Progress in International Reading Literacy Study (PIRLS): National Report for England

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Joshua McGrane, Jamie Stiff, Jo-Anne Baird, Jenny Lenkeit & Therese Hopfenbeck - Oxford University Centre for Educational Assessment (OUCEA)

Contents

List of figures

List of tables

Acknowledgements

Executive Summary

The Progress in International Reading Literacy Study (PIRLS) is an international comparative study directed by the International Association for the Evaluation of Educational Achievement (IEA). The aim of PIRLS is to assess and compare the reading performance of pupils in their fourth year of formal schooling across participating countries. A total of 50 countries took part in PIRLS 2016.

England has taken part in all four PIRLS cycles every five years since 2001. In 2016, England's sample consisted of 5,095 Year 5 pupils from 170 primary schools. England has consistently performed above the International Median across all previous PIRLS cycles, and was among the top-performing countries in PIRLS 2001, with an average score of 553. England's average performance dropped to 539 in PIRLS 2006, but rose back up to 552 in PIRLS 2011.

The key highlights in PIRLS 2016

England's average score in PIRLS 2016 is 559. This is significantly above the International Median score of 539 and is England's highest average performance across all four PIRLS cycles. England's average score is significantly higher than their performances in PIRLS 2006 and 2011, and is also significantly higher than the majority of other participating countries. However, in PIRLS 2016, England is significantly below the top-performers, the Russian Federation (581) and Singapore (576). Additionally, England was one of the top-performing countries in Europe, though significantly below the Republic of Ireland (567), Finland (566), Poland (565), and Northern Ireland (565). The improvements in England's average score is largely attributable to increases in the average performance of boys and lower-performing pupils.

Similar to previous PIRLS cycles, pupils in England show superior performance on texts with Literary Purposes than those with Informational Purposes. England's pupils also perform relatively better on questions requiring higher-level integrating, interpreting and evaluating comprehension skills, compared to their performance on questions requiring simpler retrieval and straightforward inferencing skills.

In PIRLS 2011, England had one of the largest gender-gaps in performance of all of the participating countries, with girls significantly outperforming boys. The improvements in the performance of boys in PIRLS 2016 has now reduced this gap to be consistent with the median gender-gap across all participating countries. There were only two countries, Portugal and Macao SAR, where girls did not significantly outperform boys.

Although boys in England typically report fewer positive attitudes towards reading than girls, there was evidence that reading attitudes have slightly improved in boys since the 2011 cycle, while remaining similar for girls. When compared to pupils in other countries,

a greater proportion of England's pupils report very high confidence in reading, but a greater proportion also report disliking reading.

PIRLS 2016 marks the first cycle where it is possible to evaluate how pupils' performance in the Year 1 phonics check, introduced in 2012, is associated with performance in PIRLS. The correlation between performance on the two tests is 0.52, indicating a moderate, statistically significant relationship; the group of pupils achieving full-marks in the Year 1 phonics check also have the highest average score in PIRLS 2016.

A number of other pupil characteristics also significantly correlate with the PIRLS performance of England's pupils. These include the number of books the pupil reported having at home, eligibility for free school meals, age, as well as the historic performance of the pupils' schools in Key Stage 2 assessments. However, interestingly, there is no evidence that pupils' ethnic background or English as an additional language status significantly predict their PIRLS 2016 reading performance.

England's reading performance in 2016

As discussed above, England's average score of 559 in PIRLS 2016 marks a significant increase on the average performances in PIRLS 2006 (539) and 2011 (552). There have been a number of changes to the distributions of pupils' reading performances, which have contributed to this significant improvement. In previous cycles, England's PIRLS scores have been very widely distributed compared to similarly highly performing countries, which means that there was a large difference in reading performance between the highest and lowest-performing pupils. Historically, while the higher-performing pupils in England have scored higher than the equivalent pupils in the majority of participating countries, England's lower-performing pupils have also scored lower than the equivalent pupils in many other countries. In PIRLS 2016, the gap between high and low-performers is still larger than in many other countries, but has been substantially reduced from previous PIRLS cycles. This has mainly been driven by large improvements in the performance of lower-performing pupils, as the 10th percentile score has increased by 15-points from 2011, whereas the 90th percentile score has only improved by 3-points from 2011.

In addition, PIRLS assesses two main purposes for reading; for literary experience, and for acquiring and using information. Consistent with previous cycles, England's average score on the *Literary Reading Purpose Scale* in PIRLS 2016 is 563, which is significantly higher than the average score of 556 on the *Informational Reading Purpose Scale*. Nonetheless, England's performance on the Informational Purpose Scale is a statistically significant improvement on performance from all three previous cycles, while performance on the Literary Purpose Scale is a significant improvement from the previous two cycles.

PIRLS also assesses pupils' use of four main reading comprehension processes. These range from retrieving information directly from text, to making wider evaluations and inferences. These four processes are collapsed into two comprehension process scales. Again consistent with previous cycles, England's average score on the *Interpreting, Integrating and Evaluating Comprehension Process Scale* (561) is significantly higher than the average score on the *Retrieving and Straightforward Inferencing Comprehension Process Scale* (556). England's average performance on the Interpreting, Integrating and Evaluating Scale does not represent a statistically significant improvement from PIRLS 2001 or 2011, but is significantly higher than England's performance on this scale in 2006. Performance on the Retrieving and Straightforward Inferencing Scale is significantly higher than in 2006 and 2011, but not 2001.

Performance by prior reading attainment

PIRLS 2016 marks the first opportunity to assess how performance in the phonics check, introduced in 2012 and taken by pupils in England near the end of Year 1, relates to performance in PIRLS[1]. There is a 0.52 correlation between performance on the two assessments, indicating a moderate relationship. Pupils who scored full marks in the Year 1 phonics check are also the highest scoring group in PIRLS 2016, with an average overall PIRLS score of 617. In contrast, pupils who did not reach the 'expected standard' in the Year 1 phonics check perform below England's overall average, with lower phonics check scores being associated with decreasing average PIRLS scores. A similar relationship is found for performance in the Year 2 phonics check, which was predominantly taken by those who did not meet the expected standard in the Year 1 check. However, even the highest-performing pupils in the Year 2 phonics check only score similarly to England's overall average performance in PIRLS 2016 (563 compared to 559).

Performance in the former Key Stage 1 (KS1) reading assessment is also associated with performance in PIRLS 2016. Pupils who attained a Level 3 in their KS1 reading assessment score an average of 615, compared to the average score of 458 for pupils awarded a Level 1.

Performance differences by pupil characteristics

Around 36% of the variation in England's pupils' PIRLS reading performances is accounted for by a range of pupil background characteristics and their prior attainment.

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[1] The Year 1 phonics check was introduced to England's primary schools in the 2011-2012 academic year and was taken for the first time by all Year 1 pupils in June 2012. This check consists of 20 words and 20 pseudo-words which the pupil is asked to read aloud to their teacher, giving a final mark out of 40.

The characteristics that are most strongly predictive of PIRLS performance include prior achievement in the Year 1 phonics check, followed by resources at home, both in terms of educational resources (e.g. the number of books the pupil has in their home) and socioeconomic status (as determined by historical free-school-meal eligibility). Gender and age are additional significant predictors of performance in PIRLS, as well as pupils' schools' historic performance in Key Stage 2 (KS2) assessments. Pupils' ethnicity and English as an additional language (EAL) status are not significant predictors of PIRLS reading performance after accounting for other pupil characteristics.

In PIRLS 2016, girls in England score significantly higher (566) than boys (551). A significant gender-gap is also observed in 48 of the 50 participating countries, which is in line with the results of previous PIRLS cycles. There are no countries where boys outperform girls. In PIRLS 2011, England had one of the largest gender-gaps and the largest gap of any European country. In 2016, this gap has narrowed and is now consistent with the International Median. It is also the smallest gender-gap for England across the four PIRLS cycles. This reduction is largely attributable to an average improvement in the performance of boys, up 11-points from 2011, which compares to a 3-point improvement in the average performance of England's girls. In most countries, including England, the gender-gap is larger on Literary Purpose texts than on Informational Purpose texts.

Pupils in England born near the beginning of the academic year (September) score, on average, 36-points higher in PIRLS 2016 than those born at the end of the school year (August). This trend is consistent with previous PIRLS cycles and findings across age-groups in other studies.

Pupils' reading attitudes and motivations in PIRLS 2016

A higher percentage of pupils in England are categorised as being 'very confident' readers (53%) compared to the International Median (45%). Pupil confidence in reading is strongly associated with average performance in PIRLS 2016, with the most confident readers in England scoring over 100-points more than those who report the lowest levels of confidence, which was similar to the international trend. However, 20% of pupils in England report that they do not like reading, which somewhat surpasses the International Median (17%). Those who like reading the most score, on average, 45-points more than pupils who report that they do not like reading, which is again similar to the international trend. A slightly lower percentage of pupils in England report being very engaged in their reading lessons (57%) than pupils internationally (59%). Engagement in reading lessons is less clearly associated with average performance in PIRLS than other motivational factors for pupils in England, and internationally.

Girls in England report higher engagement in reading lessons, confidence in reading, and liking of reading than boys. However, a slightly higher proportion of boys report positive attitudes to reading in PIRLS 2016 compared to 2011, whereas the proportion of girls reporting positive attitudes has remained similar across cycles.

Pupils in England who report having more books at home also report much higher levels of confidence and enjoyment in reading. Of those with 10 or fewer books in their homes, 42% report that they do not like reading, compared to just 12% of pupils who have more than 200 books in their home. Only a third of pupils with 10 or fewer books at home report being confident readers, compared to 73% of pupils who have more than 200 books. In England, of the pupils who report having few books at home, higher levels of confidence are also associated with higher average performance in PIRLS 2016. This is also the case for pupils with high numbers of books in their homes.

PIRLS 2016 and teacher characteristics

In PIRLS 2016, England's Year 5 teachers report having, on average, 11-years of teaching experience. This is lower than the International Median of 17-years. However, there is no discernible association between the average years of teaching experience and the average reading performance of pupils. England's teachers also report receiving fewer hours of reading-related professional development than in many other countries, but again, this did not have any clear relationship with the average performance of their pupils, either in England or internationally.

Teachers in England report slightly lower career-satisfaction than the International Median, but this again has no discernible relationship with pupils' average reading performance. In fact, many of the countries reporting the highest levels of teacher career satisfaction are among the lowest average performers in PIRLS 2016, and when compared to other high-performing countries, career satisfaction in England is actually slightly above average. Of the countries that score significantly better than England in PIRLS 2016, only Northern Ireland and the Republic of Ireland have higher percentages of high career-satisfaction among their teachers.

School characteristics

England has one of the highest percentages of pupils whose teachers believe that their school places a very high emphasis on academic success. In Europe, only schools in Northern Ireland and the Republic of Ireland responded similarly. Pupils at schools categorised as having a very high emphasis on academic success score significantly higher on the PIRLS reading assessment than those with lower emphasis on academic success, both in England and internationally.

The vast majority of pupils in England attend schools where the teachers report that their school is very safe and orderly, and the headteacher believes that school discipline is effective. Moreover, England is among the highest ranked countries in these areas. Approximately 15% of pupils in England report that they are bullied about weekly, compared to 52% saying they are almost never bullied at school. These figures are similar to the International Median. Pupils reporting more frequent episodes of bullying score, on average, substantially lower than their peers who report that they do not experience bullying at school.

1. Introduction to PIRLS

1.1 What is PIRLS?

The Progress in International Reading Literacy Study (PIRLS), directed by the International Association for the Evaluation of Educational Achievement (IEA), is a large-scale study providing internationally comparable data to participating countries regarding pupils' reading performance after approximately four years of formal primary schooling[2]. PIRLS assesses this age group of pupils, as this stage of schooling is an important transitional period in pupils' reading where they are increasingly expected to read independently for further learning, as well as for enjoyment (Mullis & Martin, 2015).

PIRLS has been conducted every five years since its inception in 2001, and PIRLS 2016 marks the fourth cycle. By looking at results across cycles, both within and across the participating countries, PIRLS provides information to track how different aspects of reading performance have changed over time for this age group of pupils. This includes their overall reading performance, as well as their reading for literary experience, to use and acquire information, and in using different comprehension processes. Additionally, PIRLS collects a wide array of background information on pupils, teachers, and schools to examine how these factors relate to reading performance. Examples of background factors of interest include how performance varies by gender, with respect to different teaching practices, and how performance relates to different home environment factors. Many countries, including England, use the PIRLS results to inform and reflect on their educational policies around the teaching of reading, and for information regarding successful policies in other countries.

In this chapter, we will overview the PIRLS reading literacy construct, detail the participating countries in PIRLS, including the selection of comparator countries for this report, and provide a brief reader's guide. This reader's guide includes an overview of the PIRLS study and sampling design, the different performance measures, and other important factors to bear in mind when interpreting the results of this report. Lastly, an outline of the report structure is provided.

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[2] Because the age at which children begin formal schooling varies across countries, some countries enter pupils with more or less formal schooling than 4 years. In England, pupils start formal schooling at an earlier age than many other participating countries, and therefore, England enters pupils in their fifth year of schooling (Year 5). In PIRLS 2016, England's pupils had an average age of 10.3 years, which is very similar to International Mean age of participating pupils (10.2 years). The average age of pupils in each participating country ranged from 9.6 in Kuwait, to 10.9 in Latvia.

1.1.1 The PIRLS reading literacy construct

The IEA's definition of reading literacy has evolved over time, but was designed to have applicability across readers of all ages and across different written language forms. The definition has a particular focus on young pupils who are becoming proficient readers across school and everyday life, and reflects different theories of reading as a constructive and interactive process. The definition of reading literacy driving the PIRLS 2016 cycle is as follows:

"Reading literacy is the ability to understand and use those written language forms required by society and/or valued by the individual. Readers can construct meaning from texts in a variety of forms. They read to learn, to participate in communities of readers in school and everyday life, for enjoyment." (Mullis & Martin, 2015, p.12).

PIRLS focuses on three main aspects of reading literacy: 1) purposes for reading, 2) reading comprehension processes, and 3) reading behaviours and attitudes. The first two aspects are assessed by a paper-based reading literacy test, while the third aspect is assessed by a 'student questionnaire', which is administered to pupils once they have finished their reading test. Additional questionnaires are also given to the teachers and the headteacher of pupils sitting the test, and in most countries[3], a parent or guardian is also asked to provide information about their child and their home environment related to reading activities.

All four PIRLS cycles have distinguished between two purposes for reading: 1) reading for literary experience, and 2) reading to acquire and use information. These two purposes are understood in the following manner:

- **Reading for literary experience** – here, readers are immersed into worlds with characters, atmospheres, feelings and ideas. Often, readers will need to bring in their own experiences and knowledge to interpret the stories or narratives in their own ways, and to form positive and negative opinions of characters and their actions. In PIRLS, all literary experience texts take a narrative fiction form. Other forms of literary texts, such as poetry, can be difficult to translate while retaining the same literary structure, whereas forms such as plays are not widely taught in primary school education in many countries.

- **Reading to acquire and use information** – here, readers address a variety of texts that might attempt to educate with facts, while others may try to persuade with arguments. The topics covered by these informational texts may be scientific,

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[3] England and the United States are the only countries participating in PIRLS 2016 that did not administer this questionnaire to a parent/guardian.

historical, geographical, social or political, and the information conveyed could be textual or presented graphically in tables or in pictures and diagrams. In PIRLS, most of the informational texts take the form of articles on topics that pupils might be expected to learn about in primary school, though other forms could include newspapers or short persuasive essays.

PIRLS also looks at four different comprehension processes that readers need to use to interpret and understand both literary and informational texts. These four comprehension processes include:

- **Focus on and retrieve explicitly stated information** – for this comprehension process, readers need to locate and understand relevant information in a text, usually focusing on this text at the word, phrase, or sentence level. Tasks assessing this process might include identifying the setting of a story, searching for definitions of words, or identifying a stated main idea of a text.

- **Make straightforward inferences** – for this process, readers need to be able to establish the relationships between explicitly stated ideas, often by focusing on more global ideas in the text rather than ideas just at the sentence level. Tasks assessing this process might include inferring that one event led to another, describing relationships between characters, or concluding the main argument from a series of opinions.

- **Interpret and integrate ideas and information** – for this process, readers need to use their external knowledge and experiences to construct a more complete understanding of texts. Tasks assessing this skill might involve inferring the mood or tone of a story, identifying real-world applications of textual information, or considering alternatives to the actions of characters.

- **Examine and evaluate content, language, and textual elements** – for this comprehension process, readers need be able to consider the merits and weaknesses of texts, including the strength of their arguments, realism of their narratives, or in their uses of structure and language. Tasks assessing this skill might involve judging the author's perspective, evaluating the potential impacts of information or arguments, or explaining why particular language choices may have been made by the author.

Information on the breakdown of marks available in PIRLS 2016 test-items by reading purposes and comprehension processes, as well as the item formats (multiple-choice vs. short-written response) are provided in Appendix A. Example test-items are included in Appendix B.

1.2 Who participates in PIRLS?

In the 2016 cycle, 50 countries took part in the main study. Table 1.1 presents these 50 countries and their historical participation across the four PIRLS cycles[4].

Table 1.1 - Countries participating in PIRLS 2016 and previous PIRLS cycles

Countries that have participated in all PIRLS cycles					Countries that have not participated in all PIRLS cycles				
Country	**Cycle**				**Country**	**Cycle**			
	2001	**2006**	**2011**	**2016**		**2001**	**2006**	**2011**	**2016**
Bulgaria	O	O	O	O	Australia			O	O
England	O	O	O	O	Austria		O	O	O
France	O	O	O	O	Azerbaijan			O	O
Germany	O	O	O	O	Bahrain				O
Hong Kong SAR	O	O	O	O	Belgium (Flemish)		O		O
Hungary	O	O	O	O	Belgium (French)		O	O	O
Iran	O	O	O	O	Canada			O	O
Italy	O	O	O	O	Chile				O
Israel	X	X	O	O	Chinese Taipei		O	O	O
Kuwait	X	X	X	O	Czech Republic	O		O	O
Lithuania	O	O	O	O	Denmark		O	O	O
Morocco	X	X	O	O	Egypt				O
Netherlands	O	O	O	O	Finland			O	O
New Zealand	O	O	O	O	Georgia		O	O	O
Norway	X	X	X	O	Republic of Ireland			O	O
Russian Federation	O	O	O	O	Kazakhstan				O
Singapore	O	O	O	O	Latvia	O	O		O
Slovak Republic	O	O	O	O	Macao SAR				O
Slovenia	O	O	O	O	Malta			O	O
Sweden	O	O	O	O	Northern Ireland			O	O
United States	O	O	O	O	Oman			O	O
					Poland		X	X	O
					Portugal			O	O
					Qatar		X	O	O
					Saudi Arabia			O	O
					South Africa		X	O	O
					Spain		O	O	O
					Trinidad and Tobago		O	O	O
					United Arab Emirates			O	O

- Cells with an 'O' symbol indicate that the country participated in that PIRLS cycle, and the data can be compared to PIRLS 2016.
- Cells with an 'X' symbol indicate that the country participated in that PIRLS cycle, but the data cannot be compared to PIRLS 2016.
- Blank cells indicate that the country did not participate in that PIRLS cycle.

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[4] Another 11 regions provide benchmarking data. A benchmarking participant is typically a region or province of a participating country, or another academic year group, and so are not included in this report.

Of these, 21 countries (specified on the left-hand side of Table 1.1) have taken part in all four PIRLS cycles, 17 of which (including England) have results that are comparable across all four studies. Orange-coloured cells with an X symbol indicate that the country took part in that cycle, but because of changes to the sampling method in the country, or improvements to the translations of test materials, results from that cycle cannot be compared to other PIRLS cycles. Five countries took part in PIRLS for the first time in 2016, and the remaining 24 countries participated in the 2016 cycle and at least one other cycle.

1.2.1 Selection of countries for international comparisons

Throughout this report, comparisons are drawn between England's results and the results of nine other countries that took part in PIRLS 2016[5]. These nine countries will be referred to as the 'comparator countries' and have been selected for three main reasons:

- **English is the first language for most people in the country:** These countries not only share a linguistic similarity with England, and have therefore completed identical tests, but also tend to be culturally similar, particularly in terms of their educational systems. For brevity's sake, this group will be referred to as the English-speaking countries, although we note that some countries that complete the PIRLS assessment in English, e.g., Singapore, are not included in this categorisation. A full summary of the languages of testing in each country is provided in Appendix C. Six English-speaking countries with cultural similarities to England that took part in PIRLS 2016 were selected as comparator countries; **Australia, Canada, New Zealand, Northern Ireland, the Republic of Ireland, and the United States**.

- The **Russian Federation** and **Singapore** are the **two top-performing countries in PIRLS 2016,** and have been selected as comparator countries for this reason.

- The top-performing country in PIRLS 2001, **Sweden**, has been selected here because they have **taken part in all four PIRLS cycles and have historically performed in a highly comparable manner** to England. However, Sweden has typically had a much narrower distribution of scores compared to England, with fewer pupils performing at the highest levels and far fewer pupils achieving low scores. Sweden therefore provides a good comparison for the changes in England's performance in PIRLS 2016.

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[5] Results for all 50 countries in PIRLS 2016, and those of benchmarking participants is available in the International Report (Mullis, Martin, Foy & Hooper, 2017).

Even though Finland has been a high performing country in international studies such as PIRLS and PISA (Sahlberg, 2010), they are not included as a main comparator country throughout the report, as Finland is linguistically divergent from England and has only previously participated in PIRLS 2011, which limits their trend information. Similarly, while Poland's improvements in their PISA scores (OECD, 2016) have drawn attention in England (Gove, 2012), changes in the sampling method used for PIRLS 2016 in Poland mean that comparisons cannot be drawn between Poland's results in 2016 and previous PIRLS cycles. Thus, they are also not included as a main comparator country. However, given that both Poland and Finland are comparatively high performing countries and have attracted international attention, their educational contexts are given specific focus at the end of Chapters 2 and 8 respectively.

Of the chosen comparator countries, five have taken part in all four PIRLS cycles. These are New Zealand, the Russian Federation, Singapore, Sweden and the United States. This subset will be referred to as the 'trend comparator countries'. The remaining comparator countries, Australia, Canada, Northern Ireland, and the Republic of Ireland, have only taken part in PIRLS 2011 and PIRLS 2016, and so they are not included in some of the representations of trends throughout the report.

1.3   Interpreting data from PIRLS: a reader's guide

PIRLS, like similar international assessments including the IEA's TIMSS (Trends in International Mathematics and Science Study) and the OECD's PISA (Programme for International Student Assessment), includes some highly technical components in the collection of the pupil data, the design and administration of the assessment, and the estimation of pupils' performance from the assessment. These differ from more conventional assessments that pupils might sit, such as the Key Stage 1 and 2 (KS1 and KS2) assessments, where every pupil takes the same test with the same questions, and average performance is simply an aggregation of individual level performances. This section briefly outlines these technical components, but more detailed and technical information can be found in the PIRLS 2016 Methods and Procedures Report (Martin, Mullis & Hooper, 2017).

1.3.1 PIRLS study design and sampling

It is impossible to administer the PIRLS assessment to every relevant pupil in a country, as this would be an unacceptable burden on the educational system in those countries. To overcome this, the IEA uses a complex sampling method to obtain samples in the country that are large enough to give the results statistical power, and that use school-level information to ensure that the pupils chosen to take part in the study are nationally

representative. Certain sub-populations may still be under or over-represented in the data, but this sampling method also allows for the creation of 'weights' that can be applied to the pupil-level or school-level data, which help to correct for this under or over-representation.

