPD in the two years preceding the completion of the questionnaire had a 'large' or 'small positive impact' on the teaching and learning of English in their class. About seven-in-10 pupils (70.4 %) were taught by teachers who felt that pupil absences had a 'negative impact' on teaching and learning. In contrast, 84.8 % of pupils were taught by teachers who felt parental pressure to raise standards had 'no impact' on the teaching and learning of English in their class.
- Teachers were positive about the usefulness of most aspects of the Primary Language Curriculum (PLC). For example, 97.7 % of Second class pupils, and 86.5 % of Sixth class pupils were taught by teachers who felt that the learning outcomes were at least 'slightly useful', with Second class teachers more likely to view the learning outcomes favourably than Sixth class teachers. Similar proportions of Second (21.1 %) and Sixth class (18.5 %) pupils were taught by teachers who felt that the examples of children's language learning available online were 'very useful'. Second class pupils were more likely to be taught by teachers who rated the progression continua as 'very useful' (22.7 %) than Sixth class pupils (12.4 %). More than one-tenth of pupils at both grade levels were taught by teachers who felt that this aspect of the PLC was 'not at all useful' (Second class: 10.8 % ; Sixth class: 13.0 %). Responses were more similar across grade levels for the PLC support materials, with 93.3 % of Second class pupils and 89.0 % of Sixth class pupils taught by teachers who viewed these as at least 'slightly useful'. The proportion across grade levels was the same for the 'not at all useful' category (6.7 %). A small proportion of Sixth class pupils (4.3 %) had teachers who indicated that it was 'too early to say' whether PLC support materials were useful or not at the time of completing the questionnaire. Second class teachers were generally positive about the usefulness of CPD courses related to the PLC, with 85.6 % of pupils taught by teachers who rated this aspect as at least 'somewhat useful'. The corresponding proportion for Sixth class was 61.2 % . It should be noted that 8.3 % of Sixth class pupils had teachers who felt that it was 'too early' to comment on the usefulness of the CPD courses related to the PLC at the time of completing the questionnaire.

School factors

Profile of schools

- Similar percentages of Second and Sixth class pupils attended city schools (27.9 % of Second class; 27.1 % of Sixth class) and village or rural schools (40.9 % of Second class; 38.8 % of Sixth class). There was no statistically significant difference in the reading performance between pupils in city schools and pupils in schools in village or rural locations. The mean Mathematics performance among Sixth class pupils in village or rural schools was about 8 points higher than pupils in city schools, but the difference was not statistically significant.
- There were no statistically significant differences in performance at Second class or Sixth class between pupils in schools of different sizes (large; medium; small).

- Second class pupils in boys' schools (244.6) had English reading scores that were statistically significantly lower than pupils attending both mixed schools (261.7, *d* =.36) and girls schools (269.2, *d* =.06). Pupils in mixed schools had the highest mean Mathematics scores at Sixth class (261.7), but this score was not statistically significantly different from the mean score achieved by pupils in girls' schools (256.7), or boys' schools (253.8).
- Pupils in schools with Irish as the main language of instruction had statistically significantly higher mean reading performance (274.2) at Second class than pupils in schools where English was the main language of instruction (259.8, *d* =.30). For Sixth class Mathematics pupils in Irish-medium schools attained a mean score of 267.2, while the corresponding score for pupils in English-medium schools was 260.0. This difference was not statistically significant.
- The majority of pupils were in schools where principals indicated that average school attendance was between 91-100 % during the 2020/21 school year similar to NAMER 2014 where overall attendance was 94 % at both Second and Sixth class levels for the first quarter of that school year (Kavanagh et al., 2015). In 2021, the mean English reading performance at Second class and Mathematics performance at Sixth class was highest for pupils in schools with 91-100 % attendance.
- Principals identified pupils' background at both grade levels as follows: pupils from an immigrant background (16.4 %-17.0 %); pupils who spoke a home language other than English or Irish (11.7 %-12.1 %); pupils who identified themselves as members of the Irish Traveller or Roma communities (1.5 % at both grade levels); pupils living in direct provision (0.2 %) and pupils who were homeless (0.3 %).
- Achievement differed by pupils' background. The percentages of Second class and Sixth class pupils attending schools where more than 10 % of the pupils spoke a main home language other than English or Irish was significantly higher in NAMER 2021 compared to NAMER 2014 (Kavanagh et al., 2015). The scores of Second and Sixth class pupils in schools where more than 10 % of pupils were from an immigrant background were generally lower when compared to the mean scores of pupils in schools with no immigrant pupils. At Second class, pupils in schools with no Traveller pupils had significantly higher mean scores on English reading than pupils in schools with varied percentages of pupils who were members of the Traveller community (0-5 % ; 10-20 % ; 20-50 % ; and greater than 50 %). At Sixth class, pupils in schools with no pupils in the Traveller community had significantly higher mean scores in Mathematics than pupils in schools in which 10-20 % and 20-50 % of the pupils were members of the Traveller community. At Sixth class, the mean Mathematics scores of pupils in schools with 10 % or more pupils who speak a first language other than English or Irish was significantly lower than the mean score of pupils in schools with no speakers of first languages other than English or Irish.

Pupils' learning needs and supports

- Specific learning disabilities were reported for 4 % of the school population in schools that participated in NAMER 2021. On average, 3 % of the school population had autism or autism spectrum disorders. Similar proportions of the school population had physical impairments, behavioural, emotional and social difficulties, or specific speech and language disorders (about 2 %). One percent of pupils in NAMER 2021 schools had sensory impairments (i.e., hearing, vision), and 1 % had mild general learning disabilities. Less than 1 % of the school population had

borderline mild general learning disability, and less than 0.5 % of pupils in the general school population had moderate or severe general learning disabilities or assessed syndromes.

- The mean number of pupils with EAL who were in receipt of language support from an EAL or special education teacher was 21.8 for Second class and 21.7 for Sixth class. On average, more boys than girls were in receipt of language support at both grade levels.
- The mean number of officially sanctioned Special Education Teachers, including shared posts was 5.9 for Second class and 6.0 for Sixth class. The average number of legacy language support posts was 0.3 of a post. The mean number of officially sanctioned Special Education Teachers in small and medium schools, for both Second and Sixth class was 4 (4.1 for Second; 3.9 for Sixth). There were very few legacy language support posts evident, with large schools having on average just over half a post (0.6).
- Principals were asked to indicate the number of pupils in receipt of Classroom Support, School Support and School Support Plus. For English, an average of 42 pupils were accessing Classroom Support, 38 pupils were in receipt of School Support and 13 were in receipt of School Support Plus. For Mathematics, an average of 37 pupils were in receipt of Classroom Support, 25-27 pupils were in receipt of School Support, while 8-9 pupils were in receipt of School Support Plus.

Principals and teachers

- Just under two-thirds of pupils were in schools where the principals were female at each grade level.
- About a quarter (25.8 %) of pupils in Second class and Sixth class (22.4 %) attended schools in which the principal teacher taught classes in addition to performing their administrative and leadership duties. There were no statistically significant differences in performance at Second or Sixth class between pupils in schools with teaching or administrative principals.
- The majority of principals at both Second and Sixth class had more than 20 years' experience as teachers. There were no significant differences in English reading and Mathematics scores for pupils attending schools with principals of varying levels of experience.
- Over half of pupils were in schools where the principals found their job 'very' satisfying (53.7 % of Second class; 53.9 % of Sixth class), while 43.8 % (Second) and 43.3 % (Sixth) were in schools were the principal found their job 'fairly' satisfying. There were no significant differences in pupil performance associated with principals' job satisfaction.
- The majority of school principals indicated that they found their job 'very' stressful (64.3 % Second class; 60.6 % Sixth class) or 'fairly' stressful (26.3 % Second class; 29.0 % Sixth class). The mean reading scores of Second class pupils with principals who found their job 'not very stressful' was higher compared to pupils in schools where principals reported that their jobs were 'very' stressful.
- About 12 % of pupils at both class levels were in schools with principals who felt 'very supported' and 61 % of pupils were in schools with principals who felt 'fairly' supported. The reading achievement of pupils in Second class did not differ by principals' levels of support. The Mathematics achievement of Sixth class pupils was higher in schools where the principal felt 'fairly' supported and 'not at all' supported compared to pupils whose principals indicated they felt 'very supported'.

- In terms of principals' CPD needs the most frequently identified were: 'Planning and policy development' (75.2 % of principals of Second class pupils; 75.4 % of principals of for Sixth class pupils). 'Leadership', 'Data protection and GDPR' and 'Conflict resolution' were the next most popular topic areas.
- About half of pupils were in schools where principals reported difficulties in recruiting teachers in the 12-months prior to NAMER 2021. Almost all pupils had principals that reported difficulty in sourcing qualified substitute teachers (93.6 % Second class; 93.3 % Sixth class). A smaller percentage of pupils were in schools with reported teacher retention difficulties (13.8 % -15.7 %).
- Principals were asked to gauge teachers' levels of engagement. Almost 90 % of pupils at both grade levels attended schools where the principal indicated teacher job satisfaction was 'very high/high'. Three-quarters (75.1 %) of Second class pupils and 78.0 % of Sixth class pupils attended schools where principals report that the teacher morale was 'very high/high'. Teachers' understanding of goals and targets, and their success in achieving these, was indicated by principals to be 'very high/high' for most pupils (87.5-86.5 % Second class; 86.9 -87.6 % Sixth class). Over 95 % of pupils at both grade levels attended schools where the principal rated teacher expectations for pupil achievement as 'very high/high'.

School resources

Library

- Most pupils attended schools that had libraries in every classroom (80.7 % Second class; 81.6 % Sixth class), while 15 % at both Second (15.2 %) and Sixth (15.4 %) class pupils had access to libraries in some classrooms. It was less common for schools to have a room used exclusively as a central library (23.6 % Second class; 23.3 % Sixth class), or to have a room used as a school library and for other uses (32.5 % Second class; 31.1 % Sixth class).
- The average number of print books contained in all school libraries was 2,284 for schools with Second class pupils, and 2,356 for schools with Sixth class pupils, which is lower than the number of books recorded in NAMER 2014 (Kavanagh et al., 2015). On average in 2021, 3.1 % of books at Second class level, and 3.6 % at Sixth class were in a language other than English or Irish which was statistically significantly higher than in 2014. On average, between 106 and 118 books were added to schools' library collection in the 2020/21 school year. This is statistically significantly lower than in NAMER 2014. The percentages of pupils at both grade levels with no e-books was significantly lower in 2021 compared to 2014. The ratio of print books to pupils in NAMER 2021 was more favourable (9:1) than in NAMER 2014 (between 12:1-15:1). About thirty percent of second class pupils, and 29.9 % of Sixth class pupils attended schools in which a teacher held a post of responsibility that included library duties.

Digital

- The average number of devices available to Second class pupils was 42.5, for Sixth class pupils the average number of devices was 44.7. There were more devices available to pupils at both grade levels overall in 2021 compared with 2014. The average ratio of pupils to devices was lower, with

9.2/9.3:1 pupils per computing device in 2021, compared to 13.9:1 at Second class and 14.7:1 at Sixth class in 2014 (Kavanagh et al., 2015).

- Between 14 % and 16 % of pupils were in schools with a dedicated computer room and the average number of devices available in these rooms was 4.4 for Second class pupils, and 5.2 for Sixth class pupils. There were statistically significantly fewer dedicated computer rooms in schools in 2021 compared to NAMER 2014 (Kavanagh et al., 2015). On average schools had an additional 14.3 computing devices available in classrooms/resource rooms. There were also fewer computing devices available in a central computer room or in classroom resources rooms. This most likely reflects the increased use of mobile devices such as laptops and tablets in 2021, rather than the desktop computers more commonly used in 2014.
- The principals of almost two-thirds of pupils rated the number of computing devices (e.g., desktop computers, laptops, tablets) as 'very good' or 'good'. Principals reported relatively less access to digital tools such as data sensors, cameras or assistive devices with 18 % of pupils in schools where principals rated access as 'poor'.
- About two-thirds of pupils were in schools where principals rated the broadband speed as 'good' or 'very good'. About 20 % of pupils have principals who rated technical support and maintenance as 'poor'.
- Nearly half (46 %) of pupils were in schools where principals rated teachers' knowledge and skills in using digital technologies for teaching as 'very good', with an additional 36 % of pupils in schools where the principal rated teacher knowledge and skill was rated as 'good'.
- Almost all pupils (99 %) had teachers with access to a dedicated device, and most pupils (70 %) were in schools where all teachers had access to interactive whiteboards.
- Broadband or wireless internet was available to teachers in over 94 % of schools, while 89 % of pupils had access in schools.
- Most pupils were in schools where the Digital Learning Framework (DLF) impacted on digital technology use either 'to some extent' or 'a lot'.

Evaluation, assessment and planning

- For School Self-Evaluation (SSE), almost three-quarters of pupils (72.9 % Second class; 72.6 % Sixth class) attended schools that were concentrating on English oral language, while English writing was identified as an area of focus in SSE for 66.2 % of schools with pupils in Second class and 63.7 % of schools with pupils in Sixth class. The majority of Second and Sixth class pupils attend schools where digital learning and literacy were prioritised in SSE. English reading and numeracy are also areas of focus.
- Almost 60 % of pupils attended schools where principals indicated that standardised tests were 'very useful' for identifying pupils with learning difficulties (58.5 % Second class; 59.3 % Sixth class). Just under half of principals found standardised tests 'very useful' for informing school self-evaluation.
- In general, principals were positive with the majority of principals indicating that the National Literacy and Numeracy Strategy (2011-2020) had an impact on teaching and learning 'to some extent'.

- About two-fifths of pupils were in schools where principals indicated that too much paperwork for teachers and large class sizes impacted teaching and learning outcomes for pupil 'a lot'.
- Pupils in schools where principals reported 'very high' parental support for pupil achievement and 'very high' parental involvement in school activities achieved statistically significantly higher mean scores in both Second class reading and Sixth class Mathematics than those attending schools where lower levels of parental support were reported (medium; low; very low; excluding 'high' for Mathematics).

COVID-19

- Principals indicated the COVID-19 pandemic had a large impact on most aspects of teaching and learning in schools. Almost all Second and Sixth class pupils were in schools where teaching and learning was affected to 'at least some extent' by COVID-19 school closures.
- Approximately 71 % of pupils were in schools where the COVID-19 pandemic had impacted 'a lot' on teaching and learning. Second class pupils in these schools had an average mean reading score of 259.6, and a mean Sixth class Mathematics score of 257.8 that were statistically significantly lower than those achieved by Second (d = 0 .18) and Sixth (d = 0 .16) class pupils in schools where the principal indicated that teaching and learning was impacted 'to some extent'.
- No principals of schools with pupils in Second class indicated that teaching and learning was 'not at all' affected by the pandemic, there was a similarly small proportion of Sixth class pupils who were 'not at all' impacted (1.9 %).
- The majority of pupils (71 %) were in schools where principals indicated the capacity to address the needs of pupils with additional learning needs was impacted 'a lot' by the pandemic. Second class pupils in these schools had mean reading scores over ten points lower (257.9) than pupils in schools that were impacted 'to some extent' (267.4, d = 0.12), and this difference was statistically significant.
- Principals of over half of pupils reported their school's ability to reach literacy targets was impacted 'a lot' due to the pandemic. A further 41.4 % of principals of Second class, and 37.4 % of principals of Sixth class pupils indicated that their school was impacted 'to some extent'.
- A very small percentage of pupils (1.4 %) were in schools where the principal indicated the school's ability to reach literacy targets was impacted 'very little' by the pandemic. These schools had mean Second class reading (283.9) and Sixth class Mathematics scores (277.1) that were statistically significantly higher than those of pupils whose schools were impacted 'a lot' (254.9 Second class reading; 257.0 Sixth class Mathematics).
- The vast majority of pupils (more than 97 %) were in schools where principals indicated the COVID 19 pandemic had impacted 'a lot' or 'to some extent' on their school's ability to reach numeracy targets. No Principal responded that their ability to reach numeracy targets was 'not at all' impacted.
- Pupils in schools where the principal indicated the school had been impacted 'a lot' in their ability to reach targets had the lowest mean scores in Second class reading and Sixth class Mathematics, when compared to those who were impacted 'to some extent' or 'very little'. This difference was not statistically significant.

Multilevel analysis of the factors contributing to pupil achievement

The multilevel modelling for Second class reading and for Sixth class Mathematics performance allows for the estimation of statistics at different levels and the simultaneous examination of multiple explanatory variables while controlling for others. The results indicate that:

- The between-school differences in reading and Mathematics performance are relatively small, accounting for approximately one-tenth of the overall variance. This finding is consistent with the results of earlier NAMER cycles as well as other international large-scale assessments for Ireland (Duggan et al., 2023; Karakolidis et al., 2021a, 2021b; Kavanagh et al., 2015) indicating comparatively high levels of equality of achievement among schools by international standards.
- The statistically significant gender gaps in English reading (in favour of girls) and Mathematics (in favour of boys) seen in the bivariate analysis shrank and were not statistically significant when other background and attitudinal characteristics were considered in the model.
- Pupil attitudes towards and confidence in English reading and Mathematics were strong predictors of their achievement in the assessment. Second class pupils who reported 'liking' reading, reading for fun, considered themselves good at reading, and Sixth class pupils reporting high levels of confidence in Mathematics, performed significantly better than their peers. These results are consistent with the findings of other assessments at primary level in Ireland, such as TIMSS and PIRLS (Delaney et al., 2023; Perkins et al., 2020).
- Differences in English reading and Mathematics performance between pupils in DEIS and non-DEIS schools remained statistically significant even after accounting for other background and attitudinal factors. This is consistent with NAMER 2014 (Kavanagh et al., 2015).
- The final models explained 32.7 % of the variance in achievement for Mathematics at Sixth class; the corresponding figure for English reading was 8.1 %. In both models, a substantial amount of variance remains unexplained and may be attributed to factors not examined by the current models.

CHAPTER 1
Introduction

This chapter provides an overview of the National Assessments, and pupil performance in NAMER 2021 is summarised. The information gathered through questionnaires administered to pupils, teachers and school principals in NAMER 2021 was informed by the body of national and international evidence on contextual factors related to pupil achievement in Ireland, and a brief overview of this literature is provided. Relevant societal changes, policy initiatives and educational reforms relevant to NAMER 2021 are outlined to help interpret the relationships between contextual factors and performance explored in this report. The impact of the COVID-19 pandemic is also part of the wider context relevant to NAMER 2021.

About the National Assessments

The National Assessments of Mathematics and English Reading (NAMER) have been designed, implemented and reported on by the Educational Research Centre (ERC), at the request of the Department of Education, since 1972. Earlier cycles assessed various grade levels and domains but since 2009, NAMER has assessed English reading and Mathematics achievement in Second and Sixth class, as well as collecting information on pupils, teachers and schools through surveys and questionnaires.

Overview of previous National Assessments

Since 2009, NAMER has administered English reading and Mathematics assessments to pupils in Second and Sixth class. Prior to 2009, NAMER was administered at a range of grade levels.[2] In NAMER 2009, girls scored significantly higher on overall reading than boys at Second class, but not at Sixth. Overall differences on reading at Second, and Mathematics at Second and Sixth classes, were not statistically significant in 2014 to 2009. Where significant differences on subscales were observed, they tended to be small and favoured girls in reading literacy and boys in Mathematics (Eivers et al., 2010b).

An Irish language National Assessment in Irish Medium Schools (NAIMS) took place in 2010, with a representative national sample of Gaeltacht schools and Scoileanna Lán-Ghaeilge in order to compare standards in English reading and Mathematics in schools in general with those in Irish-medium schools (Gilleece et al., 2012). NAIMS 2010 found that pupils in the Second and Sixth classes in Gaelscoileanna and in Sixth class pupils in Gaeltacht schools had significantly higher achievement on reading literacy than pupils in general in NAMER 2009. Pupils in Second class in Gaelscoileanna and Sixth class in Gaeltacht schools had significantly higher achievement in Mathematics.

The assessment frameworks developed and used for NAMER 2009 (Eivers et al., 2010a; Eivers et al., 2010b) also underpinned the NAMER 2014 tests. In both NAMER 2009 and 2014, pupils of selected Second and Sixth classes completed tests of English reading and Mathematics. There were four booklets at each grade level for English reading and four Second class Mathematics booklets.

In 2014, significant improvements were observed in Second class pupils' performance on all the English reading content areas and process skills, compared with 2009. Targets that had been set in the National Strategy for Literacy and Numeracy (Department of Education and Skills, 2011) for achievement by 2020 were surpassed in 2014. Specifically, these targets were to increase the percentage of pupils achieving at the highest proficiency levels by at least five percentage points, and to reduce the percentage of pupils performing at the lowest proficiency levels by at least five percentage points. The results from NAMER 2014 showed a decrease of 13 percentage points in the percentage of pupils performing at Level 1 or below, and an 11-point increase in the percentage of pupils performing at Level 3 or above (Shiel et al., 2014).

[2] For example, in 2004, an assessment of English reading was administered in First and Fifth classes, and an assessment of Mathematics in Fourth class.

In 2014, Sixth class pupils performed significantly higher in Mathematics than their counterparts in 2009 on all content areas and process skills. Pupils' overall mean Mathematics score was 12 score points higher than in 2009. In terms of proficiency levels, the percentage of pupils performing at or below Level 1 decreased by nine percentage points between 2009 and 2014, while the percentage of pupils performing at or above Level 3 increased by seven percentage points. These results surpassed the targets set in the National Strategy for Literacy and Numeracy in 2011 (Shiel et al., 2014).

The administration of the Sixth class Mathematics test in 2014 was taken as an opportunity to assess the feasibility of reducing the length of the test, following the expression of concern by class teachers that the 2009 test was very long (each of the booklets administered in 2009 contained three blocks of 25 test items). Five experimental, shortened versions of the Mathematics test booklets were administered to pupils in a randomly selected 20 % of participating schools that had pupils in Sixth class. These shortened booklets contained two blocks of 25 items, with a common block of items in the second position and one of each of the remaining blocks in the first position. The trial of shorter Mathematics booklets was judged to be successful, and the shorter booklet design was used in 2021 (Kiniry et al., 2023).

About NAMER 2021

Due to the COVID-19 pandemic, NAMER was postponed from 2020 to 2021 and the administration of NAMER 2021 was adapted. Each grade level completed one assessment only; Second class pupils completed the English reading assessment, and Sixth class pupils completed the Mathematics assessment. The parent questionnaire was not administered in 2021, due to restrictions on material traveling between home and school, but the pupil, teacher and school principal questionnaires were administered.

Despite the unprecedented challenges of the pandemic and the difficulties faced by schools in administering the study, the overall participation rate was very high (91.5 %). The NAMER 2021 performance report (Kiniry et al., 2023) provided insight on performance on English reading and Mathematics in 2021. A brief summary of the performance results is provided.

Summary of performance in NAMER 2021

Second class English reading

Overall performance in Second class reading was lower in 2021 than in 2014. However, this change is not statistically significant, meaning average reading performance in 2021 was unlikely to be different to 2014 and suggesting that the level of achievement has remained relatively stable across cycles. A similar pattern was observed in pupils' performance on the Vocabulary and Comprehension subscales and the Retrieve, Infer and Interpret & Integrate process skill subscales; performance was lower in 2021 than in 2014, but the changes in performance are not statistically significant.

There were no statistically significant differences in overall reading scores at key percentile points between 2014 and 2021. Nor were there any statistically significant differences at key percentile points on the Vocabulary, Comprehension or Infer subscales. However, some statistically significant differences between 2014 and 2021 were observed at key percentile points on the Retrieve and Interpret & Integrate subscales. Specifically, scores at the 75th percentile on the Retrieve subscale and the 75th and 90th percentiles on the Integrate & Interpret subscales in 2021 were statistically significantly lower than the corresponding scores in 2014. No statistically significant changes were observed in the percentages of Second class pupils performing at each reading proficiency level in 2021 compared with 2014. Overall performance on English reading at Second class, and Mathematics at Sixth class was broadly similar to performance in 2014.

NAMER 2014 was the first National Assessment since 1980 in which statistically significant increases in pupil performance were observed between cycles.

Other large-scale assessments that were conducted around the time of NAMER 2014 including the Progress in International Reading Literacy Study (PIRLS) 2016 (Eivers et al., 2017) and the Programme for International Student Assessment (PISA) 2015 (Shiel et al., 2016). These studies showed similar statistically significant gains in reading performance. More recent iterations of these studies PISA 2018 (McKeown et al., 2019) and PISA 2022 (Donohue et al., 2023) have shown slight (though not statistically significant) declines, which suggest stability in reading performance since 2014 for pupils in Ireland. The results of PIRLS 2021 (Delaney et al., 2023) also point towards stability in reading performance among Fourth class pupils since the previous cycle in 2016 (Eivers et al., 2017). Given that NAMER 2021 was administered in the context of the COVID-19 pandemic, the relative stability of pupil performance in Second class English reading and Sixth class Mathematics is to be welcomed.

Sixth class Mathematics

For Sixth class Mathematics, performance on all content area subscales (Number & Algebra, Shape & Space, Measures, Data) and process skill subscales (Understand & Recall, Implement, Reason, Integrate & Connect, Apply & Problem Solve) was lower in 2021 compared with 2014, but only one subscale (Shape & Space) showed a statistically significant reduction in performance across cycles. For all other subscales, no statistically significant changes are observed in 2021, compared with 2014.

There were no statistically significant differences in scores on the overall Mathematics scale. However, there were some statistically significant differences at key percentiles between 2014 and 2021. Scores at the 50th and 75th percentiles on the Shape & Space subscale were statistically significantly lower than the corresponding scores in 2014. On the Integrate & Connect subscale, the mean score at the 75th percentile was statistically significantly lower in 2021 than the corresponding score in 2014, while scores at the 25th and 90th percentiles were statistically significantly higher in 2021 than the corresponding scores in 2014. No statistically significant changes were observed in the percentages of Sixth class pupils performing at each Mathematics proficiency level in 2021 compared with 2014.

The statistically significant increase in Mathematics performance observed in NAMER 2014, compared with 2009, seemed to be reflected in a similar trend of increased performance in Mathematics in the Trends in International Mathematics and Science Study TIMSS (2015), compared with 2011 (Clerkin et al., 2016). Results from TIMSS (2019) showed relative consistency in performance when compared to 2015, similar to the stability observed in Mathematics performance in NAMER 2021 (Perkins & Clerkin, 2020). This suggests that the gains in performance in NAMER 2014 have been maintained.

Performance targets

Revised performance targets, set out in the Interim Review of the National Strategy to Improve Literacy and Numeracy (Department of Education and Skills, 2017a) and based on the proportions of pupils performing at the highest and lowest proficiency levels, were not met for either English reading or Mathematics. Although the revised performance targets for English reading and Mathematics were not reached, the results of NAMER 2021 are similar to those in NAMER 2014 and therefore exceed the original performance targets set in the 2011 Strategy (Department of Education and Skills, 2011). It is reassuring that results for both English reading performance at Second class and Mathematics performance at Sixth class are broadly consistent with results from NAMER 2014 despite the significant challenges for the education system during the COVID-19 pandemic.

Contextual information in NAMER 2021

The information gathered through questionnaires administered to pupils, teachers and school principals in NAMER 2021 was informed by the body of national and international evidence on contextual factors related to pupil achievement in Ireland (e.g., Clerkin & Creaven, 2013; Clerkin et al., 2020; Delaney et al., 2023; Donohue et al., 2023; McKeown et al., 2019) and relevant policy initiatives and educational reforms. Both are briefly summarised in this section. Several factors are associated with the achievement of primary-aged pupils and these include socioeconomic and demographic factors, pupil characteristics, the home learning environment, classroom, teacher and school factors.

Family characteristics and the home environment

Studies have shown that pupil achievement is significantly influenced by their socioeconomic situation and other demographic factors. When compared to their peers from lower socioeconomic backgrounds, pupils from higher socioeconomic backgrounds typically perform better academically. This disparity is frequently associated with parental educational levels and access to educational resources at home.

Previous National Assessments have identified a range of demographic and family background factors related to achievement. Low socioeconomic position, parental unemployment, Traveller community membership, living with only one parent and belonging to a large family were linked with achievement (Eivers et al., 2010b; Kavanagh et al., 2015). Language of the home was related to achievement in the previous two cycles (Eivers et al., 2010b; Kavanagh et al., 2015). In 2014, pupils who mostly spoke English at home, on average, outperformed pupils who mostly spoke another language at home in reading and mathematics at Second class. There was no advantage in Mathematics for pupils who spoke mostly English at home compared to those who did not at Sixth class.

The pupil's home environment can exert a significant influence on their achievement. Access to home educational resources is a significant predictor of pupils' achievement. In TIMSS, greater access and availability of educational resources in the home has been linked to higher achievement in Mathematics and science (e.g., Duggan et al., 2023). Several cycles of the National Assessments of primary schools in Ireland have shown that a greater number of books in the home is strongly associated with higher levels of achievement in English reading and Mathematics (Eivers et al., 2010b; Kavanagh et al., 2015). In NAMER 2014, pupils who had an Internet connection, and access to educational games had much higher on mean reading and Mathematics scores than pupils who did not. Higher achievement was also linked to having access to certain forms of technology at home (such as a computer), whereas lower achievement was linked to having access to other types of technology (e.g., a pupil having a television in his/her bedroom) (Kavanagh et al., 2015).

Active parental involvement and engagement in pupil's education has been shown to positively influence pupil's achievement. Parents reading for enjoyment and parental confidence in their ability to help their child with reading or Mathematics homework were positively related to achievement (Eivers et al., 2010b; Kavanagh et al., 2015). Parent expectations of their children's future reading and Mathematics performance were significantly related to their children's NAMER 2014 scores. In NAMER 2014 parent expectations and their children's future reading and Mathematics ability was related to achievement (Kavanagh et al., 2015).

Pupil factors

In terms of demographic characteristics of the pupils, gender differences in achievement have previously been reported for NAMER 2021 (Kiniry et al., 2023). Girls outperformed boys in reading at Second class, this is consistent with the pattern observed in NAMER 2014 (Kavanagh et al., 2015). Other large-scale assessments including PIRLS 2016 (Eivers et al., 2017), PIRLS 2021 (Delaney et al., 2023), PISA 2015 (Shiel et al., 2016) and PISA 2018 (McKeown et al., 2019) have shown a similar pattern of reading performance, with girls outperforming boys. In NAMER 2021, boys outperformed girls in Sixth class Mathematics overall, and on all the Mathematics subscales (Kiniry et al., 2023). These results are in contrast with NAMER 2014, when there was no statistically significant gender gap in overall Mathematics performance at Sixth class (Kavanagh et al., 2015). Likewise, in TIMSS 2015 (Clerkin et al., 2016) and TIMSS 2019 (Perkins & Clerkin, 2020), the gender differences in Mathematics performance among Fourth class pupils were not statistically significant.

In previous National Assessments, country of birth was related to achievement; with lower scores in achievement among pupils not born in Ireland when compared to those born in Ireland in reading only (Eivers et al., 2010b). In 2014 pupils born outside Ireland had lower reading and Mathematics mean scores than those of their Irish-born counterparts at Second class and in reading only at Sixth class (Kavanagh et al., 2015).

Pupils' attitudes towards learning and school, including their motivation and interest in subjects have been associated with improved achievement (Growing Up in Ireland Study Team, 2018). In NAMER 2014, liking school was significantly related to both reading and Mathematics achievement. Positive attitudes towards reading, including liking reading, higher reading confidence and willingness to expend effort on reading, were related to higher reading achievement (Eivers et al., 2010b; Kavanagh et al., 2015). Recent evidence from PIRLS 2021 also found that pupils who read more frequently and for longer outperformed pupils who read less. Pupils' reading confidence and reading achievement were positively related (Delaney et al., 2023). Positive Mathematics self-concept (for Mathematics performance) was positively correlated with Mathematics achievement (Eivers et al., 2010b; Kavanagh et al., 2015). Educational expectations and aspirations were significantly related to achievement at Sixth class (Kavanagh et al., 2015).

Classroom and teacher factors

Classroom and teacher factors play a role in pupil achievement. These include the classroom environment and resources, teacher characteristics and experience, teaching methods, professional development opportunities, the interaction between teachers and pupils. Classroom climate (i.e., instructional support, socioemotional support, and classroom organisation and management) has been positively related to achievement at primary level (Wang et al., 2020). Teaching experience, possession of an additional teaching qualification and teacher confidence in their ability to teach reading and Mathematics were related to achievement in NAMER 2009 (Eivers et al., 2010b). Research suggests that teachers with less experience are more likely to employ collaborative and engaging teaching methods compared to their more experienced counterparts, who tend to rely on traditional methods (McCoy et al., 2012).

School and classroom factors

The achievement of primary school pupils is influenced by a variety of school-level factors. School demographic factors such as location, school size, gender mix, the ethos of the school and the atmosphere of the school environment can play a role in shaping pupils' experiences and achievement (Kavanagh & Weir, 2018; Weir et al., 2017; Weir et al., 2018). However, in NAMER 2014, school location (whether urban or rural), school size, and school gender composition were not related to achievement (Kavanagh et al.,

2015). Further school factors that have a positive impact on performance in reading and Mathematics include the implementation of structured programs to improve reading and Mathematics performance. In the Growing up in Ireland study, subject allocation and teaching methods varied significantly between single-sex and coeducational schools (McCoy et al., 2012). School environment factors such as strong leadership, high expectations, quality teaching, and positive relationships between teachers, parents and pupils have been shown to be related to primary pupil achievement in a recent UK review (Harland et al., 2024).

The interplay between pupil-level factors (including home environment and individual characteristics) and school-level factors (such as teaching practices, and school composition) creates a complex landscape influencing achievement. Multilevel models are used in this report to analyse the factors affecting pupil achievement by considering variations at different levels: individual pupils, teachers and classrooms and schools.

Social and policy background relevant to NAMER 2021

NAMER 2021 was administered during a period of sustained societal and educational reform in Ireland, and in the context of the disruption to schooling caused by the COVID-19 pandemic.

Population changes

The period since the last NAMER in 2014 has also seen change in school communities. Through a combination of natural increase and positive net migration,[3] the overall population of Ireland has increased from 4.74 million in 2016 to 5.01 million in 2021. Net migration has gradually increased from -8.5 thousand in 2014 to 28.9 thousand in 2020 (Central Statistics Office Ireland, 2021). In the most recent census (2022) 751,507 people spoke a language other than English or Irish at home, representing an increase of 23 % from the 612,018 people who reported speaking a language other than English or Irish at home in 2016 (Central Statistics Office Ireland, 2023).

Enrolment and patronage

The Department of Education Statistical Bulletin reports total enrolments in primary school in the 2020/21 school year were 561,411, an increase of 27.7 % since 2001. Enrolments in primary schools peaked in 2018 and were projected to fall over the coming decade (Department of Education, 2021a).
The Statistical Bulletin (2021) also recorded a sustained growth in enrolment, and a move towards a more diverse patronage model in the period between 2014 and 2021. The 25 mainstream primary schools that opened in the five years to 2020 are multi-denominational in ethos and spread over various patrons. Despite these changes, Catholic schools still comprise a majority of primary schools, with 88.7 % of schools having a Catholic ethos in 2020 (Department of Education, 2021a).

Class sizes

The overall average class size has reduced slightly since 2014, with classes having on average 25 pupils in the 2013/14 school year and 23 in the school year 2020/21 (Department of Education, 2021a). The Pupil-Teacher Ratio has fallen consistently over the same period, from 16.3 in the 2013/14 school year, the

[3] Net migration is defined as the number who have people who immigrated to Ireland, minus the number who have emigrated from Ireland.

last year NAMER was administered, and 14.5 in the 2020/21 school year (Department of Education, 2021a). The number of pupils in very large classes (35 or more pupils) also reduced between 2014 (17,592) and 2020 (3,608), while those in the next-largest category (30-34 pupils) stood at 74,622 in 2020, down from 120,665 in 2014.

Teaching posts

The total number of primary teaching posts has continued to increase from 24,455 in 2014 to 38,604 in 2020 (Lawlor & Burke, 2020). This was made up of 23,460 mainstream classroom teachers and 15,144 others (i.e., special education teachers, English language support teachers, administrative principals, and Home School Community Liaison (HCSL) teachers, as well as any other full-time teaching staff (Department of Education, 2021a).

Policy context

Changes since NAMER 2009 include: the Literacy and Numeracy strategies 2011 and 2017[4] (Department of Education and Skills, 2011, 2017a); policies encouraging School Self Evaluation (Department of Education and Skills, 2016a); the Digital Strategy for schools 2015 (Department of Education and Skills, 2015); the expansion of the Delivering Equality of Opportunity In Schools (DEIS) programme 2017 (Department of Education and Skills, 2017b); STEM Education Policy Statement 2017-2026 (Department of Education and Skills, 2017c) and the introduction of the Primary Language Curriculum/Curaclam Teanga na Bunscoile (PLC) among others (Department of Education and Skills, 2019a).

National Literacy and Numeracy Strategy 2011-2020

The National Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2011), listed as the key education strategy in the 'Statement of Strategy 2019-2021' (Department of Education and Skills, 2019b), aimed to strengthen the education system and improve performance in reading and Mathematics by focusing on six pillars of the education system. These included enabling parents and communities to support children's literacy and numeracy development; improving teachers' and Early Childhood Care and Education (ECCE) practitioners' professional practice; building the capacity of school leadership; improving the curriculum and the learning experience; helping students with additional learning needs to achieve their potential and improving assessment and evaluation to support better learning in literacy and numeracy.

To this end, the Literacy and Numeracy Strategy, and its revision in 2017, are closely linked to other education policies introduced since 2011, for example, the DEIS Plan 2017 (Department of Education and Skills, 2017b). NAMER is closely linked with both the Literacy and Numeracy Strategy and the DEIS Plan as it is used to measure performance targets and gain contextual information on schools' and teachers' engagement with policies and strategies, and pupils' experiences of these.

Progress towards the performance targets set in the original Literacy and Numeracy Strategy (Department of Education and Skills, 2011) was examined for the first time in NAMER 2014, and the targets were met and exceeded. The Interim Review of the National Strategy: Literacy and Numeracy for Learning and Life (2011-2020) was published in 2017 with revised targets for literacy and numeracy (Department of

[4] Since the administration of NAMER 2021 the government released a new policy: Government of Ireland. (2024). Ireland's Literacy, Numeracy and Digital Literacy Strategy 2024 2033: Every Learner from Birth to Young Adulthood. https://assets.gov.ie/293255/a509a8d7-a4ac-43f9-acb0-29cdc26a1327.pdf

Education and Skills, 2017a). This document identified the successes and challenges of the original strategy, and highlighted an additional five areas that the strategy should address before 2020. These were:

- the continued prioritisation of achievements in numeracy, including the setting of new performance targets for NAMER 2020;
- focusing on children and young people experiencing educational disadvantage;
- strengthening literacy for and through the Irish language;
- developing and enhancing digital literacy skills, and
- co-ordinating and collaborating with key stakeholders so as to welcome opportunities to reinforce and resource the literacy and numeracy message.

NAMER 2021 provided the first opportunity to examine the interventions of the original and revised Literacy and Numeracy Strategy, as well as the revised targets.

The Primary Language Curriculum/Curaclam Teanga na Bunscoile (PLC/CTB)

Beginning in September 2016, the Primary Language Curriculum / Curaclam Teanga na Bunscoile (PLC/CTB) was introduced on a phased basis, in Junior Infants to Second class. From September 2018, all strands of the curriculum were implemented for Infants to Second class (Department of Education and Skills, 2018).

The Department of Education and Skills and the National Council for Curriculum and Assessment (NCCA) engaged with school communities to support the introduction of the curriculum in the junior classrooms, and to respond to feedback in the period from 2016-2019. An updated Primary Language Curriculum, incorporating feedback from schools on the junior language curriculum introduced in 2016, was introduced for all classes (Junior Infants to Sixth class) in September 2019 (Department of Education and Skills, 2019a).

Professional development support for the introduction and implementation of the PLC/CTB was provided by the Professional Development Service for Teachers (PDST)[5] in collaboration with the National Council for Special Education (NCSE). A four year cycle of support began in the school year 2019/20. All schools were offered a full-day seminar during the first term of the 2019/20 school year. This whole-staff seminar explored the Primary Language Curriculum (Junior Infants to Sixth class and special settings) and outlined its implications for language teaching and learning in the context of a learning outcomes approach. A series of webinars was made available in response to needs identified, and annual leadership seminars were to be available to school principals to support curriculum change. The Second class pupils who completed the NAMER reading assessment in 2021 were the first cohort to have completed the Junior Primary Language Curriculum from Infants to Second class.

Special education allocation model

Prior to 2017, the General Allocation Model (GAM), was used to allocate resources to primary school pupils with special educational needs based on the number of mainstream class teachers, or through an automatic entitlement to support for pupils with 'low-incidence' special educational needs within mainstream schools. The GAM depended on a diagnostic/medical approach, with supports allocated based on category-specific recommendations (Department of Education and Skills, 2016b). The total expenditure

[5] https://pdst.ie/. From September 1st, 2023, the PDST and three other existing support services have integrated with professional learning for teachers and school leaders now provided by the new support service Oide (https://oide.ie/).

on special education increased from €468 million to €1.5 billion between 2004 and 2016 (Kenny et al., 2020). The GAM inadvertently favoured pupils whose parents could arrange a private assessment or diagnosis given the long waiting lists for publicly funded assessments. This was the model of allocation that was in use during the period assessed by NAMER 2014 (Shiel et al., 2014).

