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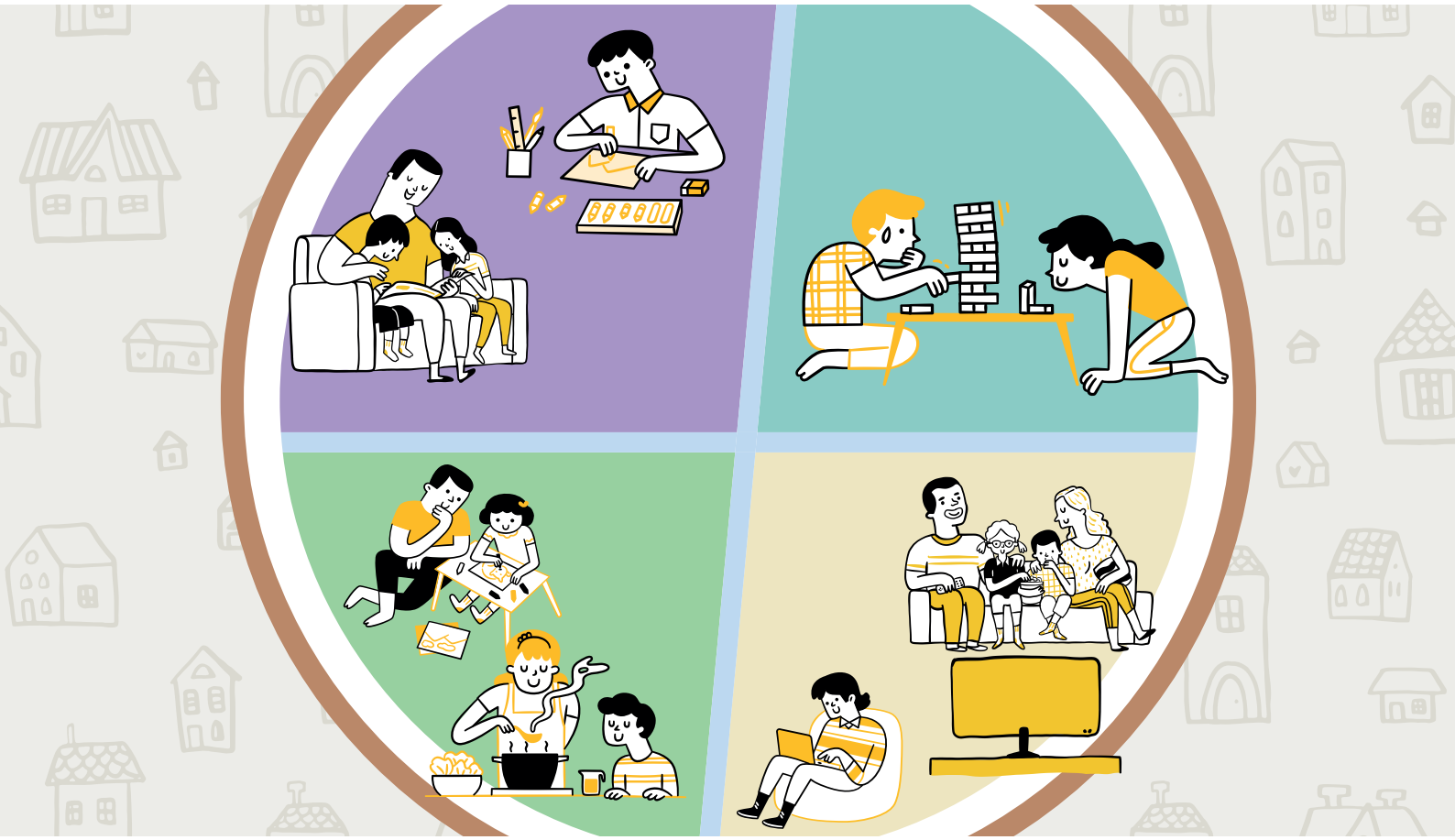
New findings from TIMSS 2023



George Piccio, Vasiliki Pitsia, Gráinne McHugh, Aidan Clerkin and Sylvia Denner

Educational Research Centre 2025

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Primary

Aedín Ní Thuathail (Irish Primary Principals' Network)

Áine Lynch (National Parents Council – Primary)

Cormac Ó Tuairisg (Gaeloideachas)

Eddie Fox (Educate Together)

Mark Bohan (Department of Education and Youth)

Máirín Ní Chéileachair (Irish National Teachers' Organisation)

Micheál Killilea (Department of Education and Youth, Social Inclusion Unit)

Maria McGrath (Department of Education and Youth Inspectorate, Chair)

Patrick Sullivan (National Council for Curriculum and Assessment)

Shane Leonard (Oide)

Seán Delaney (Marino Institute of Education)

Post-primary

Anne O'Dwyer (Mary Immaculate College)

Elizabeth Smith (Department of Education and Youth)

Gerry Hyde (State Examinations Commission)

Kathy O'Sullivan (University of Galway)

Linda Ramsbottom (Department of Education and Youth Inspectorate, Chair)

Liz O'Neill (Department of Education and Youth)

Mark Bohan (Department of Education and Youth)

Niamh O'Meara (University of Limerick)

Oliver McGarr (University of Limerick)

Páraic Treacy (Mary Immaculate College)

Paul Behan (National Council for Curriculum and Assessment)

Rachel Linney (National Council for Curriculum and Assessment)

Ryan Gallagher (University College Cork)

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Acronyms and abbreviations

CI	Confidence Interval
COGG	An Chomhairle um Oideachas Gaeltachta & Gaelscolaíochta
DEIS	Delivering Equality of Opportunity in Schools
ECCE	Early Childhood Care and Education
ERC	Educational Research Centre
HER	Home Educational Resources
IEA	International Association for the Evaluation of Educational Achievement
NAMER	National Assessment of Mathematics and English Reading
OECD	Organisation for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PLC	Post-Leaving Certificate
REALT	Regional Education and Language Teams
SE	Standard Error
SES	Socioeconomic Status
SPHE	Social, Personal and Health Education
STEM	Science, Technology, Engineering, and Mathematics
TIMSS	Trends in International Mathematics and Science Study

Chapter 1: Introduction

The *Trends in International Mathematics and Science Study* (TIMSS) is an international study examining educational achievement in mathematics and science. TIMSS also collects contextual information to examine what factors may be related to student achievement. First conducted in 1995, TIMSS has 28 years of trend data. These data are used to support countries in creating policy to improve teaching and learning. This report focuses mainly on findings related to home environment in Ireland from TIMSS 2023.

This chapter provides a brief introduction to TIMSS and a summary of the performance of Fourth Class and Second Year students in Ireland in mathematics and science in TIMSS 2023. Following this, an overview of the home environment as a concept in the literature is presented, together with the policy context in Ireland.

What is TIMSS?

TIMSS is an international study that evaluates the mathematics and science knowledge and skills of students in Fourth Grade (Fourth Class in Ireland) and Eighth Grade (Second Year in Ireland) across participating countries. It provides both national and international comparative data to support policymakers and educators in making informed decisions. The study is directed by the TIMSS and PIRLS International Study Center at Boston College, USA and is managed by the International Association for the Evaluation of Educational Achievement (IEA), a non-profit consortium of research institutes. In Ireland, the Educational Research Centre (ERC) managed the country's participation in TIMSS 2023 on behalf of the Department of Education and Youth.

TIMSS is conducted every four years, with the first assessment taking place in 1995. TIMSS 2023 was the eighth cycle, with 65 participating countries (59 at Fourth Grade and 44 at Eighth Grade). Ireland has participated in five cycles of TIMSS: 1995, 2011 (at Fourth Grade only), 2015, 2019 and 2023. In the 2023 cycle, almost all participating countries, including Ireland, administered the test digitally.

Who took part in TIMSS 2023 in Ireland?

In total, 4,750 Fourth Class pupils from 153 primary schools and 5,090 Second Year students from 153 post-primary schools participated in TIMSS 2023. Table 1.1 shows the proportions of students in TIMSS 2023 by student gender, student socioeconomic status[1], and school DEIS (*Delivering Equality of Opportunity in Schools*)[2] status, in order to provide some contextual information that may assist readers when interpreting the data presented in the following chapters and the Appendix.

1 Further details about student socioeconomic status are presented in Chapter 2.

2 More information about the DEIS programme can be accessed through https://www.gov.ie/en/department-of-education/policy-information/deis-delivering-equality-of-opportunity-in-schools/ and other relevant resources on gov.ie.

Table 1.1: Percentages of students in the TIMSS 2023 dataset by student gender, student socioeconomic status, and school DEIS status

	Fourth Class		Second Year	
		% pupils (weighted)		% students (weighted)
Student gender	Boys	51	Boys	53
	Girls	49	Girls	47
Student socioeconomic status	Higher	50	Many resources	39
	Middle	42	Some resources	45
	Lower	7	Few resources	16
School DEIS status	DEIS Urban Band 1	10	DEIS	31
	DEIS Urban Band 2	11		
	DEIS Rural	9	Non-DEIS	69
	Non-DEIS	70		

Note. Due to rounding some of the percentages do not sum to exactly 100%.

The findings presented in this report draw mainly on data collected from the TIMSS home questionnaire (Fourth Class) and student questionnaire (Second Year). For the home questionnaire, parents or legal guardians of Fourth Class pupils were asked to complete a questionnaire about pupils' home contexts, including participation in early childhood education, early literacy and numeracy activities, and their own educational and professional backgrounds (Mullis et al., 2021). **For the purposes of this report, the term "parents" from this point forward refers to all individuals with parental responsibility, including legal guardians and carers, where appropriate**. At Second Year, the student questionnaire included questions on students' home environment, including resources for learning.

TIMSS 2023 in Ireland: Summary of key findings

In general, students in Ireland achieved at a reasonably high level in TIMSS 2023, relative to other countries. Across both grade levels and subjects, students in Ireland achieved mean scores that were statistically significantly above the international averages.

Fourth Class pupils achieved a mean score of 546 in mathematics and 532 in science, with the international averages being 503 and 494, respectively. In Fourth Grade mathematics, seven countries achieved mean scores higher than Ireland's, while four countries achieved similar scores. The mean mathematics score in Ireland was statistically significantly higher than the scores of 46 countries. In Fourth Grade science, 10 countries achieved statistically significantly higher mean scores than Ireland and 11 countries had similar mean scores, while 36 countries had statistically significantly lower scores than Ireland.

Second Year students achieved a mean score of 522 in mathematics and 525 in science, with the international averages being 478 for both subjects. Their mathematics performance was statistically significantly lower than that of five countries, similar to four countries, and statistically significantly higher than 34 countries. In science, Second Year students' performance was statistically significantly lower than that of four countries, similar to nine countries, and statistically significantly higher than 30 countries.

The strong focus on trends in TIMSS allows analysis beyond within-cycle comparisons. Overall, performance in TIMSS in Ireland has remained stable in recent years at both grade levels and subjects, with no statistically significant changes in mean scores since 2015.

Overall, boys and girls in Fourth Class achieved similar scores in both mathematics and science in TIMSS 2023, with no statistically significant differences being observed. However, statistically significant gender differences were seen at Second Year for both mathematics and science. In mathematics, Second Year boys' mean score (528) was 14 points higher than girls' (514); in science, boys' mean score (529) was nine points higher than girls' (520). These statistically significant gender differences in TIMSS 2023 at Second Year mark a change from 2019 and 2015, when no statistically significant gender differences had been observed.

For a more detailed discussion of mathematics and science achievement in Ireland, and for details on the administration of TIMSS, readers are referred to the initial TIMSS 2023 national report (McHugh et al., 2024). Reporting on other key findings from TIMSS 2023, as well as previous cycles, for Ireland can be found in Clerkin et al. (2025), Denner et al. (2025), and Pitsia et al. (2025).

Learning in context: The role of the home environment

The home environment and early learning experiences are crucial to children's overall development, including skills such as motor skills, inhibitory control, language development, and emotional competence (Chen et al., 2024). They also play an important role in students' later academic achievement at primary and secondary levels (Lehrl, Evangelou, & Sammons, 2020; Melhuish et al., 2008). The specific home-related factors that are associated with academic achievement are multifaceted, reflecting the complexity of how these early influences shape long-term educational outcomes.

Early learning environment and pre-school education

One factor that has been found to play a significant role in students' later academic achievement is their early learning environment. This can be examined through indicators such as the extent to which students engaged in literacy and numeracy activities before starting school, their literacy and numeracy skills at the point of starting school, and their participation in early learning programmes before starting school.

Clerkin and Gilligan (2018) found that the early learning environment was statistically significantly associated with students' later confidence in and liking of mathematics, while Lehrl, Ebert, et al. (2020) found that the early learning environment was crucial in developing students' later literacy and mathematics skills. Specifically, Lehrl, Ebert, et al. found that early verbal interactions regarding mathematics predicted later mathematics outcomes in secondary school, while reading outcomes were indirectly predicted by early language and literacy skills. These findings are supported by Tamis-LeMonda et al. (2019), who found that students' early learning environment, including engagement in learning activities, helped them develop cognitive abilities that could result in later academic success. Similarly, students' literacy and numeracy skills when starting school are strong predictors of their academic achievement, both in schools serving student populations with high levels of socioeconomic disadvantage and those with more minor or moderate levels of disadvantage (Nonte et al., 2022). Allen et al. (2024) found that early numeracy and literacy skills, along with student behaviour, were predictors of students' later mathematics achievement. Using data from TIMSS 2019, Chang (2023) reported that early literacy skills were a more robust predictor of later mathematics achievement than early numeracy skills. Finally, student attendance at an early learning programme has been found to have a positive association with later academic achievement, particularly when these programmes are of good quality (Dimiski, 2023).

Pre-primary education in Ireland falls under the *First 5* strategy (Government of Ireland, 2018), a ten-year strategy developed by the Government of Ireland, which partially focuses on improving access to pre-school

education. It mainly seeks to improve affordability, accessibility, and quality of education for pre-school aged children. These plans include the further development of *Together for Better*, a funding model for early learning and childcare, as well as support for workers in that sector. Within this context, there are a number of pre-primary school educational programmes. The *Early Childhood Care and Education* (ECCE) scheme is a free, universal, two-year pre-school programme for children aged two years and eight months until they start primary school. Initially introduced as a one-year scheme in 2010, it was expanded to two years in 2018, a change that was driven by the recognition of the potential of such programmes to support early childhood development, increase access to quality education, and provide financial relief to families, particularly those from disadvantaged backgrounds. The scheme provides children with access to preschool for three hours per day, five days per week from September to June. Findings from a recent independent review suggest that while the ECCE scheme has positively impacted children and parents, accessibility is still an issue for some parents due to lack of flexibility in the scheme (Walsh et al., 2024). Parents of pre-school aged children can alternatively avail of the *Early Start Programme*, which is available in some disadvantaged areas for children aged between three and five years old.

Socioeconomic status and home resources for learning

Another factor associated with academic achievement is a student's socioeconomic status (SES). SES is a broad term that refers to a combination of an individual's economic and social characteristics. Common measures of SES include education, income, and occupation (E. H. Baker, 2025). In TIMSS, higher SES refers to individuals whose parents have, for example, more advanced educational backgrounds or professional occupations. In line with previous TIMSS cycles and other research evidence, the most recent cycle of TIMSS found that students who belonged to higher SES groups generally scored higher in both mathematics and science than those in lower SES groups. These results were reflected both internationally (von Davier, Kennedy, et al., 2024) and in the Irish context (McHugh et al., 2024). Liu et al.'s (2022) meta-analysis, which comprised 326 empirical studies and data from TIMSS, *Progress in International Reading Literacy Study* (PIRLS), and *Programme for International Student Assessment* (PISA), found a moderate correlation between SES and academic achievement internationally.

Heppt et al. (2022) found that both the number of books at home, as well as the number of children's books at home specifically, were statistically significant predictors of primary students' academic language comprehension in Germany. The number of books at home also mediated the relationship between academic achievement and the parent education and occupation components of an SES indicator. Access to and regular engagement with books at home not only affects language and literacy development, but it also statistically significantly predicts mathematical achievement outcomes (Lehrl, Ebert, et al., 2020). While digital devices have become increasingly widespread, a recent study (Volodina, 2025), nonetheless, found a weak to moderate but statistically significantly positive relationship between the number of books at home and the language skills, mathematics skills, and verbal fluency of a sample of secondary school students in Germany.

While studies have shown that access to digital tools and home internet connectivity can have a positive relationship with both academic and non-academic outcomes (e.g., Abdykerimova et al., 2025; Badasyan & Silva, 2012; F. Erdogdu, 2022; F. Erdogdu & E. Erdogdu, 2015), there is strong evidence to suggest that access alone is not enough. Rather, what truly matters is how digital tools are used, with research indicating that the quality, nature, and purpose of their use are key factors in determining their impact (Nouri et al., 2022; Valverde-Berrocoso et al., 2022).

Educational disadvantage and DEIS

Educational disadvantage refers to inequalities in students' access to education, barriers preventing students from accessing educational opportunities, and less positive home or school environments for learning

(Molla & Pham, 2019). Educational disadvantage is a multifaceted issue with a diverse range of predisposing factors. One of the biggest contributors to educational disadvantage is lower SES due to reduced access to educational opportunities (Liu et al., 2022). However, parent socioeconomic background can also play a key role in determining educational disadvantage (Kallio et al., 2016). Evidence to date highlights that educational disadvantage can have implications for a child's academic achievement (Kallio et al., 2016; Liu et al., 2022) and can impact their likelihood of finishing school (Wodtke et al., 2016).

In the context of Ireland, DEIS is a programme established by the Government of Ireland to address educational disadvantage. The DEIS programme was introduced during the 2006/07 school year (Weir & Kavanagh, 2018) with the aim of providing tailored support to schools experiencing high levels of disadvantage (Department of Education and Skills, 2017a). Since then, it has been expanded twice, in 2017 and 2022 (Department of Education, 2022a). Plans to further expand the DEIS programme with the *DEIS Plus* scheme are currently in development (Department of Education and Youth, 2025a). Since its inception, DEIS has been subject to several evaluations. Findings from these evaluations indicate improvements in certain outcomes over time for schools that are part of the DEIS programme (Smyth, McCoy, & Kingston, 2015; Weir & Kavanagh, 2018), although other studies have found limited evidence of a direct impact (Gilleece et al., 2025). However, criticisms have been raised regarding the adequacy of the supports provided through the DEIS programme, including variability in schools' access to resources (e.g., financial supports) (Fleming & Harford, 2023), and there remains uncertainty about the causal links between the DEIS supports and student outcomes (Gilleece & Clerkin, 2025). Evidence from three previous cycles of TIMSS in Ireland, covering the period from 2011 to 2019, indicates that although achievement differences between DEIS and non-DEIS primary schools decreased to some degree during that time, differences in achievement related to pupils' home backgrounds increased over the same period (Duggan et al., 2023). Across recent cycles of large-scale assessments, including TIMSS (McHugh et al., 2024), PIRLS (Delaney et al., 2023), PISA (Donohue et al., 2023), and the *National Assessment of Mathematics and English Reading* (NAMER) (Kiniry et al., 2025), students in DEIS schools have consistently underperformed in mathematics, science, and reading relative to their peers in non-DEIS schools. Overall, the evidence suggests that while the DEIS programme may have contributed to some improvements, persistent achievement disparities remain between DEIS and non-DEIS schools. These disparities may reflect a combination of factors, including wider socioeconomic inequalities, variability in the implementation and resourcing of DEIS supports, and the continued influence of home and community contexts on student achievement.

At post-primary level, schools are designated as either DEIS or non-DEIS, with no further classifications within the DEIS category. At primary level, however, DEIS schools are divided into three categories based on their location and level of disadvantage: (i) DEIS Urban Band 1 schools, located in urban areas experiencing the highest levels of educational disadvantage; (ii) DEIS Urban Band 2 schools, located in urban areas experiencing high, though comparatively lower, levels of educational disadvantage; (iii) DEIS Rural schools, located in rural areas experiencing high levels of educational disadvantage (Department of Education and Skills, 2017a; Nelis & Gilleece, 2023). Recent findings show that while, overall, DEIS schools' achievement tends to be statistically significantly lower than that of non-DEIS schools, there is substantial variation across the three primary-level DEIS categories. Specifically, DEIS Urban Band 1 schools achieved lower scores than DEIS Urban Band 2 schools, and both achieved statistically significantly lower scores than non-DEIS schools in mathematics, science, and reading across the most recent cycles of TIMSS and PIRLS (Delaney et al., 2023; McHugh et al., 2024). However, DEIS Rural schools did not follow the same trend as other DEIS schools, achieving statistically similar scores in mathematics, science, and reading as those in non-DEIS schools. These results, though, should be interpreted in light of contextual differences between rural and urban DEIS schools, particularly regarding demographic composition, school size, and the nature and concentration of educational and socioeconomic disadvantage.

Home background and demographic factors

Parents' education and occupation are key elements of overall family SES, but they can also independently function as statistically significant predictors of students' academic achievement (Lee et al., 2019). Parents' education is consistently related to students' academic achievement, with higher levels of parent education linked to higher academic achievement among students (Bhandari & Timsina, 2024; Engin, 2020). Parent occupation is also related to student academic achievement, possibly due to parents in higher status positions often having greater access to economic, social, and educational resources (Chi et al., 2017; Kapinga, 2014; Plasman et al., 2021). Studies focusing on Ireland have indicated similar patterns (Sheehan & Hadfield, 2024; Smyth et al., 2010).

Another demographic factor that can be a statistically significant predictor of academic achievement is students' immigration status (Strohmeier & Wagner, 2023). Immigration status is often operationalised by categorising students as native, first-generation immigrants (born in one country and moved to another), or second-generation immigrants (born in one country to parents born in another). In their study, Strohmeier and Wagner (2023) found that achievement differences between immigrant and non-immigrant students were related to a range of factors, including higher levels of scholastic anxiety and lower levels of scholastic self-concept (i.e., a student's perception and evaluation of their academic abilities) among immigrant students. Similarly, Motti-Stefanidi et al. (2015) found that immigrant students in Greece were at greater risk of low behavioural engagement in school, which was associated with lower academic achievement. However, Duong et al.'s (2016) meta-analysis suggests that the relationship between immigrant status and academic achievement is complex and can vary based on whether the student is first- or second-generation immigrants and the immigrant group to which they belong. In Ireland, evidence of an achievement gap related to immigrant status is relatively mixed, with studies showing that students' first language is a more robust predictor of academic outcomes than immigration status itself (Darmody & Smyth, 2018; McGinnity et al., 2022; Sprong & Skopek, 2022). A multilevel analysis of TIMSS 2011 data at primary level in Ireland, however, found that while students who spoke a language other than English or Irish at home had lower achievement on average, this difference was no longer statistically significant after accounting for other variables (Cosgrove & Creaven, 2013).

Physical wellbeing: Tiredness and hunger

Students' levels of tiredness and hunger during school have also been associated with differences in academic achievement. Getting less than eight hours of sleep per night has been linked to lower academic achievement among adolescents compared to longer sleep duration, as well as to greater daytime tiredness, reduced behavioural persistence, and less positive attitudes towards life (Perkinson-Gloor et al., 2013). In addition, Perkinson-Gloor et al. found that daytime tiredness and behavioural persistence mediated the relationship between shorter sleep duration and academic achievement. Tiredness as a result of how classes are scheduled appears to also be related to academic achievement, with students generally performing better in afternoon classes compared to those held early in the morning (Williams & Shapiro, 2018).

Similarly, large-scale studies have found that reports of hunger are statistically significantly and negatively associated with students' academic achievement. For example, McKelvie Sebileau et al. (2025), in their case study of students in New Zealand (a high-income country that nonetheless experiences high levels of food poverty), found that students who experienced hunger showed a large, consistent achievement gap compared to their peers, even after accounting for socioeconomic factors. Using TIMSS data, Canbolat et al. (2023) found that hunger affects about one-third of children globally and, similarly, observed a statistically significant difference in academic achievement between students who regularly attended school hungry and those who did not.

Academic expectations and perceptions

Parents' academic expectations for their children are consistently identified as a statistically significant positive predictor of academic achievement at both primary and secondary levels, with similar results reported across different ages, racial and gender groups, academic measures, and subjects (Jeynes, 2024). These expectations are often considered to be a component of parental involvement in education, alongside behaviours such as parent-child communication, participation in school activities, and setting rules. In general, parental involvement is positively associated with students' academic achievement (Kim, 2022; Tan et al., 2020). However, Erdem and Kaya (2020) found that, of these components, parents' academic expectations had the strongest relationship with students' academic achievement. At the student level, Pinquart and Ebeling's (2020) meta-analysis showed that students' self-perceptions of their academic ability were moderately positively correlated with their actual achievement. In Ireland, Sheehan and Hadfield (2024) similarly observed a strong positive association between family factors, including parents' academic expectations, and students' achievement in mathematics.

Structure of this report

The remainder of this report is structured as follows: Chapter 2 focuses on home resources and indicators of socioeconomic status, while Chapter 3 focuses on aspects of the home background, such as parents' education and occupation and students' home language and place of birth. Chapter 4 describes students' tiredness and hunger. Chapter 5 describes students' early childhood learning and skills, and Chapter 6 describes students', parents', and school principals' attitudes towards and expectations for education. Finally, Chapter 7 provides a summary and discussion of the key findings arising from the analysis.

How to interpret analyses in this report

The following notes can be used to interpret the results reported in the following chapters. It is worth noting that due to rounding some of the percentages in figures and tables may not sum to exactly 100%.

Achievement scores

Estimates of student achievement in mathematics or science are reported on a scale that is set to an international 'centrepoint' of 500 with a standard deviation of 100.

Measures of uncertainty

Estimates of achievement are prone to uncertainty arising from sampling and measurement error. To quantify this error, when a mean achievement score or percentage is estimated for a group (e.g., for all students in Ireland), this value is accompanied by a standard error (SE). The SE is a gauge of the level of uncertainty around the estimate in question. The smaller the SE, the more confident we can be that the observed value is likely to reflect that of the population. Conversely, larger SEs indicate more uncertainty around the estimate.

A 95% confidence interval (CI) is a range of values such that there is a 95% probability that the true population score lies within this interval. We can create 95% CIs around a mean achievement score by (i) multiplying our estimated SE by 1.96, and (ii) adding this amount to, and subtracting it from, the mean score. Often – although not always – if the CIs around two sets of means overlap, it indicates that the difference between

the two means is not statistically significant. Conversely, if two CIs do not overlap, that indicates a statistically significant difference in means.

Statistical significance

A difference between groups is considered statistically significant if we can be confident that it is unlikely to have occurred by chance. In this report, statistical significance tests are reported at the 95% confidence level, and measurement and sampling error are accounted for in the statistical comparisons. Where reference is made to a *statistically significant difference* (i.e., *significantly lower* or *significantly higher*) in this report, a test of statistical significance has been conducted.

Readers should note that a statistically significant difference does not necessarily imply that a difference is substantive or meaningful in terms of its implications for policy or practice.

Chapter 2:
Home resources

This chapter focuses on the home resources for learning of Fourth Class and Second Year students. Data for Ireland are presented with reference to students' mathematics and science achievement as well as by student gender, student socioeconomic status, and school DEIS status.

Fourth Class

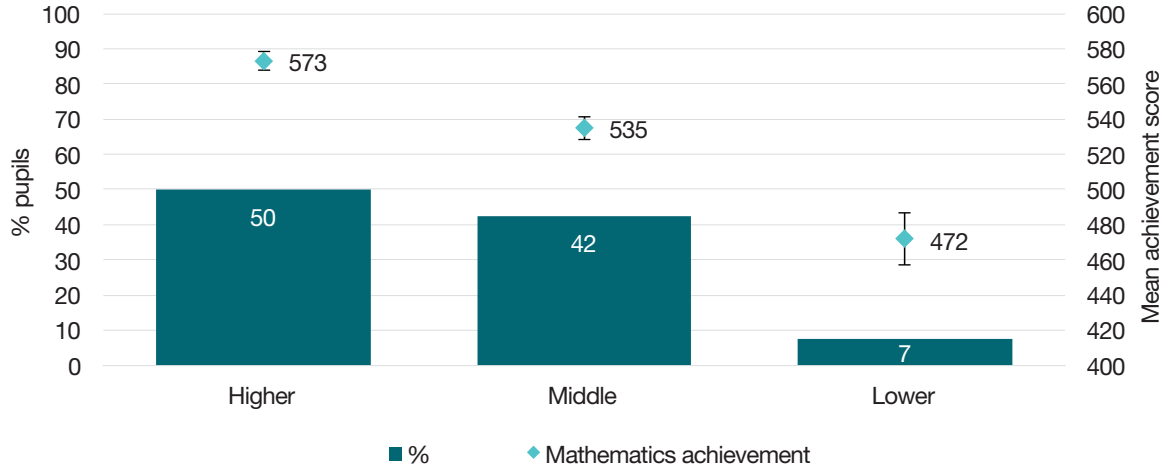
This section examines aspects of Fourth Class pupils' SES and the availability of various resources at home, including books and digital resources.

Socioeconomic status and home possessions

Parents of the Fourth Class pupils who participated in TIMSS 2023 were asked about the number of books and children's books in their home, the level of education they attained, and their occupation.[3] These characteristics were used to create the TIMSS *Home Socioeconomic Status* (SES) scale[4], on the basis of which pupils were categorised into one of three categories: *higher*, *middle*, or *lower* SES.

Figure 2.1 presents the percentages and mean mathematics achievement of Fourth Class pupils in each category of the scale. In Ireland, half of pupils (50%) were categorised as being within the *higher* category and 42% were classified within the *middle* category. Fewer than one-tenth of Fourth Class pupils (7%) were of lower SES. Pupils in the *higher* category achieved a statistically significantly higher score in mathematics (573) than pupils in the *middle* (535) or *lower* (472) categories. A similar pattern can be seen for science achievement, with mean scores of 560, 518, and 462, respectively.

Figure 2.1: Home socioeconomic status, percentages and mean mathematics achievement, Fourth Class (2023)

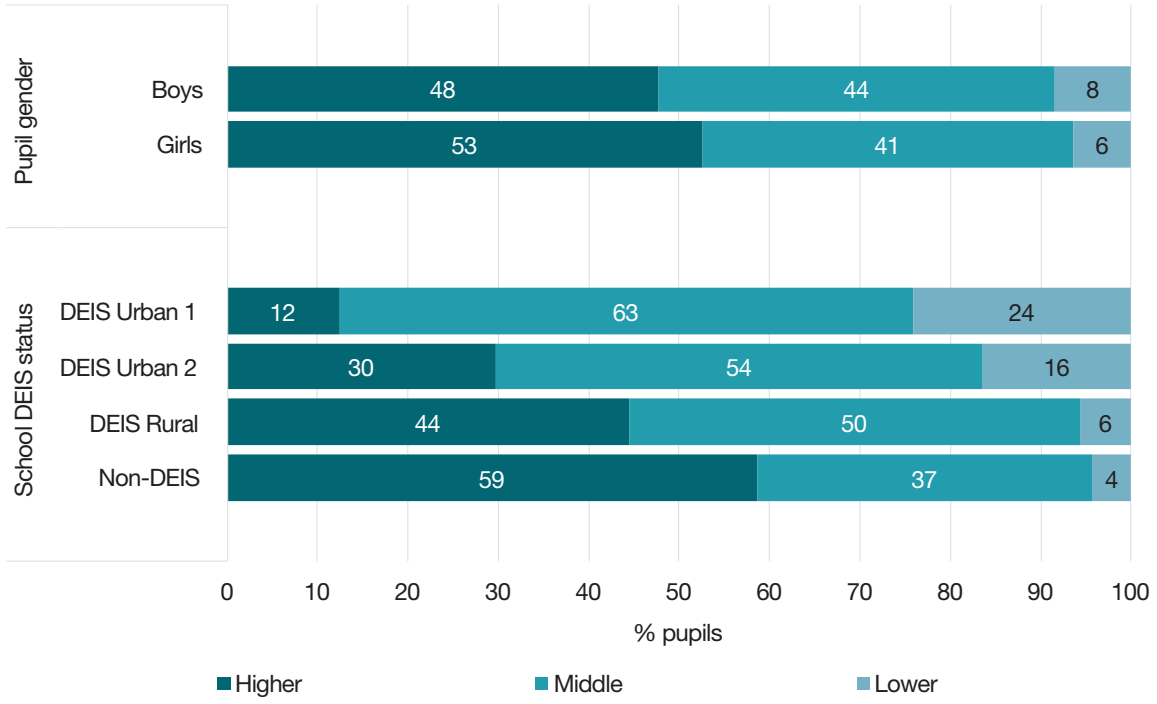


3 The number of books and children's books in the home are described in more detail below, while parental education and occupation are described in more detail in Chapter 3.

4 The overall scale, *Home Socioeconomic Status*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

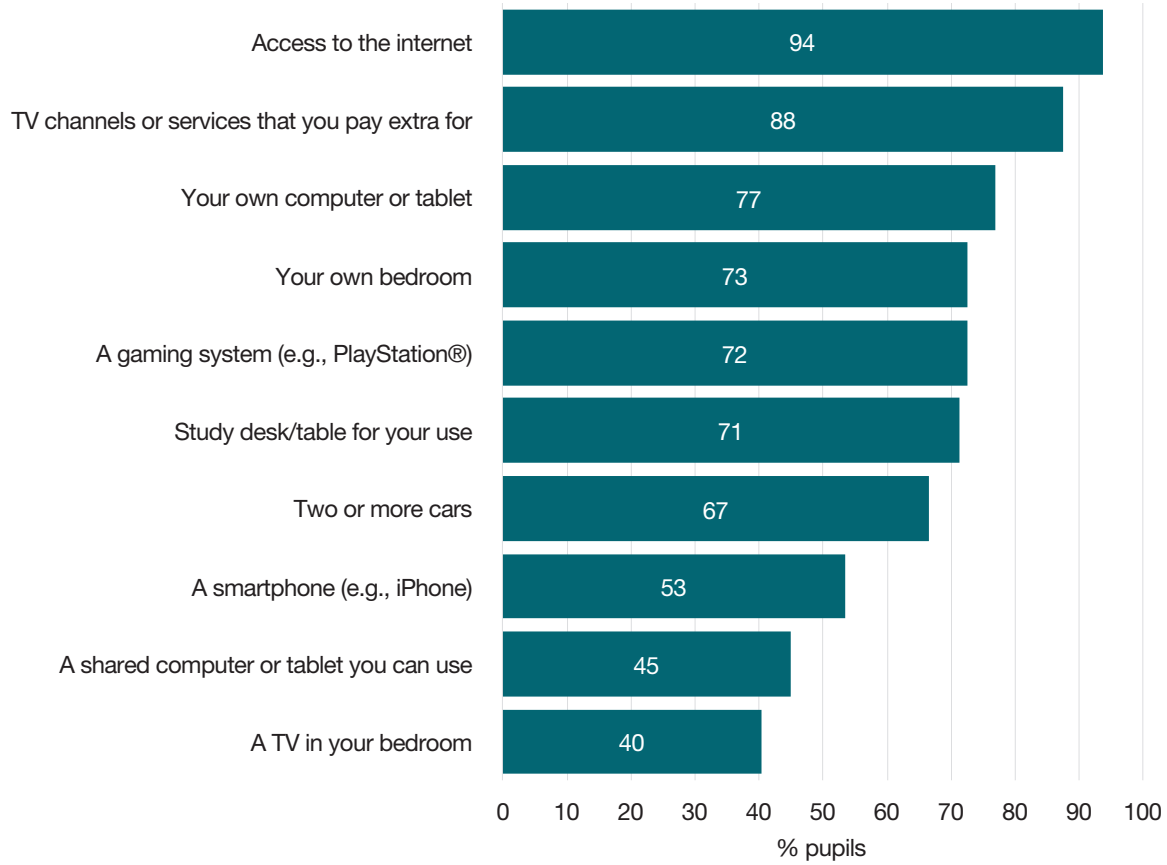
Figure 2.2 presents the percentages of pupils within each SES category by pupil gender and school DEIS category. More girls (53%) than boys (48%) were classified in the *higher* category, with slightly more boys (8%) than girls (6%) in the *lower* category. The percentage of pupils in the *lower* category was notably higher in DEIS Urban Band 1 (24%) and Band 2 (16%) schools than in DEIS Rural (6%) or non-DEIS (4%) schools. At least half of pupils in each of the three DEIS categories were classified within the *medium* category, while non-DEIS schools were the only group with most pupils (59%) in the *higher* category.

Figure 2.2: Socioeconomic status by pupil gender and school DEIS status, Fourth Class (2023)



Pupils were also asked to identify specific possessions or resources that they may have at home, choosing from the list presented in Figure 2.3. Most pupils reported having access to the internet (94%), additional TV channels (88%), their own computer or tablet (77%), their own bedroom (73%), a gaming console or system (72%), study desk for their use (71%), and two or more cars (67%). Just over half of Fourth Class pupils reported that they had their own smartphone (53%), just under half reported having a shared computer or tablet that they can use (45%), and two-fifths (40%) reported having a TV in their bedroom.

Figure 2.3: Possessions at home, Fourth Class (2023)



Some differences by pupil gender and school DEIS status were observed (see Appendix Table A2.1). Access to the internet was reported to a similar degree by pupils across the DEIS categories (ranging from 92% in DEIS Urban Band 1 schools to 97% in DEIS Rural schools), as was pupils' access to their own computer (ranging from 76% in both DEIS Urban Band 2 and non-DEIS schools to 83% in DEIS Rural schools). In contrast, pupils in DEIS Urban Band 1 (72%), Band 2 (53%), and Rural (47%) schools were more likely than those in non-DEIS schools (33%) to report having a TV in their bedroom. Nationally, boys were more likely than girls to have a TV in their bedroom (47% vs 33%, respectively) and to have a gaming system (89% vs 55%, respectively), while girls were more likely to have a study desk available for their use (77% vs 65%, respectively).

Number of books at home

Figure 2.4 presents percentages of Fourth Class pupils by the number of books at home (as reported by their parents), and the mean mathematics achievement for each group. The most common response selected by parents was that they had between 26 and 100 books at home, with the parents of more than one-third of pupils (36%) choosing this option. Pupils were relatively evenly distributed across the remaining response options, ranging from 11% of pupils with access to 10 or fewer books at home to 19% with access to more than 200 books.

Pupils' mathematics achievement was broadly linearly related to the number of books reported by their parents. The highest score, 583, was achieved by the pupils with access to the greatest number of books at home (i.e., more than 200). This was statistically significantly higher than the scores achieved by pupils with 101 to 200 books (562), 26 to 100 books (550), 11 to 25 books (532), and 0 to 10 books (496). A similar pattern can be seen for science achievement, with mean scores of 573, 547, 535, 513, and 483, respectively.