A stratified sample of 170 primary schools in England took part in PIRLS 2016, which was designed to be representative of different types of school (state-funded and private) and historical performance (determined using KS2 performance in the 2013/14 academic year in the state-funded schools). Special schools were excluded from the school-level sampling. The National Pupil Database (NPD) holds census data on pupils studying in England. Comparisons can be made between England's PIRLS 2016 sample and the national census data to assess how representative the PIRLS 2016 sample was of different background characteristics. Table 1.2 below shows the percentages of pupils in England's PIRLS 2016 sample by their gender, major-ethnicity group, English as an additional language (EAL) status, and their eligibility for free-school meals (FSM), which is compared to the equivalent percentages in the Spring Census NPD (2015-2016 academic year) for Year 5 pupils. This breakdown is provided in terms of both the unweighted percentages of the sample, as well as the proportional representations in the sample after pupil weighting[6]. A summary of missing NPD data is provided in Appendix D.

The percentages of pupils from different ethnic backgrounds in England's PIRLS 2016 sample were highly representative of the ethnic distribution of the Year 5 pupils in England in the 2015-2016 academic year, as all percentages were within one per cent of the national data. Similarly, the proportion of EAL pupils in the sample was only marginally higher than that found nationally. There was a lower proportion of FSM eligible pupils in the sample compared to the national percentage, but this only differed by 1.5%. Similarly, compared to the national data, the sample had a somewhat more equal proportion of girls and boys than nationally, where just over 51% of pupils are male, which meant that girls were overrepresented by 1.5% in the sample[7].

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[6] Note that matching between the PIRLS 2016 data and the NPD was only possible for 4,846 of the 5,095 pupils. For 207 pupils, a match to national census and attainment records was not possible because they attended one of the ten schools in England's PIRLS 2016 sample that are independent. The remaining 42 cases are due to unknown causes, but this is likely to include pupils who recently joined one of the sample schools, either from another school in England that does not provide full NPD census and attainment data, or from another country.

[7] It should also be noted that there were six cases where the pupil's registered gender in PIRLS 2016 was inconsistent with their gender data in the NPD. For the purposes of consistency with data in the International Report, Table 1.2 and all further analyses use the gender categorisations using the PIRLS data.

Table 1.2 - England's PIRLS 2016 sample characteristics relative to national data

Pupil Background Characteristic	PIRLS 2016 Sample			National Data[8]
	Pupils in sample	Unweighted % of sample	Weighted % of sample	% in NPD
Gender - **Female**	2,565	50.3%	50.4%	48.8%
Gender - **Male**	2,530	49.7%	49.6%	51.2%
Major Ethnicity Group - **White**	3,569	74.1%	76.5%	75.0%
Major Ethnicity Group – **Black**	297	6.2%	5.6%	5.9%
Major Ethnicity Group – **Asian**	566	11.7%	10.3%	11.2%
Major Ethnicity Group – **Mixed**	281	5.8%	5.5%	5.5%
Major Ethnicity Group – **Other**	106	2.2%	2.1%	1.8%
English as an additional language (**EAL**)	965	20.0%	17.8%	19.4%
Eligible for Free-School-Meals (**FSM**)	696	14.4%	14.3%	15.9%
Has ever been FSM eligible (**Ever6FSM**)	1,409	29.1%	29.2%	31.0%
Attends an **Independent School**	193	3.8%	5.8%	5.9%

* Because of rounding, cases of missing data, and pupils recorded in alternative categories, some results may appear inconsistent.

** Clarifications of ethnicity categories provided in **Section *5.4***.

1.3.2 PIRLS Scale: performance scores and benchmarks

The PIRLS Scale was first established in PIRLS 2001 with its Centrepoint set at 500, representing the mean performance of all participating countries in 2001, and a standard deviation of 100. As discussed above, this scaling has been maintained across cycles to allow for the calculations of trends in performance[9].

PIRLS also uses four benchmarks (Low, Intermediate, High, and Advanced) to report performance and trends. These benchmarks outline the kinds of reading skills that pupils who score at different levels of the PIRLS Scale can perform. This provides some level of criterion information that the PIRLS score cannot alone provide. The benchmarks, their associated skills, and corresponding scores on the PIRLS Scale are outlined further in section 2.1.3.

The breadth of the definition of literacy used in the PIRLS study means that the number of different texts and questions required by the PIRLS assessment is large – PIRLS 2016

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[8] National data comes from the Spring 2016 school census, which matches the data set from which the NPD is derived.

[9] Changes to some scaling approaches in PIRLS 2011 mean that there may be some inconsistencies in values reported here and those reported in the 2001 and 2006 PIRLS International Reports. All of the values presented here are accurate as per the scaling processes used in the PIRLS 2016 cycle.

consisted of twelve texts, each one taking 40 minutes for pupils to complete. However, pupils do not sit all twelve assessments. The IEA instead creates sixteen booklets that each contain two of the texts (one Literary text, and one Informational text). These booklets are systematically designed to ensure a balanced overlap of texts. Each pupil is randomly assigned one of these sixteen booklets to complete.

Given that individual pupils are only administered a subset of items, the IEA obtains comparable, individual-level performance estimates by applying methods from an area of statistics known as *'Item Response Theory'*, including a multiple imputation approach known as plausible value methodology (Martin, Mullis & Hooper, 2017; Mislevy, Beaton, Kaplan & Sheehan, 1992). Consequently, both the IEA and this report refer to these performance estimates as plausible values, and five plausible values are calculated for each pupil. This approach is argued to provide more accurate population-level estimates for assessments where pupils only respond to a sparse subset of items (Wu, 2005). These five plausible values were used to calculate the reading performance results presented throughout this report.

1.3.3 Factors to consider when interpreting PIRLS data

The methods used to overcome the challenges described above are imperfect solutions to unavoidable practical limitations in conducting these large-scale international assessments. As a consequence, a number of factors should be considered when interpreting the findings of PIRLS in this report.

- **Comparison of England's scores with the PIRLS International Mean is not as informative as comparisons with the International Median** – the PIRLS 2016 International Report (Mullis, Martin, Foy & Hooper, 2017) typically refers to performance in relation to the PIRLS Scale Centrepoint or relevant International Means. However, for the purposes of this report, we will normally refer to the *International Median* result instead[10]. We use the median to indicate average performance, as a small group of countries have scored substantially below most other participating countries across PIRLS cycles, which in turn biases the International Mean downward, as a mean assumes a normal (i.e., bell-shaped) distribution in scores. Due to the traditional use of a mean, these lower-performing countries have had a disproportionately large downward effect on both the PIRLS Scale Centrepoint (as calculated in 2001) and many International Means across

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[10] This International Median is calculated as the median of the mean performances (or relevant statistic) of all countries participating in the specific PIRLS cycle.

cycles[11]. The International Median is far less affected by this small group of lower performing countries and so it is more representative of average performance across all countries participating in PIRLS, and particularly the countries that are of interest to England for comparisons.

- **It is important to consider sources of error and statistical significance when comparing two or more estimates** – when making comparisons in average PIRLS performance, for example, across PIRLS cycles or between sub-groups of pupils in England, the term 'significant' is used to represent whether a given result is statistically significant. These statistical comparisons take into account the uncertainty of average statistics, including measurement and sampling error. All statistically significant results in this report are significant at the 95% confidence level.

- **Trend results across PIRLS cycles may be subject to additional error** – to allow for comparisons across time, the PIRLS assessment requires items that are common across cycles. A transformation constant is calculated from these common items, which aligns the performance distributions across the 2011 and 2016 cycles, and so also aligns the 2016 performances with the historical PIRLS Scale from 2001. By maintaining this scale across PIRLS cycles, it is possible to track how average performance has changed over time, both within and across the participating countries. However, these trends are also dependent on the success of the common-item equating process and the stable functioning of these common items over time. This potentially introduces additional equating error in the estimates, which is not presently accounted for in the IEA's processes (Monseur & Berezner, 2007). Therefore, this additional error should be kept in mind when interpreting these trends over time.

- **Small sub-populations of pupils may be over or under-represented in the data** – because the sample design for England's PIRLS sample is relatively simple, only using two explicit strata (school type and their historic KS2 performance), even when the sample weights are applied, comparisons of smaller sub-groups, e.g., different ethnic groups, should be interpreted with caution, as the sampling framework was not designed for such comparisons. Nonetheless, the results presented in Table 1.2 show that the PIRLS 2016 sample is quite representative of the pupil population.

- **Questions may not be equally difficult for pupils from different socio-cultural or language backgrounds, or across countries and translations** – while a

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[11] A similar kind of effect would be observed, but in the reverse direction, if a mean was used to indicate average income in a country, as the very small percentage of very high income earning individuals would skew the statistic disproportionately upward.

primary aim of PIRLS is to draw comparisons across countries, the study assumes that items will be equally difficult for pupils across a diverse range of countries and test translations, as well as for pupils of different backgrounds within a country, after accounting for differences in reading proficiency. While the IEA make every effort to ensure that this is the case during the development and piloting of test-items, an increasing amount of scrutiny has been applied to these assumptions in international assessments. Research findings suggest that many test-items do not necessarily perform in a comparable manner across countries and languages, which undermines the comparability of the pupils' average performance estimates (Kreiner & Christensen, 2014; Rutkowski, Rutkowski & Zhou, 2016). These findings, in turn, suggest that the cross-country comparisons presented in this report should be interpreted with a healthy level of caution, particularly when comparing divergent educational systems and across languages.

1.4. Overview of the report structure

The rest of this report is divided into eight main chapters. In chapters 2 to 8, England's pupils' performance in PIRLS 2016 is examined relative to previous PIRLS cycles, key pupil, teacher, and school characteristics, as well as international trends. These international comparisons will primarily focus on the comparator countries discussed above in section 1.2.1. Moreover, each of the chapters conclude with a box providing contextual information on one or more countries, including discussion of research on their educational and cultural contexts, to provide insights into their PIRLS results. Lastly, Chapter 9 contextualises England's PIRLS 2016 performance in terms of relevant educational policy changes that have occurred since previous PIRLS cycles.

In terms of the content of the individual chapters:

Chapter 2 focuses on **overall reading performance**. This includes outlining the overall performance of each country in PIRLS 2016, and then more closely scrutinising England's performance with respect to the comparator countries, including the trends of these countries across PIRLS cycles. The chapter also looks at how England and the comparator countries perform with respect to the four International Benchmarks, with a particular focus on the Advanced and Low Benchmarks. The chapter ends with a discussion of Poland's results in PIRLS 2016 in the context of educational policy reforms and their history of results in PISA, which have drawn international attention from educationalists and policy-makers.

Chapter 3 addresses **performance by reading purposes and comprehension processes**. Firstly, it presents the PIRLS 2016 performances by England and the comparator countries on the *Literary* and *Informational Purpose Scales*, and on the two Comprehension Process Scales - *Retrieving and Straightforward Inferencing*, and

Interpreting, Integrating and Evaluating. This is followed by a discussion of the performance trends across PIRLS cycles on these scales. The chapter ends with a discussion of the contrasting cases of the United States and East Asian countries on the two reading purpose scales, looking at cultural differences in attitudes towards reading to contextualise the differences in their results.

Chapter 4 examines the **performance of higher and lower-performing pupils**. Firstly, comparisons are drawn between the highest-performing (90th percentile) and lowest-performing (10th percentile) pupils, including how England's distribution in 2016 compares to the distributions of performance in the comparator countries and previous PIRLS cycles. Secondly, the chapter addresses how England's pupils' PIRLS 2016 performance correlates with their performance in two earlier national assessments; the Year 1 phonics check (these pupils being among the first cohort to sit this assessment in 2012), and the Key Stage 1 SATS assessment of reading. The chapter concludes with a discussion of the distribution of scores in the Russian Federation and possible explanations for why the country performs so well at the 10th percentile.

Chapter 5 looks deeper into **pupil background characteristics and their associations with performance in PIRLS 2016**. The chapter begins by briefly introducing a range of pupil characteristics, some of which are taken from the National Pupil Database (NPD), and presents a multiple linear regression to establish which characteristics are independently associated with PIRLS performance in a statistically significant manner. After this, each of these pupil characteristics is examined individually, including the relationship between PIRLS performance and pupil gender, ethnicity, EAL status, free-school-meal eligibility, and type of school. Additionally, responses on the student questionnaire are used to look at how educational resources at home relate to PIRLS performance. The chapter ends with a discussion of Singapore and how the use of English as the language of their educational system may have contributed to their success in PIRLS and other international assessments.

Chapter 6 focuses on **pupil motivation factors with respect to reading and their association with PIRLS performance**. These motivation factors include pupils' engagement in reading lessons, their confidence in reading, and how much they like reading. The chapter also addresses how these motivation factors vary by pupil background characteristics, including gender, ethnicity, EAL status, and access to educational resources at home. The chapter ends with a discussion of Sweden and possible reasons for why pupils in Sweden report the highest levels of reading confidence in PIRLS 2016, but also the lowest levels of liking reading out of all the participating countries.

Chapter 7 examines how the **characteristics of teachers and teaching practices in different countries relate to PIRLS performance**. This includes the types of qualifications teachers have, aspects of their professional development, their years of

experience, methods of teaching reading in their classes, and their overall career satisfaction. The chapter concludes with a discussion of the high job satisfaction reported by teachers in the Republic of Ireland and factors that may contribute to this satisfaction.

Chapter 8 looks at how different **factors in the school environment relate to PIRLS performance**. This includes the school's emphasis on academic success, school safety, orderliness and discipline, and pupil reports of how frequently they experience bullying at school. This is followed by a closer examination of teachers' and headteachers' perceptions of parental involvement in the school and support for their child's learning. The chapter ends with a discussion of the educational philosophy in Finland, and how their comparatively low emphasis on academic success, as judged by their headteachers and teachers, contrasts with their comparatively high performance in PIRLS and other international assessments.

Chapter 9 concludes with an **account of changes in educational policy in England** across the PIRLS cycles, and particularly how these changes may have influenced England's PIRLS 2016 performance, as well as their potential relevance to performance in future PIRLS cycles.

2. Reading Performance

Chapter outline

This chapter details the average pupil performance in PIRLS 2016 compared to previous cycles, as well as performance at each PIRLS International Benchmark. Comparisons are drawn between England's and the trend comparator countries' average performances, as well as the percentages in each country meeting the Advanced and Low Benchmarks. The chapter concludes with a discussion of Poland's results in PIRLS 2016 and the educational reforms that have driven their improved performance in international assessments over recent years.

Key findings:

- England's average score of 559 is significantly above the PIRLS International Median performance of 539. This is England's highest average score across the four PIRLS cycles, and a statistically significant improvement on their average performances in PIRLS 2006 and 2011.

- The percentage of England's pupils meeting the Intermediate and Low Benchmarks is greater than all previous PIRLS cycles. This improvement at the two lower benchmarks is largely responsible for England's overall significant improvement in PIRLS 2016.

2.1. Overall reading performance

2.1.1. Performance in 2016

England's average score of 559 is significantly higher than the PIRLS International Median of 539[12]. The Russian Federation and Singapore are the two highest scoring countries with scores of 581 and 576 respectively. With the exception of Singapore, the Russian Federation's score is significantly higher than every other participating country in PIRLS 2016. Seven countries have significantly higher scores than England, four of which are European countries. Of the English-speaking countries that took part in PIRLS 2016, England's average score is significantly greater than the United States, Canada,

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[12] As explained in section 1.3.3, the PIRLS International Median is used as the primary indicator of average PIRLS performance, as both the PIRLS Scale Centrepoint (score of 500) and the PIRLS International Mean referred to in the IEA's International Report are skewed downward by the lower performing countries, and so are biased indicators of average international performance.

Australia and New Zealand, but significantly lower than Northern Ireland and the Republic of Ireland.

Table 2.1 below outlines the average performance of all of the countries who took part in PIRLS 2016. Countries are displayed in the order of their average score, from highest to lowest, and organised in to three sections: countries scoring significantly higher than England, countries whose scores do not significantly differ from England, and countries scoring significantly lower than England.

Table 2.1 - Average scores (and standard errors) of participating countries in PIRLS 2016 with respect to England.

Countries scoring significantly higher than England			
Country	**Average Score**	**Country**	**Average Score**
Russian Federation	581 (2.2)	Finland	566 (1.8)
Singapore	576 (3.2)	Poland	565 (2.1)
Hong Kong SAR	569 (2.7)	Northern Ireland	565 (2.2)
Republic of Ireland	567 (2.5)		
Countries not scoring significantly different from England			
Country	**Average Score**	**Country**	**Average Score**
Norway	559 (2.3)	Sweden	555 (2.4)
Chinese Taipei	559 (2.0)	Hungary	554 (2.9)
England	**559 (1.9)**	Bulgaria	552 (4.2)
Latvia	558 (1.7)		
Countries scoring significantly lower than England			
Country	**Average Score**	**Country**	**Average Score**
United States	549 (3.1)	New Zealand	523 (2.2)
Lithuania	548 (2.6)	France	511 (2.2)
Italy	548 (2.2)	Belgium (French)	497 (2.6)
Denmark	547 (2.1)	Chile	494 (2.5)
Macao SAR	546 (1.0)	Georgia	488 (2.8)
Netherlands	545 (1.7)	Trinidad and Tobago	479 (3.3)
Australia	544 (2.5)	Azerbaijan	472 (4.2)
Czech Republic	543 (2.1)	Malta	452 (1.8)
Canada	543 (1.8)	United Arab Emirates	450 (3.2)
Slovenia	542 (2.0)	Bahrain	446 (2.3)
Austria	541 (2.4)	Qatar	442 (1.8)
PIRLS International Median	**539**	Saudi Arabia	430 (4.2)
Germany	537 (3.2)	Iran, Islamic Rep. of	428 (4.0)
Kazakhstan	536 (2.5)	Oman	418 (3.3)
Slovak Republic	535 (3.1)	Kuwait	393 (4.1)
Israel	530 (2.5)	Morocco	358 (3.9)
Portugal	528 (2.3)	Egypt	330 (5.6)
Spain	528 (1.7)	South Africa	320 (4.4)
Belgium (Flemish)	525 (1.9)		

2.1.2.   Trends in performance

England has taken part in all four PIRLS cycles from 2001 to 2016. England's average score in PIRLS 2016 is the highest of their four participations, and is a statistically significant improvement on both PIRLS 2006 (20-point improvement) and 2011 (7-point improvement). While England's PIRLS 2016 average score is higher than their score in PIRLS 2001 by 6 score-points, the improvement is not statistically significant and so this difference should be cautiously interpreted. The lack of statistical significance in the difference between PIRLS 2001 and PIRLS 2016 scores may be partially attributable to the relatively large error for the average score in 2001. Nonetheless, in historical terms, this average improvement in PIRLS 2016 represents a continuation of an upward trend in performance since PIRLS 2006 and maintains England's average performance as substantially above the PIRLS International Median performance. Figure 2.1 shows the trends in the average scores across all four PIRLS cycles for England and the trend comparator countries in comparison to the PIRLS International Median score for each cycle.

Figure 2.1 - Performance of England and trend comparator countries across PIRLS cycles
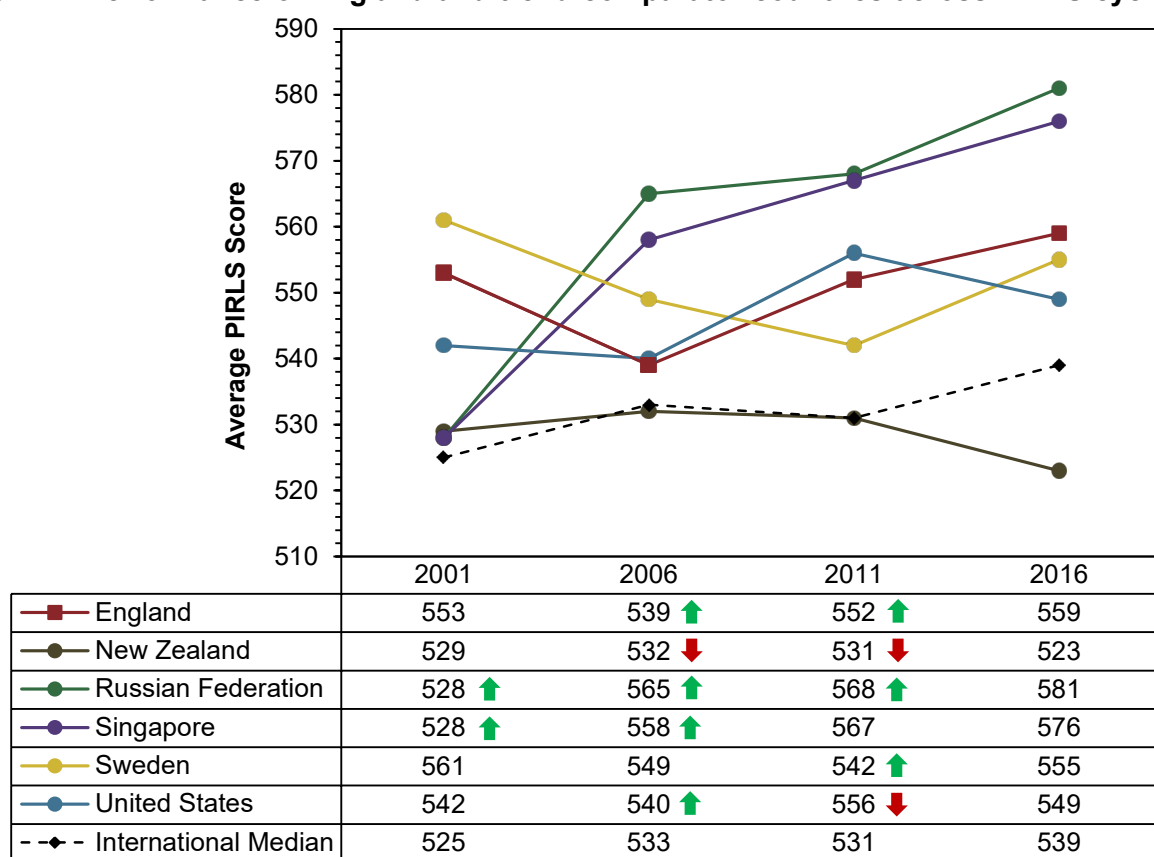
	2001	2006	2011	2016
England	553	539 ⬆	552 ⬆	559
New Zealand	529	532 ⬇	531 ⬇	523
Russian Federation	528 ⬆	565 ⬆	568 ⬆	581
Singapore	528 ⬆	558 ⬆	567	576
Sweden	561	549	542 ⬆	555
United States	542	540 ⬆	556 ⬇	549
International Median	525	533	531	539

Source: IEA's PIRLS 2016

⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.
⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

The figure also indicates whether that country's average score in PIRLS 2016 is significantly higher or lower than a previous cycle. In the table, a green, up-pointing arrow

indicates that the country's average score in PIRLS 2016 is significantly higher than the average score from a previous cycle, while a red, down-pointing arrow indicates that the average score in PIRLS 2016 is significantly lower than that country's average score from a previous cycle. For example, the green, up-pointing arrow next to England's average score in 2006 indicates that England's score of 559 in 2016 is significantly higher than the score of 539 in 2006.

The PIRLS 2016 International Median score of 539 is the highest it has been in the four PIRLS cycles and is 8-score points higher than PIRLS 2011. Of the trend comparator countries, only New Zealand has an average score below this median in PIRLS 2016. All of the other comparator countries in Figure 2.1 have an average performance well above the PIRLS International Median, although the United States' average performance has dropped toward the median between PIRLS 2011 and 2016.

The Russian Federation has significantly improved in their average performance, which continues their upward trend in performance across the four PIRLS cycles. Their PIRLS 2016 score of 581 is significantly higher than in all of their previous PIRLS participations, and 13-points above their score from PIRLS 2011. Singapore has achieved their highest score in all four of their PIRLS participations, continuing their upward trend in average performance across all PIRLS cycles, but the improvement from PIRLS 2011 is not statistically significant.