The allocation model introduced in 2017 and updated in 2019 replaced the GAM, and this was in place for NAMER 2021. The 2017 allocation model provided a baseline allocation and aimed to increase the equity of the system by assigning allocation based on the profile of the school (including enrolment, the number of pupils with complex needs enrolled to the school, socioeconomic status, gender composition and standardised test scores, rather than on the basis of diagnosed disability). The Department of Education began reviewing the 2017 model in late 2022, with a view to ensuring the model met the changing needs of special education in schools (Department of Education, 2024). The revised Special Education Teacher (SET) allocation model was introduced in spring 2024 for the 2024/25 school year. The educational profile of each school will now be updated annually from the 2024/25 school year.

Expansion of DEIS

The achievement and wider context of pupils in Urban DEIS schools who took part in NAMER 2021 are examined in two separate reports (see Gilleece & Nelis, 2023; Nelis & Gilleece, 2023). Although this report does not differentiate data by DEIS schools' status, the expansion of DEIS is one of the biggest education policy initiatives to be implemented in the period since NAMER 2014.

As a result of the DEIS Plan 2017 (Department of Education and Skills, 2017b), a new DEIS identification process was introduced. This process used data from the Primary Online Database (POD) and the HP deprivation index to identify disadvantaged schools. In 2017, a total of 66 additional primary schools were identified for DEIS using the new process, while a further 30 primary schools moved from Urban Band 2 to Urban Band 1 . In early 2022, after the administration of NAMER 2021, the 2017 DEIS identification process was further refined resulting in an extension of the DEIS programme to 322 additional schools, with a large majority of these at primary level (Department of Education, 2022a).

Five goals were established to guide policy implementation in relation to DEIS (Department of Education and Skills, 2017b):

- Goal 1: To implement a more robust and responsive assessment framework for identification of schools and effective resource allocation.
- Goal 2: To improve the learning experience and outcomes of pupils in DEIS schools.
- Goal 3: To improve the capacity of school leaders and teachers to engage, plan and deploy resources to their best advantage.
- Goal 4: To support and foster best practice in schools through inter-agency collaboration, cross-departmental and cross-agency working.
- Goal 5: To support the work of schools by providing the research, information, evaluation and feedback to achieve the goals of the Plan.

Work on these goals was supported through the provision of additional resources to DEIS schools, smaller class sizes in junior classes, and the provision of Home School Liaison to support children and families.

The DEIS Plan 2017 set targets for achievement in literacy and numeracy, pupil retention rates, pupil wellbeing, progression to further and higher education, teacher education, parental engagement and

community links for schools designated as having DEIS status. The literacy and numeracy performance targets for DEIS schools included in the DEIS Plan 2017 were also part of the interim review of the Literacy and Numeracy strategy published in 2017 (Department of Education and Skills, 2017a). The targets set in 2017 aimed to increase the percentages of pupils in Urban Band 1 schools performing at the highest levels in reading and Mathematics, and to reduce the percentages of pupils performing at the lowest levels in NAMER. Targets were set based on performance in NAMER 2014. Performance in NAMER 2021 on these targets is reported in Nelis and Gilleece (2023).

School leadership and continued professional development (CPD)

The development of robust school leadership to improve outcomes for literacy and numeracy is an important aspect of both the original 2011 Literacy and Numeracy Strategy, and its revised form published in 2017 (Department of Education and Skills, 2017a). The PDST, NCCA and NCSE provide support and development opportunities to schools through high-quality continuous professional development (CPD) in the areas of school self-evaluation, planning and the introduction of policies such as the Digital Strategy for Schools 2015-2020 (Department of Education and Skills, 2015).

School Self-Evaluation (SSE), defined as a "collaborative, reflective process of internal review" (Department of Education and Skills, 2012) was one focus of the literacy and numeracy strategies. In year 1 (2012/13 for many schools), schools selected either literacy or numeracy as the area of focus. In year 2, they selected whichever of the two areas that they had not focused on in the first year. By the start of the 2015/16 school year, schools were expected to have commenced self-evaluation in another curriculum area, and this has continued until the present.

In 2016 a quality framework for schools 'Looking at our School 2016 ' was published (Department of Education and Skills, 2016c) to guide schools in SSE. The quality framework provided a set of standards for the work of schools – 'learning and teaching' and 'leadership and management'. The framework aimed to provide examples of what effective and highly effective practices look like in the Irish school system.

Beginning in 2015, a programme of Professional Learning Experience (PLE) was rolled out by the PDST and NCSE to support the introduction of the Primary Language Curriculum/Curaclam Teanga na Bunscoile (PLC) from Junior Infants to Second Class, with whole-staff professional learning and leaders seminars. In 2019 the full Primary language curriculum from Junior Infants to 6th class was published. This was followed by a four year program of support for the 2019 Primary Language Curriculum. These supports included a full-day school closure for whole-staff PLE combined with a suite of professional learning models to include; workshops, in-school support, summer courses, website resources and publications. These supports were provided to all primary schools; therefore most teachers would have engaged in CPD during the period assessed by the time NAMER 2021 was collecting data. The NAMER 2021 school questionnaire asks questions regarding schools' planning and SSE activities, while the teachers' questionnaire examines teachers' participation in CPD.

Oide continues to provide supports to newly appointed school leaders in DEIS schools (Department of Education and Skills, 2017b) and school leaders in schools allocated DEIS status for the first time in 2022 (Department of Education, 2022a). These school leaders are supported through a three part series of professional learning events on DEIS planning. Oide also supports DEIS schools who wish to apply for school support for DEIS planning, a context specific model of support provided by a professional learning leader.

Teaching and learning of literacy and numeracy

Instructional time in primary schools was increased for both literacy and numeracy immediately following the introduction of the National Literacy and Numeracy Strategy in 2011 (Department of Education and Skills, 2011). Schools were given guidance on the best way to achieve increased instructional time (Department of Education and Skills, 2011a). For example, they could prioritise aspects of the curriculum considered to be most valuable for children's learning. They could delay the introduction of other elements and increase the amount of discretionary time allocated to literacy and numeracy, and by correspondingly reducing the time allocated to other curricular areas.

Standardised assessment

The Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2017a) required the implementation of standardised testing on an annual basis at Second, Fourth and Sixth classes. English-medium schools were required to implement standardised testing in English reading and Mathematics during May/June for all students in these classes. Irish-medium schools were required to implement additional standardised testing in Irish reading.

There is evidence that standardised assessments were widely used in schools prior to the introduction of the Literacy and Numeracy Strategy but since they were made mandatory their use has increased, as has teachers' and pupils' familiarity with them (O'Leary et al., 2019). Since 2017 aggregated standardised assessment results returned to the Department of Education by schools have been used, together with other criteria, to decide special education teacher allocation (Department of Education and Skills, 2017c). Standardised tests were not administered during the 2019/20 school year due to school closures as a result of the COVID-19 pandemic. The DoE advised that these tests should be administered as normal for the 2020/21 school year (Department of Education, 2021b).

Digital technology

In schools, as in society, the use of Digital technology has expanded since 2014. Indeed, being a digital learner is one of the key competencies set out in the Draft Primary Curriculum Framework (National Council for Curriculum and Assessment, 2020). However, integrating technology in the classroom is not just a case of 'using' it, but rather a realignment of the existing education system towards a more student-centred experience (McGarr & Johnston, 2021).

The Digital Strategy for Schools 2015-2020 Enhancing Teaching Learning and Assessment (Department of Education and Skills, 2015) aimed to embed ICT by supporting work across four themes:

- Teaching, Learning and Assessment Using ICT;
- Teacher Professional Learning;
- Leadership, Research and Policy;
- ICT Infrastructure.

Schools were expected to develop eLearning plans using a whole school approach. Plans outlined the school vision for the embedding of ICT in teaching, learning and assessment and incorporating targets and priorities for improvement and development. As part of the implementation of the Digital Strategy, funding of €210m for ICT infrastructure was distributed to schools over the five years of the Strategy,

commencing with €30m in the 2016/17 school year. Although not yet covering all schools, the roll out of the National Broadband Plan (NBF)[6] has increased the spread and connectivity of schools to high speed broadband internet. Under the plan, 679 rural primary schools were to be connected to broadband by the end of 2022 (Department of the Environment Climate and Communications, 2020).

The impact of the COVID-19 pandemic

Due to the extended time period since NAMER 2014 (seven years compared with five years between previous cycles) and the cross-sectional design of the study, it is not possible to draw conclusions from NAMER 2021 about the specific impact of the COVID-19 pandemic on pupils' learning and performance. However, educational policies and initiatives related to the COVID-19 pandemic are also of relevance to NAMER 2021.

The COVID-19 pandemic resulted in the biggest disruption to schooling in living memory. From Spring 2020 to Spring 2021, primary school pupils in Ireland lost between 90-110 school days to COVID-19 related school closures, equivalent to about half a standard school year. By the summer of 2021, school closures in Ireland were comparable to or slightly above the global average, higher than the European average, and much higher than the Western European average (O'Mahony, 2021).

Despite the difficulties of the pandemic, schools put in place systems and processes to communicate with parents and pupils to facilitate teaching and learning, while the Department of Education began making resources and guidance available online. The Government advised schools on how individual pupils or groups of pupils who may have to self-isolate or restrict their movements could be supported in continuing their learning remotely.[7] Summer provision involved an expanded summer education programme for students with complex special educational needs and those at greatest risk of educational disadvantage as a COVID-19 pandemic response measure during the summer of 2020 and 2021.[8] DEIS schools were offered the chance to run educational summer camps on literacy and numeracy, wellbeing and re-engagement with school.

As might be expected, provision of teaching and learning in Spring 2020 and 2021 varied. Many pupils lost additional days due to social distancing rules which required them to stay home from school for several days due to illness or being a close contact. Research by the CSO in their 'Social Impact of COVID-19 Survey February 2021: Impact of School Closures (2021)', found that the time spent by primary school pupils on learning activities (e.g., worksheets, online lessons or other materials) provided by their schools during school closures increased from 25 % spending one hour or less on learning activities during the first closure, to 33.5 % reporting their child spent three hours or more on learning activities provided by their schools. This rate had increased to 56.9 % during primary school closures in 2021. Although some schools had experience with digital learning tools prior to COVID-19, the experiences of parents and pupils and access to suitable digital devices varied (Central Statistics Office Ireland, 2020). For example, the CSO found that pupils living in rural areas were more than seven times less likely to have broadband speeds suitable to support online learning compared to those living in urban areas (28.8 % and 3.9 % respectively).

[6] See: https://www.gov.ie/en/department-of-the-environment-climate-and-communications/publications/national-broadband-plan/
[7] See: https://www.gov.ie/en/department-of-education/publications/guidance-on-remote-learning-in-a-covid-19-context-september-december-2020/
[8] See: https://www.gov.ie/en/department-of-education/press-releases/government-announces-new-summer-provision-2020/

Overview of the report

The information from questionnaires in NAMER ’21 allows for the examination of contextual factors for pupils, and teacher-related and school-related factors that may be relevant to achievement in English reading and Mathematics. This is achieved by linking assessment data to questionnaire data collected at the pupil, teacher and school levels. Some factors are especially relevant due to their established relationships with achievement in reading and Mathematics, while others may be regarded as significant processes or results in and of themselves. The report provides valuable insights into the school lives of pupils and the school factors that are associated with performance.

Chapter 2 provides details on the NAMER 2021 study design and methodology. In Chapter 3 individual pupil characteristics are examined and are linked to achievement. Chapter 4 looks at teacher and classroom factors. Chapter 5 looks at school policies and procedures and achievement. Chapter 6 presents a multilevel model of achievement based on factors relevant to success in Second class English reading and Sixth class Mathematics. Chapter 7 provides a summary of the findings and discusses some links with other research and policy.

CHAPTER 2
Methods and Procedures

This chapter provides an overview of the design of NAMER 2021 and provides a description of the sampling, development, administration and content of context questionnaires that form the basis of this report. The last section of this chapter includes information on the analysis of questionnaire data and guidance for interpreting the analyses provided in this report.

Who took part in NAMER 2021?

Sample design

The sample for NAMER 2021 was selected in two stages; first, schools were selected; then intact classes were selected within sampled schools. The target population consisted of all Second and Sixth class pupils in mainstream classes in primary schools in Ireland in the Department of Education 2018/19 list of schools; private schools and special schools were excluded. The sample was originally selected in 2019 for the planned administration of NAMER in spring 2020. As the study was postponed until spring 2021 due to the COVID-19 pandemic, the sample was carried over to 2021.

In NAMER 2021, DEIS Band 1 and Band 2 schools were oversampled in order to improve the accuracy of estimates for pupils attending such schools. To facilitate this, the sampling frame was split into several explicit strata based on DEIS category, size and whether the school was junior, senior or vertical. Within each explicit stratum, probability proportional to size (PPS) systematic sampling was used with implicit stratification (sorting) by Gaeltacht type, school gender mix, and school size at grade. Two replacement schools were identified as part of this process with the 1st replacement being the school immediately after the selected school in the sorted list and the 2nd replacement being the school immediately prior to the selected school. In total, 195 schools were selected to participate in the study. Out of the 195 selected schools, seven schools did not participate in NAMER for various reasons; many related to the pandemic (e.g., high numbers of COVID-19 cases in the school). Table 2.1 presents the final school sample by school type and DEIS category.

Table 2.1: Number of participating schools, by school type and DEIS category

	Non-DEIS	DEIS Band 1	DEIS Band 2	DEIS Rural	Total
Junior	8	9	4	1	22
Senior	7	9	4	1	21
Vertical	80	40	22	3	145
Total	95	58	30	5	188

The second stage of sampling was at the class level. The Department of Education supplied the ERC with details of the Second and Sixth classes in participating schools, excluding special classes. For each school, ERC staff randomly selected up to two intact classes at each grade level. In practice, this meant that in small and medium-sized schools (i.e., those schools that had only one or two classes at each grade level), all pupils at the target grade level were selected. Pupils could be exempted at this stage if their teacher felt that it was appropriate to do so. The main reasons for exemption were limited proficiency in English, or certain learning and physical disabilities. However, it was emphasised to class teachers, school coordinators, principal teachers and inspectors that any pupil who could complete the assessment should be encouraged to do so, and that exemptions should be rare.

Response rates

Despite the challenges posed by the COVID-19 pandemic, within-school response rates in NAMER 2021 were high. Tables 2.2 and 2.3 present the response rates for Second and Sixth class in the last three cycles of the National Assessments. In Second class reading in NAMER 2021, around two percent of pupils were exempted, while this figure was lower in Sixth class. A further six to seven percent of Second and Sixth class pupils were absent on the testing day. Test data were collected for 91.7 % of selected Second class pupils for English reading and for 91.4 % of selected Sixth class pupils for Mathematics in NAMER 2021. The overall response rates for NAMER 2021 were slightly lower than 2014, but similar to 2009[9]

Table 2.2: Response rates for the National Assessments 2009, 2014 and 2021 Second class English reading

	2009		2014		2021	
	N	***%***	***N***	***%***	***N***	***%***
Exempt	53	1.3	48	1.1	104	1.8
Absent	307	7.3	223	5.1	365	6.4
Tested	3839	91.4	4099	93.8	5201	91.7
Total enrolled	4199	100.0	4370	100.0	5670	100.0

Table 2.3: Response rates for the National Assessments 2009, 2014 and 2021 Sixth class Mathematics

	2009		2014		2021	
	N	***%***	***N***	***%***	***N***	***%***
Exempt	38	0.9	41	0.9	75	1.2
Absent	319	7.6	285	6.4	445	7.4
Tested	3832	91.5	4144	92.7	5516	91.4
Total enrolled	4189	100.0	4470	100.0	6036	100.0

The final sample used for the reporting of the NAMER 2021 results included only pupils who took **both** the test and the accompanying questionnaire. This decision was made to accommodate the scaling of the test data. There were 157 pupils in Second class and 121 pupils in Sixth class who took part in the assessment by answering English reading or Mathematics test items but did not complete the pupil questionnaire. This reduced the final sample size to 5044 pupils in Second class and 5395[10] in Sixth class (about 89 % of the total number of enrolled pupils in the sampled schools).

[9] In Tables 2.2 and 2.3, pupils who did not take part in NAMER due to parental refusal are included in the category 'Absent'. In 2021, 0.2 % of pupils did not participate in NAMER because their parents opted to withdraw them from the assessment. This proportion of pupils with parental refusal is similarly low to those observed in the previous two NAMER cycles.

[10] The initial sample size was 5396, however, one case was excluded from the final sample at a later stage due to the fact that the pupil had not answered any of the pupil questionnaire items. The weighted sum of cases in Sixth class is 5396.

Development of the NAMER 2021 context questionnaires

The development processes for NAMER 2021 questionnaires were comparable with those of earlier cycles; i.e., some items were retained (either precisely or with limited modification) to allow for trend analysis across cycles; or new items were generated by ERC staff or sourced from other national or international assessments.[11] Questionnaire items were added where it was believed that curriculum changes and/or policy developments warranted. Other issues considered in designing the NAMER 2021 questionnaires included:

- The addition of new questions to facilitate the evaluation of DEIS.[12]
- The relative emphasis on English reading literacy versus Mathematics within the Teacher Questionnaires. In NAMER 2014 the focus was on the teaching and learning of Mathematics. For NAMER 2021 the emphasis shifted primarily to English reading, coinciding with the introduction of the new Primary Language Curriculum.
- The addition of new questions on the home background of pupils. In NAMER 2021 more detail was included on language usage at home and family socio-economic background.

Field Trial (2019)

The main purpose of the field trial was to trial procedures and instruments in advance of the main study. Questionnaires were administered to pupils, teachers, parents and school principals. Field trial response rates on individual questionnaire items as well as patterns of item response were examined when considering which items should be brought forward to the main study. The field trial took place from May to June 2019 in 40 large vertical primary schools that were randomly selected. Six of the participating schools were classified as DEIS. The response rates for the field trial questionnaires were high, Table 2.4

- At Second class, 87 classes took part with 2230 pupils sampled. Half of the sample completed the English reading test and parent questionnaire, whilst the other half completed the Mathematics test and pupil questionnaire.
- At Sixth class, 84 classes took part with 2166 pupils in the sample. Pupils at this level completed both the English reading and Mathematics tests and both the parent and pupil questionnaires were administered.

Table 2.4: Response rates for the NAMER Field Trial Questionnaires (2019)

Questionnaire	Second class	Sixth class
	%	%
Pupils	96.0	96.8
Parents	95.0	93.6
Teachers	100	98.8
School Principals	97.5	

[11] Permission was granted to the ERC by the IEA for items drawn from or based on the Progress in International Reading Literacy Study (PIRLS) 2016 and the Trends in International Mathematics and Science Study (TIMSS) 2019 (https://www.iea.nl/studies/ieastudies).

[12] See separate reports related to DEIS: Nelis & Gilleece (2023) and Gilleece & Nelis (2023).

Adaptations to testing and questionnaires due to COVID-19 pandemic

As mentioned in the introduction, the 2021 assessments were originally scheduled to take place in spring 2020 following the 2019 field trial; however, due to the COVID-19 pandemic, schools in Ireland closed on March 12th, 2020, and did not reopen until September 2020. The decision to postpone NAMER until 2021 was taken in May 2020.

In light of the challenging circumstances caused by the pandemic, the scope of the assessments was reduced to minimise the administrative load on school staff and the testing burden on pupils, while still gathering sufficient data for the study. In previous cycles of NAMER, pupils at both grade levels completed two tests – one in English reading and one in Mathematics. However, in this cycle, schools had just re-opened in March 2021 following a two-month period of remote teaching and learning; therefore, it was decided that pupils in Second class would take the English reading test only, and pupils in Sixth class would take the Mathematics test only. It was also decided **not** to administer questionnaires to parents/guardians of participating pupils, as had been done in previous cycles.[13] Table 2.5 lists the instruments used in NAMER; '✓' indicates that the instrument was administered.

Table 2.5: Instruments used in NAMER across cycles

Instrument	NAMER 2009	NAMER 2014	NAMER 2021
2nd Class English Reading test	✓	✓	✓
2nd Class Mathematics test	✓	✓	-
2nd Class Pupil Questionnaire	✓	✓	✓
2nd Class Teacher Questionnaire	✓	✓	✓
2nd Class Parent/Guardian Questionnaire	✓	✓	-
6th Class English Reading test	✓	✓	-
6th Class Mathematics test	✓	✓	✓
6th Class Pupil Questionnaire	✓	✓	✓
6th Class Teacher Questionnaire	✓	✓	✓
6th Class Parent/Guardian Questionnaire	✓	✓	-
School Principal Questionnaire	✓	✓	✓

During the summer and autumn of 2020, all questionnaires were revised to acknowledge the extraordinary circumstances caused by the pandemic and the first school closure. This included minor edits to timeframes referenced within items (2020 vs. 2021), changes to the stem of items to reflect current practice in light of COVID-19 (e.g., move to remote learning/ virtual meetings). The NAMER 2021 questionnaires were also adapted to include a limited number of items relating to the challenges and changes due to COVID-19. These included items on the stakeholders' experiences of remote learning during school closures due to COVID-19. The National Advisory Committee (Primary Schools) and relevant sections of the Department of Education reviewed all proposed questionnaire items.

[13] The Parent/Guardian questionnaires (Second and Sixth class versions) were prepared for the main study, originally planned for 2020, and modified to include items relating to COVID-19 for NAMER 2021. As part of the reconfiguration of NAMER 2021 due to COVID-19 parents were not invited to take part in this National Assessments cycle.

Due to school closures and remote learning associated with COVID-19, it was decided that online questionnaires were needed to facilitate respondent completion. Questionnaires were developed online using Qualtrics[14] with identical content to the paper formats. Respondents were provided with the paper copies in the main study and only provided with links to the online versions if they were unable to access/ complete the paper versions.

Translation

All questionnaires in the main study were made available in both English and Irish. Questionnaires were provided in English to English-medium schools. Bilingual English/Irish questionnaires were provided for pupils in Irish-medium schools, while teachers and school principals in these schools were provided with both Irish language and English language questionnaires. Parent questionnaires were **not** administered in NAMER 2021.[15]

Questionnaire Content

NAMER 2021 collected contextual information on pupils' experience of school and home, teachers' experiences of teaching and their classroom and school principals' experiences of their role and their school context.

A brief overview of questionnaire content for each respondent is as follows:

- **Pupils:** The Second class questionnaire was shorter and simpler than the Sixth class version (Second class 29 items; Sixth class 55 items). Pupils answered questions about home languages, resources at home, homework activities, attitudes towards English reading and Mathematics, attitudes to school and involvement in activities outside of school. Both Second and Sixth class questionnaires asked pupils about educational resources at home and the use of digital devices such as smartphones, laptops and tablets at home and at school. Items on digital usage and literacy reflect important policy developments in terms of the Digital Strategy for Schools 2015-2020 (Department of Education and Skills, 2015). Sixth class questionnaires included items not asked of pupils in Second class including learning activities with parents at home, educational aspirations, parental rules for using digital devices, school belonging, and pupil wellbeing. Items relating to COVID-19 included pupils' use of devices for schoolwork during remote learning and absence from school in previous 2 weeks for Sixth class pupils only.

- **Teachers:** The teacher questionnaires had the same number of items at both class levels (Second class 34 items; Sixth class 34 items). Teachers answered questions about their own teaching background (e.g., qualifications, the length of teaching experience, whether they held a post of responsibility) and their continuing professional development (CPD) related to the teaching of literacy and numeracy. There were questions on classroom organisation, teaching and assessment strategies for English and Mathematics, and the time allocated to teaching each subject on a weekly basis. Teachers were asked about access and use of resources (e.g., digital tools), planning and organisational activities, use of English and Mathematics initiatives or programmes, and their views on policy and curriculum development including the Primary Language Curriculum. Items added relating to COVID-19 included teachers' engagement in CPD for distance learning, teachers' confidence in teaching English and Mathematics via distance learning, and the impact of COVID-19 on teaching (e.g., school closures, student absences, lack of devices).

[14] Copyright © 2021 Qualtrics https://www.qualtrics.com
[15] Although not administered in NAMER 2021 the parent invitation letters and questionnaires were also translated into Polish, Romanian and Lithuanian using specialist translation companies. These three languages were selected for consistency with the NAMER 2014 cycle, and to reflect the foreign languages most widely spoken in Ireland at the time.

- **Principals:** The School Questionnaire (61 items)[16] collected information on school location, average attendance, school infrastructure, resources and staffing. It included items on school enrolment and provided a profile of pupils with additional learning needs. Information on school resources included the provision of additional supports for pupils such as school meals and/or breakfast clubs and after-school clubs. Principals were asked some questions about their own background, job satisfaction, and CPD needs. A number of questions were included on the organisation of additional supports in the school and the range of assessment, evaluation, and planning activities. Principals were asked about policy and curriculum development and to what extent the Digital Learning Framework impacted on the use of digital technologies at their school. Items added relating to COVID-19 included the impact of school resources on learning (e.g., teacher access to devices, pupil access to devices and broadband), and the perceived impact of COVID-19 on pupils' literacy and numeracy.

Administration

For the main study testing took place between May 4th and May 14th, 2021. The NAMER tests and questionnaires were administered by class teachers, while school coordinators were responsible for organising and overseeing assessments in each school. Usually, the school principal or another class teacher took on the role of school coordinator. In previous cycles, inspectors from the Department of Education delivered test materials to schools on the day of testing and oversaw the test administration in all schools before returning materials to the ERC. However, due to the COVID-19 pandemic, inspectors visited only 20 % of schools in 2021. Inspectors acted as quality monitors for the test administration and reported back to the ERC. Schools that received a visit were contacted by their assigned inspector prior to study administration to arrange and confirm testing dates. Paper versions of the questionnaires were sent to all schools and school staff were informed that digital (online) versions of the teacher and school questionnaires were also available on request.

Data analyses

This report focuses on the relationships between contextual variables and pupil achievement. Pupils are the focus of this report, even when describing school or teacher characteristics. This approach is in line with that adopted in other national and international studies (Clerkin & Creaven, 2013; Clerkin et al., 2020; Delaney et al., 2023) and is followed because the pupil is the unit of interest, not the school or teacher. This means that throughout the report, statements are phrased as, for example, "…40 % of pupils had teachers who reported that…" rather than "…30 % of teachers reported that…".

Where appropriate, percentages and means have been compared with percentages and means from the 2014 context report to examine trends. Trend analysis is only possible when questions are asked in the same format between cycles. In some cases, in 2021 trend analysis is not possible as necessary changes were made to question wording to reflect changes in policy, or to aid interpretation of the question by stakeholders.

[16] As part of the Evaluation of DEIS in NAMER 2021 eight questions were completed by principals in DEIS schools only. These related to the DEIS identification process, supports offered through DEIS, DEIS expenditure, school improvement and DEIS summer provision during COVID-19.

Where contextual variables are continuous (e.g., minutes allocated to the teaching of Mathematics per week), correlations are used. The value of a correlation between two variables can range from -1 to +1. A positive correlation coefficient indicates that as one variable increases, so does the other. A negative correlation indicates that as one variable increases, the other decreases. A correlation coefficient close to 0 indicates little or no relationship, while the closer the value is to ±1, the stronger the relationship. The following rule of thumb can be used to interpret the strength of the correlation coefficients reported in this volume:

Weak	**< .1**
Weak to moderate	**.1 to .24**
Moderate	**.25 to .39**
Moderate to strong	**.4 to .55**
Strong	**>.55**

Where contextual variables are categorical (e.g., gender), comparisons are used. In this report, where the mean English reading and Mathematics test scores of different groups are compared, there are generally two columns for each grade level (see Example Table). The first column shows the percentage of pupils who belong to that group/category, while the English reading or Mathematics column contains the mean English reading or Mathematics scores for pupils in that category. In the sample table below, for example, just under 8 % of Second class pupils speak a language other than English or Irish when at home. These pupils have a mean English reading score of 240.6 and a mean Mathematics score of 242.6.

Example Table: Language of the home and mean English reading and Mathematics scores, by grade level

	Second class English reading		Sixth class Mathematics	
	%	*M*	*%*	*M*
English*	91.3	267.5	91.5	266.1
Irish	0.9	269.1	0.5	**283.1**
Other	7.8	**240.6**	7.9	**242.6**

In this table, the category *English* is marked by an asterisk. This means that this category is the reference category, or the group of pupils against which other groups are compared. Where the mean score of pupils from one category differs statistically significantly from the mean of pupils in the reference category, this score is highlighted using **bold** font. Therefore, in the example above, the mean reading score of Second class pupils who mostly speak Irish at home (269.1) does not differ significantly from the mean reading score of pupils who mostly speak English at home (267.5). However, the mean of pupils who mostly speak another language at home (240.6) is statistically significantly different from the mean of pupils who speak English at home.

Tests of statistical significance and effect sizes were used to guide the interpretation of group differences. Where comparisons are made between the mean scores of more than two groups, such as in the example above, alpha levels are adjusted in order to control for Type 1 error (i.e., to guard against declaring a difference to be statistically significant when it is not). The method of alpha adjustment used was the Bonferroni correction, whereby the chosen alpha level (0.05) is divided by the number of tests. So, while the size of the difference between two scores is important, the error associated with the estimated scores and their differences is also taken into account, as is the number of comparisons being made. For these reasons, scale-score point differences of the same size may be significant in one case, but not in another.

The IEA's International Database Analyzer[17] (IDB Analyzer, Version 5.0) was used for the estimation of means, percentages and other measures of central tendency and variability. IDB Analyzer is a free software tool which has been developed to analyse data from most major large-scale assessments (e.g., PISA, TIMSS and PIRLS). Analysis of the Irish National Assessment data is not directly supported by the IDB Analyzer, so the NAMER 2021 data were formatted to be analysed as PIRLS and TIMSS data, for Second class English reading and Sixth class Mathematics respectively. Appropriate sample weights, replicate weights and plausible values were used in the analysis to provide accurate estimates of the statistics and their standard errors. Please see Kiniry et al. (2023) for a detailed explanation of how sampling weights were used in the analysis of NAMER 2021.

Chapters 3 to 5 present the results of bivariate analyses. Such analyses relate one variable to another and do not account for the influence that a third variable may play in this relationship. Finally, Chapter 6 presents multilevel models of English reading achievement at Second class and Mathematics achievement in Sixth class. These models allow for the identification of contextual factors associated with achievement when the effects of other variables are held constant. Guidance on interpreting the models is presented within that chapter.

[17] IDB Analyzer: https://www.iea.nl/data-tools/tool

CHAPTER 3
Pupil Factors

This chapter examines the characteristics of pupils who took part in NAMER 2021 and uses these characteristics to contextualise their achievement in English reading (Second class) and Mathematics (Sixth class). The data used are drawn from pupils' responses to the Second class and Sixth class pupil questionnaires. This chapter is divided into four sections: (i) pupil background characteristics, (ii) pupil homework practices and engagement in reading, Mathematics and out-of-school activities, (iii) pupil attitudes towards school, reading, Mathematics and their self-perceptions as readers and mathematicians, and (iv) the use of digital devices by pupils both at school and at home, including during periods of school closures due to the COVID-19 pandemic.

Pupil background

Gender

Pupils in Second and Sixth classes were asked to indicate their gender in the pupil questionnaires. The percentages of pupils at each grade level who selected each of the three gender categories (Boy, Girl, Other) and their overall mean scores are presented in Table 3.1.[18]

At Second class, girls' mean English reading score was statistically significantly higher than boys' (*d* = 0.2), while at Sixth class, boys' mean Mathematics score was statistically significantly higher than girls' (*d* =0.2). For a more detailed examination of achievement by gender, see the NAMER 2021 Performance report (Kiniry et al., 2023).

Table 3.1: Pupil gender and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Boy*	50.9	256.8	48.7	264.6
Girl	48.8	**265.1**	50.1	**256.8**
Other	0.3	261.1	1.2	253.9

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Due to the very small numbers of pupils who selected 'Other' at both grade levels, tests of statistical significance were not conducted for this category, and any performance differences should be interpreted with caution.

Place of birth

Pupils at both grade levels were asked about their place of birth (Table 3.2). A large majority of pupils in both Second class (89.0 %) and Sixth class (92.2 %) were born in Ireland. The proportions of pupils born in Ireland observed in 2014 were similar to those observed in 2021, at both grade levels.

Pupils born in Ireland had higher mean scores than their peers who were born in another country, in both Second class English reading and Sixth class Mathematics. However, these differences were not statistically significant. In NAMER 2014, statistically significant performance gaps in favour of pupils born in Ireland were observed in Second class English reading; however, a similar pattern was not observed in 2014 for Sixth class Mathematics, where the difference was not statistically significant.

[18] Due to the very small numbers of pupils who selected 'Other' at both grade levels, tests of statistical significance were not conducted for this category, and any performance differences should be interpreted with caution.

Table 3.2: Pupil place of birth and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Born in Ireland*	89.0	261.1	92.2	261.2
Not born in Ireland	11.0	259.2	7.8	254.7

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Language(s) spoken at home

Pupils at both grade levels were asked about language(s) spoken at home (Tables 3.3-3.5). The majority of pupils in Second class (73.6 %) and Sixth class (85.1 %) reported always or almost always speaking English at home. Small proportions of pupils at both Second class (4.3 %) and Sixth class (2.1 %) reported never speaking English at home. It is not possible to directly compare these proportions with those observed in NAMER 2014 because the questions about language(s) spoken at home were not identical to those used in 2021. Pupils in 2014 were asked to state the language they spoke most often at home, with 90.6 % of pupils in Second class indicating that it was English, 1.0 % indicating Irish, and 8.5 % indicating a different language. The corresponding percentages for Sixth class in 2014 were 92.3 % for English, 0.4 % for Irish, and 7.3 % for a different language.

In NAMER 2021, the mean reading score of pupils in Second class who reported never speaking English at home was statistically significantly lower than that of those who reported always or almost always speaking English at home (d = 0.5). This finding is consistent with that observed in 2014, where the mean reading score of pupils in Second class who did not speak English at home was statistically significantly lower than that of pupils who spoke English at home.

Table 3.3: Frequency of speaking English at home and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
I always or almost always speak English at home*	73.6	263.0	85.1	261.2
I sometimes speak English and sometimes speak another language at home	22.1	260.4	12.8	257.1
I never speak English at home	4.3	**240.9**	2.1	265.9

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

The mean Mathematics score of Sixth class pupils who reported never speaking English at home was higher than that of pupils who reported always or almost always speaking English at home, but this difference was not statistically significant. This result is similar to that observed in 2014, where the mean Mathematics score of pupils in Sixth class who did not speak English at home was not statistically significantly different from that of pupils who spoke English at home. In 2021, no statistically significant differences were observed at either grade level between pupils who reported always or almost always speaking English at home and pupils who reported sometimes speaking English and sometimes speaking another language at home.

Approximately one-fifth of Second-class pupils and one-tenth of Sixth class pupils reported speaking Gaeilge at home. Mean scores were statistically significantly lower for pupils who did not speak Gaeilge at home in both Second class reading (d = 0.2) and Sixth class Mathematics (d = 0.4). In 2014, 16.0 % of Second class pupils and 13.9 % of Sixth class pupils reported speaking Gaeilge at home, and these pupils achieved statistically significantly higher mean reading and Mathematics scores, respectively, compared to the peers who reported not speaking Gaeilge at home. This finding is consistent with that observed in 2021.

Table 3.4: Gaeilge spoken at home and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	21.0	267.7	10.6	277.1
No	79.0	**259.1**	89.4	**258.8**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

About one-fifth of pupils at each grade level reported speaking another language (other than English or Gaeilge) at home. Pupils who reported speaking another language at home were asked to specify the language, with more than 100 different languages being reported at each grade level. The most commonly reported languages across the grade levels were Polish, Romanian, Spanish, French, Lithuanian, Arabic and Chinese. No statistically significant performance differences were observed between these pupils and their peers who reported speaking English/Gaeilge at home.

Table 3.5: Language other than English or Gaeilge spoken at home and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	21.7	258.0	19.3	259.1
No	78.2	262.1	80.7	261.4

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Homework and engagement in reading, Mathematics and out-of-school activities

Frequency of English and Mathematics homework

Pupils at both grade levels were asked about the frequency with which they did homework in English and Mathematics (Table 3.6). The majority of pupils in Second class (86.4 %) reported doing English homework on ‘most school days’; these pupils’ mean reading score was not statistically significantly different from pupils who reported doing English homework ‘2-3 times a week’ or ‘once a week’.

However, the mean score of pupils who reported ‘hardly ever’ doing English homework was 27.5 score-points lower than that of pupils who reported doing English homework on ‘most school days’, and this difference was statistically significant (d = 0.6). More than three-quarters (77.0 %) of Second class pupils

reported doing Mathematics homework 'most school days', while 8.8 % reported doing Mathematics homework '2-3 times a week', 7.2 % 'once a week' and 6.9 % 'hardly ever'.

Table 3.6: Frequency of English/Mathematics homework and mean achievement scores, by grade level

		Second class – English reading		Sixth class
		%	*M*	*%*
English homework	Most school days*	86.4	262.5	84.1
	2-3 times a week	7.2	264.9	10.2
	Once a week	4.1	252.6	2.3
	Hardly ever	2.2	**235.0**	3.4
		Second class	**Sixth class – Mathematics**	
		%	*%*	*M*
Mathematics homework	Most school days*	77.0	84.4	262.5
	2-3 times a week	8.8	8.1	255.7
	Once a week	7.2	2.6	250.8
	Hardly ever	6.9	4.9	253.5

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean reading scores of Second class pupils based on the frequency of completing Mathematics homework, and mean Mathematics scores of Sixth class pupils based on the frequency of completing English homework are not provided, as the focus is on the relationship between homework frequency and performance within the same subject. Therefore, only subject-specific homework and performance data are considered relevant for the analysis.

Pupils in Second class seemed more likely to do English homework than Mathematics homework on 'most school days' (86.4 % versus 77.0 %), and a little less likely to 'hardly ever' do English homework (2.2 % versus 6.9 %). This difference in homework frequency was less apparent in Sixth class.

At Sixth class, 84.1 % of pupils reported doing English homework on 'most school days'. A similar proportion of Sixth class pupils (84.4 %) reported doing Mathematics homework 'most school days', while 8.1 % reported doing Mathematics homework '2-3 times a week', 2.6 % 'once a week', and 4.9 % 'hardly ever'. No statistically significant differences in performance were observed among Sixth class pupils based on the frequency with which they did Mathematics homework.

English homework practices – Second class

Second class pupils were asked about the frequency with which they engaged in specific practices as part of their English homework (Table 3.7). As in 2014, learning English spellings was the homework activity that pupils reported doing most frequently, with 81.1 % of pupils in 2021 reporting that they did this on 'most school days'.

The mean reading score of pupils who reported learning English spellings on 'most school days' (266.6) was statistically significantly higher than the scores of pupils who reported doing so 'some days' (239.7, *d* = 0.6) or 'never' (235.4, *d* = 0.7). Pupils who reported reading a book or e-book silently 'most school days' (47.6 %) achieved a mean reading score (266.0) that was statistically significantly higher than the scores of pupils who reported doing so 'some days' (256.9, *d* = 0.2) or 'never' (257.3, *d* = 0.2).

Table 3.7: Frequency of English homework practices and mean reading scores, Second class

	Most days*		Some days		Never	
	%	*M*	*%*	*M*	*%*	*M*
Answer questions in English workbook	41.0	261.9	26.9	266.0	32.1	257.5
Learn English spellings	81.1	266.6	15.1	**239.7**	3.8	**235.4**
Read a book or e-book silently	47.6	266.0	30.7	**256.9**	21.7	**257.3**
Read a book or e-book aloud	35.2	261.2	30.5	264.4	34.3	259.2
Find information on a computer, mobile phone or tablet	16.6	248.0	37.5	**269.2**	45.9	**260.4**
Write something	66.8	264.1	25.9	259.6	7.3	**248.0**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Finding information on a computer, mobile phone or tablet was the least commonly reported English homework practice employed by Second class pupils; fewer than one in five (16.6 %) of pupils reported doing this 'most school days' as part of their English homework.

The mean reading score of pupils who used a device to find information 'most days' (248.0) was statistically significantly lower than the scores of pupils who reported doing so 'some days' (269.2, *d* = 0.5) or 'never' (260.4, *d* = 0.3). About two thirds of pupils (66.8 %) reported writing something as part of their English homework 'most school days', and their mean reading score was statistically significantly higher than that of pupils who reported 'never' doing this (248.0, *d* = 0.3).

Approximately one-third (32.1 %) of Second class pupils, respectively, indicated that they 'never' answer questions in their English workbooks or read a book or e-book aloud as part of their English homework. The frequency with which pupils reported doing these activities as part of their English homework was not statistically significantly related to their reading performance.

Reading activities at home – Second class

Second class pupils were asked about the frequency with which they engaged in specific activities related to reading at home (Table 3.8). Regarding frequency of reading with a parent, 28.0 % of pupils reported doing this 'most days'. A similar proportion of pupils reported 'never' reading with a parent (27.4 %), while 44.6 % reported doing this 'some days'. No statistically significant performance differences were observed based on the frequency with which pupils read with a parent. Pupils who reported reading with another adult (e.g., grandparent) 'most days' (8.6 %) achieved a statistically significantly lower mean score (240.5) than pupils who reported doing so 'some days' (264.2, *d* = 0.5) or 'never' (262.7, *d* = 0.5).