Figure 2.4: Number of books at home, percentages and mean mathematics achievement, Fourth Class (2023)

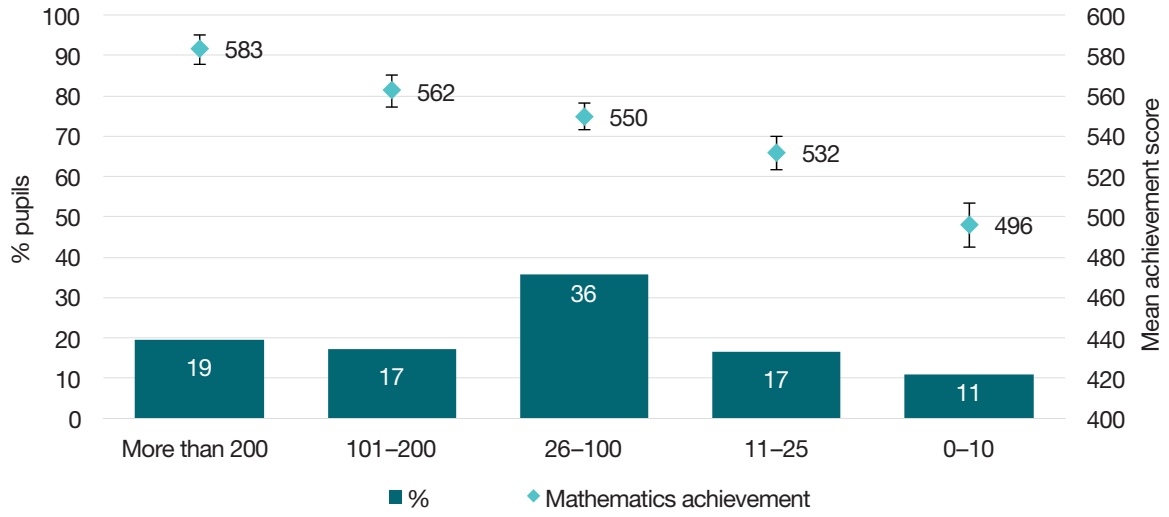
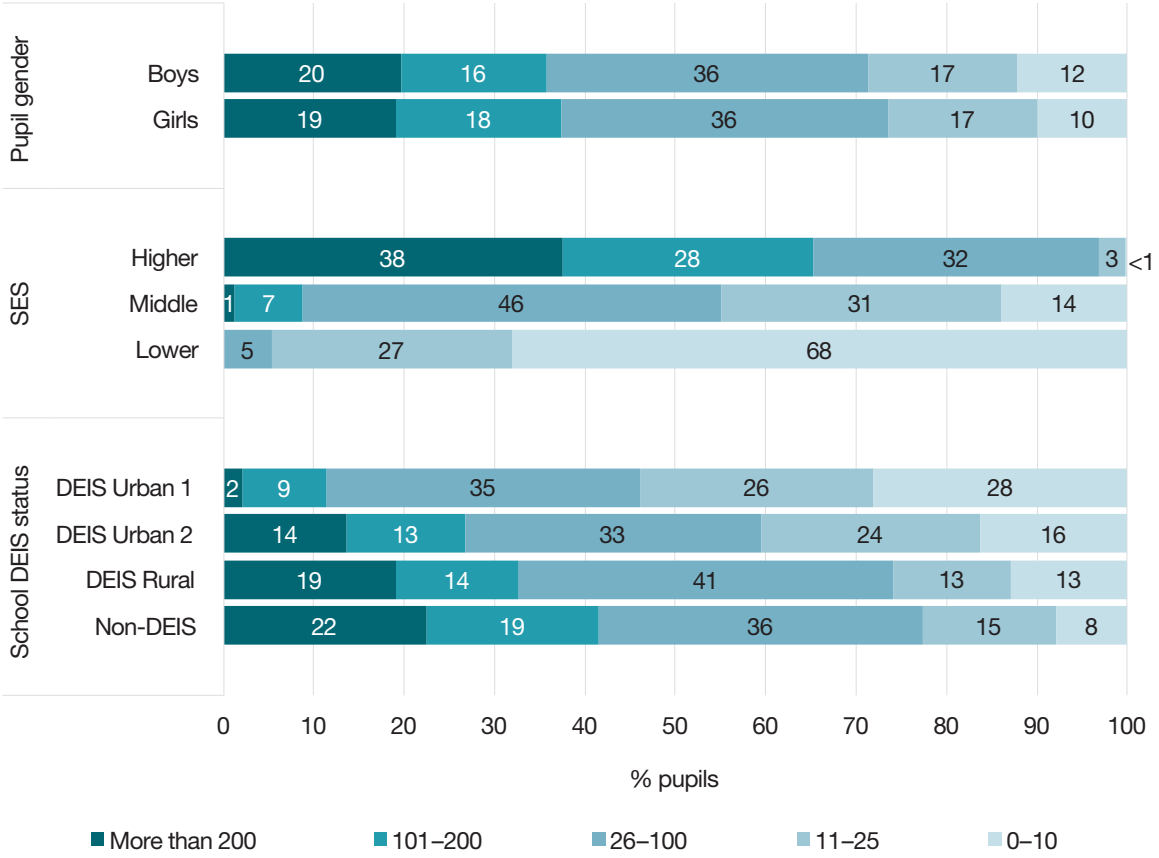


Figure 2.5 shows the number of books at home by pupil gender, SES, and school DEIS status. There were relatively few differences between boys and girls in terms of the number of books at home. On the other hand, very substantial differences by SES are evident – for example, more than 200 books were almost exclusively reported in higher SES homes, while a majority of lower SES homes were reported to have 10 or fewer books. However, as described earlier in the chapter, this indicator is one of the components that is used to construct the SES scale, which means that differences across the SES categories are (by definition) to be expected. The largest difference in terms of school DEIS status was between DEIS Urban Band 1 schools and all other categories, with access to fewer books reported in the former. Smaller differences between DEIS Urban Band 2, DEIS Rural, and non-DEIS schools can be seen, although pupils in non-DEIS schools were reported to have access to the greatest number of books at home.

Figure 2.5: Number of books at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Parents were also asked about the number of children's books – as opposed to books of any sort – in their home. Figure 2.6 presents the percentages of Fourth Class pupils by varying degrees of access to children's books at home, together with their mathematics achievement. About three-quarters of pupils were reported to have at least 26 children's books at home, with roughly one-quarter in each of the following categories: 26 to 50 children's books, 51 to 100 children's books, and more than 100 children's books. About 9% of pupils had 10 or fewer children's books at home. The mathematics achievement of pupils with more than 100 children's books (581) was statistically significantly higher than that of pupils with 51 to 100 children's books (561), 26 to 50 children's books (546), 11 to 25 children's books (522), and 0 to 10 children's books (486). A similar pattern can be seen for science achievement, with mean scores of 568, 548, 528, 506, and 473, respectively.

Figure 2.6: Number of children's books at home, percentages and mean mathematics achievement, Fourth Class (2023)

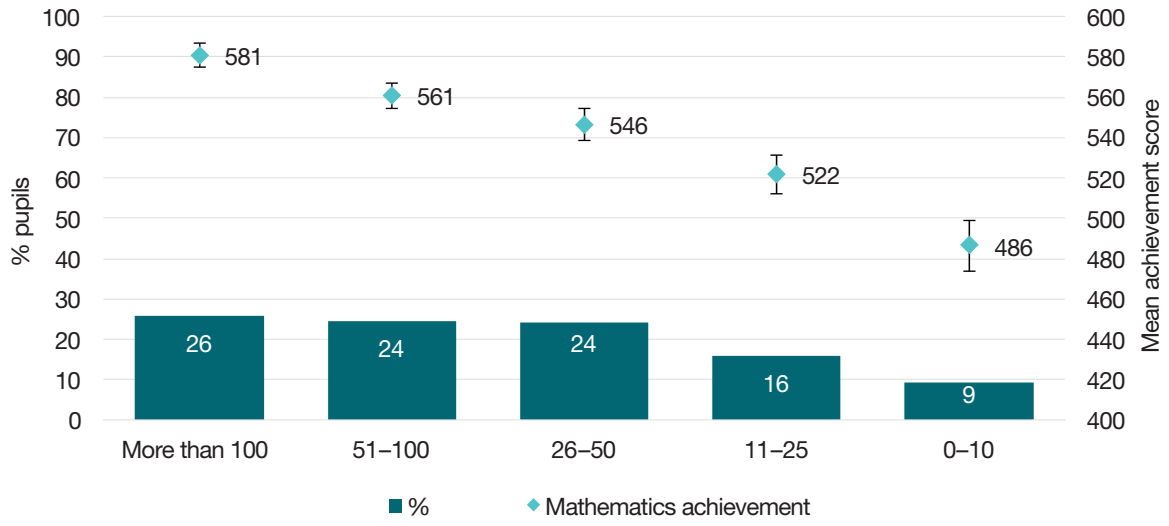
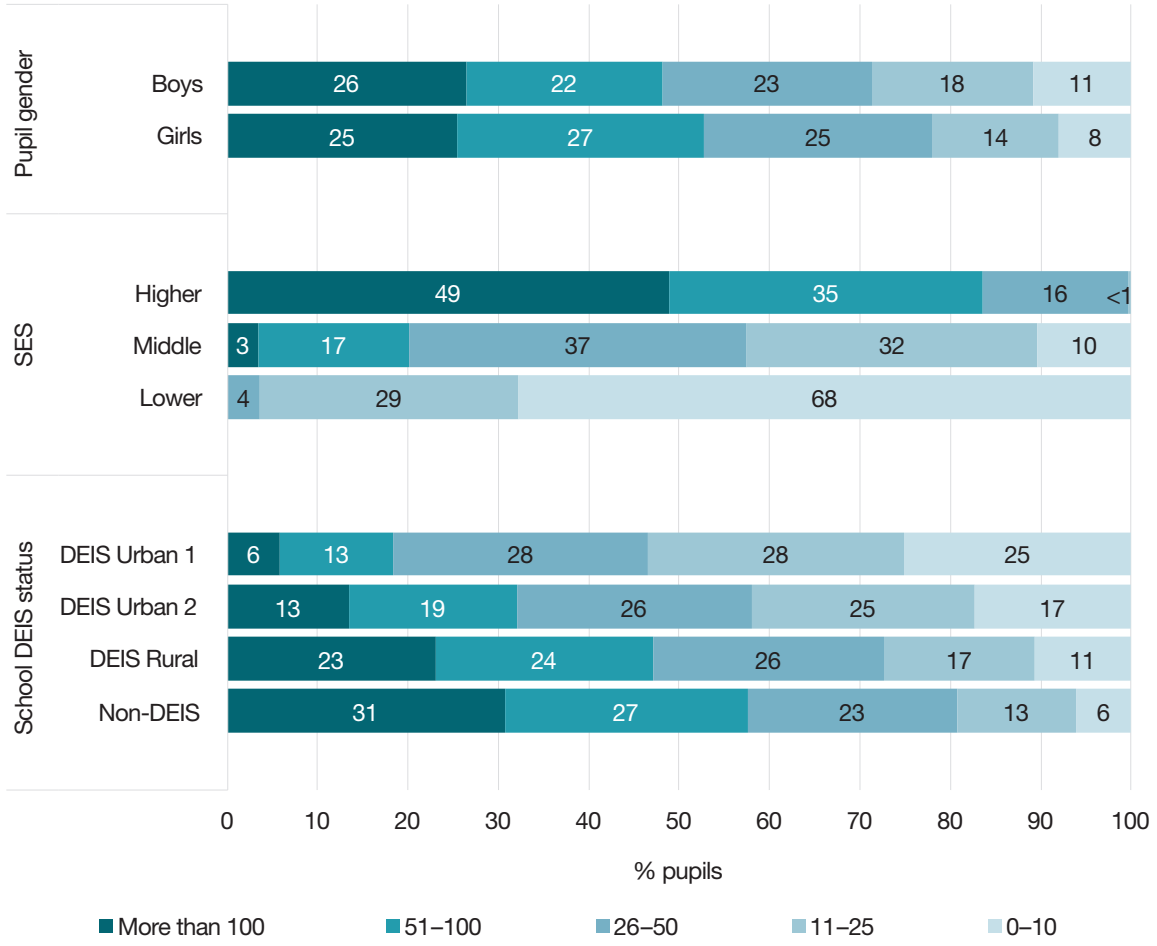


Figure 2.7 presents the number of children's books at home by pupil gender, SES, and school DEIS status. More boys than girls reported having 25 or fewer children's books. Substantial differences by SES were evident but, as with the broader measure of books in the home, with the caveat that these differences are inherent to the construction of the SES scale. Access to children's books at home was greatest for pupils in non-DEIS schools, followed by pupils in DEIS Rural schools, Urban Band 2 schools, and (least widespread) in Urban Band 1 schools.

Figure 2.7: Number of children's books at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Home digital resources

Figure 2.8 presents parents' reports of possession of a computer or laptop, a tablet or e-reader, and a reliable internet connection at home. The vast majority of Fourth Class pupils had access to these resources at home, with 91% having access to computers/laptops, 89% having access to tablets/e-readers, and 95% living in homes with a reliable internet connection. The mathematics achievement of pupils with these resources at home was statistically significantly higher than that of pupils without such resources. The difference in mathematics achievement between pupils who did (555) and did not (491) have a computer/laptop at home was substantially larger than the corresponding differences related to ownership of a tablet/e-reader (553 vs 523) or a reliable internet connection (551 vs 527). Broadly similar patterns can be seen for science achievement (computer/laptop: 540 vs 484; tablet/e-reader: 539 vs 508; internet: 537 vs 502).

Figure 2.8: Digital resources at home, percentages and mean mathematics achievement, Fourth Class (2023)

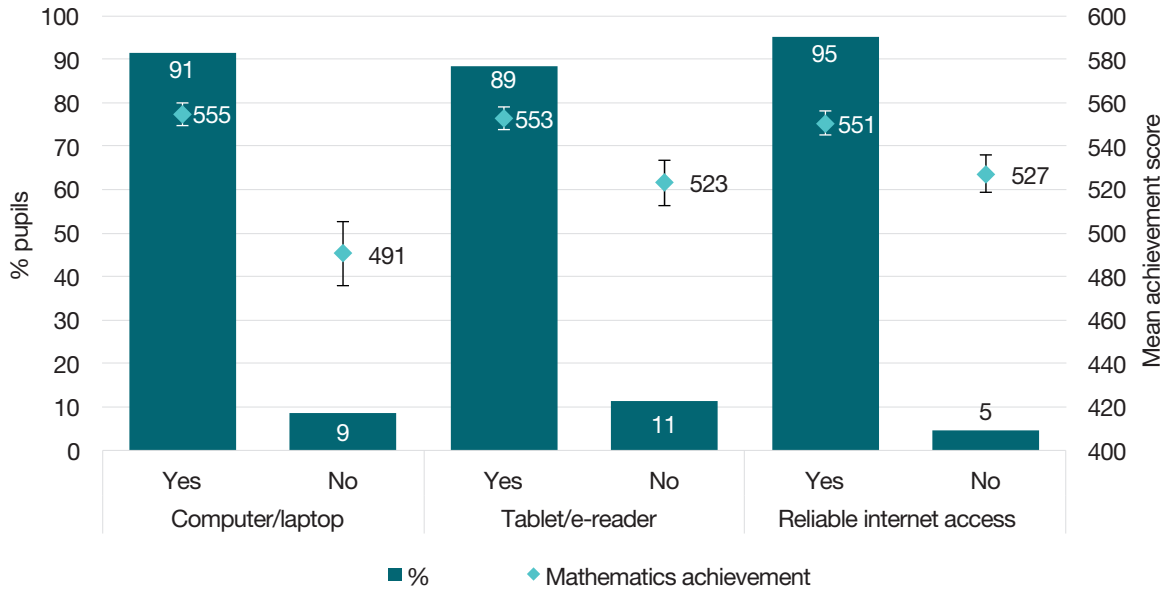


Figure 2.9 shows the distribution of computer/laptop ownership by pupil gender, SES, and school DEIS status. The percentages for boys and girls were very similar. However, computer/laptop ownership was much more common in middle SES (89%) and, particularly, higher SES homes (97%) than in lower SES homes (63%). Broadly similar rates of computer/laptop ownership were reported by the parents of pupils in non-DEIS, DEIS Rural, and DEIS Urban Band 2 schools (90-93%), with relatively lower rates of ownership by pupils in DEIS Urban Band 1 schools (81%).

Figure 2.9: Computer/laptop at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)

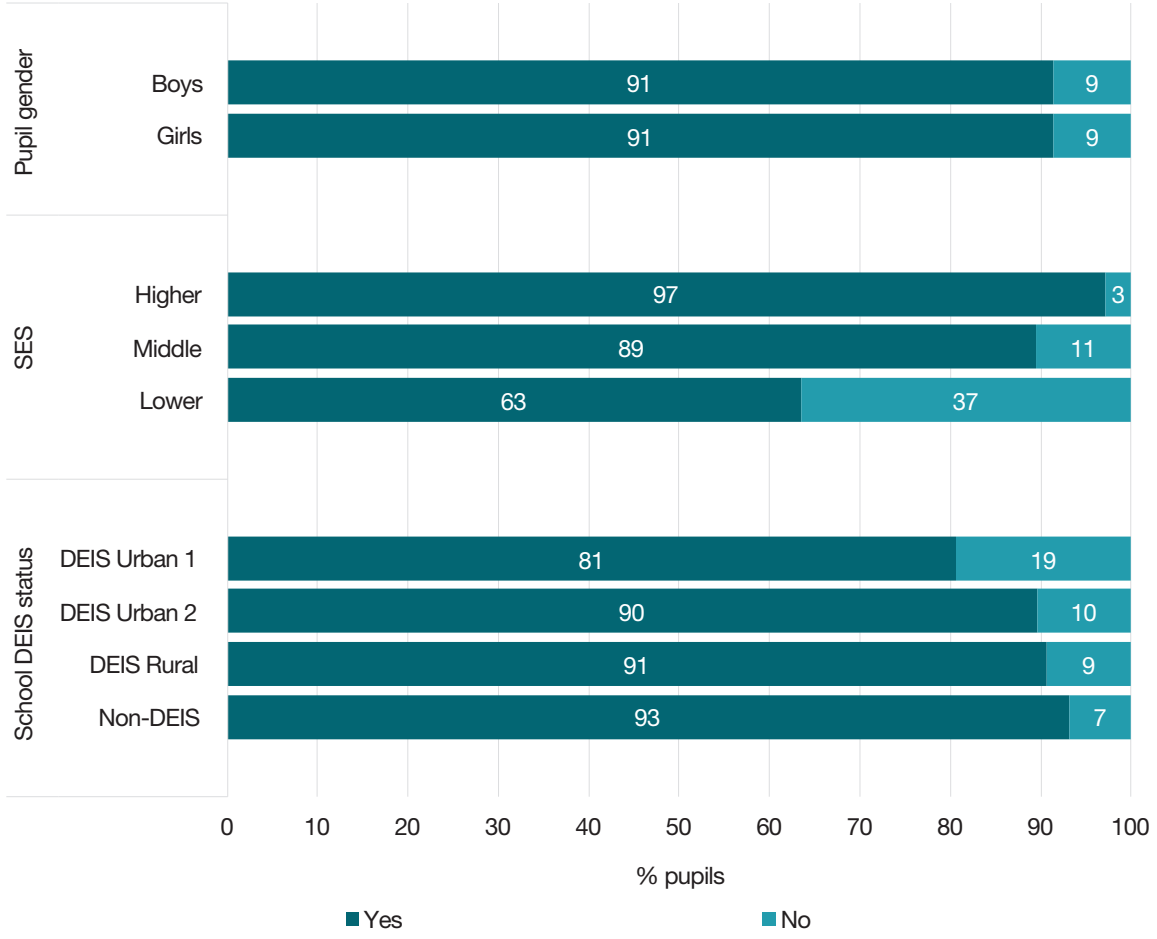


Figure 2.10 shows the distribution of tablet/e-reader ownership by pupil gender, SES, and school DEIS status. Girls were slightly more likely than boys to have a tablet or e-reader at home. Ownership of a tablet or e-reader was more common in higher SES (93%) and middle SES homes (86%) compared to lower SES homes (75%). Tablet/e-reader ownership rates were very similar among pupils in non-DEIS and DEIS Rural schools (90%), and were somewhat lower in DEIS Urban Band 1 (84%) and Band 2 (82%) schools.

Figure 2.10: Tablet/e-reader at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)

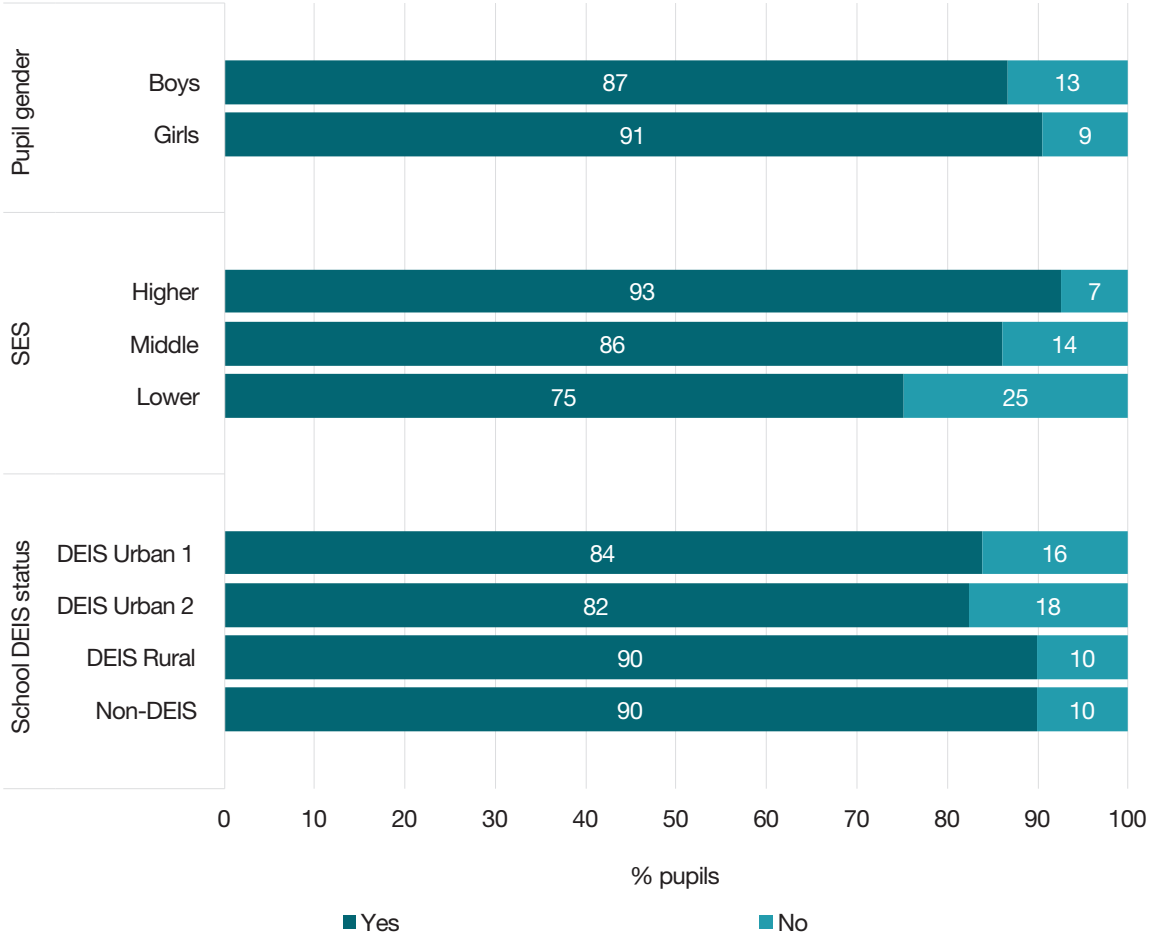
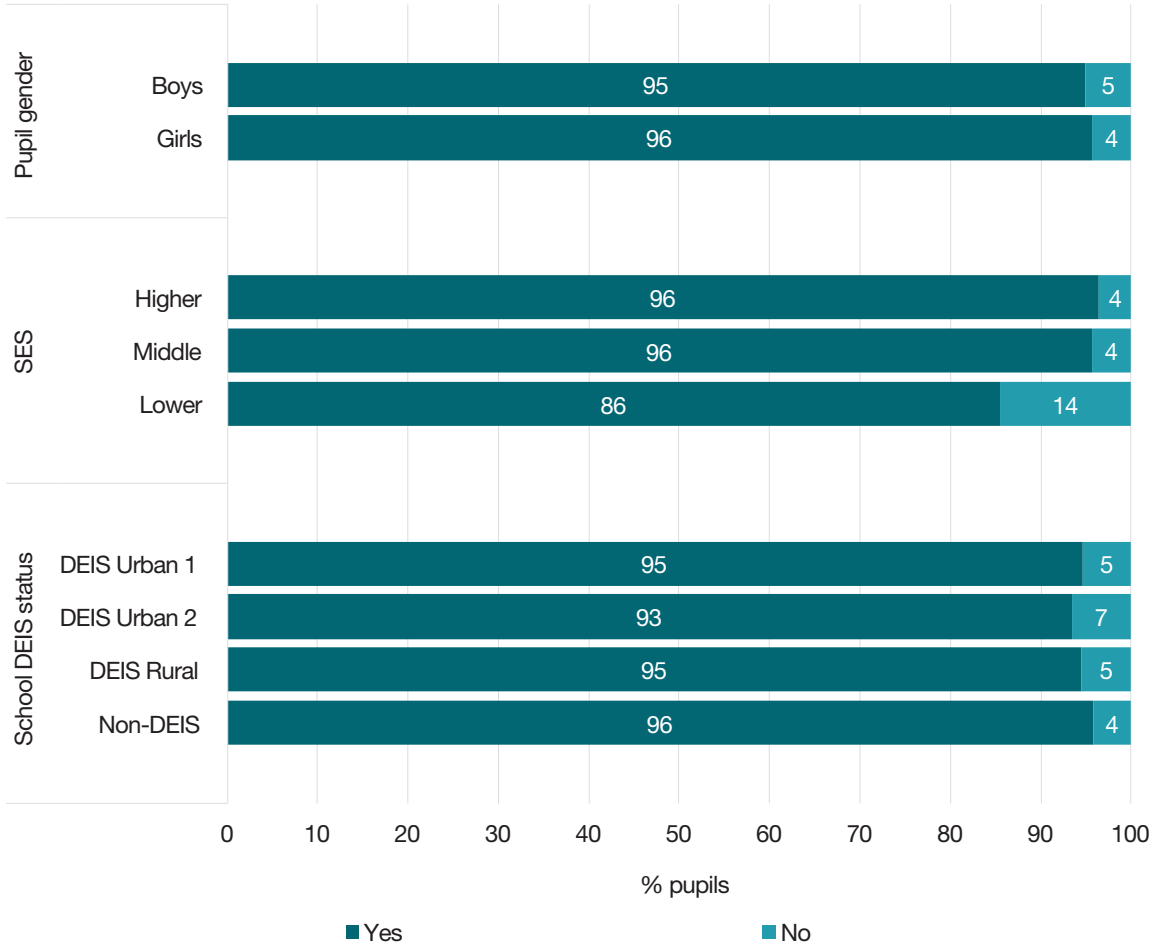


Figure 2.11 shows the distribution of reliable internet access at home by pupil gender, SES, and school DEIS status. In general, few differences in terms of internet access are evident across the examined characteristics. The greatest difference was observed by SES; reliable internet access was reported less often by the parents of pupils in lower SES households (86%) than those in middle or higher SES households (both 96%).

Figure 2.11: Reliable internet access at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Second Year

This section examines the availability of various resources for learning in Second Year students' homes, including books and digital resources.

Home educational resources and home possessions

Second Year students in TIMSS 2023 were asked about the number of books in their home, access to the internet, access to their own room for study, and the level of education attained by their parents.[5] These characteristics were used to create the TIMSS *Home Educational Resources* (HER) scale[6], on the basis of which students were categorised into one of three categories: *many resources*, *some resources*, or *few resources*.

5 Parental education is described in more detail in Chapter 3, while the other variables that feed into the HER scale are described in more detail below.

6 The overall scale, *Home Educational Resources*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

Figure 2.12 presents the percentages and mean mathematics achievement of Second Year students in each category of the scale. In Ireland, 39% of students were classified as having many resources and 45% as having some resources. About 16% of Second Year students were classified as having few resources for learning at home. The mathematics achievement of students with many resources (559) was statistically significantly higher than that of students with some resources (515) or few resources (459). A similar pattern can be seen for science achievement, with mean scores of 567, 516, and 460, respectively.

Figure 2.12: Home educational resources, percentages and mean mathematics achievement, Second Year (2023)

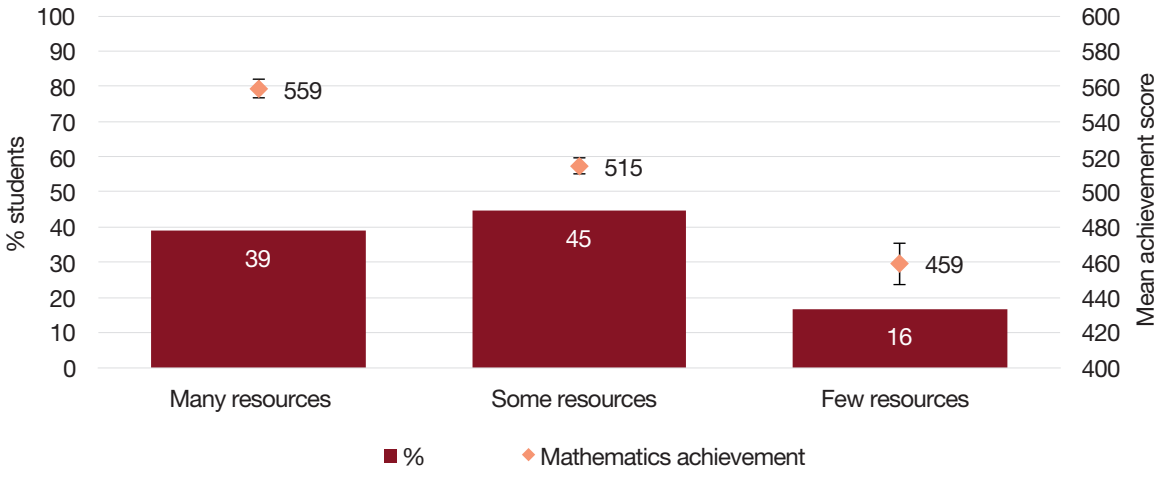
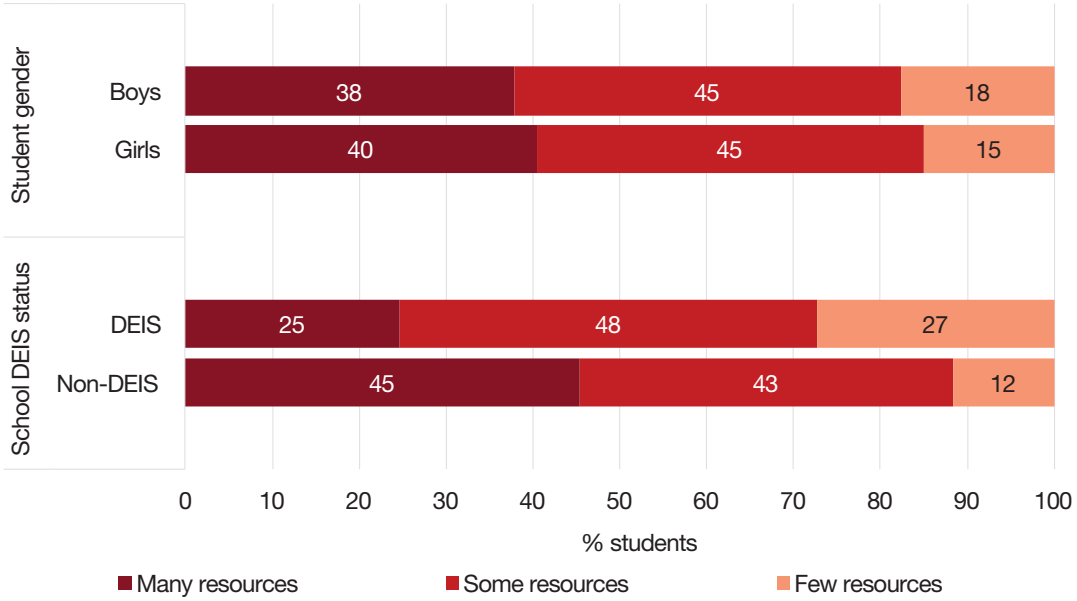


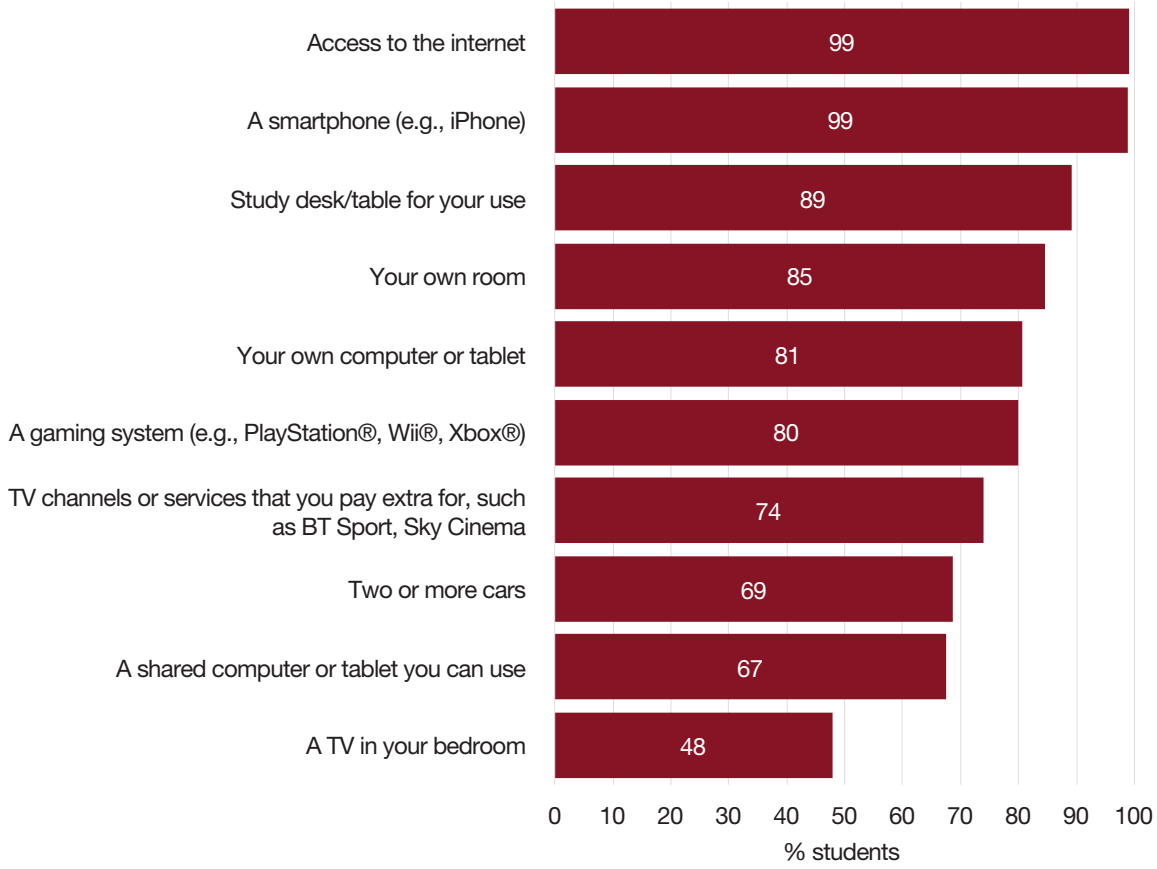
Figure 2.13 presents the distribution of HER by student gender and school DEIS status. Girls were slightly more likely than boys to be classified as having many resources and slightly less likely to have few resources. Larger differences can be seen in relation to school DEIS status, with more than one-quarter of students in DEIS schools (27%) having few resources for learning at home, compared to 12% in non-DEIS schools.

Figure 2.13: Home educational resources by student gender and school DEIS status, Second Year (2023)



Students were also asked to identify specific possessions or resources that they may have at home, choosing from the list presented in Figure 2.14. Access to the internet and a smartphone were almost ubiquitous (both 99%). Most students also reported having a study desk or table for their use (89%), their own room (85%), their own computer or tablet (81%), a gaming system (80%), additional TV channels (74%), two or more cars (69%), and a shared computer or tablet that they can use (67%). Just under half of Second Year students (48%) reported having a TV in their bedroom.

Figure 2.14: Possessions at home, Second Year (2023)



As at primary level, some differences by student gender and school DEIS status were observed (see Appendix Table A2.2). Second Year students in DEIS schools (61%) were more likely than those in non-DEIS schools (42%) to report having a TV in their bedroom, and less likely than those in non-DEIS schools to report having a study desk (83% vs 92%, respectively) and two or more cars (60% vs 72%, respectively). Boys were more likely than girls to report having a TV in their bedroom (55% vs 39%, respectively) and a gaming system (93% vs 65%, respectively).

Number of books at home

Figure 2.15 shows the percentages of students reporting various quantities of books at home, together with the mathematics achievement of students in each group. The distribution of students across the five options presented was relatively even, with the exception of the middle category (26 to 100 books), which was selected by 29% of students. Each of the other categories was selected by between 16% and 19% of students.

Students' mathematics achievement was strongly related to the number of books they reported at home. Students with more than 200 books achieved a mean mathematics score of 567, which was statistically significantly higher than the scores of students with 101 to 200 books (550), 26 to 100 books (528), 11 to 25 books (501), and 10 or fewer books (461). A similar pattern can be seen for science achievement, with scores of 578, 559, 529, 500, and 464, respectively.