After a downward trajectory in PIRLS 2006 and 2011, Sweden has countered this trend in PIRLS 2016 with a statistically significant, 13-point average increase in performance from PIRLS 2011. While their PIRLS 2016 score is still less than their world-leading average score in PIRLS 2001, this difference is not statistically significant. Both the United States and New Zealand have significantly decreased in their average performances from PIRLS 2011. In the case of New Zealand, it is their lowest average score of their four PIRLS cycles, although not significantly lower than their average performance in PIRLS 2001.

Of the other comparator countries referred to throughout this report, but not presented in Figure 2.1 due to a lack of participation across the four PIRLS cycles, the Republic of Ireland and Australia have significantly improved in average performance since PIRLS 2011, while Canada has significantly decreased in their average performance. Northern Ireland's average score has not significantly changed from PIRLS 2011.

2.1.3.   Performance distribution by PIRLS International Benchmarks

As previously discussed in section 1.3.2, PIRLS uses four International Benchmarks to outline how scores correspond with different reading skills. Table 2.2 outlines the reading skills that pupils are expected to demonstrate at each benchmark on literary and informational texts, and the associated scores for each benchmark. England's average

score of 559 puts the average performance of pupils in the country slightly above the High International Benchmark score of 550.

Table 2.2 - PIRLS 2016 International Benchmarks and the corresponding PIRLS Scale scores and expected reading skills

Low International Benchmark	Intermediate International Benchmark	High International Benchmark	Advanced International Benchmark
400	475	550	625
Literary Texts Pupils can locate and retrieve explicitly stated information, actions and ideas, and make straightforward inferences about events and reasons for actions. They can also begin to interpret story events and central events. **Informational Texts** Pupils can locate and reproduce explicitly stated information from texts and other formats such as charts and diagrams. They can also begin to make straightforward inferences about explanations, actions, and descriptions.	**Literary Texts** Pupils can locate, recognise and reproduce explicitly stated actions, events and feelings, as well as make straightforward inferences about the attributes, feelings, and motivations of main characters. They can also begin to recognise language choices. **Informational Texts** Pupils can locate two or three pieces of information from text, and make straightforward inferences to provide factual explanations. They will also be beginning to be able to interpret and integrate information to order events.	**Literary Texts** Pupils can locate and distinguish significant actions and details embedded across the text, and make inferences to explain relationships between intentions, actions and events. They will also be able to interpret and integrate story events and character traits, and recognise language features such as tone, metaphor and imagery. **Informational Texts** Pupils can locate and distinguish relevant information within dense text or more complex tables, and make inferences about logical connections between information. They will also be able to integrate textual and visual information, and be able to form evaluations and generalisations about the content.	**Literary Texts** Pupils can interpret story events and character events to describe feelings and character development with full text-based support. They will also be able to evaluate the effect of language choices on the reader. **Informational Texts** Pupils can distinguish and interpret different parts of complex text, providing full text-based support. They will also be able to integrate information across the text to explain relationships and sequence events, as well as evaluate visual and textual elements to discuss the viewpoint of the author.

Figure 2.2 shows the weighted[13] percentage of pupils in England and each comparator country reaching each International Benchmark. The figure first displays the International Median and percentages for England, then orders the comparator countries by the percentage of pupils who meet the Advanced Benchmark. The numbers included in each bar represent the highest benchmark reached by pupils in that country, expressed as a percentage of that country's sample.

Figure 2.2 - PIRLS 2016 performance of England and comparator countries at PIRLS International Benchmarks

Percentage of pupils performing at each International Benchmark

- □ Below Low Benchmark
- ■ Low Benchmark
- ■ Intermediate Benchmark
- ■ High Benchmark
- ■ Advanced Benchmark

Source: IEA's PIRLS 2016

Of all of the countries that took part in PIRLS 2016, England has the fifth highest percentage of pupils meeting the Advanced Benchmark, following Singapore, the Russian Federation, Northern Ireland and the Republic of Ireland, and equal to the proportion meeting the benchmark in Poland. While Hong Kong SAR and Finland have

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[13] The role of the sample weights was addressed in Section 1.3.1

36

higher average PIRLS 2016 scores, they have lower percentages of pupils reaching the Advanced Benchmark.

Consistent with PIRLS 2011, Singapore has the highest percentage of pupils meeting the Advanced Benchmark. In comparison to Singapore, the Russian Federation has fewer pupils reaching the Advanced Benchmark, but they also have a narrower distribution of overall pupil performance, with more Russian Federation pupils meeting the High, Intermediate and Low Benchmarks than any other country participating in PIRLS 2016; just 6% of pupils in the Russian Federation did not meet the Intermediate Benchmark, compared to 11% of pupils in Singapore, and 14% in England.

Although only 14% of pupils in Sweden meet the Advanced Benchmark compared to 20% in England, more pupils in Sweden meet the Low and Intermediate benchmarks. This shows that the distribution of PIRLS scores in Sweden is narrower than in England, which is consistent with results from previous PIRLS cycles. All of the comparator countries have a higher percentage of pupils meeting the Advanced Benchmark than the PIRLS International Median. However, in New Zealand, fewer pupils meet the High, Intermediate and Low Benchmarks, with 10% of pupils scoring below the Low International Benchmark.

2.1.4. Trends in performance distribution

Figure 2.3 below shows the percentage of pupils in England who met each International Benchmark in each of the four PIRLS cycles. It also shows how these figures for England compare to the International Medians for each PIRLS cycle.

A greater percentage of pupils in England have met the Advanced and High Benchmarks than the respective International Median in all four cycles. The percentage of pupils who scored below the Low Benchmark score of 400 has however, been close to, or greater than the percentage of pupils internationally who have not met this benchmark. In PIRLS 2016, only 3% of pupils in England failed to meet the Low Benchmark, lower than in any other cycle, and down from 5% in 2011. The percentage of pupils meeting each Benchmark has also improved internationally over each cycle, as reflected in the International Median; while an average of 8% of pupils scored below the Low Benchmark in 2001, only 4% score below this benchmark in 2016. In PIRLS 2016, an average of 10% of pupils meet the Advanced Benchmark, compared to 7% in 2001.

Figure 2.3 - England's performance at PIRLS International Benchmarks across PIRLS cycles with respect to International Medians
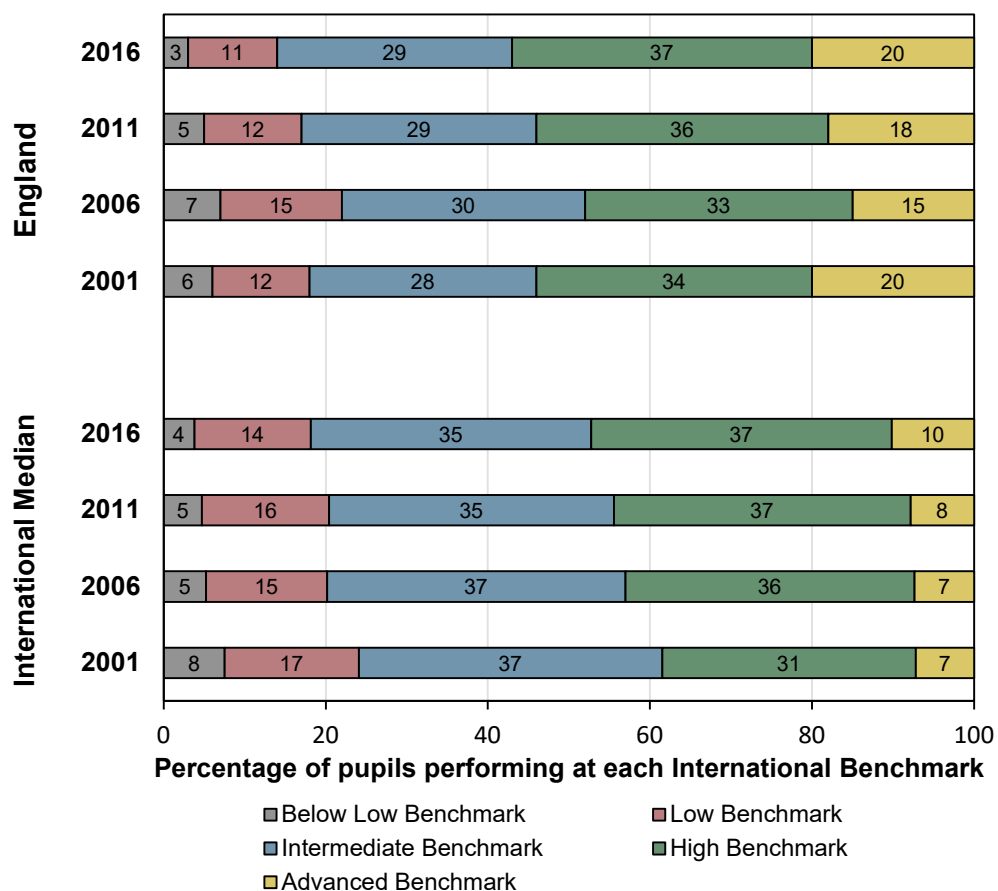
Figure 2.4 below shows the percentage of pupils in England and the trend comparator countries who met the Advanced Benchmark score of 625 in each of the PIRLS cycles, alongside the PIRLS International Median percentage for this benchmark in each cycle. The upward and downward facing arrows in the table indicate whether the percentage reaching the Advanced Benchmark in a particular country in PIRLS 2016 is significantly higher or lower than in a previous PIRLS cycle.

Twenty per cent of pupils in England in PIRLS 2016 meet the Advanced Benchmark, matching the figure in PIRLS 2001; this continues the upward trend in pupils reaching this benchmark since PIRLS 2006. Singapore and the Russian Federation have seen large improvements in the percentage of their pupils meeting the Advanced Benchmark over the PIRLS cycles, especially since PIRLS 2001. However, of these two countries, only the Russian Federation has significantly increased their percentage meeting the Advanced Benchmark since PIRLS 2011.

Figure 2.4 - Percentage of pupils in England and trend comparator countries reaching the Advanced Benchmark across PIRLS cycles
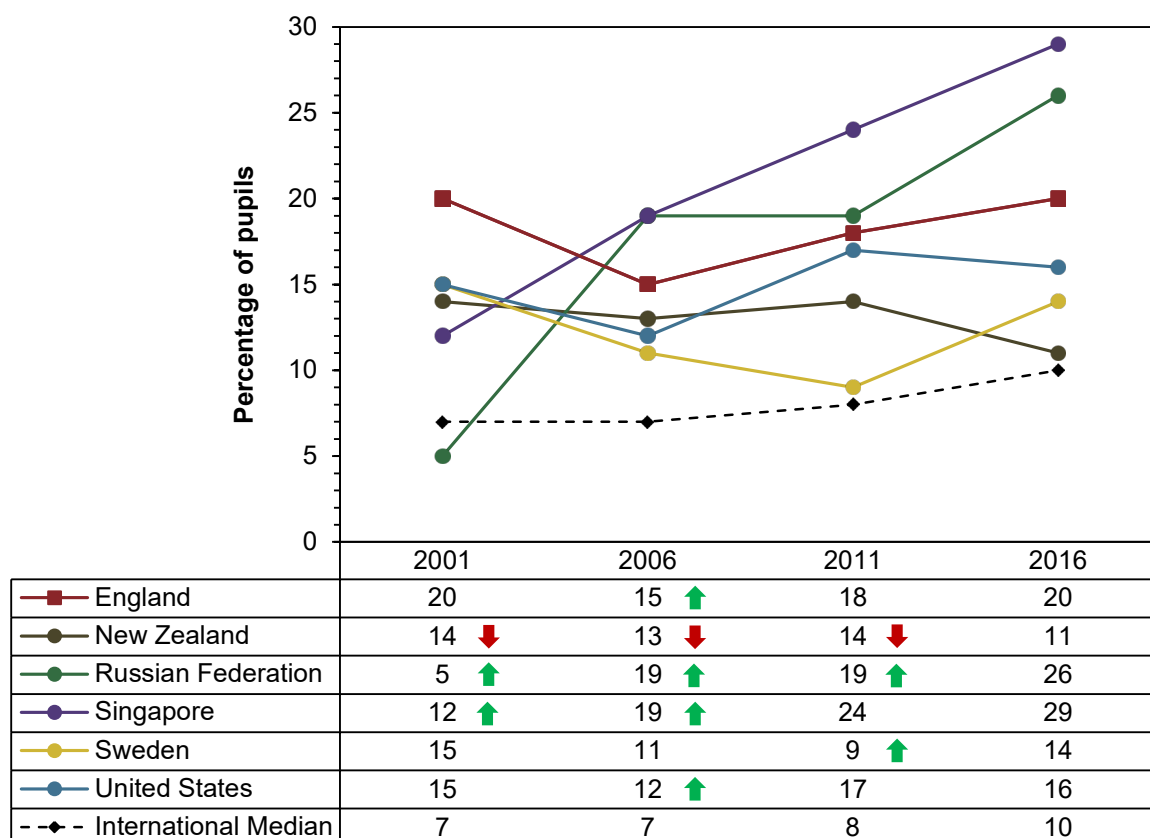
	2001		2006		2011		2016
England	20		15	⬆	18		20
New Zealand	14	⬇	13	⬇	14	⬇	11
Russian Federation	5	⬆	19	⬆	19	⬆	26
Singapore	12	⬆	19	⬆	24		29
Sweden	15		11		9	⬆	14
United States	15		12	⬆	17		16
International Median	7		7		8		10

Source: IEA's PIRLS 2016

⬆ Indicates that the percentage in PIRLS 2016 is significantly higher compared to that previous PIRLS year.

⬇ Indicates that the percentage in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

After two cycles of decline, the percentage of pupils reaching the Advanced Benchmark in Sweden has significantly improved and is now near the percentage originally reached in PIRLS 2001. In the United States, the percentage of pupils reaching the Advanced Benchmark is significantly greater than in PIRLS 2006. New Zealand has the lowest percentage of pupils meeting the Advanced Benchmark of all the trend comparator countries, and this was significantly lower than all of their previous PIRLS participations, although this percentage is still higher than the PIRLS International Median.

Figure 2.5 below shows the percentage of pupils in England and each of the trend comparator countries who reached the Low Benchmark PIRLS Scale score of 400 in each of the cycles. Of all the countries to have taken part in the four PIRLS cycles, including the trend comparator countries, England is the only country to have a significantly higher percentage of pupils reaching this Low Benchmark in PIRLS 2016 compared to all three previous PIRLS cycles. The percentage of England's pupils who meet this benchmark is also above the PIRLS International Median for the first time since PIRLS 2001. England's statistically significant increase at both the Intermediate and Low Benchmarks in PIRLS 2016, relative to all other cycles, demonstrates that the overall,

statistically significant increase in average performance in PIRLS 2016 is largely attributable to improvements by the lower performing pupils.

The Russian Federation and Singapore also have significantly greater percentages of pupils reaching the Low Benchmark than they did in PIRLS 2001. In all four PIRLS cycles, 98% of Sweden's pupils have met the Low Benchmark, which has only been surpassed by the Russian Federation in PIRLS 2011 and 2016. The percentage of pupils in the United States who reach this benchmark is significantly higher than PIRLS 2001, but it has also significantly decreased from PIRLS 2011 and is now equal with the PIRLS International Median. In New Zealand, 90% of pupils meet the Low Benchmark, which is significantly lower than in PIRLS 2006 and 2011, and is also 6% below the PIRLS International Median.

Figure 2.5 - Percentage of pupils in England and trend comparator countries reaching the Low Benchmark across PIRLS cycles
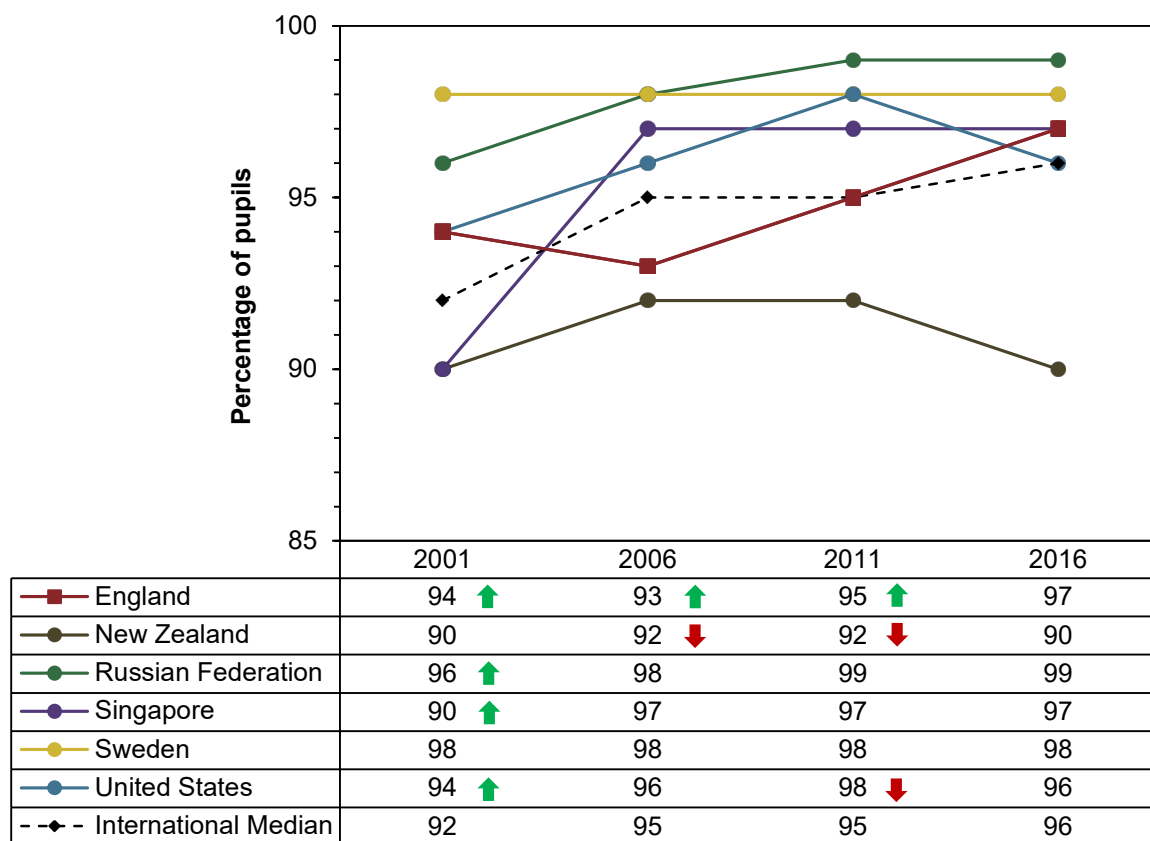
	2001		2006		2011		2016
England	94	⬆	93	⬆	95	⬆	97
New Zealand	90		92	⬇	92	⬇	90
Russian Federation	96	⬆	98		99		99
Singapore	90	⬆	97		97		97
Sweden	98		98		98		98
United States	94	⬆	96		98	⬇	96
International Median	92		95		95		96

Source: IEA's PIRLS 2016

⬆ Indicates that the percentage in PIRLS 2016 is significantly higher compared to that previous PIRLS year.
⬇ Indicates that the percentage in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

2.2. Contextualisation: Poland – educational policy reforms and impacts on reading education

While England's improvement in PIRLS 2016 makes it one of the highest-performing countries, four European countries scored significantly higher. These include Finland and Northern Ireland, who also scored significantly higher than England in PIRLS 2011, the Republic of Ireland, who tied with England in PIRLS 2011, and Poland, whose results in 2016 cannot be compared with previous cycles. Poland's performance in other international studies, particularly the Programme for International Student Assessment (PISA), run by the Organisation for Economic Co-operation and Development (OECD), has drawn international attention as a result of the period of sustained improvements in performance from 2000 to 2012. These have been attributed to educational policy reforms in Poland over this time. Box 2.1 discusses the changes in educational policy in Poland, and how these have been linked to Poland's improvements in international assessments.

Box 2.1 – Poland: Policy reforms and performance gains

The rise of Poland's rankings in PISA, from a country performing below international averages to one of the highest performing countries in Europe, has attracted international attention from educational policy-makers, including those in England (e.g. Gove, 2012). In the mid-90s, adults in Poland ranked last in an OECD study of adult reading (OECD & Statistics Canada, 1995), and scored well below the international average of 500 in reading in PISA 2000 (OECD, 2001). By 2012, however, their reading performance in PISA was more than 20-points above the international average. Educational policy makers, both in Poland and internationally, have attributed the country's success to changes in the country's schooling system and structure.

The first major reforms began in 1999, with organisational changes introducing a new six-year elementary school system, three-year lower-secondary and three/four year upper-secondary system. Voluntary pre-primary education for children from the age of 3 was introduced, though all 5-year olds were required to complete a preparatory year in a pre-school institution. The reforms also built a new core curriculum placing greater emphasis on reading, mathematics and science for pupils until the age of 15 (OECD, 2011). This included the introduction of externally marked exams, which were administered for the first time in 2002. These exams were compulsory for all pupils reaching the end of their primary, lower-secondary or upper-secondary schooling (Zawistowska, 2014). Teachers in Poland also saw their salaries increase and there were greater opportunities for promotion.

Poland has also developed a highly prescriptive primary reading curriculum, which requires pupils to study at least 4 texts from a selection of 26 literary 'texts of culture' each academic year, alongside other smaller texts. The national curriculum highlights that these texts of culture should be used to develop pupil values, sensitivity, good taste, identity, and patriotism (Konarzewski, 2017). Deeper analysis of texts and language are also limited to these texts.

Though the reforms have been used to explain the rise in Poland's PISA scores, it should also be noted that Poland's performance in reading in PISA 2015 dropped by 12 points from 2012. However, Poland still performed above the OECD average, and above the United Kingdom (OECD, 2016).

Poland's strong performance in PIRLS 2016 might also be partially attributable to these reforms, as many of these have specifically impacted on early-years education. Poland did not participate in PIRLS 2001 and their results from the previous two cycles are not comparable due to changes in their sampling method across PIRLS cycles. As such, it is not yet possible to assess the

impact of these reforms on changes to primary reading education in Poland. Nonetheless, changes to the educational policy in Poland have placed a greater emphasis on academic rigour, evaluation and monitoring of schools, pupil progress, and the types of reading that pupils engage in. These changes appear to coincide with the improvements in PISA performance, and may also partially explain Poland's success in PIRLS 2016.

3. Performance in reading purposes and comprehension processes

Chapter outline

This chapter overviews the PIRLS 2016 performance of pupils in England and the comparator countries with respect to the *Literary* and *Informational Purpose Scales*, and with regard to the two Comprehension Process Scales; *Retrieving and Straightforward Inferencing*, and *Interpreting, Integrating and Evaluating*. The chapter concludes with a discussion of literary and informational purpose reading in the United States and in East-Asian countries, and potential reasons for differences in performance across these contexts.

Key findings:

- In PIRLS 2016, England has achieved the highest average score across all reading purpose and comprehension process scales compared to previous PIRLS cycles.

- England has a significantly higher average score (7-points) on the PIRLS *Literary Purpose Scale* than the *Informational Purpose Scale*, continuing their trend from previous cycles. This trend of better performance on the *Literary Purpose Scale* is common across the other English-speaking countries participating in PIRLS 2016. Of the trend comparator countries, only the Russian Federation has consistently achieved greater average scores on the *Informational Purpose Scale*, though in PIRLS 2016, the Russian Federation was also the highest performing country on the *Literary Purpose Scale*.