Table 3.8: Frequency of reading activities at home and mean reading scores, Second class

	Most days*		Some days		Never	
	%	*M*	*%*	*M*	*%*	*M*
Read with your mam or dad	28.0	256.1	44.6	262.8	27.4	264.2
Read with another adult (e.g., your granny or grandad)	8.6	240.5	32.6	**264.2**	58.8	**262.7**
Read books on your own for fun	41.9	273.2	36.7	**260.3**	21.4	**239.1**
Read magazines or comics on your own for fun	15.1	262.3	21.2	**270.3**	63.7	258.3
Read something online at home with another adult	8.6	240.5	25.4	**261.4**	66.0	**264.3**
Read something online at home on your own	16.8	252.4	25.6	**266.1**	57.6	**261.8**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

About two-fifths (41.9 %) of pupils reported reading books on their own for fun 'most days', and these pupils' mean reading score (273.2) was statistically significantly higher than those of their peers who reported doing so 'some days' (260.3, *d* = 0.3) or 'never' (239.1, *d* = 0.7). Almost two-thirds of pupils (63.7 %) reported 'never' reading magazines or comics for fun. Pupils who reported doing this 'most days' (15.1 %) achieved a mean score (262.3) that was statistically significantly lower than that of pupils who reported doing this 'some days' (270.3, *d* = 0.2), but not statistically significantly different from the score of pupils who reported 'never' doing this (258.3).

Regarding reading digital texts, pupils who reported reading something online at home with another adult 'most days' (8.6 %) achieved a mean reading score (240.5) that was statistically significantly lower than the scores of pupils who reported doing this 'some days' (261.4, *d* = 0.5) or 'never' (264.3, *d* = 0.5). Similarly, those pupils who reported reading something online at home on their own 'most days' (16.8 %) achieved a statistically significantly lower mean reading score (252.4) than their peers who reported doing this 'some days' (266.1, *d* = 0.3) or 'never' (261.8, *d* = 0.2).

Table 3.9 presents the frequency with which Second class pupils engaged in specific reading activities at home in 2014 and 2021. Fewer Second class pupils read with their parents 'most days' in 2021 compared to 2014 (28.0 % vs 33.4 %), and slightly more did so 'some days' (44.6 % vs 42.7 %), although these differences were not statistically significant. Statistically significantly fewer Second class pupils reported reading at home with an adult other than their parent in 2021 compared to 2014. In 2021, almost three times as many pupils reported 'never' reading with another adult compared to 2014. It should be remembered that at the time of the NAMER 2021 data collection, COVID-19 restrictions were in place, limiting the presence of other adults in pupils' homes. In 2021, pupils were much less likely to read books or magazines on their own for fun. Statistically significantly more Second class pupils reported 'never' reading a book and magazines or comics on their own for fun in 2021 compared to 2014.

Table 3.9: Frequency of reading activities at home in 2014 and 2021, Second class

		2014*	2021
Read with your mam or dad^	**Most days**	33.4	28.0
	Some days	42.7	44.6
	Never	23.9	27.4
Read with another adult (e.g., your granny or grandad)	**Most days**	31.6	**8.6**
	Some days	46.6	**32.6**
	Never	21.8	**58.8**
Read books on your own for fun	**Most days**	45.5	41.9
	Some days	40.1	36.7
	Never	14.3	**21.4**
Read magazines or comics on your own for fun	**Most days**	19.6	15.1
	Some days	32.5	**21.2**
	Never	47.9	**63.7**

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.
^ In 2014, the question was phrased "Read with your parent".

Mathematics homework practices – Sixth class

Sixth class pupils were asked how much time they spent on school days doing Mathematics homework before or after school (Table 3.10). The majority of pupils (84.1 %) reported that they spent 'less than an hour' doing Mathematics homework on a school day. These pupils had a mean Mathematics score (264.6) that was statistically significantly higher than the scores of the rest of their peers ('more than 2 hours': d = 1.0; '1-2 hours': d = 0.5; 'no time': d = 0.4).

Table 3.10: Time spent doing Mathematics homework and mean Mathematics scores, Sixth class

	%	M
More than 2 hours	1.2	**215.1**
1-2 hours	10.1	**240.7**
Less than an hour*	84.1	264.6
No time	4.6	**244.2**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Sixth class pupils were also asked how often they used a device (computer/tablet) for Mathematics homework (Table 3.11). Over one-third of pupils (35.7 %) reported that they 'never' used a device for Mathematics homework, and these pupils' mean Mathematics score (268.3) was statistically significantly higher than the scores of pupils who reported that they used a device 'once or twice a week' (252.3, d = 0.4) or 'every day or most days' (249.2, d = 0.3).

Table 3.11: Frequency of using a computer/tablet for Mathematics homework and mean Mathematics scores, Sixth class

	%	M
Every day or most days	18.1	**249.2**
Once or twice a week	19.7	**252.3**
A few times a month	26.4	265.8
Never*	35.7	268.3

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Mathematics strategies – Sixth Class

Sixth class pupils were asked to indicate their level of agreement with a series of statements related to the use of specific strategies for learning Mathematics (Table 3.12). Forty-five percent of pupils 'agreed' with the statement "I often think about how I can use Maths in everyday life" and their mean Mathematics score (261.2) was statistically significantly higher than that of those who 'strongly disagreed' (243.8, d = 0.4). Although pupils who 'agreed' with the statement "I often think of other ways to get the answer to a problem" performed similarly to those who 'disagreed' and 'strongly disagreed', those who 'strongly agreed' with this statement statistically significantly outperformed those who 'agreed' (d = 0.3).

More than half (52.2 %) of pupils 'agreed' that they try to learn as much Mathematics as possible off by heart, while 16.6 % 'strongly agreed'. Those who 'strongly agreed' outperformed those who agreed by 11.0 score-points, and this difference was statistically significant (d = 0.2). Pupils who 'strongly disagreed' (4.5 %) that they try to learn as much Mathematics as they can off by heart had a mean Mathematics score that was statistically significantly lower than that of those who 'agreed' (d = 0.7). Performance differences were also observed based on pupils' level of agreement with the statement "I try to understand new ideas in Maths by thinking about what I already know". Higher levels of agreement were associated with higher mean Mathematics scores. Those who 'agreed', statistically significantly outperformed those who 'strongly disagreed' (234.4, d = 0.5), while those who 'strongly agreed' significantly outperformed those who 'agreed' (d = 0.2).

About two-thirds of pupils (67.3 %) 'agreed' or 'strongly agreed' that they repeatedly go through examples to remember them. Those who 'disagreed' (28.5 %) achieved a mean score that was statistically significantly higher than that of those who 'agreed' (d = 0.2). No performance differences were observed based on pupils' level of agreement with the statement "I try to remember every step when doing a problem". Regardless of whether pupils 'strongly agreed', 'agreed', 'disagreed', or 'strongly disagreed' with this statement, their performance did not vary statistically significantly. Across the seven strategies, there was a general pattern of higher Mathematics performance among pupils who endorsed the strategy.

Table 3.12: Strategies for learning Mathematics and mean Mathematics scores, Sixth class

	Strongly agree		Agree*		Disagree		Strongly disagree	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*
I often think about how I can use Maths in everyday life	11.8	268.2	45.2	261.2	35.3	261.0	7.7	**243.8**
I often think of other ways to get the answer to a problem	15.0	**272.1**	62.1	259.4	19.2	258.0	3.7	249.6
I learn as much Maths as I can off by heart	16.6	**272.4**	52.2	261.4	26.7	256.0	4.5	**235.9**
I try to understand new ideas in Maths by thinking about what I already know	19.1	**269.3**	62.3	260.2	15.7	257.1	2.9	**234.4**
I go through examples again and again to help me remember them	16.3	250.7	51.0	258.6	28.5	**270.3**	4.2	259.4
I try to remember every step when doing a problem	24.7	259.5	64.3	260.6	9.5	266.6	1.5	246.5
I enjoy learning new things in Maths lessons	15.7	**272.6**	52.4	264.4	24.0	**251.7**	8.0	**239.7**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Extra classes outside of school

Pupils at both grade levels were asked whether they attended extra lessons outside of school in English, Mathematics, or a language other than English or Irish (Tables 3.13-3.15). Table 3.10 presents the proportions of pupils at each grade level who attended extra classes, and their mean reading or Mathematics scores.

The majority of pupils in Second class (96.1 %) and Sixth class (97.9 %) indicated that they did not attend extra English lessons. These pupils achieved mean reading and Mathematics scores, respectively, that were statistically significantly higher than the scores of pupils who did attend extra lessons in English (Second class: d = 0.4; Sixth class: d = 0.5).

Table 3.13: Attendance at extra English lessons outside of school and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes	3.9	**242.3**	2.1	**237.8**
No*	96.1	261.9	97.9	262.0

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean scores for Second class are in English reading, while mean scores for Sixth class are in Mathematics.

A similar pattern is observed regarding extra lessons in Mathematics; 93.1 % of pupils in Second class and 96.7 % of pupils in Sixth class indicated that they did not attend extra Mathematics lessons. These pupils achieved mean reading and Mathematics scores, respectively, that were statistically significantly higher than the scores of pupils who did attend extra lessons in Mathematics (Second class: *d* = 0.5; Sixth class: *d* = 0.3).

Table 3.14: Attendance at extra Mathematics lessons outside of school and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes	6.9	**238.9**	3.3	**246.8**
No*	93.1	262.9	96.7	262.0

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean scores for Second class are in English reading, while mean scores for Sixth class are in Mathematics.

Although many extra classes did not run in 2021 due to COVID-19 restrictions, the proportions of pupils attending extra English and Mathematics lessons in 2021 were only slightly different from those observed in 2014. Specifically, in 2014, 6.3 % of Second class pupils and 3.5 % of Sixth class pupils attended extra English lessons, while 7.8 % of Second class pupils and 4.6 % of Sixth class pupils attended extra Mathematics lessons (Kavanagh et al., 2015).

Regarding extra lessons in a language other than English or Irish, the majority of pupils at both grade levels reported that they did not attend such lessons (Second class: 92.4 %; Sixth class: 95.1 %). Pupils who attended such lessons performed similarly to their counterparts who did not, and there were no statistically significant differences in mean scores at either grade level based on attendance at these lessons.

Table 3.15: Attendance at extra lessons in a language other than English or Gaeilge outside of school and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes	7.6	259.0	4.9	262.5
No*	92.4	261.4	95.1	261.6

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean scores for Second class are in English reading, while mean scores for Sixth class are in Mathematics.

Parents' interactions with pupils – Sixth class

Sixth class pupils were asked about the frequency of certain types of interactions with their parent(s)/guardian(s) (Table 3.16). Four out of 10 pupils reported that their parent(s)/guardian(s) discussed how well they were doing in school with them 'several times a week'. These pupils' mean Mathematics score (258.0) was statistically significantly lower than those of pupils who reported their parent(s)/guardian(s) doing this 'several times a month' (265.3, *d* = 0.2) or 'a few times a year' (267.2, *d* = 0.2). Pupils who reported that their parent(s)/guardian(s) discussed books, films or television programmes with them 'several times a week' (31.3 %) achieved a mean score that was statistically significantly higher than that of pupils who reported their parent(s)/guardian(s) 'never or hardly ever' doing so (246.6, *d* = 0.3).

The majority of pupils (82.7 %) reported that their parent(s)/guardian(s) ate dinner with them around the table 'several times a week'. These pupils' mean Mathematics score was statistically significantly higher than those of pupils who reported that their parent(s)/guardian(s) ate dinner with them 'several times a month' (251.6, *d* = 0.3), 'a few times a year' (239.1, *d* = 0.5), or 'never or hardly ever' (234.1, *d* = 0.6). About three-quarters (75.4 %) of pupils reported that their parents spent time just chatting with them 'several times a week', and these pupils' mean Mathematics score was not statistically significantly different from those of pupils who reported their parents doing so less frequently.

Table 3.16: Frequency of certain types of interactions between pupils and parent(s)/guardian(s) and mean Mathematics scores, Sixth class

	Several times a week*		Several times a month		About once a month		A few times a year		Never or hardly ever	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*	*%*	*M*
Discuss how well you are doing in school with you	40.9	258.0	24.0	**265.3**	17.6	264.8	9.9	**267.2**	7.6	**243.4**
Discuss books, films or television programmes with you	31.3	262.8	29.0	265.5	15.4	262.9	8.9	257.9	15.4	**246.6**
Eat dinner with you around the table	82.7	263.5	8.9	**251.6**	2.6	257.7	2.2	**239.1**	3.6	**234.1**
Spend time just chatting with you	75.4	260.7	15.0	263.9	3.7	257.4	2.4	250.9	3.5	255.7

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Activities outside of school

Pupils from Second and Sixth class were asked to indicate the frequency with which they engaged in various activities before or after school on school days (Tables 3.17 and 3.18). The questionnaires were administered during a period when COVID-19 social distancing restrictions were in place and immediately following COVID-19 related school closures. As a result, the activities available to pupils outside of school were different to what might typically be available.

Just over half (53.8 %) of Second class pupils indicated that they watched TV, films, or YouTube before or after school 'most days', while a further 38.8 % reported that they did so 'some days', and 7.4 % that they 'never' did so. There were no statistically significant differences in mean reading performance across these three groups of pupils. Almost four-in-ten Second class pupils (39.0 %) indicated that they played games on a computer or console (e.g., PlayStation) or online games 'most days', a further 35.5 % reported playing such games 'some days', and 25.5 % reported 'never' playing such games before or after school on school days. Second class pupils who reported that they played games on a computer, a console, or online 'some days' achieved a statistically significantly higher mean reading score (267.5, *d* = 0.2) than pupils who reported playing 'most days'. Just under a third (32.3 %) of Second class pupils indicated that they did jobs at home (e.g., cleaning), on 'most days' either before or after school, 49.7 % reported doing so 'some days', and 18.1 % reported 'never' doing so. Pupils who reported doing jobs at home 'some days' achieved a statistically significantly higher mean reading score (266.5, *d* = 0.2) than pupils who did so 'most days'.

Table 3.17: Activities outside of school on school days and mean reading scores, Second class

	Yes, most days*		Yes, some days		Never	
	%	*M*	*%*	*M*	*%*	*M*
Watch TV, films, YouTube	53.8	262.2	38.8	262.0	7.4	259.9
Play games on a computer/console (e.g., PlayStation) or online	39.0	257.8	35.5	**267.5**	25.5	258.3
Do jobs at home (e.g., cleaning)	32.3	256.7	49.7	**266.5**	18.1	257.2
Read a book for fun	32.8	271.9	42.5	**261.9**	24.6	**247.3**
Read a comic or magazine for fun	15.6	258.3	25.4	**269.1**	59.1	259.7
Play sports	47.2	258.9	35.2	**268.4**	17.6	257.7
Go to extra classes or clubs for music, dance or art	10.5	256.3	23.8	**274.4**	65.6	257.5
Go to extra classes or clubs for computers or coding	3.1	239.1	6.5	**259.2**	90.5	**262.8**
Use a computer/device to learn a language	10.8	247.5	18.1	**268.7**	71.1	**262.1**
Spend time with friends	54.6	259.0	36.8	**266.2**	8.5	259.3
Spend time by yourself	31.8	260.8	48.4	266.8	19.8	**251.2**
Chat with your friends using a computing device or mobile phone	28.3	252.9	37.2	**270.1**	34.6	259.8

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

While approximately one-third (32.8 %) of Second class pupils reported that they read books for fun either before or after school on school days, one out of four pupils (24.6 %) reported 'never' doing so. The mean reading score of the latter group of pupils (247.3) was statistically significantly lower than that of the pupils who reported reading a book for fun 'most days' (271.9, d = 0.5). Three-fifths of Second class pupils (59.1 %) reported 'never' reading a comic or magazine for fun on school days and 15.6 % reported doing so 'most days'. These two groups of pupils performed similarly in reading. However, those pupils who reported reading comics or magazines for fun on 'some' school days achieved a statistically significantly higher mean reading score (269.1) than pupils who reported reading comics or magazines 'most days' (258.3, d = 0.2).

Just under half of pupils (47.2 %) played sports on 'most' school days, a further 35.2 % did so on 'some' school days, and the remaining 17.6 % 'never' did so. The group of pupils who played sports on 'some' school days achieved a statistically significantly higher mean reading score (268.4) than pupils who played sports 'most' school days either before or after school (258.9, d = 0.2). Second class pupils who reported going to extra classes or clubs for music, dance or art on 'some' school days achieved a statistically significantly higher mean reading score (274.4) than pupils who reported doing so 'most' days (256.3, d = 0.4). The majority of Second class pupils (90.5 %) 'never' attended extra classes or clubs for computers or coding on school days. These pupils and their peers who reported attending such classes or clubs some days (6.5 %) achieved statistically significantly higher mean reading scores (262.8, d = 0.5 and 259.2, d = 0.4, respectively) than the 3.1 % of pupils who attended such classes or clubs 'most' days (239.1). Most Second class pupils (71.1 %) reported 'never' using a computer or device to learn a language, while 18.1 %

reported doing so on 'some' days, and 10.8 % did so on 'most' days either before or after school. The former two groups achieved statistically significantly higher mean reading scores (268.7, *d* = 0.5 and 262.1, *d* = 0.2, respectively) compared to the latter (247.5).

Over half of pupils (54.6 %) reported spending time with friends either before or after school on 'most' school days. Pupils who reported spending time with friends on 'some' school days achieved a statistically significantly higher mean reading score (266.2) than pupils who reported spending time with friends 'most' school days (259.0, *d* = 0.2). Almost half of the Second class pupils (48.4 %) reported spending time by themselves on 'some' days before or after school. Pupils who 'never' spent time by themselves on a school day achieved a statistically significantly lower mean reading score (251.2) than that of pupils who spent time by themselves on 'most' school days (260.8, *d* = 0.1). Pupils who reported chatting with friends using a computing device or mobile phone on 'some' days achieved a statistically significantly higher mean reading score (270.1) than pupils who engaged in such activities 'most' days either before or after school (252.9, *d* = 0.4).

The 23.9 % of Sixth class pupils who reported watching TV, films, or YouTube for 'more than two hours' on a school day either before or after school achieved a statistically significantly lower Mathematics score (250.5) than pupils who did so for '1-2 hours' (264.1, *d* = 0.3), while pupils who did so for 'less than an hour' or spent 'no time' on such an activity on school days had similar mean Mathematics scores (264.2 and 259.1, respectively) to that of pupils who did so for '1-2 hours'. Sixth class pupils who reported spending 'no time' playing games on a computer/console (e.g., PlayStation, Xbox) or online had the highest mean Mathematics score among their peers (267.5), which was statistically significantly higher than the score of the reference category (i.e., 1-2 hours) (258.3, *d* = 0.2).

Approximately three-fifths (59.1 %) of Sixth class pupils reported spending 'less than an hour' doing jobs at home (e.g., cleaning) on a school day. This group had the highest mean Mathematics score among their peers (265.7), which was statistically significantly higher than the score of the pupils who reported spending '1-2 hours' on this activity (257.2, *d* = 0.2). Pupils who spent 'no time' doing jobs at home on school days had the lowest mean Mathematics score among their peers (242.9), which was statistically significantly lower than that of pupils in the reference category.

The majority of Sixth class pupils spent 'less than an hour' doing Mathematics and English homework, respectively, on school days. Pupils who spent 'less than an hour' doing Mathematics homework on school days had the highest mean Mathematics score (264.6) among their peers, which was statistically significantly higher than the scores of those who spent '1-2 hours' doing Mathematics homework (240.7, *d* = 0.5). More than seven out of ten pupils reported spending 'less than an hour' or 'no time' reading a book for fun on school days, and more than nine out of 10 pupils reported the same for reading a comic or magazine.

More than four out of 10 (42.8 %) Sixth class pupils reported spending '1-2 hours' playing sports on school days. The mean Mathematics performance for this group was higher than that of all other groups, but statistically significantly different only from that of pupils who spent 'more than 2 hours' playing sports (255.8, *d* = 0.2). Approximately two-thirds of pupils (65.7 %) spent 'no time' on extra classes or clubs for music, dance, art or languages either before or after school. This group achieved a statistically significantly lower mean Mathematics score (257.9) than pupils who spent '1-2 hours' on such activities on school days (268.5, *d* = 0.2). Pupils who spent 'more than 2 hours' a day on these activities (6.4 %) also achieved a statistically significantly lower mean Mathematics score (253.8) than pupils who spent '1-2 hours' on these activities (*d* = 0.3). Most of the Sixth class pupils (92.8 %) did not attend extra computer or coding classes or clubs. Of the pupils who did report attending such classes or clubs, those who attended for 'more than 2 hours' achieved the lowest mean Mathematics score among their peers (233.8); however, this data needs to be interpreted with caution due to the small numbers of pupils belonging to each of these groups.

About half (46.9 %) of pupils spent 'more than 2 hours' on school days with friends, with this group achieving the lowest mean Mathematics score (249.7), which was statistically significantly lower than the score of pupils who spent '1-2 hours' with friends on school days. Pupils in the other categories performed similarly with each other in Mathematics. Approximately one out of 10 Sixth class pupils (9.2 %) reported spending 'no time' using a mobile phone on school days, with these pupils achieving a statistically significantly higher mean Mathematics score (275.2) than their peers who reported spending '1-2 hours' using a mobile phone on school days (264.7, *d* = 0.2). Pupils who spent 'more than 2 hours' a day using a mobile phone had the lowest mean Mathematics performance (249.1), which was statistically significantly lower than that of pupils who used a mobile phone for '1-2 hours' *(d* = 0.3). Similar to the pattern observed for Second class pupils, the 7.5 % of Sixth class pupils who did not spend any time by themselves on school days achieved a statistically significantly lower mean Mathematics score (250.8) than pupils who spent '1-2 hours' by themselves (262.2, *d* = 0.2).

Table 3.18: Activities outside of school on school days and mean Mathematics scores, Sixth class

	More than 2 hours		1-2 hours*		Less than an hour		No time	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*
Watching TV, films, YouTube	23.9	**250.5**	45.8	264.1	26.4	264.2	3.9	259.1
Playing games on a computer / console (e.g., PlayStation, Xbox) or online	25.7	253.0	27.2	258.3	20.8	266.4	26.3	**267.5**
Doing jobs at home (e.g., cleaning)	8.3	248.6	27.1	257.2	59.1	**265.7**	5.5	**242.9**
Doing Maths homework	1.2	**215.1**	10.1	240.7	84.1	**264.6**	4.6	244.2
Doing English homework	0.9	-	8.4	-	86.0	-	4.6	-
Reading a book for fun	7.1	-	20.6	-	40.7	-	31.6	-
Reading a comic or magazine for fun	2.0	-	6.4	-	20.3	-	71.3	-
Playing sports	28.5	**255.8**	42.8	265.9	14.7	260.5	14.0	255.8
Going to extra classes or clubs for music, dance, art or languages	6.4	**253.8**	20.5	268.5	7.3	273.2	65.7	**257.9**
Going to extra computer or coding classes or clubs	1.3	**233.8**	3.4	257.6	2.6	279.1	92.8	260.9
Spending time with friends	46.9	**249.7**	29.2	269.3	10.2	273.7	13.7	272.3
Using a mobile phone	37.5	**249.1**	33.6	264.7	19.8	269.5	9.2	**275.2**
Spending time by yourself	33.1	258.5	28.5	262.2	30.9	264.6	7.5	**250.8**
Taking part in a hobby (not already mentioned above)	21.6	**250.4**	35.9	263.1	18.3	267.8	24.1	262.7
Chatting with your friends using a computing device or mobile phone	32.0	**244.6**	29.6	263.1	29.9	**271.7**	8.5	272.8

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean Mathematics scores of Sixth class pupils based on the frequency of completing English homework, reading a book for fun, and reading a comic or magazine for fun are not provided, as these activities are not directly related to Mathematics.

More than one out of five pupils (21.6 %) reported spending 'more than 2 hours' on a school day on a hobby not previously mentioned in the questionnaire. These pupils achieved the lowest mean Mathematics score among their peers (250.4), which was statistically significantly lower than the score of pupils in the reference category (263.1, *d* = 0.3).

Just under a third of pupils (32.0 %) reported that they spent 'more than 2 hours' chatting with friends using a computing device or mobile phone on school days. These pupils achieved a mean Mathematics score (244.6) that was statistically significantly lower than that of those who spent '1-2 hours' chatting with friends (263.1, *d* = 0.4), while pupils who reported spending 'less than an hour' on this activity achieved a mean Mathematics score (271.7) that was statistically significantly higher than that of the group that did so for '1-2 hours' (263.1, *d* = 0.2).

Pupil attitudes

The school environment in the 2020/21 school year differed substantially from previous (and subsequent) school years due to the restrictions imposed by the COVID-19 pandemic. At the time, pupils were experiencing a second round of extended school closures, social distancing within classrooms, the use of pods, open windows in cold classrooms, staggered breaks, and restricted curriculum experiences, particularly in music and singing. Additionally, school events and trips were not permitted. Data presented in this section and throughout this report, should be interpreted in light of this exceptional context.

Attitudes towards school – Second class

Second class pupils were asked whether they like school (Table 3.19). About half of pupils (49.5 %) reported that they like school, while 35.2 % reported that they are not sure. No statistically significant performance difference was observed between pupils in these two categories. However, pupils who reported that they do not like school (15.3 %) achieved a mean reading score that was statistically significantly lower than that of pupils who reported liking school (*d* = 0.2). Pupils in Second class were asked the same question in NAMER 2014, when a greater proportion of pupils (57.5 %) reported that they like school, and a smaller proportion of pupils reported that they were not sure (28.3 %). A similar proportion of pupils in 2014 reported that they did not like school (14.2 %).

Table 3.19: Pupils' liking of school and mean reading scores, Second class

	%	M
Yes, I like school*	49.5	261.6
I'm not sure	35.2	265.1
No, I don't like school	15.3	**250.0**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Sense of school belonging – Sixth class

Sixth class pupils were asked to indicate their level of agreement with several statements relating to their attitudes towards school. Principal component analysis of responses to these statements indicated the presence of a single underlying construct: sense of school belonging. Pupils' sense of school belonging was

statistically significantly and positively correlated with Mathematics performance, and the correlation is weak to moderate *(r* = 0.2).

Table 3.20 presents the component statements of the scale that measures pupils' sense of school belonging. About a quarter of pupils (24.4 %) 'agreed a lot' with the statement "I like being at school". These pupils had a statistically significantly higher mean Mathematics score (272.3) than those who 'agreed a little' (260.2, *d* = 0.3), 'disagreed a little' (258.1, *d* = 0.3), or 'disagreed a lot' (238.6, *d* = 0.7). Similar and substantial proportions of pupils 'agreed a lot' that they feel safe in their classrooms (59.0 %) and in the playground (56.3 %). Those who 'agreed a lot' that they feel safe in their classrooms achieved a statistically significantly higher mean Mathematics score (265.6) than the rest of their peers ('agree a lot': *d* = 0.2; 'disagree a little': *d* = 0.5; 'disagree a lot': *d* = 0.7).

Similarly, those who 'agreed a lot' that they feel safe in the playground achieved a statistically significantly higher mean Mathematics score (266.3) than the rest of their peers ('agree a lot': *d* = 0.2; 'disagree a little': *d* = 0.5; 'disagree a lot': *d* = 0.6). Despite more than half of pupils, respectively, strongly agreeing that they feel safe in their classrooms and in the playground, approximately 10 % of the sample in each case did not agree with these statements. While this may reflect pupils' concerns related to school attendance prompted by COVID-19, as vaccines were not widely available in Spring 2021 (i.e., during NAMER 2021 data collection), these findings warrant close monitoring in future NAMER cycles and other national and international studies.

Almost half (48.9 %) of pupils 'agreed a lot' that they feel they belong at their school. The difference between these pupils' mean Mathematics score (264.7) and that of their peers who 'agreed a little' (262.9) was about two score-points and is not statistically significant. However, there is a statistically significant difference between the mean scores of pupils who 'agreed a lot' and those who 'disagreed a little' (250.0, *d* = 0.3) or 'a lot' (232.9, *d* = 0.7) with this statement, favouring those who 'agreed a lot'. Pupils were also asked to report their level of agreement with the statement "Teachers at my school are fair to me", with approximately three-fifths (58.1 %) of pupils agreeing a lot and a further 30.3 % agreeing a little. The combined percentage of pupils who 'disagreed a little' and 'disagreed a lot' with this statement was 11.5 %. Those who 'disagreed a lot' (2.3 %) had a mean Mathematics score that was statistically significantly lower than that of pupils who 'agreed a lot' (*d* = 0.5).

Table 3.20: Pupils' sense of school belonging and mean Mathematics scores, Sixth class

	Agree a lot*		Agree a little		Disagree a little		Disagree a lot	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*
I like being at school	24.4	272.3	47.8	**260.2**	18.0	**258.1**	9.8	**238.6**
I feel safe when I am in my classroom at school	59.0	265.6	31.4	**257.5**	7.5	**243.1**	2.1	**231.0**
I feel safe when I am in the playground at school	56.3	266.3	33.8	**256.9**	7.3	**243.5**	2.6	**238.3**
I feel like I belong at this school	48.9	264.7	35.3	262.9	9.9	**250.0**	5.9	**232.9**
Teachers at my school are fair to me	58.1	262.4	30.3	260.4	9.2	257.8	2.3	**239.8**
I am proud to go to this school	58.8	261.6	32.1	264.5	6.3	**249.4**	2.8	**236.9**
I have friends in school	83.0	261.8	13.9	257.6	2.2	**249.8**	0.9	**231.1**

Note. Scores in bold are statistically significantly different from the mean score of the reference (*) group.

More than half of pupils in Sixth class (58.8 %) 'agreed a lot' that they are proud to go to their school, while almost one-third (32.1 %) 'agreed a little'. Pupils who disagreed with this statement (9.1 %) achieved mean scores that are statistically significantly lower than that of pupils who 'agreed a lot' ('disagree a little': *d* = 0.3; 'disagree a lot': *d* = 0.5). The majority of pupils (83.0 %) 'agreed a lot' with the statement "I have friends in school", and a further 13.9 % of pupils 'agreed a little'. Pupils who 'agreed a lot' achieved a mean Mathematics score (261.8) that was statistically significantly higher than those of pupils who 'disagreed a little' (249.8, *d* = 0.3) or 'disagreed a lot' (231.1, *d* = 0.6).

Overall, across all seven aspects of pupils' sense of school belonging, a slight or strong disagreement was associated with lower mean Mathematics scores. All these differences were statistically significant, with the exception of one.

Attitudes towards reading – Second class

Second class pupils were asked to indicate their level of agreement with a series of statements related to their attitudes towards English reading (Table 3.21). Almost 40 % of pupils 'strongly agreed' with the statement "I like reading". These pupils statistically significantly outperformed those who 'agreed' (258.5, *d* = 0.3) and 'disagreed' (239.6, *d* = 0.7). Pupils who 'strongly agreed' with the statement "I really want to do well at reading" (60.6 %) achieved a mean reading score (263.8) that was statistically significantly higher than that of those who 'disagreed' (238.7, *d* = 0.5).

Just over half (52.1 %) of pupils 'agreed' that their teacher thinks they are good at reading, while a further 42.2 % 'strongly agreed'. Although pupils who 'agreed' achieved the highest mean score (263.4), this is not statistically significantly different from the score of those who 'strongly agreed' (261.0). Those who 'strongly agreed' with this statement performed statistically significantly higher than their peers who 'disagreed' (242.2, *d* = 0.4). Nearly three-quarters of pupils either 'strongly agreed' (35.2 %) or 'agreed' (39.6 %) that they like to tell their families about what they are reading. No statistically significant performance differences are observed in mean scores between pupils who 'agreed' or 'disagreed' with this statement. On the other hand, Second class pupils did not seem to like talking to their friends about what they are reading to a great extent, with over half of them (54.7 %) 'disagreeing' with the relevant statement. These pupils' mean reading score (259.7) was statistically significantly higher than that of those who 'strongly agreed' (251.3, *d* = 0.2).

Table 3.21: Pupils' attitudes towards reading and mean reading scores, Second class

	Strongly agree*		Agree		Disagree	
	%	*M*	*%*	*M*	*%*	*M*
I like reading	39.7	271.5	47.8	**258.5**	12.5	**239.6**
I really want to do well at reading	60.6	263.8	31.8	261.5	7.6	**238.7**
My teacher thinks I am good at reading	42.2	261.0	52.1	263.4	5.7	**242.2**
I like to tell my family about what I am reading	35.2	260.3	39.6	264.4	25.2	257.8
I like to read about things I am interested in	66.9	266.7	25.0	**256.1**	8.1	**232.1**
I like to talk to my friends about what I am reading	14.5	251.3	30.8	**268.9**	54.7	**259.7**
I am good at writing in English	51.7	263.6	40.7	262.3	7.6	**240.1**
I am good at spelling words in English	48.7	266.2	42.6	261.2	8.6	**235.0**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Most pupils (66.9 %) 'strongly agreed' that they like to read about things that they are interested in, while a further quarter of pupils 'agreed'. Those who 'agreed' (25.0 %) and 'disagreed' (8.1 %) performed statistically significantly lower than those who 'strongly agreed' (*d* = 0.2 and *d* = 0.7, respectively). Most Second class pupils seemed to perceive themselves as good at writing and spelling words in English, with more than nine out of 10 pupils 'strongly agreeing' or 'agreeing' with the relevant statements. Pupils who 'disagreed' with these statements (7.6 % and 8.6 %, respectively) achieved mean reading scores that were lower by 23.5 and 31.2 score-points, respectively, than the scores of those who 'strongly agreed', and these differences are statistically significant (*d* = 0.5 and *d* = 0.7, respectively).

There were no statistically significantly differences in the proportions of Second class pupils who indicated that they 'agreed'/'strongly agreed' with statements measuring their attitudes towards reading between 2014 and 2021 (Table 3.22). Although mean reading scores of those pupils were, for the most part, slightly lower in 2021 when compared to 2014, these are not statistically significantly different.

Table 3.22: Pupils' attitudes towards reading and mean reading scores in 2014 and 2021, Second class

	2014*		2021	
	%	*M*	*%*	*M*
I like reading	88.5	267.2	87.5	264.4
I really want to do well at reading	94.7	264.8	92.4	263.0
My teacher thinks I am good at reading	93.4	266.0	94.3	262.3
I like to tell my family about what I am reading	70.2	264.6	74.8	262.5
I like to read about things I am interested in	92.7	265.6	91.9	263.8
I like to talk to my friends about what I am reading	47.3	262.0	45.3	263.3

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. In 2014, the response options to each of these statements were 'Yes' and 'No'. In 2021, the response options were 'strongly agree', 'agree', and 'disagree'. To compare 2014 with 2021, 'strongly agree' and 'agree' were collapsed into one category called 'Yes'.

Pupils' self-rated skills in English – Second Class

Second class pupils were asked to rate their skills in reading, speaking, and writing a story in English (Table 3.23). More than half (53.7 %) of pupils rated themselves as 'very good' at English reading and these pupils' reading performance was statistically significantly higher than that of pupils who rated themselves as 'good' (251.7, *d* = 0.5) or 'needing to improve' (218.3, *d* = 1.3). Similarly, the majority of pupils (81.9 %) rated their ability to speak English as 'very good'. These pupils achieved a mean reading score that was statistically significantly higher than their peers' who rated themselves as 'good' (248.0, *d* = 0.4) or 'needing to improve' (221.4, *d* = 0.9). Over four-fifths of pupils rated themselves as 'very good' (39.7 %) or 'good' (43.3 %) at writing a story in English. Those who described themselves as 'needing to improve' (17.0 %) performed statistically significantly lower than those who rated themselves as 'very good' (*d* = 0.3). Fewer pupils rated themselves as being 'very good' at writing a story in English (39.7 %) than reading or speaking English (53.7 % and 81.9 %, respectively).

Table 3.23: Pupils' self-rated skills in English and mean reading scores, Second class

	Very good*		Good		Need to improve	
	%	*M*	*%*	*M*	*%*	*M*
English reading	53.7	274.4	39.9	**251.7**	6.4	**218.3**
Speaking English	81.9	265.4	14.7	**248.0**	3.4	**221.4**
Writing a story in English	39.7	265.5	43.3	263.1	17.0	**248.8**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Mathematics confidence – Sixth class

Sixth class pupils were asked to indicate their level of agreement with several statements relating to Mathematics. Principal component analysis of responses to these statements indicated the presence of a single underlying construct: Mathematics confidence. Pupils' Mathematics confidence was statistically significant and positively correlated with Mathematics performance, and the correlation is strong (r = 0.6).

Table 3.24 presents the component statements of the scale that measures pupils' Mathematics confidence. Statistically significant differences in performance are observed across all of the component statements related to Mathematics confidence. Pupils who indicated higher levels of confidence in Mathematics tended to score higher than pupils who indicated lower levels of confidence. The performance differences between the highest and lowest confidence groups are substantial, ranging from 41.9 score-points for the statement "I worry that I will get poor marks in Maths" to 85.2 score-points for "I get good marks in Maths", with differences exceeding 60 score-points for most statements.

Table 3.24: Pupils' Mathematics confidence and mean Mathematics scores, Sixth class

	Strongly agree		Agree*		Disagree		Strongly disagree	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*
I worry that I will find Maths class hard	20.6	**232.8**	34.6	251.2	34.0	277.7	10.8	**290.9**
I am not very good at Maths	10.7	**218.0**	23.6	233.5	48.1	**273.0**	17.5	**290.1**
I get worried when I have to do Maths homework	7.4	**219.1**	12.0	231.8	54.8	**262.9**	25.8	**281.5**
I get good marks in Maths	15.8	**294.7**	63.0	265.4	17.4	**224.5**	3.9	**209.5**
I learn Maths quickly	16.3	**294.2**	45.5	273.5	30.0	**236.3**	8.2	**214.2**
Maths is one of my best subjects	21.3	**290.4**	33.4	275.7	27.7	**244.6**	17.7	**221.9**
In my Maths class, I understand even the hardest problems	8.4	**293.5**	30.5	283.5	43.2	**253.0**	17.9	**225.2**
I worry that I will get poor marks in Maths	15.2	**240.0**	33.1	249.3	39.2	**271.6**	12.5	**281.9**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Use of digital devices at school and at home

Use of computer devices at school

Second and Sixth class pupils were asked to indicate the frequency with which they used computing devices (such as a computer, laptop, tablet, or phone) for various activities at school (Tables 3.25 and 3.26).

Substantial proportions of Second class pupils, ranging from 38.1 % to 87.2 %, reported that they 'hardly ever or never' used computing devices for a wide range of activities at school (Table 3.25). The activities for which pupils reported more frequent use of computing devices were to play games to learn things, find information on the Internet, and practise Mathematics. Notably, pupils who used computing devices to engage in various activities 'most days' achieved statistically significantly lower mean reading scores compared to their peers who used them less frequently ('some days' or 'hardly ever or never'), with effect sizes ranging from d = 0.2 to d = 0.6.

Table 3.25: Frequency of engaging in specific activities at school using computing devices and mean reading scores, Second class

	Most days		Some days		Hardly ever or never*	
	%	*M*	*%*	*M*	*%*	*M*
Find information on the Internet	12.3	**248.3**	42.1	261.9	45.6	264.4
Read an e-book (e.g., read a book on a tablet)	6.0	**242.4**	25.4	256.3	68.6	264.6
Practise your Maths on a device	10.0	**242.6**	42.1	265.0	47.9	261.9
Do some writing or spelling on a device	6.7	**239.6**	25.7	260.5	67.6	264.1
Work with a partner, or in a small group on a device	9.1	**246.1**	36.2	261.1	54.7	264.6
Take a quiz or test on a device	7.9	**246.2**	29.8	260.6	62.3	263.8
Do art/drawing on a device	6.9	**239.0**	25.3	260.4	67.8	264.3
Meet with children in another school online	3.3	**239.0**	9.5	255.4	87.2	263.4
Play games on a device to learn things	13.1	**244.8**	48.8	**267.9**	38.1	258.2
Make and run robots (e.g., Lego)	5.3	**242.2**	18.0	257.0	76.6	263.7

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

The most performed activity among Sixth class pupils using digital devices at school was finding information on the Internet (Table 3.26). Approximately 72.4 % of pupils engaged in this activity 'once or twice a week' or 'a few times a month'. Substantial proportions of Sixth class pupils, ranging from 33.0 % to 44.4 %, reported using digital devices in school 'at least a few times a month' to practise Mathematics, take a quiz or test, solve Mathematics problems, work on a project with other children in their class, and play games to learn things or for fun. On the other hand, relatively small proportions of pupils, ranging from 4.0 % to 19.9 %, reported using digital devices in school 'at least a few times a month' to read an e-book, do art/drawing/design, meet with children in another school online, do coding, and build a robot (e.g., Lego Robots). For the most part, reflecting patterns observed at Second class, Sixth class pupils who used computing devices to engage in various activities more frequently tended to achieve statistically

significantly lower mean Mathematics scores compared to their peers who used them less frequently, with effect sizes ranging from *d* = 0.2 to *d* = 1.0.