Figure 2.15: Number of books, percentages and mean mathematics achievement, Second Year (2023)

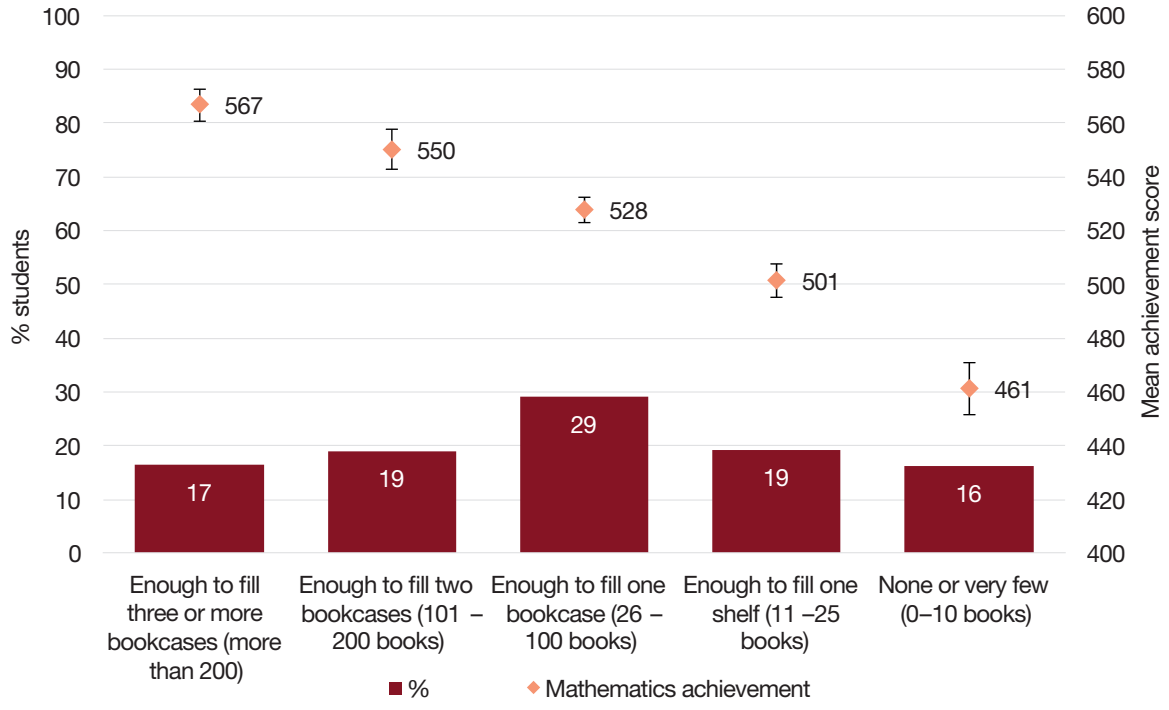
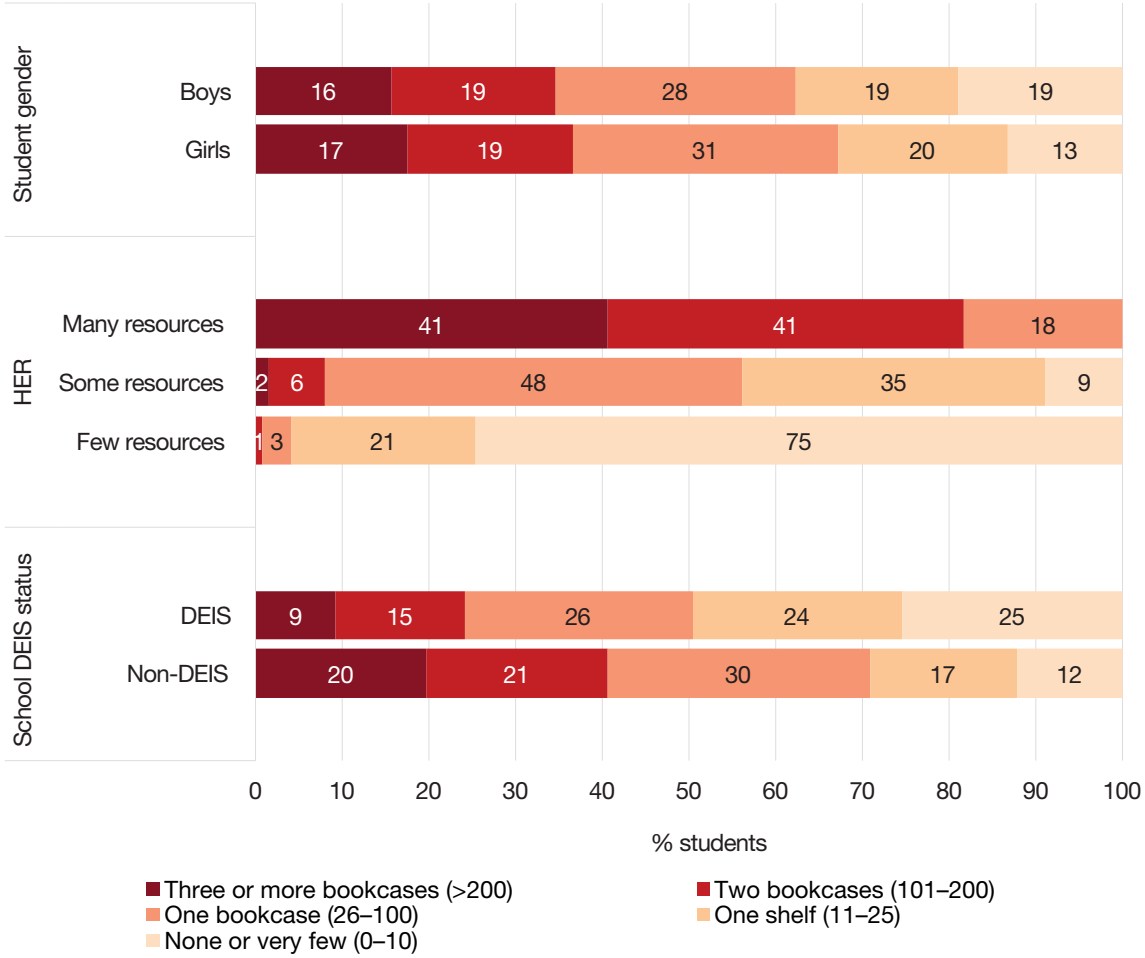


Figure 2.16 presents the number of books by student gender, HER, and school DEIS status. Boys were more likely than girls to report having very few (10 or fewer) books at home. Substantial differences are evident in terms of HER categories – however, as with the Fourth Class SES scale, this is a reflection of the construction of the scale, which includes the number of books as one of its components. Students in non-DEIS schools were more likely to report access to many books at home, and less likely to report access to few books, than their peers in DEIS schools.

Figure 2.16: Number of books by student gender, HER, and school DEIS status, Second Year (2023)

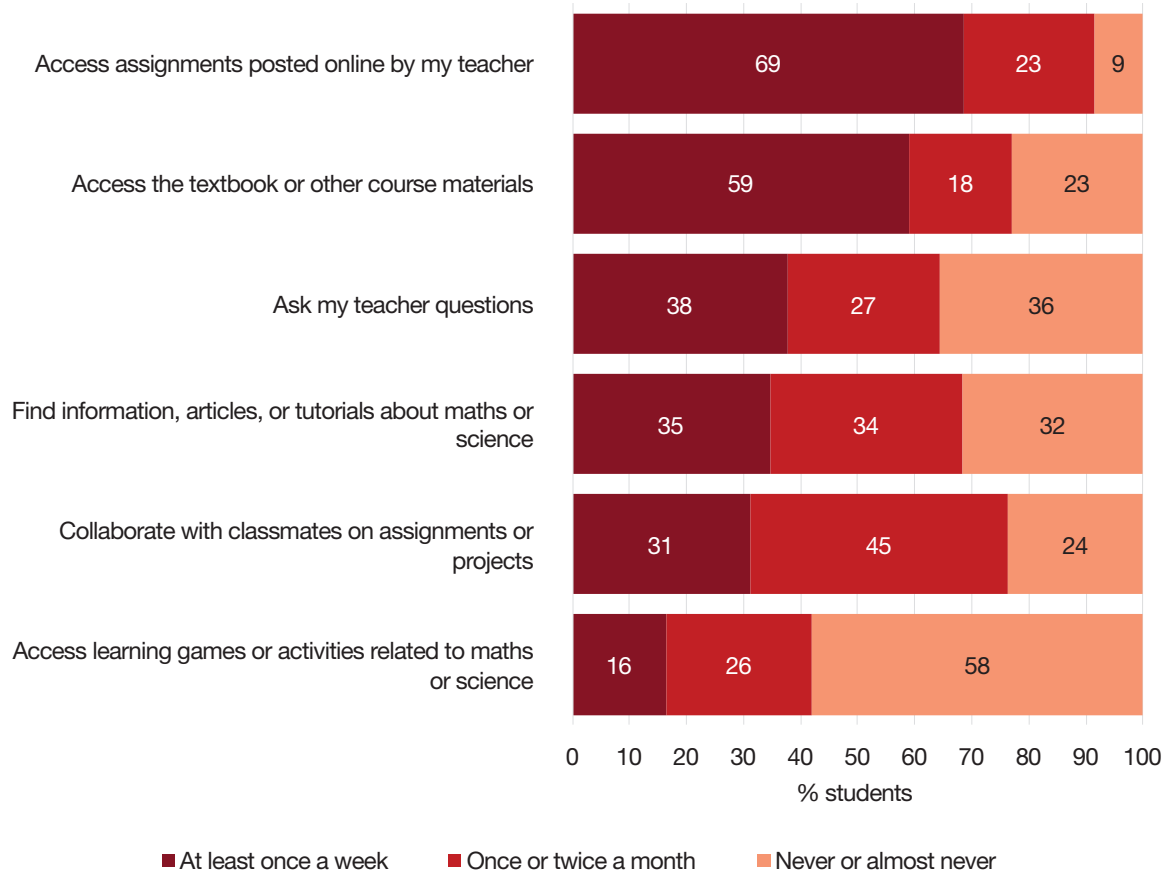


Use of internet for schoolwork

Second Year students were asked to describe how often they used the internet for a range of tasks related to schoolwork in mathematics or science, including both in-class work and homework or study outside the classroom.

The most common activity was using the internet to access assignments posted online by the teacher, which 69% of students reported doing at least once a week and a further 23% once or twice a month. Accessing the textbook or other course materials online was also common, with the majority of students (59%) doing so at least once a week. Two activities – asking the teacher questions and finding information/articles/tutorials about mathematics or science online – had similar proportions of students who engaged in them weekly (38% and 35%, respectively) as well as similar proportions who never or almost never engaged in them (36% and 32%, respectively). Collaboration with classmates online was done at least monthly by about three-quarters of students. The only activity from the list that most students reported never or almost never doing was using the internet to access learning games or activities related to mathematics or science (58%).

Figure 2.17: Use of the internet for various schoolwork tasks, Second Year (2023)



Chapter 3:
Home background

The focus of this chapter is on the demographics of the parents and students who participated in TIMSS 2023, including place of birth, parents' educational background and, at Fourth Class only, parents' occupation (this was asked as part of the Home Questionnaire which was only distributed at Fourth Class). Also included is the frequency with which English, Irish, or other languages are spoken in students' homes. The data are presented with reference to mathematics and science achievement (where relevant) as well as subgroup differences by student gender, student socioeconomic status (SES/HER), and school DEIS status.

Fourth Class

This section presents findings in relation to Fourth Class pupils' parents' place of birth, their level of education and occupation, pupils' place of birth, and the home language.

Parents' place of birth

The home questionnaire asked parents if they were born in Ireland.[7] Table 3.1 presents the percentages of Fourth Class pupils' parents' place of birth and pupils' mean mathematics and science achievement. Approximately two-thirds of pupils (67%) had parents who were born in Ireland, 12% had one parent born in Ireland and the other born elsewhere, and 21% had two parents born outside of Ireland. Pupils whose parents were both born in Ireland achieved statistically significantly lower mean mathematics (550) and science (537) scores compared to those who had one parent born in Ireland and one elsewhere (562 and 552, respectively). Pupils who had both parents born in Ireland achieved a statistically significantly higher mean science score (537) than those who had neither parent born in Ireland (519), with no statistically significant difference found for mathematics.

Table 3.1: Parents' place of birth and mean mathematics and science achievement, Fourth Class (2023)

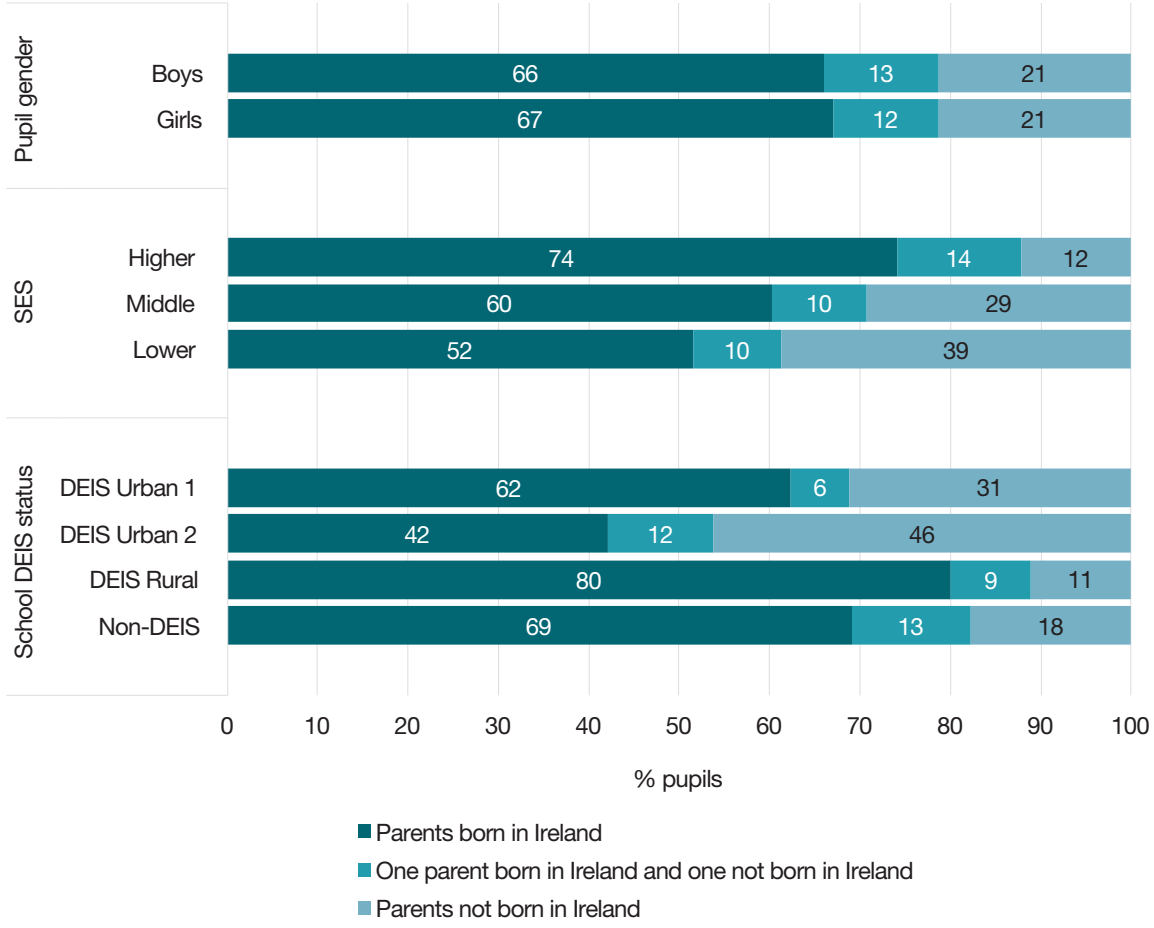
	%	Mathematics	Science
Parents born in Ireland *(R)*	67	550	537
One parent born in Ireland and one not born in Ireland	12	**562**	**552**
Parents not born in Ireland	21	540	**519**

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$).

Figure 3.1 presents Fourth Class pupils' parents' place of birth by pupil gender, SES, and school DEIS status. There were similar percentages of boys and girls based on their parents' place of birth. However, a higher percentage of pupils in the *higher* category of SES (74%) had both parents born in Ireland compared to the *middle* (60%) and *lower* categories (52%). Among school DEIS categories, more pupils in DEIS Urban schools (31% in Band 1 and 46% in Band 2) had both parents born outside Ireland compared to DEIS Rural (11%) and non-DEIS schools (18%).

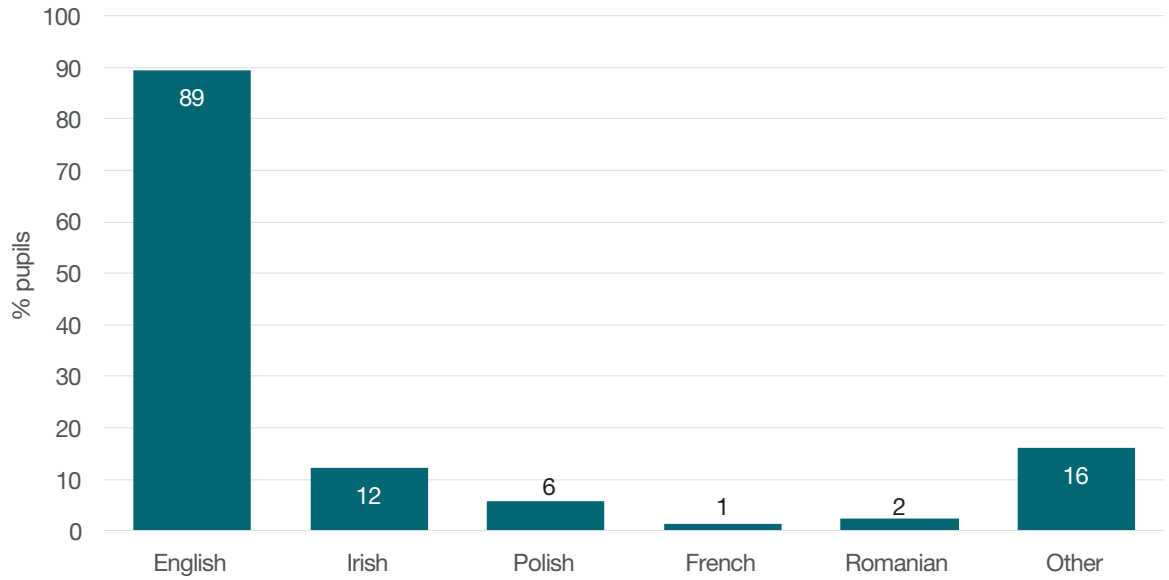
7 Two variables captured these data; one for Parent/Guardian A and the other for Parent/Guardian B. In cases where data were only provided for one parent (i.e., a response for one Parent/Guardian was recorded as "not applicable"), these were included either in the *Parents born in Ireland* or *Parents not born in Ireland* categories.

Figure 3.1: Parents' place of birth by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Parents were also presented with a short list of specified languages and asked to indicate which of them they spoke at home when talking with their child (multiple selections were possible) (Figure 3.2). The vast majority of pupils had parents who spoke English with their child (89%), while just over one in 10 had parents who spoke Irish (12%). Polish was the next most commonly spoken language (6%). An additional 16% of pupils' parents reported speaking a language other than those listed.

Figure 3.2: Languages spoken by either parent, Fourth Class (2023)

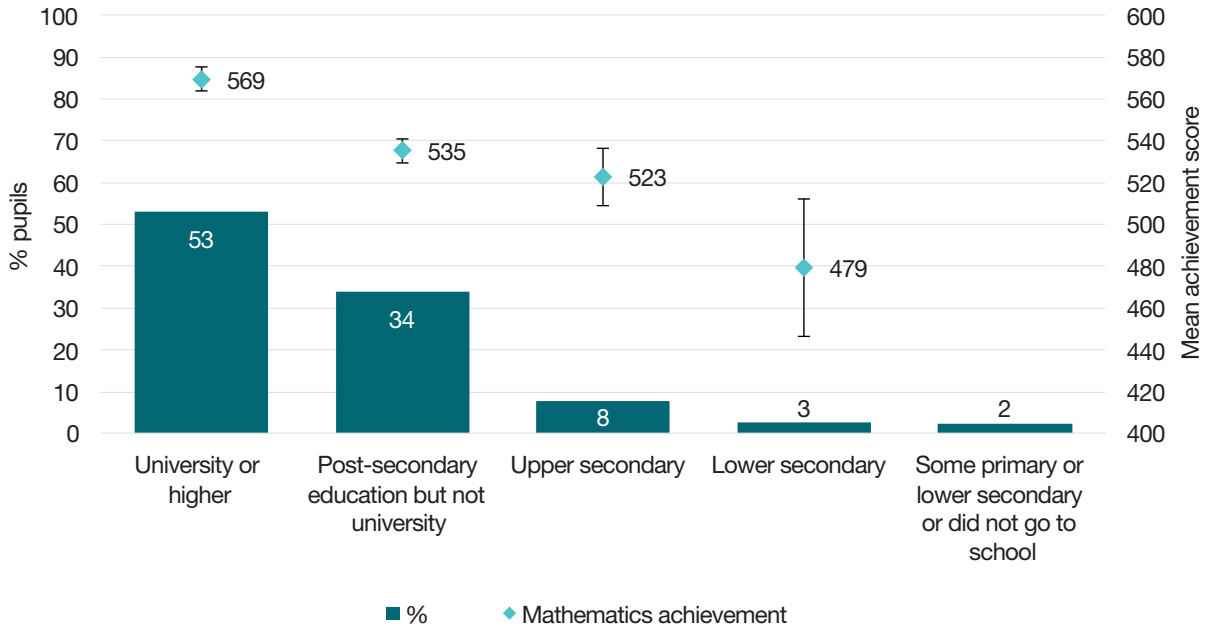


Parents' education

The parents of Fourth Class pupils were asked to describe their educational attainment (i.e., their highest educational qualification, or how far they had gone through the education system). The highest level of education of either parent was recoded internationally into the following categories: *university or higher* (i.e. an undergraduate or postgraduate degree)*; post-secondary education but not university; upper secondary; lower secondary; some primary or lower secondary or did not go to school.*

Figure 3.3 presents parents' highest level of education and pupils' mean mathematics achievement. Just over half of Fourth Class pupils (53%) had at least one parent who reported having an undergraduate or postgraduate degree, and a further 34% had at least one parent with some post-secondary education but not to a university level. Pupils whose parents had an undergraduate or postgraduate degree achieved a statistically significantly higher mean mathematics score (569) compared to their peers. A similar pattern can be seen for science achievement; students whose parents had a degree achieved a statistically significantly higher mean science score (554) compared to their peers, who had mean scores of 522, 509, 470, and 465, respectively.

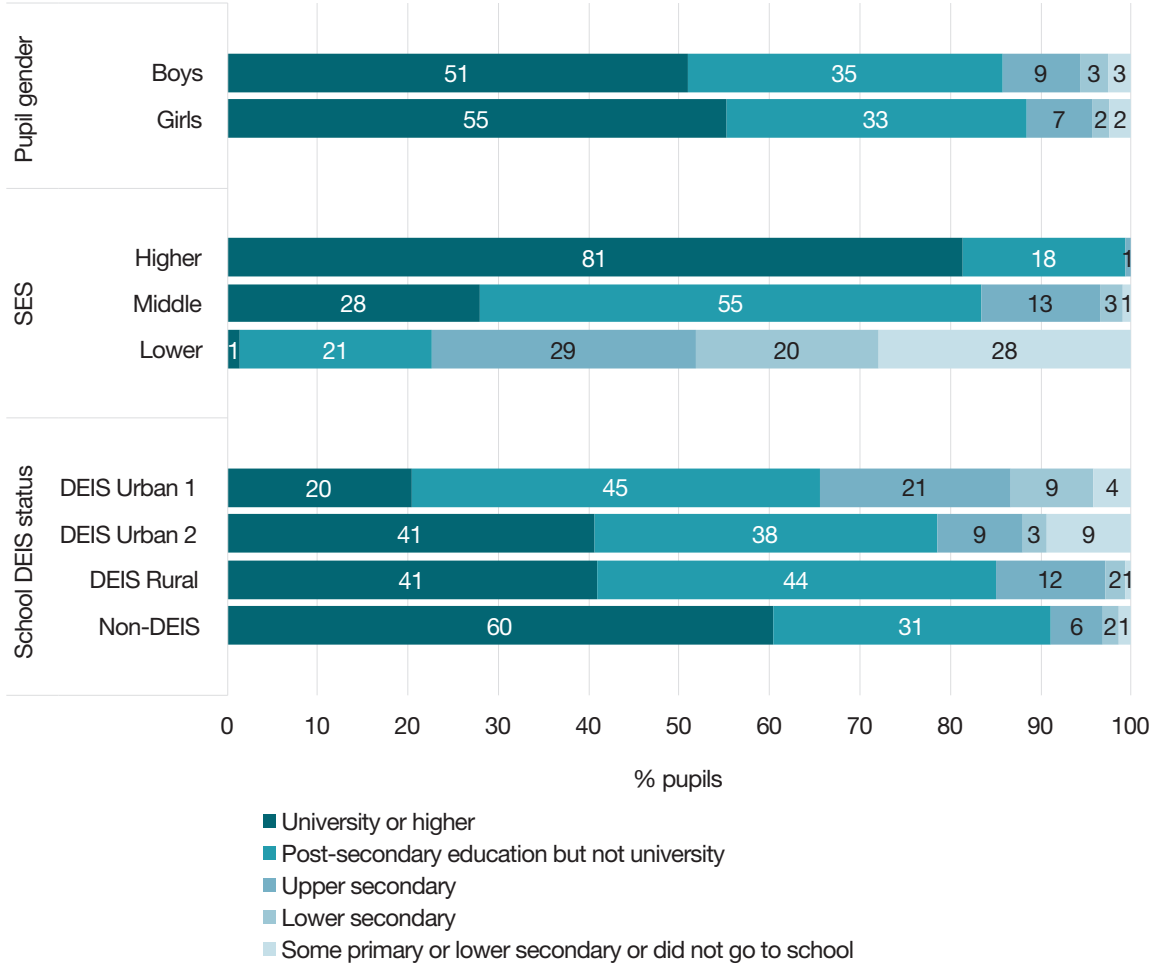
Figure 3.3: Parents' level of education and mean mathematics achievement, Fourth Class (2023)



Note. Due to the small number of pupils and resulting error margins, the estimate of mean achievement for pupils in the *some primary or lower secondary or did not go to school* category is not reported.

Figure 3.4 presents Fourth Class pupils' parents' level of education by pupil gender, SES, and school DEIS status. A slightly higher percentage of girls (55%) had parents with a university (undergraduate or postgraduate) degree compared to boys (51%). A higher percentage of pupils in the *higher* category of SES (81%) had parents with a university degree compared to the *middle* (28%) and *lower* categories (1%). However, this indicator is one of the components that is used to construct the SES scale, which means that differences are (by definition) to be expected. Among school DEIS categories, more pupils in non-DEIS schools had parents with a university degree (60%) compared to DEIS Rural and DEIS Urban Band 2 schools (both 41%), as well as DEIS Urban Band 1 schools (20%).

Figure 3.4: Parents' level of education by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Parents' occupation

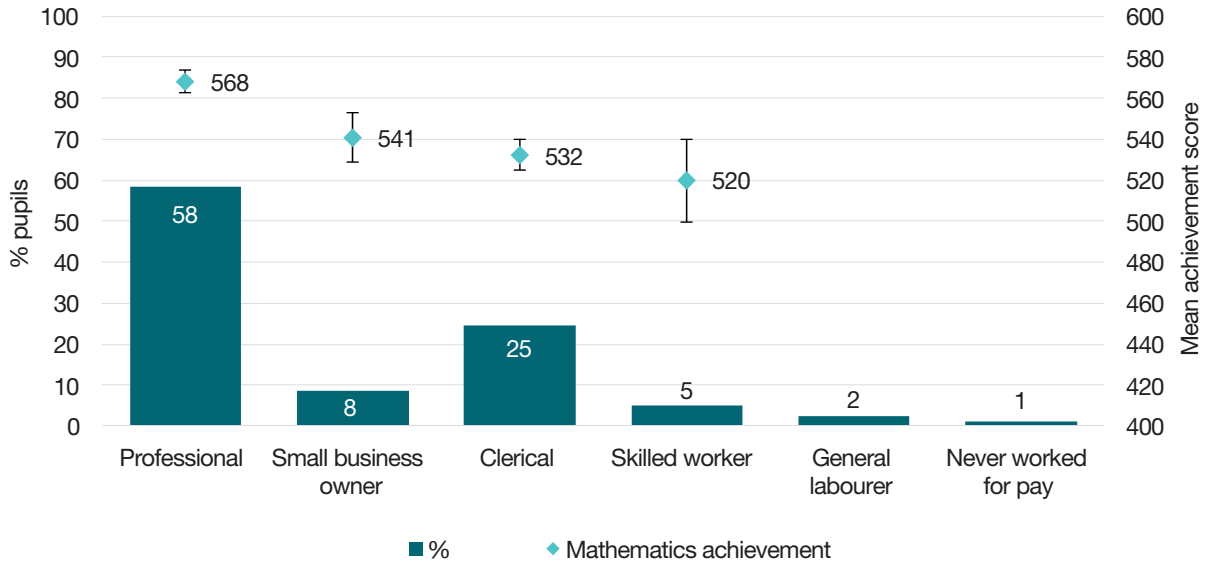
Parents were asked to choose from a list of broad occupational categories (with examples of specific jobs provided) the one that best described their current or most recent job.[8] Where both parents were employed, the highest occupation level reported by either parent was used and subsequently re-categorised into one of the following categories: *professional; small business owner; clerical; skilled worker; general labourer; never worked for pay.*

Figure 3.5 presents parents' occupation and pupils' mean mathematics achievement. The largest occupation category reported by the parents of Fourth Class pupils was that of professional (e.g., scientists, teachers, health professionals; 58%), followed by clerical (e.g., office clerks, secretaries; 25%) and small business owner (8%). Pupils whose parents described themselves as professional achieved a statistically significantly higher mean mathematics score (568) compared to those whose parents described themselves as a small business owner (541), clerical (532), or skilled worker (520). A similar pattern can be seen for science achievement, as pupils whose parents described themselves as professional achieved a statistically significantly higher mean

8 The categories were: small business owner; clerical worker; service or sales worker; skilled agricultural or fishery worker; craft or trade worker; plant or machine operator; general labourers; corporate manager or senior official; professional; technician or associate professional; has never worked for pay; not applicable.

science score (553) compared to those whose parents described themselves as a small business owner (523), clerical (518), or skilled worker (512).

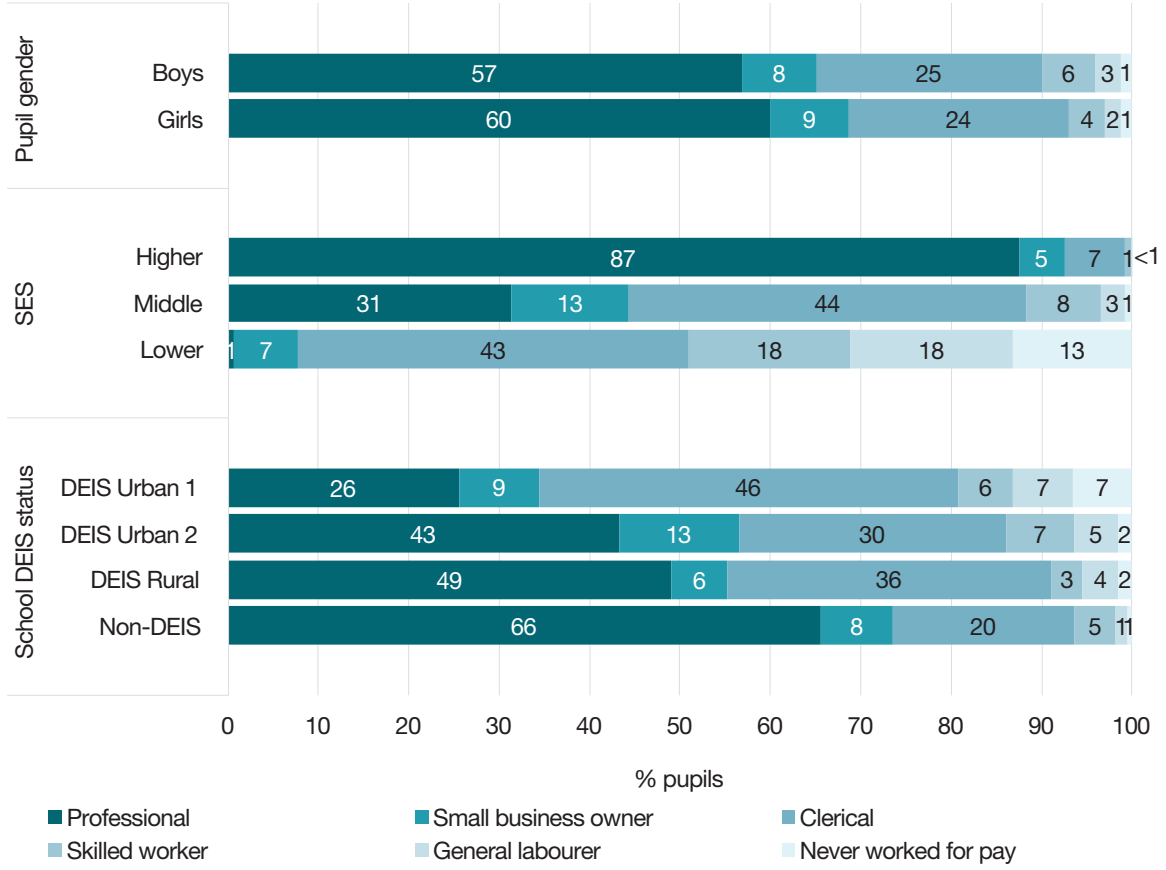
Figure 3.5: Parents' occupation and mean mathematics achievement, Fourth Class (2023)



Note. Due to the small number of pupils and resulting error margins, the estimates of mean achievement for pupils in the *general labourer* and *never worked for pay* categories are not reported.

Figure 3.6 presents Fourth Class pupils' parents' occupation by pupil gender, SES, and school DEIS status. A slightly higher percentage of girls (60%) had parents who described themselves as professional compared to boys (57%). A higher percentage of pupils in the *higher* category of SES (87%) had parents who described themselves as professional compared to the *middle* (31%) and *lower* categories (1%), while similar percentages of pupils in the *middle* (44%) and *lower* categories (43%) had parents who described themselves as clerical, with fewer in the *higher* category (7%). Among school DEIS categories, more pupils in non-DEIS schools had parents who described themselves as professional (66%) compared to those in DEIS Rural (49%) and DEIS Urban Band 1 (26%) and Band 2 schools (43%). A slightly higher percentage of pupils in DEIS Urban Band 2 school had parents who described themselves as a small business owner (13%) compared to other DEIS categories (DEIS Urban Band 1: 9%; DEIS Rural: 6%; non-DEIS: 8%).

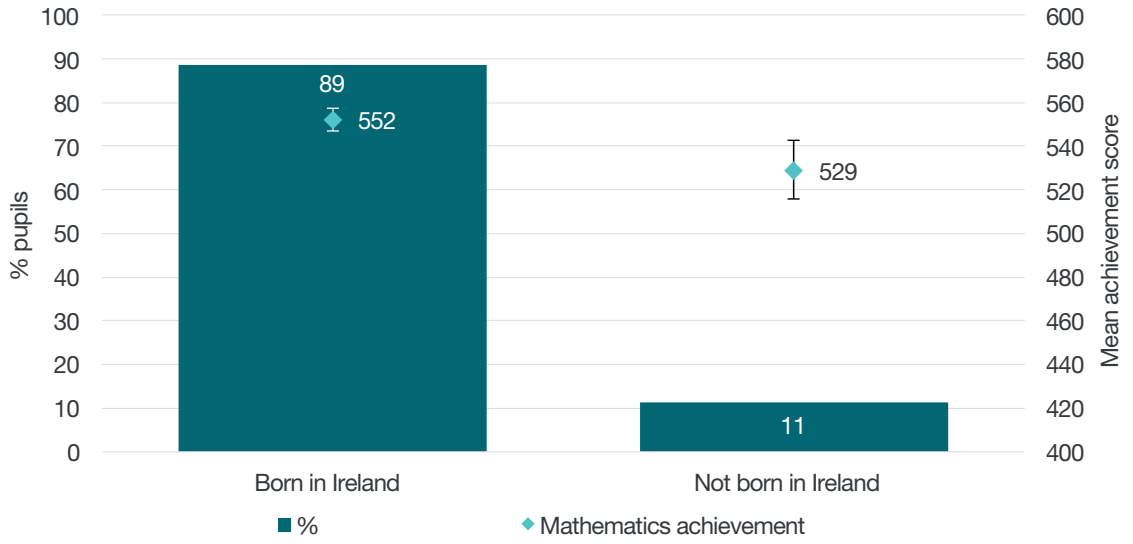
Figure 3.6: Parents' occupation by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Pupils' place of birth

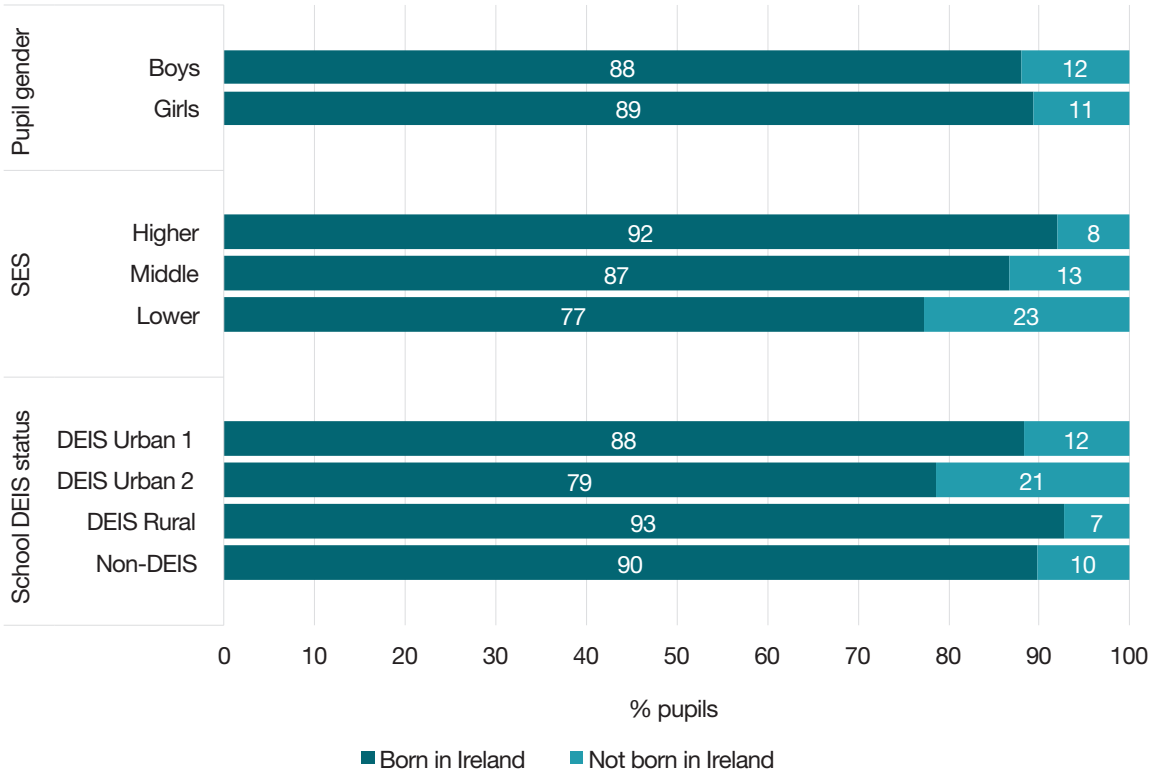
Fourth Class pupils' parents were asked if their child was born in Ireland. The majority of pupils were born in Ireland (89%), with just over one in 10 born outside Ireland (Figure 3.7). Fourth Class pupils born in Ireland achieved a statistically significant higher mean mathematics score (552) compared to those born outside of Ireland (529). A similar pattern can be seen for science achievement, with pupils born in Ireland achieving a statistically significantly higher mean science score (538) compared to those born outside of Ireland (513).

Figure 3.7: Pupils' place of birth and mean mathematics achievement, Fourth Class (2023)



There were similar percentages of boys and girls born in Ireland (88% and 89%, respectively) as shown in Figure 3.8. A higher percentage of Fourth Class pupils in the *higher* category of SES (92%) were born in Ireland compared to the *middle* (87%) and *lower* (77%) categories. Among school DEIS categories, more pupils in DEIS Rural (93%), non-DEIS (90%), and DEIS Urban Band 1 (88%) schools were born in Ireland compared to pupils in DEIS Urban Band 2 schools (79%).