- England performed significantly better on the *Interpreting, Integrating and Evaluating Process Scale* than on the *Retrieving and Straightforward Inferencing Process Scale*, which is consistent with previous PIRLS cycles. This trend is also common to the other English-speaking countries participating in PIRLS 2016. Of the comparator countries included in this report, only Sweden has consistently scored higher on the *Retrieving and Straightforward Inferencing Process Scale* across the four PIRLS cycles.

3.1. Performance in reading purposes

As discussed in section 1.1.1, in addition to overall reading performance, PIRLS also assesses how pupils perform with respect to different genres of text with different purposes for reading. Specifically, the PIRLS assessment includes separate texts and items, and calculates separate achievement scales for *Literary* and *Informational* purposes of reading. Literary Purpose texts in PIRLS take the form of short-stories, but

outside of the PIRLS assessments would also include longer non-fiction books, poetry, or plays. The Informational Purpose texts used in PIRLS take the form of non-fiction articles, but would also include non-fiction subject books, newspapers, encyclopaedias, and other sources of factual reading. All pupils who sat the PIRLS assessment read and answered questions on one Literary Purpose text, and one Informational Purpose text. In PIRLS 2016, pupils in England, on average, achieved 70% of the available marks on Literary Purpose items, and 64% of the marks on Informational Purpose items. The International Median percentage of marks achieved on Literary and Informational Purpose text items was 61% and 56% respectively[14].

In PIRLS 2016, as shown in Table 3.1, pupils in England have a significantly greater average score on the Literary Purpose Scale than the Informational Purpose Scale[15]. This trend is common across the English-speaking countries participating in PIRLS, with the United States displaying the biggest difference (14-points) in performance on the Literary and Informational Purpose Scales.

Table 3.1 – Performance of England and comparator countries on the Literary and Informational Reading Purpose Scales (2016)

Country	Reading Purpose		
	Average PIRLS Score	**Literary Scale Score**	**Informational Scale Score**
Russian Federation	581 (2.2)	579 (2.2)	584 (2.3) ⬆
Singapore	576 (3.2)	575 (3.3)	579 (3.3) ⬆
Republic of Ireland	567 (2.5)	571 (2.7) ⬆	565 (2.7)
Northern Ireland	565 (2.2)	570 (2.5) ⬆	561 (2.3)
England	**559 (1.9)**	**563 (2.2)** ⬆	**556 (2.1)**
Sweden	555 (2.4)	556 (2.4)	555 (2.6)
United States	549 (3.1)	557 (3.0) ⬆	543 (3.1)
Australia	544 (2.5)	547 (2.4) ⬆	543 (2.6)
Canada	543 (1.8)	547 (1.9) ⬆	540 (1.9)
International Median	**539**	**540**	**539**
New Zealand	523 (2.2)	525 (2.3) ⬆	520 (2.4)

() Standard errors appear in parentheses.

⬆ Indicates that the average score on that reading purpose scale is significantly higher than for the other reading purpose scale.

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[14] Appendix A provides a more detailed breakdown of marks achieved across the different PIRLS subscales.

[15] Pupils in a country that has performed better on the *Informational Purpose Scale* have not necessarily achieved more marks on those texts. The scaling process takes into account differences in test item difficulty. England's higher score on the *Literary Purpose Scale* indicates that they were relatively strong on Literary text items compared to Informational text items *relative to the performances of all the participating countries on both kinds of text.*

The Russian Federation has the highest average performance of all the PIRLS 2016 countries on both Literary and Informational Purpose Scales, but their performance is significantly greater on the Informational Purpose Scale. Of the comparator countries, only Sweden perform equally well on both reading purpose scales, with every other comparator country performing significantly better on one of the two scales.

England and the majority of the comparator countries perform substantially better than the PIRLS International Median in terms of both the Literary and Informational Purpose Scales. The only exceptions are New Zealand, who perform below the International Median for both reading purposes, and Canada, who perform close to this median for the Informational Purpose Scale.

3.1.1. Trends in performance in reading purposes

As shown in Figure 3.1 below, pupils in England score significantly higher on the Literary Purpose Scale in PIRLS 2016 relative to PIRLS 2006 and 2011. There is no statistically significant difference in England's performance compared to PIRLS 2001. Nonetheless, England's PIRLS 2016 Literary Purpose score is their best performance on this scale across the four PIRLS cycles and continues a trend of performing substantially above the Literary Purpose International Median. This 2016 score of 563 is above the High International Benchmark of 550 – this means that, on average, pupils in England are successful in answering questions requiring them to interpret and integrate information on story events and character traits, and make inferences about the relationships between these, as well as recognise linguistic devices such as tone, metaphor and imagery.

The Russian Federation is the only trend comparator country to score significantly higher on the Literary Purpose Scale in PIRLS 2016 relative to all previous PIRLS cycles. Singapore has scored significantly above their performances in PIRLS 2001 and 2006, and Sweden has performed significantly better than PIRLS 2006 and 2011. New Zealand is the only trend comparator country whose score in PIRLS 2016 has significantly decreased from a previous PIRLS cycle, with an 8-point drop from PIRLS 2011. The United States also shows a downward trend between PIRLS 2011 and 2016, but this difference is not statistically significant. This downward trend is inconsistent with England and all other trend comparator countries, as well as the International Median, which all show a general upward trend from PIRLS 2006. The Russian Federation and Singapore also showed a marked upward trend between PIRLS 2001 and 2006.

Figure 3.1 - Performance of England and trend comparator countries on the Literary Purpose Scale across the four PIRLS cycles

	2001	2006	2011	2016
England	561	540 ⬆	553 ⬆	563
New Zealand	535	529	533 ⬇	525
Russian Federation	526 ⬆	563 ⬆	567 ⬆	579
Singapore	531 ⬆	554 ⬆	567	575
Sweden	562	548 ⬆	547 ⬆	556
United States	552	542 ⬆	563	557
International Median	522	532	533	540
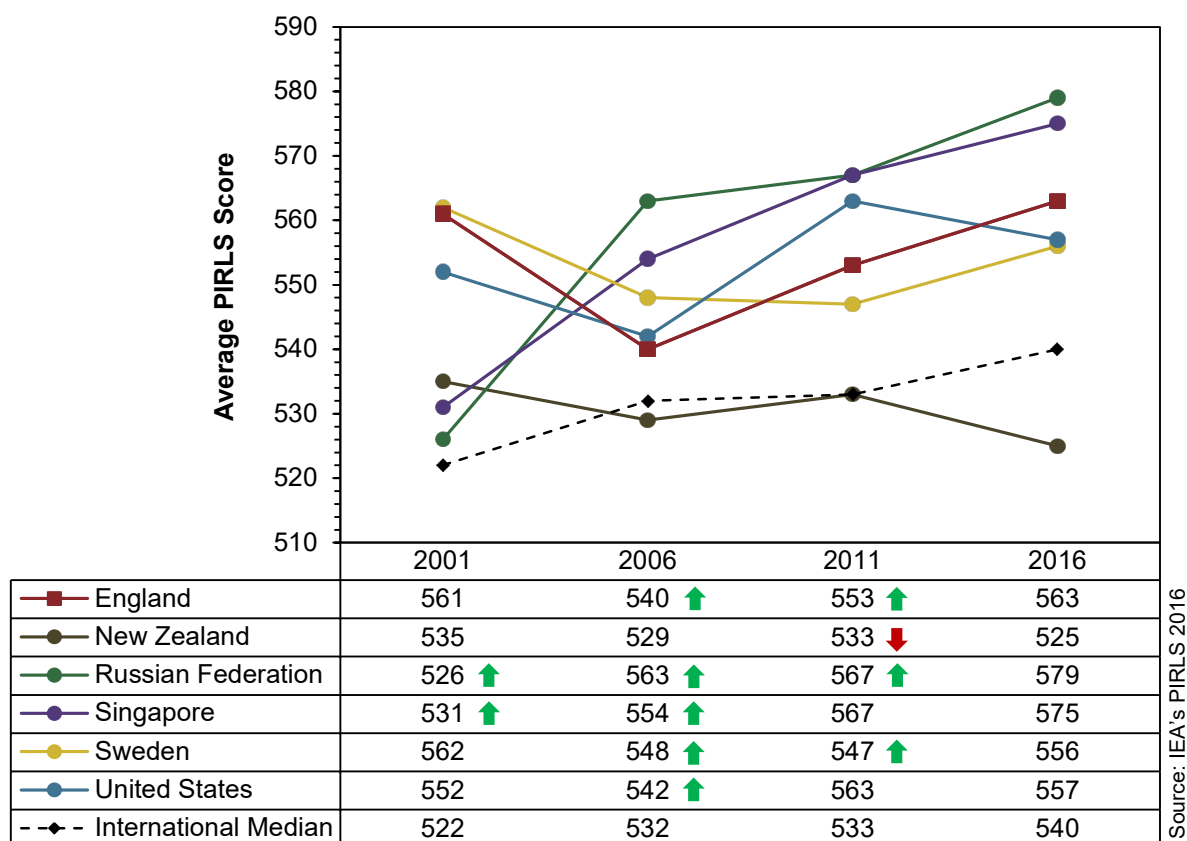
⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.

⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

Pupils in England also have a significantly higher average score on the Informational Purpose Scale than in any of the previous PIRLS cycles, as shown below in Figure 3.2. England's average score of 556 on this scale is also above the High International Benchmark score of 550. This means that, on average, pupils in England are able to locate information within dense text and complex tables, and they are able to use this information to make logical connections and inferences. They are also successful, on average, in integrating textual and visual information, as well as making evaluations and generalisations about the text. England has also continued the trend of performing substantially above the PIRLS International Median on the Informational Purpose Scale.

The Russian Federation and Singapore also have a significantly higher average score on the Informational Purpose Scale in PIRLS 2016 relative to all other cycles. In PIRLS 2016, Sweden has reversed their downward trend and scored significantly higher on this scale compared to PIRLS 2011. Both New Zealand and the United States have significantly decreased in their performance on the Informational Purpose Scale from PIRLS 2011, which continues a downward trend for New Zealand from PIRLS 2006.

New Zealand is now 20-points below the International Median, while the United States is 3-points above this median, having been 23-points above it in PIRLS 2011.

Figure 3.2 - Performance of England and trend comparator countries on the Informational Purpose Scale across the four PIRLS cycles

	2001	2006	2011	2016
England	548 ⬆	538 ⬆	549 ⬆	556
New Zealand	526	534 ⬇	530 ⬇	520
Russian Federation	530 ⬆	566 ⬆	570 ⬆	584
Singapore	528 ⬆	565 ⬆	569 ⬆	579
Sweden	560	550	537 ⬆	555
United States	534	538	553 ⬇	543
International Median	526	534	530	539

Source: IEA's PIRLS 2016

⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.
⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

In all four cycles, England has performed, on average, significantly better on the Literary Purpose Scale than on the Informational Purpose Scale. This is presented below in Figure 3.3, which shows the difference in the average scores between Literary and Informational Purpose Scales for England and the trend comparator countries across the four PIRLS cycles.

The United States and New Zealand also show this trend of higher relative performance on the Literary Purpose Scale, with the exception of PIRLS 2006 for New Zealand. This trend is also evident for the other four English-speaking countries (Northern Ireland, Republic of Ireland, Australia and Canada) since PIRLS 2011. The Russian Federation shows the opposite trend with significantly greater performance on the Informational Purpose Scale across all four cycles, and this has also been the trend for Singapore since PIRLS 2006. Sweden has shown the greatest similarity in performance between the Literary and Informational Purpose Scales, as there is no significant difference in the 2016 or 2006 cycles, and a very small, statistically significant difference in PIRLS 2001.

48

PIRLS 2011 was the greatest exception to this trend for Sweden, where they performed significantly greater on the Literary Purpose Scale. In terms of the International Median of the differences in performance on the two scales, there has been a small advantage on the Literary Purpose Scale across all four cycles.

Figure 3.3 - Differences in Literary and Informational Purpose Scale Scores across PIRLS cycles for England and trend comparator countries
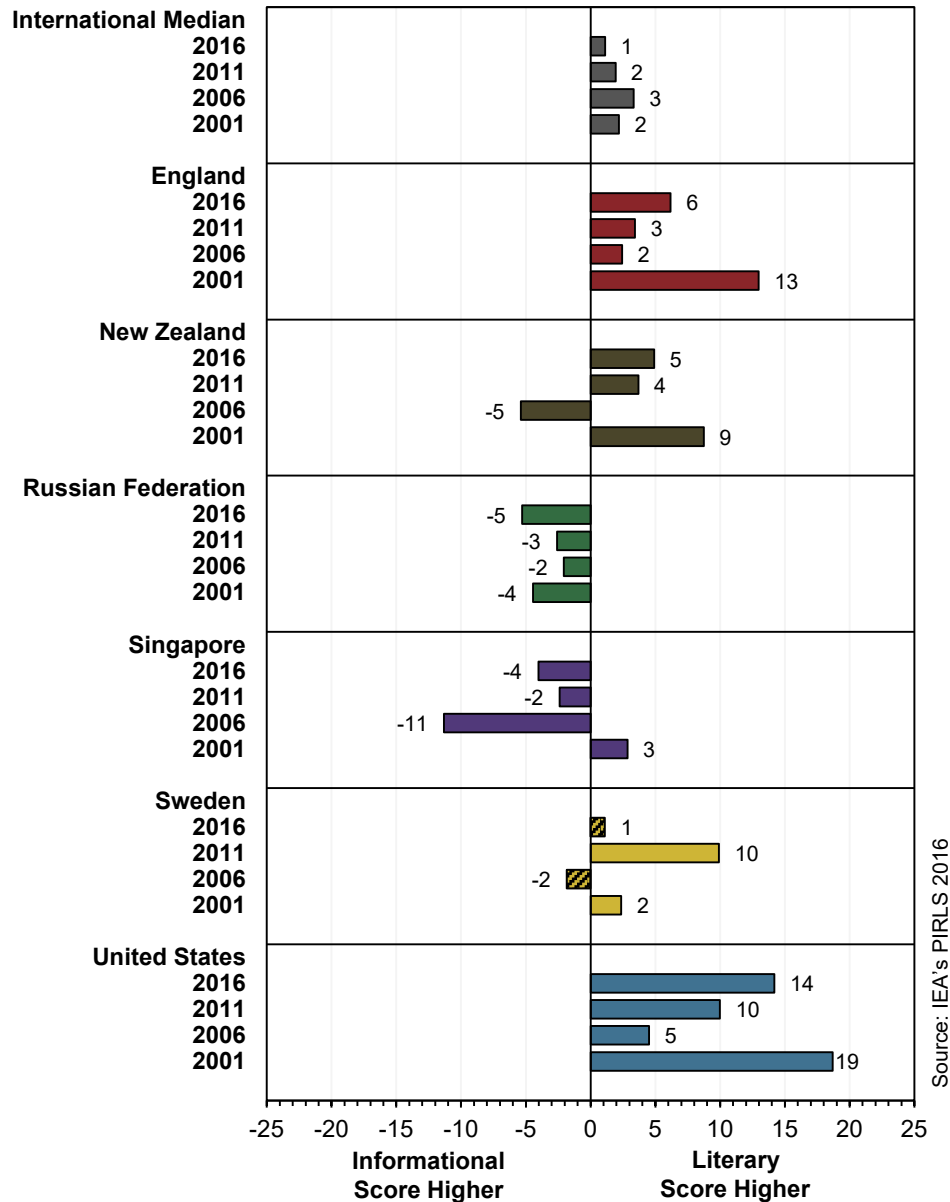
* The striped bar for Sweden in 2006 and 2016 indicates that the difference between performance on the *Literary Purpose* Scale and *Informational Purpose* Scale was not statistically significant. All other results represent statistically significant differences (there were no statistical analyses performed on International Medians). International Medians are calculated as the median of the differences in performance on the two scales across all participating countries.

49

3.2. Performance in reading comprehension processes

As discussed in section 1.1.1, the PIRLS 2016 framework identifies four reading comprehension processes. All four processes are assessed within both reading purposes, and include:

- Focus on and retrieve explicitly stated information
- Make straightforward inferences
- Interpret and integrate ideas and information
- Examine and evaluate content, language, and textual elements

These four processes are then psychometrically modelled and scores are represented on *two scales.* The first two processes form a *'Retrieving and Straightforward Inferencing'* *Scale*, whereas the latter two processes form an *'Interpreting, Integrating and Evaluating'* *Scale*. On average, pupils in England achieved 75% of the marks on 'Retrieving and Straightforward Inferencing' items, and 59% of the marks on 'Interpreting, Integrating and Evaluating' items in PIRLS 2016 (see Appendix A for further information). Internationally, these figures were 68% and 48% respectively. Table 3.2 presents the average performance of England and each comparator country on these two comprehension process scales in PIRLS 2016.

Table 3.2 - Performance of England and comparator countries on the comprehension process scales relative to overall performance in PIRLS 2016

Country	Reading Comprehension Process		
	Average PIRLS Score	Retrieving and Straightforward Inferencing Scale Score	Interpreting, Integrating and Evaluating Scale Score
Russian Federation	581 (2.2)	581 (2.3)	582 (2.2)
Singapore	576 (3.2)	573 (3.1)	579 (3.2) 🟢
Republic of Ireland	567 (2.5)	566 (2.6)	569 (2.9) 🟢
Northern Ireland	565 (2.2)	562 (2.1)	567 (2.2) 🟢
England	**559 (1.9)**	**556 (2.0)**	**561 (1.9)** 🟢
Sweden	555 (2.4)	560 (2.7) 🟢	553 (2.5)
United States	549 (3.1)	543 (3.0)	555 (3.1) 🟢
Australia	544 (2.5)	541 (2.6)	549 (2.4) 🟢
Canada	543 (1.8)	541 (1.8)	545 (1.8) 🟢
International Median	**539**	**541**	**536**
New Zealand	523 (2.2)	521 (2.3)	525 (2.4) 🟢

() Standard errors appear in parentheses.

🟢 Indicates that the average score for that comprehension process scale is significantly higher than for the other process scale.

England has a significantly higher score on the Interpreting, Integrating and Evaluating Scale[16], but England's average performance is substantially above the International Median on both comprehension process scales. This trend of significantly higher performance on the Interpreting, Integrating and Evaluating Scale is common across all of the English-speaking countries participating in PIRLS, with the United States displaying the biggest difference (12-points) in performance. The Russian Federation has the highest score on the two comprehension process scales and there is no significant difference in performance across the two. Of the comparator countries, only Sweden score higher on the Retrieving and Straightforward Inferencing Scale. In international terms, however, the median for the Retrieving and Straightforward Inferencing Scale is higher than for the Interpreting, Integrating and Evaluating Scale. Along with England, the majority of the comparator countries perform above the International Median. The only exceptions to this are New Zealand, who perform substantially below the PIRLS International Median on both comprehension process scales. Australia and Canada also perform at the International Median on the Retrieving and Straightforward Inferencing Scale.

3.2.1. Trends in performance in comprehension processes

As shown in Figure 3.4 below, pupils in England have a significantly higher average score on the Retrieving and Straightforward Inferencing Scale relative to their performance in the 2006 and 2011 cycles. There is no statistically significant difference compared to 2001, but England's PIRLS 2016 Retrieving and Straightforward Inferencing score is their best performance on this scale across the four PIRLS cycles and continues a trend of scoring substantially above the International Median.

The Russian Federation score significantly higher on the Retrieving and Straightforward Inferencing scale in PIRLS 2016 compared to all previous PIRLS cycles, while Singapore's score is significantly higher than 2001 and 2006. The upward trends of the Russian Federation and Singapore across the four cycles are similar to one another, as well as to the upward trend of the International Median. The Russian Federation has shown a particularly marked increase from PIRLS 2011 to 2016 relative to other trend comparator countries, except Sweden, whose pupils have reversed their downward trend and significantly increased their average score on this scale. New Zealand is the only trend comparator country who score significantly lower on the Retrieving and

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[16] Note that England's pupils actually achieved more of the available marks on the two processes comprising the Retrieving and Straightforward Inferencing Scale. However, their scale score on the Interpreting, Integrating and Evaluating Scale is higher because performance on these items was relatively strong compared to their performance on Retrieving and Straightforward Inferencing items, *when compared to the relative performances across these items internationally*.

Straightforward Inferencing Scale in PIRLS 2016 from their previous performances, with a 6-point drop from 2011. The United States also shows a downward trend between PIRLS 2011 and 2016, which brings the performance of their pupils much closer to the International Median, although the decrease in their score is not statistically significant.