Table 3.26: Frequency of engaging in specific activities at school using computing devices and mean Mathematics scores, Sixth class

	Once or twice a week		A few times a month		Once or twice a year		Hardly ever*	
	%	*M*	*%*	*M*	*%*	*M*	*%*	*M*
Find information on the Internet	33.7	256.3	38.7	262.8	11.2	**270.5**	16.4	258.0
Read an e-book	3.6	-	6.2	-	7.8	-	82.4	-
Practise your Maths (on a device)	8.9	**240.4**	24.6	260.8	19.6	268.9	47.0	261.3
Take a quiz or test (on a device)	12.7	255.1	23.8	261.3	23.0	**269.8**	40.5	257.2
Solve Maths problems (on a device)	8.7	**248.2**	24.3	259.1	15.7	266.7	51.3	261.9
Practise spelling or writing (on a device)	8.8	-	19.5	-	15.3	-	56.5	-
Write a story (using software)	6.2	-	21.0	-	24.8	-	48.0	-
Work on a project with other children in your class (using a device)	6.3	245.2	30.3	255.7	32.4	**271.2**	31.0	258.1
Do art/drawing/design on a device	8.4	**236.0**	11.5	**248.3**	14.7	264.4	65.3	265.6
Meet with children in another school online	7.2	**244.7**	6.8	**251.6**	8.3	261.5	77.6	263.1
Play games on a device to learn things	12.2	**242.8**	22.7	260.6	25.1	266.3	40.0	263.4
Play games on a device for fun	29.0	**248.9**	15.4	259.3	12.9	268.6	42.7	267.3
Do coding on a device	3.4	**244.6**	10.6	266.8	18.5	262.2	67.5	260.5
Build a robot linked to a device (e.g., Lego Robots)	1.3	**217.7**	2.7	**239.9**	15.8	261.8	80.2	262.2
Use a digital camera	12.6	**249.2**	12.9	258.3	13.4	263.1	61.1	263.3
Use a video camera	12.6	**249.1**	13.6	**254.5**	13.5	265.2	60.3	263.7
Make a presentation (e.g., with PowerPoint)	5.0	255.5	23.5	259.4	31.4	**270.4**	40.2	255.1

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean Mathematics scores of Sixth class pupils based on the frequency of reading an e-book, practising spelling, or writing, and writing a story are not provided, as these activities are not directly related to Mathematics.

Use of mobile phones at home – Second class

Table 3.27 presents data on the frequency of mobile phone usage among Second class pupils for various activities at home. Substantial proportions of pupils, ranging from 46.4 % to 73.4 %, engaged in these activities 'most' or 'some days'. Pupils tended to use a mobile phone more frequently for playing games alone or with others, speaking with friends, and accessing schoolwork from their teacher. Pupils who 'hardly ever or never' engaged in these activities using a mobile phone performed statistically significantly better than their peers who did so 'most days' (effect sizes ranging from *d* = 0.2 to *d* = 0.4), while, in most cases, the former group of pupils also outperformed, though non-significantly, their peers who engaged in these activities 'some days'.

Table 3.27: Frequency of completing specific activities at home using a mobile phone and mean reading scores, Second class

	Most days		Some days		Hardly ever or never*	
	%	M	%	M	%	M
Surf the Internet for fun	23.2	**248.1**	31.5	262.4	45.3	267.8
Read and send messages to friends	20.3	**251.8**	26.1	261.0	53.6	265.4
Play games alone or with others	37.5	**254.7**	35.9	263.5	26.6	267.9
Find information on the Internet	17.8	**249.4**	42.6	**269.2**	39.6	259.2
Speak with friends	32.5	**253.3**	32.2	268.2	35.3	262.9
Get schoolwork from your teacher	34.1	**253.2**	32.5	264.6	33.3	267.4
Do schoolwork	30.9	**253.1**	25.1	264.7	44.0	265.9

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Family rules for digital device usage – Sixth class

Sixth class pupils were asked to indicate the extent to which they agreed with statements about rules in their family for using digital devices, such as computers, tablets, and phones (Table 3.28).

Table 3.28: Family rules for digital device usage, Sixth class

	Strongly agree		Agree		Disagree		Strongly disagree*	
	%	M	%	M	%	M	%	M
There are no rules. I can do what I like	5.6	**241.1**	19.0	257.9	48.3	262.5	27.1	264.4
My parents limit how much time I can spend on digital devices	15.6	**272.9**	48.2	**266.2**	25.3	**252.3**	10.9	242.0
I am allowed to play any computer games I like	14.5	**246.3**	29.3	257.6	39.2	**267.6**	17.0	263.8
My parents only allow me to play certain games	13.7	**262.4**	42.6	**266.8**	30.0	**257.9**	13.7	248.0
My parents know a lot about my online activities	23.3	**257.8**	51.7	**265.6**	19.2	**258.2**	5.9	240.4
I only use digital devices for schoolwork	2.1	**237.6**	7.1	**236.4**	39.1	262.6	51.7	264.0

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Most Sixth class pupils indicated that there were rules around the use of digital devices in their family, with only 24.6 % indicating that there were no rules and that they could do what they liked. Pupils who 'strongly agreed' that there were no rules in their family around the use of digital devices achieved a statistically significantly lower mean Mathematics score (241.1) than pupils who 'strongly disagreed' (264.4, d = 0.5). Similarly, 63.8 % of pupils 'strongly agreed' or 'agreed' that their parents would limit the amount of time they could spend on digital devices. Pupils who 'strongly disagreed' with this statement achieved a statistically significantly lower mean Mathematics score (242.0) than pupils who 'strongly agreed' (272.9, d = 0.6), 'agreed'(266.2, d = 0.5), and 'disagreed' (252.3, d = 0.2).

More than four out of 10 Sixth class pupils (43.8 %) reported that that their parents allowed them to play any computer games they liked. Pupils who 'strongly agreed' with this statement achieved a statistical significantly lower mean score (246.3) than pupils who 'strongly disagreed' (263.8, *d* = 0.4). Equal proportions of pupils (13.7 %) 'strongly agreed' and 'strongly disagreed' with the statement "My parents only allow me to play certain games". Pupils who 'strongly disagreed' with this statement achieved a statistically significantly lower mean Mathematics score than the rest of their peers ('strongly agree': *d* = 0.3; 'agree': *d* = 0.4; 'disagree': *d* = 0.2).

Although most Sixth class pupils indicated that their parents knew a lot about their online activities (23.3 % 'strongly agree' and 51.7 % 'agree'), there was a substantial proportion (25.1 %) who indicated that their parents did not. Pupils who 'strongly disagreed' with the relevant statement achieved a statistically significantly lower mean Mathematics score than the rest of their peers ('strongly agree': *d* = 0.3; 'agree': *d* = 0.5; 'disagree': *d* = 0.4).

Only 2.1 % of pupils 'strongly agreed' and 7.1 % agreed that they only used digital devices for schoolwork. These pupils achieved mean Mathematics scores (237.6 and 236.4, respectively) that were statistically significantly lower than that of pupils who 'strongly disagreed' (264.0) with the relevant statement ('strongly agree': *d* = 0.5; 'agree': *d* = 0.6).

Use of digital devices during COVID-19 school closures

To acknowledge and try to measure the disruption to schooling caused by the COVID-19 pandemic, a small number of questions were added to the NAMER pupil questionnaire in 2021. Pupils in Second and Sixth classes were asked to indicate the frequency with which they used computers/laptops, tablets, mobile phones, or the TV for schoolwork when they could not go to school due to COVID-19 (Table 3.29).

Sixth class pupils were more likely than Second class pupils to use a computer or laptop for schoolwork 'most days' during COVID-19 school closures (53.0 % vs 38.4 %). Although there were no statistically significant differences in performance based on the frequency with which pupils used a computer or laptop for schoolwork during COVID-19 school closures across both grade levels, Sixth class pupils who 'hardly ever or never' did so achieved a lower mean Mathematics score (257.0) than the rest of their peers.

Approximately four out of 10 (37.5 %) Second class pupils reported that they 'hardly ever or never' used a tablet for schoolwork during COVID-19 school closures. These pupils achieved a statistically significantly lower mean reading score (256.5) than pupils who used a tablet 'most days' (266.5, *d* = 0.2). At Sixth class, there were no statistically significant differences in performance based on the frequency with which pupils used a tablet for schoolwork during COVID-19 school closures.

Table 3.29: Use of digital devices during COVID-19 school closures and mean achievement scores, by grade level

	Second class – English reading						Sixth class – Mathematics					
	Most days*		Some days		Hardly ever or never		Most days*		Some days		Hardly ever or never	
	%	M	%	M	%	M	%	M	%	M	%	M
Computer or laptop	38.4	261.4	23.8	260.8	37.8	261.7	53.0	262.8	22.6	263.6	24.4	257.0
Tablet	41.6	266.5	20.9	260.4	37.5	**256.5**	37.6	263.2	20.0	262.6	42.4	260.2
Mobile phone	28.3	258.0	26.5	259.2	45.2	**264.5**	50.9	257.0	25.8	**263.5**	23.3	**266.6**
TV (e.g., Home School Hub, Cúla 4)	23.3	262.6	30.9	265.7	45.8	258.2	9.2	247.0	19.9	**263.6**	70.9	**263.6**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Second and Sixth class pupils who 'hardly ever or never' used mobile phones for schoolwork during COVID-19 school closures achieved statistically significantly higher mean reading (264.5) and Mathematics scores (266.6) than their peers who used mobile phones for schoolwork 'most days' (Second class: d = 0.1; Sixth class: d = 0.2). Sixth class pupils who reported using mobile phones for schoolwork 'some days' during COVID-19 school closures also achieved a statistically significantly higher mean Mathematics score (263.5) than those who did so 'most days' (266.6, d = 0.1). Finally, Second class pupils were more likely than Sixth class pupils to use the TV (e.g., Home School Hub, Cúla 4) for schoolwork during COVID-19 school closures. Although no statistically significant differences in performance were observed among Second class pupils based on the frequency with which they used the TV for schoolwork during COVID-19 school closures, Sixth class pupils who used the TV for schoolwork during COVID-19 school closures 'most days' achieved a statistically significantly lower mean Mathematics score (247.0) compared to their peers who did so 'some days' (263.6, d = 0.4) or 'hardly ever or never' (263.6, d = 0.3).

CHAPTER 4
Teacher and Classroom Factors

This chapter examines teacher and classroom characteristics relevant to the teaching and learning of English and Mathematics. It is based on responses to the teacher questionnaires as part of NAMER 2021, which were completed by classroom teachers of the participating Second and Sixth class pupils. The questionnaires for both Second and Sixth class teachers began with a section on teacher background, including elements such as teaching experience, qualifications, involvement in Teacher Professional Learning (TPL), class sizes, and teaching time allocations. This was followed by questions about the teaching and assessment of English and Mathematics, including teaching activities and approaches in the classroom, particular reading and Mathematics initiatives implemented, and the use of digital tools for various purposes.

Where appropriate, this chapter outlines the associations between teacher and classroom factors and achievement in English reading and Mathematics. As described in Chapter 1, NAMER 2021 collected achievement data for English reading only at Second class and Mathematics only at Sixth class. Therefore, where presented, the findings in this chapter focus on the relationships between achievement in English reading and the relevant questionnaire responses from teachers of Second class, and Mathematics achievement and the responses relating to Mathematics provided by teachers of Sixth class.

Background on teachers and classes

Teacher gender, work status, and teaching experience

At Second class, the vast majority of pupils (86.7 %) were taught by female teachers, with 13.3 % being taught by male teachers (Table 4.1). At Sixth class, teacher gender was more balanced with 57.7 % of pupils being taught by female teachers and 42.3 % taught by male teachers. At both grade levels, the percentage of pupils taught by male teachers is higher than reported in NAMER 2014, when the corresponding proportions were 9.3 % for Second class pupils and 31.9 % for Sixth class pupils (Kavanagh et al., 2015). There was no association between teacher gender and pupils' achievement in either reading or Mathematics in 2021 (Table 4.1).

Table 4.1: Percentages of pupils with female and male teachers and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Female*	86.7	260.7	57.7	261.0
Male	13.3	262.8	42.3	260.1

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

At Second class, 77.9 % of pupils were taught by teachers with permanent status, while 15.6 % were taught by teachers with temporary status (Table 4.2). The remainder (6.5 %) were taught by substitute teachers. In NAMER 2014, a slightly higher proportion of pupils (82.4 %) were taught by permanent teachers and a slightly lower proportion (12.4 %) were taught by temporary teachers (Kavanagh et al., 2015).

Compared with Second class, it was more common for pupils in Sixth class in 2021 to be taught by teachers with permanent status (85.8 %), but again, this proportion was smaller than in 2014 (91.1 %) (Kavanagh et al., 2015). In 2021, 7.8 % of Sixth class pupils were taught by teachers with temporary status, and the remaining 6.4 % were taught by substitute teachers. In 2014, less than 5 % of Sixth class pupils were taught

by teachers in each of these categories (Kavanagh et al., 2015). There were no statistically significant associations between teacher status and performance in either Second class English reading or Sixth class Mathematics, although pupils of teachers with permanent status had higher mean scores at both grade levels than pupils of teachers in the other two categories.

Table 4.2: Percentages of pupils with permanent, temporary, and substitute teachers and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Permanent*	77.9	262.4	85.8	261.1
Temporary	15.6	256.3	7.8	257.8
Substitute	6.5	254.9	6.4	256.6

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

At Second class, 29.4 % of pupils were taught by teachers with up to five years' experience, while 13.4 % were taught by teachers with more than 20 years' experience (Table 4.3). At Sixth class, one in five pupils were taught by teachers with five years' experience or less. A similar percentage (20.7 %) were taught by teachers with more than 20 years' experience. In 2021, Second class and Sixth class pupils were taught by teachers with an average of 11.8 and 13.5 years' teaching experience, respectively. These figures are consistent with the corresponding averages in 2014 (12.2 and 13.1 years, respectively; Kavanagh et al., 2015).

In most cases, there was no statistically significant association between teaching experience and pupil performance. However, at Second class, pupils with teachers who had more than 20 years' experience achieved a mean reading score (271.6) that is statistically significantly higher (by 15 score-points) than that of pupils who were taught by teachers with up to five years' experience (256.5, d = 0.3). A statistically significant difference was found between the same two groups for Sixth class Mathematics in 2014. The authors noted that that finding should be interpreted cautiously as there may be confounding variables (Kavanagh et al., 2015) and the same caveat applies here.

Table 4.3: Percentages of pupils by teachers' years of teaching experience and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
5 years or less*	29.4	256.5	19.6	256.1
6-10 years	18.9	264.3	22.8	264.1
11-15 years	20.2	252.0	22.2	256.1
16-20 years	18.1	267.2	14.7	259.2
More than 20 years	13.4	**271.6**	20.7	267.0

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Qualifications and additional responsibilities

Teachers at both grade levels were asked if they had studied Mathematics as a specialist subject in their degree or equivalent qualification (they were asked not to include Mathematics Education) (Table 4.4). More than one out of 10 Second class pupils (11.6 %) were taught by teachers who indicated that they had studied Mathematics as a specialist subject in their degree or equivalent qualification, while the proportion was slightly higher at Sixth class, at 13.9 %. There was no statistically significant difference in the mean Mathematics scores of Sixth class pupils based on whether their teacher had studied Mathematics in a degree course or not.

Table 4.4: Percentages of pupils taught by teachers who studied Mathematics in a degree course, by grade level, and mean Mathematics scores

	Second class		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	11.6	-	13.9	265.3
No	88.4	-	86.1	259.6

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean reading scores of Second class pupils based on whether their teachers had studied Mathematics in a degree course are not provided, as this teacher characteristic is not directly related to English reading.

Teachers at both grade levels were asked about additional qualifications they had achieved that related to their work (Table 4.5). The responses were analysed by the highest qualification indicated by the teacher. For example, if they reported having a Certificate or Diploma and a Master's degree, they were allocated to the Master's/PhD group. Fifty percent of Second class pupils and 54.2 % of Sixth class pupils were taught by teachers who indicated that they had no additional qualifications relating to their work as a teacher. Approximately one-quarter (23.3 %) of Second class pupils and 31.2 % of Sixth class pupils were taught by teachers who reported having a Certificate or Diploma. Slightly more than one-quarter of Second class pupils (26.7 %) were taught by teachers who indicated that they had a Master's or a PhD/EdD, while the corresponding proportion at Sixth class was smaller, at 14.5 %, but it should be noted that no Sixth class pupils were taught by teachers who had a PhD. The proportions of pupils taught by teachers with advanced degrees have increased at both Second and Sixth class since 2014, when approximately 12 % of pupils at both grade levels were taught by a teacher with either a Master's or PhD (Kavanagh et al., 2015).

Table 4.5: Percentages of pupils taught by teachers with additional qualifications and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
None*	50.0	265.7	54.2	260.6
Cert/Diploma	23.3	259.7	31.2	261.8
Master's/PhD	26.7	**253.3**	14.5	257.8

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

For the most part, there were no associations between these additional qualifications and pupil performance on English reading or Mathematics. However, at Second class, pupils of teachers with a Master's or PhD achieved a mean reading score (253.3) that was statistically significantly lower (by 12 score-points) than that of pupils whose teacher had no additional qualifications (265.7, d = 0.3).

Teachers at both grade levels were asked whether they had additional responsibility for English or Mathematics in their school, including voluntary duties or a promoted post (Tables 4.6 and 4.7). Less than five percent of Second class pupils (4.3 %) were taught by teachers with additional responsibility for English, while almost one in five pupils (19.2 %) in Sixth class were in this category (Table 4.6). There was no statistically significant association between teachers holding such a position for English and pupils' reading performance.

Table 4.6: Percentages of pupils taught by teachers with additional responsibility for English, by grade level, and mean reading scores

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	4.3	270.8	19.2	-
No	95.7	260.6	80.8	-

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean Mathematics scores of Sixth class pupils based on whether their teachers had additional responsibility for English in their school are not provided, as this teacher characteristic is not directly related to Mathematics

For Mathematics, again, less than five percent of Second class pupils (4.7 %) were taught by teachers with additional responsibility (Table 4.7). Almost 16 % of Sixth class pupils were taught by teachers with additional responsibility for Mathematics. As with reading, there was no statistically significant association between this variable and pupils' Mathematics performance.

Table 4.7: Percentages of pupils taught by teachers with additional responsibility for Mathematics, by grade level, and mean Mathematics scores

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	4.7	-	15.8	263.9
No	95.3	-	84.2	259.8

Notes. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group. Mean reading scores of Second class pupils based on whether their teachers had additional responsibility for Mathematics in their school are not provided, as this teacher characteristic is not directly related to English reading.

Teacher Professional Learning (TPL)/Continuing Professional Development (CPD)

Teachers at both grade levels were asked about the types of TPL they had attended in the two years preceding NAMER 2021. A wide range of activities were included, focused on English and Mathematics, and teachers were asked not to include undergraduate or postgraduate courses.

Table 4.8 shows the responses from teachers of Second class regarding TPL relating to English. More than one-third of Second class pupils (34.3 %) were taught by teachers who had attended no external TPL on the teaching and learning of English. About 41.0 % of pupils were taught by teachers who had attended external TPL for English for between one and four days. It is worth noting here that the Primary Language Curriculum (PLC) was introduced on a phased basis from September 2016 for Junior Infants to Second class,

with the full specification for all classes following in 2019. Therefore, the period asked about in the questionnaire covers a time when schools would have been focusing on TPL related specifically to the PLC and perhaps, as a result, English more generally. Large proportions of Second class pupils were taught by teachers who had attended no in-school TPL either outside or inside Croke Park Agreement (CPA) hours (42.5 % and 31.5 %, respectively). However, attendance at TPL was slightly more common inside, rather than outside, CPA hours.

As might be expected, substantial proportions of Second class pupils were taught by teachers who had attended online TPL related to English for one to four days (23.9 %) and five to eight days (34.9 %). Given the extended school closure caused by COVID-19, questions were asked about the attendance at TPL in distance learning. It is noteworthy that more than half of Second class teachers (51.0 %) had attended no training in distance learning, including elements such as blended learning and remote teaching. However, one in five pupils (20.5 %) were taught by teachers who had attended TPL on this topic for between one and four days.

Table 4.8: Percentages of pupils with teachers attending various types of TPL for English, Second class

	None	Half day	1-4 days	5-8 days	9-14 days	15+ days
	%	%	%	%	%	%
External on teaching & learning	34.3	8.9	41.0	14.0	1.7	0.1
In-school (outside CPA hours)	42.5	22.5	30.0	3.7	1.3	0.1
In-school (inside CPA hours)	31.5	27.0	33.3	5.0	2.4	0.7
Planning activities	9.6	27.0	44.3	6.2	6.1	6.8
Online	27.0	5.1	23.9	34.9	6.5	2.6
Self-directed reading/study	34.8	21.7	35.1	3.6	1.1	3.7
Training in distance learning	51.0	26.4	20.5	1.5	0.0	0.6

Sixth class teachers were asked the same set of questions and Table 4.9 summarises the responses related to TPL for Mathematics. External TPL for the teaching and learning of Mathematics among Sixth class teachers was far less common than for English at Second class, with nearly three-fifths of pupils (58.1 %) being taught by teachers who had not attended such TPL in the two years before NAMER 2021. This might be partly explained by the timing of the questionnaire administration in relation to the PLC, as noted above. As at Second class, attendance at TPL was more common inside CPA hours than outside. Responses regarding TPL for distance learning for Mathematics were broadly similar to those for English at Second class, with over half of pupils (53.7 %) taught by teachers who attended no TPL on this topic. One-quarter of pupils were taught by teachers who spent a half day on TPL on distance learning, while 16.0 % were taught by teachers who had attended this type of TPL for one to four days.

Table 4.9: Percentages of pupils with teachers attending various types of TPL for Mathematics, Sixth class

	None	Half day	1-4 days	5-8 days	9-14 days	15+ days
	%	%	%	%	%	%
External on teaching & learning	58.1	15.5	19.5	4.6	2.2	0.0
In-school (outside CPA hours)	57.2	22.7	19.9	0.1	0.1	0.0
In-school (inside CPA hours)	35.7	33.6	23.5	6.3	0.2	0.7
Planning activities	16.8	29.0	34.0	12.2	2.6	5.3
Online	50.3	4.6	22.8	17.4	4.5	0.4
Self-directed study	41.4	20.1	30.3	5.2	2.0	1.0
Training in distance learning	53.7	24.7	16.0	3.4	0.0	2.2

In order to analyse the relationships between teacher TPL attendance and pupil performance, the responses for each of the seven types of TPL in the questionnaires were collapsed into two categories: no attendance and any attendance (from half a day upward). There were no associations between pupil performance and teacher attendance at any of the types of TPL for the relevant subject (English reading for Second class and Mathematics for Sixth). These findings are consistent with those in NAMER 2014 (Kavanagh et al., 2015).

Class levels taught and class size

Most pupils in both Second and Sixth class in NAMER 2021 were taught in single grade classrooms (70.1 % at Second class and 76.2 % at Sixth class) (Table 4.10). Four percent of Second class pupils and 1.7 % of Sixth class pupils were taught by teachers responsible for four grade levels. There were no statistically significant associations between the number of grade levels taught in a pupil's classroom and mean achievement scores in either English reading or Mathematics.

Table 4.10: Percentages of pupils with teachers responsible for various grade levels and mean achievement scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
One*	70.1	262.3	76.2	259.0
Two	18.4	262.4	15.9	264.2
Three	7.6	242.5	6.2	268.8
Four	3.8	267.2	1.7	263.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

The mean number of pupils in single-grade Second classes was 24.8, while, at Sixth class, the mean number for single-grade classes was 26.2 (Table 4.11). On average, multi-grade classes were slightly larger at Second class (26.0) but marginally smaller at Sixth class (25.4). These small differences in class size were not statistically significant. In NAMER 2014, the average overall class size was 25.3 for Second class and 25.8 for Sixth class (Kavanagh et al., 2015). This indicates that average class sizes are consistent with those reported in the last cycle of NAMER. In addition, there was no association between class size and performance on either Second class reading or Sixth class Mathematics.

Table 4.11: Percentages of pupils in single- and multi-grade classes and mean class size, by grade level

	Second class		Sixth class	
	%	*Class size*	*%*	*Class size*
Single-grade class*	70.0	24.8	75.9	26.2
Multi-grade class	30.0	26.0	24.1	25.4
Total	100.0	25.2	100.0	26.0

Note. Scores in **bold** are statistically significantly different from the percentage/mean of the reference (*) group. The class sizes for multi-grade classes include all pupils in the classroom, not just the pupils in the target grade levels for NAMER.

Teaching time allocated to English and Mathematics

Teachers were asked how much time per week (in minutes) they allocated to the teaching of English and Mathematics, excluding cross-curricular teaching (Table 4.12). Teachers of Second class reported allocating an average of 294.8 minutes per week to the teaching of English. This is very similar to the equivalent figure of 294.3 minutes reported by Second class teachers in NAMER 2014.[19]

Table 4.12: Average time allocated to the teaching of English in Second class and Mathematics in Sixth class

	Second class – English reading	Sixth class – Mathematics
Minutes per week	294.8	299.3
Minimum	150.0	180.0
Maximum	600.0	500.0

Teachers of Sixth class reported spending an average of 299.3 minutes per week to the teaching of Mathematics, excluding cross-curricular teaching. This represents an increase of 16.1 minutes since 2014, when Sixth class teachers reported allocating an average of 283.2 minutes to Mathematics during the subject class (Kavanagh et al., 2015), indicating that the gains in instructional time found in 2014, in line with the Literacy and Numeracy Strategy, have increased, on average.

Teaching and assessing English and Mathematics

This section describes the teaching and assessment practices in the classrooms of Second and Sixth class pupils, as reported by their teachers in 2021. It should be noted here that these data were collected soon after schools had reopened after closures due to the COVID-19 pandemic. As a result, it cannot be determined whether teachers reported what they would usually do in the classroom before school closures or what they did in the period immediately before the survey was administered. The latter period would have included school closures and remote teaching.

[19] In NAMER 2014, teachers were asked to indicate how many minutes they allocated to teaching English during subject class time and, separately, how many minutes were allocated to teaching English across the curriculum. The same approach was taken for Sixth class Mathematics. Comparisons here are made with reports of the time allocated during the subject class.

Teaching practices in Second class English lessons

Teachers of Second class pupils were asked to indicate the frequency with which they engaged in a range of instructional practices in English lessons (Table 4.13). A large majority of Second class pupils were taught by teachers who focused on specific aspects of reading at least weekly. For example, more than 90% of pupils were in classrooms where phonological or phonemic awareness, and the basic rules and processes of phonics, were taught at least weekly. More than half of pupils were taught by teachers who covered basic comprehension skills (52.5%) and strategies to improve reading fluency (55.0%) in 'most or all lessons'. Notably, the teaching of digital comprehension skills was far less common, with almost four-in-ten pupils (39.5%) in classrooms where this occurred either 'rarely or never'.

Oral language was a key feature of English lessons, with most pupils taught by teachers who worked on developing children's receptive and expressive oral language skills 'at least weekly' (89.9% and 93.2%, respectively). In terms of the development of writing skills, the responses varied according to text type. Approximately half of pupils (50.5%) were taught by teachers who engaged children in writing narrative texts 'at least weekly'; this figure fell to just over a quarter (25.7%) for informational texts or reports. Similarly, less than a third of pupils (31.3%) were in classrooms where they engaged in reading or writing poetry 'at least weekly'. Engaging children in dramatising stories in English lessons was also among the least common teaching practices, with fewer than one in five pupils (19.0%) taught by teachers who reported that this took place 'at least weekly'.

Table 4.13: Percentages of pupils by frequency of selected instructional practices in English lessons, Second class

	Most or all lessons	Once or twice a week	Once or twice a month	Rarely or never
	%	%	%	%
Teach phonological/phonemic awareness	37.3	56.7	6.0	0.0
Teach sight word recognition	38.2	43.6	12.3	5.9
Teach basic phonics rules and processes	34.1	59.4	5.6	1.0
Teach strategies to improve reading fluency	55.0	38.1	5.4	1.5
Teach word structure	23.3	45.4	29.4	2.0
Listen to oral reading	69.5	28.9	1.6	0.0
Teach basic reading comprehension skills	52.5	44.3	2.7	0.5
Teach higher-order reading comprehension skills	30.1	48.8	18.9	2.2
Teach digital comprehension skills	3.0	24.3	33.2	39.5
Teach academic language	18.8	44.1	30.5	6.7
Engage children in writing narrative texts	4.5	46.0	46.1	3.4
Engage children in writing informational texts/reports	1.7	24.0	70.4	3.9
Develop children's receptive oral language skills	39.1	50.8	9.1	0.9
Develop children's expressive oral language skills	39.0	54.2	6.0	0.8
Involve children in reading or writing poetry	4.5	26.8	64.5	4.2
Engage children in the writing process	8.3	48.5	41.1	2.1
Teach important elements of grammar	17.7	66.6	14.7	1.0
Engage children in dramatizing stories	0.3	18.7	65.1	15.9

Teaching practices in Sixth class Mathematics lessons

Teachers of Sixth class pupils were asked about the frequency with which they engaged in a range of instructional practices in Mathematics lessons (Table 4.14). The most commonly reported practice was engaging pupils in implementing mathematical procedures; more than three-quarters of pupils (75.7 %) were in classrooms where this occurred in 'most or all lessons'. A further 20.1 % of pupils were taught by teachers who reported engaging in this practice 'once or twice a week'. However, the other listed teaching activities were also commonplace in Sixth class Mathematics lessons. For example, about nine in 10 pupils were taught by teachers who taught strategies for problem solving and encouraged pupils to use multiple strategies for solving the same problem 'at least weekly' (89.0 % and 90.3 %, respectively). Teaching and reviewing mathematical vocabulary was also commonly covered in most pupils' Mathematics lessons, with 88.1 % of pupils taught by teachers who reported engaging in this 'at least weekly'.

Table 4.14: Percentages of pupils by frequency of selected instructional practices in Mathematics lessons, Sixth class

	Most or all lessons	Once or twice a week	Once or twice a month	Rarely or never
	%	%	%	%
Teach strategies for mathematical problem solving	53.8	35.2	11.0	0.0
Teach or review mathematical vocabulary	51.7	36.4	11.4	0.5
Engage pupils in implementing mathematical procedures	75.7	20.1	3.8	0.5
Engage pupils in describing their strategies for solving problems	67.0	26.8	4.8	1.3
Encourage pupils to use multiple strategies for solving the same problem	60.5	29.8	7.1	2.6

Reading/language and Mathematics initiatives in the classroom

Teachers of Second class pupils were asked about the frequency with which they implemented selected reading and language initiatives in their classrooms (Table 4.15). This question specifically asked about the current school year and, as a result, the findings need to be interpreted in light of the school closures and remote teaching that took place in the school year 2020/21.

Table 4.15: Percentages of pupils by frequency of implementing selected reading/language initiatives in the classroom, Second class

	At least weekly	At least monthly	Once a term	Once or twice a year	Never
	%	%	%	%	%
Paired/shared reading (parent/adult volunteer)	31.4	2.5	1.4	4.5	60.2
Peer tutoring/reading (another pupil)	17.7	18.7	7.7	5.9	50.0
Paired reading (teaching staff)	36.8	12.3	5.0	8.1	37.8
Paired writing	17.5	24.6	17.0	11.0	29.9
First Steps Reading	9.0	12.7	2.5	3.6	72.1
First Steps Writing	14.1	15.5	2.8	3.5	64.0
First Steps Oral Language	10.2	11.2	2.5	4.3	71.8
Reading/Literacy Stations	30.5	13.4	8.6	11.3	36.2
Power Hour	12.0	5.0	5.2	7.8	69.9
Guided Reading	61.4	14.7	5.1	2.9	16.0
DEAR (Drop Everything and Read)	70.2	18.6	3.1	2.2	5.9
Literacy Lift-Off	14.6	5.3	3.7	4.7	71.7
Jolly Phonics	60.7	12.3	0.4	0.8	25.8
Write to Read	4.5	4.5	3.1	2.5	85.4
Other	56.7	1.4	7.4	0.0	34.5

In particular, the frequency of the implementation of paired/shared reading with a parent or adult volunteer is likely to have been affected by the circumstances over that period of time, with 60.2 % of teachers indicating that this initiative had 'never' been implemented in their classroom in the current school year. In NAMER 2014, paired reading was one of the most commonly used initiatives, with just over half of Second class pupils attending classrooms where this was implemented 'at least weekly' (Kavanagh et al., 2015). However, in 2014, no distinction was made in the questionnaire between paired reading with an external adult volunteer or a member of the teaching staff, and peer tutoring/reading was not asked about. Therefore, direct comparisons cannot be drawn on this topic. However, the frequency of these particular initiatives was likely substantially affected by the circumstances leading up to the administration of NAMER 2021, when interactions between pupils and adults from outside their classroom was prohibited for infection control reasons.

Teachers also reported infrequent use of the First Steps initiatives (Reading, Writing, and Oral Language). About two-thirds of Second class pupils (64.0 %) were taught by teachers who reported never using First Steps Writing in the classroom, with the corresponding proportions rising above seven-in-ten pupils for both First Steps Reading and Oral Language (72.1 and 71.8 % , respectively).

In terms of the initiatives that were more popular across the full NAMER sample, Drop Everything and Read (DEAR) was the most commonly used of those listed; 70.2 % of Second class pupils were in classrooms where this was implemented at least weekly. Almost an additional fifth of pupils (18.6 %) were taught by teachers

who reported using this initiative on a monthly basis. In NAMER 2014, DEAR was not specifically asked about in the Second class teacher questionnaire. However, teachers were given the option to indicate in an open-ended question if they used any other initiatives that were not listed. On this question, DEAR was one of the most commonly mentioned initiatives (Kavanagh et al., 2015).

In 2021, two other initiatives that were particularly popular were Guided Reading and Jolly Phonics, with roughly three-quarters of pupils in classrooms where these were implemented either monthly or weekly (76.1 % and 73.0 %, respectively). Similarly to DEAR, Guided Reading did not feature in the questionnaire in 2014 but was one of the most commonly mentioned initiatives in the 'Other' category. The frequency of the use of Jolly Phonics has increased since 2014; in 2021, 60.7 % of pupils were in classrooms where it was implemented 'at least weekly', compared with 49.3 % in 2014 (Kavanagh et al., 2015).

Teachers of Sixth class pupils were asked about the frequency with which they implemented selected Mathematics initiatives in their classrooms (Table 4.16). The most commonly used initiative of those listed in the questionnaire was Paired Maths with another pupil, with 71.3 % of pupils in classrooms where this was implemented monthly or more often. In contrast, only 5.7 % of pupils were taught by teachers who reported that Paired Maths with a parent or adult volunteer took place either monthly or weekly. The same considerations in relation to COVID-19 apply here as above with Paired Reading.

The part of the school year preceding the administration of NAMER 2021 included school closures, as well as restrictions on external people entering schools. Notably, in NAMER 2014, Paired Maths was also the most commonly used Mathematics initiative at Sixth class (Kavanagh et al., 2015). However, changes to the wording of the question relating to this initiative preclude direct comparisons across cycles.

Table 4.16: Percentages of pupils by frequency of implementing selected Mathematics initiatives in the classroom, Sixth class

	At least weekly	At least monthly	Once a term	Once or twice a year	Never
	%	%	%	%	%
Paired Maths (parent/adult volunteer)	2.4	3.3	8.3	6.0	80.1
Paired Maths (another pupil)	39.5	31.8	9.1	8.0	11.6
Maths For Fun	21.1	24.4	13.4	9.8	31.3
Maths Stations	7.7	21.4	17.5	17.7	35.6
Lesson Study	8.5	14.2	9.5	10.2	57.6
Coding	1.6	7.0	8.4	26.0	57.0
Other	27.8	3.5	6.1	0.6	62.1

In 2021, Maths for Fun was also a popular initiative, with almost half of Sixth class pupils (45.5 %) in classrooms where this programme was implemented either monthly or weekly. This represents an increase of more than 30 % in these categories (combined) since 2014 (Kavanagh et al., 2015). Accordingly, in 2014, 80.2 % of Sixth class pupils were taught by teachers who reported 'never' using Maths for Fun, whereas less than a third (31.3 %) were in this category in 2021. More generally, teachers' responses in 2021 suggest an increase in the frequency of the implementation of Mathematics initiatives in the classroom, when compared with 2014. In 2014, for all of the listed initiatives except Paired Maths, more than 80 % of pupils, on average, were in classrooms where the initiatives were never used (Kavanagh et al., 2015). As Lesson study is a collaborative practice between colleagues within and across schools, it is likely that the restrictions

caused by the COVID-19 pandemic had an impact on its use. 57 % of pupils being taught by teachers who reported 'never' doing this in 2021. In 2014, this question included an 'Other' option, which gave teachers the opportunity to list any additional initiatives the children engaged with and to report the frequency of this engagement. However, the listed initiatives in the questionnaires were different in 2014 and 2021, though with some overlap, so direct comparisons cannot be made in all cases. Notwithstanding this caveat, the general trend of an increase in the implementation of Mathematics programmes in the classroom is noteworthy.

Use of digital tools in English and Mathematics lessons

Teachers of Second class pupils were asked about the extent to which pupils used digital tools, such as computers or tablets, for a range of activities in their English lessons (Table 4.17). The use of digital tools to learn basic skills (including spelling and phonics) was reasonably widespread; more than four in 10 pupils (43.9 %) were taught by teachers who reported that their pupils used these types of devices to learn basic skills 'at least weekly'. At least one-fifth of pupils were in classrooms where pupils used digital tools to comprehend online texts (28.4 %), to find information online (25.4 %), and to read electronic books online (20.5 %) 'at least weekly'. Almost two-thirds of pupils were taught by teachers who reported that pupils 'rarely or never' used digital tools to compose texts (64.0 %) or to design and present work (64.5 %). There were no statistically significant associations between Second class pupils' mean reading performance and the frequency of use of digital tools in English lessons for the purposes specified.

Table 4.17: Percentages of pupils by frequency of use of digital tools in English lessons, Second class

	Most or all lessons	Once or twice a week	Once or twice a month	Rarely or never
	%	%	%	%
Basic skills (e.g. phonics, spelling)	7.3	36.6	22.1	34.0
Write/compose texts	1.8	14.3	20.0	64.0
Comprehend online texts	3.5	24.9	22.8	48.8
Find information online	0.4	25.0	33.5	41.0
Do project work in English	0.0	13.3	27.3	59.4
Read electronic books online	2.2	18.3	27.5	52.0
Design and present work	2.0	8.8	24.7	64.5

Teachers of Sixth class pupils were asked about the extent to which digital tools, such as apps or robotics, were used in their Mathematics classes for a variety of purposes (Table 4.18). Between 46.9 % and 62.4 % of pupils were in classes where the teacher reported that digital tools were rarely or never used for the listed purposes. Digital tools were most commonly used for understanding concepts and problem solving, with about one-fifth of Sixth class pupils attending classrooms where this occurred at least weekly (20.8 % and 19.3 %, respectively). There were no statistically significant associations between Sixth class pupils' mean Mathematics performance and the frequency of use of digital tools in Mathematics lessons for the purposes specified.

Table 4.18: Percentages of pupils by frequency of use of digital tools in Mathematics lessons, Sixth class

	Most or all lessons	Once or twice a week	Once or twice a month	Rarely or never
	%	%	%	%
Routine calculations	3.6	13.6	28.2	54.6
Understanding concepts	1.9	18.9	32.4	46.9
Problem solving	2.3	17.0	31.3	49.3
Spatial reasoning	0.3	10.8	34.2	54.7
Project work	2.0	4.6	31.1	62.4

Assessment of English

Teachers of Second class pupils were asked to indicate how frequently they used a variety of assessment methods and tools to assess the progress of their pupils in English (Table 4.19). Large proportions of pupils were taught by teachers who reported weekly use of teacher-designed tasks (67.4 %), teacher-designed tests (59.7 %), analysis of spelling errors (64.1 %), and self-assessment by children (58.1 %). Reflective journals and computer-based tests were used to a much lesser extent, with 59.0 % and 78.1 % of pupils, respectively, being taught by teachers who indicated 'never' using these methods/tools to assess the progress of their pupils in English.

Table 4.19: Percentages of pupils by frequency of use of specified assessment methods in English, Second class

	At least weekly	At least monthly	Once a term	Once or twice a year	Never
	%	%	%	%	%
Teacher-designed tests	59.7	18.2	18.2	1.8	2.2
Teacher-designed checklists	16.2	43.4	28.2	8.5	3.8
Documented observations	28.5	39.9	24.0	5.9	1.6
Self-assessment by children	58.1	23.9	13.1	2.9	2.0
Diagnostic tests of English reading	0.0	7.1	25.8	56.9	10.2
Running records	13.1	23.8	30.3	14.5	18.2
Writing portfolios	7.4	31.6	27.6	15.7	17.6
Reflective journals	3.9	7.3	13.1	16.8	59.0
Analysis of oral reading errors	23.0	25.3	18.6	16.3	16.8
Analysis of spelling errors	64.1	13.9	7.5	9.2	5.3
Computer-based tests	2.2	11.7	3.0	5.0	78.1
Teacher-child conferences	33.3	18.6	12.2	14.1	21.7
Teacher-designed tasks	67.4	22.2	9.2	1.1	0.1
Other	39.4	7.7	0.0	0.0	52.9

Since 2014, there have been some noteworthy changes to the frequency of use of particular methods of assessment for English. For example, in 2014, 60.5 % of Second class pupils were in classrooms where self-assessment by children was used monthly or more often (Kavanagh et al., 2015); in 2021, the corresponding proportion was 82.0 %. Similarly, in 2014, 66.9 % of pupils were taught by teachers who reported using teacher-designed tests either weekly or monthly (Kavanagh et al., 2015), while in 2021, 77.9 % of pupils were in these frequency categories. While the use of computer-based tests was relatively infrequent in both NAMER cycles, there was a notable increase in their use between 2014 and 2021. In 2014, less than one percent of pupils were in classrooms where computer-based tests were used at least monthly for the assessment of English (Kavanagh et al., 2015), and this increased to 13.9 % in 2021. The use of diagnostic tests has also increased since the last NAMER cycle. In 2014, 18.4 % of pupils were in classrooms where diagnostic tests of English reading were used at least once a term (Kavanagh et al., 2015); in 2021, the corresponding proportion was 32.9 %.