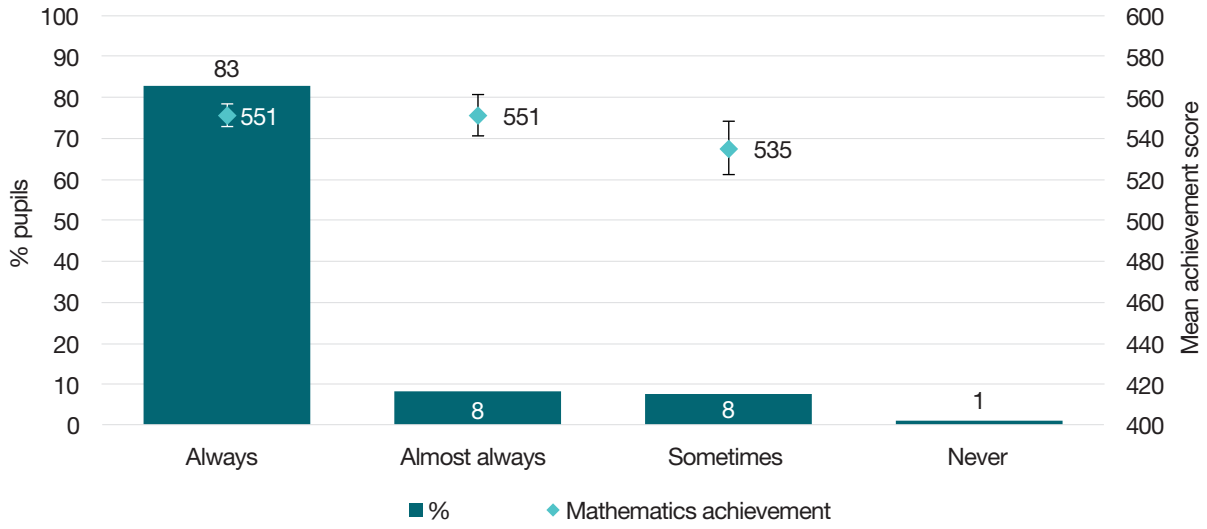
Figure 3.8: Pupils' place of birth by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Language spoken at home

Parents of Fourth Class pupils were asked how often (*always, almost always, sometimes,* or *never*) their child speaks either English or Irish at home. The majority of Fourth Class pupils (as reported by their parents) always spoke English or Irish at home (83%) (Figure 3.9). A further 8% reported that they almost always spoke English or Irish at home, with an additional 8% reporting that they did so sometimes. Fourth Class pupils who always spoke English or Irish at home achieved a statistically significantly higher mean mathematics score (551) compared to those who sometimes (535) spoke English or Irish at home. Despite achieving a similar mean score to pupils who always spoke English or Irish at home, pupils who almost always spoke English or Irish at home (551) did not score significantly differently from pupils who sometimes spoke English or Irish at home. A similar pattern can be seen for science achievement, with pupils who always spoke English or Irish at home achieving a statistically significantly higher mean science score (539) compared to those who sometimes (511) spoke English or Irish at home.

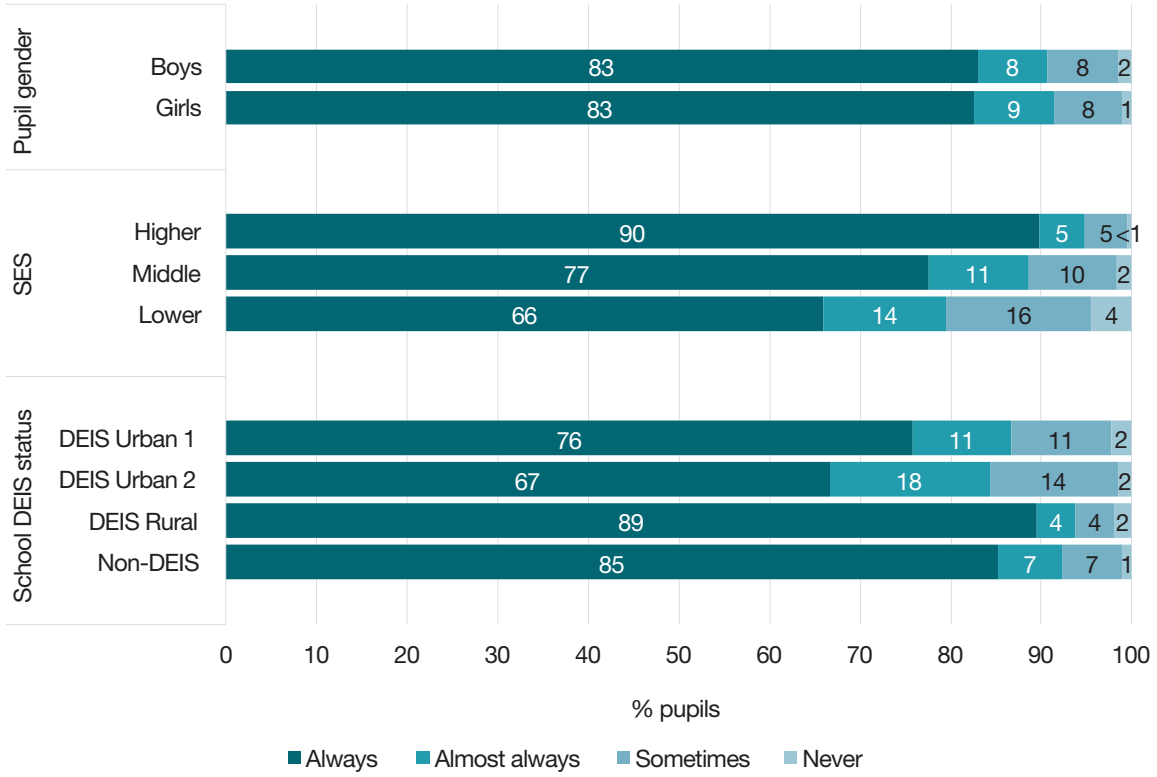
Figure 3.9: Frequency of English or Irish spoken at home and mean mathematics achievement, Fourth Class (2023)



Note. Due to the small number of pupils and resulting error margins, the estimate of mean achievement for pupils in the *never* category is not reported.

Figure 3.10 presents details of the frequency of Fourth Class pupils speaking either English or Irish at home by pupil gender, SES, and school DEIS status. According to parents' reports, the frequency with which boys and girls spoke English or Irish at home was similar. A higher percentage of pupils in the *higher* category of SES (90%) were reported to always speak English or Irish at home compared to the *middle* (77%) and *lower* categories (66%). Among school DEIS categories, more pupils in DEIS Rural (89%) and non-DEIS (85%) schools were reported to always speak English or Irish at home compared to pupils in DEIS Urban Band 1 (76%) or DEIS Urban Band 2 (67%) schools.

Figure 3.10: Frequency of English or Irish spoken at home by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Second Year

As noted above, no home questionnaire was administered to the parents of Second Year students. Instead, the students themselves were asked, as part of the student questionnaire, about their parents' place of birth and level of educational attainment. Alongside these, this section presents findings in relation to Second Year students' place of birth and the home language.

Parents' place of birth

Second Year students were asked if their parents were born in Ireland.[9] Figure 3.11 presents the percentages of Second Year students' parents' place of birth and students' mean mathematics achievement. Approximately two-thirds of students (65%) had parents who were born in Ireland, 14% had one parent born in Ireland and the other born elsewhere, and a further 21% had parents who were not born in Ireland. Second Year students who reported that their parents were born in Ireland achieved a statistically significantly lower mean mathematics score (522) compared to those who had one parent born in Ireland and one elsewhere (536). A similar pattern can be seen for science achievement, with students who reported that their parents were born in Ireland

9 Two variables captured these data; one for Parent/Guardian A and the other for Parent/Guardian B. In cases where data were only provided for one parent (i.e., a response for one Parent/Guardian was recorded as "not applicable"), these were included either in the *Parents born in Ireland or Parents not born in Ireland* categories.

achieving a statistically significantly lower mean science score (523) compared to those who had one parent born in Ireland and one elsewhere (547).

Figure 3.11: Parents' place of birth and mean mathematics achievement, Second Year (2023)

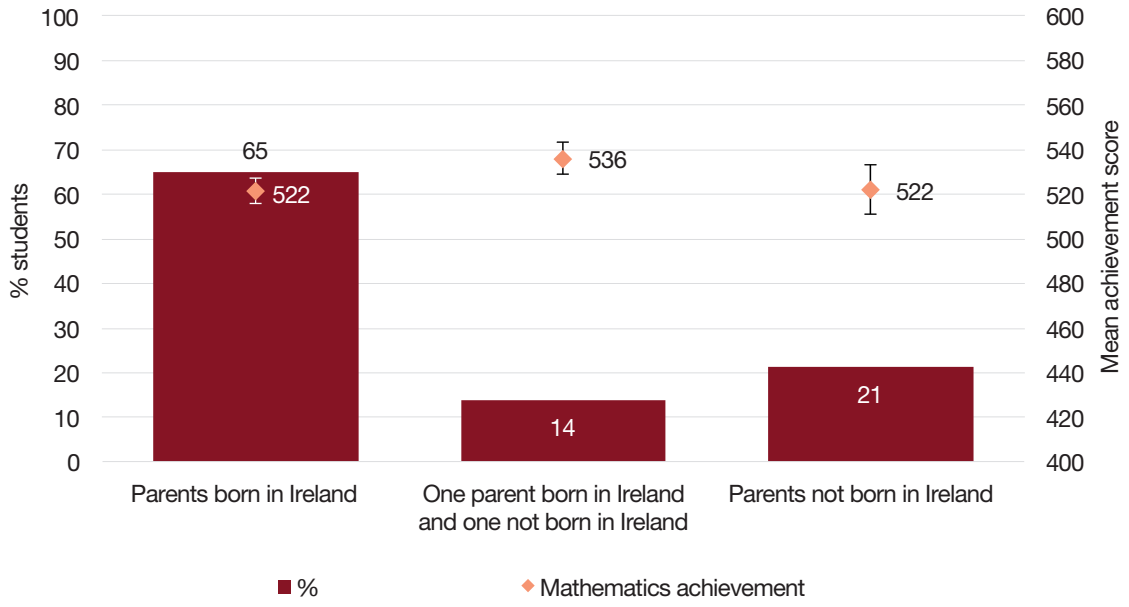
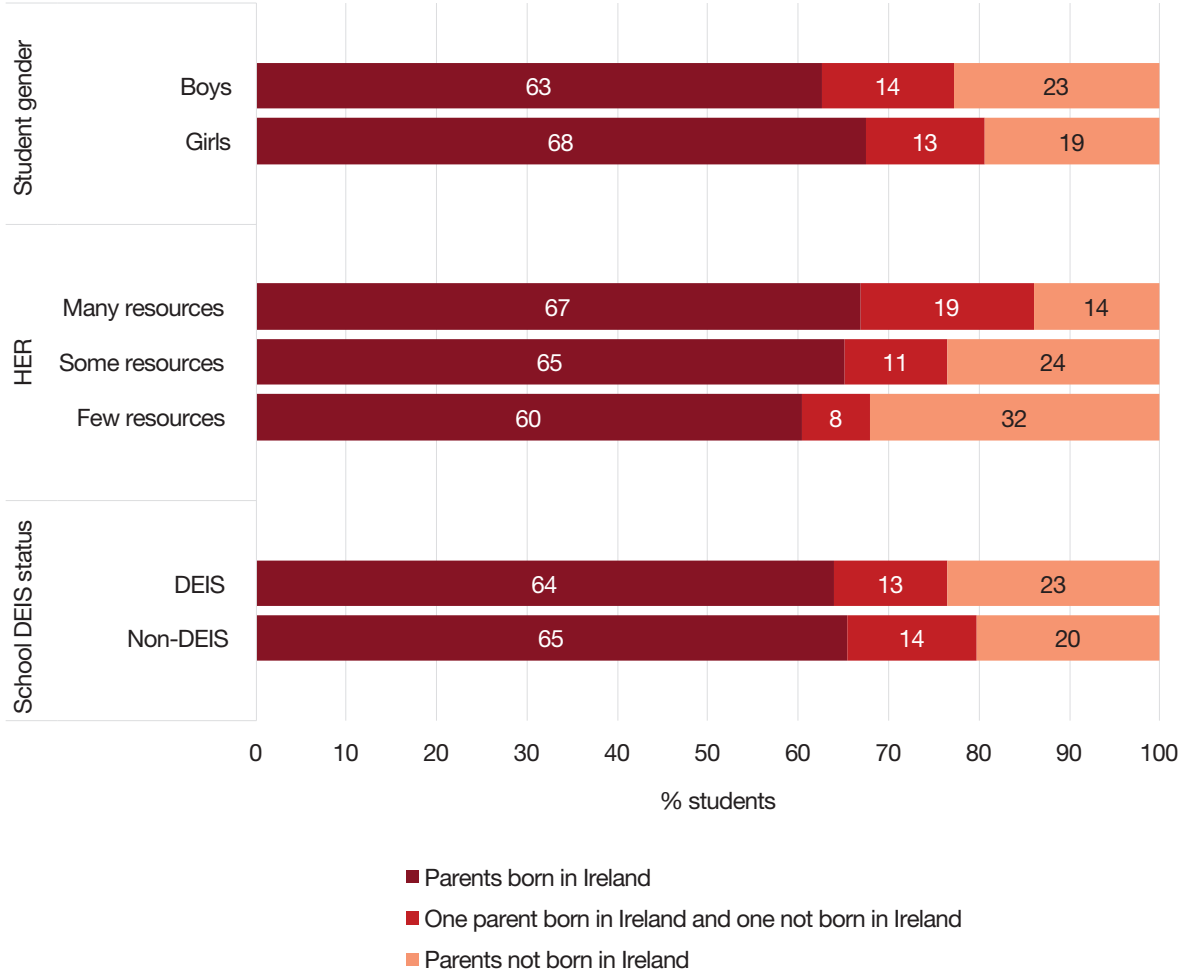


Figure 3.12 presents Second Year students' parents' place of birth by student gender, HER, and school DEIS status. Just over two-thirds of girls (68%) reported that their parents were born in Ireland, compared to 63% of boys. A higher percentage of students (67%) with many resources had both parents born in Ireland compared to students with some resources (65%) and few resources (60%). Correspondingly, a higher proportion of Second Year students with few resources (32%) reported that neither parent was born in Ireland compared to students with some resources (24%) and many resources (14%). There were small differences between students in DEIS and non-DEIS schools in terms of parents' place of birth.

Figure 3.12: Parents' place of birth by student gender, HER, and school DEIS status, Second Year (2023)



Parents' education

Second Year students were asked about the highest level of education completed by their parents. The highest level of education of either parent was recoded internationally into the following categories: *university or higher* (i.e. an undergraduate or postgraduate degree)*; post-secondary education but not university; upper secondary; lower secondary; some primary or lower secondary or did not go to school; not applicable.*[10]

Figure 3.13 presents parents' highest level of education and students' mean mathematics achievement. Almost half of Second Year students (48%) reported that they had at least one parent with an undergraduate or postgraduate degree, and a further 29% reported having at least one parent who had some post-secondary education not to a university level. Students whose parents had an undergraduate or postgraduate degree achieved a statistically significantly higher mean mathematics score (554) compared to their peers. A similar pattern can be seen for science achievement; students whose parents had a degree achieved a statistically

10 A relatively high proportion of Second Year students did not categorise their parents as having reached any particular level of education, with 33% of students selecting the '*not applicable*' category. In the analysis presented here, these responses were treated as missing data. This differs from the way that the corresponding data from TIMSS 2015 were presented in Clerkin et al. (2020), which means that comparisons to previous cycles should be made with this difference in mind.

significantly higher mean science score (562) compared to their peers, who had mean scores of 538, 501, 490, and 461, respectively.

Figure 3.13: Parents' level of education and mean mathematics achievement, Second Year (2023)

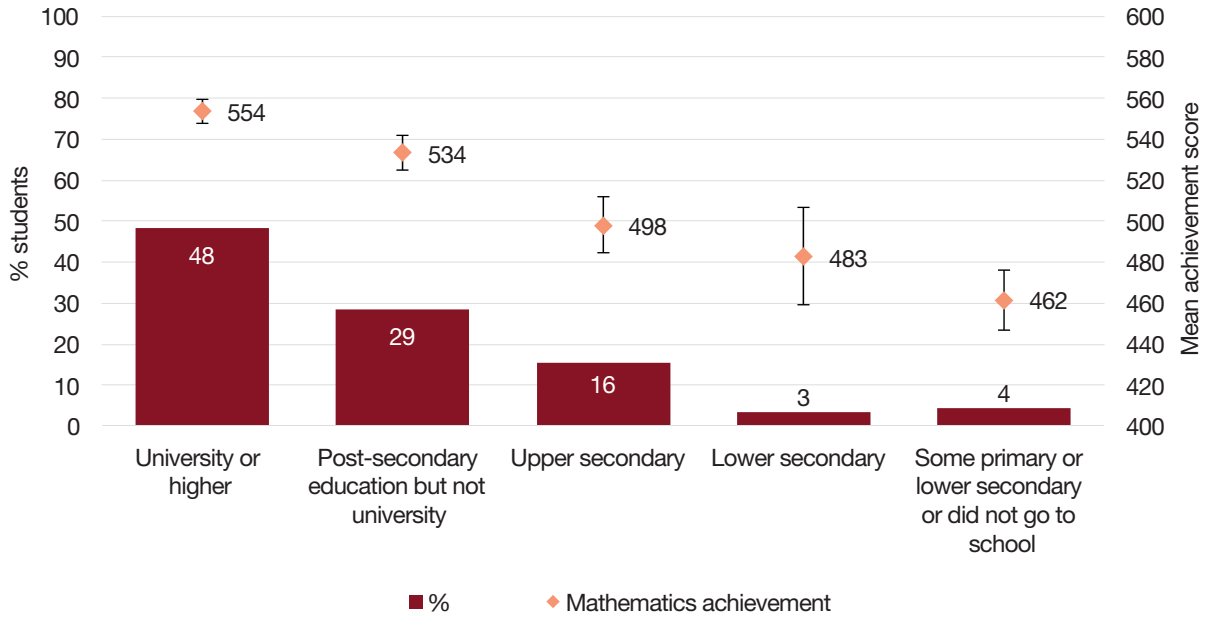
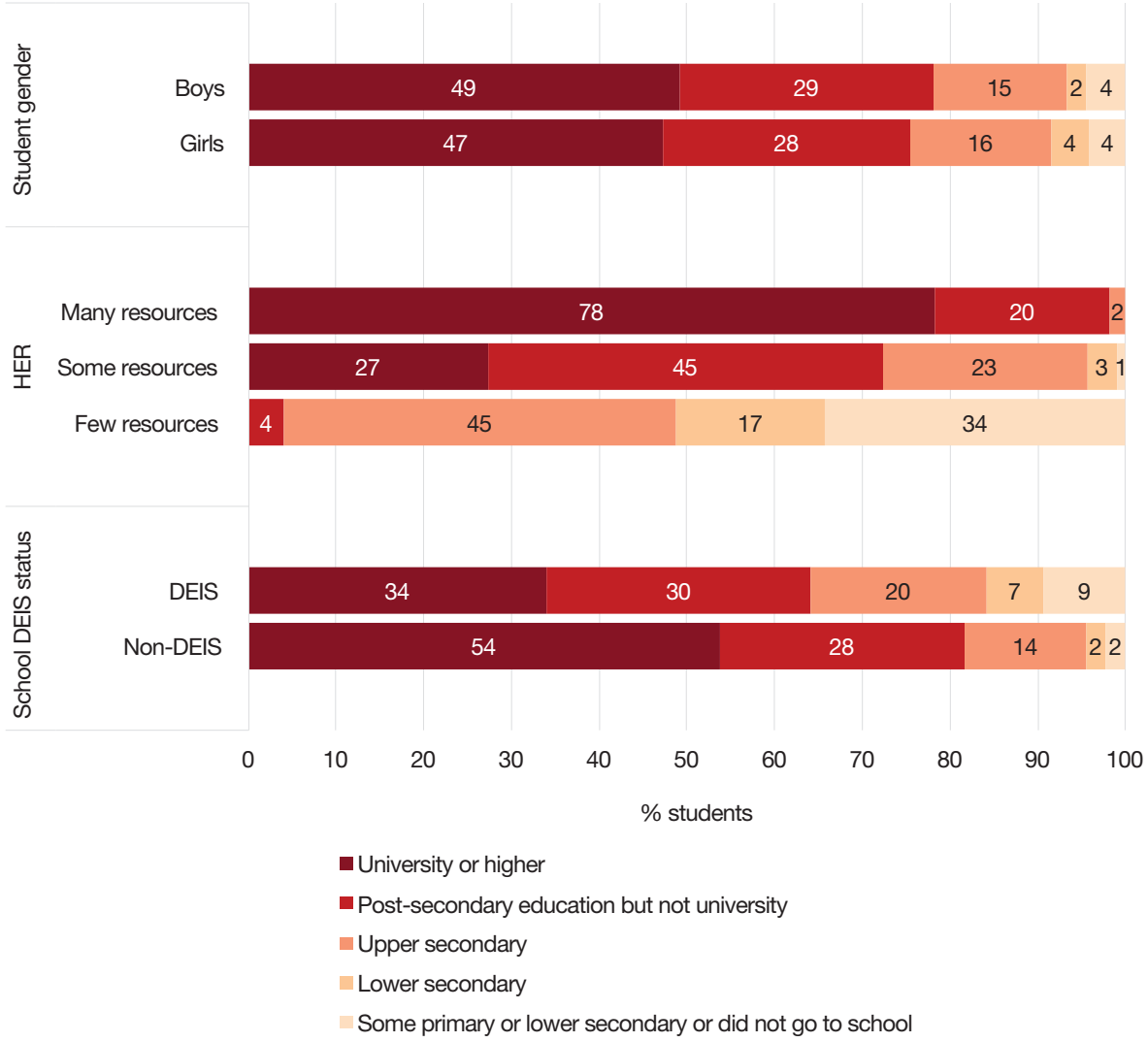


Figure 3.14 presents Second Year students' parents' level of education by student gender, HER, and school DEIS status. There were similar percentages of boys and girls based on their parents' level of education. A substantially higher proportion of students categorised as having many resources (78%) compared to students with some resources (27%) reported having parents with a university degree. None of the students categorised as having few resources reported having a parent with a university degree. However, this indicator is one of the components that is used to construct the HER scale, which means that differences are (by definition) to be expected. More students in non-DEIS schools had parents with an undergraduate or postgraduate degree (54%) than in DEIS schools (34%).

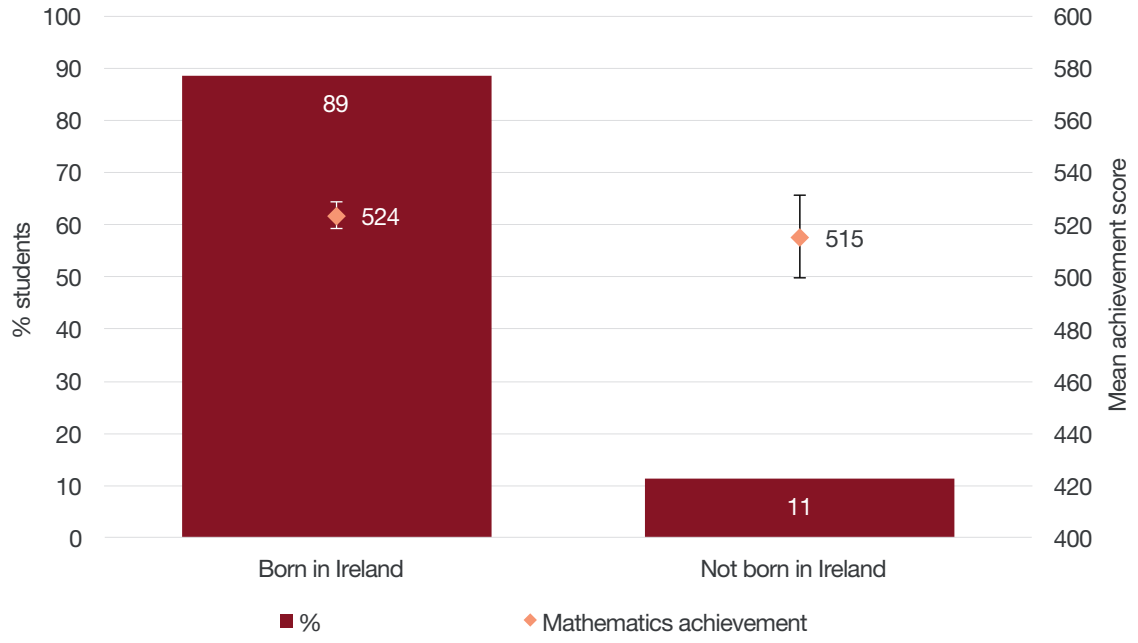
Figure 3.14: Parents' level of education by student gender, HER, and school DEIS status, Second Year (2023)



Students' place of birth

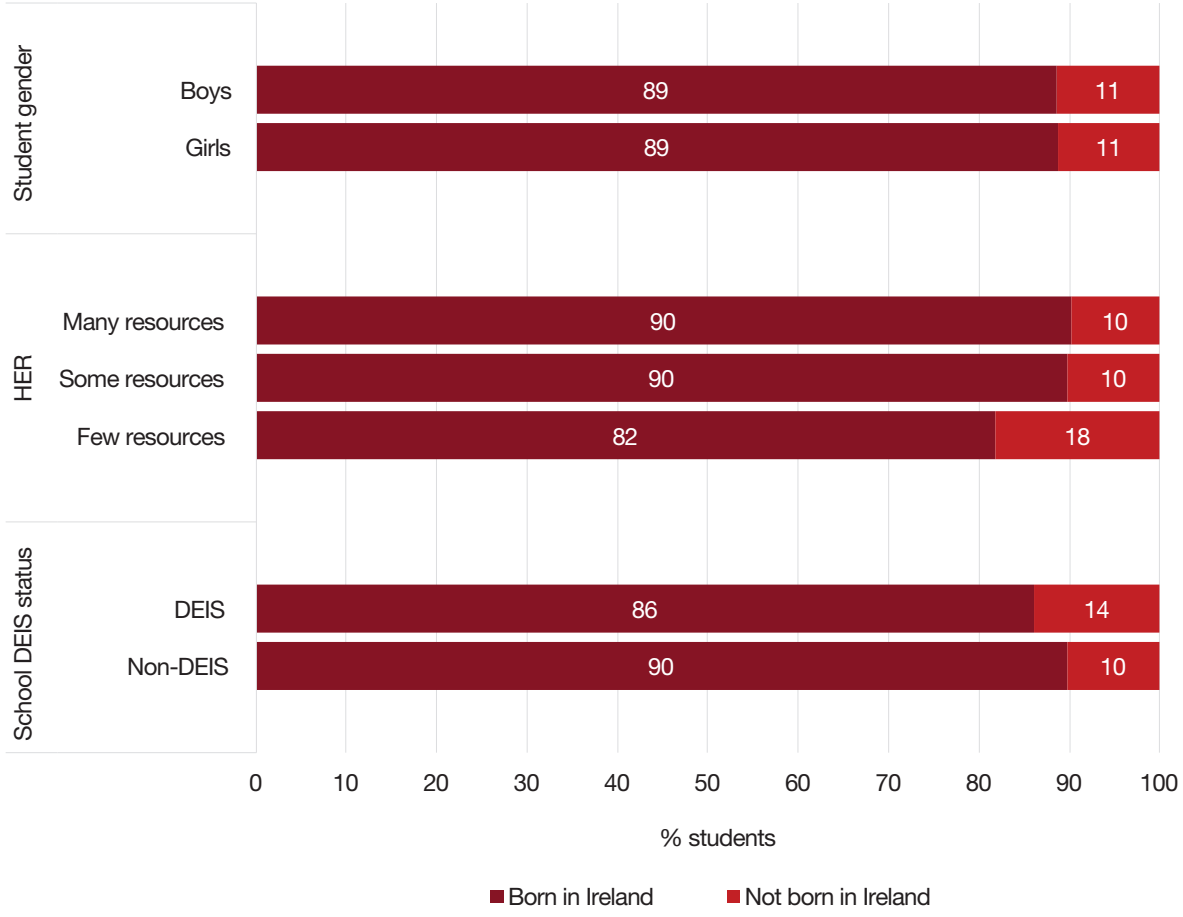
Second Year students were asked if they were born in Ireland. The majority of them were born in Ireland (89%), with just over one in 10 born outside Ireland (Figure 3.15). There was no statistically significant difference in mean mathematics achievement between students born in Ireland and those born outside Ireland. This is also the case for science achievement.

Figure 3.15: Students' place of birth and mean mathematics achievement, Second Year (2023)



There were no gender differences in students' place of birth as shown in Figure 3.16. Similar percentages of Second Year students with many resources and some resources (both 90%) were born in Ireland. The equivalent proportion for students with few resources was somewhat lower, at 82%. Slightly more students in non-DEIS schools (90%) were born in Ireland compared to students in DEIS schools (86%).

Figure 3.16: Students' place of birth by student gender, HER, and school DEIS status, Second Year (2023)



Language spoken at home

Second Year students were asked how often (*always, almost always, sometimes*, and *never*) they speak either English or Irish at home. Table 3.2 presents the frequency of English or Irish spoken at home and mean mathematics and science achievement for Second Year students. Most students (78%) reported that they always spoke English or Irish at home. A further 9% indicated that they almost always spoke English or Irish at home, with an additional 8% reporting that they did so sometimes. There were no statistically significant differences in the mathematics achievement of Second Year students related to their use of English or Irish at home. For science, Second Year students who always spoke English or Irish at home achieved a statistically significant higher mean score (528) compared to those who never spoke English or Irish at home (509).

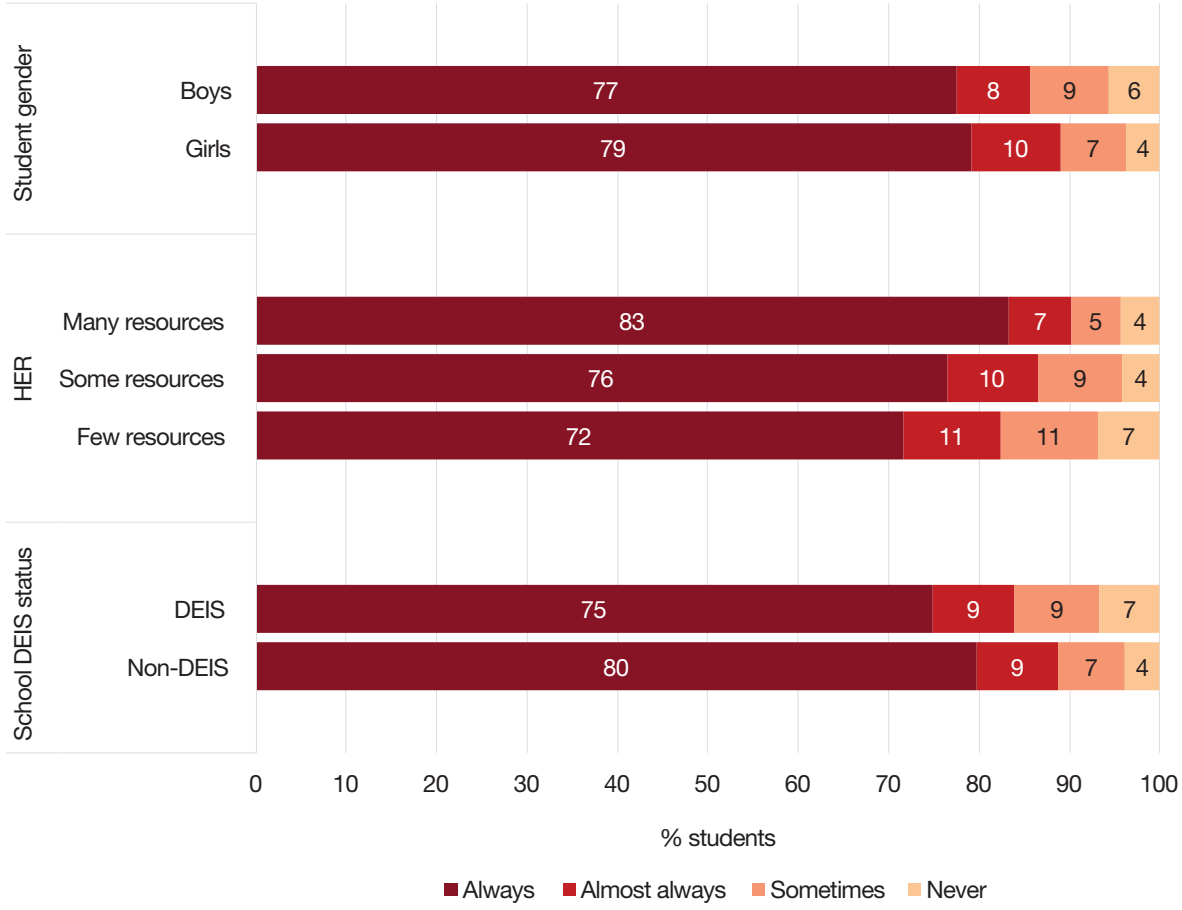
Table 3.2: Frequency of English or Irish spoken at home and mean mathematics and science achievement, Second Year (2023)

	%	Mathematics	Science
Always *(R)*	78	524	528
Almost always	9	518	519
Sometimes	8	523	533
Never	5	513	**509**

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$).

Figure 3.17 presents the frequency of English or Irish spoken at home by student gender, HER, and school DEIS status. Broadly similar proportions of girls (79%) and boys (77%) indicated that they always speak English or Irish when they are at home. A higher percentage of Second Year students with many resources (83%) reported always speaking English or Irish at home compared to students with some resources (76%) and few resources (72%). A higher percentage of students in non-DEIS school (80%) compared to DEIS schools (75%) always spoke English or Irish at home.

Figure 3.17: Frequency of English or Irish spoken at home by student gender, HER, and school DEIS status, Second Year (2023)



Chapter 4:
Tiredness and hunger

The focus of this chapter is on two areas of student physical wellbeing: tiredness and hunger. The data are presented with reference to mathematics and science achievement (where relevant) as well as subgroup differences by student gender, student socioeconomic status (SES/HER), and school DEIS status.

Fourth Class

Levels of tiredness

Fourth Class pupils were asked about the extent to which they felt tired when they arrived at school, with four response options: *every day, almost every day, sometimes*, or *never.* In Ireland, half of Fourth Class pupils reported arriving to school feeling tired every day or almost every day, and a further 42% reported that they sometimes felt tired (Table 4.1). Only 8% of Fourth Class pupils reported that they were never tired upon arriving to school. The average mathematics achievement for pupils who reported arriving to school tired every day was 523 points, which was statistically significantly lower than the scores for any of the other categories. For science achievement, pupils who reported that they arrived at school feeling tired every day achieved a statistically significantly lower score (516) than those who felt tired almost every day (546) and sometimes (536).

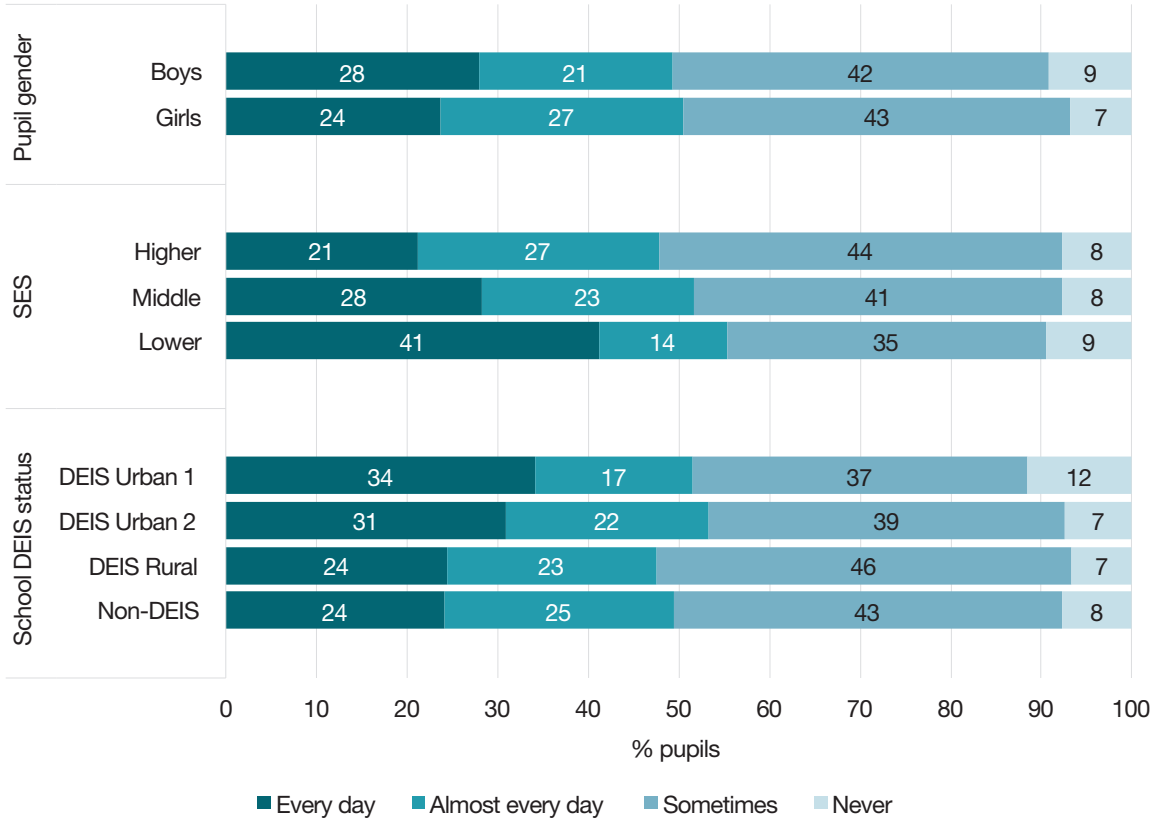
Table 4.1: Pupils' reports on levels of tiredness and mean mathematics and science achievement, Fourth Class (2023)

	%	Mathematics	Science
Every day *(R)*	26	523	516
Almost every day	24	**556**	**546**
Sometimes	42	**555**	**536**
Never	8	**542**	523

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$).

Figure 4.1 presents Fourth Class pupils' levels of tiredness by pupil gender, SES, and school DEIS status. A higher proportion of boys (28%) reported arriving to school feeling tired every day compared to girls (24%). However, similar proportions of boys and girls reported that they were never tired (9% and 7%, respectively). A higher percentage of pupils in the *lower* category of SES (41%) reported feeling tired every day when they arrived at school compared to the *middle* (28%) and *higher* categories (21%). Pupils in DEIS Urban Band 1 schools reported the highest levels of daily tiredness (34%), followed by pupils in DEIS Urban Band 2 (31%), DEIS Rural (24%), and non-DEIS (24%) schools.

Figure 4.1: Pupils' reports on levels of tiredness by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Levels of hunger

Fourth Class pupils were asked how often they felt hungry when they arrived at school, with four response options: *every day, almost every day, sometimes,* or *never.* Figure 4.2 presents Fourth Class pupils' reports on their levels of hunger when they arrive at school and their mean mathematics achievement. Approximately 16% of pupils reported arriving at school every day feeling hungry, and a further 13% reported feeling hungry almost every day. Approximately three in 10 pupils (29%) reported that they never arrived at school hungry. Fourth Class pupils who reported arriving at school hungry every day had a statistically significantly lower mathematics score (526) compared to pupils who reported feeling hungry sometimes (549) or never (561). A similar pattern can be seen for science achievement, with mean scores of 513, 537, and 543, respectively.