Figure 3.4 - Performance of England and trend comparator countries on the Retrieving and Straightforward Inferencing Process Scale across the four PIRLS cycles

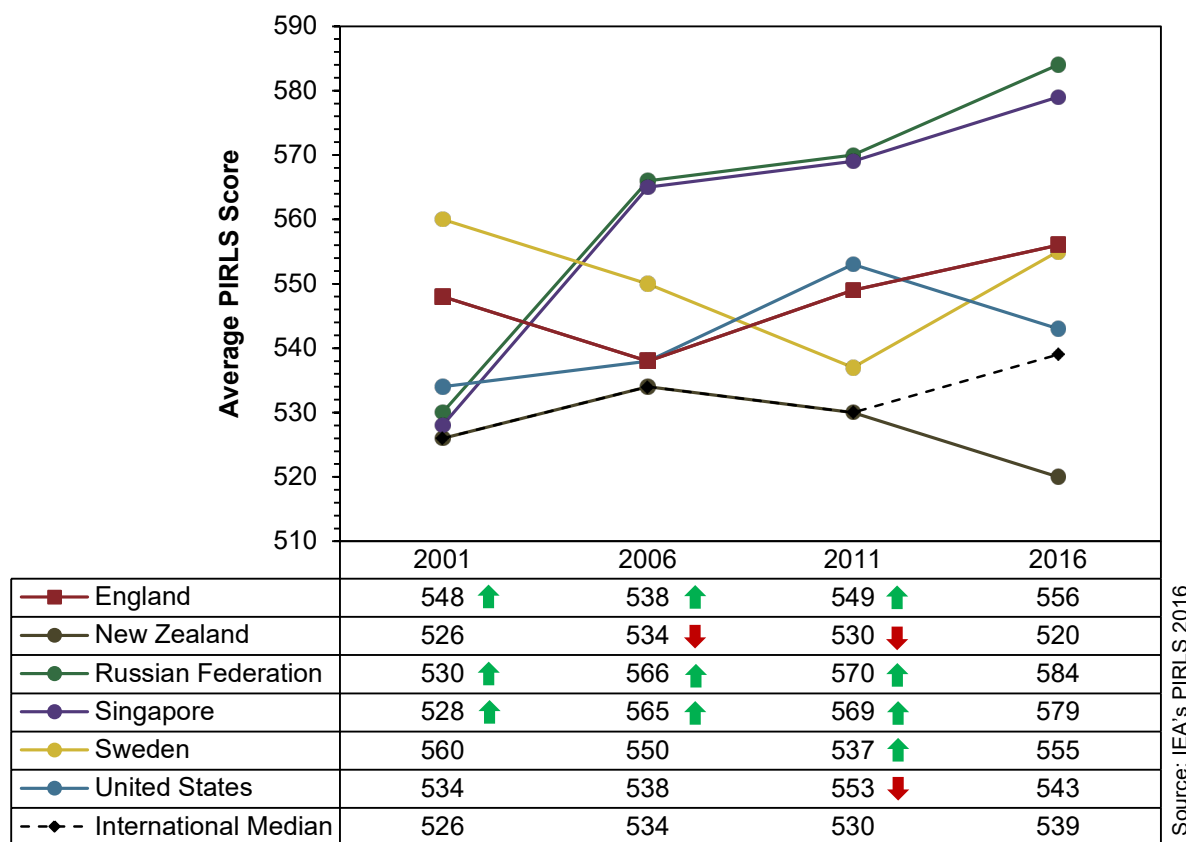|	2001	2006	2011	2016
England	549	537 ⬆	546 ⬆	556
New Zealand	525	527	527 ⬇	521
Russian Federation	533 ⬆	565 ⬆	565 ⬆	581
Singapore	534 ⬆	563 ⬆	565	573
Sweden	565	554	543 ⬆	560
United States	538	535	549	543
International Median	525	535	533	541
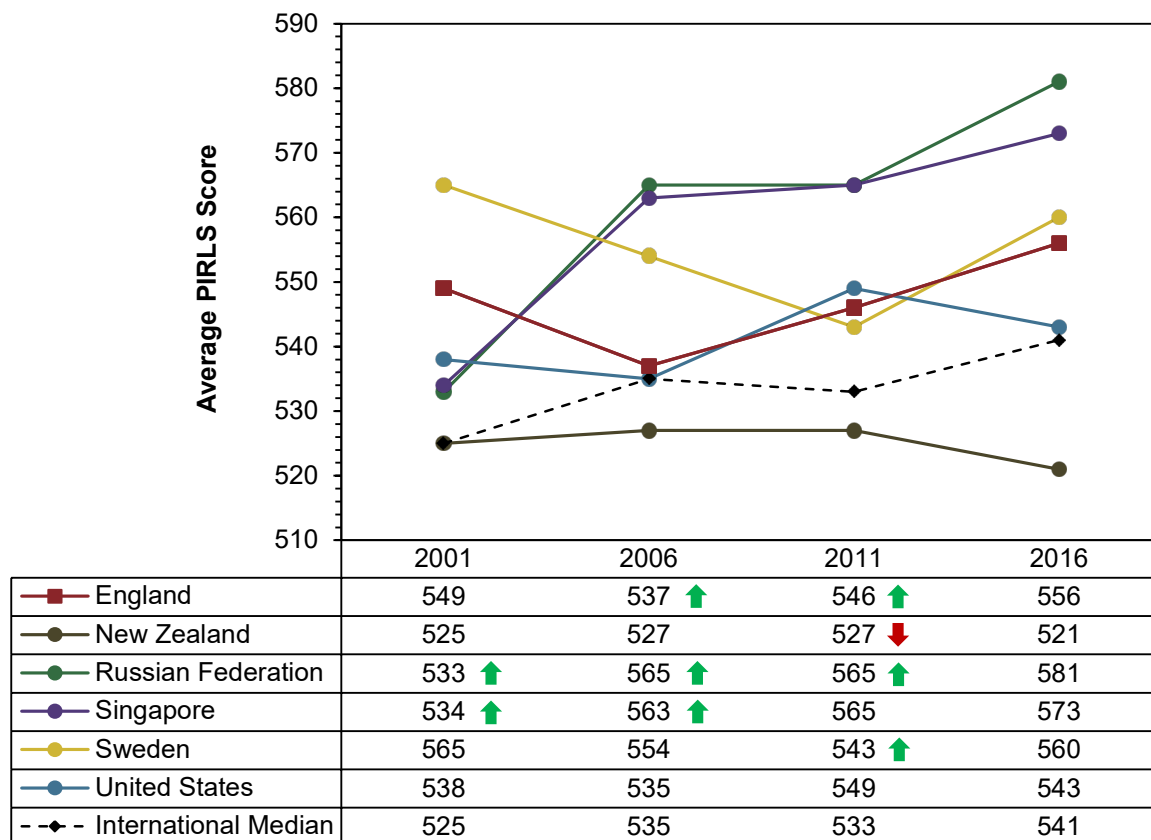
⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.

⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

Pupils in England also have a higher average score on the Interpreting, Integrating and Evaluating Scale compared to all previous cycles, as shown in Figure 3.5 below. However, this is only a statistically significant improvement compared to the 2006 cycle. England has also continued its trend of performing substantially above the International Median on this scale.

The Russian Federation also have their highest performance to date on the Interpreting, Integrating and Evaluating Scale in PIRLS 2016, scoring significantly higher than all previous PIRLS cycles. Singapore improve their average performance on this scale in 2016, but this increase is only statistically significant relative to the 2001 and 2006 cycles. Sweden again reversed their downward trend, scoring significantly higher compared to their 2006 and 2011 performances. New Zealand's average score in PIRLS

2016 on the Interpreting, Integrating and Evaluating Scale is significantly lower than all three of their previous cycles, with a drop of 10 points from 2011 to 2016, which now places them below the PIRLS International Median for the first time. The United States' score on this scale has also significantly decreased from 2011, but they continue to perform substantially above the International median.

Figure 3.5 - Performance of England and trend comparator countries on the Interpreting, Integrating and Evaluating Process Scale across the four PIRLS cycles

	2001	2006	2011	2016
England	556	542 ⬆	555	561
New Zealand	534 ⬇	537 ⬇	535 ⬇	525
Russian Federation	524 ⬆	564 ⬆	571 ⬆	582
Singapore	526 ⬆	557 ⬆	570	579
Sweden	559	546 ⬆	540 ⬆	553
United States	547	545 ⬆	563 ⬇	555
International Median	526	537	532	536
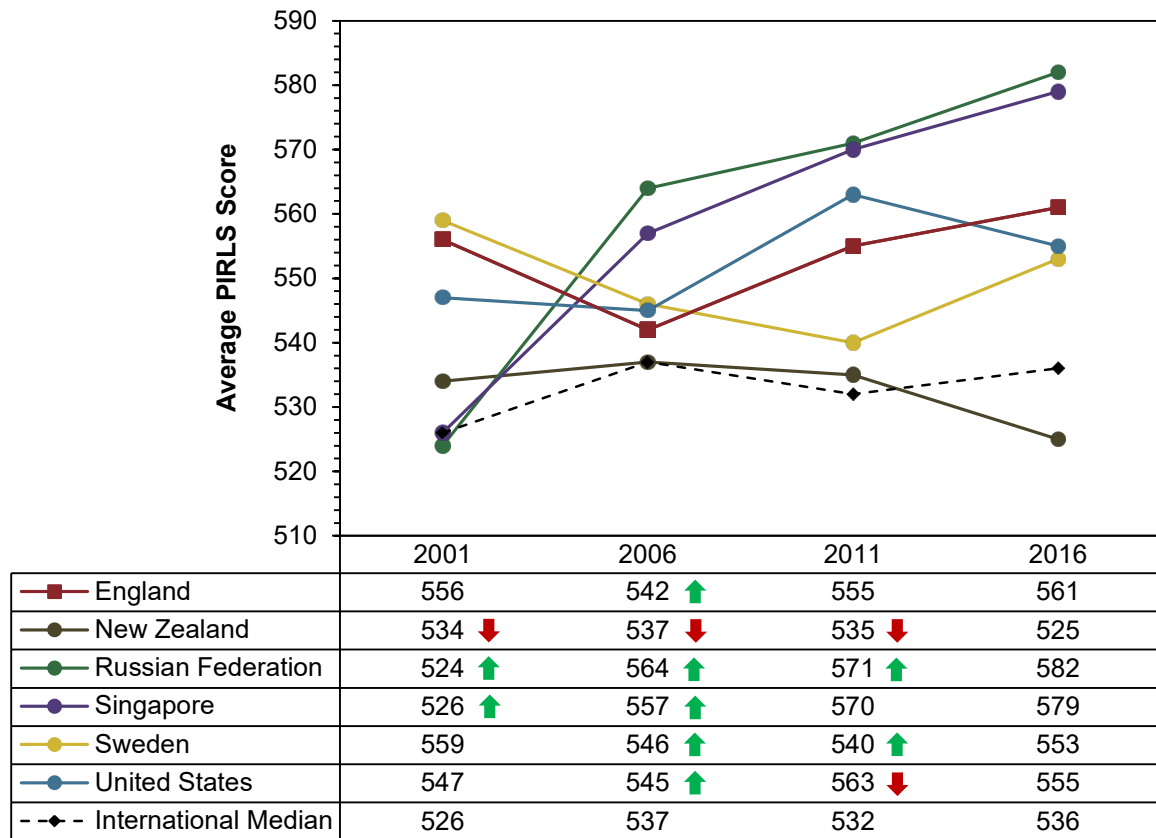
Source: IEA's PIRLS 2016

⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.
⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

Figure 3.6 below presents the difference in the average scores between the two Comprehension Process scales for England and the trend comparator countries across the four PIRLS cycles. In all four PIRLS cycles, England has performed significantly better on the Interpreting, Integrating and Evaluating Scale relative to the Retrieving and Straightforward Inferencing Scale, which is a pattern that is common to all of the English-speaking countries in PIRLS. In contrast, Sweden has consistently scored significantly greater on the Retrieving and Straightforward Inferencing Scale. The trends in the Russian Federation and Singapore are similar, with both countries originally scoring higher on the Retrieving and Straightforward Inferencing Scale, but later attaining higher average scores on the Interpreting, Integrating and Evaluating Scale. In the case of the Russian Federation, however, no statistically significant differences are observed in their

53

average performances across the two comprehension process scales in PIRLS 2006 and 2016.

Figure 3.6 - Differences in performance on the Retrieving and Straightforward Inferencing (RSI) Scale and Interpreting, Integrating and Evaluating (IIE) Process Scale across the four PIRLS cycles for England and trend comparator countries
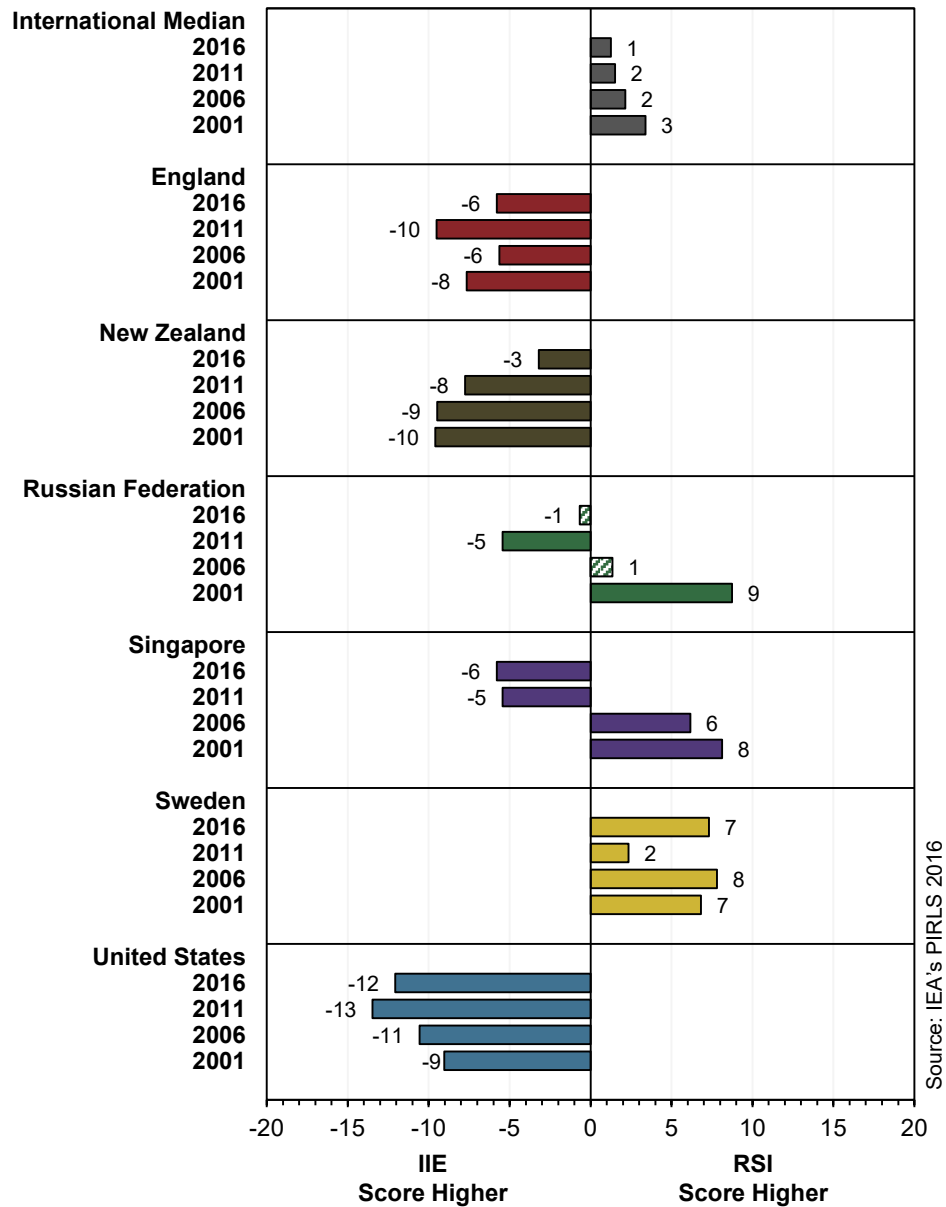
* The striped bar for the Russian Federation in 2006 and 2016 indicates that the difference in average performance on the *Retrieving and Straightforward Inferencing Process* Scale and the *Interpreting, Integrating and Evaluating Process* Scale was not statistically significant. All other results represent statistically significant differences (there were no statistical analyses performed on International Medians). International Medians are calculated as the median of the differences in performance on the two scales across all participating countries.

3.3. Contextualisation: literary reading in the United States and East Asia

England and the majority of the comparator countries have maintained a relative strength in one of the two reading purpose scales and reading comprehension scales across the four PIRLS cycles. In the case of the English-speaking countries' performances on the reading purpose scales, there is a clear trend of better average performance on literary text items, with all seven scoring significantly higher on the Literary Purpose Scale in PIRLS 2016. The largest disparity in performance between these two types of reading purpose was in the United States. In contrast, three East-Asian countries stand out as having a large relative advantage on the Informational Purpose Scale in PIRLS 2016 – Hong Kong (14-point advantage), Macao SAR (20-point advantage) and Chinese Taipei (21-point advantage). Box 3.1 presents a discussion of how these differences may arise from explicit educational policies and broader reading cultures.

Box 3.1 – Literary versus Informational Reading in the United States and East Asia

In all four PIRLS cycles, the United States has maintained a relative strength on literary texts compared to informational texts, which is a typical finding for the group of English-speaking countries in PIRLS. The relative dominance of literary texts over informational texts in elementary schooling years in the United States is well documented; Duke (2000) found that in first-grade classes in the United States, pupils engaged with informational texts less than four minutes per day. Similarly, Yopp and Yopp (2006) found that elementary school teachers in the United States heavily prioritised stories and other forms of literary text (95%) when reading to their pupils.

The Common Core State Standards (CCSS), first released in the summer of 2010 and quickly adopted across most of the United States, has emphasised the need for pupils to read more informational texts, and to do so at deeper levels. The CCSS report states that, "what little expository reading students are asked to do is too often of the superficial variety that involves skimming and scanning for particular, discrete pieces of information; such reading is unlikely to prepare students for the cognitive demand of true understanding of complex text" (National Governors Center for Best Practices & Council of Chief State School Officers, 2010, p.3). Despite this increased emphasis on informational texts since 2010, the drop in the average score for the United States between PIRLS 2011 and 2016 is greater for informational texts than for literary texts, suggesting that CCSS reforms may not yet have had the desired impact, as they are opposed by a strong cultural preference of literary reading for younger children. The effects of these reforms may be more apparent in future PIRLS cycles.

Research on the kinds of reading that pupils in East-Asian countries engage in at home and school is unfortunately limited. However, cultural differences in attitudes towards reading and its relative importance are commonly discussed in comparisons of English-speaking and Chinese-speaking educational systems; Poon (2010), for example, argues that East-Asian educational cultures focus on being globally competitive and this has created stronger links between educational goals and future economic productivity. This may explain why recent studies have found that reading for pleasure is seen as less important for children by parents in some East-Asian countries, particularly compared to the United States or England (Yuen, 2016; Garces-Bascal & Yeo, 2017). Moreover, Tse, Lan, Lan, Chan and Loh (2006) point out that Chinese reading mastery is highly reliant on hard work, rote learning and repeated practice, and so pupils from Chinese-speaking systems tend to regard reading as a school activity and less so as a leisure activity.

4. Reading performance of higher and lower achieving pupils

Chapter outline

This chapter examines the distributions of performance in PIRLS 2016, i.e., the spread between the highest-performing and lowest-performing readers, and the trends in these distributions across PIRLS cycles. It particularly focuses on performance by pupils in the 90th (higher-performing) and 10th (lower-performing) percentiles in England and the comparator countries. The chapter also looks at how the PIRLS scores of pupils in England correspond with pupils' performance in two of the national assessments of reading in England – the Year 1 phonics check, which was also taken in Year 2 by a subset of pupils, and the Key Stage 1 (KS1) reading assessment of pupils in Year 2. The chapter concludes with a discussion of the consistently narrow distribution of performance in the Russian Federation and their strong performance at the 10th percentile.

Key findings

- Historically, there has been a comparatively large gap in PIRLS performance between higher-performing and lower-performing pupils in England. While the highest-performing pupils in England have been among the strongest PIRLS performers internationally, the lower-performing pupils have scored below their counterparts in many other countries with a similar overall average performance to England. In PIRLS 2016, this gap between England's high and low-performing pupils has reduced, and it is now the smallest it has been across all PIRLS cycles.

- The largest improvements in England have been for the lower-performing pupils at the 10th percentile. Their average performance increased by 15-points from PIRLS 2011, compared to a 3-point increase at the 90th percentile.

- Pupils who met the expected standard in the Year 1 phonics check have an average score of 587 in PIRLS 2016, which is 28-points higher than England's average score. The correlation between the performance in the phonics check and PIRLS 2016 is 0.52, indicating a moderate relationship between the two assessments.

- Pupils who attained the highest level in their KS1 reading assessment (Level 3) have an average PIRLS score approximately 160-points higher than those who attained the lowest level (Level 1).

4.1. Distribution of performance in 2016

Up until now, this report has focused upon the mean performance of individual countries and the median of these means across countries as estimates of average performance in PIRLS 2016. These averages, however, do not provide information regarding the range of performance within and across countries, which in substantive terms represents the difference in reading performance between the lowest and highest-performing readers. In previous PIRLS cycles, despite having a relatively high average performance, the distribution of scores in England has been comparatively wide, with the highest-performing pupils scoring substantially better than the highest-performing pupils in countries with similar average performance. The converse side of this is that England has also had a long 'tail' of performance, with lower-performing pupils scoring substantially below the equivalent pupils in these same countries. For example, the distribution of scores in Sweden has historically been much narrower than in England, with fewer pupils scoring very highly in PIRLS, but also fewer pupils achieving very low PIRLS scores. This has also been reflected in performance at the International Benchmarks, which was discussed in section 2.1.4.

To assess the distribution of PIRLS scores in England and the comparator countries in PIRLS 2016, and for ease of interpretation, this chapter will focus on how pupils perform at the 10th percentile and the 90th percentile. The 10th percentile score represents the highest score achieved by pupils in the bottom 10% of performers in that country. Conversely, the 90th percentile score represents the highest score achieved by pupils performing in the bottom 90% (that is, the highest score achieved by a pupil who was not in the top 10% of performers). The 50th percentile represents the median score for that country.

Table 4.1 below gives the 10th, 50th and 90th percentile scores for England and the comparator countries in PIRLS 2016, as well as the number of score-points separating performance at the 10th and 90th percentiles, i.e., the range of scores for the middle 80% of pupils. In England, 200-points separate pupils performing at the 10th and 90th percentiles. This figure is similar to many other comparator countries, including the United States, Northern Ireland and Singapore, and is 6-points greater than the International Median. Sweden and the Russian Federation stand out as having narrower gaps between their lowest and highest-performing pupils. In Sweden, pupils at the 10th percentile perform 10-points higher than those in England, whereas their pupils at the 90th percentile are 20-points below those in England. In the Russian Federation, the highest average performer in PIRLS 2016, pupils at the 10th percentile score 40-points higher than the equivalent pupils in England, whereas at the 90th percentile, they are only 8-points above those pupils in England.

Table 4.1 - Average scores at the 10th, 50th and 90th percentile for England and comparator countries (2016)

Country	Performance by Percentile (2016)			
	10th Percentile	50th percentile	90th Percentile	High-Low Gap (90th – 10th)
New Zealand	400 (5.3)	532 (2.3)	630 (3.0)	230
Australia	432 (5.5)	552 (3.1)	644 (2.7)	212
Singapore	469 (6.2)	583 (2.9)	673 (4.2)	203
Northern Ireland	460 (5.4)	571 (2.4)	662 (2.2)	202
England	**455 (3.3)**	**564 (2.1)**	**655 (2.9)**	**200**
United States	446 (6.3)	555 (3.2)	645 (4.0)	199
International Median	**443**	**545**	**625**	**194****
Canada	444 (3.9)	549 (2.2)	634 (2.0)	190
Republic of Ireland	472 (5.2)	572 (2.7)	656 (3.2)	183
Sweden	465 (4.0)	561 (2.8)	635 (3.5)	170
Russian Federation	495 (4.1)	584 (2.5)	663 (2.6)	167

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

* Points Gap calculated as the score at the 90th percentile minus the score at the 10th percentile.

** International Median percentile-gap is the median percentile-gap across countries.

4.2. Trends in performance of lower and higher-performing pupils

Figure 4.1 below presents the performance by England and the trend comparator countries at the 10th percentile across the four PIRLS cycles. England's score at the 10th percentile in 2016 is higher than any previous PIRLS cycle and 15-points higher than their score in PIRLS 2011. England's improvement at the 10th percentile is the largest of the trend comparator countries, and exceeds the 12-point improvement by the Russian Federation and 10-point improvement by Singapore at this percentile. The performance at the 10th percentile for these two countries is also the highest it has been across all of the PIRLS cycles.

Internationally, the median improvement at the 10th percentile from PIRLS 2011 is 7-points. In contrast, the United States' 10th percentile score has dropped by 12-points, and New Zealand's has dropped by 10-points. In the case of New Zealand, their performance at the 10th percentile is lower than in 2006 and 2011, but equal to 2001. The Russian Federation has consistently scored highly at the 10th percentile, including in PIRLS 2001 when their overall average score was much closer to the International Median.