Teachers' confidence in teaching English

Second class teachers were asked about their confidence in specified aspects of teaching English. Generally, teachers reported high levels of confidence in teaching children with a range of special needs or difficulties (Table 4.20). Almost four in 10 pupils (39.3 %) were taught by teachers who reported that they were 'very confident' in identifying pupils' learning difficulties in English, with a further 55.7 % taught by teachers reporting to be 'somewhat confident'. Similar proportions of pupils were taught by teachers who were 'very confident' (37.2 %) or 'somewhat confident' (60.5 %) in working with children with learning difficulties in English reading or writing. About one-quarter (25.6 %) of pupils were taught by teachers who were 'very confident' in working with children with oral language difficulties, such as problems with language comprehension, while an additional two-thirds (66.6 %) had teachers who were 'somewhat confident' in this regard.

In contrast, about one-fifth (20.2 %) of pupils were taught by teachers who were 'not confident' in working with children for whom English is an additional language (EAL). In addition, 13.0 % of pupils were taught by teachers who were 'not confident' in teaching English to children with specific learning difficulties (SLDs), such as dyslexic difficulties. However, more than three-quarters of pupils were in classrooms where their teacher was either 'very' or 'somewhat' confident in teaching these groups (EAL 79.8 %; SLDs 86.9 %).

Table 4.20: Percentages of pupils by teachers' confidence in teaching English to children with specified needs, Second class

	Very confident	Somewhat confident	Not confident
	%	%	%
Work with children who have learning difficulties in English reading or writing	37.2	60.5	2.3
Work with children for whom English is an additional language (EAL)	23.9	55.9	20.2
Work with children with oral language difficulties (e.g., problems with language comprehension)	25.6	66.6	7.8
Identify pupils' learning difficulties in English	39.3	55.7	4.9
Teach children with specific learning difficulties (e.g., dyslexic difficulties)	23.0	63.9	13.0

Similarly, Second class teachers expressed high levels of confidence in teaching specified aspects of literacy (Table 4.21). More than seven in 10 pupils (71.3 %) were taught by teachers who were 'very confident' in their ability to teach basic reading skills. The corresponding proportions were very close to 50.0 % for the teaching of receptive and expressive oral language skills (49.0 and 48.6 %, respectively). Large proportions of pupils were taught by teachers indicating high levels of confidence in teaching literacy across the curriculum (65.4 % 'very confident'; 33.7 % 'somewhat confident'), and engaging children in the writing process (59.4 % 'very confident'; 38.3 % 'somewhat confident').

Table 4.21: Percentages of pupils by teachers' confidence in teaching aspects of literacy, Second class

	Very confident	Somewhat confident	Not confident
	%	%	%
Teach basic reading skills	71.3	27.3	1.4
Teach receptive oral language skills	49.0	49.4	1.6
Teach expressive oral language skills	48.6	48.4	3.0
Engage children in the writing process	59.4	38.3	2.3
Teach literacy across the curriculum	65.4	33.7	0.9

Second class teachers were also asked about their confidence in using digital tools to teach English, as well as teaching aspects of English remotely (Table 4.22). Teachers' confidence in these areas was lower than in the aspects of literacy outlined in Table 4.21. Just over one-fifth of pupils (20.8 %) were taught by teachers who reported feeling 'very confident' in using digital tools to teach reading and writing, while an additional 61.5 % of pupils were taught by teachers who were 'somewhat confident'. In terms of remote teaching, just over one-fifth of pupils (21.4 %) were taught by teachers who were 'very confident' in developing oral language remotely, while the corresponding percentages for remote teaching of English reading and writing were 28.7 % and 24.6 %, respectively. Across the four aspects asked about in this group of questions, between 12.7 % and 22.7 % of pupils were taught by teachers who indicated they were 'not confident'.

Table 4.22: Percentages of pupils by teachers' confidence in using digital tools and teaching English remotely, Second class

	Very confident	Somewhat confident	Not confident
	%	%	%
Use digital tools to teach reading and writing	20.8	61.5	17.7
Support/teach English reading remotely	28.7	58.5	12.7
Support/teach writing remotely	24.6	57.2	18.2
Develop oral language remotely	21.4	55.9	22.7

Teachers' confidence in teaching Mathematics

Sixth class teachers were asked about their confidence across a range of teaching activities relating to Mathematics. Teachers reported high levels of confidence in identifying learning difficulties in Mathematics and teaching Mathematics to higher-achieving pupils (Table 4.23). More than four in ten pupils (42.9 %) were taught by teachers who were 'very confident' in identifying pupils' learning difficulties in Mathematics, while more than half of pupils (54.1 %) had teachers who were 'somewhat confident' in this area. Almost all pupils (98.1 %) were taught by teachers who were either 'very' or 'somewhat confident' in working with children who have learning difficulties in Mathematics (36.8 % and 61.4 %, respectively). Regarding higher-achieving pupils, more than half (51.3 %) were taught by teachers who were 'very confident' in extending their mathematical understanding, and a further 46.3 % had teachers who were 'somewhat confident'.

Table 4.23: Percentages of pupils by teachers' confidence in teaching Mathematics to children with specified needs, Sixth class

	Very confident	Somewhat confident	Not confident
	%	%	%
Identifying pupils' learning difficulties in Mathematics	42.9	54.1	3.0
Working with children who have learning difficulties in Mathematics	36.8	61.4	1.9
Extending the mathematical understanding of higher-achieving pupils	51.3	46.3	2.4

Teachers also reported high levels of confidence in engaging children in mathematical processes (Table 4.24). About six in 10 pupils (59.2 % and 60.4 %, respectively) were taught by teachers who were 'very confident' in teaching children to reason mathematically and to solve two-step Mathematics problems. Similarly, teachers' confidence was high in relation to communication in Mathematics. About two-thirds of pupils (66.4 %) were taught by teachers who were 'very confident' in encouraging children to explain their mathematical thinking, while the corresponding proportion for confidence in teaching mathematical language was 74.1 %. Teachers also expressed high levels of confidence in teaching numeracy across the curriculum, with 98.2 % of pupils taught by teachers who were either 'very confident' (62.3 %) or 'somewhat confident' (35.9 %) in engaging in this activity.

Across all of the aspects of teaching Mathematics outlined above, only up to 3.0 % of pupils were taught by teachers who were 'not confident'. Teachers' confidence in setting class-level targets to improve performance in Mathematics was also high, with almost a third of pupils (31.7 %) taught by teachers who were 'very confident'; however, in this case, slightly more pupils were taught by teachers who were 'not confident' (5.5 %). Confidence levels were comparatively lower for engaging children in mathematical projects, with less than one-fifth of pupils (17.1 %) taught by teachers who were 'very confident' in this area and 29.4 % with teachers who indicated that they were 'not confident'.

Table 4.24: Percentages of pupils by teachers' confidence in teaching aspects of Mathematics, Sixth class

	Very confident	Somewhat confident	Not confident
	%	%	%
Teaching children to reason mathematically	59.2	39.9	0.8
Teaching children to solve complex (two-step) Mathematics problems	60.4	38.8	0.8
Encouraging children to explain their mathematical thinking	66.4	31.1	2.5
Teaching mathematical language	74.1	25.0	0.9
Teaching numeracy across the curriculum	62.3	35.9	1.8
Setting class-level targets to improve performance in Mathematics	31.7	62.7	5.5
Engaging children in projects involving Mathematics	17.1	53.5	29.4

Sixth class teachers were also asked about their confidence in using digital tools to teach Mathematics, as well as teaching aspects of Mathematics remotely (Table 4.25). More than one-fifth of pupils (21.4 %) were taught by teachers who were 'not confident' in using digital tools, such as software to teach Mathematics, while 15.5 % of pupils had teachers who were 'very confident' in this area. Additionally, 17.0 % of pupils were taught by teachers who were 'not confident' in supporting or teaching Mathematics remotely. This is noteworthy given that the school year in which the questionnaire was administered included school closures and remote teaching and learning due to the COVID-19 pandemic.

Table 4.25: Percentages of pupils by teachers' confidence in using digital tools and teaching Mathematics remotely, Sixth class

	Very confident	Somewhat confident	Not confident
	%	%	%
Using digital tools (e.g., software) to teach Mathematics	15.5	63.1	21.4
Supporting/teaching Mathematics remotely	23.8	59.3	17.0

Teachers' knowledge of Mathematics and about teaching Mathematics

Sixth class teachers were asked to rate their knowledge of Mathematics in general and about teaching Mathematics. Most teachers rated their knowledge highly in both areas (Table 4.26); 95.7 % of pupils were taught by teachers who felt their knowledge of Mathematics in general was at least 'strong', while the corresponding proportion for knowledge about teaching Mathematics was 92.1 %. There were some statistically significant associations between teachers' evaluation of their Mathematics knowledge and Sixth class pupils' Mathematics performance. Specifically, pupils whose teachers reported that their knowledge of Mathematics was 'very strong' had a mean Mathematics score that was statistically significantly higher (by almost 20 score-points) than that of pupils with teachers who indicated that their knowledge 'needs further development' (*d* = 0.4). The same pattern was observed for knowledge about teaching Mathematics, where the difference was 17 score-points (*d* = 0.4).

Table 4.26: Percentages of pupils by teachers' knowledge of Mathematics in general and about teaching Mathematics and mean Mathematics scores, Sixth class

	Knowledge of Mathematics in general		Knowledge about teaching Mathematics	
	%	*M*	%	*M*
Very strong*	43.4	264.3	32.0	265.5
Strong	52.3	258.8	60.1	259.6
Needs further development	4.3	**244.7**	7.9	**248.2**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Impacts of system-level, school-level, and personal factors on the teaching and learning of English

Second class teachers were asked to indicate the extent to which a range of factors had impacted the teaching and learning of English in their Second class during the school year in which the questionnaire was completed (2020/21; Table 4.27).

Table 4.27: Percentages of pupils impacted by a range of factors on the teaching and learning of English, Second class

	Large positive impact	Small positive impact	No impact	Small negative impact	Large negative impact
	%	%	%	%	%
System-wide factors					
Curriculum change (e.g., Primary Language Curriculum)	21.9	42.9	25.7	6.3	3.2
Digital Learning Framework	7.8	43.9	46.2	2.1	0.0
Literacy and Numeracy Strategy (2011-2020)	18.4	45.6	34.6	0.1	1.3
School-level factors					
School-level planning for English	34.3	44.5	19.6	0.7	0.9
School-level targets for raising literacy standards	22.4	55.1	22.5	0.1	0.0
Diagnostic tests of English reading	13.9	50.0	35.1	1.0	0.0
Elements of the DEIS strategy (DEIS schools only)	24.4	22.1	51.3	1.0	1.3
School self-evaluation	20.0	48.6	28.2	2.4	0.8
Closures due to COVID-19	1.3	1.4	8.4	30.4	58.6
Lack of digital devices	0.7	0.7	44.1	37.1	17.5
Personal factors					
Own interest in teaching literacy	39.1	54.8	6.0	0.1	0.0
CPD in the last two years	13.7	58.9	27.3	0.1	0.0
Student absences	1.1	0.6	28.0	42.1	28.3
Pressure from parents to raise standards	0.8	9.3	84.8	4.6	0.5

Regarding the external, system-wide factors, more than one-fifth (21.9 %) of Second class pupils were taught by teachers who felt that curriculum change, such as the Primary Language Curriculum, had a 'large positive impact' on the teaching and learning of English, while the corresponding proportion for a 'small positive impact' was 42.9 %. However, 9.5 % of pupils had teachers who indicated that curriculum change had a 'small' or 'large negative impact' ('small': 6.3 %; 'large': 3.2 %). Almost half of pupils (46.2 %) were taught by teachers who reported 'no impact' of the Digital Learning Framework (DLF) on the teaching and learning of English in their class. However, no teachers indicated that the DLF had a 'large negative impact'. Almost two-thirds of pupils (64.0 %) were taught by teachers who reported either a 'small' or 'large positive impact' of the Literacy and Numeracy Strategy (2011-2020). However, more than one-third (34.6 %) had teachers who indicated that the Strategy had 'no impact'.

In terms of the perceived impact of school-level factors on the teaching and learning of English, more than three-quarters of pupils were taught by teachers who felt that school-level planning for English and targets for raising literacy standards had a 'large' or 'small positive impact' on the teaching and learning of English in their class (78.8 % and 77.5 %, respectively). Also, half of pupils (50.0 %) were taught by teachers who reported a 'small positive impact' of diagnostic tests on the teaching and learning of English, while the corresponding proportion for a 'large positive impact' was 13.9 %. More than half of pupils in DEIS schools were taught by teachers who reported 'no impact' of the elements of the DEIS strategy on the teaching and learning of English, with small proportions of pupils being taught by teachers reporting a 'small' or 'large negative impact'. School self-evaluation was viewed as having a positive impact to either a small or large extent by teachers ('small' 48.6 %; 'large': 20.0 %). For closures due to the COVID-19 pandemic, the proportion of pupils with teachers who viewed this as having a negative impact was 89.0 % (small: 30.4 %; large: 58.6 %). A lack of digital devices was viewed as having a negative impact to either a small or large extent by teachers of 54.6 % of pupils ('small': 37.1 %; 'large': 17.5 %), although 44.1 % of pupils had teachers who felt that this factor had 'no impact'.

Teachers were generally positive about the impact of personal factors on the teaching and learning of English in their classrooms. Nearly three-quarters of pupils (72.6 %) were taught by teachers who indicated that CPD in the two years preceding the completion of the questionnaire had a 'large' or 'small' positive impact' on the teaching and learning of English in their class. Teachers' own interest in literacy was also viewed as impactful; almost four in 10 (39.1 %) pupils had teachers who reported a 'large positive impact' of this factor, with an additional 54.8 % of pupils taught by teachers who indicated a 'small positive impact'.

The majority of pupils (84.8 %) were taught by teachers who felt that parental pressure to raise standards had 'no impact' on the teaching and learning of English in their class, and only 5.1 % had teachers who felt there was a 'small' or 'large negative impact'. The factors that were viewed most negatively by teachers, in terms of their impact on the teaching and learning of English, were student absences and closures due to COVID-19. More than seven in 10 pupils were taught by teachers who felt that student absences had either a 'small' (42.1 %) or 'large' (28.3 %) negative impact.

The Primary Language Curriculum (PLC)

Teachers of both grade levels were asked to rate the usefulness of various elements of the PLC (Table 4.28). When rating the usefulness of these elements, teachers of Sixth class were provided with the response option of 'too early to say'. This was due to the phased roll out of the PLC, whereby the specification and resources were available for Stages 1 and 2 (Junior Infants to Second class) before Stages 3 and 4 (Third class upwards).

Table 4.28: Percentages of pupils by usefulness of various aspects of the Primary Language Curriculum, by grade level

	Second class					Sixth class				
	Very useful	Somewhat useful	Slightly useful	Not at all useful	Too early to say	Very useful	Somewhat useful	Slightly useful	Not at all useful	Too early to say
	%	%	%	%	%	%	%	%	%	%
Learning outcomes	35.3	41.3	21.1	2.3	n/a	26.1	38.4	22.0	8.6	4.8
Examples of children's language learning	21.1	43.3	21.0	14.5	n/a	18.5	38.2	31.9	7.2	4.2
Support materials for teachers	23.3	45.0	25.0	6.7	n/a	21.7	38.5	28.8	6.7	4.3
Progression continua	22.7	38.6	27.8	10.8	n/a	12.4	35.0	33.0	13.0	6.5
CPD courses	35.7	49.9	11.0	3.4	n/a	22.7	38.6	25.5	5.0	8.3

In general, teachers were positive about the usefulness of most aspects of the PLC. For example, 97.7 % of Second class pupils, and 86.5 % of Sixth class pupils were taught by teachers who felt that the learning outcomes were at least 'slightly useful', with Second class teachers more likely to view the learning outcomes favourably than Sixth class teachers.

Similar proportions of Second (21.1 %) and Sixth class (18.5 %) pupils were taught by teachers who felt that the examples of children's language learning available online were 'very useful'. However, 14.5 % of Second class pupils had teachers who indicated that the examples were 'not at all useful', compared with 7.2 % of Sixth class pupils. Second class pupils were more likely to be taught by teachers who rated the progression continua as 'very useful' (23.3 %) than Sixth class pupils (12.4 %). More than one-tenth of pupils at both grade levels were taught by teachers who felt that this aspect of the PLC was 'not at all useful' (Second class: 10.8 %; Sixth class: 13.0 %).

Responses were more similar across grade levels for the PLC support materials, with 93.3 % of Second class pupils and 89.0 % of Sixth class pupils taught by teachers who viewed these as at least 'slightly useful'. The proportion across grade levels was the same for the 'not at all useful' category (6.7 %, respectively). A small proportion of Sixth class pupils (4.3 %) had teachers who indicated that it was 'too early to say' whether PLC support materials were useful or not at the time of completing the questionnaire.

Second class teachers were generally positive about the usefulness of CPD courses related to the PLC, with 85.6 % of pupils taught by teachers who rated this aspect as at least 'somewhat useful'. The corresponding proportion for Sixth class was 61.3 %. It should be noted that 8.3 % of Sixth class pupils had teachers who felt that it was 'too early' to comment on the usefulness of the CPD courses related to the PLC at the time of completing the questionnaire.

CHAPTER 5
School Factors

This chapter uses information from the questionnaire for school principals to examine school factors and their relationship with English reading and Mathematics performance. First, we look at school demographic data, followed by profiles of both the pupils and school principals who participated. Later in the chapter we explore school library and digital resources. Then we look at school assessment, evaluation and planning practices. Finally, principals' perceptions of the impact of the COVID-19 school closures are examined. School factors related to the performance of pupils in DEIS schools are examined in a separate report (Gilleece & Nelis, 2023).

Profile of schools

School location

Table 5.1 shows the percentage of pupils in NAMER 2021 attending school in urban or rural locations and the mean achievement scores by location. Similar percentages of Second and Sixth class pupils attended city schools (27.9 % of Second class pupils; 27.1 % of Sixth class pupils) and village or rural schools (40.9 % of Second class pupils; 38.8 % of Sixth class pupils).

Table 5:1. School location and mean scores in Second class English reading and Sixth class Mathematics

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
City*	27.9	260.3	27.1	258.2
Large town	12.3	256.5	15.4	255.3
Small town	18.9	259.7	18.7	256.9
Village or rural	40.9	262.6	38.8	266.3

Notes. City: city or suburbs of Dublin, Cork, Galway or Waterford; Large town: Other large town or city, with population greater than 10,000; Small town: town with population between 1500 and 10,000; Village or rural: A village or rural community with population less than 1,500. These categories are consistent with those used in NAMER 2014. Scores in **bold** are significantly different from the mean for the reference (*) group.

Second class pupils in city schools had a mean reading score of 260.3, while pupils in village or rural schools had a mean reading score of 262.6. There was no statistically significant difference in reading performance between pupils in city schools and pupils in schools in other locations in 2021.

Mean Mathematics performance among Sixth class pupils in village or rural schools was about 8 points higher than those in city schools (city 258.2, village or rural 266.3). A similar pattern was observed in 2014 where pupils in village or rural schools scored 11 points higher on average than pupils in city schools. However, there were no statistically significant differences in Mathematics performance between pupils in city schools and pupils in other locations in 2014 or 2021.

School size

In the NAMER 2021 school sampling, school size was categorised based on class size at the selected grade. When categorised by class size (large => 35; medium = 21-34; small 20 pupils or fewer), slightly more Second class pupils in NAMER were enrolled in small schools (31.4 %) when compared to Sixth class pupils (27.0 %). Conversely, slightly more Sixth class pupils attended large schools (47.8 %) than Second class pupils (44.0 %). Approximately 25 % of Second and Sixth class pupils are in 'medium schools' (Table 5.2).

Table 5:2: School size and mean scores in Second class English reading and Sixth class Mathematics

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Large*	44.0	260.3	47.8	257.5
Medium	24.7	264.1	25.3	263.6
Small	31.4	259.0	27.0	263.2

Notes. City: city or suburbs of Dublin, Cork, Galway or Waterford; Large town: Other large town or city, with population greater than 10,000; Small town: town with population between 1500 and 10,000; Village or rural: A village or rural community with population less than 1,500. These categories are consistent with those used in NAMER 2014. Scores in **bold** are significantly different from the mean for the reference (*) group.

There were no statistically significant differences in performance at Second class or Sixth class between pupils in schools of different sizes. Second class pupils attending medium schools had a higher mean reading score (264.1) than pupils in large (260.3) or small schools (259.0). Sixth class pupils in small (263.2) and medium (263.6) sized schools had a higher mean score than similar pupils in large schools (257.5), but again, this difference was not statistically significant.

School gender

School gender composition was defined as follows: gender mix at Second class for Junior schools, and gender mix at Sixth class for vertical and senior schools. The percentages of pupils attending each type of school are presented in Table 5.3.

Table 5:3: School gender and mean scores in Second class English reading and Sixth class Mathematics

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Girls' school	6.9	**269.2**	7.5	256.7
Boys' school	8.3	244.6	10.2	253.8
Mixed school*	84.7	**261.7**	82.3	261.7

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group

The majority of pupils who took part in the Second class reading assessment were enrolled in mixed (84.7 %) schools, while a further 6.9 % were enrolled in girls' schools and 8.3 % attended boys' schools. Similarly, 83.3 % of Sixth class pupils in the study attended mixed schools, 7.5 % were enrolled in girls' schools and 10.2 % were enrolled in boys' schools.

The English reading performance of Second class pupils in boys' schools (244.6) was statistically significantly lower than pupils attending both mixed schools (261.7, d = .36) and girls' schools (269.2, d = .06). Pupils in mixed schools had the highest mean scores for Sixth class Mathematics (261.7), but this score was not statistically significantly different from the mean score achieved by pupils in girls' schools (256.7), or boys' schools (253.8).

Language of instruction

About 93.9 % of pupils at both grade levels attended schools where the principal reported English as the main language of instruction (Table 5.4). The remaining 6.1 % of pupils attended schools in which Irish (Gaeilge) was the main language of instruction.

Table 5.4: Main language of instruction and mean scores in Second class English reading and Sixth class Mathematics

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
English*	93.9	259.8	93.9	260.0
Irish (Gaeilge)	6.1	**274.2**	6.1	267.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group

Pupils in schools with Irish as the main language of instruction had statistically significantly higher mean reading performance (274.2) at Second class than pupils in schools where English was the main language of instruction (259.8, *d* = .30). Sixth class Mathematics pupils in Irish-medium[20] schools attained a mean score of 267.2, while the corresponding score for pupils in English-medium schools was 260.0. This difference was not statistically significant. In NAMER 2014 English reading and Mathematics scores were higher in Irish-medium schools but not statistically significantly different.

Attendance

Patterns of attendance and mean performance in English reading and Mathematics are outlined in Table 5.5. The majority of pupils were in schools where principals indicated that average school attendance was 91-100 % in the first term of the 2020/21 school year.

Table 5.5: Average percentage attendance rate for the entire school in the first term of the school year 2020/21 and mean English reading and Mathematics scores

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
91-100%*	84.5	263.2	82.6	264.4
86-90%	11.7	**246.3**	13.3	**240.8**
81-85%	1.7	261.7	2.1	249.7
0-80%	2.1	**250.7**	2.0	242.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group

Mean English reading performance at Second class (263.2), and Mathematics performance at Sixth class (264.4) was highest for pupils in schools with 91-100 % attendance. Statistically significantly lower scores were observed in Second class reading (246.3, *d* = .35) and Sixth class Mathematics (240.8, *d* = .48) in schools with average attendance of 86-90 % compared to 91-100 % attendance. Principals for 4 % of pupils indicated that attendance was below 85 % in the first term of 2020/21. These pupils achieved lower

[20] It was not possible to complete a detailed comparison of performance between Gaeltacht schools, Scoileanna Lán-Ghaeilge, and English-medium schools, as numbers of pupils and schools in the Gaeltacht and SLG sectors in NAMER 2021 were too small to make comparisons.

mean scores than pupils in schools with 91-100 % attendance, but the only statistically significant performance difference was in Second class reading between pupils in schools with less than 80 % attendance (250.7) and pupils in schools with 91-100 % attendance (263.2, *d* = .25).

Profile of pupils

Pupil background

Principals of schools participating in NAMER 2021 were asked to indicate the numbers of pupils from different backgrounds attending their school. These backgrounds were: pupils from an immigrant background; pupils who speak a home language other than English or Irish; pupils who identify themselves as members of the Irish Traveller community; pupils who identify themselves as members of the Roma community; pupils living in direct provision and pupils who are homeless (Table 5.6).

Table 5.6: Percentages of pupils from different backgrounds in the school population, as reported by principals

	Second class	Sixth class
	%	%
Pupils from an immigrant background	16.4	17.0
Pupils who speak a main home language other than English/Irish	11.7	12.1
Pupils who identify themselves as members of the Irish Traveller community	1.5	1.6
Pupils who identify themselves as members of the Roma community	0.5	0.6
Pupils who are homeless (e.g., including living in family hubs, B&Bs and hotels)	0.3	0.3
Pupils living in direct provision accommodation	0.2	0.2

On average, principals identified 16.4 %-17.0 % pupils as being from an immigrant background. Principals also indicated that on average about 12 % of pupils (11.7 % Second class; 12.1 % Sixth class) speak a home language other than English or Irish. Principals reported that approximately 1.5 % of pupils at both grade levels in schools participating in NAMER 2021 identified themselves as members of the Irish Traveller community. A further 0.5 % of pupils identified themselves as members of the Roma community.

For the first time in the National Assessments, principals were asked to indicate the percentage of pupils in their school living in direct provision and the percentage of pupils living in homeless accommodation. Principals reported that on average 0.2 % of pupils in their schools were living in direct provision, while 0.3 % of their school population on average were living in homeless accommodation in the school year 2020/21.[21]

[21] As the percentage of the school population identified as Roma, living in homeless accommodation or in direct provision was less than 1 % the achievement of these groups on the assessment are not reported in this report.

Pupils from an immigrant background

Most pupils in NAMER 2021 attended schools with pupils from an immigrant background with about 5 % of pupils attending schools where more than 50 % of pupils were from an immigrant background (Table 5.7). Less than 10 % of pupils attended schools (9.8 % of Second class pupils, and 7.1 % of Sixth class pupils) with no children from an immigrant background.

Table 5.7: Percentages of pupils from an immigrant background (one or both parents born outside of Ireland) and mean English reading and Mathematics scores

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
0%*	9.8	276.5	7.1	272.3
GT 0% and LEQ 5%	21.3	**253.4**	20.9	261.9
GT 5% and LEQ 10%	15.5	260.9	18.7	266.6
GT 10% and LEQ 20%	27.3	**262.8**	24.8	**254.5**
GT 20% and LEQ 50%	21.4	**257.9**	23.8	**254.8**
GT 50%	4.7	**255.0**	4.8	257.1

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group

The scores of Second and Sixth class pupils in schools where more than 10 % of pupils were from an immigrant background were generally lower when compared to the mean scores of pupils in schools with no immigrant pupils. This difference was statistically significant in all but one of the comparisons. Second class pupils in schools with 0 %-5 % of pupils from an immigrant background had statistically significant lower mean English reading scores than schools without immigrant pupils (253.34, *d* =. 50).

The scores of Second and Sixth class pupils in NAMER 2021 where more than 10 % of pupils had an immigrant background had statistically significantly lower mean reading scores at Second class (262.8, *d* = .28) and Mathematics scores at Sixth class (254.5, *d* = .38), when compared to the mean scores of pupils in schools with no immigrants pupils (276.5 Second class; 272.3 Sixth class). Second class pupils in schools with less than 5 % of pupils from an immigrant background have statistically significant lower mean English reading scores than schools without immigrant pupils (253.34, *d* = .50).

Five percent of pupils (4.7 % Second class; 4.8 % Sixth class) in NAMER 2021 attended schools where more than 50 % of pupils in the school were from an immigrant background. Second class pupils from these groups had statistically significantly lower mean scores than pupils who had no children from an immigrant background in their school (255.0 Second, *d* = .46).

While Sixth class pupils in schools with more than 50 % of the pupils came from an immigrant background had lower mean Mathematics scores than Sixth class pupils with no immigrant students in their school (257.1), the difference was not statistically significant.

English as an additional language

Principals indicated that on average 12 % of pupils in their schools spoke a main home language other than English or Irish (Table 5.6 above). Between 40.4 % (Second class) and 41.4 % (Sixth class) pupils in NAMER attended schools where more than 10 % of the pupils spoke a main home language other than English or Irish.

In NAMER 2021, 40.4 % of Second class pupils, and 41.4 % of Sixth class pupils attended schools where more than 10 % of the pupils spoke a main home language other than English or Irish (Table 5.8). This is statistically significantly higher than in 2014, when 27.2 % of Second class pupils and 27.4 % of Sixth class pupils attended schools where more than 10 % of the pupils mainly spoke a language other than English or Irish at home. In 2021 more pupils were in schools were 0 % of pupils speak a language other than English or Irish at home.

Table 5.8: Percentages of pupils who speak a main home language other than English or Irish 2014-2021

	Second class		Sixth class	
	%		*%*	
	2014	2021*	2014	2021*
0%	20.6	26.5	16.2	22.1
GT 0% and LEQ 5%	38.7	**20.7**	42.2	**24.3**
GT 5% and LEQ 10%	13.5	12.4	14.2	12.3
GT 10%	27.2	**40.4**	27.4	**41.4**

Notes. GT = Greater than; LEQ = Less than or equal to. Scores in **bold** are significantly different from the mean for the reference (*) group.

While the mean performance on English reading for Second class, and Mathematics for Sixth varied, there was only a statistically significant difference in performance for Sixth class pupils in Mathematics (252.6, *d* = .36), when more than 10 % of pupils spoke a main home language other than English or Irish (Table 5.9).

Table 5.9: Percentages of pupils who speak a main home language other than English/Irish and mean English reading and Mathematics scores

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
0%*	26.5	261.5	22.1	266.3
GT 0% and LEQ 5%	20.7	266.5	24.3	269.6
GT 5% and LEQ 10%	12.4	261.0	12.3	260.3
GT 10%	40.4	257.4	41.4	**252.6**

Notes. GT = Greater than; LEQ = Less than or equal to. Scores in **bold** are significantly different from the mean for the reference (*) group.

Principals were asked about supports for English as an additional language (EAL) in their schools. According to school principals in NAMER 2021, the mean number of pupils with EAL who were in receipt of language support from an EAL or special education teacher was 21.8 for Second class and 21.7 for Sixth class (Table 5.10). On average, more boys than girls were in receipt of language support at both grade levels.

Table 5.10: Mean number of pupils with English as an additional language (EAL) who were in receipt of support from a sanctioned EAL/Special Education Teacher Language Support, by gender

	Second class	Sixth class
	M	*M*
Total	21.8	21.7
Boys	12.0	12.0
Girls	10.6	10.6

Pupils from an Irish Traveller background

Over half of pupils who participated in NAMER 2021 attended schools where school principals reported that no pupils identified themselves as members of the Traveller community (55.7 % Second class; 54.9 % Sixth class, Table 5.11).

Table 5.11: Percentages of pupils identified as members of the Irish Traveller community in 2014 and 2021, as reported by school principals

	Second class		Sixth class	
	%		*%*	
	2014	2021*	2014	2021*
0%	65	**55.7**	58.2	54.9
GT 0% and LEQ 5%	26.4	**37.3**	28.8	**37.4**
GT 5%	8.7	7.0	13	7.7

Notes. GT = Greater than; LEQ = Less than or equal to. Scores in **bold** are significantly different from the mean for the reference (*) group.

A statistically significant increase was observed between NAMER 2014 and 2021 in the percentage of pupils attending schools where between 0-5 % of pupils were identified as members of the Travelling community by the school principal. Correspondingly, the percentage of pupils in NAMER 2021 attending schools where principals indicated they had no pupils who identified as members of the Travelling community dropped between 2014 and 2021.

The mean performance of pupils from a traveller background in second class English reading, and Sixth class Mathematics was marginally lower in 2021, when compared with performance in 2014, however these differences were not statistically significantly different (Table 5.12).

Table 5.12: Mean English reading and Mathematics scores of pupils identified as members of the Irish Traveller community in 2014 and 2021

	Second class		Sixth class	
	2014*	2021	2014*	2021
0 %	267.7	264.9	268.4	268.2
GT 0 % - LEQ 5 %	259.2	258.0	256.9	253.2
GT 5 %	249.3	244.8	241.6	245.1

Notes. GT = Greater than; LEQ = Less than or equal to. Scores in **bold** are significantly different from the mean for the reference (*) group.

Pupils from a Roma background

For the first time in NAMER 2021, principals were asked to indicate the number of pupils in their school who identified as members of the Roma community. In total 22.1 % of Second class, and 25.4 % of Sixth class pupils attended school with pupils who identified themselves as members of the Roma community (Table 5.13). About one-fifth of pupils (18.9 % Second class, 21.9 % Sixth class) attended schools in which 0-5 % of pupils identified as members of the Roma community.

Table 5.13: Pupils who identify themselves as members of the Roma community

	Second class	Sixth class
	%	*%*
0%	77.9	74.7
GT 0% and LEQ 5%	18.9	21.9
GT 5% and LEQ 10%	2.4	2.6
GT 10%	0.8	0.9

Notes. GT = Greater than; LEQ = Less than or equal to. Scores in **bold** are significantly different from the mean for the reference (*) group.

Profile of pupils' learning needs and supports

Principals were asked to record the number of pupils within each category of learning need in their schools and these are outlined in Table 5.14. Specific learning disabilities (e.g., dyslexia, dyscalculia) were reported for 4 % of the school population in schools that participated in NAMER 2021. On average, 3 % of the school population had autism or autism spectrum disorders. Similar proportions of the school population had physical impairments, behavioural, emotional, and social difficulties (including ADHD) or specific speech and language disorders (about 2 %). One percent of pupils in NAMER 2021 schools had sensory impairments (i.e., hearing, vision), and 1 % had mild general learning disabilities. Less than 1 % of the school population had borderline mild general learning disability, and less than 0.5 % of pupils in the general school population had moderate or severe general learning disabilities or assessed syndromes (i.e., Down, Williams, Tourette's syndrome).

Table 5.14: Pupils who identify themselves as members of the Roma community

	Second class	Sixth class
	%	*%*
Specific learning disability (e.g., dyslexia, dyscalculia)	4.0	4.3
Autism/autistic spectrum disorders	2.9	2.8
Behavioural, emotional and social difficulties (including ADHD)	2.0	1.9
Specific speech and language disorders	2.0	1.8
Physical impairments (e.g., dyspraxia, cerebral palsy)	1.8	1.8
Sensory impairments (hearing, vision)	1.4	1.4
Mild general learning disability	1.4	1.3
Borderline mild general learning disability	0.8	0.8
Moderate or severe general learning disability	0.4	0.3
Assessed syndrome (e.g., Down, Williams, Tourette's syndrome)	0.3	0.3

Special Education Teacher posts

The mean number of officially sanctioned Special Education Teachers, including shared posts, reported by principals in NAMER 2021 was 5.9 for Second class and 6.0 for Sixth class. The average number of legacy language support posts was 0.3 of a post (Table 5.15).

Table 5.15: Mean number of Special Education Teacher posts, by grade level

	Second class	Sixth class
	M	*M*
No. of officially sanctioned Special Education Teachers, including shared positions	5.9	6.0
No. of legacy language support posts	0.3	0.3

The mean number of officially sanctioned Special Education Teachers in small and medium schools, for both Second and Sixth class was 4 (4.1 Second; 3.9 Sixth). There were very few legacy language support posts evident, with large schools having on average just over half a post (Table 5.16).

Table 5.16: Mean number of Special Education Teacher posts, by school size

	Second class			Sixth class		
	Small	**Medium**	**Large**	**Small**	**Medium**	**Large**
No. of officially sanctioned Special Education Teachers, including shared positions	4.1	3.9	8.4	3.9	3.8	8.4
No. of legacy language support posts	0.1	0.0	0.6	0.1	0.0	0.6

Continuum of support for learning

Principals were asked to indicate the number of pupils in receipt of Classroom Support, School Support and School Support Plus. A greater proportion of pupils received support at both grade levels for English. On average, 41.5 and 42.1 pupils were accessing Classroom Support in Second and Sixth class, respectively. On average, 38.3 and 38.2 pupils were in receipt of School Support, while 12.9 and13.6 were in receipt of School Support Plus (Table 5.17). Principals indicated that an average of 36.8 and 37.7 pupils were in receipt of Classroom Support for Mathematics. An average of 25.4 and 27.5 Second class pupils and Sixth class pupils were in receipt of School Support for Mathematics, while 8.8 and 9.5 were in receipt of School Support Plus.

Table 5.17: Mean number of pupils with a learning difficulty in ordinary classes in receipt of learning support for English or Mathematics

	English		Mathematics	
	Second class	Sixth class	Second class	Sixth class
Classroom Support	41.5	42.1	36.8	37.7
School Support	38.3	38.2	25.4	27.5
School Support Plus	12.9	13.6	8.8	9.5

Principals and teachers

Principal status

About a quarter (25.8 %) of pupils in the Second class and Sixth class (22.4 %) attended schools in which the principal teacher taught classes in addition to performing their administrative and leadership duties (Table 5.18).

Table 5.18 Principal status (teaching or administrative) and mean English reading and Mathematics scores, by class level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Teaching*	25.8	259.5	22.4	266.3
Administrative	74.2	261.1	77.6	258.8

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

There were no statistically significant differences in performance at Second or Sixth class between pupils in schools with teaching or administrative principals, although Sixth class pupils with teaching principals had a higher mean score in Mathematics (266.3), than pupils in schools with administrative principals (258.8).

Principals' experience

The majority of principals at both Second and Sixth class had more than 20 years' experience as teachers (Table 5.19). About 3 % of principals at Second and Sixth had 6-10 years of experience. Principals' years of teaching experience did not have a statistically significant effect on pupils' performance at Second or Sixth class, although Second class pupils who were in schools with principals who had the least amount of teaching experience had the highest reading performance (264.7).

Table 5.19: Principals' years of experience and mean English reading and Mathematics scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
6-10 years	2.6	264.7	3.2	260.3
11-20 years	28.3	258.3	26.7	258.4
More than 20 years	69.2	261.6	70.2	261.3

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Principals' gender

In NAMER 2021 principals were asked to identify their gender and these findings are shown in Table 5.20. Just under two-thirds of pupils were in schools where the principals were female at each grade level.

Table 5.20: Principals' gender, by grade level

	Second class	Sixth class
	%	*%*
Female	60.7	59.3
Male	39.3	40.7

Principal job satisfaction and levels of stress

Principals were asked about their level of job satisfaction, stress and how supported they feel. Over half of pupils were in schools where the principals (53.7 % Second class pupils; 53.9 % of Sixth class pupils) found their job 'very' satisfying, while 43.8 % (Second) and 43.3 % (Sixth) were in schools were the principal found their job 'fairly' satisfying. Less than 3 % of pupils were in schools where the principals found their job 'not very' satisfying and no pupils were in schools where the principal found their job 'not at all' satisfying (Table 5.21).

Table 5.21: Principals' job satisfaction and achievement, by grade level

	Second class – English reading		Sixth class – Mathematics	
	M	*%*	*M*	*M*
Very*	53.7	261.9	53.9	261.2
Fairly	43.8	258.7	43.3	259.4
Not very	2.4	276.1	2.8	269.3
Not at all	-	-	-	-

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Although the mean reading score (276.1) and Mathematics score (269.3) was highest for the small percentage of pupils whose principals were 'not very' satisfied there were no significant differences in pupil performance associated with principals' levels of job satisfaction.

The majority of school principals indicated that they found their job 'very' stressful (64.3 % Second; 60.6 % Sixth) or 'fairly' stressful (26.3 % Second; 29.0 % Sixth). Only 1 % of principals indicated their job was 'not at all' stressful (Table 5.22).

Table 5.22: Principals' report of job stress and achievement, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Very*	64.3	258.6	60.6	261.4
Fairly	26.3	260.8	29.0	258.8
Not very	8.2	**280.5**	9.3	264.7
Not at all	1.2	251.8	1.1	250.7

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Pupils in Second class in schools with principals who found their job 'not very stressful' had statistically significantly higher mean reading scores (280.5, *d* = .46) compared to pupils in schools where principals reported that their jobs were 'very' stressful.

Regarding how supported they felt in their role, about 12 % of pupils at both class levels were in schools with principals who felt 'very supported'. About 61 % of pupils were in schools with principals who felt 'fairly' supported. However, over a quarter of pupils were in schools where the principal felt 'not very' supported or 'not at all' supported (Table 5.23).

Table 5.23: Principals' levels of support and achievement, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Very*	12.0	257.9	11.7	253.5
Fairly	60.7	261.6	60.9	**262.8**
Not very	24.5	258.8	24.6	257.3
Not at all	2.8	275.9	2.8	**279.1**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

The 2.8 % of pupils in schools whose principal felt 'not at all' supported, had the highest mean reading and Mathematics scores. Sixth class pupils in schools where the principal felt 'fairly' supported (262.8, *d* = .19) and 'not at all' supported (279.1, *d* = .54) had statistically significantly higher mean scores in Mathematics than pupils whose principals indicated they felt 'very supported'.