Figure 4.2: Pupils' reports on levels of hunger and mean mathematics achievement, Fourth Class (2023)

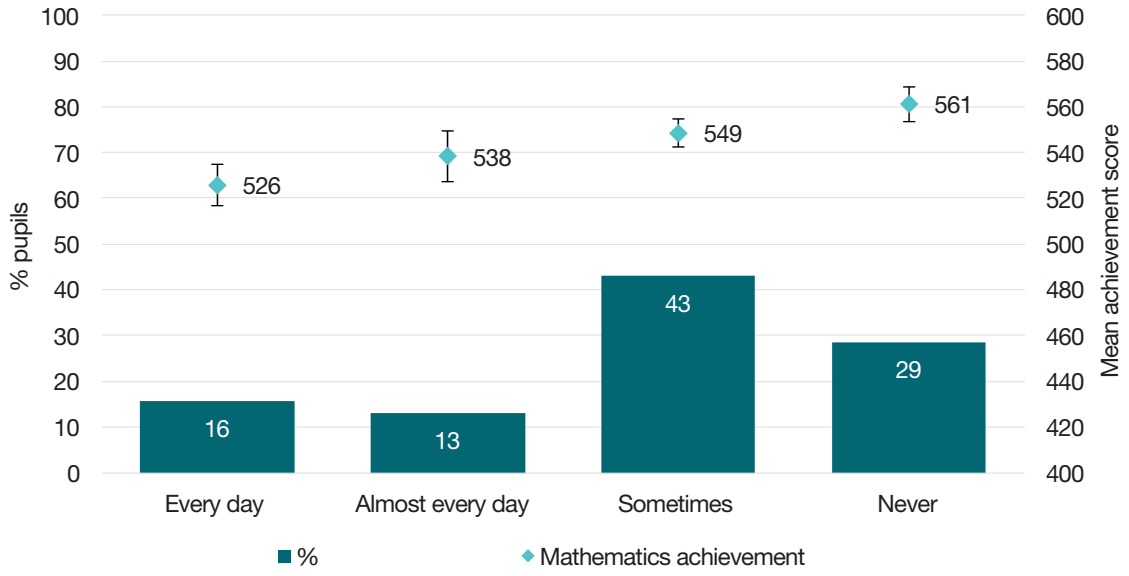
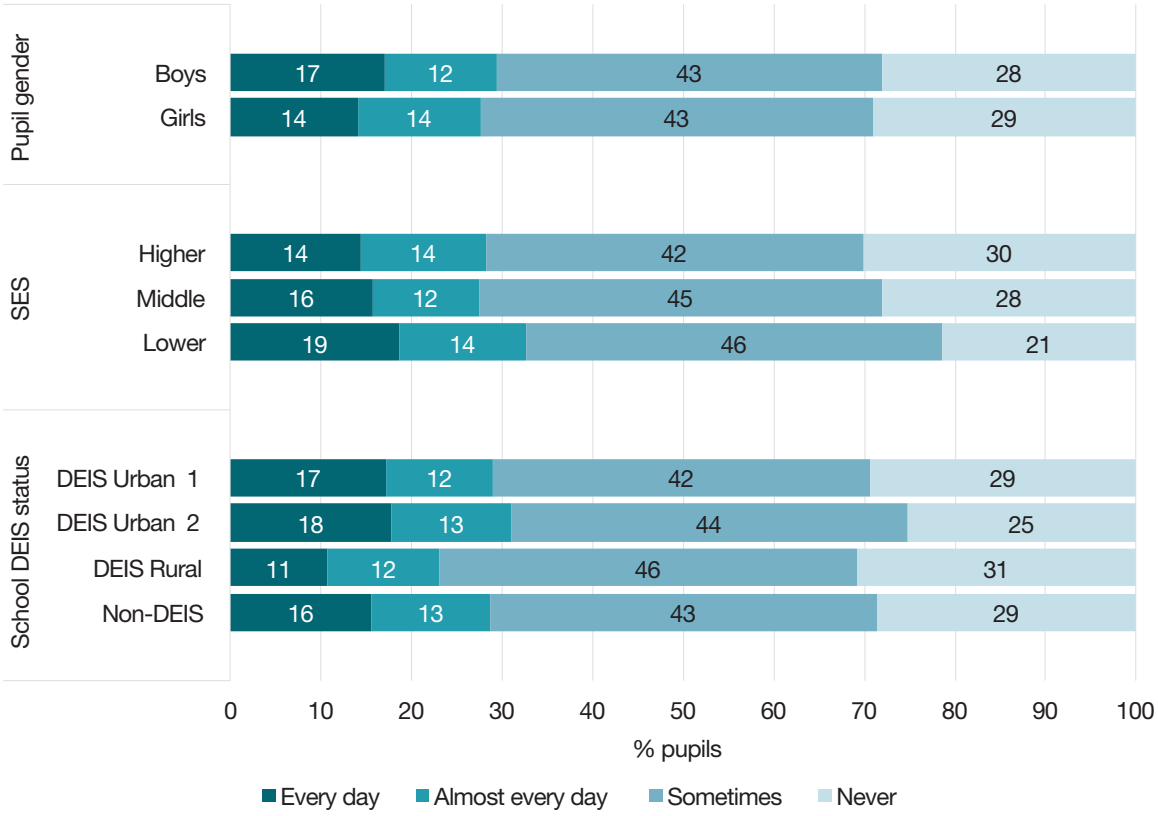


Figure 4.3 presents Fourth Class pupils' levels of hunger by pupil gender, SES, and school DEIS status. Boys and girls reported relatively similar levels of hunger, with slightly more boys (17%) reporting being hungry upon school arrival every day than girls (14%). A slightly higher percentage of Fourth Class pupils in the *lower* category of SES (19%) compared to the *middle* (16%) and *higher* categories (14%) reported feeling hungry every day when they arrived at school. DEIS Rural schools had the lowest percentage of pupils who reported arriving at school hungry every day or almost every day (23%), while DEIS Urban Band 2 schools had the highest percentage of pupils reporting arriving at school hungry every day or almost every day (31%).

Figure 4.3: Pupils' reports on levels of hunger by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Second Year

Levels of tiredness

Second Year students were asked about the extent to which they felt tired when they arrived at school, with four response options: *every day, almost every day, sometimes*, or *never.* In Ireland, two-thirds of Second Year students reported feeling tired every day or almost every day, and a further 30% reported that they sometimes felt tired (Figure 4.4). Only 3% of Second Year students reported that they never felt tired upon arriving at school. The average mathematics achievement for students who reported feeling tired every day was 505 points, which is statistically significantly lower than the scores of all their peers (534, 532, and 544, respectively). A similar pattern can be seen for science achievement; students who reported feeling tired every day scored 513 points, which is statistically significantly lower than those of students who reported feeling tired almost every day (537), sometimes (532), and never (549).

Figure 4.4: Students' reports on levels of tiredness and mean mathematics achievement, Second Year (2023)

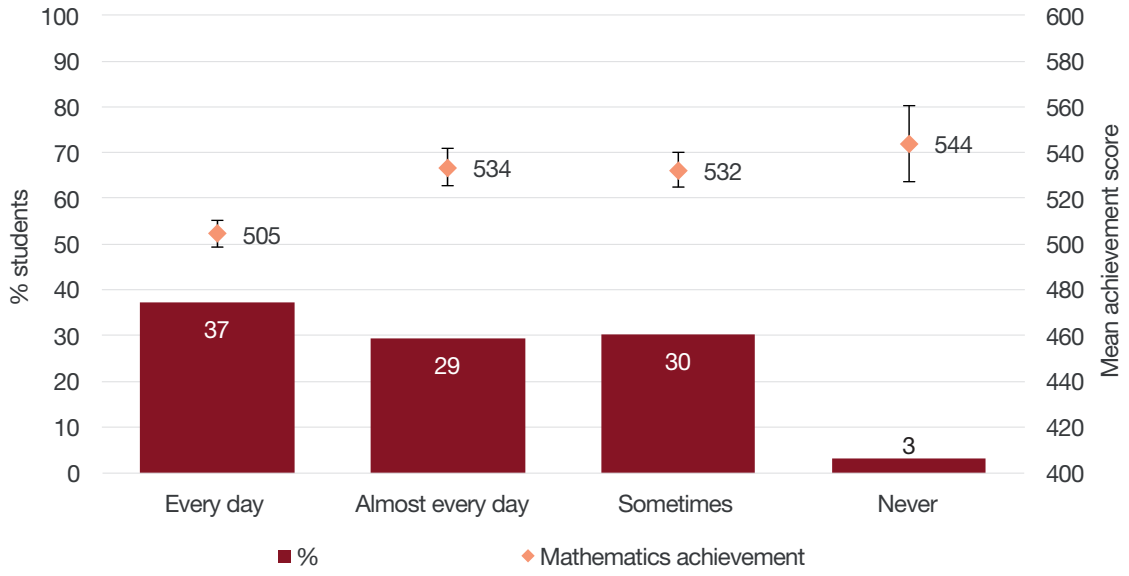
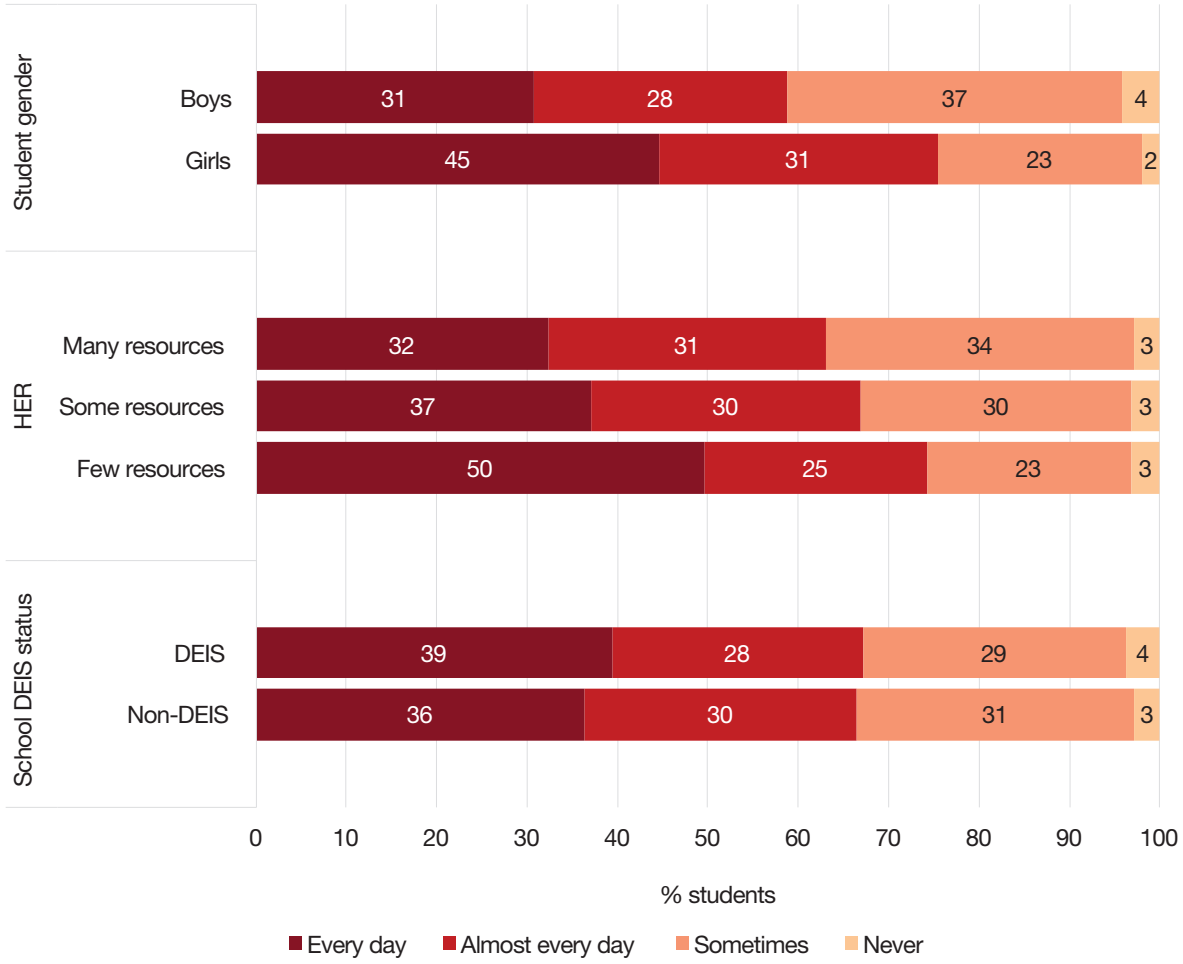


Figure 4.5 presents Second Year students' levels of tiredness when they arrived at school by student gender, HER, and school DEIS status. A higher proportion of girls reported feeling tired every day (45%) or almost every day (31%) than boys (31% and 28%, respectively). A higher percentage of Second Year students with few resources (50%) reported feeling tired every day when they arrived at school compared to students with some resources (37%) and many resources (32%). Second Year students in DEIS schools and non-DEIS schools reported relatively similar levels of tiredness, with the former reporting slightly higher levels of daily tiredness compared to the latter (39% and 36%, respectively).

Figure 4.5: Students' reports on levels of tiredness by student gender, HER, and school DEIS status, Second Year (2023)



Levels of hunger

Second Year students were asked how often they felt hungry when they arrived at school, with four response options: *every day*, *almost every day*, *sometimes,* or *never*. Approximately 15% of students reported that they arrived at school feeling hungry every day, a further 15% reported feeling hungry upon arriving at school almost every day, and 44% reported feeling hungry upon arriving at school sometimes (Figure 4.6). Just over one-quarter of students (26%) reported that they never arrived at school hungry. Students who reported arriving at school hungry every day had a statistically significantly lower mathematics score (500) than students who sometimes (524) or never (546) arrived at school feeling hungry. A similar pattern can be seen for science achievement, with mean scores of 502 (every day), 520 (almost every day), 526 (sometimes), and 553 (never).

Figure 4.6: Students' reports on levels of hunger and mean mathematics achievement, Second Year (2023)

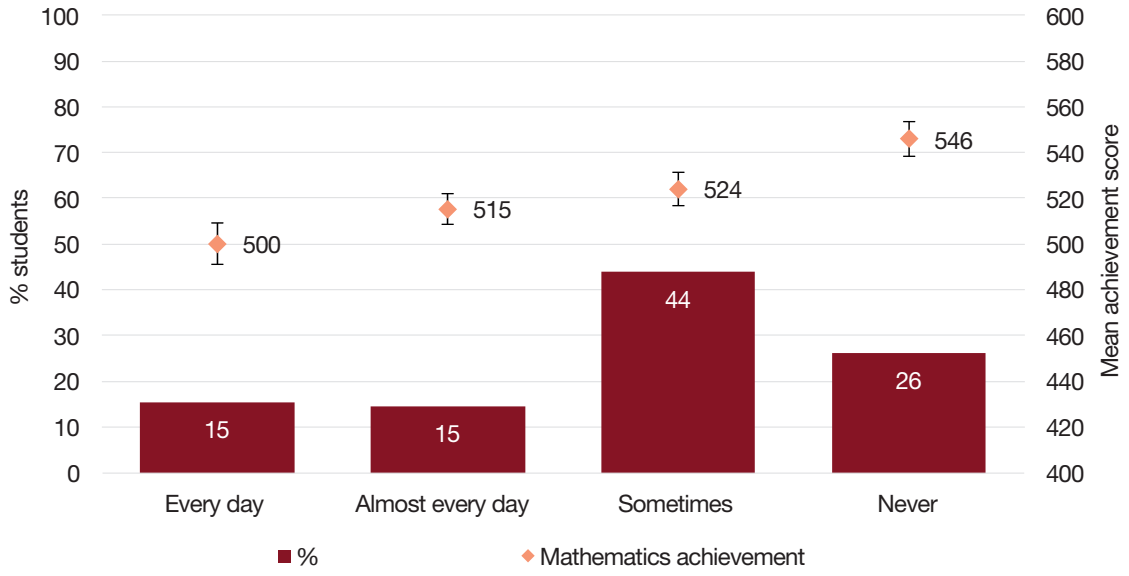
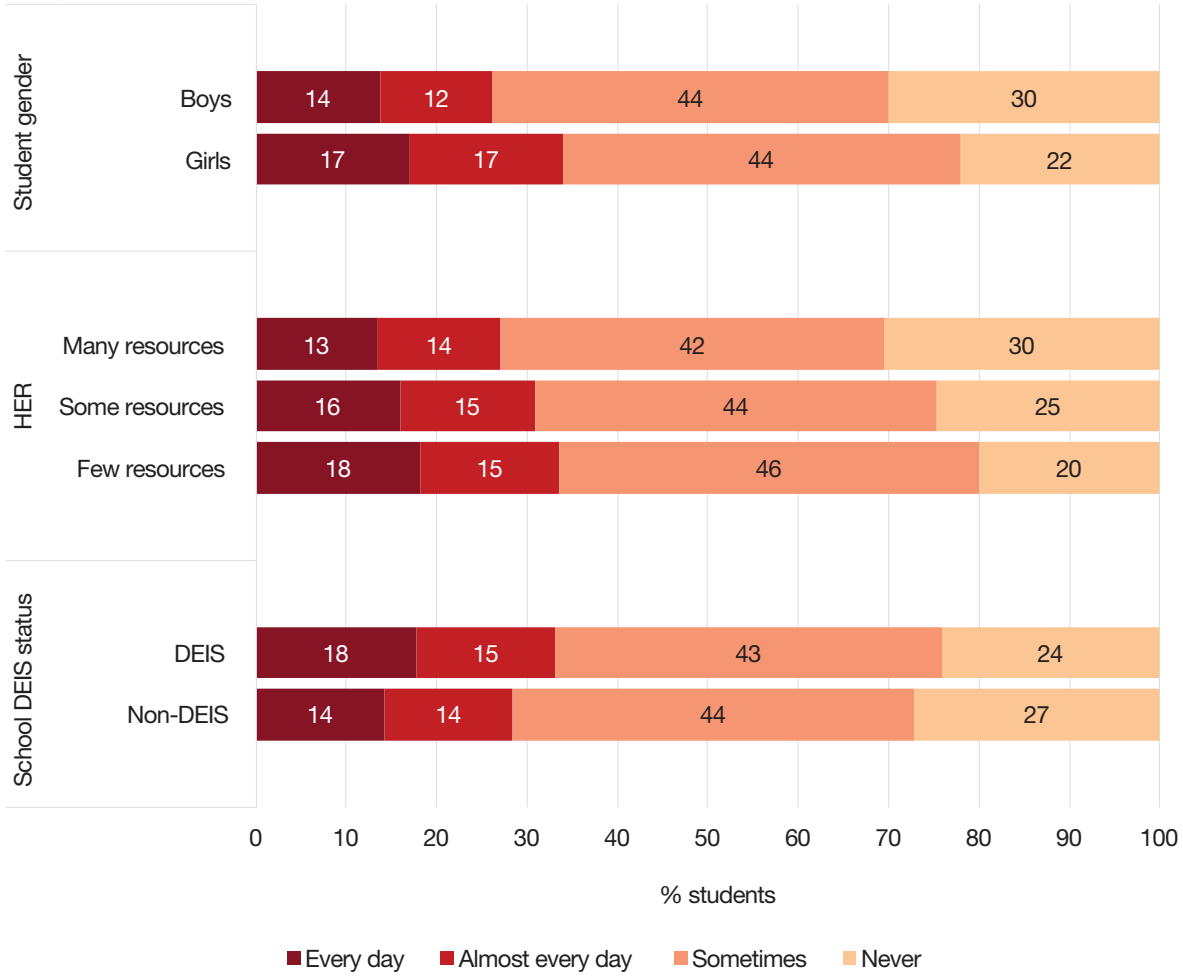


Figure 4.7 presents Second Year students' levels of hunger by student gender, HER, and school DEIS status. A slighter higher percentage of girls (17%) reported feeling hungry every day when they arrived at school compared to boys (14%). A higher percentage of Second Year students with many resources at home (30%) reported never feeling hungry when they arrived at school compared to students with some resources (25%) and few resources (20%). Students in DEIS schools reported slightly higher levels of daily hunger (18%: every day; 15%: almost every day) compared to students in non-DEIS schools (14%: every day; 14%: almost every day).

Figure 4.7: Students' reports on levels of hunger by student gender, HER, and school DEIS status, Second Year (2023)



Chapter 5:
Early childhood learning and skills

This chapter focuses on the early childhood education and skills of Fourth Class pupils. The data are presented with reference to mathematics and science achievement (where relevant) as well as subgroup differences by pupil gender, pupil socioeconomic status (SES), and school DEIS status.

Early literacy and numeracy activities and skills

This section explores pupils' early literacy and numeracy activities and skills, including the frequency with which children engaged in various activities before starting First Class and the level of their literacy and numeracy skills when starting First Class.

Early literacy and numeracy activities

The home questionnaire asked parents how often they or someone in the home engaged their child in a variety of early literacy and numeracy activities before they started First Class. The activities included nine literacy activities:

- *Read books;*
- *Tell stories;*
- *Sing songs;*
- *Play with alphabet toys (e.g., blocks with letters of the alphabet);*
- *Talk about things you had done;*
- *Talk about things you had read;*
- *Play word games;*
- *Write letters or words;*
- *Read aloud signs and labels,*

and nine numeracy activities:

- *Say counting rhymes or sing counting songs;*
- *Play with number toys (e.g., blocks with numbers);*
- *Count different things;*
- *Play games involving shapes (e.g., shape sorting toys, puzzles);*
- *Play with building blocks or construction toys;*
- *Play board or card games;*
- *Write numbers;*
- *Draw shapes;*
- *Measure or weigh things.*

Parents were asked to indicate the frequency (*often, sometimes*, or *never or almost never*) with which they engaged in these activities. Their responses to 16 of these items[11] were used to create the TIMSS *Home Early*

11 The items '*Sing songs'* and *'Play board or card games'* were not included in the scale.

Literacy and Numeracy Activities Before Primary School scale[12,13], on the basis of which pupils were grouped into three categories: *very often, often,* or *sometimes* engaged in early literacy and numeracy activities.

Figure 5.1 presents the percentages and mean mathematics achievement of Fourth Class pupils in each category of the TIMSS *Home Early Literacy and Numeracy Activities Before Primary School* scale. One-third of pupils (33%) had parents who reported engaging in home early literacy and numeracy activities with their child very often, and a further 50% had parents who reported doing so often. Less than one-fifth (17%) of pupils had parents who sometimes engaged in home early literacy and numeracy activities with their child. Pupils who were very often engaged in these activities achieved a statistically significantly higher mean mathematics score compared to their peers who were either often or sometimes engaged in these activities. A similar pattern can be seen for science achievement, where pupils who were very often engaged in these activities achieved a statistically significantly higher mean score (550) than those who engaged either often (534) or sometimes (510).

Figure 5.1: Engagement in home early literacy and numeracy activities, percentages and mean mathematics achievement, Fourth Class (2023)

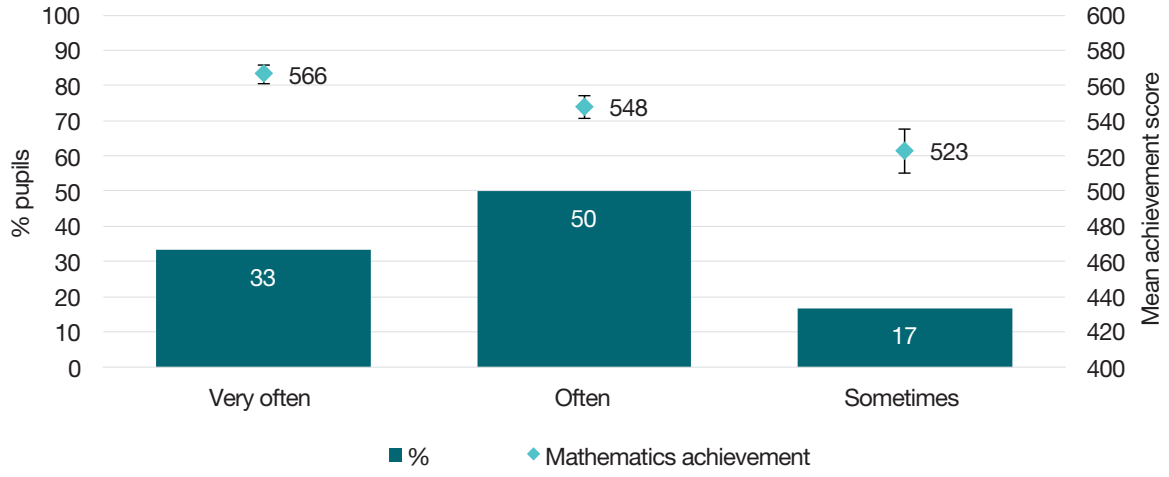


Figure 5.2 presents the percentages of pupils for each of the individual literacy and numeracy activities. Almost all parents (90% or more) reported that they or someone in the home often or sometimes engaged with each of these activities, with the exception of the activity of measuring or weighing things; about one-quarter of pupils (27%) had parents who never or almost never engaged them in this activity. The activities conducted most often by pupils were talking about things they had done (78%), playing with building blocks or construction toys (74%), counting different things (72%), and reading books (71%).

12 First Class was specified in the home questionnaire in Ireland to maintain international comparisons.

13 The overall scale, *Home Early Literacy and Numeracy Activities Before Primary School,* was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

Figure 5.2: Engagement in individual home early literacy and numeracy activities, Fourth Class (2023)

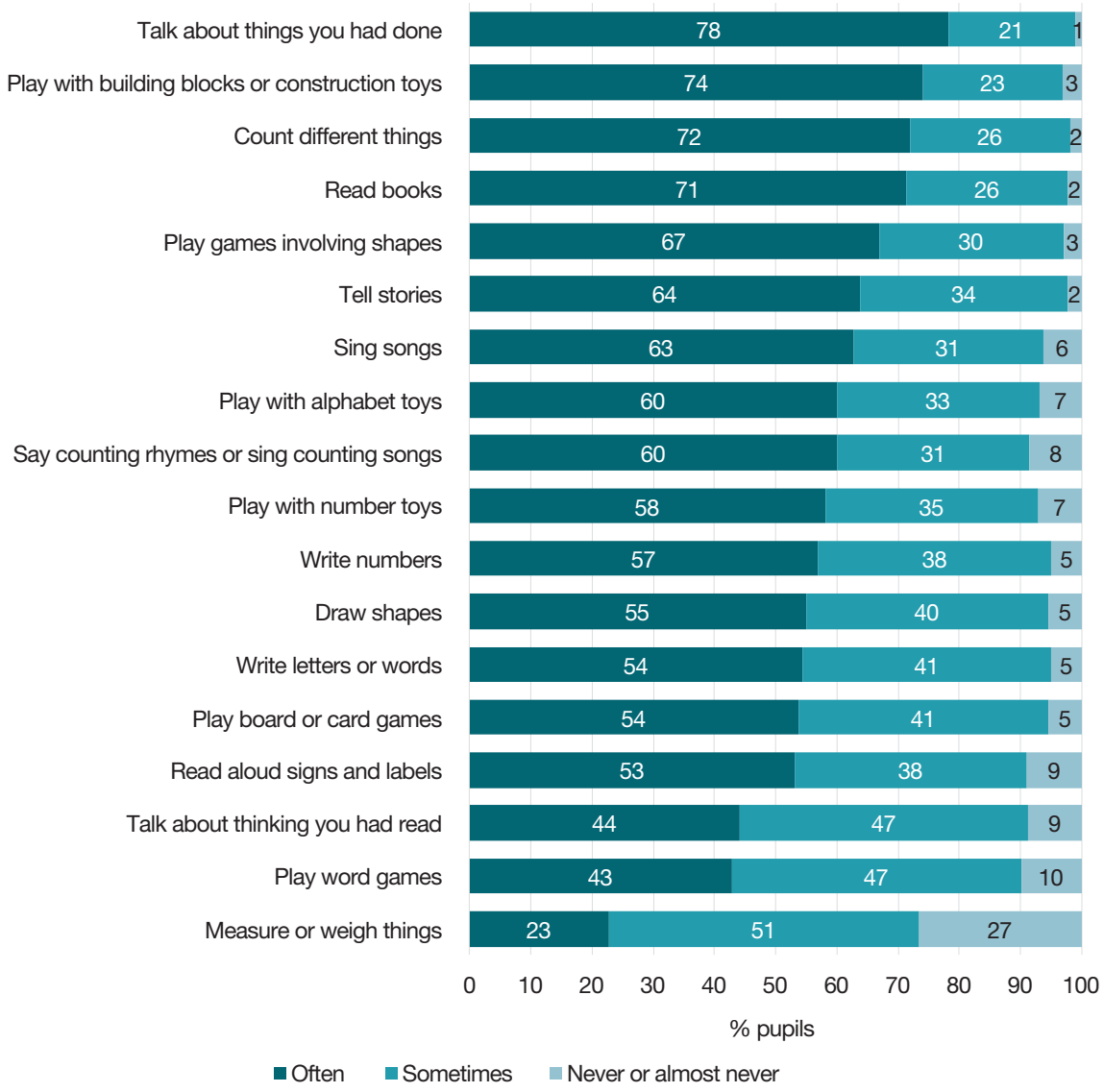
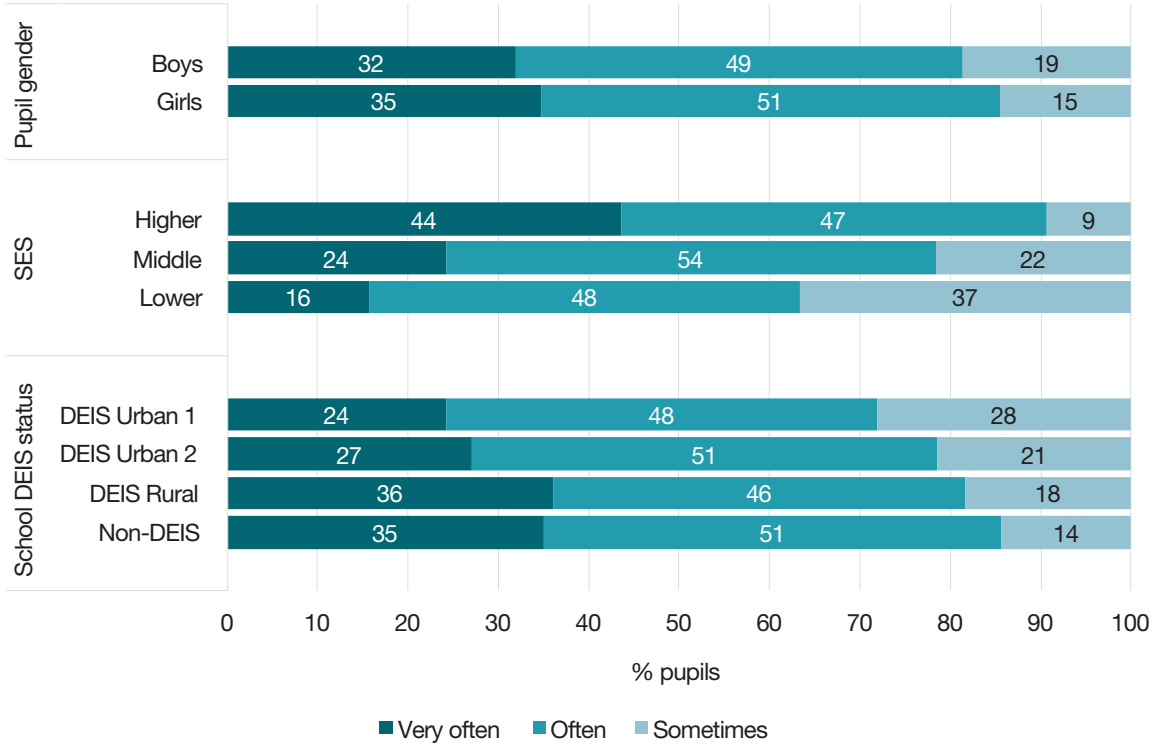


Figure 5.3 presents the percentages of pupils in each category of the TIMSS *Home Early Literacy and Numeracy Before Primary School* scale by pupil gender, SES, and school DEIS status. A slightly higher percentage of girls (35%) had parents who very often engaged in the various literacy and numeracy activities compared to boys (32%). There are clear differences in the extent of engagement in early literacy and numeracy activities in the home by SES. Over two-fifths of pupils (44%) in the *higher* category of SES engaged in these activities very often, which was almost twice the proportion reported for the *middle* category (24%) and more than twice the proportion for the *lower* category (16%). Among school DEIS categories, more pupils in DEIS Rural (36%) and non-DEIS schools (35%) engaged in these activities very often compared to DEIS Urban Schools (27% in Band 2 and 24% in Band 1).

Figure 5.3: Engagement in home early literacy and numeracy activities by pupil gender, SES, and school DEIS status, Fourth Class (2023)



At the item-level, some differences by pupil gender and SES were observed (see Appendix Table A5.1). Higher proportions of girls often read books, sang songs, wrote letters or words, wrote numbers or drew shapes, while higher proportions of boys often played with building blocks or construction toys. There were also clear differences by SES, with higher proportions of pupils in the *higher* category being frequently engaged with each of the activities than in the *middle* category. Following a similar pattern, higher proportions of pupils in the *middle* category of SES frequently engaged in the activities compared with pupils in the *lower* category. The largest differences by SES were observed for the activity of reading books, which was engaged with often by 88% of pupils in the *higher* category, 59% of pupils in the *middle* category, and 31% of pupils in the *lower* category

Early literacy and numeracy tasks

The home questionnaire asked parents to retrospectively describe how well their child could do various literacy and numeracy tasks when starting First Class. There were seven literacy tasks for which response options ranged from *very well* to *not at all*:

- *Recognise the letters of the alphabet;*
- *Read some words;*
- *Read sentences;*
- *Read a story;*
- *Write letters of the alphabet;*
- *Write their name;*
- *Write names other than their names.*

There were five numeracy tasks, including three with response options ranging from *up to 100 or higher* to *not at all*:

- *Count by themselves;*
- *Recognise written numbers;*
- *Write numbers,*

and two with response options of *yes* or *no*:

- *Do simple addition;*
- *Do simple subtraction.*

The responses to 11 of these items[14] were used to create the TIMSS *Could Do Literacy and Numeracy Tasks when Beginning Primary School* scale[15,16], on the basis of which pupils were grouped into three categories: *very well, moderately well,* or *not well*.

Figure 5.4 shows the percentages and mean mathematics achievement of pupils in each of the three categories. Almost half of pupils (47%) were reported by their parents to be able to do the various literacy and numeracy tasks very well, with a similar proportion belonging to the *moderately well* category. A small proportion of pupils (7%) were reported to be able to do the tasks not well. Pupils who were able to do the various literacy and numeracy tasks very well achieved a statistically significantly higher mean mathematics score (577) than those in the *moderately well* (534) and *not well* (469) categories. A similar pattern of achievement can be seen for science achievement, with those in the *very well* category (559) achieving a statistically significantly higher mean science score than those in the *moderately well* (521) and *not well* (466) categories.

Figure 5.4: Ability to do literacy and numeracy tasks when starting First Class, percentages and mean mathematics achievement, Fourth Class (2023)

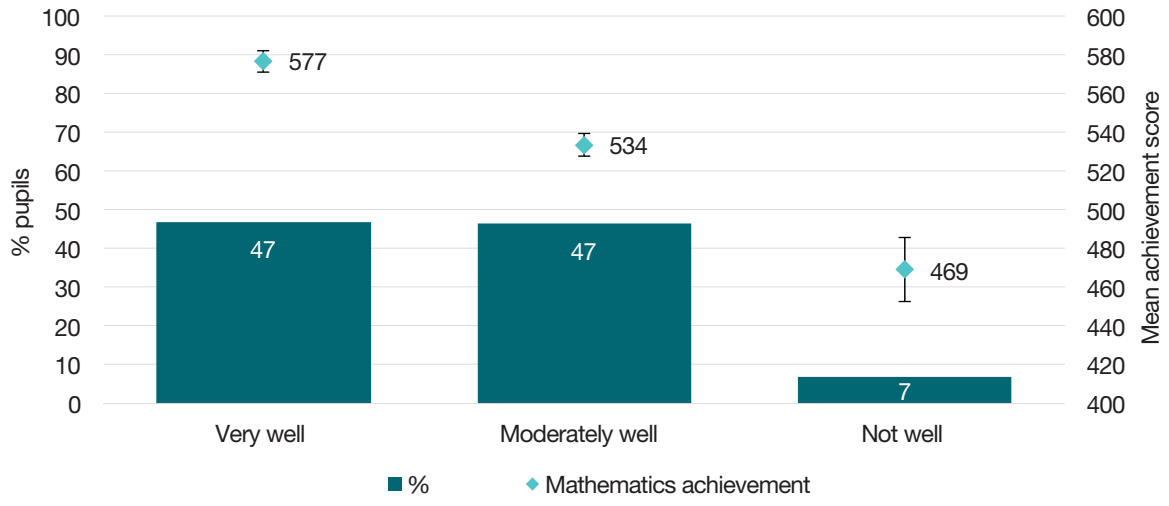


Table 5.1 presents the percentages of pupils for each of the individual literacy and numeracy tasks. Regarding the literacy tasks, three-quarters of pupils (75%) were able to recognise the letters of the alphabet and write their name very well. More than half of pupils were able to write letters of the alphabet (63%), read some words (58%), and write names other than their name (51%) very well. Regarding the numeracy tasks,

14 The item *'Write their name'* was not included in the scale.

15 First Class was specified in the home questionnaire in Ireland to maintain international comparisons.

16 The overall scale, *Could Do Literacy and Numeracy Tasks when Beginning Primary School*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

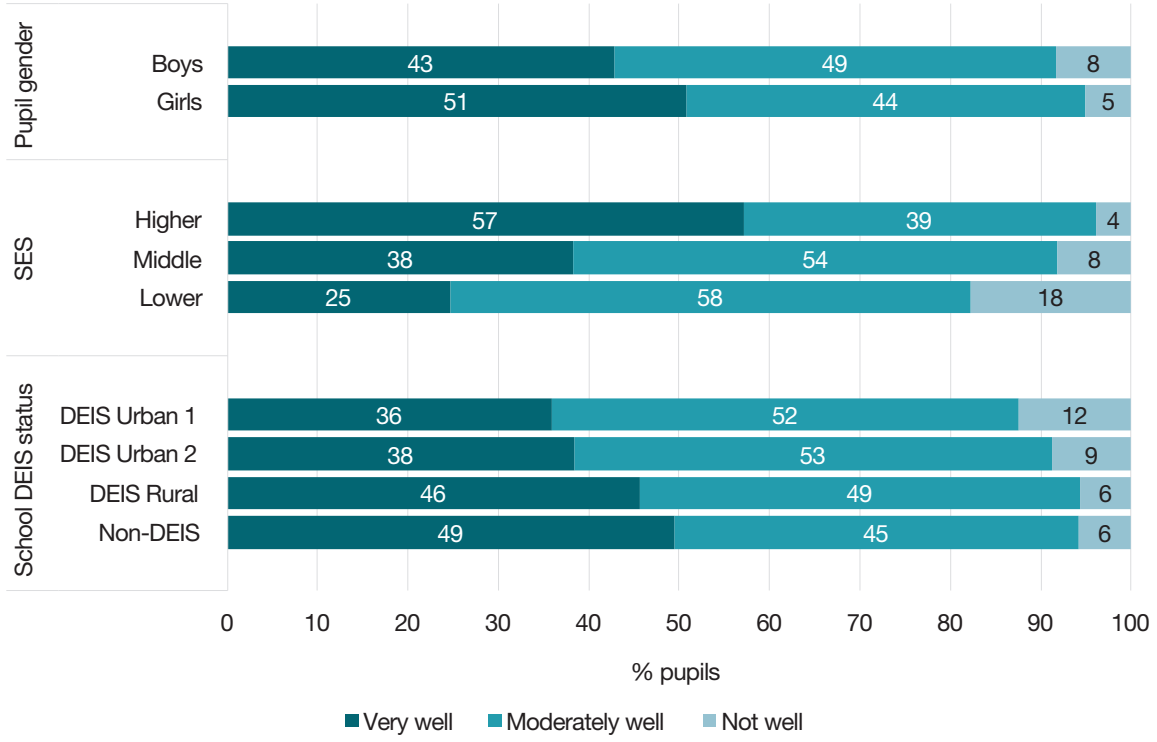
approximately half of pupils were able to count by themselves (54%), recognise written numbers (52%), and write numbers (47%) up to 100 or higher very well. Almost all pupils were able to do simple addition (92%), while four-fifths of pupils were able to do simple subtraction (80%).