Figure 4.1 - Performance at the 10th percentile for England and trend comparator countries across PIRLS cycles

	2001	2006	2011	2016
England	437	423	440	455
New Zealand	400	415	410	400
Russian Federation	443	474	482	495
Singapore	402	456	459	469
Sweden	477	465	457	465
United States	431	441	458	446
International Median	416	433	435	443
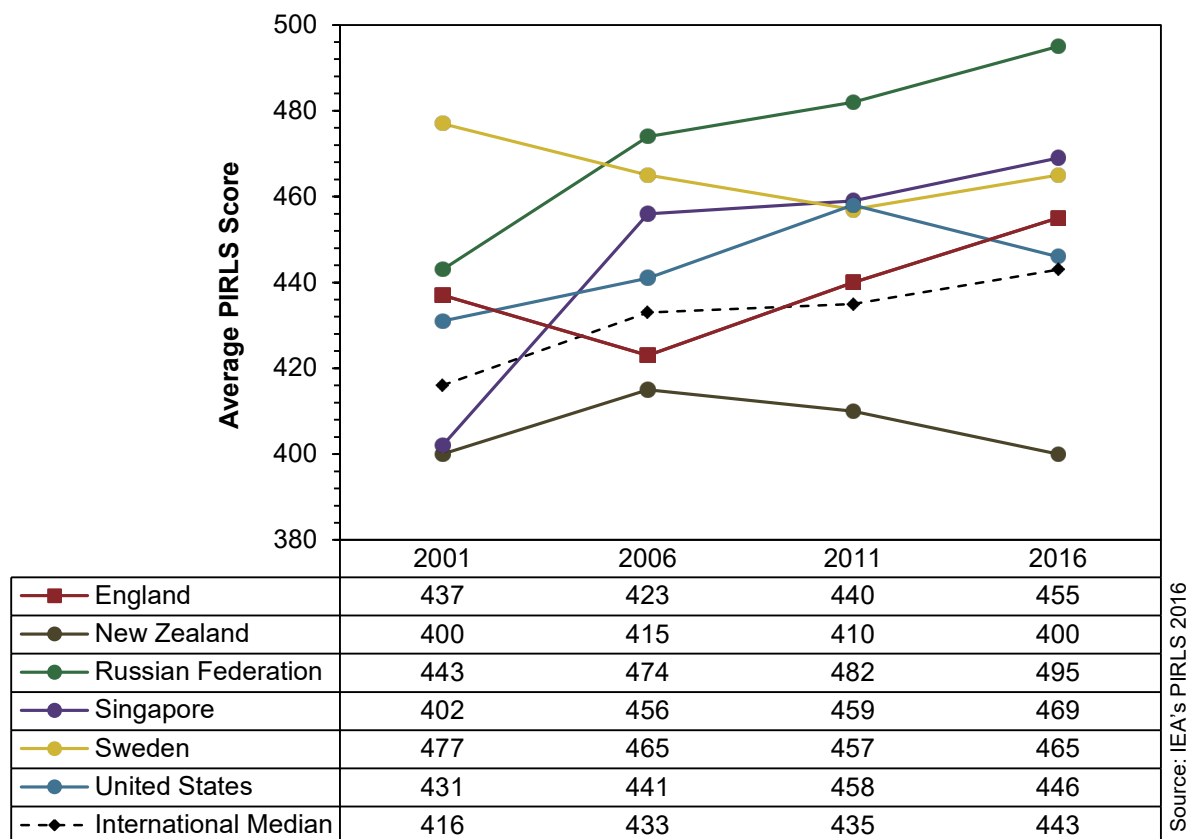
Figure 4.2 below shows performance by England and the trend comparator countries at the 90th percentile across the PIRLS cycles. England has consistently performed well at the 90th percentile, and was the top performer in this respect in PIRLS 2001. In addition, England's score of 655 at the 90th percentile is among the highest of all of the participating countries in PIRLS 2016, although it is below the corresponding score in PIRLS 2001.

While the Russian Federation has the highest overall average performance in PIRLS 2016 and a considerably higher score than Singapore at the 10th percentile, Singapore has a higher score at the 90th percentile. The Russian Federation's scores at the 90th percentile have been quite similar to those in England since PIRLS 2006. New Zealand's score at the 90th percentile is 9-points down from PIRLS 2011 and is now just above the International Median. Sweden has the largest improvement of the trend comparator countries, up 13-points from 2011. The drop by the United States at the 90th percentile (3-points) since 2011 is considerably smaller than their drop at the 10th percentile.

Figure 4.2 - Performance at the 90th percentile for England and trend comparator countries across PIRLS cycles

	2001	2006	2011	2016
England	658	645	652	655
New Zealand	640	637	639	630
Russian Federation	608	649	649	663
Singapore	634	652	665	673
Sweden	641	627	622	635
United States	640	631	648	645
International Median	614	616	618	625
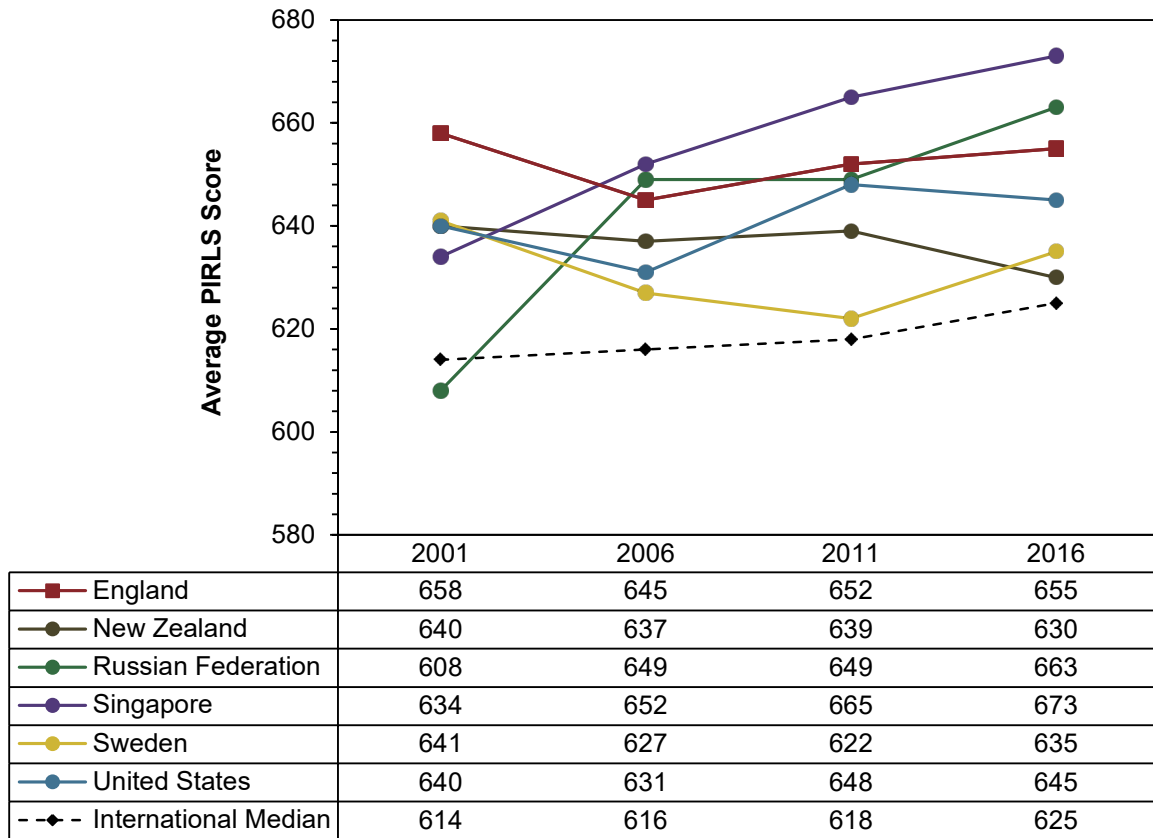
Figure 4.3 below displays the high-low gap in performance between the 10th and 90th percentiles for England and the trend comparator countries across the four PIRLS cycles. As previously discussed, this gap has typically been comparatively large for England and the 2016 gap of 200-points is the smallest it has been across all four PIRLS cycles. England's high-low gap is now similar to that in Singapore and the United States, although it is still larger than the International Median gap. This reduction is mainly attributable to an increase in the 10th percentile score, whereas the 90th percentile scores have stayed more similar across cycles. The gap between the 10th and 90th percentiles remains comparatively large in New Zealand and comparatively small in both the Russian Federation and Sweden.

Figure 4.3 - Difference in performance at the 10th and 90th percentiles for England and trend comparator countries across PIRLS cycles

Source: IEA's PIRLS 2016
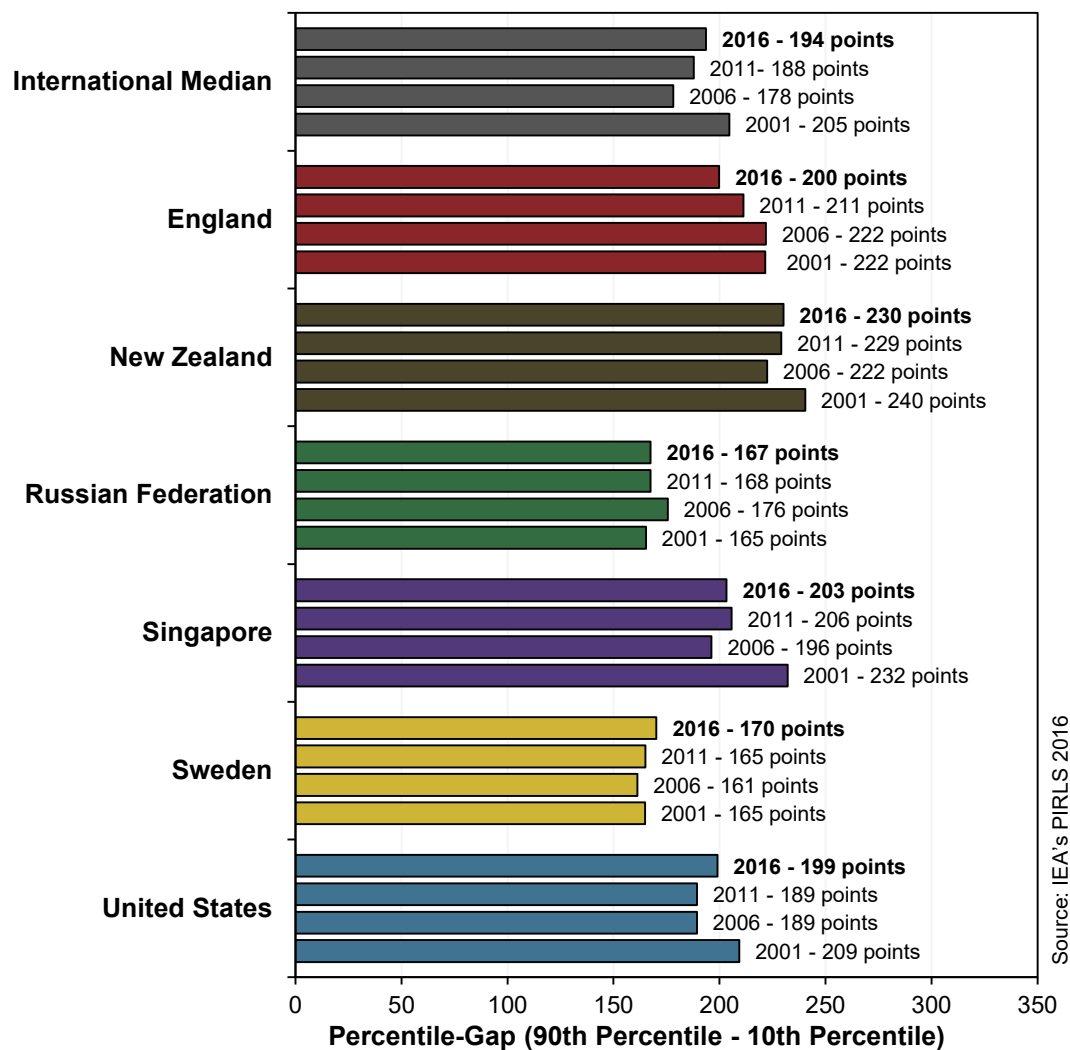
Figure 4.4 below shows how performance at the 10th, 25th, 50th, 75th and 90th percentiles in 2016 compares to performance in previous PIRLS cycles. At all five percentiles, with the exception of the 90th percentile in PIRLS 2001, England has scored higher in 2016 than all three previous cycles. The improvements in scores in 2016 are largest at the lower percentiles – England score 15-points higher than their previous best at the 10th percentile (in 2011), 7-points higher than their previous best at the 25th percentile (in 2001), and 5-points higher than their previous best at the 50th percentile (2001). Overall, Figure 4.4 reinforces the point that the average improvement by England's pupils in PIRLS 2016 is mainly attributable to improvements by pupils performing at or below the median level of performance, and particularly improvements by the lowest performing pupils.

Figure 4.4 - Performance of England's pupils at the 10th, 25th, 50th, 75th and 90th Percentiles in PIRLS 2001, 2006 and 2011, relative to performance in PIRLS 2016
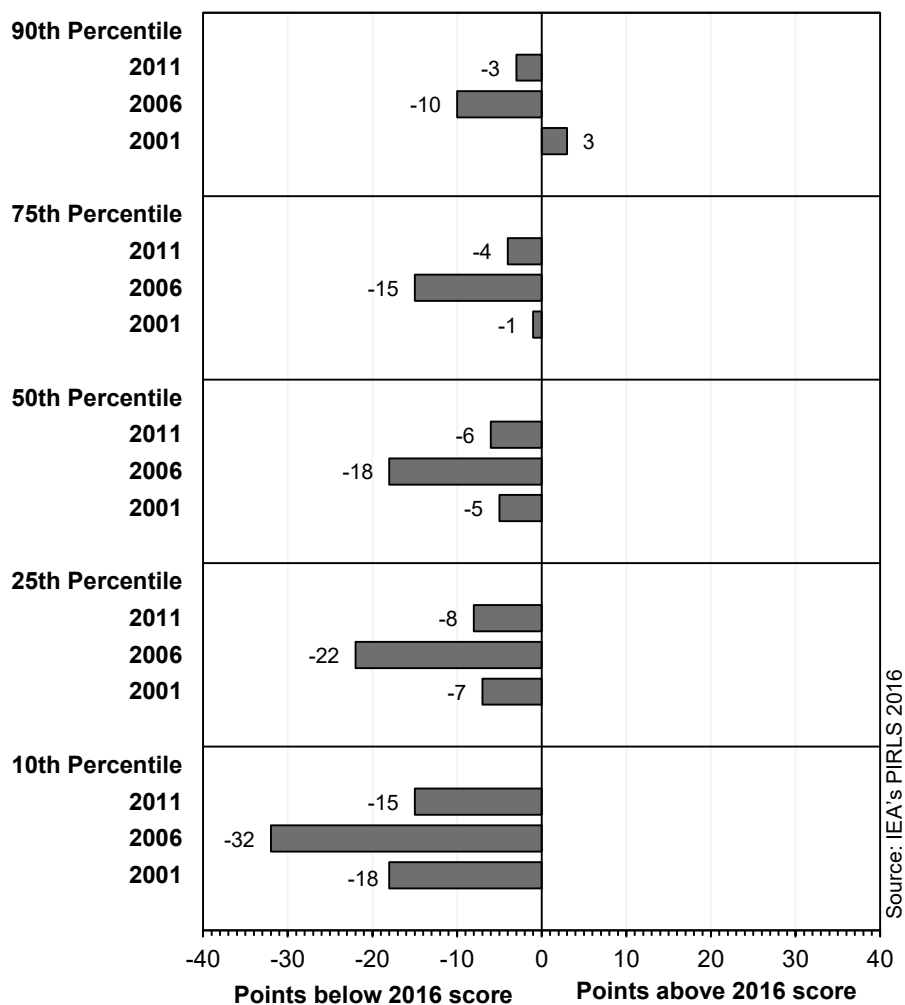
4.3. Performance by prior reading attainment

4.3.1. Performance by prior attainment in the Year 1 phonics check

The Year 1 phonics check was introduced to England's primary schools in the 2011-2012 academic year and was taken for the first time by all Year 1 pupils[17] in June 2012. This check consists of 20 words and 20 pseudo-words which the pupil is asked to read aloud to their teacher. The check aims to identify pupils whose ability to decode the sounds of words and blend them correctly is below the expected standard. In the 2012 phonics check, pupils who correctly read 32 or more of the words were deemed to be reading at

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[17] Participation in the phonics check was not compulsory for pupils in independent schools.

the expected standard. Those who read less than 32 words correctly were required to retake the phonics check in the following academic year (i.e., Year 2).

England's 2016 sample are the first PIRLS cohort to have taken this Year 1 phonics check, which enables the examination of how this assessment relates to future reading performance. Year 1 phonics check scores were available for 4,641 pupils in the sample. Of these, 60% of pupils scored 32 or higher (compared to 58% nationally), thereby meeting the expected standard. A finer summary of the percentages of pupils in England's PIRLS 2016 sample that achieved each mark in the phonics check is provided in Appendix E.

Figure 4.5 presents the mean PIRLS scores of pupils in England with respect to their raw mark in the Year 1 phonics check. It shows that there is a moderate, positive relationship between performance in the phonics check and performance in PIRLS 2016; pupils who correctly read all 40 words in the phonics check (approximately 10% of the sample) have an average PIRLS score of 617, which is just below the Advanced Benchmark. Those scoring at the threshold for the expected standard of 32 in the phonics check (approximately 8% of the sample) have an average PIRLS score around 555, which is similar to England's overall average performance in PIRLS 2016.

Figure 4.5 - Performance of England's pupils in PIRLS 2016 by their score in the Year 1 phonics check

Source: IEA's PIRLS 2016 and National Pupil Database (NPD)
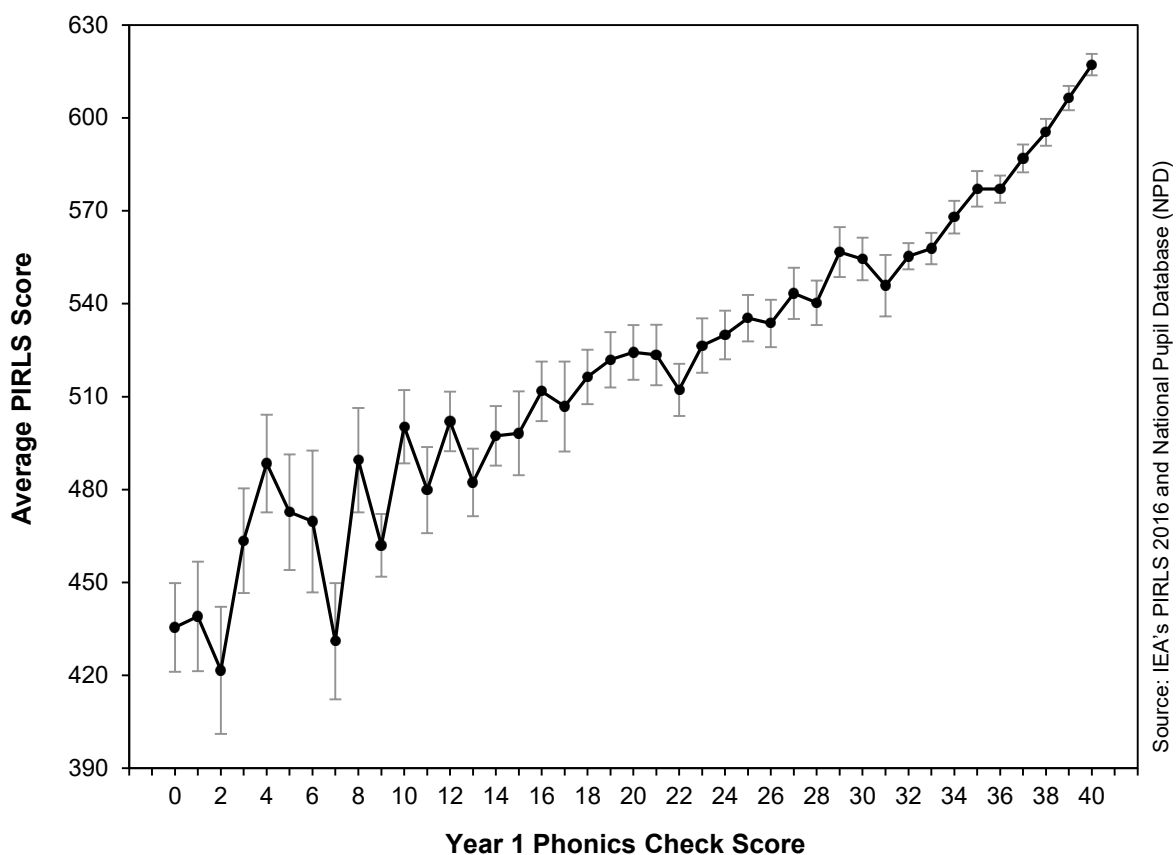
Lower scores in the phonics check are associated with lower scores in PIRLS 2016, with those only answering 2 words correctly having the lowest average PIRLS performance (approximately 422). However, it should be noted that there are far fewer pupils answering very few words correctly, and this is reflected in the much larger standard errors for their corresponding average PIRLS scores. The average score of those meeting or exceeding the expected standard in the phonics check (score between 32 and 40) is 587. Overall, the correlation between performance in the phonics check and performance in PIRLS 2016 is 0.52, which indicates a moderate, statistically significant relationship between performances on the two assessments.

While there is a clear relationship between performance on the phonics check and performance in PIRLS 2016 at the aggregated level presented in Figure 4.5 above, Figure 4.6 shows that the range of individual PIRLS scores at each raw mark on the phonics check is quite wide – each point on the scatterplot indicates a pupil's score on both tests, with the line showing the trend across the range of phonics check scores and PIRLS scores.

Figure 4.6 – Scatterplot of PIRLS performance by Year 1 phonics score

Source: IEA's PIRLS 2016 and National Pupil Database (NPD)
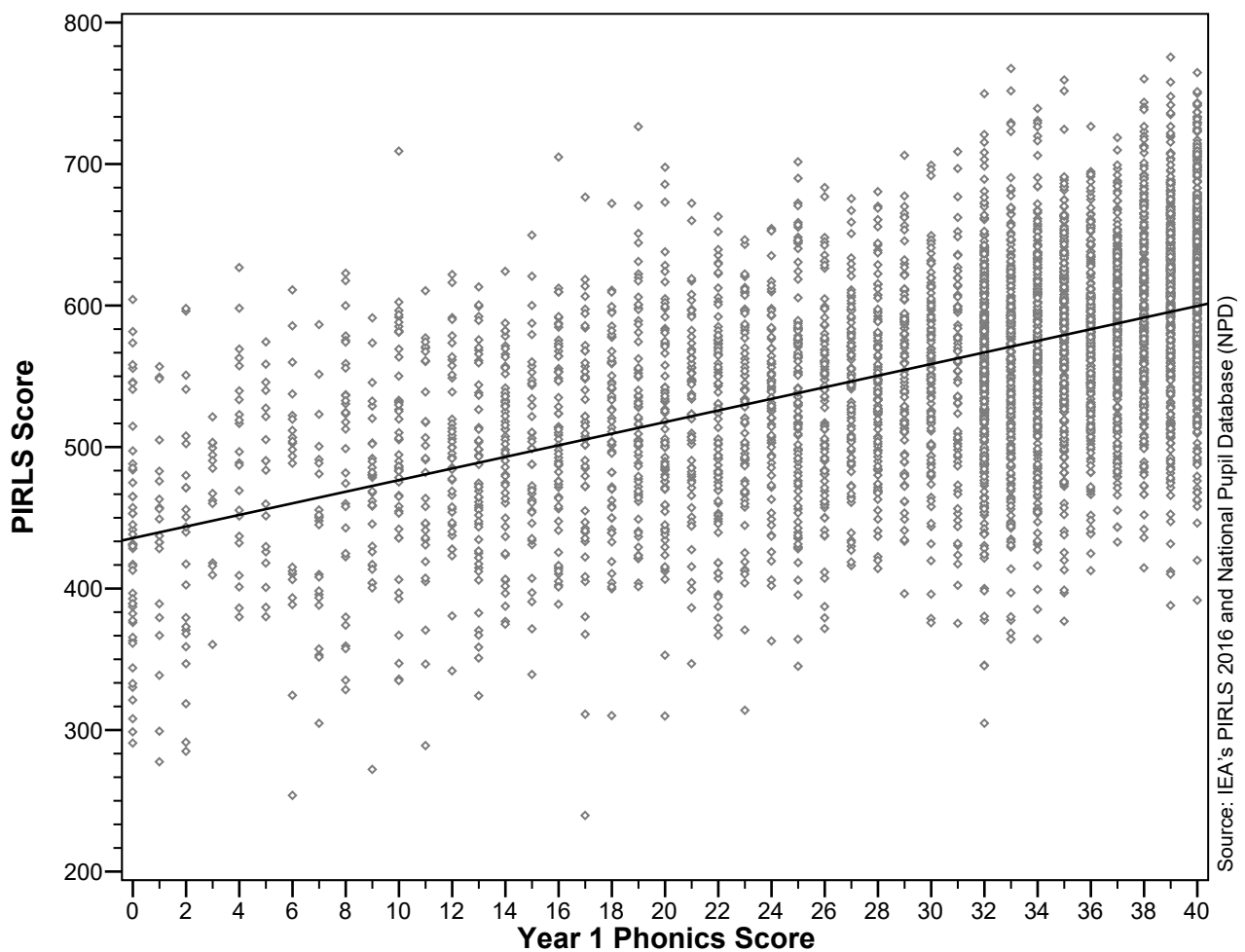
4.3.2.   Performance by prior attainment in the Year 2 phonics check

If a pupil did not meet the expected standard score of 32 at the end of Year 1, the pupil was required to take the phonics assessment again the following year. In total, 1,868 pupils in the PIRLS 2016 sample were given the phonics check at the end of Year 2. The majority of these pupils were being administered the check a second time, but 68 pupils had not taken the phonics check in Year 1. Of the pupils who sat the phonics check in Year 2, 76% met the expected standard (a total score of 32). A finer summary of the performances of these pupils is also available in Appendix E.