Principal Continued Professional Development (CPD)

Table 5.24 shows areas in which principals felt they would benefit from additional CPD. The area most frequently identified as being most beneficial was 'Planning and policy development' (identified by 75.2 % of principals of Second class pupils; 75.4 % of principals of for Sixth class pupils). 'Leadership', 'Data protection and GDPR' and 'Conflict resolution' were the next most popular topic areas.

Table 5.24: Areas which principals indicated they would benefit from additional CPD, by grade level

	Second class	Sixth class
	%	*%*
Planning and policy development	75.2	75.4
Leadership	69.8	69.2
Data protection and GDPR	67.7	64.5
Conflict resolution	60.1	58.8
Supporting remote teaching and learning	58.2	57.4
Time management	57.9	57.0
Wellbeing	52.7	52.5
Behaviour management	49.9	51.0
Child protection	42.6	43.8

More than 50 % of principals indicated that they would benefit from additional professional development on the topics presented in the questionnaire, however only 42.6-43.8 % of principals indicated that 'Child protection' was an area in which they would benefit from additional training.

Teacher recruitment and retention

Principals were asked if their school had experienced difficulties in teacher recruitment, retention, or sourcing of qualified substitute teachers in the previous 12-month period, which covered Spring 2020 to Spring 2021. Their responses are outlined in Table 5.25.

About half of pupils were in schools where principals reported difficulties in recruiting teachers, while between 13.8 % and 15.7 % reported teacher retention difficulties in the 12-months prior to NAMER 2021. Almost all pupils (93.6 % Second; 93.3 % Sixth) had principals that reported difficulty in sourcing qualified substitute teachers over the 12-months.

Table 5.25: Percentage of principals of Second and Sixth class pupils impacted by difficulties with teacher recruitment and retention

	Second class	Sixth class
	%	*%*
Teacher recruitment difficulties	51.0	49.4
Teacher retention difficulties	13.8	15.7
Sourcing qualified substitute teachers when required	93.6	93.3

Teacher engagement

Principals were asked to characterise teachers' job satisfaction, morale, understanding of targets and goals, teachers' success in achieving these goals, and their expectations for pupils' achievement. In all cases, most pupils attended schools where principals characterised these indicators of teacher engagement as being 'Very high/High' (Table 5.26).

Table 5.26: Percentages of pupils whose principal teachers characterised teacher engagement as very high/high to low, by grade level

	Second class			Sixth class		
	Very high/ High	Medium	Low	Very high/ High	Medium	Low
Teacher job satisfaction	88.5	10.9	0.6	89.1	10.1	0.7
Teacher morale	75.1	23.1	1.6	78.0	20.9	0.9
Teacher understanding of targets and goals	87.5	13.5	0.4	86.9	12.8	0.3
Teachers success in achieving the schools goals and targets	86.5	13.5	0	87.6	12.4	0
Teachers expectations for pupil achievement	95.7	4.3	0	96.3	3.7	0

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Almost 90 % of pupils at both grade levels attended schools where the principal indicated teacher job satisfaction was 'Very high/High'. Less than 1 % of pupils attended schools where teacher job satisfaction was reported as 'Low' (0.6 % Second class; 0.7 % Sixth class). Three-quarters (75.1 %) of Second class pupils and 78.0 % of Sixth class pupils attended schools where principals report that the teacher morale was 'Very high/High'. Very small proportions of pupils (1.6 % of Second class; 0.9 % Sixth class) attended schools where the principal reported that teacher morale was 'Low'. Teachers' understanding of goals and targets, and their success in achieving these, was indicated by principals to be 'Very high/High' for most of the pupils in the study (87.5-86.5 % Second class; 86.9 and 87.6 % Sixth class). Over 95 % of pupils at both grade levels attended schools where the principal rated teacher expectations for pupil achievement as 'Very high/High'. No children attended schools where the principal felt teachers had a low success in achieving the schools' goals and targets, or in expectations for pupil achievement. No principals chose 'Very Low' as a response for any of the teacher engagement questions.

School resources

Libraries

Most pupils attended schools that have libraries in every classroom (80.7 % Second class; 81.6 % Sixth class), while 15 % at both Second (15.2 %) and Sixth (15.4 %) class pupils had access to libraries in some classrooms (Table 5.27). In 2014 87.5 % of pupils in Second class, and 83.0 % in Sixth attended schools in which every classroom had a library.

It was less common for schools to have a room used exclusively as a central library (23.6 % Second; 23.3 % Sixth), or to have a room used as a school library and for other uses (32.5 % Second; 31.1 % Sixth). This is similar to findings from 2014, when 27.5 % of pupils in Second class and 29.9 % in Sixth class had access to a room used exclusively as a central library.

The principals of 32.5 % of Second class pupils in NAMER 2021 reported pupils had access to a room used as a library and for other uses. This was statistically significantly higher than in 2014 when 22.5 % of Second class pupils had access to such a room. Although 31.1 % of Sixth class pupils in 2021 also had access to a room used as a library and for other purposes, it was not statistically significantly higher than in 2014.

Table 5.27: Percentages of pupils in schools with varying configurations of library facilities and a dedicated computer room, by grade level

	Second class		Sixth class	
	2014*	2021	2014*	2021
Classroom library in every classroom	87.5	80.7	83.0	81.6
Classroom library in some classrooms	11.2	15.2	13.3	15.4
Room used exclusively as a central library	27.5	23.6	29.9	23.3
Room used as school library and other uses	22.5	**32.5**	21.4	31.1

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Library books

The average number of print books contained in all school libraries was 2284 for schools with Second class pupils, and 2356 for schools with Sixth class pupils (Table 5.28). This is a lower number of books than recorded in 2014, but not statistically significantly so, likely because of the variation in the numbers of books held in different sized schools.

On average in 2021, 3.1 % of books at Second class level, and 3.6 % at Sixth class were in a language other than English or Irish. This is statistically significantly higher than in 2014, when only 1 % of books in school libraries where in a language other than English or Irish.

Table 5.28: Percentages of pupils in schools with varying configurations of library facilities and a dedicated computer room, by grade level

	Second class		Sixth class	
	2014*	2021	2014*	2021
Print books contained in all libraries in school (Number)	3057.8	2284.2	3199.7	2356.0
Print books in a language other than English/Irish (Number)	22.1	43.5	22.6	49.5
Print books in a language other than English/Irish (% of all books)	1.0	**3.1**	1.0	**3.6**
New print titles added to school's libraries since September 2020 (Number)	246.6	**106.1**	228.7	**118.1**
New print titles added to school's libraries since September 2020 (% of all books)	10.4	11.3	10	12.5
Pupils in schools with no e-books (%)	79.1	**47.7**	79.8	**47.7**
Pupils in schools with no print library books in languages other than English/Irish (%)	62.3	51.7	62.4	51.8
Average ratio of print library books to pupils	12.4	**9.1**	14.7	**9.1**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

On average, between 106 and 118 books were added to schools' library collections in the 2020/21 school year. This is statistically significantly lower than in 2014, when between 229 and 247 books were added. The lower number of books added in 2021 is likely due COVID-19 restrictions on book lending in schools.

The percentages of pupils at both grade levels with no e-books was significantly lower in 2021 compared to 2014. The ratio of print books to pupils in 2021 was 9:1. This ratio is statistically significantly lower than in 2014 when the ratio was between 12:1–15:1.

Library Posts

About 30.9 % percent of Second class pupils, and 29.9 % of Sixth class pupils attended schools in which a teacher held a post of responsibility that included library duties (Table 5.29). In 2014, these percentages were higher with 40 % of pupils in Second class, and 39 % in Sixth in schools in which a teacher held a post of responsibility that included library duties.

Table 5.29: Percentages of pupils in schools in which there is a teacher whose post of responsibility includes library duties and mean English reading scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
Yes*	30.9	262.4	29.9	256.9
No	69.1	260.1	70.1	262.0

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

At Second class, pupils in schools with a teacher that held a role of responsibility for the library had slightly higher mean English reading scores, although the difference was not statistically significant. At Sixth class, this pattern was reversed, with pupils in a school without a teacher holding responsibility for the library having a higher mean Mathematics score, this difference was not statistically significant.

Digital resources

Devices available to pupils

In NAMER 2021, the average number of devices available to Second class pupils was 42.5, for Sixth class pupils the average number of devices was 44.7 (Table 5.30). There were more devices available to pupils at both grade levels overall in 2021 compared with 2014, and for pupils in Sixth class the number of available devices was statistically significantly higher in 2021.

Table 5.30: Mean number of devices available to pupils, by cycle

	Second class		Sixth class	
	2014*	2021	2014*	2021
Devices in a central computer room	6.9	**4.4**	8.0	5.2
Devices in classroom/resource rooms	23.3	**14.3**	23.5	**14.3**
Devices for use between classes (e.g., sets of tablets on a trolley)	N/A	30.8	N/A	32.5
Total number of devices	30.2	42.5	31.4	**44.7**
Average ratio of pupils to devices	13.9	9.3	14.7	**9.2**
A dedicated computer room	27.3	**14.1**	29.2	**15.8**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

On average in 2021 pupils in NAMER attended schools with a ratio of 9.3/9.2 pupils to each device. These devices were most often shared between classrooms, with an average of 30.8 shared devices available to Second class pupils, and an average of 32.5 devices available to Sixth class pupils. The average ratio of pupils to devices was lower, with 9.2/9.3 pupils per computing device in 2021, compared to 13.9 Second class pupils and 14.7 Sixth class pupils per device in 2014.

Between 14 % and 16 % of pupils were in schools with a dedicated computer room and the average number of devices available in these rooms was 4.4 for Second class pupils, and 5.2 for Sixth class pupils. When compared to NAMER 2014, there were statistically significantly fewer dedicated computer rooms in schools in 2021. In 2014, 27.3 % of Second class pupils had access to a dedicated computer room, while in 2021 this figure was 13.9 %. Similar patterns were observed among Sixth class pupils, with 29.2 % having access to a dedicated computer room in 2014 and 15.8 % in 2021.

On average schools had an additional 14.3 computing devices available in classrooms or resource rooms. There were also fewer computing devices available in a central computer room or in classroom resources rooms. This likely reflects the increased use of mobile devices such as laptops and tablets in 2021, rather than the desktop computers more commonly used in 2014.

On average, in 2021, larger schools had more computing devices available to pupils (Table 5.31). However, ratios of pupils to computers were better in small (6:1), and medium schools (6:1), than in larger schools (15:1 Second class; 14:1 Sixth class). The majority of devices in 2021 were available for use between classes, rather than in a central computer room, or in classrooms or resource rooms. This was the case for all school sizes.

Table 5.31: Mean number of devices available to pupils, by school size

	Second class			Sixth class		
	Small	**Medium**	**Large**	**Small**	**Medium**	**Large**
Devices in a central computer room	0.6	3.5	8.2	0.6	3.5	9.0
Devices in classroom/resource rooms	8.1	16.5	18.7	7.1	16.4	17.9
Devices for use between classes (e.g., sets of tablets on a trolley)	23.5	32.5	35.8	22.5	30.7	40.0
Total number of devices	28.7	44.4	53.2	27.2	42.8	57.2
Average ratio of pupils to devices	5.6	6.2	14.5	5.6	6.2	13.5

Digital infrastructure in schools

The principals of almost two-thirds of pupils rated the number of computing devices (e.g., desktop computers, laptops, tablets) as 'very good' (31.6 % Second class; 36.1 % Sixth class), or 'good' (30.9 % Second class; 31.3 % Sixth class) (Table 5.32).

Approximately 10 % of pupils were in schools where principals rated the number of devices in their school as 'poor'. Similarly, less than 10 % of pupils had principals who rated the age and condition of computing devices as 'excellent' or as 'poor', and just over 1 % of pupils were in schools where the availability of devices such as whiteboards and digital projectors was rated as 'poor'. Principals reported relatively less access to digital tools such as data sensors, cameras or assistive devices with 18 % of pupils in schools where principals rated access as 'poor'.

Table 5.32: Principals rating of ICT infrastructure in their school

	Class	Excellent	Very good	Good	Fair	Poor
Number of computing devices (e.g., desktops, laptops, tablets)	Second	14.1	31.6	30.9	12.6	10.8
	Sixth	10.3	36.1	31.3	12.2	10.0
Age and condition of computing devices	Second	8.7	20.3	30.9	33.7	6.5
	Sixth	7.5	19.0	31.5	34.7	7.3
Availability of suitable devices such as whiteboards, digital projectors	Second	29.6	40.4	20.9	8.0	1.1
	Sixth	29.2	40.0	23.1	6.6	1.1
Availability of digital tools such as data sensors, cameras, assistive devices	Second	3.4	19.9	27.1	31.3	18.4
	Sixth	2.9	20.2	27.3	31.5	18.1

Broadband

In NAMER 2021, broadband speed in schools varied (Table 5.33), with about two-thirds of pupils in schools where principals rated the speed as 'good' or 'very good'. Fewer principals rated it as 'poor' or 'fair', while 8.6-10.2 % rated it 'excellent'.

Table 5.33: Principals rating of broadband and technical support in their school, by grade level

	Class	Excellent	Very good	Good	Fair	Poor
Broadband connection speed	Second	10.2	29.7	30.6	14.2	15.3
	Sixth	8.6	29.0	33.4	13.9	15.2
Technical support and maintenance	Second	5.2	20.4	38.4	15.5	20.5
	Sixth	3.6	20.0	39.2	17.6	19.5
Access to suitable software to facilitate remote learning and teaching	Second	7.6	31.6	35.7	21.2	4.0
	Sixth	5.1	33.8	38.0	19.5	3.6

Around 60 % of pupils had principals who rated technical support and maintenance of digital devices as 'good' or 'very good'. However, around 20 % of pupils has principals who rated support as 'poor' with four times more rating it 'poor' than 'excellent'. Principals of more than half of pupils rated access to software for remote learning as 'good' or 'very good', while about 4 % rated it 'poor'.

Teachers' digital knowledge and skills

Nearly half (46 %) of pupils were in schools where principals rated teachers' knowledge and skills in using digital technologies for teaching as 'very good', with an additional 36 % of pupils in schools where the principal teacher knowledge and skill was rated as 'good' (Table 5.34). Less than 1 % of pupils principals rated teachers' skills as 'poor'. Similarly, the principals of over 80 % of pupils rated teachers' use of digital technologies as 'good' or 'very good' for both Second and Sixth class. Around 10 % of pupils were in schools where principals rated teachers' use as 'fair', but no principals reported knowledge in the use of digital technologies as 'poor'.

Table 5.34: Percentages of pupils with principals' rating of teachers' level of knowledge, skill and use of digital technologies for teaching and learning, by grade level

	Class	Excellent	Very good	Good	Fair	Poor
Teachers' overall level of knowledge and skills in using digital technologies for teaching and learning	Second	7.9	46.4	35.6	9.8	0.3
	Sixth	7.1	46.1	36.2	10.3	0.2
Teachers' overall level of use of digital technologies for teaching and learning	Second	8.8	41.6	39.9	9.6	0.0
	Sixth	8.9	38.6	41.7	10.9	0.0

Pupils' digital knowledge and skills

The principals of most pupils in the study responded that pupils' overall level of knowledge and skills in using digital technologies during teaching and learning was 'good' (41.8 % Second class; 46.7 % Sixth class) or 'very good' (42.1 % Second class; 38.8 % Sixth class). On average principals of 1 % of pupils indicated that' knowledge and skills in using digital technologies during teaching and learning was 'poor' (Table 5.35).

Table 5.35: Percentages of pupils with principals' rating of pupils knowledge of digital technology, by grade level

	Class	Excellent	Very good	Good	Fair	Poor
Pupils' overall level of knowledge and skills in using digital technologies during teaching and learning	Second	4.1	42.1	41.8	10.9	1.0
	Sixth	3.0	38.8	46.7	10.3	1.3
Pupils' overall engagement with digital technologies during teaching and learning	Second	8.2	38.8	34.7	16.2	2.1
	Sixth	7.1	37.8	37.2	15.6	2.3

Pupils' overall engagement with digital technologies during teaching and learning was on average reported as 'very good' (38.8 % Second class; 37.8 % Sixth class) or 'good' (34.7 % Second class; 37.2 % Sixth class) by their principals and the principals of 2 % of pupils responded that pupils' engagement with digital technologies was 'poor'.

Teachers' and pupils' access to devices for teaching and learning

In NAMER 2021, nearly all pupils (99 %) had teachers with access to a dedicated device, and most pupils (70 %) were in schools where all teachers had access to interactive whiteboards as reported by principals. About 28.1 % of Second class and 29.0 % of Sixth class pupils were in schools where only some teachers had access to interactive whiteboards. Over 90 % of pupils attended schools where apps for teaching English and Mathematics were available to all or some teachers, with less than 4 % of pupils lacking access. Broadband or wireless internet was available to teachers in over 94 % of schools, while pupils had access in 89 % of schools. However, 6.4 % of Second class and 4.8 % of Sixth class pupils had no access to broadband (Table 5.36).

Table 5.36: Percentages of pupils in schools and teachers' access to devices for teaching and learning, by grade level

	Class	Available to all teachers	Available to some teachers	Unavailable to teachers
A dedicated teacher device	Second	99.3	0.7	0
	Sixth	99.4	0.6	0
An interactive whiteboard	Second	70.3	28.1	1.6
	Sixth	69.5	29.0	1.5
One or more apps for use in teaching English	Second	73.7	24.1	2.3
	Sixth	72.3	24.4	3.4
One or more apps for use in teaching Mathematics	Second	71.6	25.9	2.4
	Sixth	71.0	25.5	3.5
Broadband/wireless connection for teacher use	Second	94.8	4.1	1.1
	Sixth	95.7	3.6	0.7
Broadband/wireless connection for pupil use	Second	88.8	4.7	6.4
	Sixth	89.4	5.8	4.8

Digital Learning Framework (DLF)

Principals reported that the Digital Learning Framework (DLF) had a notable impact on the use of digital technologies during the 2020/21 school year (Table 5.37). Most pupils were in schools where the DLF impacted digital technology use either 'to some extent' or 'a lot'. The DLF also supported children with additional educational needs, with the principals of over 40 % of pupils indicating a significant impact.

Table 5.37: The impact of the Digital Learning Framework on the use of digital technologies for teaching in schools in the 2020/21 school year, by grade level

	Class	Not at all*	Very little	To some extent	A lot	Too early to judge
Teaching and learning of English	Second	5.1	10.2	46.2	30.3	8.2
	Sixth	5.1	9.6	48.0	30.5	6.8
Assessing English	Second	7.1	19.0	39.5	23.1	11.3
	Sixth	6.5	19.5	39.7	24.7	9.5
Teaching and learning Mathematics	Second	4.3	12.6	44.4	30.8	7.9
	Sixth	3.9	12.5	47.1	29.6	6.8
Assess Mathematics	Second	9.8	23.1	37.5	21.2	8.4
	Sixth	8.7	22.6	38.8	22.6	7.3
Enhance interest and engagement in Learning in general	Second	4.1	23.1	37.2	43.0	8.5
	Sixth	3.8	7.4	35.1	45.7	8.0
Supporting children with special educational needs	Second	3.9	9.4	39.3	41.4	6.0
	Sixth	3.7	9.0	36.2	45.3	5.8

The DLF also impacted the teaching and assessment of English and Mathematics, with around 40 % -48 % of pupils having principals who reported an impact 'to some extent'. It had the greatest influence on enhancing interest and engagement in learning, as well as supporting children with special educational needs. Over 40 % of pupils had principals who noted a significant impact in these areas, while only 4 % of pupils where in schools where no impact on engagement or support for children with additional needs was reported.

Evaluation, assessment and planning

School Self Evaluation (SSE)

School principals were asked to identify what areas they were focussing on in the context of SSE. Almost three-quarters of pupils (72.9 % Second class; 72.6 % Sixth class) attended schools that were focussing on English oral language, while English writing was identified as an area of focus in SSE for 66.2 % of schools with pupils in Second class and 63.7 % of schools with pupils in Sixth class (Table 5.38).

Table 5.38: Aspects of the curriculum that the school was working on in the context of School Self Evaluation (SSE)

	Second class – English reading	Sixth class – Mathematics
	%	%
English oral language	72.9	72.6
English writing	66.2	63.7
Digital learning	64.9	66.2
Literacy across the Curriculum	61.9	63.7
English reading	61.7	61.4
Numeracy	56.6	59.5
Other	68.1	71.7

Over two-thirds of Second (64.9 %) and Sixth (66.2 %) class pupils attend schools where digital learning was a priority in the context of school self-evaluation (SSE). Literacy across the curriculum was a priority in the context of SSE for 61.9 % of schools with Second class pupils, and 63.7 % of schools with Sixth class pupils. Over 60 % of Second and Sixth class pupils attended schools that were working on English reading as an area of SSE. Just over half of Second (56.6 %) and Sixth (59.5 %) class pupils attended schools that were working on Numeracy as part of SSE. In addition, 68.1 % of Second class, and 71.7 % of Sixth class pupils were in schools where the principle indicated they were focusing on school self-evaluation in 'other' areas not listed in this questionnaire.

Standardised assessment use

Principals in NAMER 2021 were asked to indicate how useful they found the results of standardised tests in English and Mathematics for various purposes (Table 5.39).[23] Almost 60 % of pupils attended schools where principals indicated that standardised tests were 'very useful' for identifying pupils with learning difficulties (58.5 % Second class; 59.3 % Sixth class). Just under half of principals found standardised tests 'very useful' for informing school self-evaluation (44.5 % Second class; 44.4 % Sixth class), while 40 % found them 'very useful' for informing classroom teaching.

The setting of school-level targets was another area for which standardised test results were seen as 'very useful', by principals of schools with Second (40.1 %) and Sixth (42.2 %) classes. The results of standardised tests were less commonly seen as 'very useful' for providing feedback to parents (27.4 % Second class; 31.1 % Sixth class) to boards of management (19.5 % Second class; 22.5 % Sixth class), and pupils (11.3 % Second class; 13.8 % Sixth class).

Table 5.39: Percentages of pupils in schools who found standardised tests 'very useful' in different ways, by grade level

	Second class	Sixth class
	%	%
Identifying pupils with learning difficulties	58.5	59.3
Informing School Self-Evaluation	44.5	44.4
Informing classroom teaching	40.3	40.4
Setting school-level targets	40.1	42.2
Feedback to parents	27.4	31.1
Feedback to Board of Management	19.5	22.5
Feedback to pupils	11.3	13.8

Impact of the National Literacy and Numeracy Strategy (2011-2020)

School principals were asked to indicate the extent to which the literacy and numeracy strategy had impacted on various aspects of teaching and learning in their school (Table 5.40). In general, principals were positive as the majority of principals indicated that the National Literacy and Numeracy Strategy had an impact on teaching and learning 'to some extent' (62.6 % for Second; 61.7 % Sixth class).

[23] All primary schools are currently required to administer standardised tests of English reading and Mathematics to pupils in Second, Fourth, and Sixth classes towards the end of the school year. Standardised tests were not carried out in 2020 due to COVID-19 school closures and had not yet been completed when the NAMER assessment was administered in May 2021.

Table 5.40: Percentages of pupils whose principal indicated the extent to which the initiatives such as the National Strategy to Improve Literacy and Numeracy(2011-2020) had an impact teaching and learning in their school, by grade level

	Class	A lot	To some extent	Very little	Not at all	Don't Know
Setting school-level achievement targets	Second	13.0	53.0	16.6	13.2	4.1
	Sixth	12.5	51.0	15.3	14.6	6.7
Raising standards in English reading	Second	13.3	55.8	20.1	9.2	1.6
	Sixth	12.8	52.7	19.4	11.1	4.1
Raising standards in Maths	Second	11.9	57.3	17.0	12.2	1.5
	Sixth	11.7	54.7	15.8	13.6	4.3
Increasing instructional time	Second	16.1	50.5	20.6	9.0	3.8
	Sixth	17.2	49.0	19.6	10.0	4.3
Promoting literacy across the curriculum	Second	25.5	52.3	12.6	7.1	2.5
	Sixth	23.5	53.7	11.3	8.3	3.3
Promoting numeracy across the curriculum	Second	24.4	48.8	16.0	8.4	2.5
	Sixth	21.3	51.6	14.4	9.5	3.3
Improving teaching and learning	Second	15.0	62.6	11.5	8.9	1.9
	Sixth	14.7	61.7	10.4	10.3	2.9
Increasing awareness of the importance of literacy and numeracy	Second	20.5	54.8	14.3	8.7	1.7
	Sixth	20.1	54.4	13.2	9.5	2.7
Providing feedback to parents on their child's English reading	Second	9.6	46.2	26.1	12.8	5.3
	Sixth	8.5	46.3	24.4	14.7	6.2
Providing feedback to parents on their child's Maths	Second	8.7	43.7	29.5	12.8	5.3
	Sixth	7.4	44.3	27.3	14.7	6.4

Principals of over half of Second classes pupils found the Literacy and Numeracy Strategy had an impact 'to some extent' on setting school-level achievement targets (53.0 %), raising standards in English Reading (55.8 %), raising standards in Maths (57.3 %), increasing instructional time (50.5 %), promoting literacy across the curriculum (52.3 %) and increasing awareness of the importance of literacy and numeracy (54.8 %).

Similarly, Sixth class pupils had principals who found the Strategy useful 'to some extent' in setting school-level achievement targets (51.0 %), raising standards in English reading (52.7 %) and Mathematics (54.7 %), promoting literacy (53.7 %) and numeracy (51.6 %) across the curriculum and increasing awareness of the importance of literacy and numeracy (54.4 %).

Principals for around two thirds of pupils in NAMER reported that the strategy impacted 'to some extent' on improving teaching and learning in their school. Nearly half (48.8 %) of Second class pupils had principals that found the Strategy useful 'to some extent' in promoting numeracy across the curriculum. Less than half of principals found the Strategy useful 'to some extent' in providing feedback to parents on their child's English reading (46.2 % Second class; 46.3 % Sixth class) or Mathematics scores (43.7 % Second class; 44.3 % Sixth class).

Factors that impact on teaching and learning outcomes for pupils

Principals reported paperwork and class size as the factors that had the biggest impact on teaching and learning from a list of 14 potential factors (Table 5.41).[24] About two-fifths of pupils were in schools where principals indicated that too much paperwork for teachers impacted teaching and learning 'a lot'. Slightly fewer pupils were in schools where principals reported that class size impacted on teaching and learning ' a lot'.

Table 5.41: The percentage of pupils in schools with outcomes impacted by aspects of teaching and learning

	Class	Not at all	Very little	To some extent	A lot
Too much paperwork for teachers	Second	2.6	8.1	47.2	42.0
	Sixth	4.9	6.1	47.8	41.1
Large class sizes	Second	5.6	9.2	47.7	37.5
	Sixth	6.0	10.9	43.8	39.4

Parental support and involvement

Principals were asked about the levels of parental support and involvement in their schools, and these findings are linked with achievement (Tables 6.42 and 6.43). Pupils in schools where principals reported 'very high' parental support for pupil achievement and 'very high' parental involvement in school activities achieved statistically significantly higher mean scores in both Second class reading and Sixth class Mathematics than those attending schools where lower levels of parental support were reported ('medium'; 'low'; 'very low'; excluding 'high' for Mathematics). Pupils in schools where parental involvement was characterised as 'low' and 'very low' had the lowest mean achievement scores for Second class English reading and Sixth class Mathematics.

Table 5.42: Extent of parental support and involvement and mean achievement at Second class

		Very high*	High	Medium	Low	Very low
Parental support for pupil achievement	%	17.9	55.5	23.2	2.8	0.6
	M	276.5	**260.2**	**252.8**	**238.0**	**237.6**
Parental involvement in school activities	%	7.3	45.6	33.3	13.0	0.8
	M	278.9	**262.9**	**259.6**	**247.0**	**240.1**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Table 5.43: Extent of parental support and involvement and mean achievement at Sixth class

		Very high*	High	Medium	Low	Very low
Parental support for pupil achievement	%	17.0	56.7	22.8	2.9	0.6
	M	273.4	**263.2**	**249.0**	**227.8**	**215.5**
Parental involvement in school activities	%	7.3	40.4	38.0	13.2	1.2
	M	273.0	**265.6**	**260.9**	**239.9**	**227.5**

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

[24] The other factors (e.g., pupils coming to school tired or hungry) are not included in this report..

COVID-19 and NAMER 2021

NAMER was initially scheduled for administration in Spring 2020, but due to the COIVD-19 pandemic and the accompanying school closures, the study was postponed until Spring 2021. Three additional questions were added to the school questionnaire in November 2020 to account for the school closure in 2020, but did not anticipate the closures in Spring 2021. These three questions asked principals'' views on the extent to which the COVID-19 pandemic had impacted teaching and learning, the ability of the school to meet the needs of pupils with additional needs, and the school's ability to meet targets in literacy and numeracy.

COVID-19: impact on teaching and learning

On average, the principals of 71 % of pupils responded that the COVID-19 pandemic had impacted 'a lot' on teaching and learning in their school (Table 5.44).

Table 5.44: Extent to which the COVID-19 pandemic impacted on the schools' teaching and learning and achievement, by grade levelresponsibility includes library duties and mean English reading scores, by grade level

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
A lot*	71.1	259.6	70.9	257.8
To some extent	26.7	**268.3**	26.2	**265.9**
Very little	2.2	272.3	1.7	276.0
Not at all	0	0	1.1	260.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Second class pupils in these schools had an average mean reading score of 259.6, and a mean Sixth class Mathematics score of 257.8. These scores were statistically significantly lower than those achieved by Second (*d* =.18) and Sixth (*d* =.16) class pupils in schools where the principal indicated that teaching and learning was impacted 'to some extent'. Pupils in schools where the principal indicated that the pandemic had had 'very little' impact had the highest mean scores in Second class reading and Sixth class Mathematics; however these performance differences were not statistically significant (Table 5.45).
No principals of schools with pupils in Second class indicated that teaching and learning was 'not at all' affected by the pandemic, there was a similarly small proportion of Sixth class pupils not at all impacted (1.9 %).

COVID-19: impact on school's ability to address the needs of pupils with additional learning needs

Principals were asked to indicate the extent to which the pandemic impacted on their school's ability to address the needs of pupils with additional learning needs (Table 5.45). All principals of schools with Second class pupils indicated that their school had been impacted, while only principals of 1.1 % of Sixth class pupils indicated that they were not affected at all. No principals indicated that Second or Sixth class pupils were impacted 'very little'. Principals of around 71 % of pupils indicated that their school's ability to address the needs of pupils with additional learning needs was impacted 'a lot'. A further 28.6 % of Second class pupils,

and 27.4 % of Sixth class pupils had principals who indicated that they were impacted 'to some extent'. Second class pupils in schools where their principal indicated their school's ability to address the needs of pupils with additional needs was impacted 'a lot' had statistically significantly lower mean scores (257.9, *d* = .19) in English reading than in schools where the principal indicated they were impacted 'to some extent' (267.4).

Table 5.45: Extent to which the pandemic impacted on the schools' ability to address the needs of pupils with additional learning needs and achievement

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
A lot*	71.4	257.9	71.5	258.6
To some extent	28.6	**267.4**	27.4	264.7
Very little	0	0	0	0
Not at all	0	0	1.1	260.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

COVID-19: impact on school's ability to reach literacy targets

Principals of over half of pupils (57.2 % Second class; 60.1 % Sixth class) indicated that their school's ability to reach literacy targets was impacted 'a lot' due to the COVID-19 pandemic (Table 5.46). A further 41.4 % of Second class pupils, and 37.4 % of Sixth class pupils indicated that their school was impacted 'to some extent'. Only 1.1 % of pupils where in schools where the principal indicated that the ability to reach literacy targets was 'not at all' impacted.

Table 5.46: Extent to which the pandemic impacted on the schools' ability to reach literacy targets and achievement

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
A lot*	57.2	254.9	60.1	257.0
To some extent	41.4	**268.0**	37.4	**265.5**
Very little	1.4	**283.9**	1.4	**277.1**
Not at all	0	0	1.1	260.2

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

The 57.2 % of pupils in schools where the principal indicated the school's ability to reach literacy targets was impacted 'a lot' by the pandemic had mean Second class reading (254.9) and Sixth class Mathematics scores (257.0, *d* = .41) that were statistically significantly lower than those of pupils whose schools were impacted 'to some extent' (268.0, *d* = .27 Second class reading; 265.5 , *d* = .17 Sixth class Mathematics), and those that indicated pupils were impacted 'very little' (283.9, *d* = .61 Second class reading; 277.1, *d* = .42 Sixth class Mathematics).

COVID-19: impact on school's ability to reach numeracy targets

Principals for close to 60 % of pupils responded that the COVID 19 pandemic had impacted 'a lot' on their school's ability to reach numeracy targets (Table 5.47). A further 39.2 % of Second class pupils, and 35.2 % of Sixth class pupils had principals who indicated that it impacted 'to some extent'. Only 2.3 % of pupils had principals who indicated that the pandemic had 'very little' impact on their school's ability to reach numeracy targets. No principal responded that their ability to reach numeracy targets was 'not at all' impacted.

Table 5.47: Extent to which the pandemic impacted on the schools' ability to reach numeracy targets and achievement

	Second class – English reading		Sixth class – Mathematics	
	%	*M*	*%*	*M*
A lot*	58.6	255.0	61.4	257.0
To some extent	39.2	**268.6**	35.2	**265.9**
Very little	2.3	271.6	2.3	**271.9**
Not at all	0	0	0	0

Note. Scores in **bold** are statistically significantly different from the mean score of the reference (*) group.

Pupils in schools were the principal indicated they were impacted 'a lot' had the lowest mean scores in Second class reading and Sixth class Mathematics. These pupils mean scores in English reading (Second) and Mathematics (Sixth) are statistically significantly different from Second class pupils that were impacted 'very little', and Sixth class pupils who were impacted 'very little' and 'to some extent'.

CHAPTER 6
Multilevel analysis of the factors contributing to pupil achievement in NAMER 2021

Earlier chapters have explored the associations between achievement and a number of background variables, examining each of these explanatory variables individually. These bivariate analyses give a preliminary understanding of characteristics and behaviours associated with achievement in Mathematics and English reading, but multilevel analysis can help us draw more detailed conclusions. Multilevel modelling accounts for the clustered nature of the NAMER data (that is, the fact that pupils participating in the study were clustered within classes and within schools) by estimating statistics at several levels. Thus, characteristics of pupils stemming from a cluster, such as the class and/or the school they attend, can be accurately examined along with pupil-level factors. At the same time, like other statistical modelling approaches, multilevel modelling allows for the simultaneous examination of multiple explanatory variables (while in bivariate analyses explanatory variables are examined one by one). For example, while there might be a raw performance difference between boys and girls, these differences may not be statistically significant once other pupil and school characteristics have been taken into account.

This chapter is divided into four sections. The first section provides some important information about understanding and interpreting multilevel models. Then, the methods used to apply the multilevel models are presented in section two. Next, the results of the models for reading and Mathematics achievement are presented.

Understanding multilevel models

Like other national and international large-scale assessments, the sample for NAMER 2021 was selected in two stages: first, schools were selected; then intact classes were selected within sampled schools. Although this cluster sample methodology has several advantages, it is less precise than a simple random sample in terms of population estimates. This is because pupils within selected clusters (classes and schools) tend to be more similar to each other than they are to pupils in the general target population (Goldstein, 2011). This is an issue in many educational studies where cases in the sample are often not independent of each other. Lack of independence can lead to underestimation of standard errors, narrower confidence intervals and smaller p-values that subsequently increase the risk of a Type I error (i.e. the risk of concluding that a relationship is statistically significant when in reality it is not) (Field, 2017).

In the analysis conducted for this report, as well as in the performance report (Kiniry et al., 2023), the sampling variance (i.e., the uncertainty due to sampling) was estimated and accounted for through the simulation of multiple samples based on the achieved sample (for more information, see Kiniry et al., 2023, Chapter 3). Multilevel modelling is another statistical approach that can control for the clustered nature of a sample by estimating variance at each level of this clustered structure (Cohen, 1988; Tarling, 2008; Woltman et al., 2012). By estimating variance at different levels, multilevel analysis allows for accurate investigation of the "effect"[25] of factors stemming from higher levels (e.g., class and school) on pupil performance. Multilevel modelling also allows us to examine the contribution of variables to the explanation of variance in the outcome variable at different levels, while accounting for other explanatory variables in the model. Finally, this technique facilitates the testing of within- and between-level interactions and allows the relationship of variables to vary across schools (i.e., random slope models). Some key concepts and terms used in this chapter are presented in Table 6.1.[26]

[25] The term "effect" is used in a statistical sense in this chapter. Causality cannot be inferred from the type of data presented here.
[26] Based on (Cosgrove et al., 2011).

Table 6.1. Key concepts and terms in multilevel modelling

Intercept
The intercept is the estimated achievement of a pupil who has a value of zero on all explanatory variables.
Explanatory variables, dummy coding and reference groups
Most explanatory variables in the models are categorical in nature; there are only two continuous variables included as predictors in the model for Sixth class Mathematics. For each categorical variable, a pupil can belong to only one category. To facilitate the analysis and the presentation of the results, categorical variables with more than two categories (e.g., DEIS status) were recoded and treated as binary (i.e., variables with two categories). Categorical variables are entered into the model using dummy variables. This means that for each category, a pupil has the value 1 or 0; for example, pupils who attend a school that is not in DEIS would have the value 0 for this variable, while pupils in DEIS schools would have the value 1. Using the DEIS example, non-DEIS was selected as the reference category (the category to which the value 0 was assigned) so the model estimates how pupils in DEIS schools perform compared to pupils in non-DEIS schools.
Between-class/school variance
This is the proportion or percentage of the total variation in achievement that is observed between clusters (classes or schools). The higher the percentage, the greater the difference between groups with respect to achievement. High between-school variance may indicate a less equal education system as it reflects large differences in achievement between different schools. This proportion is commonly referred to as intra-class correlation coefficient or ICC.
Unstandardised (*B*) coefficients
Each explanatory variable in the model is accompanied by a coefficient along with its standard error. These coefficients indicate the relationship of each explanatory variable with achievement. More specifically, unstandardised coefficients (*B*) indicate the predicted performance difference between the examined and the reference group. The higher the absolute value of a coefficient, the stronger the relationship between that explanatory variable and the outcome variable (i.e., achievement in Mathematics or English reading). Coefficients can take negative values, indicating a negative correlation between an explanatory variable and the outcome, or a performance difference favoring the reference category.
Standard error
Model parameters give estimates of the association between achievement and the variable of interest (having accounted for all other variables in the model). These estimates are computed based on data from only a sample of pupils from the population, using only a subset of items from a large item pool. Some variation or "error" around these estimates is to be expected, and therefore, each coefficient has a standard error (SE). When standard errors are large, there is a greater degree of uncertainty that the model parameter is close to the underlying population parameter. In general, standard errors are larger when there are fewer pupils in a particular category of variable.
Explained variance
This is the amount of variation in achievement that is explained by the explanatory variables included in the model. It gives an indication of the explanatory power of the model. For each model, the variance explained at each level is presented, as well as the overall explained variance, after taking the explained variance at each level into account.

More technical details on multilevel modelling are not presented in this report. However, readers interested in further information can refer to relevant texts (e.g., Goldstein, 2011; Hox et al., 2010; Snijders & Bosker, 2012). Those interested in the use of multilevel modelling in the context of large-scale assessments in education can refer to (Karakolidis et al., 2022).

Methods

A number of multilevel models, with and without explanatory variables, were applied for each grade level and subject. Models without any explanatory variables (commonly referred to as null models) provide information regarding the variation of achievement scores between pupils, classes, and schools. Null models of different configurations were applied to examine the variability in pupil performance (see Table 6.2).

The use of sampling weights in multilevel analysis is very important as ignoring them can lead to biased results (Kim et al., 2013; Mang et al., 2021; Rutkowski et al., 2010). It is also important that the weights used at each level of analysis reflect the sampling design of the study and account for the configuration of the levels within the models. For example, the weights of a two-level model with pupils at level one and classes at level two would be estimated differently from a two-level model that included schools at the highest level. In all models presented in this chapter, appropriate sampling weights were used at each level of analysis, as explained in Table 6.2.

Table 6.2. Multilevel model configurations and weight descriptions

Model configuration	Weight description
Two-level model: Pupil and school	
Level one: Pupil	Pupil weights scaled to add up to the school sample size
Level two: School	School weights
Two-level model: Pupil and class	
Level one: Pupil	Pupil weights scaled to add up to the class sample size
Level two: Class/schools	Class weights multiplied by school weights
Three-level model: Pupil, class and school	
Level one: Pupil	Pupil weights scaled to add up to the class sample size
Level two: Class	Class weights scaled to add up to the sample of classes
Level three: School	School weights

All models with explanatory variables presented in this chapter are two-level models with pupils at level one and schools at level two. It was decided to proceed with this configuration for two reasons. Firstly, as found by Kavanagh et al. (2015) after conducting multilevel analyses with the NAMER 2014 data, between-class differences tend to be very small; this is also confirmed by the results presented in this chapter. Secondly, in small schools with one Second and/or Sixth class, only one class per grade level participated in the study and for those schools, there could be no between-class differences.

The explanatory variables included in the models were selected based on their relevance to and their relationship with the outcome variable (i.e., performance in reading or Mathematics). For each assessment domain, the variables included in the model are of high importance for policy and practice and were found to be strongly related to pupil performance at the bivariate level. These criteria for inclusion allowed the models to remain as simple as possible and facilitated a clear discussion of the results.