Table 5.1: Ability to do individual literacy and numeracy tasks when starting First Class, Fourth Class, percentages of pupils (2023)

Literacy	Very well	Moderately well	Not very well	Not at all
Recognise the letters of the alphabet	75	21	4	0
Read some words	58	32	9	1
Read sentences	45	37	14	3
Read a story	36	40	19	5
Write letters of the alphabet	63	29	7	1
Write their name	75	20	4	1
Write names other than their name	51	35	12	2
Numeracy	**Up to 100 or higher**	**Up to 20**	**Up to 10**	**Not at all**
Count by themselves	54	32	10	5
Recognise written numbers	52	30	12	5
Write numbers	47	32	14	6
	Yes		**No**	
Do simple addition	92		8	
Do simple subtraction	80		20	

Figure 5.5 presents the percentages of pupils in each category of the TIMSS *Could Do Literacy and Numeracy Tasks when Beginning Primary School* scale by pupil gender, SES, and school DEIS status. More than half of girls (51%) had parents who reported that their child could do the literacy and numeracy tasks very well, a higher proportion than for boys (43%). There are clear differences in early literacy and numeracy skills by SES. Almost three-fifths of pupils (57%) in the *higher* category of SES were reported to be able to do the tasks very well, compared to almost two-fifths of pupils in the *middle* category (38%) and one-quarter in the *lower* category (25%). Among school DEIS categories, more pupils in non-DEIS (49%) and DEIS Rural (46%) schools were able to do the various literacy and numeracy tasks very well, compared to DEIS Urban Schools (38% in Band 2 and 36% in Band 1).

Figure 5.5: Ability to do literacy and numeracy tasks when starting First Class by pupil gender, SES, and school DEIS status, Fourth Class (2023)



At the item-level, some differences by pupil gender and SES were observed (see Appendix Table A5.2). Higher proportions of girls than boys were able to write their name (80%), write letters of the alphabet (69%), and write names other than their own names (56%) very well (70%, 57%, and 46%, respectively). There were also clear differences by SES, with consistently higher proportions of pupils in the *higher* category being able to do the various literacy and numeracy tasks than in the *middle* and *lower* categories. The largest differences by SES were observed for the activity of reading some words, where 71% of pupils in the *higher* category were able to do this very well, compared to 49% of pupils in the *middle* category and 33% in the *lower* category.

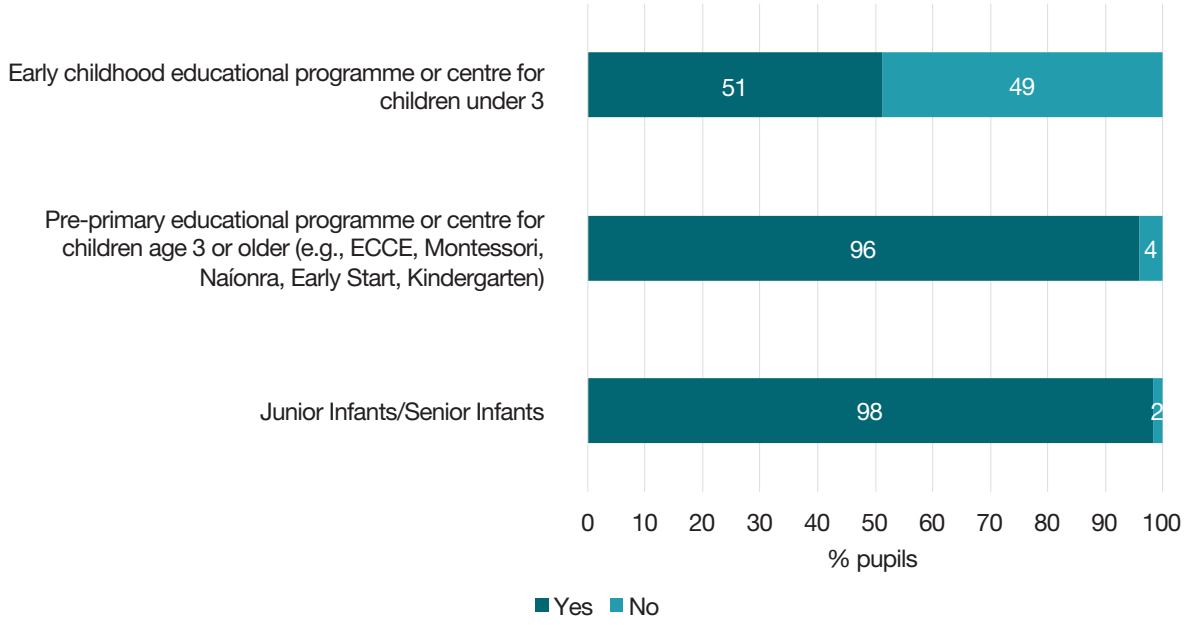
Early childhood education

As part of the home questionnaire, parents were asked whether their child attended different forms of early childhood education before starting First Class. Firstly, they were asked to indicate whether their child had attended an early childhood educational programme or centre for children under the age of three. Subsequently, they were asked whether their child attended a pre-primary educational programme or centre for children aged three or older (e.g., ECCE [Early Childhood Care and Education Programme], Montessori, Naíonra, Early Start, Kindergarten). Lastly, they were asked whether their child attended Junior Infants/Senior Infants. These are presented in Figure 5.6.

Almost all pupils attended Junior Infants/Senior Infants (98%) and a pre-primary educational programme for children aged three or older (96%), which includes facilities that participate in the national ECCE scheme.

Approximately half of pupils (51%) attended an educational programme for children under three years of age, which could also include some participation in ECCE.[17]

Figure 5.6: Early childhood education attendance, Fourth Class (2023)



17 ECCE is available for up to two years to children aged between two years and eight months and five years and six months.

Chapter 6:

Attitudes and expectations towards education

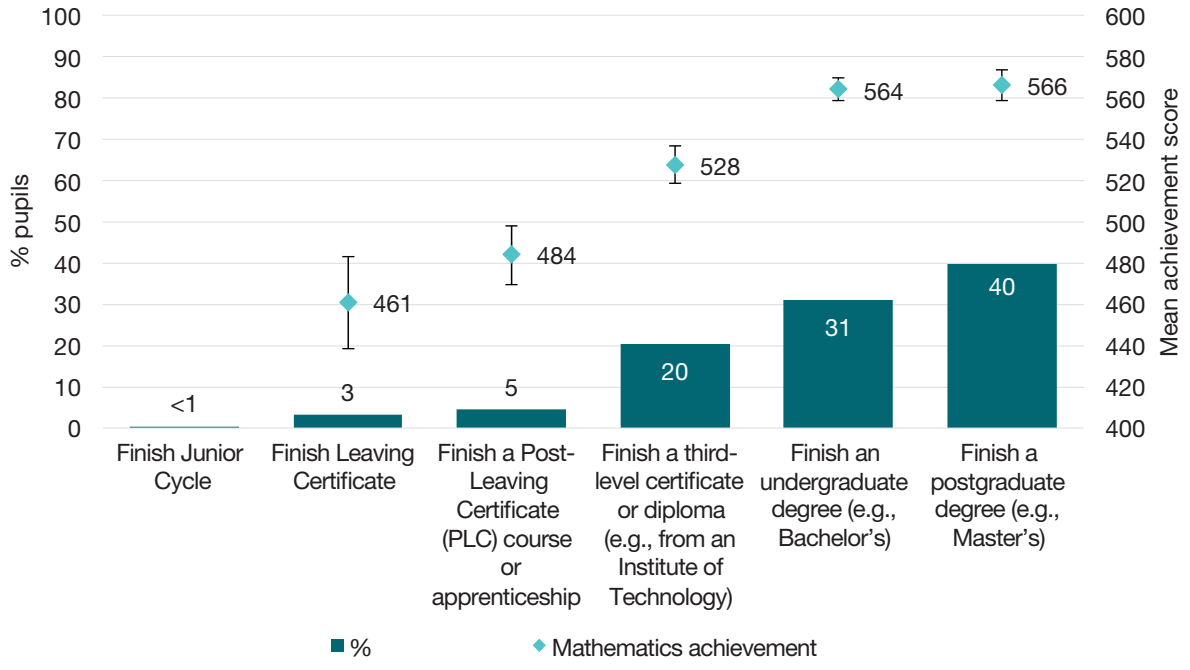
This chapter focuses on attitudes and expectations towards education in Irish primary and post-primary schools, exploring the relationships between these attitudinal variables and student achievement in mathematics and science. Subgroup differences are also reported by student gender, student socioeconomic status (SES/HER), and school DEIS status.

Fourth Class

Parents' educational expectations

Pupils' parents were asked about the highest education level they expected their child to complete. Figure 6.1 shows the percentages and mean mathematics achievement of pupils at each of these levels. Four out of 10 pupils were expected by their parents to finish a postgraduate degree, while 31% were expected to finish an undergraduate degree. Another 20% were expected to finish a third-level certificate or diploma, while the rest of pupils were expected to finish up to a Post-Leaving Certificate (PLC) course or apprenticeship. Pupils expected to finish a postgraduate degree achieved a statistically significantly higher mean mathematics score (566) than their peers except for those expected to finish an undergraduate degree (564). A similar pattern can be seen for science achievement, with those expected to finish a postgraduate degree achieving a statistically significantly higher mean score (547) than their peers (whose scores ranged from 460 to 516) except for those expected to finish an undergraduate degree (550).

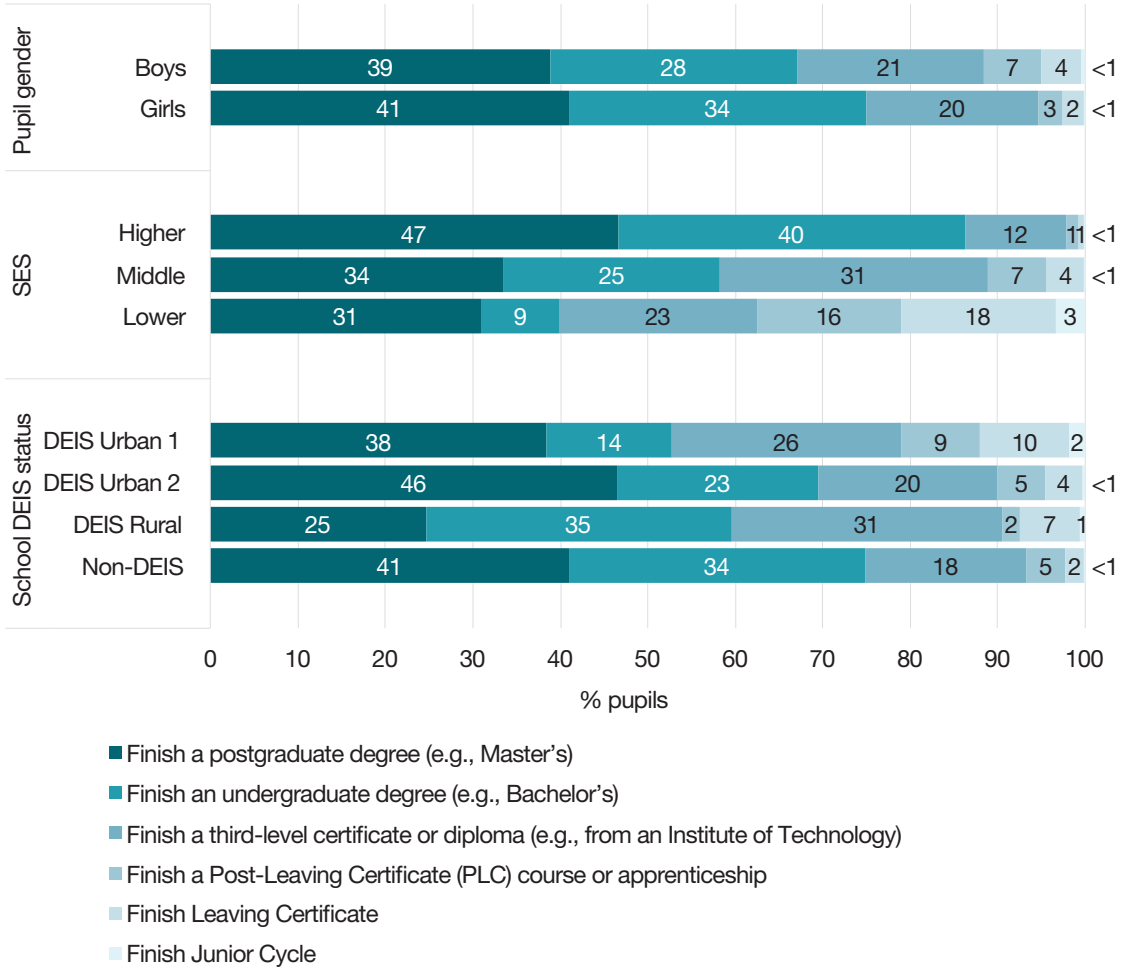
Figure 6.1: Parents' educational expectations, percentages and mean mathematics achievement, Fourth Class (2023)



Note. Due to the small number of pupils and resulting error margins, the estimate of mean achievement for pupils in the *finish Junior Cycle* category is not reported.

Figure 6.2 presents pupils' parents' educational expectations by their gender, SES, and school DEIS status. Parents of more girls than boys reported that they would expect them to finish either an undergraduate or postgraduate degree (34% and 41% vs 28% and 39%, respectively). Among higher SES families, nearly 87% expected their child to complete an undergraduate or postgraduate degree, compared with 59% of middle SES families and 40% of lower SES families. While three-quarters of pupils in non-DEIS schools were expected by their parents to finish an undergraduate or postgraduate degree, the equivalent proportions were seven in 10 pupils in DEIS Urban Band 2 schools, six in 10 pupils in DEIS Rural schools, and just over half of pupils in DEIS Urban Band 1 schools.

Figure 6.2: Parents' educational expectations by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Parents' perceptions of child's school

Pupils' parents were asked to report their level of agreement with eight statements related to their child's school:

- *My child's school does a good job of including me in my child's education;*
- *My child's school provides a safe environment;*
- *My child's school cares about my child's progress in school;*
- *My child's school does a good job of informing me of their progress;*

- *My child's school promotes high academic standards;*
- *My child's school does a good job at helping them become better at reading;*
- *My child's school does a good job at helping them become better at maths;*
- *My child's school does a good job at helping them become better at science.*

Their responses were used to create the TIMSS *Parents' Perceptions of their Child's School* scale[18], on the basis of which pupils were categorised as having parents who were *very satisfied*, *somewhat satisfied*, or *less than satisfied* with their school.

Table 6.1 shows the percentages and mean mathematics and science achievement of pupils in each category of the TIMSS *Parents' Perceptions of their Child's School* scale. Three-quarters of pupils had parents who were very satisfied with their school, while 23% had parents who were somewhat satisfied. About 2% of pupils in Ireland had parents who reported being less than satisfied with their child's school. Pupils whose parents were very satisfied with their school achieved a mean mathematics score of 547 points, which was not statistically significantly different from that of their peers whose parents were somewhat satisfied (556). For science achievement, pupils whose parents were very satisfied with their schools achieved a mean science score of 532 points, which was statistically significantly lower than that of their peers whose parents were somewhat satisfied (545).

Table 6.1: Parents' perceptions of child's chool, percentages and mean mathematics and science achievement, Fourth Class (2023)

	%	Mathematics	Science
Very satisfied *(R)*	75	547	532
Somewhat satisfied	23	556	**545**
Less than satisfied	2	-	-

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$). Due to the small number of pupils and resulting error margins, the estimate of mean achievement for pupils in the *less than satisfied* category is not reported.

Figure 6.3 presents the extent to which pupils' parents agreed or disagreed with each of the eight statements that were used to create the TIMSS *Parents' Perceptions of their Child's School* scale. Overall, responses were highly positive, with large majorities of pupils having parents who agreed a lot or a little with each statement. Nearly all pupils had parents who agreed that their child's school provides a safe environment (99%), cares about their child's progress (98%), and helps their child become better at reading (98%) and maths (97%). Levels of agreement were slightly lower, though still high, for communication with parents, the promotion of academic expectations, and support for children's learning in science.

18 The overall scale, *Parents' Perceptions of their Child's School*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

Figure 6.3: Parents' perceptions of child's school, Fourth Class (2023)

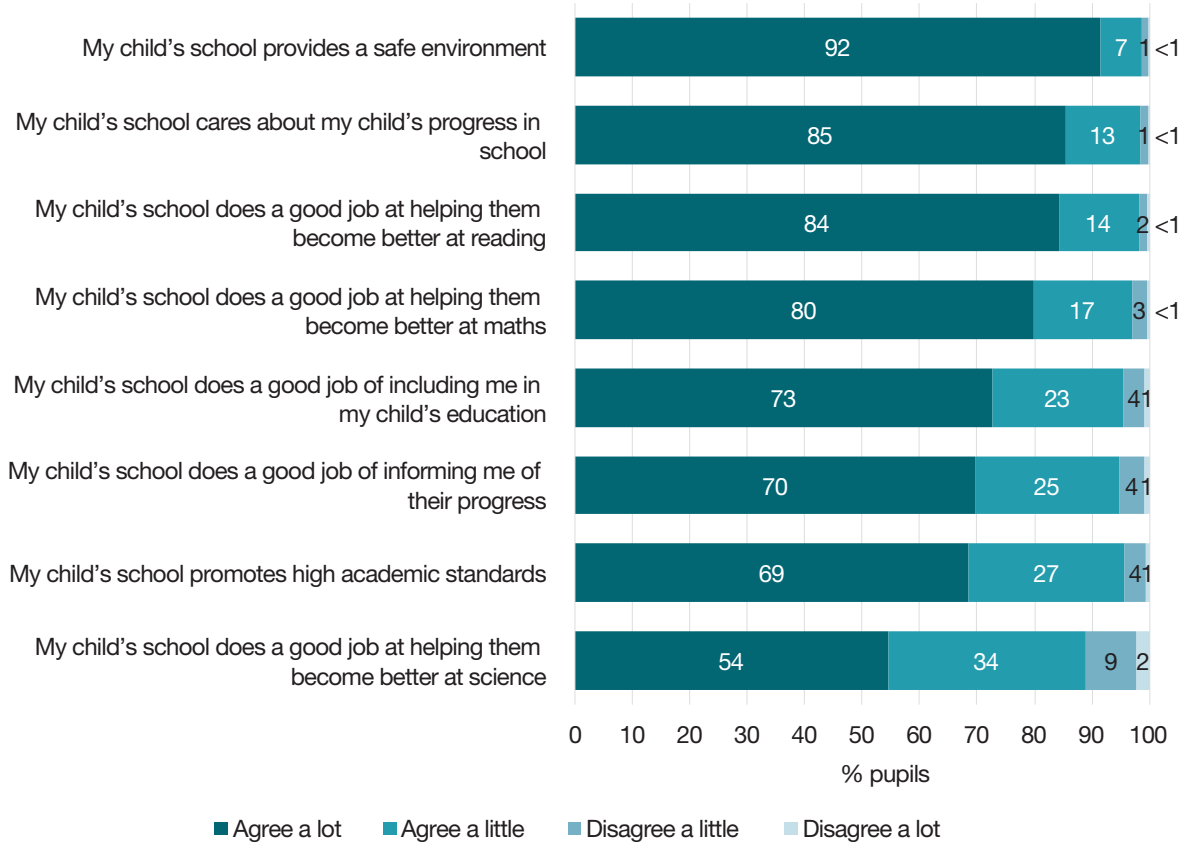
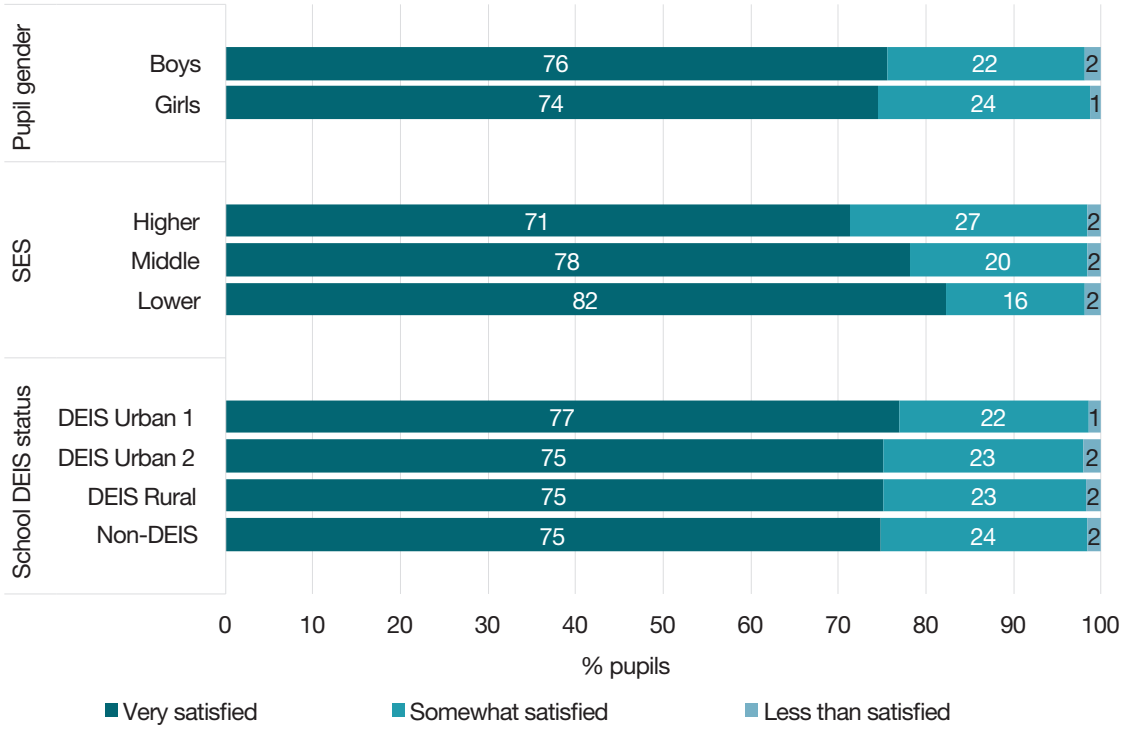


Figure 6.4 presents pupils' parents' perceptions of school by their gender, SES, and school DEIS status. Parents' perceptions of their child's school did not substantially vary by pupil gender or school DEIS status. However, parents' perceptions of their child's school were slightly more positive with every lower SES level. Among higher SES families, 71% of pupils had parents who were very satisfied with their school, compared with 78% of middle SES families and 82% of lower SES families.

Figure 6.4: Parents' perceptions of child's school by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Principals' views on parents' involvement in supporting learning

School principals were asked to reflect on their schools' expectations for academic achievement, including four aspects of parents' involvement in supporting learning:

- *Parental involvement in school activities;*
- *Parental commitment to ensure that pupils are ready to learn;*
- *Parental expectations for pupil achievement;*
- *Parental support for pupil achievement.*

Table 6.2 shows the percentages and mean mathematics and science achievement of pupils by their principals' views on parents' involvement in supporting learning. Two-fifths of pupils attended schools with medium parental involvement in school activities, and another 32% attended schools with high parental involvement. Close to half of pupils attended schools with high parental commitment to ensure that pupils are ready to learn, and another 33% attended schools with medium parental commitment. One-fifth of pupils (20%) attended schools with very high parental expectations for pupil achievement, and just over half (51%) attended schools with high parental expectations for pupil achievement. Another 26% of pupils attended schools with medium parental expectations for pupil achievement. About 17% of pupils attended schools with very high parental support, while half (50%) attended schools with high parental support for pupil achievement. Another 30% of pupils attended schools with medium parental support. Overall, pupils attending schools with very high levels of parental involvement in supporting learning achieved higher mean mathematics and science scores compared to their peers, particularly those in schools with *medium*, *low*, and *very low* levels of parental involvement.

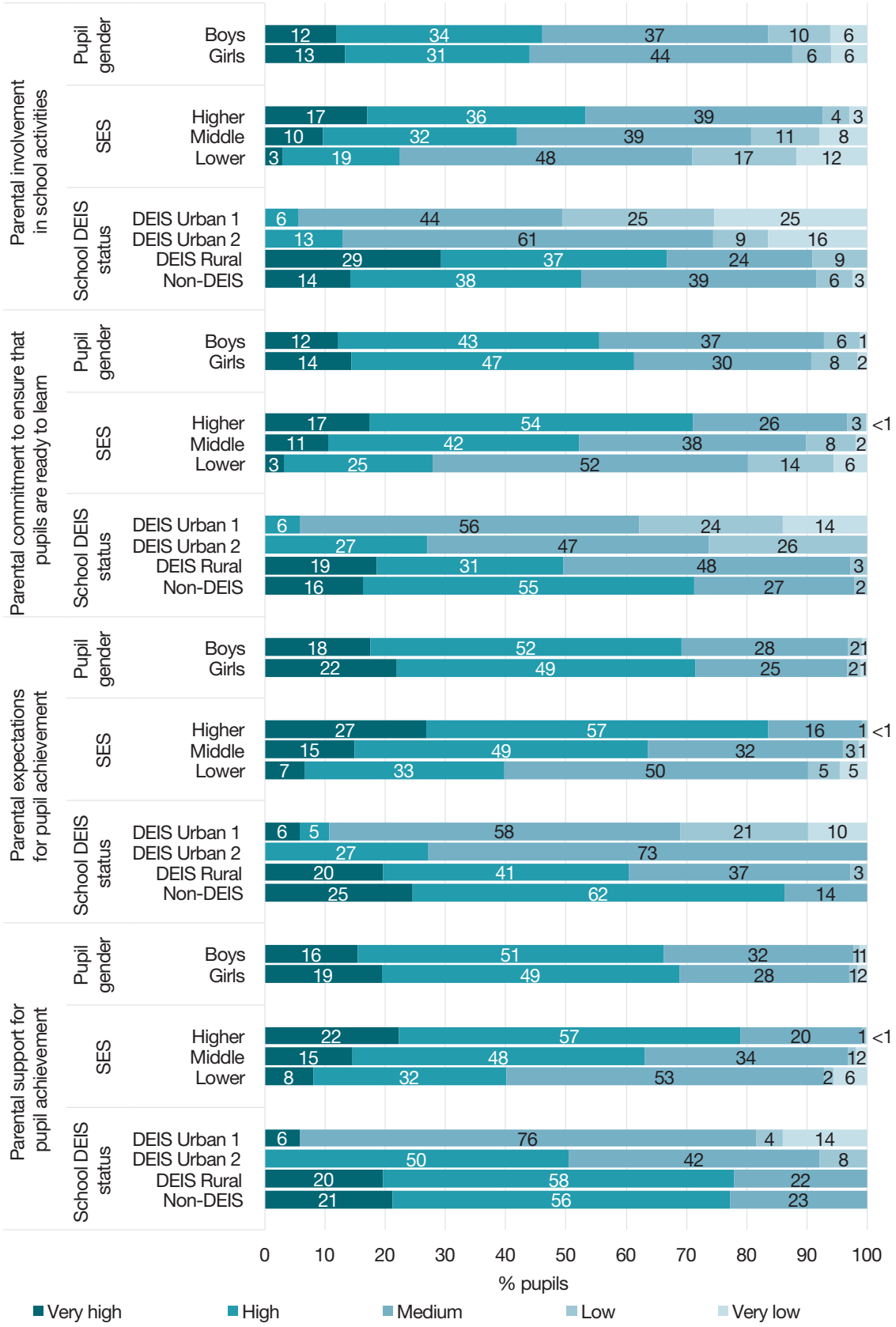
Table 6.2: Parents' involvement in supporting learning (principal reports), percentages and mean mathematics and science achievement, Fourth Class (2023)

	%	Mathematics	Science
Parental involvement in school activities			
Very high *(R)*	13	559	544
High	32	553	537
Medium	41	543	530
Low	8	534	522
Very low	6	**521**	511
Parental commitment to ensure that pupils are ready to learn			
Very high *(R)*	13	566	557
High	45	558	**541**
Medium	33	**532**	**520**
Low	7	**511**	**506**
Very low	1	-	-
Parental expectations for pupil achievement			
Very high *(R)*	20	571	555
High	51	**549**	**534**
Medium	26	**529**	**518**
Low	2	-	-
Very low	1	-	-
Parental support for pupil achievement			
Very high *(R)*	17	563	549
High	50	551	537
Medium	30	**532**	**519**
Low	1	-	-
Very low	1	-	-

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$). Due to the small number of pupils and resulting error margins, the estimates of mean achievement for pupils in the *low* and *very low* categories are not reported for some items.

Figure 6.5 presents principals' views on parents' involvement in supporting learning by pupil gender, SES, and school DEIS status. Overall, gender differences were relatively small, while more substantial differences were observed by SES and school DEIS status. Pupils from higher SES backgrounds were more likely to attend schools where principals reported very high or high levels of parental involvement in supporting learning compared with pupils from middle or lower SES backgrounds, who were more often in schools with low or very low levels of parental involvement. DEIS Urban Band 1 schools had the lowest reported parental involvement in supporting learning, with many pupils in the *low* or *very low* categories, followed by DEIS Urban Band 2 schools. By contrast, DEIS Rural and non-DEIS schools had the highest levels of parental involvement, with most pupils in schools rated high or very high and almost none in the *low* or *very low* categories.

Figure 6.5: Parents' involvement in supporting learning (principal reports) by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Digital self-efficacy

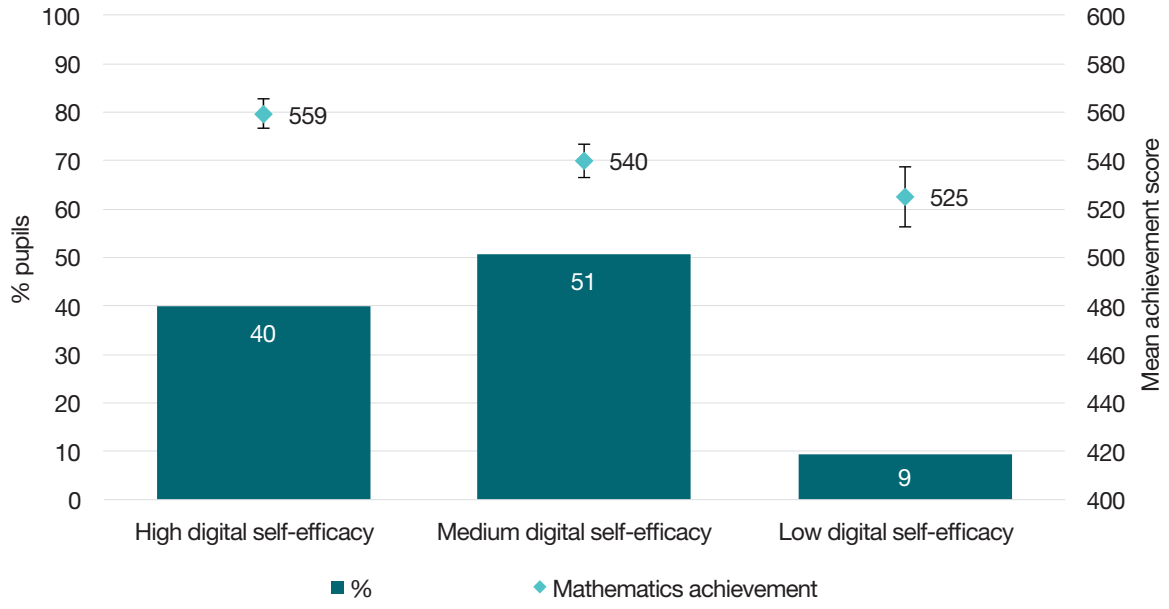
Pupils' perceived self-efficacy in using digital devices was captured through seven items in the pupil questionnaire:

- *I can write and edit text on a computer, tablet, or smartphone;*
- *I can create school presentations using a computer, tablet, or smartphone;*
- *I can create tables, charts, and graphs using a computer, tablet, or smartphone;*
- *I can find information that I need online;*
- *I can tell if a website is trustworthy;*
- *I can easily do new things on computers, laptops, or smartphones;*
- *I can help my friends or family members with using their computers, laptops, or smartphones*.

Pupils were asked how much they agreed with each of these statements and their responses were used to create the TIMSS *Digital Self-Efficacy* scale[19], on the basis of which pupils were grouped into three categories: *high digital self-efficacy*, *medium digital self-efficacy*, or *low digital self-efficacy*.

Figure 6.6 shows the percentages and mean mathematics achievement of pupils in each category of the TIMSS *Digital Self-Efficacy* scale. Four out of 10 pupils (40%) indicated that they had high digital self-efficacy, 51% that they had medium digital self-efficacy, and 9% that they had low digital self-efficacy. Pupils with high digital self-efficacy achieved a mean mathematics score of 559 points, which was statistically significantly higher than those of their peers with medium (540) and low digital self-efficacy (525). A similar pattern can be seen for science achievement, with those with high digital self-efficacy achieving a statistically significantly higher mean score (547) than their peers with medium (526) and low (506) digital self-efficacy.

Figure 6.6: Pupils' digital self-efficacy, percentages and mean mathematics achievement, Fourth Class (2023)



19 The overall scale, *Digital Self-Efficacy*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

Figure 6.7 presents pupil responses to each of the seven statements that were used to create the TIMSS *Digital Self-Efficacy* scale. Most pupils reported being able to complete basic tasks with digital devices or online. Between 86% and 95% of pupils agreed either a lot or a little that they can find the information they need online, they can write and edit text on digital devices, they can easily do new things on digital devices, and they can help their friends or family members with using their own digital devices. Responses were slightly more varied for tasks requiring judgement or more advanced use. For example, 70% agreed (a lot or a little) that they can create school presentations using digital devices, while fewer (61%) agreed that they can create tables, charts, and graphs using digital devices. Approximately 24% of pupils reported not being able to tell if a website is trustworthy.

Figure 6.7: Pupils' digital self-efficacy, Fourth Class (2023)

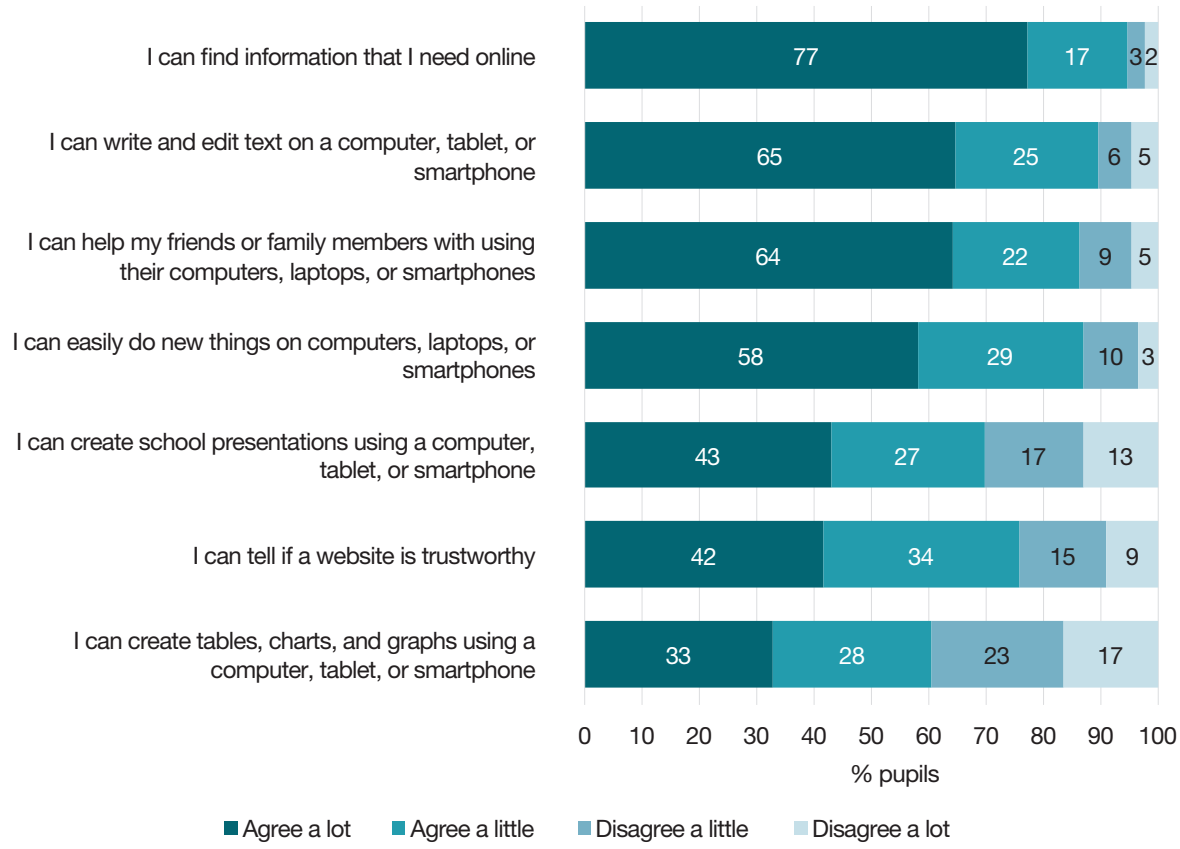
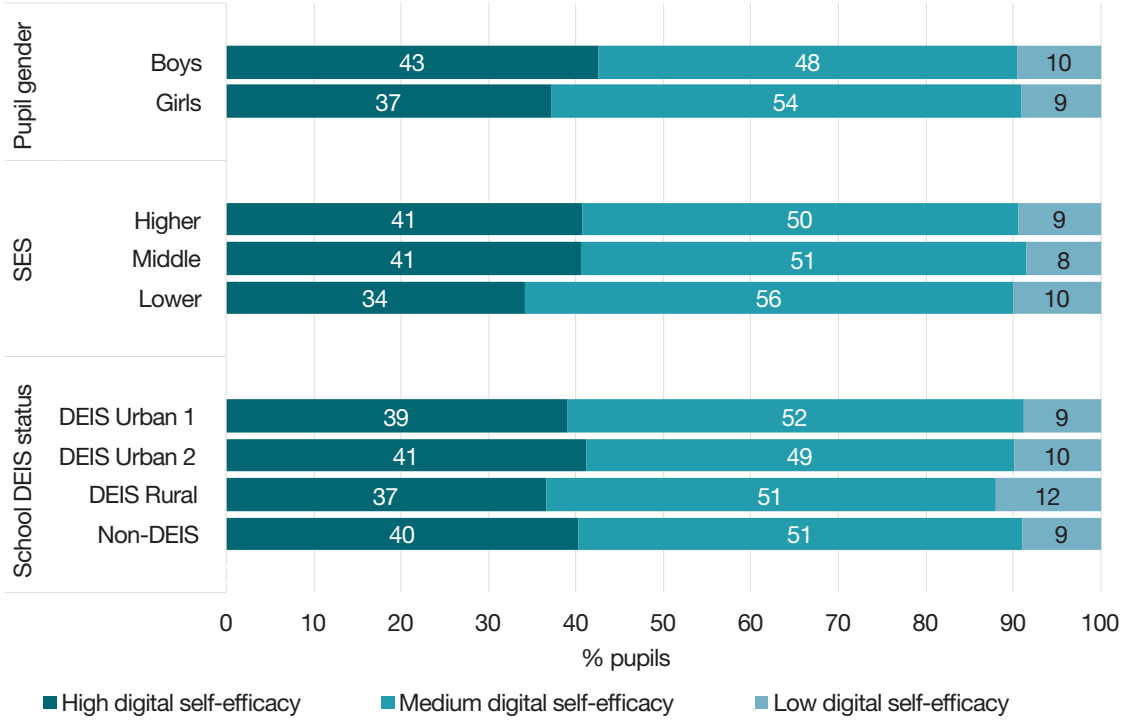


Figure 6.8 presents pupils' digital self-efficacy by their gender, SES, and school DEIS status. More boys (43%) than girls (37%) reported having high digital self-efficacy, with similar percentages in the *low* category. Pupils belonging to the *lower* category of SES were less likely to report high digital self-efficacy (34%) compared to their peers in the *higher* and *middle* categories (both 41%), although similar percentages of pupils reported low digital self-efficacy across the three SES categories. Pupils' digital self-efficacy did not differ substantially by school DEIS status, with only minor differences observed across the categories.