Figure 4.7 below shows the relationships between scores in the phonics check taken in Year 2 and average PIRLS performance. Given the very small percentage of pupils achieving raw marks below 32 in the Year 2 phonics check, means were calculated for three aggregated groups from this score range; those scoring below 22, those scoring between 22 and 27, and those scoring between 28 and 31, with each of these groups accounting for approximately 8% of pupils. For scores on the phonics check of 32 and above, the average PIRLS performance is presented for each individual raw mark.

Pupils who met the expected standard in the Year 2 phonics assessment have a higher average PIRLS performance than those who did not meet this standard. While higher scores in the Year 2 phonics check are associated with higher performance in PIRLS 2016, the average scores of pupils meeting the expected standard was lower than for the Year 1 check, with only those scoring 39 or more performing similarly to England's average PIRLS score of 559. Pupils who just met the expected standard in Year 2 have an average PIRLS score of approximately 513, which is substantially lower than England's overall average performance. Those scoring less than 22 on the Year 2 phonics check have an average PIRLS score of 442, which is more than 100-points below England's overall average performance.

Figure 4.7 – PIRLS performance of pupils in England by their score in the Year 2 phonics check
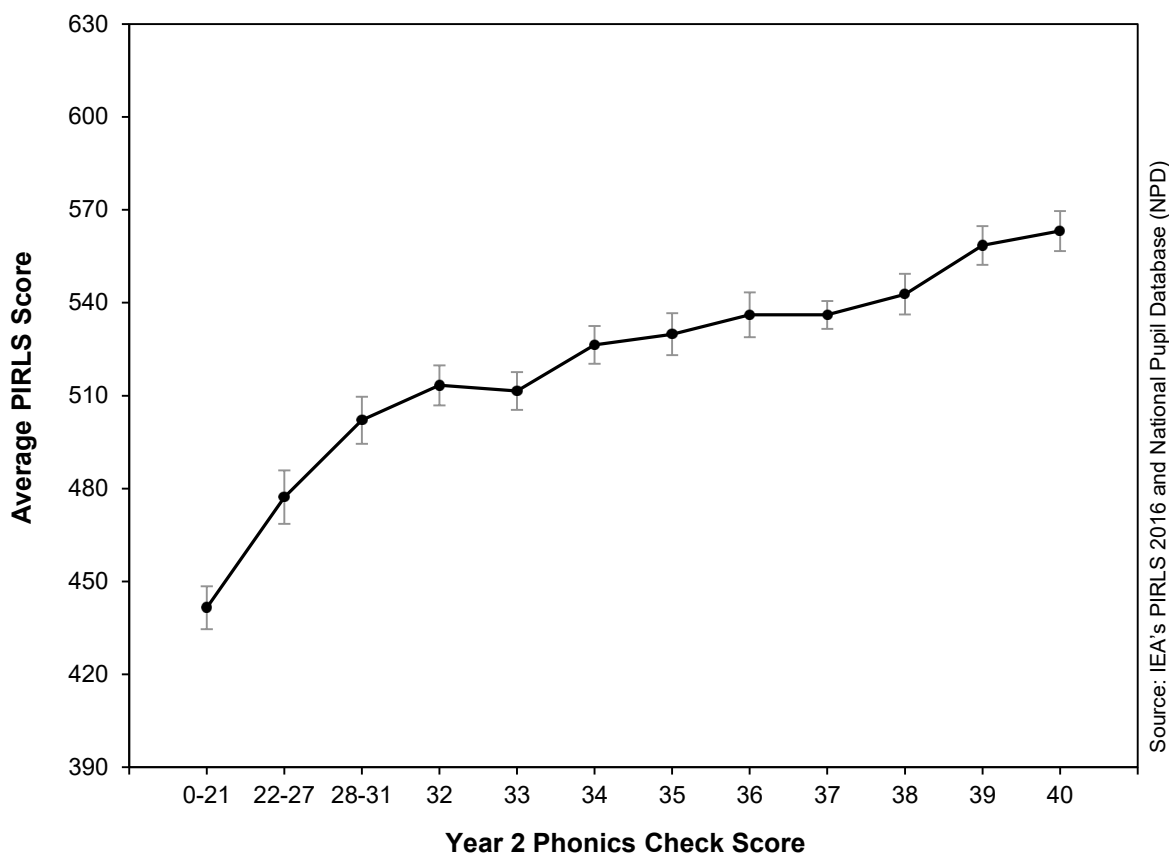
4.3.3. Performance by prior attainment in Key Stage 1 Reading

At the end of Year 2, pupils in England sit a number of tests for their Key Stage 1 (KS1) assessments. These are typically conducted informally as a component of the pupils' lessons and most pupils do not realise that they are being assessed[18]. The pupils in England's PIRLS 2016 sample were in Year 2 during the 2012-2013 academic year[19]. At that time, all teachers had to provide a levelled assessment of their pupils' reading ability and there was flexibility in the method that the teachers used to obtain this assessment; teachers could choose from a selection of government approved tasks and tests designed to assess different levels of reading proficiency. The grading levels included,

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[18] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/603590/Information_for_parents_-_2017_NCTs_at_the_end_of_key_stages_1_and_2_v4_PDFA.pdf

[19] Since 2016, reading is assessed over two compulsory papers, one designed to be widely accessible to Year 2 pupils, and a second aimed at providing a greater level of challenge with more emphasis on independent reading. The grading system has moved away from levels and now uses a standardised scoring system, with pupils receiving a score between 85 and 115 based on their combined mark across the two tests. A score of 100 represents the expected standard of reading for a pupil in Year 2. An analysis of how this system relates to PIRLS performance is not possible for this PIRLS cycle.

Levels 1, 2C, 2B, 2A and 3, with higher levels indicating greater reading proficiency. In England's PIRLS 2016 sample, approximately 27% received a Level 3, 26% received a Level 2A, 21% received a 2B, 9% a 2C, and just 7% received a Level 1. KS1 Reading Levels were not available in the NPD for the remaining 10% of pupils in the PIRLS sample.

Figure 4.8 shows that KS1 reading levels are also associated with PIRLS performance; those achieving a Level 3 in their KS1 reading assessment have an average PIRLS score around 615, which is only slightly below the Advanced Benchmark of 625. In contrast, pupils who achieved the lowest KS1 reading level, Level 1, have an average PIRLS score of 460, which is below the Intermediate Benchmark of 475. Each higher level on the KS1 reading assessment is associated with a higher average score in PIRLS 2016.

Figure 4.8 – Performance of pupils in England by their KS1 reading level

Source: IEA's PIRLS 2016 and National Pupil Database (NPD)
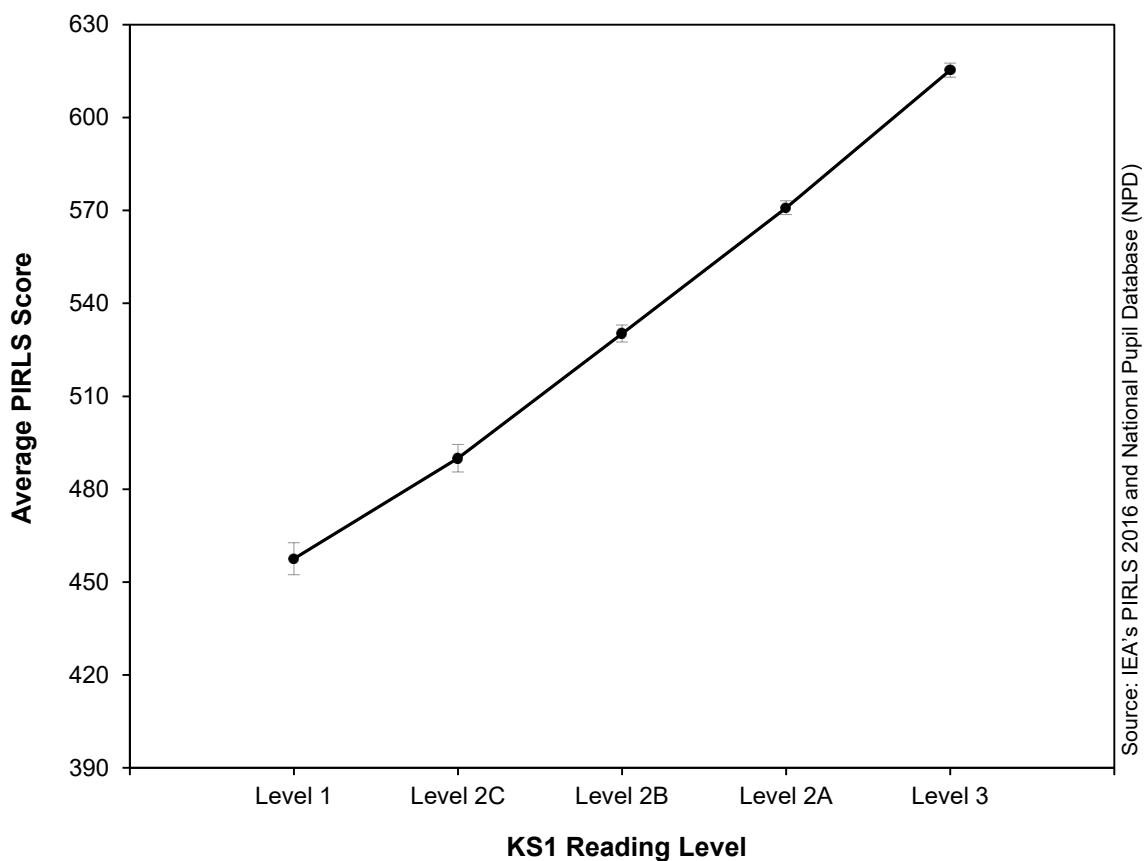
Figure 4.9 below compares the mean performance of England's pupils at each KS1 reading level with respect to the distributions of performance in each of the comparator countries. For each country, the dark red bar indicates the range of scores between the 10th and 25th percentile, and the dark green bar represents scores between the 75th and 90th percentile. The light red and green areas represent the scores between the 25th and

75th percentiles, and the countries' average PIRLS 2016 scores (± 2 standard errors) are shown in grey.

Figure 4.9 – Performance of pupils by their KS1 levels with respect to distributions of performance in comparator countries
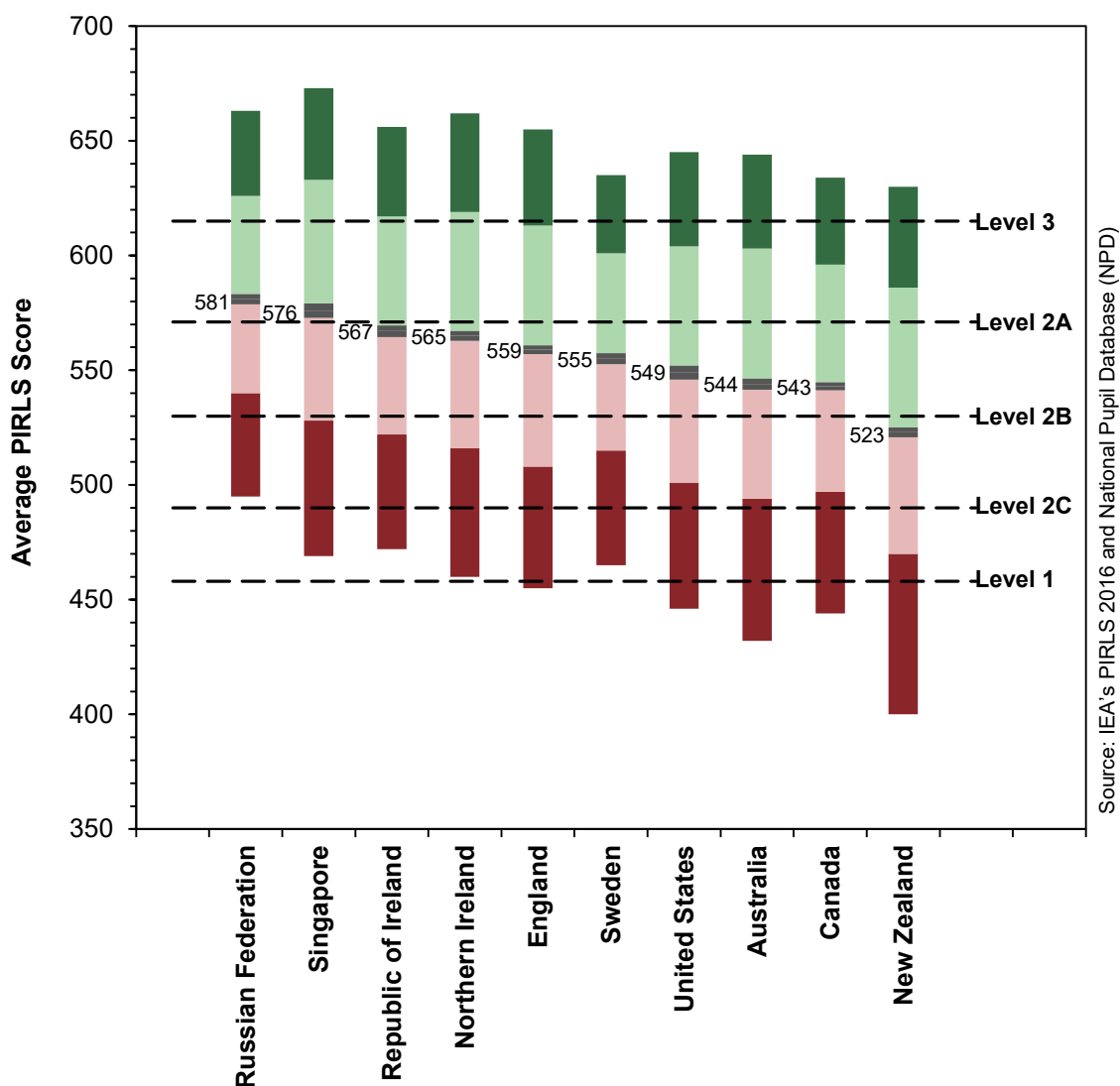
Pupils who attained a Level 1 in their KS1 reading assessment perform, on average, below the 10th percentile of pupils in the Russian Federation, Singapore, the Republic of Ireland, and Northern Ireland. England's pupils who achieved a Level 2C in KS1 are also below the 10th percentile for the Russian Federation. In contrast, pupils with a Level 3 at KS1 score, on average, above the overall PIRLS 2016 average score for all of the comparator countries, and above the 75th percentile for all of the comparator countries with an average performance below England. Pupils with a 2A in their KS1 reading assessment have the most similar average performance to the overall average of the highest performing comparator countries in PIRLS 2016, and those who achieved a 2B have the most similar average performance to the overall average of the lower performing comparator countries.

69

4.4. Contextualisation: the narrow range of PIRLS performances in the Russian Federation

Across all four PIRLS cycles, pupils in the Russian Federation have performed very well at the 10th percentile, scoring higher than England in all four cycles. This was even the case in PIRLS 2001, when the Russian Federation's average performance was much lower than England and more similar to the International Median. Their success at the 10th percentile has been accompanied by a relatively weaker performance at the 90th percentile, performing below the International Median in 2001. The Russian Federation's history of performance contrasts with that of England, which has typically performed very well at the 90th percentile and comparatively poorly at the 10th percentile (see Figures 4.1 and 4.2 in section 4.2). So, while England has typically had a large gap in performance (albeit reduced in 2016), the Russian Federation has maintained a much smaller percentile-gap across all four cycles, even as their average performance has markedly increased, as previously shown in Figure 4.3.

Much of the commentary on the Russian Federation's performance in PIRLS has focused on the increase in the country's average score from PIRLS 2001 to 2006, with references to the changing demographics of the Russian Federation's participant sample and changes in educational policy and structure (Froumin & Kuznetsova, 2012). There has been less of a focus on identifying how and why the Russian Federation has been able to perform increasingly well at the 10th percentile in all four cycles, leading to the consistently small percentile-gap. Potential reasons for this are discussed in Box 4.1.

Box 4.1 – The Russian Federation at the 10ᵗʰ percentile

The Russian Federation's strong performance at the 10th percentile in all four PIRLS cycles has helped to ensure that the country achieves one of its key objectives - to "raise Russia's ranking in the international surveys of the quality of school education" (Froumin & Kuznetsova, 2012; p.192). The period covering the 15-years spanning the four PIRLS cycles (2001 to 2016) saw a series of large changes to the structure of the educational system in the country, which have been used to explain the general rise in the Russian Federation's performance in PIRLS. For example, all children now receive four years of primary education, compared to the majority of children prior to 2006, who only received three years of primary education. This helps ensure that all children get early experiences in reading.

There has also been an increased reluctance to hold pupils back who are falling behind their peers, and schools instead seek alternative interventions to support learning (Froumin & Kuznetsova, 2012). Nonetheless, holding pupils back still appears to be far more common than in England, as 4% of the Russian Federation's PIRLS 2016 sample was older than 11.5 years of age, compared to none of the pupils in England's sample. This could possibly contribute to the scarcity of pupils in the Russian Federation achieving very low PIRLS scores, assuming that the weakest readers in that year group would be held back. In England, it is far more likely that they would remain in their typical year group and would therefore participate in PIRLS at the expected age.

The Russian Federation has experienced less success in their PISA results, although the range of scores has also historically been narrow. Carnoy, Khavenson and Ivanova (2015) suggested that the small gap in PISA scores for the highest and lowest performers may be explained by a relative underperformance of advantaged pupils, rather than a relatively strong performance of pupils from disadvantaged backgrounds. Froumin and Kuznetsova (2012) had previously identified that the Russian Federation's PIRLS sample in 2006 had 17% fewer pupils from disadvantaged backgrounds compared to the 2001 sample. Therefore, if Carnoy et al.'s (2015) assertions were correct, one would expect that the gap between the lowest and highest-performing pupils would have decreased further from 2001 to 2006, but the gap actually slightly widened. However, it should be noted that PIRLS assesses a different age range and relies on a different framework for reading, and Carnoy et al.'s (2015) analysis of PISA results did not focus specifically on reading. As such, their claims may not be applicable to PIRLS findings.

5. Reading performance by pupil characteristics

Chapter outline

This chapter examines how average performance in PIRLS 2016 relates to different pupil characteristics. These characteristics include gender, age, ethnicity, English as an additional language (EAL) status, free-school-meal (FSM) eligibility, and access to different educational resources at home. The chapter concludes with a discussion of Singapore's success in PIRLS despite all pupils sitting the test in English, which is an additional language for the overwhelming majority of their pupils.

Key findings:

- In total, 36% of the variance in the PIRLS performance of England's pupils was accounted for by different pupil characteristics and prior attainment. The characteristics that are most predictive of PIRLS performance include performance in the Year 1 phonics check, followed by the number of books the pupil reported to be in their home. Other significant characteristics include gender, age, and eligibility for FSM in the past 6 years. However, there is no evidence that ethnicity or EAL status are significantly associated with PIRLS performance when also accounting for other pupil characteristics.

- England's gender-gap is now consistent with the International Median gap, and smaller than in all other PIRLS cycles. This reduction in England's gender-gap has been driven by a larger improvement in the average performance of boys, compared to a smaller improvement for girls. For both girls and boys, improvements are greater at the 10th percentile than the 90th percentile, and the gender gap is larger on the *Literary Purpose Scale* than on the *Informational Purpose Scale*.

- Pupils in England born at the beginning of the academic year (September) perform, on average, 36-points greater than those born at the end of the academic year (August), demonstrating the advantage in performance for relatively older pupils.

- Pupils in England who were currently eligible, or had been eligible for free-school meals in the past six years, score around 40-points lower in PIRLS than non-eligible pupils.

- More than 100-points separate the average performance of pupils in England reporting having the most (more than 200) and least (10 or fewer) books at home.

5.1. Regression analysis of performance by pupil characteristics and prior attainment

In this chapter, we begin by using a method called *multiple linear regression* to examine how different pupil characteristics *independently* predict the performance of pupils in England in PIRLS 2016. This focus on assessing the independent contribution is important, as in isolation, a specific pupil characteristic may appear to be related to performance (i.e. one group may score higher in PIRLS 2016 than the other). However, when all characteristics are examined simultaneously, it may be that these differences are better explained by a different characteristic. For example, it is possible that pupils of one ethnic group tend to score higher in PIRLS 2016 than another ethnic group, but when looked at together with other characteristics, it is actually that one of the ethnic groups has a higher proportion of pupils learning English as an additional language, and this characteristic better accounts for the variation in PIRLS score. While the latter part of the chapter examines these characteristics in an individual manner, the chapter begins with this regression analysis to help contextualise the later discussions and to establish the statistical significance of each variable in the model.

The regression analysis explored how 10 pupil characteristics and prior attainment related to performance in PIRLS 2016:

- **Gender** – girls in England, and in most other countries, have consistently scored higher in PIRLS studies than boys across previous cycles.

- **Age (in years)** – typically, older pupils tend to be stronger readers than younger pupils, even within the same academic year. A pupil aged 10 and a half would be considered as having an age of 10.5 years[20].

- **Ethnicity** – the national school census categorises pupils as being in one of five major ethnicity groups – "White", "Black", "Asian", "Mixed" or "Other". A more detailed discussion of these terms is provided in section 5.4.1.

- **English as an additional language (EAL)** – while English is the first language for the majority of pupils in England, a growing number of pupils are learning English as an additional language. These pupils may not speak English at home, or might otherwise have a lower exposure to English.

- **Eligibility for free-school-meals (FSM) in the past 6 years** – pupils who come from economically disadvantaged homes may be eligible for a free meal at school. FSM eligibility can therefore be used as an indicator of economic disadvantage.

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[20] Twelve pupils taught out of their expected academic year, given their age, were excluded from this analysis.

- **Amount of books at home** – this information is indicative of a pupils' educational resources at home and comes from the student questionnaire in PIRLS 2016. Pupils are asked to report how many books they have in their home, choosing from one of five categories. These categories range from having 10 or fewer books in the home, to having 201 or more.

- **Pupil has their own room at home** – this information also comes from the student questionnaire, and pupils simply report whether they have their own bedroom as an additional indicator of home educational resources.

- **Pupil has an internet connection at home** – another item from the student questionnaire. Pupils indicate whether they have an internet connection at home as a further indicator of home educational resources.

- **Pupil's school-performance type** - this was a key component of the sampling method for England's PIRLS 2016 cohort and was based on the schools' historic performance in Key Stage 2 (KS2) assessments. Schools are categorised into five quintiles (i.e. bottom 20% performing schools, 20% to 40%, etc.). The present analysis only considers pupils in state-maintained schools, and not those attending independent schools[21].