All ten plausible values of pupil performance were taken into account in all analyses. The levels of missingness across the explanatory variables were relatively low. However, in order to ensure the number of cases included in the models were as similar as possible to that used for the bivariate analyses and the null models, the Full Information Maximum Likelihood (FIML) method was used to treat the missing data. In this method, cases with missing values are not removed from the analysis and missing values are not replaced with imputed estimates. Instead, all available information is used in the model, even cases with some missing data in one or more variables. The analysis was conducted using Mplus 8 (Muthén & Muthén, 1998-2017).

Tables 6.3 and 6.4 list the variables used in the modelling for Second class English reading and Sixth class Mathematics, respectively. The tables outline the recodes that were applied and provide descriptive statistics for continuous variables. They also present the percentages of pupils in each category for the binary categorical variables for non-missing cases, and the percentage of all cases for each variable that were missing data.

Table 6.3. Descriptive statistics for variables used in the Second class English reading model

Variable	Description or statement/question	Estimates	Missing
English reading performance	Pupil performance in English reading	*M* = 260.8, *SD* = 48.49	0.0 %
Gender	Are you…	Boy: 51.1 % Girl: 48.9 %	0.6 % *
English at home	How often do you speak English at home?	Always /Almost always / Sometimes: 95.7 % Never: 4.3 %	2.6 %
Irish at home	Do you speak Gaeilge (Irish) at home?	Yes: 21.0 % No: 79.0 %	1.5 %
Read for fun	On a school day, do you ever do these things before or after school? Read a book for fun	Yes, some/most days: 75.4 % Never: 24.6 %	4.8 %
Like reading	I like reading	Agree / Strongly agree: 87.5 % Disagree: 12.5 %	1.1 %
Good at reading	How good are you at each of these? English reading	Good / Very good: 93.6 % Need to improve: 6.4 %	2.0 %
DEIS status	Pupils by school DEIS status	DEIS: 23.7 % non-DEIS: 76.3 %	0.0 %

* The figure takes into account missing cases and pupils who selected indicated their gender as “Other”.

Table 6.4. Descriptive statistics for variables used in the Sixth class Mathematics model

Variable	Description or statement/question	Estimates	Missing
Mathematics performance	Pupil performance in Mathematics	*M* = 260.5, *SD* = 49.40	0.0 %
Gender	Are you…	Boy: 49.3 % Girl: 50.7 %	1.5 %*
Enjoy maths	I enjoy learning new things in Mathematics lessons	Agree / Strongly agree: 68.1 % Disagree / Strongly disagree: 31.9 %	0.7 %
Maths confidence	I worry that I will find Maths class hard I am not very good at Maths I get worried when I have to do Maths homework I get good marks in Maths I learn Maths quickly Maths is one of my best subjects In my Maths class, I understand even the hardest problems I worry that I will get poor marks in Maths	*M* = 2.4, *SD* = 0.67	4.5 %
Sense of school belonging	I like being at school I feel safe when I am in my classroom at school I feel safe when I am in the playground at school I feel like I belong at this school Teachers at my school are fair to me I am proud to go to this school I have friends in school	*M* = 1.6, *SD* = 0.54	3.4 %
DEIS status	Pupils by school DEIS status	DEIS: 22.3 % non-DEIS: 77.7 %	0.0 %

*The figure takes into account missing cases and pupils who indicated their gender as "Other".

Results for the model of Second class English reading achievement

As described earlier, pupils within the same class or school are expected to be more similar to each other than to their peers in other classes or schools. It is important to know how pupils' performance is affected by the class and the school that they attend. Table 6.5 presents the variance in Second class reading performance that is attributable to differences between pupils (within clusters) and between classes and/or schools (between clusters).

Based on the results of the first null model, with pupils at level one and schools at level two, 10.6 % of the variance in pupil reading achievement is attributed to differences between the schools that they attend (Table 6.5). This estimate is very similar to the ICC in Second class reading achievement in 2014 which was equal to 9.4 % (Kavanagh et al., 2015).

As observed in previous NAMER cycles, between-class variation in reading performance accounted for a very small proportion of the overall variation (1.4 % for schools where more than one class was sampled). This finding indicates that sampled classes within the same school tend to perform similarly to each other.

Table 6.5. Proportion of variance in Second class reading performance at different levels

Model configuration	Proportion of variance
Two-level model: Pupil and school	
Level one: Pupil	89.4 %
Level two: School	10.6 %
Two-level model: Pupil and class	
Level one: Pupil	89.5 %
Level two: Class/schools	10.5 %
Three-level model: Pupil, class and school*	
Level one: Pupil	90.5 %
Level two: Class	1.4 %
Level three: School	8.1 %

* ICCs for the three-level model were estimated using only pupils from schools with two sampled classes; 3760 pupils in 96 schools.

Table 6.6 presents the multilevel linear regression results for Second class reading achievement. The analysis was completed in two steps; first, pupil and school background factors (i.e., gender, languages spoken at home and DEIS status) were entered as explanatory variables in the model. In Step 2, three variables related to pupil attitudes towards reading were added to the model (i.e., whether they read books for fun before/after school, whether they like reading and how good they think they are at reading).

Pupil gender, which was found to be statistically significantly related to pupil reading achievement at the bivariate level, was no longer statistically significant after accounting for other variables, (e.g., the frequency with which pupils speak English at home and the DEIS status of the school they attended). With all other variables in the model held constant, girls were still expected to perform approximately 5 score points higher than boys, but this difference was not statistically significant. Speaking English at home was statistically significantly related to pupil reading performance in both steps of the model, even after accounting for other background and attitudinal factors. Specifically, pupils who reported that they never speak English at home were expected to perform lower than their peers who speak English at least sometimes at home; the predicted performance gap between the two groups was 16.5 points in Step 1 and 15.0 points in Step 2.

Those who speak Irish at home were found to perform better than other pupils in the bivariate analyses. After accounting for other pupil background and attitudinal factors, this gap in performance, while still in favour of those speaking Irish at home, was no longer statistically significant.

Three variables related to pupil attitudes towards reading were added in Step 2 of the model; namely, pupil responses on whether they read books for fun, whether they like reading and how good they think they are at reading. All three variables were found to be statistically significantly related to pupil reading performance, even after accounting for each other as well as pupil gender, languages at home and the DEIS status of the school pupils attended. Specifically, those who reported reading a book for fun on most or some school days were expected to outperform their peers who never read a book for fun on a school day by 11 score points.

Table 6.6. Multilevel modelling of Second class pupil achievement in reading

	Step 1 - *B (SE)*	Step 2 - *B (SE)*
Pupil-level		
Gender (Girl)		
Boy	-5.53 (3.36)	-4.58 (2.75)
English at home (Always / Almost always / Sometimes)		
Never	-16.48 (3.91)*	-14.95 (3.67)*
Irish at home (No)		
Yes	6.93 (5.36)	3.98 (5.31)
Read for fun (Never)		
Yes, some/most days	-	11.43 (2.47)*
Like reading (Disagree)		
Agree / S. agree	-	12.26 (2.56)*
Good at reading (Need to improve)		
Good / V. good	-	40.17 (4.10)*
School-level		
DEIS status (non-DEIS)		
DEIS	-21.51 (4.33)*	-21.31 (4.81)*
Intercept		
Reading score	267.65 (3.27)	210.35 (5.13)
Variance explained (R^2)		
Pupil-level:	1.3 %	7.3 %
School-level:	41.7 %	15.9 %
Overall:	5.5 %	8.1 %

*The explanatory variable is statistically significantly related to the outcome variable, $p < .05$.

Similarly, pupils who like reading (those who selected that they agreed or strongly agreed with the statement "I like reading") had, on average, a reading score of 11.4 points higher than those who reported that they do not like reading. Pupils who reported being either good or very good at reading were expected to perform much higher (by 40 score points) than their peers who reported that they needed to improve.

Finally, pupils in DEIS schools were expected to have a statistically significantly lower performance than those in non-DEIS schools (21-score-point gap), even after taking into account all other pupil factors included in the models.

Random slope models were applied to examine whether the relationship of each one of the explanatory variables with reading performance varied across schools; however, none of the slopes (i.e., relationships) varied statistically significantly across schools.

Overall, the variables included in the model explained 5.5 % of the total variance in pupil reading scores in Step 1 and 8.1 % in Step 2; most of the variance was explained at the school rather than the pupil level.

Results for the model of Sixth class Mathematics achievement

Based on the outcomes of the initial null model with pupils at level one and schools at level two, 10.2 % of the variability in Mathematics achievement is ascribed to between-school differences (see Table 6.7). Consistent with findings for reading, the between-class variation in Mathematics performance constitutes a small fraction of the overall variability, accounting for only 2 % in schools where more than one class was sampled. This suggests that sampled classes within the same schools tend to demonstrate very similar levels of performance.

Table 6.8 presents the multilevel linear regression results for Sixth class Mathematics performance. Similar to the model for Second class reading, the analysis was completed in two steps; first, pupil gender and school DEIS status were entered as explanatory variables in the model. In Step 2, three variables that were found to be strongly related to pupil Mathematics performance at a bivariate level (i.e., enjoying learning new things in maths, maths confidence scale, and sense of school belonging scale) were added to the model.

After accounting for schools' DEIS status, pupil gender was still statistically significantly related to Mathematics performance, with boys outperforming girls by almost 10 score points. However, when other factors were taken into account in Step 2, gender differences shrank and were no longer statistically significant.

Pupils' confidence in Mathematics was included as an explanatory variable in Step 2 and it was statistically significantly positively related to Mathematics achievement. Pupils with higher levels of confidence in Mathematics tended to score higher than pupils who indicated lower levels of confidence; with a one-standard-deviation increase in the maths confidence scale, pupils' performance was expected to increase by 27 score points.

After accounting for maths confidence, as well as other factors in the model, pupil enjoyment of maths was negatively related to their Mathematics performance. Specifically, pupils who agreed or strongly agreed that they enjoy learning new things in maths lessons were expected to have a lower score (by 5 score points) than their peers who reported not enjoying learning new things in maths lessons; the difference was small but statistically significant. This finding is in contrast with the results of the bivariate analysis results where, before accounting for any other factors, pupils who enjoyed learning new things in maths lessons significantly outperformed their peers. Possible interactions between maths enjoyment and the rest of the explanatory variables were examined, but none reached statistical significance.

Table 6.7. Proportion of variance in Sixth class Mathematics performance at different levels

Model configuration	Proportion of variance
Two-level model: Pupil and school	
Level one: Pupil	89.8 %
Level two: School	10.2 %
Two-level model: Pupil and class	
Level one: Pupil	89.4 %
Level two: Class/schools	10.6 %
Three-level model: Pupil, class and school*	
Level one: Pupil	86.7 %
Level two: Class	2.0 %
Level three: School	11.3 %

* ICCs for the three-level model were estimated using only pupils from schools with two sampled classes; 4037 pupils in 96 schools.

Pupils' sense of school belonging was statistically significant at the bivariate level but was not significant when added to the model along with other variables. Finally, DEIS status retained its statistical significance, even after accounting for the contribution of other factors on pupil Mathematics performance. With other variables held constant, pupils in non-DEIS schools were expected to outperform their peers in DEIS schools by 11 points.

Table 6.8. Multilevel modelling of Sixth class pupil achievement in Mathematics

	B (SE)	*B (SE)*
Pupil-level		
Gender (Girl)		
Boy	9.96 (3.18)*	-2.95 (2.29)
Enjoy maths (Disagree / S. disagree)		
Agree/ S. agree	-	-5.26 (2.39)*
Maths confidence	-	27.33 (0.96)*
Sense of school belonging	-	2.17 (1.16)
School-level		
DEIS status (non-DEIS)		
DEIS	-13.21 (5.80)*	-11.03 (4.34)*
Intercept		
Maths score	261.17 (2.87)	269.69 (3.13)
Variance explained (R^2)		
Pupil-level:	1.2 %	34.4 %
School-level:	13.6 %	12.6 %
Overall:	2.5 %	32.7 %

Notes. Continuous explanatory variables (i.e., maths confidence and sense of school belonging) were standardised before being included in the model to have a mean of 0 and a standard deviation of 1.
*The explanatory variable is statistically significantly related to the outcome variable, $p < .05$.

Random slope models were applied to examine whether the relationship of each one of the explanatory variables with Mathematics performance varies across schools; however, none of the slopes (i.e., relationships) varied statistically significantly across schools.

The variables included in the model in Step 1 (gender and DEIS status) explained only 2.5 % of the total variability in pupil Mathematics performance (with most of the variance being explained at the school level, 13.6 %). In Step 2, 32.7 % of the variance in Mathematics performance was explained by the model.

CHAPTER 7
Summary and Conclusions

This chapter provides a summary of the key findings on pupil, teacher, and classroom and school factors related to pupil achievement including reflection on the findings from the previous NAMER 2014 cycle and the wider literature. In addition, NAMER 2021 provides useful information related to initiatives and educational policies that are also discussed.

Pupil factors

Pupil background

NAMER 2021 was similar to NAMER 2014 in that most of the pupils that participated were born in Ireland and mainly spoke English at home. Although pupils born in Ireland had higher achievement scores then their peers not born in Ireland, the difference was not statistically significant in 2021 for either grade. This is in contrast to 2014 when Second class pupils born outside of Ireland had a significantly lower mean reading score(Kavanagh et al., 2015). Demographic changes are reflected in part by pupils' reports of the languages spoken in the home. Sixth class pupils reported speaking 111 different languages other than English or Gaeilge in 2021. The five most commonly reported languages at both grade levels were Polish, Romanian, Spanish, French and Lithuanian. Most pupils in Second class (74 %) and Sixth class (85 %) reported 'always or almost always' speaking English at home. The mean English reading score of pupils in Second class who said they 'never' speak English at home was statistically significantly lower in 2021 than those who speak English at home 'always or almost always', similar to the pattern observed in NAMER 2014 (Kavanagh et al., 2015). Further on in this chapter, reading and Mathematics achievement are discussed using a multi-level model. In the model, speaking English at home remained statistically significant in relation to pupil reading performance in both steps of the model, even after other background and attitudinal factors were controlled for. Specifically, pupils who reported that they never speak English at home perform lower than their peers who speak English at least sometimes at home.

The mean Mathematics score of Sixth class pupils who reported 'never' speaking English at home was higher than that of pupils who 'always' or 'almost always' speak English at home, but this difference was not statistically significant, as was found in 2014 (Kavanagh et al., 2015). Gilleece and Nelis (2023) in their analysis of DEIS schools in the NAMER 2021 sample, also found that lower frequency of speaking English at home is associated with higher average achievement in Mathematics in DEIS schools. Sixth class pupils in Urban Band 1 schools who reported 'never' speaking English at home had statistically significantly higher Mathematics scores than those who reported 'always' speaking English at home (Gilleece & Nelis, 2023). More Second class pupils, and fewer Sixth class pupils reported speaking Gaeilge at home in 2021 compared to 2014. Pupils who spoke Gaeilge at home had statistically significantly higher mean scores for both Second class English reading and Sixth class Mathematics.

These findings highlight the importance of supporting the development of reading skills in pupils with a home language other than English or Gaeilge. The relative strength in Mathematics of students who don't speak English at home, and the result of the model, suggests that poor performance in reading for these pupils is likely due to lack of English language skills, rather than other factors. Supporting learners for whom English is an additional language to fully participate in the curriculum by recognising their social, cognitive, and academic language needs is an objective (5.5) of the Literacy, Numeracy and Digital Literacy strategy (Government of Ireland, 2023) and is addressed in the Primary Language Curriculum (PLC) (National Council for Curriculum and Assessment, 2019). The PLC aims to approach literacy in an integrated way so learners can transfer linguistic skills across languages (Kennedy et al., 2023). Within the framework of the PLC the home language of pupils who speak a language other than English or Irish is seen as a resource rather than a deficit (Kennedy et al., 2023). Further attention should be given to strengthen this aspect of the curriculum.

Homework

Homework remains popular in schools, with most Second and Sixth class pupils in NAMER 2021 reporting doing homework on 'most school days'. Second class pupils were more likely to do English reading homework than Mathematics homework on 'most school days' (86 % vs. 77 %). Sixth class pupils completed English and Mathematics homework at similar rates (around 84 % for both subjects). Second class pupils who 'hardly ever' did English homework had significantly lower reading scores than those who did English homework 'most days'. Similar patterns of results were found in DEIS schools with pupils who reported doing homework on 'most school days' having significantly higher levels of average achievement than pupils who reported 'hardly ever' doing homework (Gilleece & Nelis, 2023). The possible relationship between homework and achievement in English reading at Second class should be explored further. It is unclear from this study if the relationship between homework frequency and reading performance is causal or dependent. For example, teachers may be setting less English homework for weaker pupils.

In terms of English homework practices, learning English spellings was the most frequent homework activity for Second class pupils (81 %) as was the case in NAMER 2014 (Kavanagh et al., 2015). The mean reading score of Second class pupils who reported learning English spellings on 'most school days' was statistically significantly higher than pupils who reported doing so 'some days'. The link between spelling and the development of reading skills is well known (Kennedy et al., 2012) and it would be useful to explore spelling as a strategy for reading development.

Second class pupils who read a book or e-book silently 'most days' (47.6 %) had significantly higher reading scores than those who did so less frequently. This finding is consistent with findings from PIRLS (Bruggink et al., 2022; Clerkin & Creaven, 2013; Delaney et al., 2023; Eivers et al., 2017), PISA (Donohue et al., 2023; McKeown et al., 2019) and previous cycles of NAMER (Eivers et al., 2010; Kavanagh et al., 2015) who also found that daily reading was related to higher English reading performance. Book reading should be encouraged and supported as part of homework.

Finding information on a computer, mobile phone or tablet was the least commonly reported English reading homework practice for Second class pupils. It is possible that pupils at Second class are not using computers and devices for homework due to restrictions in use due to age. Teachers may be less likely to assign homework that needs online work to younger children such as those in Second class. The reading score of pupils who used a device to find information 'most days' was statistically significantly lower than pupils who reported completing this activity 'some days' or 'never'. As research in the area would suggest (Kennedy et al., 2012), pupils who wrote as part of their homework 'most days' (67 %) had higher reading scores than those who never did writing tasks.

The majority of Sixth class pupils spent 'less than an hour' on Mathematics homework on school days. The number of days on which pupils completed Mathematics homework was not related to performance on the Mathematics assessment. However, pupils who spent 'less than an hour' on Mathematics homework outperformed those who spent other time allocations to Mathematics homework ('no time'; '1-2 hours'; 'more than 2 hours'). This may suggest there is an optimum of time for Mathematics homework, and that teachers should differentiate homework so that weaker pupils are not spending excessive time on homework. Teachers should be encouraged to regularly check in with pupils and parents on how long homework is taking to complete.

Over one-third of Sixth class pupils (35.7 %) never used a device for Mathematics homework, and these pupils had significantly higher mean Mathematics scores (268.3) compared to those using a device once or twice a week (252.3, d = 0.4) or daily (249.2, d = 0.3). On first glance, this could be interpreted as evidence of the negative effects of digital devices on Mathematics performance, however it is possible that pupils

with relative weakness in Mathematics are using computers or tablets to support learning in the form of additional Mathematics programs. Butler and colleagues, in their 2022 review of the use of digital technologies as tools for numeracy development, found that the use of computer based Mathematics programs can have a positive impact on students' achievement in Mathematics but noted that 'further research is required to identify the instructional design features that are required to optimise their effects on Mathematics learning. While these systems may offer benefits to Mathematics teaching and learning, they must be used alongside other forms of instruction and cannot be used in isolation' (Butler et al., 2022).

Reading, Second class

There is an established strong positive relationship between reading frequency, reading enjoyment, positive attitude to reading and reading attainment (Clark & Douglas, 2011; Clark & Rumbold, 2006; Education Standards Research Team, 2012) and this is also seen in NAMER 2021. Pupils who read for pleasure (reading books on their own for fun) 'most days' have a statistically significant higher mean reading score (273.2) then their peers who read less ('some days' 260.3, d = 0.3 or 'never' 239.1, d = 0.7). This finding is consistent with findings from NAMER 2014 (Kavanagh et al., 2015), PIRLS 2021 (Delaney et al., 2023) and PISA 2018 (McKeown et al., 2019).

Worryingly, Second class pupils in NAMER 2021 were less likely to read books or magazines for fun than in 2014, with significantly more reporting never reading for fun in 2021. A similar pattern is also seen in PIRLS 2021 where the frequency of reading for fun statistically significantly declined between 2016 and 2021, while the percentage who never read for fun statistically significantly increased (Delaney et al., 2023). Given the important link between reading for pleasure and reading achievement this is a concerning trend.

In contrast, more than half of Second class pupils had positive attitudes towards reading in 2021, with positive attitudes being positively related to reading performance. Attitudes towards reading in 2021 where broadly similar to attitudes in 2014 (Kavanagh et al., 2015), although mean reading scores were slightly lower in 2021. 'Liking' reading was again strongly related to reading performance in NAMER 2021. Pupils who 'strongly agreed' with the statement "I like reading," significantly outperformed those who 'agreed' (258.5, d = 0.3) and 'disagreed '(239.6, d = 0.7), while pupils who 'strongly agreed' with the statement "I really want to do well at reading", achieved higher mean scores (263.8) than those who 'disagreed' (238.7, d = 0.5), underscoring the positive relationship between reading for enjoyment and the importance of motivation to reading achievement. This finding is consistent with findings from PIRLS 2021 (Delaney et al., 2023).

Although three-quarters of pupils either 'strongly agreed' or 'agreed' that they like to tell their families about what they are reading, over half of pupils disliked talking to their friends about what they read. Interestingly, Second class pupils who did not like talking to their friends about what they read had a mean reading score statistically significantly higher than that of those who did talk to friends about what they read.

As might be expected, two thirds of Second class pupils 'strongly agreed' that they like to read about things that they are interested in, while a further quarter of pupils 'agreed'. Pupils who 'strongly agreed' with this statement had statistically significantly higher mean reading achievement than those who 'agreed' and 'disagreed'. A finding such as this suggests that continued attention should be given to providing a wide selection of texts and genres to pupils.

Pupils at Second class have good self-awareness of their English reading and English language skills. Just over half of second class pupils 'agreed' that their teacher thinks they are good at reading. Those who 'strongly agreed' with this statement performed statistically significantly higher than their peers who 'disagreed'. Most Second class pupils were confident in their ability to speak, read, spell words and write in English. Pupils who rated themselves as needing to improve had statistically significantly lower mean English reading scores, suggesting pupils are self-aware. These pupils should be supported to develop their skills in reading and their confidence through appropriate teaching methods.

In 2021, pupils reading comics or magazines for fun 'most days' (15.1 %) had lower mean scores (262.3) than those who read these on 'some days' (270.3, d = 0.2). This is consistent with research from PISA which suggests comic books and magazines are more frequently read by pupils with weaker reading performance (OECD, 2011). As magazines and comics move to online platforms, and the general reduction in availability of paper based materials, efforts should be made to make similar or equivalent materials more assessable to pupils, bearing in mind that this study also found that reading online was not popular for Second class pupils in NAMER 2021.

Most Second class pupils reported reading with a parent on either 'most' or 'some days' in 2021, though fewer did so 'most days' compared to 2014 (28 % vs 33.4 %). The frequency of reading with a parent did not lead to statistically significant differences in pupil reading performance in 2021. In 2021, significantly fewer Second class pupils read with an adult other than their parent, with nearly three times as many reporting never doing so compared to 2014, likely due to COVID-19 restrictions. Pupils who read with another adult 'most days' had significantly lower English reading scores, perhaps reflecting additional paired reading practice employed to support their reading skill.

Efforts should be made to try and make the reading experience more enjoyable for all readers, but especially struggling readers. This could be achieved by providing a wide range of reading materials to pupils and actively encouraging pupils to participate in the selection of reading materials at home and in school. Where possible public libraries and their considerable resources should be utilised by both schools and families.

Mathematics – Sixth class

In general, pupils in Second and Sixth class have good awareness of their ability in Mathematics. Sixth class pupils' Mathematics confidence was statistically significantly and strongly positively correlated (r = 0.6) with Mathematics performance. This is consistent with findings from TIMSS (Clerkin et al., 2016; Perkins et al., 2015; Perkins & Clerkin, 2020). Fostering a positive attitude to Mathematics is an aim of the Primary Mathematics Curriculum (PMC) for Primary and Special schools (PMC; National Council for Curriculum and Assessment, 2023).

Statistically significant differences in performance were observed across all of the component statements related to Mathematics confidence. Pupils who indicated higher levels of confidence in Mathematics tended to score higher than pupils who indicated lower levels of confidence. The performance differences between the highest and lowest confidence groups are substantial, ranging from 41.9 score-points for the statement "I worry that I will get poor marks in Maths" to 85.2 score-points for "I get good marks in Maths", with differences exceeding 60 score-points for most statements.

Most pupils reported using useful strategies when learning Mathematics, and increased use of effective strategies was reflected in higher mean Mathematics performance. The 45 % of Sixth class pupils who 'agreed' with the statement "I often think about how I can use Maths in everyday life" had statistically

significantly higher mean Mathematics performance than those who 'strongly disagreed', suggesting the importance of strengthening the links between Mathematics in school, and in everyday life. This is an issue that is addressed in the new PMC (National Council for Curriculum and Assessment, 2023).

Particular attention should be given to supporting teachers in building links between the Mathematics taught in the classroom and real life, including the resourcing of CPD and materials. Facilitating pupils to make connections between their learning of Mathematics in the classroom and their life is an important focus of the new PMC (National Council for Curriculum and Assessment, 2023). Although pupils who 'agreed 'with the statement "I often think of other ways to get the answer to a problem" performed similarly to those who 'disagreed' and 'strongly disagreed', those who 'strongly agreed' with this statement statistically significantly outperformed those who 'agreed' (d = 0.3), suggesting these pupils are comfortable and confident in their Mathematics. Teachers should be supported in building pupil confidence and flexibility when thinking about Mathematics problems.

As well as real life experience, and flexibility in learning and applying Mathematical concepts, learning by heart was commonly reported by pupils. Sixth class pupils who 'strongly agreed' that they try to learn as much Mathematics as possible off by heart statistically significantly outperformed those who 'agreed' by 11.0 score-points, while pupils who 'strongly disagreed' (4.5 %) that they try to learn as much Mathematics as they can off by heart had a mean Mathematics score that is statistically significantly lower than that of those who 'agreed'. This finding is surprising, as there has been some movement away from learning by heart in the classroom. However, this relationship may be partly explained by the unusual school context preceding the administration of NAMER 2021. Sixth class pupils had only recently returned to the classroom following the second COVID-19 school closure. Learning by heart may be a strategy used by pupils in the absence of in-person teaching.

Performance differences were also observed based on pupils' level of agreement with the statement "I try to understand new ideas in Maths by thinking about what I already know". Higher levels of agreement were associated with higher mean Mathematics scores. Teachers should be encouraged and supported to scaffold pupils to understand Mathematics concepts by thinking about what they already know. About two-thirds of pupils (67.3 %) 'agreed' or 'strongly agreed' that they repeatedly go through examples to remember them. Those who 'disagreed' (28.5 %) achieved a mean score that was statistically significantly higher than that of those who 'agreed' (d = 0.2), suggesting that repetition is a strategy used by pupils with weaker Mathematics skills. No performance differences were observed based on pupils' level of agreement with the statement "I try to remember every step when doing a problem". Regardless of whether pupils 'strongly agreed', 'agreed', 'disagreed', or 'strongly disagreed' with this statement, their performance did not vary statistically significantly. The strategies used by pupils, together with other factors, may be used by teachers to help identify pupils who are struggling with Mathematics.

Digital device usage

The use of computing devices in schools varied. Substantial proportions of Second class pupils, ranging from 38.1 % to 87.2 %, reported that they 'hardly ever' or 'never' used computing devices for activities at school. Sixth class pupils who used computing devices to engage in various activities more frequently tended to achieve statistically significantly lower mean Mathematics scores compared to their peers who used them less frequently, with effect sizes ranging from d = 0.2 to d = 1.0.

The activities for which Second class pupils reported more frequent use of computing devices were to play games, to learn things, find information on the Internet, and practise Mathematics. Pupils who used computing devices to engage in activities 'most days' achieved statistically significantly lower mean

reading scores compared to their peers who used them less frequently ('some days' or 'hardly ever or never'), with effect sizes ranging from *d* = 0.2 to *d* = 0.6.

The most performed activity among Sixth class pupils using digital devices at school was finding information on the Internet. Approximately 72.4 % of pupils engaged in this activity 'once or twice a week' or 'a few times a month'. Substantial proportions of Sixth class pupils, ranging from 33.0 % to 44.4 %, reported using digital devices in school at least 'a few times a month' to practise Mathematics, take a quiz or test, solve Mathematics problems, work on a project with other children in their class, and play games to learn things or for fun.

Using digital devices to read an e-book, do art/drawing/design, meet with children in another school online, do coding, and build a robot (e.g., Lego Robots) was less common, with relatively small proportions of pupils (ranging from 4.0 % to 19.9 %) reporting doing this in school 'at least a few times a month'.

Use of mobile phones at home

Although using a mobile phone was common, more mobile phone use was associated with lower reading and Mathematics performance for both Second and Sixth class pupils. Mobile phone use was common at Second class, however pupils who 'hardly ever or never' engaged in activities using a mobile phone performed, on average, statistically significantly higher than their peers who did so 'most days' (effect sizes ranging from *d* = 0.2 to *d* = 0.4), while, in most cases, the former group of pupils also outperformed, though non-significantly, their peers who engaged in these activities 'some days'. Sixth class pupils who spent 'more than 2 hours a day' using a mobile phone had the lowest mean Mathematics performance (249.1), which was statistically significantly lower than that of pupils who used a mobile phone for '1-2 hours' (264.7 *d* = 0.3). Only 9.2 % of Sixth class pupils reported not using a mobile phone on school days, with these pupils having statistically significantly higher mean Mathematics score (275.2) than their peers.

Sixth class pupils who reported spending 'less than an hour' chatting with friends using a computing device or mobile phone on school days achieved a mean Mathematics score (271.7) that was statistically significantly higher than that of the group that did so for '1-2 hours' (263.1, *d* = 0.2). Spending 'more than 2 hours' on this activity was associated with a statistically significantly lower mean Mathematics score (244.6) than those who spent '1-2 hours' chatting with friends (263.1, *d* = 0.4). Second class pupils who reported chatting with friends using a computing device or mobile phone on 'some days' achieved a statistically significantly higher mean reading score (270.1) than pupils who engaged in such activities 'most days' either before or after school (252.9, *d* = 0.4).

Family rules for digital device usage – Sixth class

Pupils in Sixth class were asked if there were rules around the use of digital devices in their family, and it was clear that in the majority of families there were, as well as there being limits on the amount of time they could spend on digital devices. The majority of Sixth class pupils also indicated that their parents knew a lot about what they did online. This seems to be generally consistent with guidance to parents around managing screentime (HSE, 2024). In general, Sixth class pupils who indicated more rules, restrictions and that their parents knew more about what they did online performed, on average, statistically higher on the Mathematics assessment than pupils in families where this was not the case. However, it was also the case that the small proportion of pupils who indicated they only used digital devices for schoolwork achieved mean Mathematics scores (237.6 'strongly agreed' and 236.4 'agreed', respectively) that are statistically significantly lower than that of pupils who 'strongly disagreed' (264.0) with the relevant statement ('strongly agree': *d* = 0.5; 'agree': *d* = 0.6).

Use of digital devices during COVID-19 school closures

Use of digital devices and their relationship with achievement during COVID-19 school closures in 2020, and 2021 varied by device type and class level. Use of digital devices such as computers or laptops and tablets for schoolwork, rather than mobile phones, was associated with statistically significantly higher mean reading and Mathematics performance. Tablet use appeared to be more favourable for Second class pupils, while use of computers and laptops was more associated with achievement at Sixth class.

Sixth class pupils were more likely than Second class pupils to use a computer or laptop for schoolwork 'most days' (53.0 % vs 38.4 %). There were no statistically significant differences in performance based on frequency of use at either grade, however Sixth class pupils who 'hardly ever' or 'never' used a computer for schoolwork during school closures had a lower mean Mathematics score (257.0) than the rest of their peers. Second class pupils (37.5 %) that 'hardly ever' or 'never' used a tablet for schoolwork during COVID-19 school closures had a statistically significantly lower mean reading score (256.5) than pupils who used a tablet 'most days' (266.5, d = 0.2). This effect was not seen at Sixth class.

Using a mobile phone for schoolwork 'most days' during COVID-19 was associated with statistically significantly lower mean reading and Mathematics scores at both Second and Sixth class. Sixth class pupils who used a mobile phone for schoolwork 'some days' achieved a statistically significantly higher mean Mathematics score (266.6) than those who did so 'most days' (263.5, d = 0.1).

Second class pupils were more likely than Sixth class pupils to use the TV (e.g., RTÉ's Home School Hub, Cúla 4) for schoolwork during COVID-19 school closures, but this was not statistically significantly related to reading performance. Sixth class pupils who used the TV for schoolwork during COVID-19 'most days' achieved had statistically significantly lower mean Mathematics score (247.0) compared to their peers who did so 'some days '(263.6, d = 0.4) or 'hardly ever' or 'never' (263.6, d = 0.3).

Sense of school belonging – Sixth class

Overall, across all seven aspects of pupils' sense of school belonging, pupils' sense of school belonging was statistically significantly and positively correlated with Mathematics performance. These findings are consistent with other studies of wellbeing in primary age children in Ireland such as PIRLS (e.g., Clerkin & Creaven, 2013), Growing Up in Ireland (e.g., McNamara et al., 2018), and Children's School Lives (e.g., Sloan et al., 2024). About a quarter of pupils 'agreed a lot' with the statement "I like being at school". These pupils had a statistically significantly higher mean Mathematics score (272.3) than those who 'agreed a little', 'disagreed a little', or 'disagreed a lot' (238.6, d = 0.7).

Similar and substantial proportions of pupils agreed a lot that they feel safe in their classrooms (59.0 %) and in the playground (56.3 %). Those who 'agreed a lot' that they feel safe in their classrooms achieved a statistically significantly higher mean Mathematics score (265.6) than the rest of their peers (agree a lot: d = 0.2; disagree a little: d = 0.5; disagree a lot: d = 0.7). Those who agreed a lot that they feel safe in the playground achieved a statistically significantly higher mean Mathematics score (266.3) than the rest of their peers (agree a lot: d = 0.2; disagree a little: d = 0.5; disagree a lot: d = 0.6). Despite more than half of pupils, respectively, strongly agreeing that they feel safe in their classrooms or in the playground, approximately 10 % of the sample in each case disagreed with these statements. While this may reflect pupils' concerns relating to school attendance prompted by COVID-19 as vaccines were not widely available in spring 2021 (i.e., during NAMER 2021 data collection), these findings warrant close monitoring in future NAMER cycles and other national and international studies. Almost half (48.9 %) of pupils agreed a lot that they feel they belong at their school. The difference between these pupils' mean Mathematics score (264.7) and that of their peers who agreed a little (262.9) was about two score-points and was not

statistically significant. However, there is a statistically significant difference between the mean scores of pupils who 'agreed a lot' and those who 'disagreed a little' (250.0, *d* = 0.3) or a lot (232.9, *d* = 0.7) with this statement, favouring those who 'agreed a lot'.

Approximately three-fifths of pupils 'agreed a lot' with the statement "Teachers at my school are fair to me", and a further 30.3 % agreed a little. Pupils who 'disagreed a lot' that their teachers were fair to them (2.3 %) had statistically significantly lower mean Mathematics performance than pupils who 'agreed a lot' (*d* = 0.5).

More than half of pupils in Sixth class (58.8 %) 'agreed a lot' that they are proud to go to their school, while almost one-third (32.1 %) 'agreed a little'. Pupils who disagreed with this statement (9.1 %) achieved mean scores that are statistically significantly lower than that of pupils who 'agreed a lot' ('disagree a little': *d* = 0.3; 'disagree a lot': *d* = 0.5). The majority of pupils (83.0 %) 'agreed a lot' with the statement "I have friends in school", and a further 13.9 % of pupils 'agreed a little'. Pupils who agreed a lot achieved a mean Mathematics score (261.8) that is statistically significantly higher than those of pupils who 'disagreed a little' (249.8, *d* = 0.3) or 'disagreed a lot' (231.1, *d* = 0.6).

Activities outside of school

In general, Second class pupils who participated in activities outside of school, on 'some days', had a higher mean reading score than those who participated 'everyday' or 'never', while Sixth class pupils who spent more time, usually more than 1 or two hours, on a pastime or hobby on schooldays had statistically significantly lower mean Mathematics performance, on average.

For example, watching TV, films, or YouTube before or after school was popular at Second and Sixth class with most Second class pupils doing it on 'most' or 'some' school days. While frequency of TV watching was not related to achievement for Second class pupils, duration of TV, Film or YouTube watching for Sixth class pupils was related to Mathematics achievement. Sixth class pupils who watched for 'more than two hours' on a school day (23.9 %) had a statistically significantly lower mean Mathematics score (250.5) than pupils who did so for '1-2 hours' (264.1, *d* = 0.3), while pupils who did so for 'less than an hour' or spent 'no time' on such an activity on school days had a similar mean Mathematics score (264.2 and 259.1, respectively) to that of pupils who did so for '1-2 hours'.

Likewise, Second class pupils who reported playing games on a computer, console, or online 'some days' had a statistically significantly higher mean reading score (267.5, *d* = 0.2) than pupils who reported playing 'most days'. Almost four-in-ten Second class pupils (39.0 %) indicated that they played games on a computer or console (e.g., PlayStation) or online games 'most days', a further 35.5 % reported playing such games 'some days' and 25.5 % of pupils reported 'never' playing such games before or after school on school days.

Sixth class pupils who spent 'no time' playing games on a computer/console (e.g., PlayStation, Xbox) or online had the highest mean Mathematics score among their peers (267.5), which is statistically significantly higher than pupils who played for '1-2 hours' a day (258.3, *d* = 0.2). Very few Second or Sixth class pupils attended classes or clubs for computers or coding.

The half of Second class pupils who did jobs around the house before or after school on 'some days' had statistically significantly higher mean reading score (266.5, *d* = 0.2) than pupils who did so 'most days'. Sixth class pupils who spent 'less than an hour' doing jobs at home (e.g., cleaning) on a school days had the highest mean Mathematics score (265.7), which was statistically significantly higher than pupils who

reported spending '1-2 hours' on this activity (257.2, *d* = 0.2). Sixth class pupils who spent 'no time' doing jobs at home on school days had the lowest mean Mathematics score among their peers (242.9), which is statistically significantly lower than that of pupils who spent 'less than an hour' doing jobs.

Second class pupils who played sports on 'some' school days achieved a statistically significantly higher mean reading score (268.4) than pupils who played sports 'most' school days (258.9, *d* = 0.2). Almost half of Second class pupils (47.2 %) played sports on 'most' school days, a further 35.2 % did so on 'some' school days. About two-fifths of Sixth class pupils spend '1-2 hours' playing sports on school days. The mean Mathematics performance for this group was higher than that of all other groups, but statistically significantly different only from that of pupils who spent 'more than 2 hours' playing sports (255.8, *d* = 0.2).

As with sport and other activities, Second class pupils who reported going to extra classes or clubs for music, dance or art on 'some' school days had a statistically significantly higher mean reading score (274.4) than pupils who reported doing this 'most' days (256.3, *d* = 0.4). Likewise, Sixth class pupils who spent 1-2 hours on extra classes or clubs for music, dance, art or languages on school days had a statistically significantly higher mean Mathematics scores (268.5, *d* = 0.2) than the approximately two-thirds of Sixth class pupils (65.7 %) who spent 'no time' on extra classes or clubs for music, dance, art or languages (257.9). Spending 'more than 2 hours' a day on these activities was also associated with a statistically significantly lower mean Mathematics score (253.8, *d* = 0.3).

Spending time with friends on 'some', rather than 'most' school days was associated with a higher mean reading score (266.2) for Second class pupils. Likewise, Sixth class pupils who spent 'more than 2 hours' on school days with friends, had the lowest mean Mathematics score (249.7), which was statistically significantly lower than the score of pupils who spent '1-2 hours' with friends on school days.

Almost half of Second class pupils (48.4 %) reported spending time by themselves on 'some' days before or after school. Pupils who 'never' spent time by themselves on a school day had a statistically significantly lower mean reading score (251.2) than pupils who spent time by themselves on 'most' school days (260.8, *d* = 0.1). The 7.5 % of Sixth class pupils who did not spend any time by themselves on school days achieved a statistically significantly lower mean Mathematics score (250.8) than pupils who spent '1-2 hours' by themselves (262.2, *d* = 0.2).

Extra classes outside of school

Very few Second class and Sixth class pupils reported attending extra English lessons or Mathematics lessons in 2021. However, pupils who did attend extra lessons in English or Mathematics had statistically significantly lower scores in English reading (Second class: *d* = 0.4, *d* =.05, respectively) and Mathematics (Sixth class: *d* = 0.5, *d* = 0.3, respectively). The proportion of pupils attending extra English and Mathematics lessons in 2021 was slightly lower than in 2014 (Kavanagh et al., 2015), which may be explained by the COVID-19 restrictions. It is possible that only the pupils with the greatest learning need were able to access extra classes.

Parents' interactions with pupils – Sixth class

The four-in-ten pupils whose parents discussed how well they were doing in school with them 'several times a week' had a statistically significantly lower mean Mathematics score (258.0) than pupils who reported their parent(s)/guardian(s) doing this 'several times a month' (265.3, *d* = 0.2) or 'a few times a year' (267.2, *d* = 0.2), perhaps suggesting that parents have a good sense of their child's academic performance.