Figure 6.8: Pupils' digital self-efficacy by pupil gender, SES, and school DEIS status, Fourth Class (2023)



Looking at the individual statements used to create the TIMSS *Digital Self-Efficacy* scale (see Appendix Table A6.1), boys were more likely than girls to agree a lot that they can tell if a website is trustworthy and that they can easily do new things on digital devices. Pupils in the *higher* category of SES were more likely to agree a lot that they can create school presentations and find information online, while those in the *lower* category were more likely than their peers in the *higher* category to agree a lot that they can easily do new things on computers and help family or friends with technology. Pupils attending DEIS Urban schools were less likely to agree a lot with almost every statement compared to their peers in non-DEIS and DEIS Rural schools.

Second Year

Students' educational expectations

Second Year students were asked about the highest education level they expected to complete. Figure 6.9 shows the percentages and mean mathematics achievement of students at each of these levels. Around one-quarter of students expected their highest level of education to be the Leaving Certificate (24%) and a similar proportion expected to complete a master's degree and/or doctorate (26%). Just over one-fifth (22%) expected a third-level certificate or diploma, and 15% expected to complete an undergraduate degree as their highest level of education. Students' mean mathematics scores gradually increased with every higher expected education level up to undergraduate degree level, going from 438 among students expecting to complete up to Junior Certificate to 555 among those expecting to attain an undergraduate degree. Students who expected to get a postgraduate degree achieved a statistically significantly higher mean score (550) than their peers, except for a non-significant difference from those expecting an undergraduate degree (555). A similar pattern can be seen for science achievement, with those expecting to get a postgraduate degree (557) achieving a statistically significantly higher mean score than their peers, except for those expecting an undergraduate degree (560).

Figure 6.9: Students' educational expectations, percentages and mean mathematics achievement, Second Year (2023)

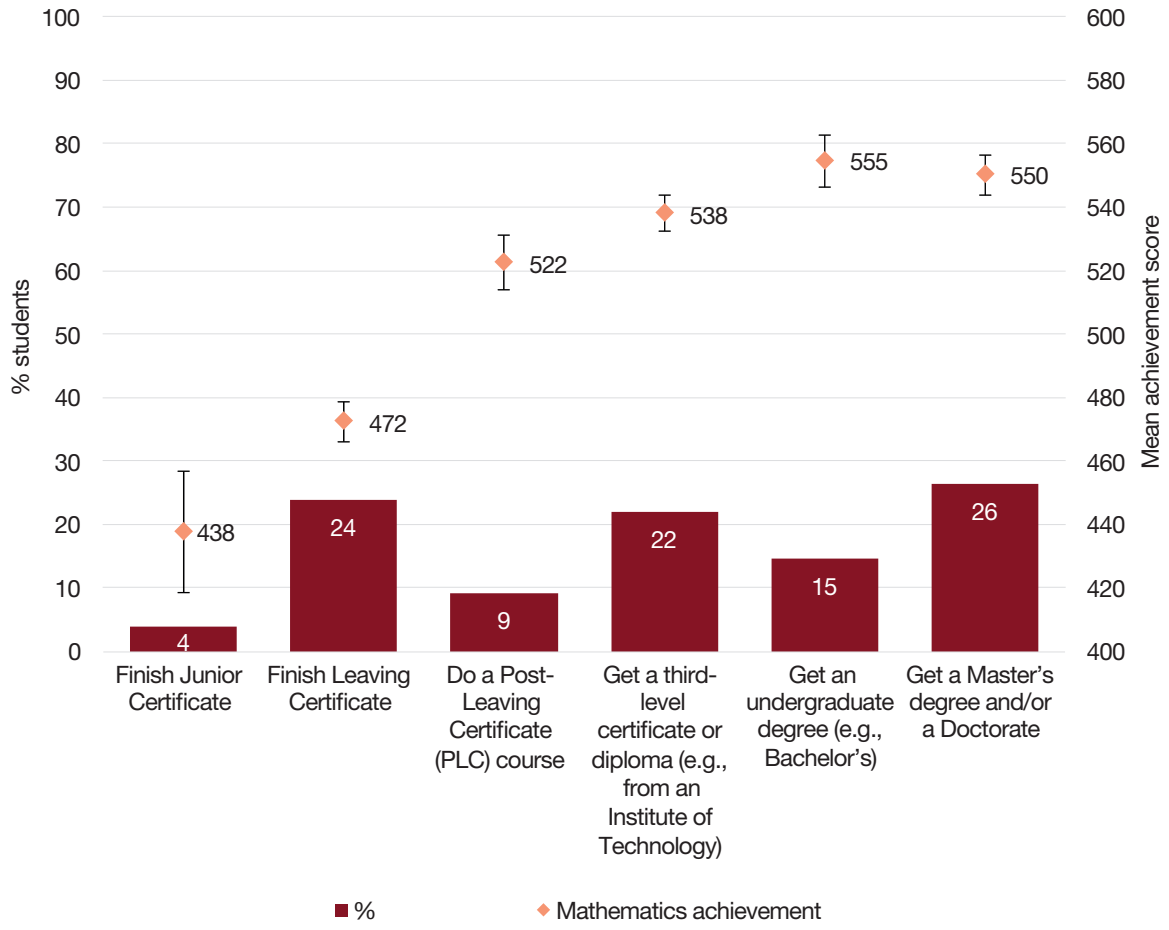
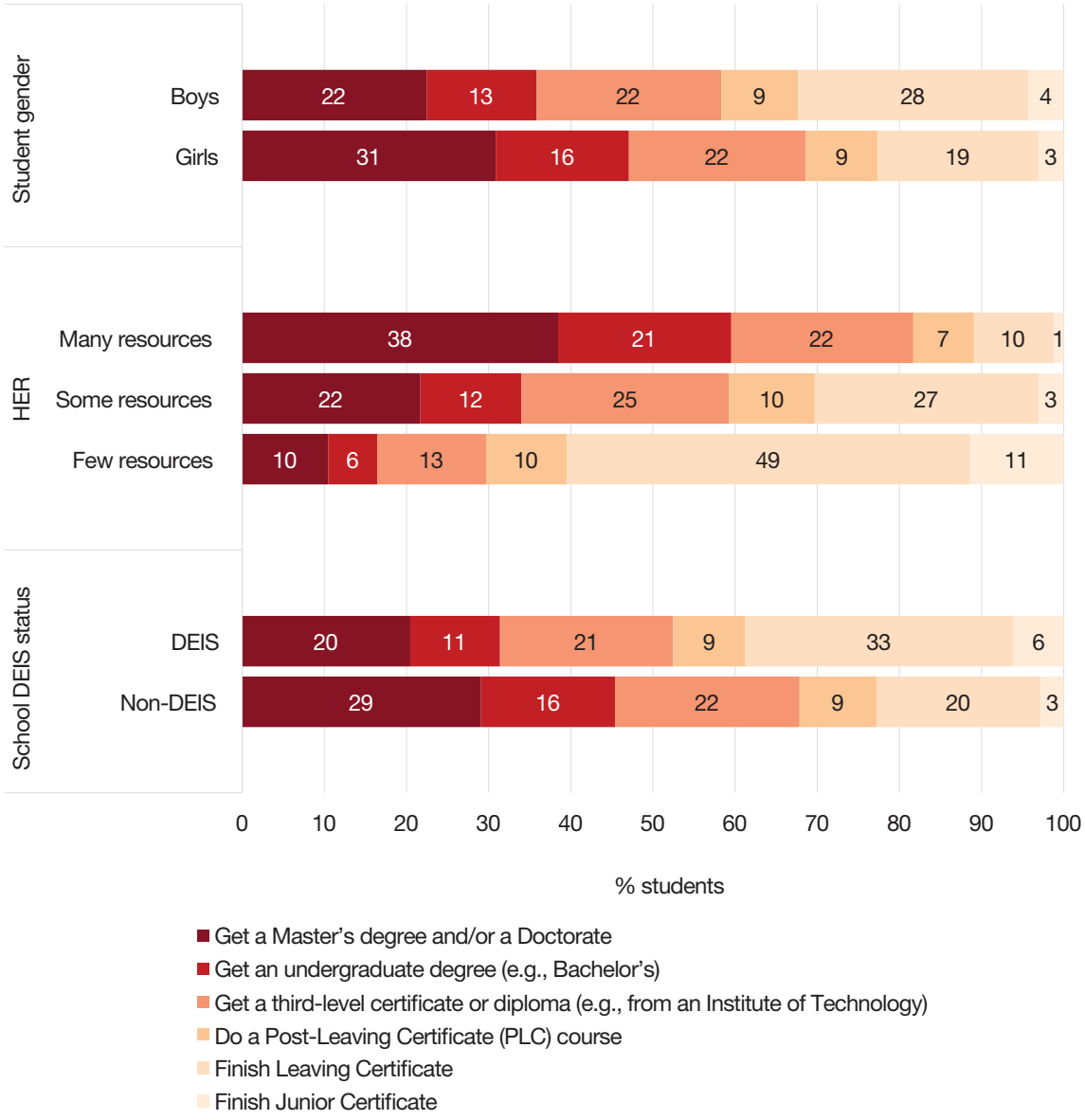


Figure 6.10 presents students' educational expectations by their gender, HER, and school DEIS status. Girls reported higher educational expectations compared to boys, with 47% of girls and 36% of boys expecting to get an undergraduate or postgraduate degree. Students' educational expectations were also linked to their HER; 38% of students with many resources expected to get a master's degree and/or doctorate, compared to 22% of students with some resources and 10% of those with few resources. Conversely, almost half (49%) of students with few resources expected the Leaving Certificate to be their highest qualification, compared to 27% and 10% in the *some resources* and *many resources* categories. Regarding school DEIS status, 33% of students in DEIS schools expected the Leaving Certificate to be their highest level of education, compared to 20% in non-DEIS schools, while 29% of students in non-DEIS schools expected to get a master's degree and/or doctorate compared to 20% of students in DEIS schools.

Figure 6.10: Students' educational expectations by student gender, HER, and school DEIS status, Second Year (2023)



Principals' views on parents' involvement in supporting learning

School principals were asked to reflect on their schools' expectations for academic achievement, including four aspects of parents' involvement in supporting learning:

- *Parental involvement in school activities;*
- *Parental commitment to ensure that students are ready to learn;*
- *Parental expectations for student achievement;*
- *Parental support for student achievement.*

Table 6.3 shows the percentages and mean mathematics and science achievement of students by their principals' views on parents' involvement in supporting learning. Half of students attended schools with reported medium parental involvement in school activities, while 19% and 18%, respectively, attended schools with high and low parental involvement. The majority of students attended schools with either high (35%) or medium (44%) parental commitment to ensuring that students are ready to learn. Half of students attended schools with high parental expectations for student achievement, while 24% and 21%, respectively, attended schools with medium and very high parental expectations. Half of students attended schools with high parental support for student achievement, with another 31% attending schools with medium parental support for student achievement and 13% attending schools with very high parental support for student achievement. Overall, students attending schools with very high levels of parental involvement in supporting learning achieved higher mean mathematics and science scores compared to their peers, particularly those in schools with *medium*, *low*, and *very low* levels of parental involvement.

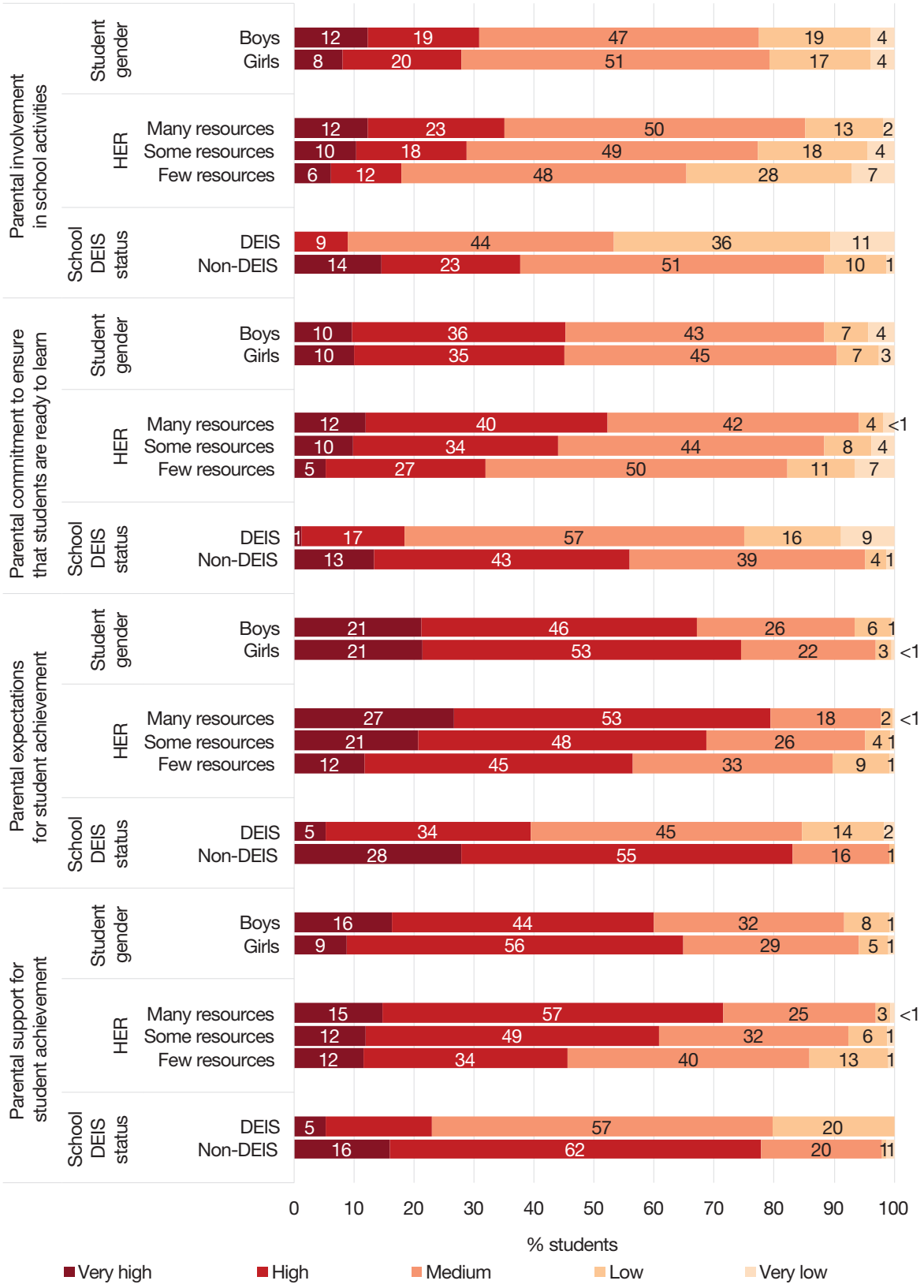
Table 6.3: Parents' involvement in supporting learning (principal reports), percentages and mean mathematics and science achievement, Second Year (2023)

	%	Mathematics	Science
Parental involvement in school activities			
Very high *(R)*	10	552	546
High	19	535	538
Medium	49	**523**	529
Low	18	**500**	**506**
Very low	4	**482**	**487**
Parental commitment to ensure that students are ready to learn			
Very high *(R)*	10	549	547
High	35	532	538
Medium	44	**517**	520
Low	7	**495**	**506**
Very low	3	**480**	**485**
Parental expectations for student achievement			
Very high *(R)*	21	545	544
High	49	**527**	533
Medium	24	**503**	**506**
Low	4	**477**	**491**
Very low	1	-	-
Parental support for student achievement			
Very high *(R)*	13	535	534
High	49	533	539
Medium	31	512	515
Low	6	**476**	486
Very low	1	-	-

Note. **Bold** indicates statistically significant differences from the reference group *(R)* ($p < .05$). Due to the small number of students and resulting error margins, the estimates of mean achievement for students in the *very low* category are not reported for some items.

Figure 6.11 presents principals' views on parents' involvement in supporting learning by student gender, HER, and school DEIS status. Overall, gender differences were relatively small, while more substantial differences were observed by HER and school DEIS status. Students with many resources were more likely to attend schools where principals reported very high or high levels of parental involvement in supporting learning compared with students with some or few resources, who were more often in schools with low or very low levels of parental involvement. DEIS schools had lower reported parental involvement in supporting learning, with many students in the *low* or *very low* categories. By contrast, non-DEIS schools had higher levels of parental involvement, with many students in schools rated high or very high and few in the *low* or *very low* categories.

Figure 6.11: Parents' involvement in supporting learning (principal reports) by student gender, HER, and school DEIS status, Second Year (2023)



Digital self-efficacy

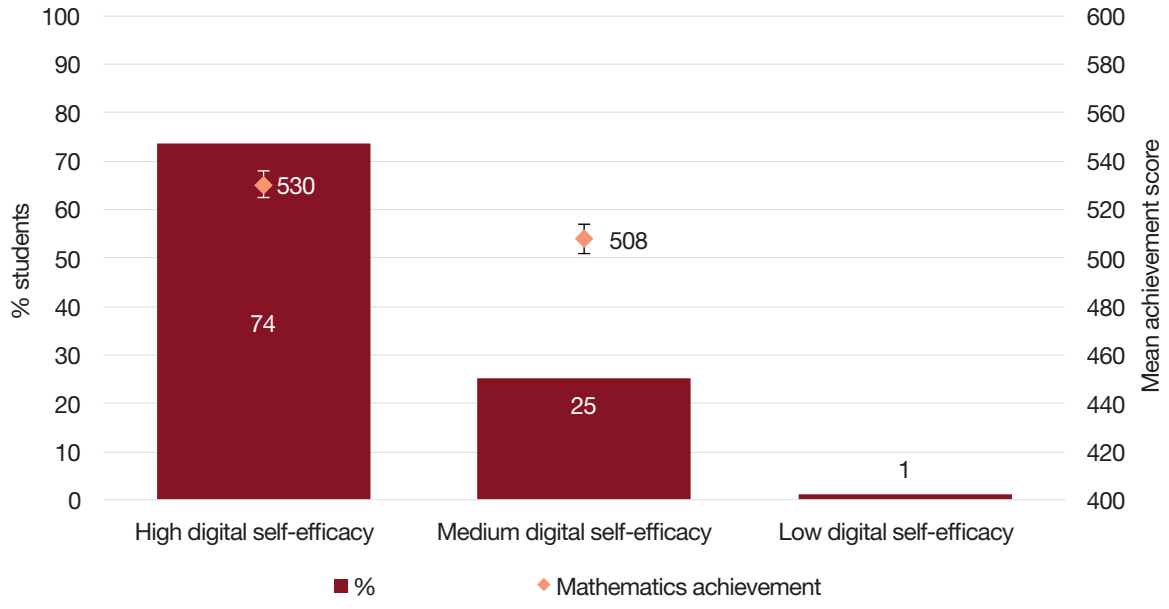
Students' perceived self-efficacy in using digital devices was captured through seven items in the student questionnaire:

- *I can write and edit text on a computer, tablet, or smartphone;*
- *I can create school presentations using a computer, tablet, or smartphone;*
- *I can create tables, charts, and graphs using a computer, tablet, or smartphone;*
- *I can find information that I need online;*
- *I can tell if a website is trustworthy;*
- *I can easily do new things on computers, laptops, or smartphones;*
- *I can help my friends or family members with using their computers, laptops, or smartphones*.

Students were asked how much they agreed with each of these statements and their responses were used to create the TIMSS *Digital Self-Efficacy* scale[20], on the basis of which students were grouped into three categories: *high digital self-efficacy*, *medium digital self-efficacy*, or *low digital self-efficacy*.

Figure 6.12 shows the percentages and mean mathematics achievement of students in each category of the TIMSS *Digital Self-Efficacy* scale in Ireland. Three-quarters of students (74%) indicated that they had high digital self-efficacy, 25% that they had medium digital self-efficacy, and 1% that they had low digital self-efficacy. Students with high digital self-efficacy achieved a mean mathematics score of 530 points, which was statistically significantly higher than those of their peers with medium (508) digital self-efficacy. A similar pattern can be seen for science achievement (mean scores of 535 and 512, respectively).

Figure 6.12: Students' digital self-efficacy, percentages and mean mathematics achievement, Second Year (2023)



Note. Due to the small number of students and resulting error margins, the estimate of mean achievement for students in the *low digital self-efficacy* category is not reported.

20 The overall scale, *Digital Self-Efficacy*, was developed at an international level by Boston College. Full details of the construction of the scale, including the items contributing to it, can be found in von Davier, Fishbein, and Kennedy (2024).

Figure 6.13 presents students' responses to each of the seven statements that were used to create the TIMSS *Digital Self-Efficacy* scale. Most students either agreed a lot or a little with each of the statements, with disagreement ranging from 2% (*I can write and edit text on a computer, tablet, or smartphone* and *I can find information that I need online*) to 13% (*I can create tables, charts, and graphs using a computer, tablet, or smartphone*). As in Fourth Class (see Figure 6.7), students appeared to be less certain of their skills in creating tables, charts, and graphs using digital devices and in telling if a website is trustworthy, with 59% and 49% of students, respectively, agreeing a lot with these statements.

Figure 6.13: Students' digital self-efficacy, Second Year (2023)

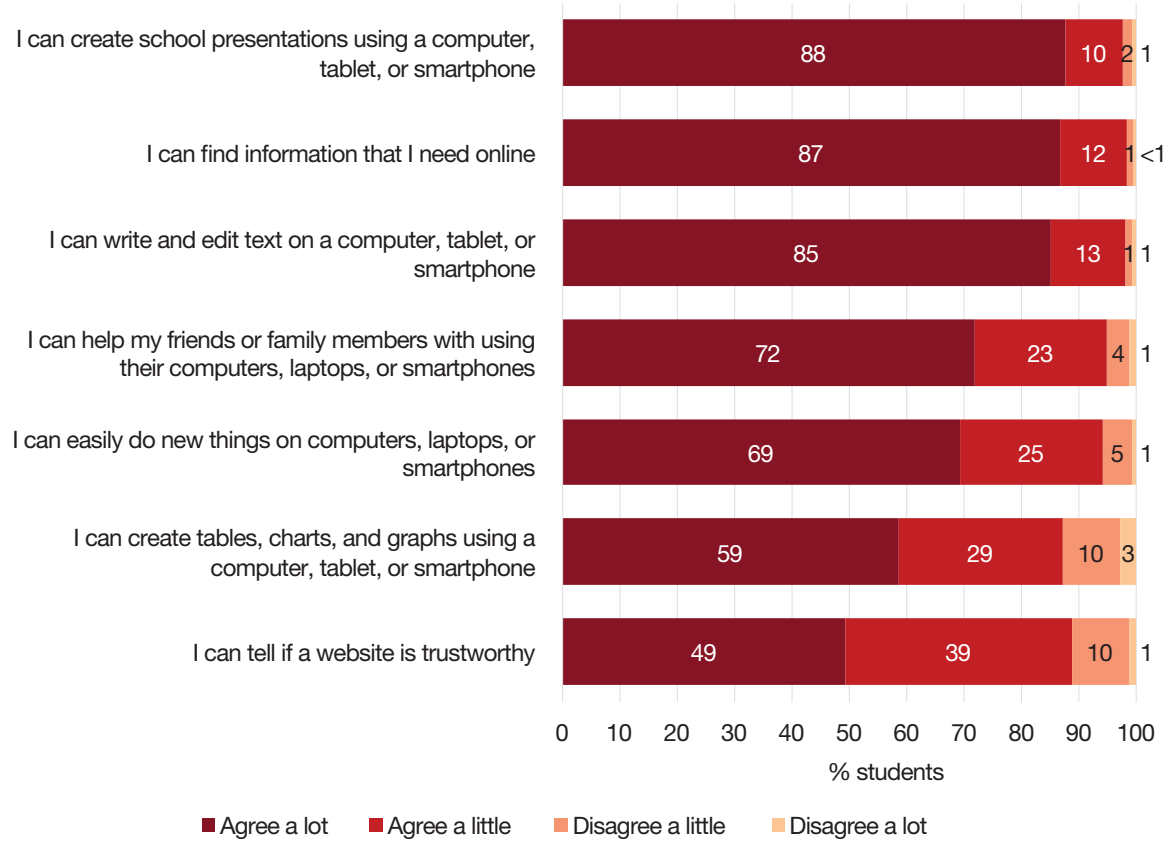
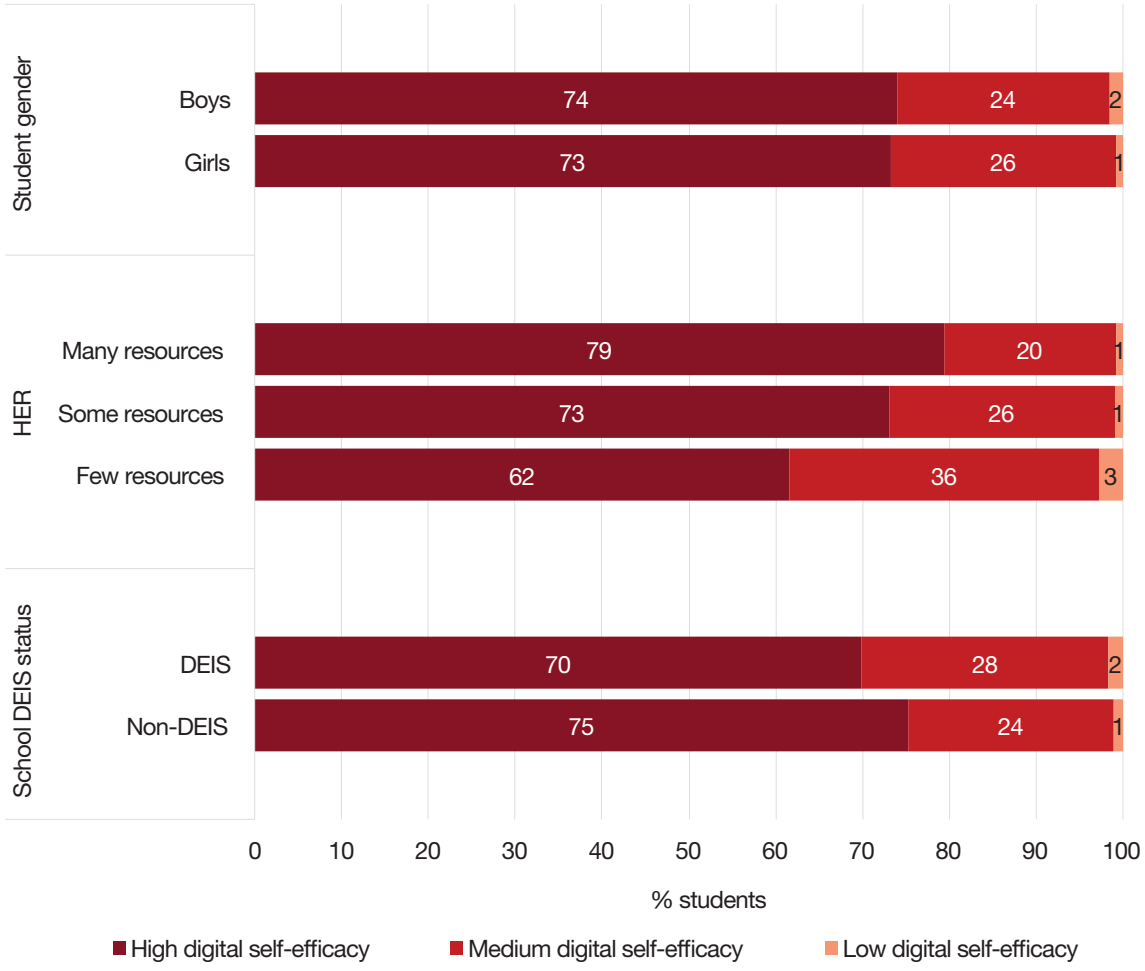


Figure 6.14 presents students' digital self-efficacy by their gender, HER, and school DEIS status. Girls and boys were broadly similar with regards to their digital self-efficacy. Digital self-efficacy gradually decreased with each lower level of HER, with the percentages of students reporting high digital self-efficacy going from 79% in the *many resources* category to 62% in the *few resources* category. Students in non-DEIS schools were slightly more likely to have higher digital self-efficacy than their peers in DEIS schools.

Figure 6.14: Students' digital self-efficacy by student gender, HER, and school DEIS status, Second Year (2023)



Looking at the individual statements used to create the TIMSS *Digital Self-Efficacy* scale (see Appendix Table A6.2), boys were more likely to agree a lot that they can tell if a website is trustworthy and that they can easily do new things on digital devices than girls, while girls were more likely to agree a lot that they can create schools presentations using digital devices than boys. Students in the *few resources* category of HER were less likely to agree a lot with almost every statement compared to their peers in the other two categories, with the largest differences observed in the following two statements: *I can create school presentations using a computer, tablet, or smartphone* and *I can create tables, charts, and graphs using a computer, tablet, or smartphone*. Students in DEIS schools were less likely to agree a lot with all statements compared to their peers in non-DEIS schools, with the largest differences observed in those same statements.

Chapter 7:
Summary and discussion of key findings

This report draws on data collected from students, parents, and school principals at both primary and post-primary levels in the TIMSS 2023 cycle. This chapter summarises the main findings from the preceding chapters, offers a brief discussion, and concludes with considerations for further research, policy, and practice.

Summary of key findings

Home resources

Socioeconomic status and home possessions

In 2023, half of Fourth Class pupils were in the *higher* category of the TIMSS *Home Socioeconomic Status* (SES) scale. These pupils achieved statistically significantly higher mean scores in both mathematics and science than pupils in the *middle* and *lower* categories. The percentages of pupils in the *lower* category were notably higher in DEIS Urban schools than in DEIS Rural or non-DEIS schools.

The main indicator of socioeconomic status for Second Year students is the TIMSS *Home Educational Resources* (HER) scale.[21] Almost 40% of Second Year students were classified as having many educational resources at home according to the HER scale, and these students achieved statistically significantly higher mean scores in both mathematics and science than students with some or few resources. More than one-quarter of students in DEIS schools were categorised as having few educational resources at home, compared to 12% in non-DEIS schools.

Number of books at home

The most common response reported by parents of Fourth Class pupils and Second Year students was that they had between 26 and 100 books at home. Across both grades, mathematics and science achievement tended to increase when more books were reported in the home.

While the number of books at home differed little by pupil gender for Fourth Class, at Second Year, boys were more likely to report having few books (25 or less) at home than girls. Across both grades there were large differences by school DEIS status, with non-DEIS students having more books than those from DEIS Urban schools (Fourth Class) and DEIS schools (Second Year).

In addition to reporting on the total number of books in the home, Fourth Class parents were asked specifically about the number of children's books. About three-quarters reported having at least 26 children's books at home. As with the general measure of books in the home, pupils whose parents reported more children's books generally achieved higher mean scores in both mathematics and science. Differences by pupil gender and school DEIS status followed the same pattern as for the total number of books in the home.

21 This differs from the Fourth Class *Home Socioeconomic Status* scale, which is constructed drawing on responses to the home questionnaire, as data from parents are not available for Second Year students.

Home digital resources

The vast majority of Fourth Class pupils (between 91% and 95%) were in homes with computers/laptops, tablets/e-readers, or a reliable internet connection. Mathematics and science achievement for pupils with these resources at home was statistically significantly higher in each case than for pupils without these resources, with the greatest difference observed being the one between pupils who had a computer/laptop and those who did not (mean achievement score difference of 64 points for mathematics and 56 points for science). Access to devices and a reliable internet connection was lower for pupils in the *lower* category of SES and among pupils who attended DEIS Urban schools.

Just over half of Fourth Class pupils reported having their own smartphone, compared to nearly all Second Year students. Across both grades, more than three-quarters of students had their own computer or tablet. Second Year students were asked to describe how often they used the internet for a range of tasks related to schoolwork in mathematics or science. Accessing assignments posted online by the teacher was the most frequently reported activity, and accessing learning games or activities related to mathematics or science was the least frequently reported activity.

Home background

Parents' place of birth

Across both Fourth Class and Second Year, about two-thirds of students had parents born in Ireland. These students scored statistically significantly lower in both mathematics and science than those with one Irish-born and one non-Irish-born parent. Fourth Class pupils in the *higher* category of SES and Second Year students with many educational resources at home were more likely to have Irish-born parents. Conversely, Fourth Class pupils in the *lower* category of SES and those who attended DEIS Urban schools, and Second Year students with fewer resources, were relatively more likely to have both parents born outside of Ireland.

Parents' education

Approximately half of Fourth Class pupils (53%) and Second Year students (48%) had a parent with an undergraduate or postgraduate degree, and these students scored statistically significantly higher in mathematics and science than their peers whose parents reported a lower qualification. Students at both grade levels whose parents had an undergraduate or postgraduate degree were more likely to attend non-DEIS schools.

Parents' occupation

Most Fourth Class pupils had parents in professional jobs, and these pupils scored statistically significantly higher in both mathematics and science than those whose parents were small business owners, clerical officers, or skilled workers. Fourth Class students whose parents described themselves as professionals were more likely to attend non-DEIS schools. Second Year students were not asked about their parents' occupation.

Students' place of birth

The majority of Fourth Class and Second Year students were born in Ireland, with approximately one in 10 born outside of Ireland. Fourth Class pupils from lower SES backgrounds and those who attended DEIS Urban Band 2 schools were more likely to be born outside Ireland than their peers in the other SES and school DEIS categories, respectively. Similarly, for Second Year students, those with fewer educational resources at home were more likely to be born outside Ireland compared to those with some or many resources.

Language spoken at home

Approximately four-fifths of Fourth Class pupils (as reported by their parents) and Second Year students always spoke English or Irish at home. At Fourth Class, these pupils achieved statistically significantly higher mean mathematics and science scores compared to those who sometimes spoke English or Irish at home. Among Second Year students, those who always spoke English or Irish at home achieved a statistically significantly higher mean science score than those who never spoke English or Irish at home, while no statistically significant differences were observed for mathematics. Fourth Class pupils from lower SES backgrounds and those who attended DEIS Urban Band 2 schools, as well as Second Year students in the *few resources* category and those who attended DEIS schools, were relatively less likely to always speak English or Irish at home.

Tiredness and hunger

Approximately one-quarter of Fourth Class pupils reported arriving at school feeling tired every day, as did just over one-third of Second Year students. Across both grades, students who reported feeling tired every day achieved lower mean scores in mathematics and science compared to those who felt tired less frequently. While Fourth Class boys were slightly more likely than girls to report feeling tired every day on arrival at school, the opposite pattern emerged at Second Year, where girls were substantially more likely than boys to report daily tiredness. Higher percentages of Fourth Class pupils in the *lower* category of SES and Second Year students with fewer resources reported feeling tired every day upon arriving at school compared with those in other socioeconomic groups. Fourth Class pupils in DEIS Urban schools reported higher levels of daily tiredness compared to those in DEIS Rural or non-DEIS schools. Differences by school DEIS status in tiredness at Second Year were smaller, with 39% of students in DEIS and 36% in non-DEIS schools reporting feeling tired every day.

Similar percentages across both grades reported that they arrived at school feeling hungry every or almost every day (29% of Fourth Class pupils and 30% of Second Year students). Students who reported arriving at school hungry every day achieved lower mean scores in both mathematics and science than those who reported being sometimes or never hungry when they arrived at school. More Fourth Class pupils in DEIS Urban schools and non-DEIS schools reported feeling hungry on arrival at school every day or almost every day (29%, 31%, and 29%, respectively) compared to those in DEIS Rural schools (23%). Second Year students in DEIS schools were also more likely to report feeling hungry when arriving at schools than students in non-DEIS schools.

Early childhood learning and skills

Parents reported that almost all Fourth Class pupils had attended a pre-primary education programme for children aged three or older, and that approximately half of pupils attended an educational programme for children under three years of age.

One-third of Fourth Class pupils had parents who reported frequently engaging in early literacy and numeracy activities with their child at home before they started First Class. These pupils achieved statistically significantly higher mean scores in mathematics and science than their peers who engaged in these activities less frequently. Parents of pupils from higher SES backgrounds reported more frequent engagement in early literacy and numeracy activities than those from middle or lower SES backgrounds. Similarly, parents of pupils attending DEIS Rural or non-DEIS schools reported higher engagement than those whose children attended DEIS Urban schools. Girls more often engaged in reading, singing, writing, and drawing compared to boys, while boys more often played with construction toys compared to girls. Of all activities, measuring or weighing things was the one pupils engaged in least frequently.

Almost half of pupils were reported by their parents as being able to do various literacy and numeracy tasks very well when starting First Class. These pupils achieved statistically significantly higher mean scores in both

mathematics and science than their peers with (reported) weaker skills. Three-quarters of pupils were able to recognise the letters of the alphabet and write their name very well, and almost all pupils were able to do simple addition and simple subtraction when starting First Class. More pupils in non-DEIS and DEIS Rural schools were reported by their parents to be able to do a range of literacy and numeracy tasks very well when starting First Class, compared to those in DEIS Urban Schools.

Attitudes and expectations towards education

Educational expectations

Two-fifths of Fourth Class pupils were expected by their parents to finish a postgraduate degree, with a further 31% expected to finish an undergraduate degree. In contrast, approximately one-quarter of Second Year students reported that they expected to get a postgraduate degree, and 15% reported that they expected to get an undergraduate degree. Across both grades, mathematics and science achievement tended to increase with each higher level of educational expectation.

In Fourth Class, more girls than boys were expected to get an undergraduate or postgraduate degree by their parents. Similarly, in Second Year, more girls than boys expected to get an undergraduate or postgraduate degree. Specifically, the parents of approximately 75% of Fourth Class girls expected their child to complete at least an undergraduate degree compared to 67% of Fourth Class boys, and 47% of Second Year girls expected to get an undergraduate or postgraduate degree compared to 35% of Second Year boys. Fourth Class pupils in the *higher* category of SES and Second Year students with many educational resources at home were more likely to be expected, by their parents or themselves, to get an undergraduate or postgraduate degree. Three-quarters of Fourth Class pupils in non-DEIS schools were expected to complete at least an undergraduate degree compared to 52% of pupils in DEIS Urban Band 1 schools. At Second Year, 31% of students in DEIS schools expected to get an undergraduate or postgraduate degree compared to 45% in non-DEIS schools.

Parents' perceptions of child's school

Three-quarters of Fourth Class pupils had parents who were very satisfied with their child's school, while approximately one-quarter had parents who were somewhat satisfied. Pupils whose parents were very or somewhat satisfied with their school had similar mathematics scores; however, pupils whose parents were very satisfied with their school had a statistically significantly lower science score than those whose parents were somewhat satisfied. Nearly all pupils' parents agreed that their child's school provides a safe environment, cares about their child's progress, and helps their child become better at reading and maths. Parents' perceptions of their child's school were more positive for pupils in the *lower* category of SES compared to the *higher* category. These data were not collected for Second Year students.