Most Sixth class pupils (75.4 %) had parents who spent time chatting with them 'several times a week'. Pupils who reported that their parent(s)/guardian(s) discussed books, films or television programmes with them 'several times a week' (31.3 %) had a statistically significantly higher mean score in maths than pupils who reported their parent(s)/guardian(s) 'never or hardly ever' did this (246.6, *d* = 0.3).

The majority of pupils (82.7 %) reported that their parent(s)/guardian(s) ate dinner with them around the table 'several times a week'. These pupils' mean Mathematics score was statistically significantly higher than those of pupils who reported that their parent(s)/guardian(s) ate dinner with them 'several times a month' (251.6, *d* = 0.3), a few times a year (239.1, *d* = 0.5), or never or hardly ever (234.1, *d* = 0.6).

Teacher and classroom factors

Background on teachers and classes

In terms of teacher characteristics, qualifications and experience there were limited associations with pupil achievement. The proportion of female teachers was higher than male teachers at both grade levels. The percentage of pupils taught by male teachers is higher in NAMER 2021 than reported in NAMER 2014, particularly at Sixth class (Kavanagh et al., 2015). Teacher gender was not associated with pupils' achievement in either reading or Mathematics. The majority of teachers at both grade levels had permanent status, although the proportion of teachers with permanent status was slightly lower than in NAMER 2014 (Kavanagh et al., 2015). Teacher status was not associated with performance at either Second or Sixth class. The teachers of the Second and Sixth classes had an average of 11.8 and 13.5 years of teaching experience, respectively. These numbers align with the 2014 averages of 12.2 and 13.1 years (Kavanagh et al., 2015). In general, there was no association between teaching experience and achievement, except that the mean reading score of the Second class pupils who had teachers with over 20 years of experience was 15 score points higher than the mean score of pupils who had teachers with just five years of experience or less.

About one-in-ten pupils were taught by teachers who studied Mathematics as a specialist subject. Sixth class pupils' mean Mathematics scores did not differ based on whether their teacher had studied Mathematics in a degree course or not. About fifty percent of Second class pupils and Sixth class pupils were taught by teachers who indicated that they had no additional qualifications relating to their work as a teacher. The proportions of pupils taught by teachers with advanced degrees have increased at both Second and Sixth class since 2014 (Kavanagh et al., 2015). In general, there were no associations between these additional qualifications and pupil performance on English reading or Mathematics. However, at Second class, pupils of teachers with a Master's or PhD achieved a lower mean reading score lower (by 12 score-points) than that of pupils whose teacher had no additional qualifications. There are several points to note about this finding. First, in NAMER 2014, there were no statistically significant differences in pupils' mean reading or Mathematics scores based on whether their teacher had attained a Master's or PhD (Kavanagh et al., 2015). Second, as Kavanagh et al. (2015) highlight, it is possible that these qualifications achieved by teachers were not directly related to the teaching of English reading or Mathematics.

Less than five percent of Second class pupils (4.3 %) were taught by teachers with additional responsibility for English, while almost 16 % of Sixth class pupils were taught by teachers with additional responsibility for Mathematics. Pupils' average performance in English reading and Mathematics was not associated with whether or not their teachers had additional responsibilities for these curricular areas, a pattern similar to 2014 (Kavanagh et al., 2015).

Turning to Teachers' Professional Learning (TPL), 34.3 % of Second class pupils were taught by teachers who had not attended any external teaching and learning for English, and 41.0 % had attended TPL for English for one to four days. Most teachers reported no in-school TPL, either outside or inside Croke Park Agreement hours, and 51 % of Second class teachers had no training in distance learning, including blended learning and remote teaching. When dichotomised into 'no attendance' and 'any attendance' there were no associations between pupil performance and teacher attendance at any of the types of TPL for the relevant subject (English reading for Second class and Mathematics for Sixth). It should be borne in mind that the period asked about in the teacher questionnaire (the two years preceding the administration of NAMER 2021) included the school closures due to the COVID-19 pandemic and wider restrictions in society and reports of attendance may not reflect the typical TPL activities for teachers.

Most Second and Sixth class pupils were taught in single grade classrooms, with 4.0 % and 1.7 % taught by teachers for four grade levels. The mean number of pupils in single-grade Second classes was 24.8, while, at Sixth class, the mean number for single-grade classes was 26.2. On average, multi-grade classes were slightly larger at Second class (26.0) but marginally smaller at Sixth class (25.4). In NAMER 2014, the average overall class size was slightly higher at 25.3 for Second class and 25.8 for Sixth class (Kavanagh et al., 2015). There were no significant associations between the number of grade levels in the classroom or class size and English reading or Mathematics achievement.

Instructional time in NAMER 2021 indicates that teachers of Second class allocate an average of 294.8 minutes per week to the teaching of English; the corresponding figure was 294 minutes in NAMER 2014 (Kavanagh et al., 2015). There was an increase in instructional time in NAMER 2014 compared to NAMER 2009 (Kavanagh et al., 2015), which was in line with the Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2011). Teachers of Sixth class reported spending an average of 299.3 minutes per week on the teaching of Mathematics. This represents an average increase of 16.1 minutes since NAMER 2014 in Mathematics teaching (Kavanagh et al., 2015), which was again in line with the Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2011). It should be noted that the average figure in 2014 already exceeded the increase to 250 minutes outlined in Circular 0056/2011. It should also be borne in mind that teachers in both cycles were asked not to include time spent on cross-curricular teaching.

The Primary Curriculum Framework, published in 2023 suggests a new model for time allocation, with Minimum Curriculum Time (weekly and monthly allocations) and Flexible Time (monthly allocations) (National Council for Curriculum and Assessment, 2023). The minimum weekly curriculum allocation to language 1, the main language of instruction in a school, in First and Second class is 285 minutes, which is just under 10 minutes less than the average assigned to teaching English in NAMER 2021. The Minimum weekly Curriculum Time for Mathematics in Sixth class is 4 hours, or 240 minutes which is just under an hour less per week than the average time allocated to teaching Mathematics in Sixth class in NAMER 2021. However, an additional 5 hours, or 300 minutes is assigned as a monthly, or Flexible time, allocation to the related area of Science, Technology, and Engineering Education (National Council for Curriculum and Assessment, 2023), possibly mitigating some of the difference in time allocation. Efforts should be made to support teachers in implementing the new time allocation model.

Teaching and assessing English and Mathematics

Teachers reported on their instructional practices in English lessons. The majority of pupils were in classrooms where phonological or phonemic awareness and strategies were taught at least weekly. Just over half of pupils were taught by teachers who covered basic comprehension skills and were taught strategies to improve reading fluency in 'most or all lessons'. About two-fifths of pupils were in classrooms

where the teaching of digital comprehension skills either rarely or never occurred. Oral language was a key feature of Second class English lessons, whilst engaging pupils in dramatising stories in English lessons was one of the least common teaching practices. For instructional practices in Mathematics lessons the most commonly reported practice was engaging pupils in mathematical procedures, with most pupils in classrooms where this occurred in most or all lessons. Other teaching activities included problem-solving strategies and reviewing mathematical vocabulary, with the majority of pupils in lessons where these activities took place at least weekly. Teachers reported on the frequency of use of a range of reading and language initiatives in their classrooms during the period 2020/2021. There was a decrease in the implementation of paired/shared reading with parents or adult volunteers, with 60.2% of Second class teachers stating they never implemented it in their classrooms. In contrast in NAMER 2014, paired reading was one of the most commonly used initiatives (Kavanagh et al., 2015). The reduction in use of paired reading and Mathematics strategies in 2021 is likely due to the social distancing restriction in place during Spring 2021 due to COVID-19.

Additionally, 64.0% of Second class pupils were taught by teachers who never used First Steps initiatives (Reading, Writing, and Oral Language). The DEIS evaluation carried out as part of NAMER 2021 found that these three initiatives were reportedly much more commonly used in DEIS schools. A statistically significantly larger proportion of pupils in DEIS Urban Band 1 and 2 schools were taught by teachers who reported using all three initiatives, compared with pupils in Urban non-DEIS schools (Gilleece & Nelis, 2023). This is unsurprising given access to literacy/numeracy support such as Reading Recovery, Maths Recovery, First Steps, Ready Set Go Maths are provided to DEIS band 1 and 2 schools by the Department of Education (Department of Education, 2022b)

Drop Everything and Read (DEAR), Guided Reading and Jolly Phonics were also popular initiatives. The weekly use of Jolly Phonics increased from 49.3% in 2014 to 60.7% in 2021 (Kavanagh et al., 2015). Teachers of Sixth class pupils were asked how often they used specific Mathematics initiatives in their classrooms. The most popular strategy was Paired Maths with another pupil. Paired Maths with a parent or volunteer regularly was much lower with only 5.7% of pupils in classrooms where this took place either 'monthly' or 'weekly'. In NAMER 2014, Paired Maths was also the most commonly used Mathematics initiative at Sixth class (Kavanagh et al., 2015). Overall, it should be noted that the frequency of Paired Reading and Paired Maths initiatives reported in NAMER 2021 were most likely impacted by the restrictions around COVID-19 where classroom interactions were prohibited for infection control reasons.

The use by teachers of initiatives and supplementary programmes in English reading was greater than for Mathematics, which is also the pattern of use reported in NAMER 2014 (Kavanagh et al., 2015). Whilst NAMER 2021 tells us about the frequency of teachers' use of these initiatives it does not tell us why teachers' choose particular programmes, the fidelity of their implementation or the impact of initiatives on pupils' achievement.

Use of digital tools in English and Mathematics lessons

Digital tools were used similarly across grade levels, with 43.9% of Second class pupils using them to learn basic skills like spelling and phonics weekly. Other uses included comprehending online texts (28.4%), finding information online (25.4%) and reading electronic books (20.5%). Between 46.9% and 62.4% of Sixth class pupils 'rarely or never' used digital tools for mathematical purposes, but they were commonly used for understanding concepts and problem-solving. There was no significant association between digital tool use in English lessons and the reading performance of Second class pupils or their use in Mathematics lessons and Mathematics performance at Sixth class. Given the relatively low level of digital tool use by pupils for learning, there is considerable scope to increase use of the Digital Strategy for Schools to 2027

(Department of Education, 2022b). This strategy aims to improve digital technology infrastructure in schools and increasing digital competencies of school communities, while the latest Literacy, Numeracy and Digital Literacy Strategy 2024-2033 (Government of Ireland, 2024) also makes Digital Literacy a priority.

Teachers of Second class pupils reported using various assessment methods and tools to evaluate the progress of pupils in English. Most used teacher-designed tasks, teacher-designed tests, analysis of spelling errors and self-assessment by children weekly. However, the use of reflective journals and computer-based tests were less frequent.

Since NAMER 2014 (Kavanagh et al., 2015), there have been significant changes in the methods of assessment used for English. In 2014, 60.5 % of Second class pupils were in classrooms where self-assessment by children was used monthly or more often, this rose to 82.0 % in 2021. Similarly, teacher-designed tests were used weekly or monthly for 66.9 % of pupils in 2014, increasing to 77.9 % in 2021. The use of diagnostic tests also increased since the previous NAMER cycle. In 2014, 18.4 % of pupils had these tests at least once a term, while in 2021, this rose to 32.9 %.

Teachers' level of confidence in teaching across a number of areas was examined. Teachers' confidence levels in teaching English to children with specified needs were generally high with 39.3 % of Second class pupils taught by teachers who were 'very confident' in identifying pupils' learning difficulties in English. They also had high levels of confidence in working with pupils with English reading or writing and oral language difficulties. About one-fifth of Second class pupils were taught by teachers who were 'not confident' in working with EAL pupils. Teachers reported high levels of confidence in teaching literacy across the curriculum and engaging children in writing. Teachers' confidence in using digital tools and teaching English remotely was somewhat lower with only about one-quarter of Second class pupils taught by teachers who felt 'very confident' in using digital tools to teach reading and writing, in developing oral language remotely and the remote teaching of English reading and writing. Teachers' confidence in using ICTs to teach English was also low in NAMER 2014 (Kavanagh et al., 2015). Supporting teachers in using digital tools for learning is an aim of the latest Literacy, Numeracy and Digital Literacy strategy 2024-2033 (Government of Ireland, 2024).

Teachers' reported on their confidence in teaching Mathematics to children with specified needs with 42.9 % of Sixth class pupils being taught by teachers who were 'very confident' in identifying pupils' learning difficulties in Mathematics. Almost all Sixth class pupils were taught by teachers who were either 'very' or 'somewhat confident' in working with children who have learning difficulties in Mathematics (98.1 %) and in extending higher-achieving pupils' mathematical understanding (97.6 %).

Confidence in teaching aspects of Mathematics was generally high with almost all Sixth class pupils being taught by teachers who reported being 'very' or 'somewhat' confident in teaching mathematical reasoning and problem-solving, communication in Mathematics, and teaching numeracy across the curriculum. However, confidence levels were lower in engaging pupils in mathematical projects, with 29.4 % of Sixth class pupils taught by teachers who were 'not confident'. Similar to confidence levels in teaching English remotely, Sixth class pupils were taught by teacher who were less confident in the use of digital tools to teach Mathematics and in supporting or teaching Mathematics remotely.

Teacher's knowledge of Mathematics was associated with pupil achievement. At Sixth class, most pupils (95.7 %) were taught by teachers whose knowledge of Mathematics in general, was at least 'strong' and 92.1 % felt the same about their knowledge about teaching Mathematics. Pupils with teachers who had 'very strong' Mathematics knowledge scored almost 20 points higher on the Mathematics test on average, compared to those with teachers whose knowledge needed 'further development'. The same pattern was

observed for knowledge about teaching Mathematics, where the difference was 17 score-points. The proportion of pupils with teachers reporting that their knowledge needed 'further development' was small for both knowledge of Mathematics (4.3 %) and for knowledge of teaching Mathematics (7.9 %). However, these findings may indicate that some teachers require TPL with a focus on subject expertise and pedagogy in the continued roll-out of the Primary Mathematics Curriculum. In addition, the provision of Mathematical Concepts in the PMC toolkit may help teachers to become more familiar with the key mathematical ideas underpinning the Learning Outcomes in the curriculum, and to identify any gaps in knowledge that can be addressed in targeted training (National Council for Curriculum and Assessment, 2023).

Second class teachers reported on the impacts of system-level, school-level, and personal factors on the teaching and learning of English. About 22 % of Second class pupils had teachers who believed the Primary Language Curriculum had a 'large positive impact' on English teaching, while 43 % thought it had a 'small positive impact'. However, 9.5 % had teachers who felt the curriculum change had a 'small or large negative impact'. Nearly half of pupils had teachers who reported 'no impact' of the Digital Learning Framework on English teaching. Two-thirds of pupils had teachers who reported a 'positive impact' from the Literacy and Numeracy Strategy, however, 34.6 % felt it had 'no impact'. Around three-quarters of pupils had teachers who reported that school-level planning and literacy standards positively influenced English teaching. Half of the pupils had teachers who thought diagnostic tests had a 'small positive impact', with only 13.9 % reporting a 'large positive impact'. Many pupils in DEIS schools had teachers who felt the DEIS strategy had 'no impact or a negative impact' on English teaching. Most pupils had teachers who viewed school self-evaluation positively, either to a large extent (20 %) or to a small extent (48.6 %.) Teacher responses to the COVID-19 closures were viewed as having a 'negative impact'. Lack of digital devices was also viewed as having a 'negative impact' for about half of pupils in Second class. Teachers were generally positive about the impact of personal factors on the teaching and learning of English in their classrooms. The majority of Second class pupils had teachers who felt that professional development had a 'large or small positive impact' on English teaching. Additionally, 39.1 % of pupils were taught by teachers with a strong interest in literacy. About 70.4 % of pupils were taught by teachers who felt that pupil absences had a 'negative impact' on teaching and learning.

Teachers of both grade levels were asked to rate the usefulness of various elements of the PLC (Department of Education and Skills, 2019a). The majority of pupils were taught by teachers who viewed the learning outcomes; PLC support materials; and CPD courses related to the PLC as at least 'slightly useful' at both grade levels. Similar proportions of Second and Sixth class pupils were taught by teachers who felt that the examples of children's language learning available online were 'very useful', however, 14.5 % of Second class pupils had teachers who indicated that the examples were not at all useful'.

School factors

School demographics

NAMER 2021 looked at a number of school demographics and found no associations with achievement in the main. There were no statistically significant differences in performance at Second class or Sixth class between pupils attending schools of different sizes and different school locations. Neither of these school factors were related to achievement in NAMER 2014 (Kavanagh et al., 2015).

In terms of the school gender composition, the English reading performance of Second class pupils in boys' schools was statistically significantly lower than pupils attending mixed schools. This effect was not evident

in NAMER 2014. Achievement in Mathematics did not differ by school gender composition. Pupils in Irish-medium schools showed significantly higher reading at Second class and Sixth-class Mathematics scores compared to English-medium schools, but this difference was not statistically significant. In NAMER 2014 pupils who attended Irish-medium schools performed somewhat better in reading and Mathematics than pupils in English-medium schools, however these differences were not statistically significant (Kavanagh et al., 2015). There was an association between pupil attendance and achievement as lower scores were observed in Second class reading and Sixth class Mathematics for pupils with attendance between 86-90 % compared to 91-100 % attendance.

Profile of pupils within the school

Principals identified pupils' backgrounds as follows: pupils from an immigrant background (16.4 %-17.0 %); pupils who spoke a home language other than English or Irish (11.7 %-12.1 %); pupils who identified themselves as members of the Irish Traveller or Roma communities (1.5 % at both grade levels); pupils living in direct provision (0.2 %) and pupils who were homeless (0.3 %). Achievement did vary by the concentration of pupils from diverse backgrounds within the schools. The scores of Second and Sixth class pupils in schools where more than 10 % of pupils were from an immigrant background were generally lower when compared to the mean scores of pupils in schools with no immigrant pupils. The percentages of Second class and Sixth class pupils attending schools where more than 10 % of the pupils spoke a main home language other than English or Irish was significantly higher in NAMER 2021 compared to NAMER 2014 (Kavanagh et al., 2015). There was no association between the concentration of pupils with a home language other than English or Irish and English reading achievement at Second class. However, in Sixth class the mean Mathematics scores of pupils in schools with 10 % or more pupils who speak a language other than English or Irish was significantly lower than the mean score of pupils in schools with no speakers of languages other than English or Irish. Pupils in schools with no Traveller pupils had significantly higher mean scores on English reading at Second class and Mathematics at Sixth class than pupils in schools with higher percentages of pupils with from a Traveller background.

Pupils' learning needs and supports

In NAMER 2021 the percentages of pupils with specific learning needs were generally low at both grade levels: specific learning disabilities (4 %); autism or autism spectrum disorders (3 %); behavioural, emotional, and social difficulties, specific speech and language disorders, physical impairments, sensory impairments and mild general learning disabilities (1.4 %-2 %). Borderline mild general learning disability; moderate or severe general learning disability and assessed syndrome were less common (<1 %).

About one-fifth of pupils in Second class and Sixth class EAL pupils received language support from EAL or special education teachers. More boys than girls were in receipt of this support at both grade levels. The mean numbers of officially sanctioned Special Education Teachers were similar across grade levels (Second 5.9; Sixth 6.0), with 0.3 legacy language support posts.

Across the Continuum of Support for learning, the highest average number of pupils were in receipt of Classroom Support for English and Mathematics at both grade levels. The average number of pupils in receipt of School Support was slightly lower and much lower for School Support Plus compared to Classroom Support.

Principals and teachers

Just under two-thirds of pupils were in schools where the principals were female at each grade level. About a quarter (25.8 %) of pupils in Second class and Sixth class (22.4 %) attended schools in which the principal teacher taught classes in addition to performing their administrative and leadership duties. This was higher for pupils at both grades (28 %) in NAMER 2014 (Kavanagh et al., 2015). There were no statistically significant differences in performance at Second or Sixth class between pupils in schools with teaching or administrative principals. However, in NAMER 2014 pupils in Sixth class who attended schools with teaching principals had a significantly higher mean reading score than pupils who attended schools with administrative principals (Kavanagh et al., 2015). Principals' level of experience was not associated with English reading and Mathematics achievement.

The majority of pupils were in schools where the principal found their job at least 'fairly' satisfying. There was no association between principals' job satisfaction and achievement. Whilst principals found their job satisfying the majority of pupils were in schools where principals also found their job stressful. The mean reading score of Second class pupils with principals who found their job 'not very stressful' was higher compared to pupils in schools where principals reported that their jobs were 'very' stressful. About 61 % of pupils were in schools with principals who felt 'fairly' supported. The reading achievement of pupils in Second class did not differ by principals' perceived level of support. The Mathematics achievement of Sixth class pupils was higher in schools where the principal felt 'fairly' supported and 'not at all' supported compared to pupils whose principals indicated they felt 'very supported'.

Principals felt they would benefit from additional CPD in a number of areas. Three-quarters of pupils were in schools where principals identified the following needs: 'Planning and policy development', 'Leadership', 'Data protection and GDPR' and 'Conflict resolution'. Less than half of pupils were in schools where 'Child protection' was a CPD need indicated by principals.

About half of pupils were in schools where principals reported difficulties in recruiting teachers in the 12-months prior to NAMER 2021. Difficulty in sourcing qualified substitute teachers was much higher (93.6 % Second, 93.3 % Sixth). A smaller percentage of pupils were in schools with reported teacher retention difficulties (13.8 %-15.7 %). Teacher supply issues have been commonly reported in Ireland and internationally, and factors such as pay and conditions, workload and stress contributing to this under-supply (Harford & Fleming, 2023).

Principals were asked to characterise teachers' engagement. At least four-in-five pupils were in schools in which four of the five aspects of teacher engagement were rated by the principal as being 'high/very high' (job satisfaction; teachers' understanding of school's targets and goals; teachers' success in achieving school's targets and goals and teachers' expectations for pupil achievement).

School resources

In terms of library resources, most pupils attended schools that have libraries in every classroom although more pupils had this facility in NAMER 2014 (Kavanagh et al., 2015). It was less common for schools to have a room used exclusively as a central library or to have a room used as a school library and for other uses. The average number of print books contained in all school libraries at Second class (2,284) and Sixth class (2,356) were marginally less than in NAMER 2014 (Kavanagh et al., 2015). The percentage of books in a language other than English or Irish was higher in 2021 (3 %) compared to NAMER 2014 (1 %). The percentages of pupils at both grade levels with no e-books was significantly lower in 2021 (47 %) compared to 2014 (almost 80 %). This increase in availability of e-books may reflect changes in resources and a move to digital learning promoted through the Digital Strategy for Schools 2015-2020 (Department

of Education and Skills, 2015). The ratio of print books to pupils at both grades was also lower in 2021 (9:1) compared to 2014 (12:1–15:1). The number of books that were added to schools' library collections in the 2020/21 school year was significantly lower than in NAMER 2014. Given the restrictions related to the COVID-19 pandemic, it is not surprising that fewer books were added during the school year 2020/21 when the use of school libraries was restricted to reduce the risk of spreading COVID-19. Funds that may have otherwise been used to buy books may have been redirected to fund changes necessitated by these restrictions. About one-third of pupils attended schools in which a teacher held a post of responsibility that included library duties. Achievement did not differ for pupils in schools with a teacher that held a role of responsibility for the library and for pupils who did not.

There were some changes in digital resources and infrastructure in schools since NAMER 2014. In 2021, the average number of devices available to Second class pupils was higher than 2014 and statistically significantly higher for Sixth class pupils compared to 2014. The average ratio of pupils to devices was more favourable in 2021 compared to 2014. The ratios of pupils to computers were also more favourable in small and medium schools compared to larger schools. There were statistically significantly fewer dedicated computer rooms in schools in 2021 compared to NAMER 2014. There were also fewer computing devices available in a central computer room or in classroom/resource rooms. This most likely reflects a shift in technology use to a greater use of mobile devices such as laptops and tablets in 2021 versus the desktop computers more commonly used in 2014 (Kavanagh et al., 2015).

Principals were generally positive about the availability, condition and age of computing devices available in schools. Principals of almost two-thirds of pupils rated the number of computing devices as 'very good/good', however, 10% of pupils were in schools where the number of devices in their school was rated as 'poor'. The age and condition of computing devices in school were rated less favourably as were the availability of suitable devices and digital tools. Two-thirds of pupils were in schools where the principals rated the broadband connection speed as 'good' or 'very good'. About one-fifth of pupils were in schools where the principals reported that the technical support and maintenance of digital devices was 'poor'. Almost all pupils had teachers with access to a dedicated teacher device. Most pupils were in schools that had interactive whiteboards available to all teachers. Almost all pupils were in schools that made Apps for teaching English and Mathematics available to all or some teachers. There was almost universal access to wireless internet connections for teachers.

Principals were confident in both teachers' and pupils' digital skills. The majority of pupils were in schools where principal indicated teachers' and pupils' overall level of knowledge and skills and use of digital technologies for teaching and learning was 'good/very good'. The impact of the DLF (Department of Education and Skills, 2017d) on the use of technologies in teaching was rated positively, including digital technology use and in the teaching and assessment of English and Mathematics. Its' impact was also noted especially in two areas: enhancing interest and engagement in learning and in supporting children with special educational needs.

Whilst broadband connections were generally good, in step with initiatives such as the Digital Strategy for Schools 2015-2020 (Department of Education and Skills, 2015), the findings suggest that schools could benefit from improved technical support. These findings also provide evidence of the DLF (Department of Education and Skills, 2017d) effectively embedding digital technologies into teaching and learning in schools.

Assessment, evaluation and planning

In terms of School Self-Evaluation (SSE) about two-thirds of pupils attended schools where digital learning, literacy and English reading were priority areas. Just over half of pupils attended schools that were working

on Numeracy as part of SSE. Second class pupils in schools where English reading was an SSE priority had significantly lower English reading achievement compared to pupils in schools that did not have this as an area of focus in their SSE. Schools with pupils in Sixth class working on English oral language as part of SSE had significantly lower mean Mathematics scores than pupils in schools who did not focus on this this area of self-evaluation.

Standardised assessments in English and Mathematics in schools were perceived as 'very useful' for identifying pupils with learning difficulties for almost 60 % of pupils at both grade levels. Just under half of principals found standardised tests 'very useful' for informing school self-evaluation, informing classroom teaching and setting of school-level targets. Standardised test results were less commonly seen as 'very useful' for providing feedback to parents, to boards of management and to pupils.

Principals were positive about the extent to which the Literacy and Numeracy Strategy (2011-2020) (Department of Education and Skills, 2011) had impacted on various aspects of teaching and learning in their school. Over half of pupils at both grade levels were in schools where principals felt that the strategy had an impact 'to some extent' on setting school-level achievement targets, raising standards in English reading, raising standards in Mathematics, increasing instructional time, promoting literacy across the curriculum and increasing awareness of the importance of literacy and numeracy. Aspects of teaching and learning on which initiatives were perceived to have somewhat less impact included promoting numeracy across the curriculum and in providing feedback to parents on their child's English reading or Mathematics scores.

About two-fifths of pupils were in schools where principals indicated that too much paperwork for teachers and large class size both impacted teaching and learning 'a lot'. Large class size was also identified as impacting negatively on teaching and learning in NAMER 2014 (Kavanagh et al., 2015).

Pupils in schools where parental support for pupil achievement and parental involvement in school activities were characterised as 'low' and 'very low' had the lowest mean achievement scores for Second class English reading and Sixth class Mathematics.

COVID-19

Principals indicated that the COVID-19 pandemic had a 'large impact' on most aspects of teaching and learning in their schools. Almost all Second and Sixth class pupils were in schools where teaching and learning was affected to 'at least some extent' by COVID-19 school closures. On average, 71 % of pupils were in schools where the COVID-19 pandemic had impacted 'a lot' on teaching and learning. Second class pupils in these schools had an average mean reading score of 259.6, and a mean Sixth class Mathematics score of 257.8. These scores were statistically significantly lower than those achieved by Second (d = .18) and Sixth (d = .16) class pupils in schools where teaching and learning was impacted 'to some extent'. No principals of schools with pupils in Second class indicated that teaching and learning was 'not at all' affected by the pandemic, there was a similarly small proportion of Sixth class pupils 'not at all' impacted (1.9 %).

The ability to address the needs of pupils with additional needs was impacted 'to some extent' in nearly all schools (1.1 % of Sixth class pupils were in schools that they were not 'at all affected'). The majority of pupils (71 %) were in schools, where the capacity to address the needs of pupils with additional learning needs was impacted 'a lot' by the pandemic. Second class pupils in these schools had mean reading scores over ten points lower (257.9) than pupils in schools that were impacted 'to some extent'(267.4, d =.12), and this difference was statistically significant.

Similarly, principals of over half of pupils described how their school's ability to reach literacy targets was impacted 'a lot' due to the pandemic. A further 41.4 % of Second class pupils, and 37.4 % of Sixth class pupils indicated that their school was impacted 'to some extent'.

The very small percentage of pupils (1.4 %) in schools whose ability to reach literacy targets was impacted 'very little' by the pandemic had mean Second class reading (283.9) and Sixth class Mathematics scores (277.1) that were statistically significantly higher than those of pupils whose schools were impacted 'a lot' (254.9 Second class reading; 257.0 Sixth class Mathematics). As with literacy targets, more than 97 % of pupils were in schools where the COVID 19 pandemic had impacted 'a lot' or 'to some extent' on their school's ability to reach numeracy targets. No Principal responded that their ability to reach numeracy targets was 'not at all' impacted.

Pupils in schools that impacted 'a lot' in their ability to reach targets had the lowest mean scores in Second class reading and Sixth class Mathematics, when compared to those who were impacted 'to some extent' or 'very little', but this difference was not statistically significant.

Multilevel models of achievement

In contrast to the bivariate analyses presented in Chapters 3-5, the multilevel modelling for Second class reading and for Sixth class Mathematics performance allows for the estimation of statistics at different levels and the simultaneous examination of multiple explanatory variables. The results of the null models (without any explanatory variables) indicated that the between-school differences in reading and Mathematics performance are relatively small, accounting for approximately one-tenth of the overall variance. This finding is consistent with the results of earlier NAMER cycles as well as other international large-scale assessments for Ireland (Duggan et al., 2023; Karakolidis et al., 2021a, 2021b; Kavanagh et al., 2015) indicating comparatively high levels of equality of achievement among schools by international standards. Between-school performance differences are consistently lower in Ireland than in other countries. For example, in PISA 2018, when reading was the major assessment domain, the Intra-Class Correlation (ICC) was 13.1 % for Ireland, but considerably higher (29 %) across the OECD countries on average (Schleicher, 2019). Similarly to reading, levels of between-school variation in Mathematics performance are consistently lower in Ireland compared to other countries; in PISA 2022, with Mathematics as the primary domain, only 11.2 % of the total variance was attributed to the school level in Ireland, whereas the average across OECD countries was 31.6 % (OECD, 2023). However, it should be noted that the target population in PISA was 15-year-olds.

Following the null models, a number of pupil and school factors were included in the multilevel analysis. A noteworthy finding is that the initial statistically significant gender gap in English Reading (in favour of girls) and Mathematics (in favour of boys) shrank and was not statistically significant when other background and attitudinal characteristics were taken into account. This is something that could be explained by the higher interest that girls show in reading (in this case, liking reading and reading for fun) and boys show in Mathematics (enjoyment of Mathematics).

Pupil attitudes towards and confidence in reading and Mathematics were, for the most part, very strong predictors of their performance; pupils who reported liking reading, reading for fun, considering themselves good at reading, and having high levels of confidence in Mathematics performed significantly better than their peers. These results are consistent with the findings of other assessments taking place at the primary level in Ireland, such as PIRLS and TIMSS (Delaney et al., 2023; Perkins et al., 2020). However, it cannot be

implied that the relationship between attitudinal characteristics and performance is causal. Such relationships can often be reciprocal, meaning that pupils who perform well in English reading and Mathematics may be more likely to enjoy and feel confident in these subjects. Nevertheless, it is important that teachers cultivate pupils' curiosity for and interest in reading and Mathematics and try to build their confidence, especially in Mathematics where pupils' levels of confidence seem lower.

At the school level, the performance differences in reading and Mathematics between pupils in DEIS and non-DEIS schools remained statistically significant even after accounting for other background and attitudinal factors. This seems to be a consistent finding across different studies and within studies across cycles. Findings from cycles of large-scale assessments conducted before the COVID-19 pandemic indicated that, after accounting for other factors in the models, Mathematics performance gaps between pupils in DEIS and non-DEIS schools were narrower in more recent cycles compared to earlier cycles (Duggan et al., 2023; Karakolidis, Duggan, Kiniry, et al., 2021; Karakolidis, Duggan, Shiel, et al., 2021b); however, this was not the case in reading. In PIRLS 2021, for example, after accounting for other factors in the model, the reading performance gap between pupils in DEIS and non-DEIS schools was larger than in 2016 and 2011 (Karakolidis et al., 2023). These findings underline the importance of providing ongoing additional supports to DEIS schools; a detailed analysis of the NAMER 2021 results in urban DEIS schools is presented and discussed by Gilleece and Nelis, 2023 and Nelis and Gilleece, 2023. Further analysis of the NAMER 2021 data by DEIS status as well as analysis of data from the latest cycle of TIMSS (i.e., TIMSS 2023) will provide a fuller picture about the patterns of performance in DEIS and non-DEIS schools (McHugh et al., 2024).

The variables included in the models explained a considerable proportion of variance in performance in both subject domains, especially Mathematics, for which the final models explained 32.7 % of the variance in achievement. The corresponding figure for English reading was 8.1 %. Of course, in both cases, a substantial amount of variance remains unexplained and this could be attributed to factors not examined by the current models.

Future research efforts could consider examining additional factors. For example, the parent questionnaires were not administered in NAMER 2021 due to the restrictions in place in schools at the time, so there is less information on home environment in 2021 than would typically be available. In previous cycles of NAMER items from the parent/home questionnaire provided information on home environment, socioeconomic background and parental environment which contributed to the model and explained some variance (Kavanagh et al., 2015). This information should be available in future cycles of the National Assessments.

Conclusions and future directions

NAMER 2021 was conducted during a challenging period in Ireland, when schools and society struggled to adjust to a new reality. The school closures in 2020 and 2021, necessitated by the COVID-19 pandemic, and subsequent disruption to school life caused by necessary social distancing requirements presented many challenges for pupils, their families, teachers, principals and the wider school community. In the period since NAMER 2014, there has also been change at school level, with policies related to digital learning, literacy and numeracy, DEIS, special educational needs allocation and school self-evaluation, influencing the day-to-day management of schools. Despite the challenges, the results of NAMER 2021 showed that achievement in English reading at Second class, and Mathematics at Sixth class was consistent with performance in NAMER 2014 (Kiniry et al 2023). Similarly, the analyses presented in this context report suggest that there is good practice evident in school management and teaching, and

that pupils are for the most part engaged and interested in learning English reading and Mathematics. However, there is scope to support and develop good learning practices, and to address changes that are less favourable. Some of these are highlighted below.

Homework remains popular, with frequent reading and spelling homework being positively related to English reading performance for Second class pupils, and Mathematics homework of less than an hour associated with higher performance in Mathematics for Sixth class pupils. Likewise, reading books for fun frequently was associated with higher English reading performance, although worryingly the percentage of pupils who report reading for fun is statistically significantly lower than in 2014, an issue that needs to be understood and addressed given the longstanding association between reading for pleasure and reading achievement. Best practice and strategies outlined in the most recent Literacy, Numeracy and Digital Literacy strategy 2024-2033 (Government of Ireland, 2024) and the PLC (Department of Education and Skills, 2019a) should be encouraged and monitored.

Furthermore, positive attitudes and self-concept in English reading and Mathematics were associated with stronger performance in these subjects. Pupils who indicated 'needing to improve' performed statistically significantly lower than those who rated themselves as 'very good'. This mostly held true in the multi-level analysis when other factors were controlled for. Pupils who like reading had higher mean reading scores than those who reported that they do not like reading, as did pupils who reported being either 'good' or 'very good' at reading

Likewise in the multilevel model, pupils with higher levels of confidence in Mathematics tended to score higher than pupils who indicated lower levels of confidence. However, after accounting for Mathematics confidence and other factors, pupil enjoyment of Mathematics was statistically significantly negatively related to their Mathematics performance. This finding is in contrast with the results of the bivariate analysis results where, before accounting for any other factors, pupils who enjoyed learning new things in Mathematics lessons significantly outperformed their peers.

Although digital devices and mobile phones are commonly used by pupils, they are less frequently used by children in Second class, and there is evidence from Sixth class pupils that their parents have rules around the use and access to devices. Parents should be supported and guided in the use and access to digital devices by children in the home.

Although there is greater access to digital devices in schools in NAMER 2021, and teachers are more confident, there is scope to improve access and infrastructure such as high-speed broadband in schools. The aims set out in the DLF (Department of Education and Skills, 2017d) should be implemented and supported in schools through training and funding.

In general, Second class pupils who participated in activities outside of school, or hung out with friends on 'some days', had higher mean reading scores than those who participated 'everyday' or 'never' suggesting a balanced approach to hobbies is best for children. Sixth class pupils who spent more time, usually more than 1 or two hours, on a pastime or hobby on schooldays had statistically significantly lower mean Mathematics performance.

Pupils who reported not liking school have mean reading scores that are statistically significantly lower than those of pupils who 'liked' school (Second class), and fewer Second class pupils liked school in 2021 than in 2014, while more children were unsure if they liked school. Sixth class pupils who felt safe in school, and those who felt like they belonged in school had significantly higher mean Mathematics scores. Notably, 10 % of Sixth class pupils who responded did not feel safe in school, perhaps reflecting the COVID-19 context in 2021. Efforts should be supported to encourage children to feel safe and comfortable in school.

Although there were more female than male teachers in 2021, as was the case in 2014, a larger proportion of teachers in NAMER 2021 were male. Newly qualified teachers were more likely to teach Second class in 2021, and there is an increase in the proportion of pupils taught by teachers with advanced degrees since 2014 (Kavanagh et al., 2015). As might be expected attendance at TPL was mixed in the two years asked about in NAMER, although those that had attended indicated a positive impact on their teaching. There was evidence of good teaching practice in both English reading and Mathematics. Similarly, most teachers were confident in most areas of their teaching. Teachers should be encouraged and facilitated to engage with TPL to build their skills and confidence.

About 20% of Second class pupils were taught by teachers who felt that curriculum change, such as the Primary Language Curriculum, had a 'large positive' impact on the teaching and learning of English in their classroom, while the corresponding proportion for a 'small positive' impact was 42.9%. Almost two-thirds of pupils were taught by teachers who reported either a 'small' or 'large positive impact' of the Literacy and Numeracy Strategy 2011-2020 (Department of Education and Skills, 2017a). The impact of the new Literacy, Numeracy and Digital Literacy strategy (Government of Ireland, 2024) and the PMC (National Council for Curriculum and Assessment, 2023) should continue to be monitored, and feedback sought.

There was no statistically significant difference in the reading performance between pupils in city schools and pupils in schools in villages or rural locations, and there was no statistically significant difference in performance by school size. Despite this, Second class pupils in boys' schools had English reading scores that were statistically significantly lower than pupils attending both mixed schools and girls' schools. Achievement was associated with differences in pupil background and is an area where further support should be provided to schools. Pupils with a home language other than English or Irish appear to be at particular risk of poor performance in English reading, and this should be an area of focus, building on aims of the PLC and the Literacy, Numeracy and Digital Literacy Strategy 2024-2033 (Government of Ireland, 2024).

Despite the difficulties of COVID-19, attendance was high in most schools, with the majority of pupils in schools where principals indicated that average school attendance was between 91-100% during the 2020/21 school year, similar to NAMER 2014, with Reading and Mathematics performance being highest for pupils in these schools. Continued support should be provided to schools to maintain high attendance rates.

Although the principals of most students found their job satisfying and felt at least fairly supported, stress is an area to be addressed with most principals also finding their job very stressful. About half of pupils were in schools where the principal reported recruitment difficulties, and about two-fifths of pupils were in schools where principals indicated that too much paperwork for teachers and large class sizes impacted teaching and learning outcomes for pupil 'a lot'.

Planning and policy development was an area identified for further CPD, while oral language and writing were the most popular areas of SSE. The majority of Second and Sixth class pupils attend schools where digital learning and literacy were prioritised in SSE. English reading and numeracy are also areas of focus. Further support and training should be offered in these and other areas of SSE. Pupils in schools where principals reported very high parental support for pupil achievement and parental involvement in school activities achieved statistically significantly higher mean scores in both Second class reading and Sixth class Mathematics. Again, this is an area where support and guidance should be given to schools to encourage positive parental participation and in interaction with schools.

The COVID-19 pandemic had a large impact on schools, and this was indicated by the principals, with almost all Second and Sixth class pupils in schools where teaching and learning was affected to 'at least some extent' by COVID-19 school closures. Similarly, the ability to address the needs of pupils with additional learning needs was impacted, as was the ability to reach literacy and numeracy targets. Pupils in schools where the principal indicated the biggest impact to teaching and learning had statistically significantly lower mean performance. No Second class pupils were in schools where teaching and learning was not impacted. Continued efforts should be made to support schools and pupils to mitigate these impacts.

NAMER 2021 collected important high quality data on English reading and Mathematics achievement, and the context of this performance, but it was constrained by the circumstances in which it was administered. The Second class Mathematics assessment, the Sixth class English reading assessment, and the Parent questionnaire were not administered due to the circumstances at the time. This unfortunately limits the scope of this contextual report. However, there will be an opportunity to gather this information in the next cycle of NAMER.

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