Principals' views on parents' involvement in supporting learning

Overall, there was a consistent association between high levels of parents' involvement in supporting learning, as reported by principals, and higher student achievement in mathematics and science. Across both Fourth Class and Second Year, students in schools where principals reported very high levels of parental engagement (ranging between 13% and 20% at Fourth Class and 10% and 21% at Second Year) – whether through participation in school activities, commitment to ensuring pupils were ready to learn, high expectations for achievement, or active support for learning – achieved statistically significantly higher mean scores than those in schools with lower levels of parental involvement.

While patterns of involvement varied somewhat between primary and post-primary levels, the overall trends were similar. Most pupils and students attended schools where parental involvement was rated as medium or high (ranging between 73% and 80% at Fourth Class and 68% and 80% at Second Year), and a smaller proportion

were in schools where principals described involvement as very high. Differences by gender in reported parental involvement were relatively minor but were more pronounced by SES and school DEIS status. Students from higher SES backgrounds, and those attending non-DEIS schools, were much more likely to be in schools where principals reported high or very high levels of parental involvement. Lower levels of involvement were more often reported in DEIS schools and among students from lower SES backgrounds.

Digital self-efficacy

Two-fifths of Fourth Class pupils and three-quarters of Second Year students were categorised as having high digital self-efficacy. At both grades, students with high digital self-efficacy achieved mean mathematics and science scores that were statistically significantly higher than those of their peers.

Most students reported being able to complete basic tasks with digital devices or online. However, 30% of Fourth Class pupils reported not being able to create school presentations, 40% were not able to create tables, charts, and graphs, and 24% were not able to tell if a website is trustworthy. The corresponding percentages were lower among Second Year students: 3%, 13%, and 11%, respectively.

More boys (43%) than girls (37%) at Fourth Class were classified as having high digital self-efficacy, compared to broadly similar proportions of boys and girls at Second Year (74% and 73%, respectively). Across both grades, higher SES was associated with greater digital self-efficacy, but these differences were more pronounced among Second Year students. At Fourth Class there was little difference in pupils' digital self-efficacy by school DEIS status, while, at Second Year, slightly fewer students in DEIS schools were classified as having high digital self-efficacy compared to those in non-DEIS schools.

Discussion

The contexts of DEIS Rural and DEIS Urban schools at primary level

International research into academic achievement and school location has indicated a complex relationship between the two. For example, Schwerter et al. (2025) found that while students in rural areas in Germany performed similarly to those in metropolitan areas, they outperformed students in urban areas, demonstrating that a simple dichotomy between rural and urban areas may not be sufficient in understanding these contexts. Miller et al. (2019) argued that while students living in and attending schools in disadvantaged rural areas may have more difficulty accessing cultural resources, such as libraries and museums, as well as resources provided by social services, they are also often subject to fewer stressors than students in schools located in disadvantaged urban areas, such as risk of crime and concentrated poverty. Findings from the most recent cycles of TIMSS and PIRLS indicate that students in designated disadvantaged rural areas (DEIS Rural schools) in Ireland showed no statistically significant differences in achievement relative to students in non-designated disadvantaged areas (non-DEIS schools). In contrast, their peers in designated disadvantaged urban areas (DEIS Urban schools) did show statistically significant differences when compared to their peers in non-designated disadvantaged areas (non-DEIS schools) (Delaney et al., 2023; McHugh et al., 2024). Previous research in Ireland indicates that students in rural areas may be less susceptible to the risk factors that are often associated with lower SES (Weir et al., 2015), although it should be noted that school location per se was not found to be a statistically significant predictor of science achievement in an analysis of TIMSS 2015 data for Ireland that controlled for a set of student- and school-level characteristics (Nonte et al., 2022). These findings apply to primary schools only as post-primary schools do not distinguish DEIS schools by location.

The analyses presented here raise a few points worth noting regarding the home backgrounds of pupils in DEIS Rural schools. Findings suggest that DEIS Rural parents and pupils are more likely to have been born in Ireland and to speak English or Irish every day at home than those in DEIS urban schools, possibly pointing to lower rates of immigration in these areas. Previous research has found links between immigration, home language, and academic achievement (Darmody & Smyth, 2018; Duong et al., 2016; McGinnity et al., 2022; Motti-Stefanidi et al., 2015; Sprong & Skopek, 2022; Strohmeier & Wagner, 2023), and similar patterns are evident in the TIMSS 2023 findings. The findings in this report also show that more DEIS Rural pupils belonged to the *higher* category of SES than pupils in DEIS Urban schools (Band 1 and 2), although that proportion remained lower than that among non-DEIS pupils. A consistent association between SES and academic achievement has been documented internationally (Liu et al., 2022; von Davier, Kennedy, et al., 2024) and nationally (McHugh et al., 2024), and is reflected in this report. The comparatively higher achievement levels of pupils in DEIS Rural schools, which are closer to those of pupils in non-DEIS schools than to those of their peers in DEIS Urban schools, are consistent with the differences observed here in terms of SES and home language.

New findings from the TIMSS 2023 data indicate that pupils attending DEIS Rural schools tended to arrive at school tired less frequently than their peers in DEIS Urban schools (Band 1 and 2). Specifically, about one-quarter of pupils in DEIS Rural schools reported coming to school tired every day, compared to about one-third of pupils in DEIS Urban schools. In addition, pupils attending DEIS Rural schools tended to arrive at school hungry less frequently than their peers in DEIS Urban schools, as well as those in non-DEIS schools. As previously noted, tiredness and hunger have consistently been linked with students' academic achievement (Canbolat et al., 2023; McKelvie Sebileau et al., 2025; Perkinson-Gloor et al., 2013; Williams & Shapiro, 2018). The lower levels of tiredness and hunger reported by Fourth Class pupils in DEIS Rural schools may, therefore, be one contributory factor towards their stronger performance in large-scale assessments of achievement relative to pupils in DEIS Urban schools (Delaney et al., 2023; McHugh et al., 2024).

It is important to note that the wording of the question related to hunger in the TIMSS pupil questionnaire asks them about the frequency with which they felt hungry upon arriving at school, which could be interpreted as referring to arrival before a school-provided breakfast club. Hence, more urban children may have responded that they arrive at school hungry even though they could be provided with breakfast upon arrival. According to Smyth, Banks, et al. (2015), urban schools are more likely to provide breakfast, while rural schools are more likely to provide lunch. As a result, it is possible that parents of the pupils who took part in TIMSS 2023 in rural areas emphasised breakfast at home more than parents in urban areas, as urban parents may have had a greater expectation that their child would receive breakfast at school. Therefore, the reported differences in hunger when arriving at school between pupils in DEIS Rural and Urban schools should be interpreted with some caution.

That caveat notwithstanding, nutrition and healthy eating are part of the Social, Personal and Health Education (SPHE) curriculum for all primary (Department of Education and Science, 1999) and post-primary schools (Department of Education and Science, 2003; Department of Education, 2023). Mooney et al. (2023) found that the majority of schools in Ireland have a healthy eating policy and around three-quarters of teachers who participated in their study had taken part in a health-promotion or nutrition-related programme outside of the curriculum. The Government of Ireland offers funding for schools to provide food under the *School Meals Scheme* (Department of Social Protection, 2019). This funding is provided under two schemes: the statutory *Urban School Meals Scheme* for primary schools, and the non-statutory *School Meals Local Project Scheme*, which is available to both primary and post-primary schools, as well as other local groups. Other programmes also offer meals and snacks during day-care and in after-school settings, food during school holidays, as well as fruit, vegetables, and milk for children attending school (Vazquez Mendoza & McDonagh, 2022). In September 2025, after the TIMSS 2023 data reported here were collected, the *School Meals Scheme* was expanded to all primary schools, which means that all pupils can now receive a meal at school. Additionally, in 2025, the primary curriculum was redeveloped and now includes a wellbeing component that incorporates SPHE and

physical education (Department of Education and Youth, 2025c). While the expanded *School Meals Scheme* and redeveloped primary curriculum post-date the collection of the TIMSS 2023 data presented in this report, their impact on the indicators examined here will need to be reviewed in the future.

At an international level, a systematic review of mental health studies among children during the COVID-19 pandemic found that living in rural areas was a possible risk factor for poorer mental health (Elharake et al., 2023), which has, in turn, been linked to sleep disturbance and fatigue (Deng et al., 2023; Qin et al., 2022). International evidence on rural-urban differences in children's physical health is mixed; some studies report higher rates of obesity and overweight among rural children (for example, in the United States; Crouch et al., 2023), while others report the opposite (for example, in Kenya; Kinuthia et al., 2025), indicating that rural-urban disparities vary across countries and contexts. In Ireland, the government has set out a framework for promoting mental health wellbeing in schools (Department of Education and Skills, 2019b) and provides resources for school-based physical activity through the Health Service Executive, including *Active School Flag* and *Local Sports Partnerships*.

Some differences also emerged in parental involvement in supporting learning. Principals in DEIS Rural schools reported higher levels of parental involvement in supporting learning than principals in DEIS Urban Band 1 or 2 schools. Parents' involvement in their child's education has been found to be a statistically significant factor in their academic achievement (Kim, 2022; Nonte et al., 2022; Tan et al., 2020). Byrne (2019) argues that policies have been put in place in Ireland to strengthen the parental voice in education and to promote partnership and accountability, including the *Education Act 1998* (Government of Ireland, 1998) and the *Home School Community Liaison Scheme* (Department of Education and Skills, 2019a). Martin et al. (2023) found that the *Home School Community Liaison Scheme* is largely seen within the school community as successful in fostering parental engagement. However, according to Byrne (2019), parental involvement often remains informal and limited, with few opportunities for formal involvement in school activities. This is supported by Nelis et al.'s (2024) report on principals' views of action planning in schools that were newly designated as DEIS, where it was found that while parents had many opportunities to get involved, their views were rarely incorporated into school action planning. In addition, recent evidence from Amedei-Westerwald et al. (2025) highlights the importance of considering teachers' and principals' own backgrounds in relation to parental involvement in DEIS schools. The authors noted that, in their study, meaningful parental involvement was facilitated to a greater extent among educators who had personal experiences of socioeconomic circumstances similar to those of their students and their students' families.

Byrne (2019) also argues that parent involvement is often stratified based on factors associated with educational disadvantage, such as SES. International evidence generally aligns with this perspective. Studies of parental involvement conducted in rural India (Cashman et al., 2021) and Turkey (Erdener & Knoeppel, 2018) found that parents from higher SES groups are more likely to be involved in their children's learning. Similarly, findings from a study of rural parents in Pakistan (Ahmed et al., 2024) indicated that despite holding high aspirations for their child's education, parents may face considerable barriers to direct involvement. In Ireland, and returning to rural-urban comparisons, Nelis et al. (2024) found that DEIS Rural parents were more likely to be involved in several elements of DEIS planning for their schools compared to their DEIS Urban counterparts. These elements included setting targets, selecting initiatives or interventions, and monitoring progress. In Nelis et al.'s (2024) study, DEIS Rural parents were found to be less involved in implementing initiatives or interventions than DEIS Urban Band 1 parents, but more involved than DEIS Urban Band 2 parents. However, DEIS Rural parents tended to hold lower educational expectations for their child's educational qualifications than DEIS Urban parents, despite reporting higher expectations for their child's achievement (test) scores. These differences between parents' expectations for their child's educational qualifications and academic achievement merit further investigation, which could include consideration of perspectives on vocational pathways and potential barriers to higher or further education for families in rural and urban settings.

This section focuses primarily on primary schools as the systemic distinction between urban and rural DEIS categories does not exist at post-primary level. However, previous research on post-primary DEIS schools, as well studies of rural post-primary schools more broadly, points to several areas that could be explored in future work. Recent reports using TIMSS (McHugh et al., 2024) and PISA (Donohue et al., 2023) data show that post-primary students attending DEIS schools continue to achieve statistically significantly lower scores in mathematics, reading, and science, on average, than students attending non-DEIS schools. Internationally, studies have found that students in rural post-primary schools tend to have statistically significantly lower academic achievement and lower educational aspirations than their peers in urban schools (Bachore, 2022; Miranda & Rodriguez, 2022; Mohammadpour & Yon, 2024). At the same time, rural schools may benefit from strong ties to the local community, and their generally smaller size can allow for more individual attention from teachers (Bouck, 2004; Thelma et al., 2024). These findings point to a similarly complex relationship between school location and achievement at post-primary level, which would be worth exploring in greater detail in future research in the Irish context.

Educational expectations and gender differences

A key aspect of parental involvement that has been shown in previous research to have a strong relationship with students' academic achievement is their parents' academic expectations for them (Erdem & Kaya, 2020; Jeynes, 2024; Kim, 2022; Sheehan & Hadfield, 2024; Tan et al., 2020). Student perceptions of their own academic achievement also show moderately positive correlations with their actual achievement (Pinquart & Ebeling, 2020). The findings in this report are consistent with this evidence: students with higher levels of academic expectations (whether reported by their parents or self-reported), and those whose school principals reported higher parental expectations, generally achieved higher test scores.

A small gender gap in expectations for educational qualifications, as reported by pupils' parents, was evident at Fourth Class, while a larger gender gap was found at Second Year, where students were asked about their own expectations. Notably, at both grades, higher expectations were reported for girls than for boys. In TIMSS 2023, gender differences in mathematics and science achievement at Fourth Class were not statistically significant. However, at Second Year, boys statistically significantly outperformed girls in both subjects, despite the higher expectations – albeit not specific to mathematics/science – held by girls. The 2023 cycle of TIMSS is the first in which a statistically significant gender difference in achievement was observed in Ireland, with earlier cycles reporting similar mean scores for boys and girls (McHugh et al., 2024). Similar patterns have been noted in other recent large-scale assessments: PISA 2022 results for 15-year-old students and NAMER 2021 results for Sixth Class pupils both showed boys scoring statistically significantly higher than girls in mathematics (Donohue et al., 2023; Kiniry et al., 2023). On the other hand, girls statistically significantly outperformed boys in reading in PIRLS 2021 (Delaney et al., 2023), PISA 2022, and NAMER 2021 (at Second Class).

Resources and initiatives that aim to promote gender equality in education in Ireland include the *Equal Measures* guidelines (Department of Education and Science, 2006) and *Diversity at School* (Lodge & Lynch, 2004) that brings together research on equality in education to support work in this area. The Government of Ireland has also published a set of recommendations to promote gender balance in STEM (Science, Technology, Engineering, and Mathematics) education, including awareness-raising training for teachers, career awareness activities designed to challenge stereotypes, and guidance on STEM subjects for primary school children and their parents (Department of Education, 2022c). Promoting gender equality in STEM is also a core component of the national STEM education policy statement (Department of Education and Skills, 2017b). Oide, the professional development service provider for teachers in Ireland, provides the *Gender Equality Matters* resource for primary schools, offering classroom materials for lessons that address gender-based stereotyping (Keating & Collins, 2022). Gender equality as a topic is also embedded within the curriculum at both primary and post-primary levels in Ireland. The newly redeveloped primary curriculum, for example, includes a wellbeing specification

that aims to reduce gender discrimination and stereotyping (Department of Education and Youth, 2025c). Girls are encouraged to participate in STEM subjects through several initiatives such as *I Wish*, *STEM Passport for Inclusion*, and *CodePlus*, although disparities in access to STEM subjects for girls in single-sex schools in particular remain a challenge (O'Donovan, 2025). *Ireland's literacy, numeracy and digital literacy strategy 2024-2033* (Department of Education, 2024b) also includes an objective to promote more positive attitudes towards mathematics and reading among both boys and girls, with explicit recognition of existing gendered differences.

Findings from TIMSS 2023 and other large-scale assessments indicate that the relationship between academic expectations, achievement, and gender is complex. Moreover, the emergence of a gender difference in mathematics and science achievement at post-primary level between 2019 and 2023 highlights that these outcomes are dynamic and responsive to contextual factors. International research has shown that parent and student expectations for academic achievement are often gendered, with higher expectations for girls in reading and literacy and higher expectations for boys in mathematics (M. Baker & Milligan, 2016; Muntoni & Retelsdorf, 2019; Vasilyeva et al., 2025). Gender differences also exist in parental expectations within the same or similar subjects, such as expectations for key competencies in STEM. For example, Zhan et al. (2023) found that parents may hold higher expectations for girls in inquiring and expressing competencies, while holding higher expectations for boys in creativity and hands-on competencies. In Ireland, girls in primary school are more likely than boys to aspire to go to college or university, despite rating themselves similarly in literacy and lower in mathematics (Devine et al., 2024). McCoy et al. (2022) also found that mothers tend to overestimate boys' mathematics abilities and underestimate the abilities of girls in the same subject.

Gender differences in achievement tend to vary across countries and over time. Meinck and Brese (2019), for example, when analysing TIMSS data from 1995 to 2015, found that gender gaps narrowed in some countries. However, the number of countries reporting statistically significant gender differences increased between 2019 and 2023, including several that had previously observed narrowing gaps (von Davier, Kennedy, et al., 2024). Reilly et al. (2019), also using TIMSS data, found gender gaps in mathematics and science achievement, often favouring girls in non-OECD (Organisation for Economic Co-operation and Development) countries in particular. In Ireland, the emergence of a statistically significant gender difference at Second Year in 2023 – largely due to a drop in achievement amongst girls (McHugh et al., 2024) – may be partly related to more frequent absences from school among girls at this level and their less positive attitudes towards mathematics and science (Denner et al., 2025), despite the higher academic expectations for girls in a wider sense. More research on the interactions between general and subject-specific academic expectations, achievement, and other factors in the Irish context would provide further context for interpreting these findings. Similarly, more research on the interactions between, and dynamics underpinning, parent, student, and teacher expectations could provide further insights.

Educational contexts and outcomes for immigrant students

Between 2020 and 2023, immigration to Ireland increased substantially, in part due to the arrival of an estimated 70,000 refugees from Ukraine by April 2023 (Central Statistics Office, 2023). In TIMSS 2023, Fourth Class pupils born outside Ireland scored statistically significantly lower in mathematics and science than pupils born in Ireland. Pupils with both parents born outside Ireland also scored statistically significantly lower in science compared to pupils with both parents born in Ireland. These findings align with previous research showing that immigrant status of students can be statistically significantly related to their academic achievement (Motti-Stefanidi et al., 2015; Strohmeier & Wagner, 2023), although the nature of this relationship is often complex (Duong et al., 2016). Reflecting this complexity, TIMSS 2023 data indicated that the relationship between immigrant status and achievement was weaker at Second Year than at Fourth Class, with no statistically significant differences in achievement between Second Year students born in Ireland and those born outside of Ireland, nor between Second Year students with both parents born outside of Ireland and both parents born in

Ireland. PISA 2022 results point to a similarly nuanced picture: statistically significant differences were observed between immigrant and non-immigrant students in mathematics and reading, but not in science (Donohue et al., 2023). Donohue et al. (2023) attributed these differences to barriers related to SES and language.

Examining achievement by pupils' home language, statistically significant differences were found in TIMSS 2023 at Fourth Class in both subjects in favour of pupils who always spoke English or Irish at home compared to those who did so sometimes or never. At Second Year, statistically significant differences in favour of students who always spoke English or Irish at home were found only for science. A previous finding of note in this regard is Darmody and Smyth's (2018) observation that nine-year-old immigrant students in Ireland showed differences in mathematics and reading ability compared to non-immigrant students, but that the difference in numerical reasoning was no longer statistically significant by the time the same cohort reached 13 years of age. In contrast, differences in verbal reasoning remained statistically significant, possibly indicating that mathematical learning may be less strongly affected by factors such as familiarity with the language of instruction. Other research on immigrant students in Ireland similarly highlights the strong links between language proficiency, reading and verbal skills, and academic achievement, as well as their contribution to achievement gaps between immigrant and non-immigrant students (Kiniry et al., 2025; McGinnity et al., 2022; Pitsia et al., 2024; Sprong & Skopek, 2022).

All children in Ireland are entitled to free primary and post-primary education, including children born outside of Ireland or those whose parents were born outside of Ireland. For students who do not speak English or Irish as a first language, additional supports are available. These include additional resources in classrooms in the form of support teachers for students who do not speak the language of instruction (English or Irish) at home, as well as a period of full language immersion up to the end of senior infants in Gaeltacht schools and Irish-medium schools outside of the Gaeltacht (Department of Education, 2024a). Additionally, in 2025, after the TIMSS 2023 data reported here were collected, a new policy was introduced with the aim of increasing language support for Irish in Irish-medium schools outside the Gaeltacht and for Irish in English-medium schools (Department of Education and Youth, 2025b). The NCCA also provides language tests for primary and post-primary schools to help teachers identify students who have recently arrived in the school and may need additional support by assessing their skills in listening, reading, writing, and speaking. In addition, *Regional Education and Language Teams* (REALT) were established to coordinate supports for Ukrainian children arriving in Ireland (Department of Education, 2022b).

TIMSS 2023 data show that students at both grade levels who were born outside of Ireland were more likely to be in the lower SES groups. Similarly, students with both parents born outside of Ireland were noticeably overrepresented in the lower SES groups. International research and other national findings from TIMSS 2023 consistently show a strong relationship between SES and academic achievement (Liu et al., 2022; McHugh et al., 2024; von Davier, Kennedy, et al., 2024). Studies have also found that immigrant students are often more likely to come from lower SES backgrounds (Archambault et al., 2017; Ibáñez-Alfonso et al., 2021; Mittal et al., 2022). Given that lower SES can, in itself, lead to educational barriers for students, such as reduced access to educational resources and supports (Tan, 2024), these findings suggest that immigrant students may be disproportionately affected by barriers to educational opportunities.

Furthermore – and intersecting with earlier parts of the discussion presented in this chapter – Fourth Class pupils born outside of Ireland and pupils with both parents born outside of Ireland were more likely to attend DEIS Urban Band 1 or Band 2 schools than non-DEIS or DEIS Rural schools. This aligns with previous research in Ireland showing that immigrant students are overrepresented in DEIS schools or schools that serve socioeconomically disadvantaged areas (Byrne et al., 2010; Darmody et al., 2022; Devine et al., 2025). However, at Second Year, students born outside of Ireland or with both parents born outside of Ireland were only slightly more likely to attend DEIS schools than non-DEIS schools. A useful next step, therefore, would be to examine the relationship between immigrant status and achievement in TIMSS 2023 within a multivariate framework

that includes student SES, school DEIS status, and home language – and to do so separately for primary and post-primary schools – in an effort to disentangle some of the complexity observed in the findings.

Conclusion

This TIMSS report provides insights into the home contexts of Fourth Class and Second Year students and examines how these contexts relate to achievement in mathematics and science. The home environment plays an important role in children's early development and later academic outcomes, and the findings presented here point to several areas where further research could provide a deeper understanding of the ways in which home factors are linked to student achievement.

One key theme concerns differences between DEIS Urban, DEIS Rural, and non-DEIS schools. In particular, differences in the home environments of students in DEIS Urban and DEIS Rural schools suggest that learning contexts are not homogeneous. Future research seeking to understand these differences more fully could help shape education policies that aim to bridge achievement gaps between these schools. Further work is also needed to clarify the processes and impacts of various aspects of parental support, such as parents' educational expectations for their children. Such research could explore how these relationships may manifest differently by student or parent gender, in general or subject-specific settings, in DEIS and non-DEIS schools, and in terms of students' home SES and demographic backgrounds. Developing a clearer understanding of these issues in contemporary Irish education is a crucial step towards ensuring that adequate and appropriate supports are put in place where needed.

The data presented here also highlight additional avenues for investigation, including the ways in which some of the variables may interact with each other. For example, the bivariate analyses presented in earlier chapters could be extended by examining students' reports of tiredness at school in relation to their access to digital devices, a TV in the bedroom, and other factors that could plausibly contribute to lack of sleep or poor-quality sleep. Similarly, a closer examination of parents' professional backgrounds and their relationship with their child's digital self-efficacy could provide further insights into the development of students' digital skills and access to relevant resources and supports.

TIMSS 2023 national reporting

This report is the fifth in a series of national reports that describe findings for Ireland from TIMSS 2023. Previous reports have focused on the mathematics and science achievement of students in Ireland (McHugh et al., 2024), students' environmental knowledge and attitudes (Clerkin et al., 2025), students' school experiences and attitudes towards mathematics and science (Denner et al., 2025), and the school and classroom environments of Fourth Class and Second Year students (Pitsia et al., 2025). Simultaneously, work is underway for the next TIMSS cycle, for which the main data collection is scheduled for 2027. The findings of the current set of reports can be compared against the data that arise from the 2027 cycle to monitor how school communities evolve over the coming years.

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Appendix

Table A2.1: Possessions at home (item-level) by pupil gender, SES, and school DEIS status, Fourth Class (2023)

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
Access to the internet										
Yes	94	94	93	93	94	93	94	92	97	93
No	6	6	7	7	6	7	6	8	3	7
TV channels you pay extra for										
Yes	88	87	88	90	86	82	86	83	91	88
No	12	13	12	10	14	18	14	17	9	12
Your own computer or tablet										
Yes	77	80	74	74	81	72	78	76	83	76
No	23	20	26	26	19	28	22	24	17	24
Your own bedroom										
Yes	73	73	72	76	72	58	58	71	76	74
No	27	27	28	24	28	42	42	29	24	26
A gaming system (e.g., PlayStation®)										
Yes	72	55	89	72	73	73	78	74	69	72
No	28	45	11	28	27	27	22	26	31	28
Study desk/table for your use										
Yes	71	77	65	73	70	69	68	71	62	73
No	29	23	35	27	30	31	32	29	38	27
Two or more cars										
Yes	67	67	66	78	60	41	41	48	76	72
No	33	33	34	22	40	59	59	52	24	28
A smartphone (e.g., iPhone)										
Yes	53	55	52	41	61	81	72	63	50	50
No	47	45	48	59	39	19	28	37	50	50
A shared computer or tablet you can use										
Yes	45	46	44	52	39	32	32	42	37	48
No	55	54	56	48	61	68	68	58	63	52
A TV in your bedroom										
Yes	40	33	47	23	53	71	72	53	47	33
No	60	67	53	77	47	29	28	47	53	67

Table A2.2: Possessions at home (item-level) by student gender, HER, and school DEIS status, Second Year (2023)

	Overall	Student gender		HER			School DEIS status	
		Girls	Boys	Many resources	Some resources	Few resources	DEIS	Non-DEIS
Access to the internet								
Yes	99	99	99	100	100	97	100	98
No	1	1	1	0	0	3	0	2
A smartphone (e.g., iPhone)								
Yes	99	99	99	99	99	97	99	98
No	1	1	1	1	1	3	1	2
Study desk/table for your use								
Yes	89	91	87	95	89	74	92	83
No	11	9	13	5	11	26	8	17
Your own room								
Yes	85	84	85	93	84	67	86	82
No	15	16	15	7	16	33	14	18
Your own computer or tablet								
Yes	81	81	80	83	82	72	81	80
No	19	19	20	17	18	28	19	20
A gaming system (e.g., PlayStation®, Wii®, Xbox®)								
Yes	80	65	93	80	82	74	81	79
No	20	35	7	20	18	26	19	21
TV channels you pay extra for, such as BT Sport, Sky Cinema								
Yes	74	77	71	75	73	72	75	72
No	26	23	29	25	27	28	25	28
Two or more cars								
Yes	69	70	68	75	69	53	72	60
No	31	30	32	25	31	47	28	40
A shared computer or tablet you can use								
Yes	67	72	63	73	67	56	70	62
No	33	28	37	27	33	44	30	38
A TV in your bedroom								
Yes	48	39	55	33	55	65	42	61
No	52	61	45	67	45	35	58	39

Table A5.1: Engagement in home early literacy and numeracy activities (item-level) by pupil gender, SES, and school DEIS status, Fourth Class (2023)

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
Read books										
Often	71	76	67	88	59	31	49	60	68	76
Sometimes	26	23	30	12	38	54	45	35	29	22
Never or almost never	2	2	3	0	3	15	7	4	3	1
Tell stories										
Often	64	67	61	75	55	39	58	55	63	66
Sometimes	34	32	36	24	42	54	38	42	34	32
Never or almost never	2	2	3	1	3	6	4	3	3	2
Sing songs										
Often	63	69	57	68	58	54	63	62	57	63
Sometimes	31	26	35	27	34	36	31	31	36	30
Never or almost never	6	5	8	5	8	11	5	6	7	6
Play with alphabet toys (e.g., blocks with letters of the alphabet)										
Often	60	62	58	64	58	46	53	58	65	61
Sometimes	33	31	35	30	35	39	36	34	30	33
Never or almost never	7	7	7	6	7	15	10	8	5	7
Talk about things you had done										
Often	78	79	78	85	73	65	68	74	74	81
Sometimes	21	20	21	15	25	32	29	24	25	19
Never or almost never	1	1	1	0	2	3	3	2	1	1
Talk about thinking you had read										
Often	44	46	43	53	36	30	34	42	38	47
Sometimes	47	46	48	41	54	51	51	48	53	46
Never or almost never	9	8	9	6	11	20	15	11	8	8
Play word games										
Often	43	43	42	50	36	34	38	38	49	43
Sometimes	47	47	48	43	52	47	48	49	40	48
Never or almost never	10	10	10	7	12	19	15	13	11	9
Write letters or words										
Often	54	59	50	61	48	49	43	52	57	56
Sometimes	41	37	44	36	46	42	49	42	41	39
Never or almost never	5	4	6	3	6	10	8	6	2	5
Read aloud signs and labels										
Often	53	55	51	62	46	39	42	48	57	55
Sometimes	38	37	38	33	44	38	42	40	32	38
Never or almost never	9	8	10	6	10	23	16	12	11	7

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
Say counting rhymes or sing counting songs										
Often	60	64	57	67	55	46	51	54	62	62
Sometimes	31	29	34	27	36	37	35	37	28	31
Never or almost never	8	7	10	6	10	17	14	9	10	7
Play with number toys (e.g., blocks with numbers)										
Often	58	60	57	63	55	48	52	59	60	59
Sometimes	35	34	36	31	38	38	36	32	35	35
Never or almost never	7	7	8	6	7	15	12	9	5	7
Count different things										
Often	72	73	71	80	65	56	60	69	74	74
Sometimes	26	26	27	19	33	37	38	28	23	25
Never or almost never	2	1	2	1	2	7	3	3	3	1
Play games involving shapes (e.g., shape sorting toys, puzzles)										
Often	67	69	65	74	61	51	55	68	67	68
Sometimes	30	29	32	24	36	38	40	28	30	29
Never or almost never	3	2	3	2	3	10	5	4	3	2
Play with building blocks or construction toys										
Often	74	70	78	82	69	50	65	72	76	75
Sometimes	23	25	20	16	27	40	29	23	21	22
Never or almost never	3	4	2	2	4	10	6	5	3	2
Play board or card games										
Often	54	54	54	60	49	38	49	50	53	55
Sometimes	41	41	41	37	44	47	44	39	41	41
Never or almost never	5	5	6	2	7	15	7	11	6	4
Write numbers										
Often	57	61	53	62	51	55	49	54	62	58
Sometimes	38	35	41	34	43	35	42	40	35	38
Never or almost never	5	4	6	3	6	10	9	6	3	5
Draw shapes										
Often	55	60	50	62	49	44	52	52	63	55
Sometimes	40	36	43	34	45	44	38	41	34	40
Never or almost never	5	4	7	4	6	12	10	8	3	5
Measure or weight things										
Often	23	26	19	30	16	16	19	18	18	25
Sometimes	51	50	51	53	50	41	45	46	55	51
Never or almost never	27	24	30	18	34	43	36	36	27	24

Table A5.2: Ability to do home early literacy and numeracy tasks (item-level) by pupil gender, SES, and school DEIS status, Fourth Class (2023)

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
Literacy										
Recognise the letters of the alphabet										
Very well	75	78	71	83	70	49	64	70	72	77
Moderately well	21	19	23	15	25	37	27	24	24	19
Not Very well	4	3	5	2	5	12	7	6	4	3
Not at all	0	0	1	0	1	2	1	0	1	0
Read some words										
Very well	58	61	55	71	49	33	47	50	54	62
Moderately well	32	32	33	24	40	43	39	37	37	30
Not Very well	9	6	11	5	10	21	12	13	8	8
Not at all	1	1	1	0	1	3	2	1	1	1
Read sentences										
Very well	45	48	43	57	35	23	35	37	42	48
Moderately well	37	38	37	32	43	43	41	40	43	36
Not Very well	14	12	17	9	18	26	20	20	12	13
Not at all	3	2	4	2	3	8	4	3	3	3
Read a story										
Very well	36	38	34	45	28	18	32	30	34	37
Moderately well	40	41	40	36	45	39	38	41	45	40
Not Very well	19	18	21	15	22	32	22	23	18	19
Not at all	5	4	6	3	6	11	8	7	4	4
Write letters of the alphabet										
Very well	63	69	57	70	58	41	52	52	65	66
Moderately well	29	26	32	25	33	36	36	36	29	27
Not Very well	7	5	9	5	8	19	10	11	4	6
Not at all	1	0	2	1	1	4	2	1	2	1
Write their name										
Very well	75	80	70	82	70	58	67	67	74	77
Moderately well	20	16	23	15	24	25	24	24	20	18
Not Very well	4	3	6	3	5	14	8	8	3	3
Not at all	1	0	2	1	1	2	1	1	3	1
Write names other than their name										
Very well	51	56	46	61	42	35	45	42	45	54
Moderately well	35	34	37	30	41	40	36	39	43	34
Not Very well	12	9	14	8	14	21	15	16	9	11
Not at all	2	1	3	1	3	4	3	2	3	2

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
Numeracy										
Count by themselves										
Not at all	5	5	5	6	4	6	5	5	6	5
Up to 10	10	8	11	5	12	26	17	13	9	8
Up to 20	32	34	30	28	36	35	33	36	37	31
Up to 100 or higher	54	54	53	61	48	33	45	47	49	56
Recognise written numbers										
Not at all	5	5	6	6	5	6	6	6	6	5
Up to 10	12	11	13	7	15	27	19	15	8	11
Up to 20	30	32	29	27	34	33	31	31	37	30
Up to 100 or higher	52	53	51	60	46	33	44	48	49	54
Write numbers										
Not at all	6	6	7	7	6	8	8	7	8	6
Up to 10	14	12	16	9	17	29	22	18	10	13
Up to 20	32	34	31	31	35	32	26	34	35	33
Up to 100 or higher	47	49	46	53	43	31	45	41	47	49
Do simple addition										
Yes	92	93	90	95	90	79	86	87	94	93
No	8	7	10	5	10	21	14	13	6	7
Do simple subtractions										
Yes	80	81	80	85	77	67	71	76	83	82
No	20	19	20	15	23	33	29	24	17	18

Table A6.1: Component items of the *Digital Self-Efficacy* scale by pupil gender, SES, and school DEIS status, Fourth Class (2023)

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
I can write and edit text on a computer, tablet, or smartphone										
Agree a lot	65	64	65	63	66	66	70	66	62	64
Agree a little	25	26	24	26	24	26	21	23	24	26
Disagree a little	6	6	6	6	6	4	6	6	5	6
Disagree a lot	5	4	6	5	5	4	4	5	8	5
I can create school presentations using a computer, tablet, or smartphone										
Agree a lot	43	42	44	46	41	37	44	40	42	43
Agree a little	27	30	24	26	28	24	24	24	27	27
Disagree a little	17	18	17	16	18	20	15	20	16	17
Disagree a lot	13	10	16	12	13	19	16	16	15	12
I can create tables, charts, and graphs using a computer, tablet, or smartphone										
Agree a lot	33	30	36	33	33	30	34	35	26	33
Agree a little	28	31	25	28	28	22	25	25	26	29
Disagree a little	23	24	22	23	23	22	23	25	30	22
Disagree a lot	17	16	18	16	16	26	19	15	18	16
I can find information that I need online										
Agree a lot	77	74	80	79	78	69	73	75	76	78
Agree a little	17	20	15	16	17	20	19	18	17	17
Disagree a little	3	4	3	3	3	7	5	4	4	3
Disagree a lot	2	2	3	1	3	5	4	3	3	2
I can tell if a website is trustworthy										
Agree a lot	42	35	48	41	44	37	43	40	44	41
Agree a little	34	38	31	37	32	34	28	33	26	36
Disagree a little	15	18	12	16	14	16	16	16	15	15
Disagree a lot	9	9	9	7	11	13	12	11	15	8
I can easily do new things on computers, laptops, or smartphones										
Agree a lot	58	54	62	55	60	64	61	65	58	56
Agree a little	29	32	26	31	28	26	25	24	24	31
Disagree a little	10	11	8	10	9	8	10	8	13	9
Disagree a lot	3	3	4	4	3	3	4	3	5	3

	Overall	Pupil gender		SES			School DEIS status			
		Girls	Boys	Higher	Middle	Lower	DEIS Urban 1	DEIS Urban 2	DEIS Rural	Non-DEIS
I can help my friends or family members with using their computers, laptops, or smartphones										
Agree a lot	64	62	66	59	68	70	71	68	64	63
Agree a little	22	24	21	25	20	17	17	20	20	23
Disagree a little	9	10	8	11	8	7	7	7	10	10
Disagree a lot	5	4	5	5	4	5	5	4	6	4

Table A6.2: Component items of the *Digital Self-Efficacy* scale by student gender, HER, and school DEIS status, Second Year (2023)

	Overall	Student gender		HER			School DEIS status	
		Girls	Boys	Many resources	Some resources	Few resources	DEIS	Non-DEIS
I can write and edit text on a computer, tablet, or smartphone								
Agree a lot	85	86	85	89	85	76	81	87
Agree a little	13	13	13	10	13	21	16	12
Disagree a little	1	1	1	1	2	1	1	1
Disagree a lot	1	0	1	0	0	3	2	0
I can create school presentations using a computer, tablet, or smartphone								
Agree a lot	88	90	85	93	88	75	82	90
Agree a little	10	9	11	7	10	17	13	8
Disagree a little	2	1	2	1	2	5	3	1
Disagree a lot	1	0	1	0	0	3	2	0
I can create tables, charts, and graphs using a computer, tablet, or smartphone								
Agree a lot	59	58	36	64	57	48	54	61
Agree a little	29	29	28	27	29	30	29	28
Disagree a little	10	11	9	7	11	14	12	9
Disagree a lot	3	2	4	1	2	8	5	2
I can find information that I need online								
Agree a lot	87	85	88	89	87	81	84	88
Agree a little	12	13	10	9	12	17	13	11
Disagree a little	1	1	1	1	1	2	2	1
Disagree a lot	0	0	1	0	1	1	1	0

	Overall	Student gender		HER			School DEIS status	
		Girls	Boys	Many resources	Some resources	Few resources	DEIS	Non-DEIS
I can tell if a website is trustworthy								
Agree a lot	49	43	55	53	48	42	47	50
Agree a little	39	44	35	39	40	40	39	39
Disagree a little	10	12	8	7	11	15	12	9
Disagree a lot	1	1	2	1	1	3	2	1
I can easily do new things on computers, laptops, or smartphones								
Agree a lot	69	66	72	73	68	63	67	70
Agree a little	25	27	23	23	25	28	26	25
Disagree a little	5	6	4	3	6	8	6	5
Disagree a lot	1	1	1	1	1	1	1	1
I can help my friends or family members with using their computers, laptops, or smartphones								
Agree a lot	72	72	72	71	73	71	71	72
Agree a little	23	24	22	24	23	21	23	23
Disagree a little	4	4	4	4	4	4	4	4
Disagree a lot	1	1	2	1	1	3	1	1

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