- **Score in the Year 1 phonics check** – this prior attainment indicator was selected over the KS1 Reading Level for a number of reasons, but was mainly due to the standardised and more fine-grained nature of the assessment compared to the KS1 reading levels.

For each of the categorical variables, a reference category was selected, which is the category that the other groups are compared to in the analysis. The selected reference categories are Female, White ethnicity, Non-EAL, not eligible for FSM in the last 6 years, 10 or fewer books at home, pupil has their own room at home, pupil has an internet connection at home, and the pupil comes from a 'Low-Performing' (bottom 20%) school. Age and score in the Year 1 phonics check are not categorical and thus do not require a reference category.

Complete data was available for 4,536 of the pupils in England's PIRLS 2016 sample – complete data is necessary for a regression analysis, and so any pupils without complete data are not included in this analysis. The average PIRLS score of the final sample for the regression analysis is 557, which is highly comparable to England's overall average score of 559.

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[21] The vast majority of independent-school pupils in England's PIRLS 2016 sample do not have complete NPD data, and thus would have been excluded from the regression analysis anyway.

Table 5.1 outlines the results of the regression analysis. Pupil characteristics are listed in order of the magnitude of their *t*-value, which represents the level of statistical significance in their prediction, with all factors that contributed significantly to the model being highlighted in green. A *t*-value greater than 1.96 indicates that the variable is a statistical significant predictor of PIRLS performance[22].

Table 5.1 – Regression analysis of pupil background characteristics on PIRLS Score for pupils in England (2016)

| Pupil Background Characteristic | Coefficients | | t-value |
	Unstandardised B	Standardised β	t
Constant	297.4		
Year 1 phonics check score (/ 40)	3.3 (0.1)	0.41	25.6
Amount of books at home – **201 or more**	60.9 (5.4)	0.29	11.4
Amount of books at home – **101-200**	49.9 (4.8)	0.26	10.3
Amount of books at home – **26-100**	33.6 (4.3)	0.20	8.1
Ever6 FSM – **Yes**	-11.3 (2.2)	-0.07	-5.2
Pupil has an internet connection at home – **No**	-27.3 (6.4)	-0.06	-4.3
Amount of books at home - **11-25**	15.0 (4.4)	0.08	3.5
School Performance Type – **High**	16.8 (5.3)	0.09	3.2
Pupil age **(in years)**	12.1 (3.7)	0.05	3.2
Gender – **Male**	-7.1 (2.3)	-0.05	-3.1
School Performance Type – **Medium-High**	14.1 (5.5)	0.07	2.6
School Performance Type – **Medium-Low**	9.1 (5.0)	0.05	1.8
School Performance Type - **Medium**	9.3 (5.6)	0.05	1.6
Pupil has their own room – **No**	-4.7 (3.0)	-0.03	-1.6
Ethnicity – **Mixed**	5.8 (4.4)	0.02	1.3
EAL – **Yes**	6.1 (5.0)	0.03	1.2
Ethnicity – **Asian**	5.9 (5.2)	0.02	1.1
Ethnicity – **Black**	4.6 (4.6)	0.01	1.0
Ethnicity – **Other**	0.1 (9.3)	0.00	<0.1

() Standard errors appear in parentheses.
* Rows in green indicate that the pupil background characteristic had a statistically significant contribution to the regression model.

Source: IEA's PIRLS 2016 and NPD

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[22] Given the questionability of the use of the sampling weights in this analysis when the sampling design was not intended to cover all of these variables, this regression analysis was also conducted using the unweighted pupil data, which did not result in any substantive differences in findings.

In total, the combined contributions of these variables in this regression model account for 36% of the variance in England's pupils' PIRLS performance. Performance in the Year 1 phonics check is the most significant predictor of performance in PIRLS 2016 after accounting for shared variance between the characteristics, with each correct answer in the phonics check being associated with a 3.3-point increase in PIRLS performance. The next strongest predictor of PIRLS performance is the number of books that pupils have at home. Assuming two pupils share all other background and prior attainment factors, according to this model, a pupil in England with 201 or more books in their home is expected to score around 61-points higher than a pupil with 10 or fewer books in their home. This indicator of home resources is likely such a significant predictor of PIRLS performance due to its more direct connection with the educational resources present within pupils' homes, particularly in regard to reading exposure and opportunities, as opposed to more general indicators of home socioeconomic resources.

Other variables that independently, significantly predict performance in PIRLS include: eligibility for FSM in the past 6 years, with those pupils who were FSM eligible in the past 6 years expected to score around 11-points lower than their non-eligible peers, given equivalence on all other variables in the model; Gender, with boys expected to score 7-points less than girls after controlling for other pupil characteristics; Age, with older pupils in the cohort expected to score significantly higher in PIRLS than younger pupils; and an internet connection at home, with pupils coming from homes without an internet connection expected to score significantly lower than those with an internet connection. Additionally, pupils attending higher-performing schools (High and Medium-High) are expected to score significantly higher in PIRLS than pupils at Low-Performing schools.

After accounting for the other pupil characteristics, there is no evidence that pupil ethnicity or EAL status are significantly associated with PIRLS performance. Additionally, after accounting for other pupil characteristics, pupils attending Medium or Medium-Low Performing schools are not expected to significantly outperform pupils in Low-Performing schools.

Having discussed the independent contributions of these pupil characteristics, including prior reading attainment, this chapter now examines each of these characteristics individually and in more depth. This includes international comparisons of gender and age effects. It should be noted that the findings of this regression analysis should contextualise the interpretation of the following discussions, as some of the following findings may appear at odds with the regression analysis, as these variables are now addressed in isolation.

5.2. Performance by gender

Gender differences in reading performance are well established with multiple research studies reporting differences between girls and boys from early schooling years that only increase with age (e.g. Schwabe, McElvany & Trendtel, 2014). In all four PIRLS cycles, the participating Year 5 (or equivalent) girls have, on average, outperformed boys in overall reading performance across the vast majority of participating countries. This gender-gap has also been observed in most participating countries for the reading purpose and comprehension process subscales across the cycles. There have been no occasions across cycles or participating countries where boys have significantly outperformed girls. The gender-gap in England's average performance has typically been among the largest of the participating countries.

5.2.1.   Performance by gender in PIRLS 2016

Table 5.1 below presents the average scores of girls and boys in England and each comparator country in 2016. It also shows the gender-gap in each country (calculated as the average score of girls minus the average score of boys), as well as the International Median performance by gender. Countries are listed in order of their gender-gap, starting with the country with the largest gap. All of the gender-gaps presented in Table 5.1 represent a statistically significant difference in performance between girls and boys.

In England, girls score higher than boys by an average of 15-points in PIRLS 2016. This is identical to the International Median gender-gap. This also matched the gender-gaps in both the Russian Federation and Sweden. Of the other comparator countries, the gender-gap is smallest in the United States (8-points) and greatest in both Australia and New Zealand (22-points). Looking at the average performance by gender of all participating countries, girls in Macao SAR and Portugal score, on average, one point higher than boys, which is not a significant difference. There are no countries in which boys' average performance is higher than girls' average performance.

Table 5.2 - Average performance of girls and boys in England and comparator countries in PIRLS 2016

Country	Performance by gender (2016)			
	Overall average	Girls	Boys	Gender-Gap
Australia	544 (2.5)	555 (2.6) 🟢	534 (3.0)	22
New Zealand	523 (2.2)	533 (2.4) 🟢	512 (3.0)	22
Northern Ireland	565 (2.2)	574 (2.8) 🟢	555 (2.8)	18
Singapore	576 (3.2)	585 (3.5) 🟢	568 (3.4)	17
Russian Federation	581 (2.2)	588 (2.2) 🟢	574 (2.6)	15
England	**559 (1.9)**	**566 (2.2)** 🟢	**551 (2.4)**	**15**
Sweden	555 (2.4)	563 (2.7) 🟢	548 (2.6)	15
International Median	**539**	**543**	**532**	**15****
Republic of Ireland	567 (2.5)	572 (2.9) 🟢	561 (3.3)	12
Canada	543 (1.8)	549 (2.2) 🟢	537 (2.1)	12
United States	549 (3.1)	553 (3.2) 🟢	545 (3.6)	8

Gender-gap in each country calculated as average score for girls minus average score for boys.

** International Median Gender-gap is the median gender-gap across countries, not the gap between girls' and boys' medians.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

🟢 Indicates that the average score for that gender is significantly higher than for the other gender.

5.2.2. Trend performance by gender

Figure 5.1 below shows the trend in average performance by girls in England and the trend comparator countries across the PIRLS cycles. In PIRLS 2016, girls in England's average score is greater than in all previous cycles, but this is only significantly different to their average PIRLS 2006 score. Similarly, girls in the Russian Federation have a significantly higher average score in 2016 compared to all previous cycles. Girls in Singapore exceed their previous highest average score by 9-points, although the improvement from 2011 is not statistically significant. Girls in Sweden score, on average, 14-points higher in 2016 than 2011, although their average score is still 9-points below their highpoint in 2001. Girls in the United States score, on average, 8-points less than they did in 2011, although their performance is still above both PIRLS 2001 and 2006. The only trend comparator country to score lower than in any other cycle is New Zealand, whose average score of 533 is 8-points below their 2011 performance, which represents a significant drop in average performance from 2006 and 2011.

Figure 5.1 - Average performance of girls in England and trend comparator countries across PIRLS cycles

	2001	2006	2011	2016
England	564	549 ⬆	563	566
New Zealand	542	544 ⬇	541 ⬇	533
Russian Federation	534 ⬆	572 ⬆	578 ⬆	588
Singapore	540 ⬆	567 ⬆	576	585
Sweden	572 ⬇	559	549 ⬆	563
United States	551	545	562 ⬇	553
International Median	534	542	539	543

Source: IEA's PIRLS 2016

⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.

⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

Figure 5.2 below shows the trends in the average performance of boys across PIRLS cycles. In most of the trend comparator countries, the trends in the performance of boys are similar to the trends in the performances of girls. In England, however, the improvement in the average performance of boys from PIRLS 2011 is much larger than it is for girls, with the average score for boys increasing by 11-points. The average score of boys in PIRLS 2016 is also 10-points higher than PIRLS 2001, their previous highest score.

The improvement in the average performance of boys in the Russian Federation is also larger than the corresponding improvement of girls, with a 14-point increase since PIRLS 2011. This is the highest average performance of Russian boys across all PIRLS cycles. Boys in Singapore also have their highest average score across all cycles, with a similar average improvement to their girls. The average improvement in performance by Swedish boys from PIRLS 2011 is also similar to the average improvement of their girls, with a 13-point increase, although the boys in Sweden are now considerably closer to their highpoint in PIRLS 2001. The average performance of boys in the United States in

PIRLS 2016 has dipped from their performance in PIRLS 2011, but it is still above their average performance in both the 2001 and 2006 cycles. In New Zealand, the average performance of boys dropped by a similar amount to the drop observed for their girls. It is also the lowest average performance by New Zealand's boys across the four PIRLS cycles.

Figure 5.2 - Average performance of boys in England and trend comparator countries across PIRLS cycles
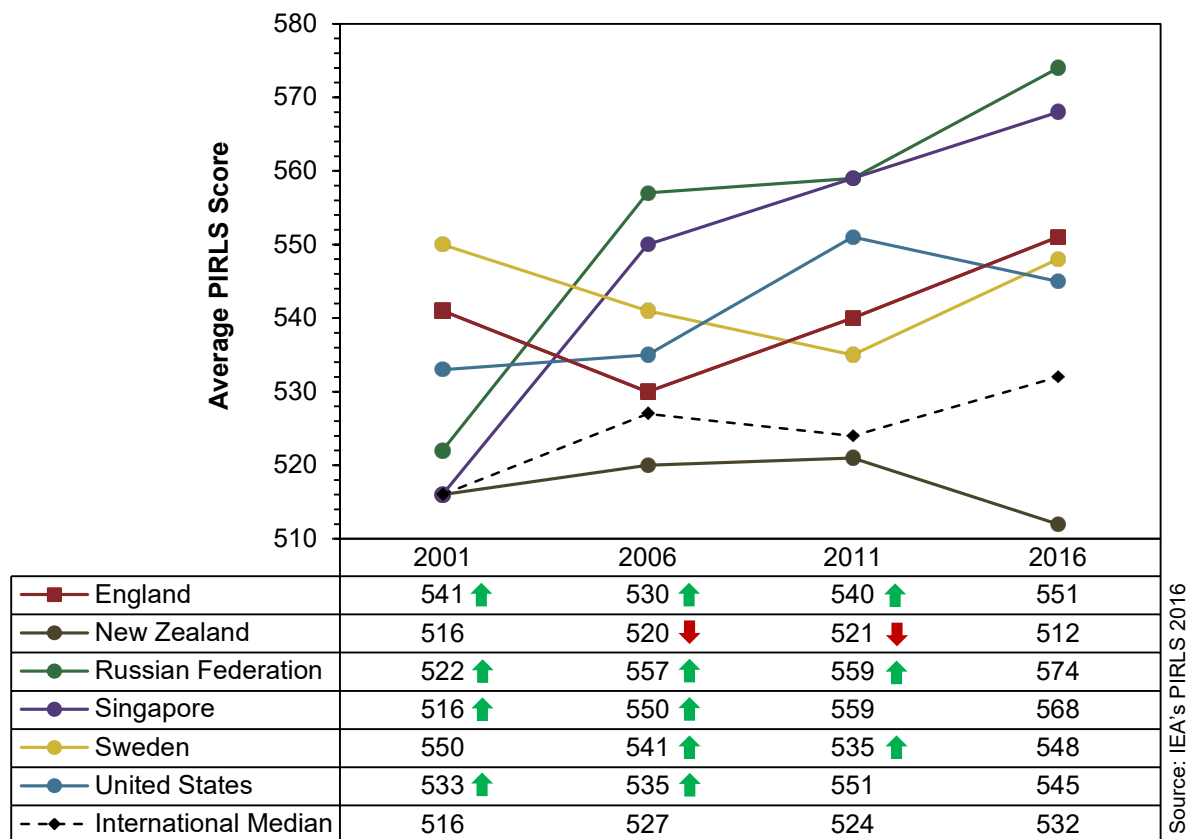
	2001	2006	2011	2016
■ England	541 ⬆	530 ⬆	540 ⬆	551
● New Zealand	516	520 ⬇	521 ⬇	512
● Russian Federation	522 ⬆	557 ⬆	559 ⬆	574
● Singapore	516 ⬆	550 ⬆	559	568
● Sweden	550	541 ⬆	535 ⬆	548
● United States	533 ⬆	535 ⬆	551	545
- - ◆ - - International Median	516	527	524	532

Source: IEA's PIRLS 2016

⬆ Indicates that the average score in PIRLS 2016 is significantly higher compared to that previous PIRLS year.

⬇ Indicates that the average score in PIRLS 2016 is significantly lower compared to that previous PIRLS year.

Figure 5.3 below shows the trends in the gender-gap in average performance for England and the trend comparator countries over the PIRLS cycles. The gender-gap is calculated as the average score for girls minus the average score for boys in that cycle. In PIRLS 2011, England had one of the largest gender-gaps of all of the participating countries, with 23-points separating girls' and boys' average performances. It was also the largest gender-gap in Europe. In PIRLS 2016, this gap has reduced to 15-points. This is still a significant difference in average performance, but is now consistent with the International Median gender-gap.

Figure 5.3 - Gender-gap in England and trend comparator countries across PIRLS cycles
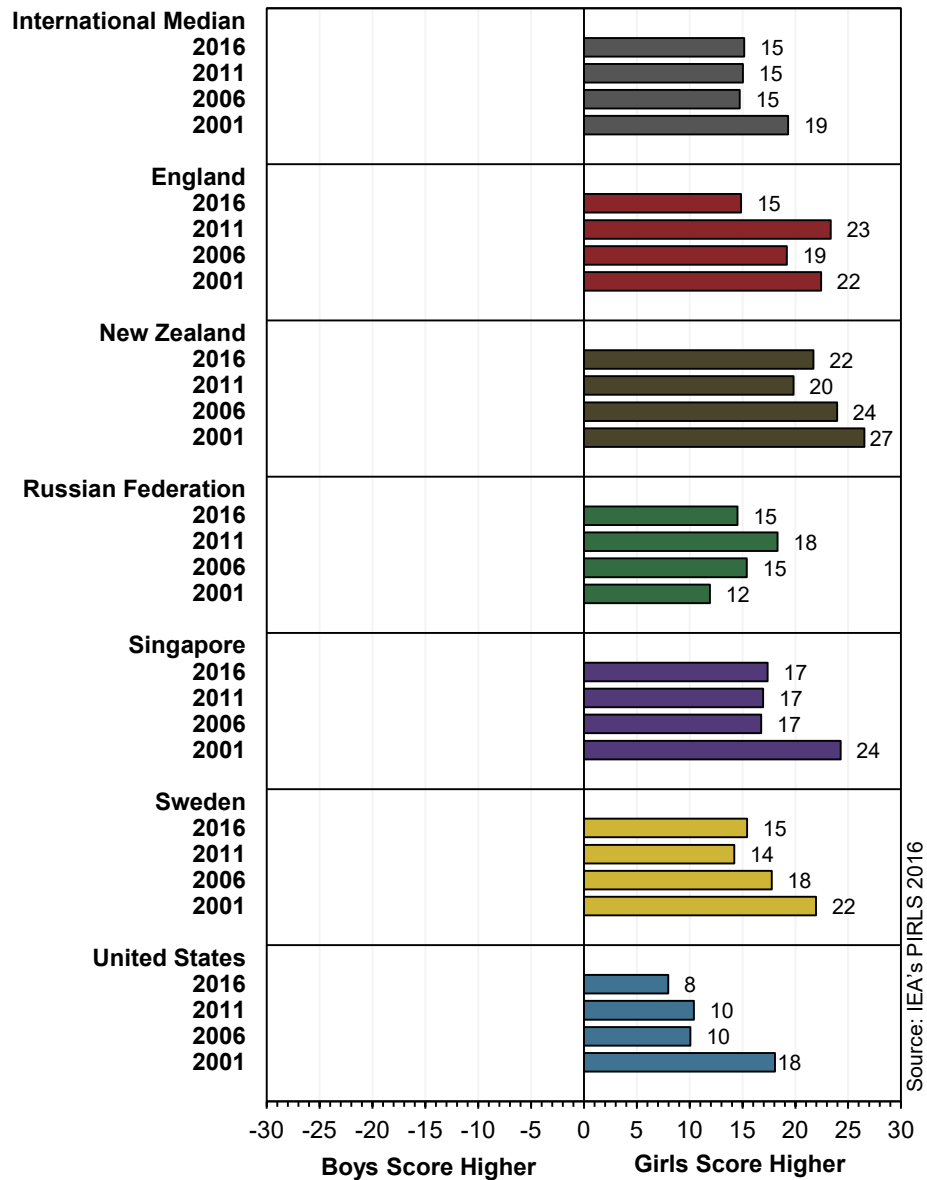
Across the trend comparator countries, the general trend is that the gender-gap has reduced since PIRLS 2001. The only exception to this is the Russian Federation, who had one of the smallest gender-gaps of all of the participating countries in PIRLS 2001; in PIRLS 2016, the gap is 3-points higher and is now equal to the International Median gap. Since PIRLS 2006, the United States has maintained a relatively small gender-gap, and it now stands at only 8-points in PIRLS 2016. Australia and New Zealand have among the biggest gender-gaps of all countries participating in PIRLS 2016, with girls' average performance 22-points above boys' average performance. The International Median gender-gap has remained stable over the past three cycles at 15-points.

5.2.3. Performance by gender on reading purpose scales

Table 5.3 shows the average performance on the *Literary Purpose Scale* by gender in PIRLS 2016 for pupils in England and the comparator countries. Girls in England score an average of 19-points higher than boys on the Literary Purpose Scale. This compares to the 15-point gender-gap in overall reading performance. This reflects the international trend, in which the gender-gap is greater on the Literary Purpose Scale than the other PIRLS scales.

Table 5.3 - Performance of girls and boys in England and comparator countries on the Literary Purpose Scale in PIRLS 2016

| Country | Literary Purpose Scale score by Gender | | | |
	Literary Scale score	Girls average score	Boys average score	Gender-Gap
Australia	547 (2.4)	561 (2.7) ⬆	533 (2.9)	28
New Zealand	525 (2.3)	539 (2.5) ⬆	512 (3.0)	27
Singapore	575 (3.3)	586 (3.6) ⬆	563 (3.7)	23
Northern Ireland	570 (2.5)	582 (3.0) ⬆	559 (3.1)	23
England	**563 (2.2)**	**572 (2.7)** ⬆	**553 (2.5)**	**19**
International Median	**540**	**547**	**533**	**19****
Canada	547 (1.9)	556 (2.3) ⬆	538 (2.1)	18
Republic of Ireland	571 (2.7)	580 (3.2) ⬆	563 (3.4)	17
Sweden	556 (2.4)	564 (2.7) ⬆	548 (2.7)	17
Russian Federation	579 (2.2)	587 (2.5) ⬆	572 (2.5)	15
United States	557 (3.0)	563 (3.5) ⬆	552 (3.5)	10

Gender-gap in each country calculated as average score for girls – average score for boys.

** International Median Gender-gap is the median gender-gap across countries, not the gap between girls' and boys' medians.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

⬆ Indicates that the average score for that gender is significantly higher than for the other gender.

Of the comparator countries, the gender-gap is smallest in the United States at 10-points, and highest in Australia at 28-points. All of the gender-gaps are statistically significant, with girls outperforming boys in 48 of the 50 participating countries. Again, the only countries without a significant gender-gap are Portugal and Macao SAR, with every other country having at least 10-points separating the average performance of girls and boys.

Table 5.4 below shows the performance of girls and boys in England and the comparator countries on the *Informational Purpose Scale*. Across the comparator countries and with respect to the International Median, the gender-gaps are smaller on the Informational Purpose Scale than on the Literary Purpose Scale. In England, the gender-gap is 12-points, which is similar to the International Median gender-gap of 14-points. Of the comparator countries, the gender-gap is still largest in Australia, at 19-points, and

smallest in the United States and Canada, at 6-points. However, the United States is one of 12 countries in which the difference between the performance of girls and boys is not statistically significant. This was also the case in Austria, Chinese Taipei, the Czech Republic, France, Germany, Hong Kong SAR, Israel, Italy, Macao SAR, Portugal and Spain.

Table 5.4 - Performance of girls and boys in England and comparator countries on the Informational Purpose Scale in PIRLS 2016

Country	Informational Purpose Scale score by Gender			
	Informational Scale score	Girls average score	Boys average score	Gender-Gap
Australia	543 (2.6)	552 (2.7) ⬆	533 (2.9)	19
Northern Ireland	561 (2.3)	569 (3.1) ⬆	552 (3.3)	17
New Zealand	520 (2.4)	528 (2.9) ⬆	512 (3.4)	16
Singapore	579 (3.3)	586 (3.5) ⬆	571 (3.7)	15
Sweden	555 (2.6)	562 (3.3) ⬆	548 (2.8)	15
International Median	**540**	**542**	**535**	**14****
Russian Federation	584 (2.3)	591 (2.3) ⬆	578 (2.7)	13
England	**556 (2.1)**	**562 (2.6)** ⬆	**551 (2.7)**	**12**
Republic of Ireland	565 (2.7)	569 (3.2) ⬆	561 (3.4)	8
Canada	540 (1.9)	543 (2.5) ⬆	537 (2.1)	6
United States	543 (3.1)	546 (3.2)	540 (3.7)	6

Gender-gap in each country calculated as average score for girls – average score for boys.

** International Median Gender-gap is the median gender-gap across countries, not the gap between girls' and boys' medians.
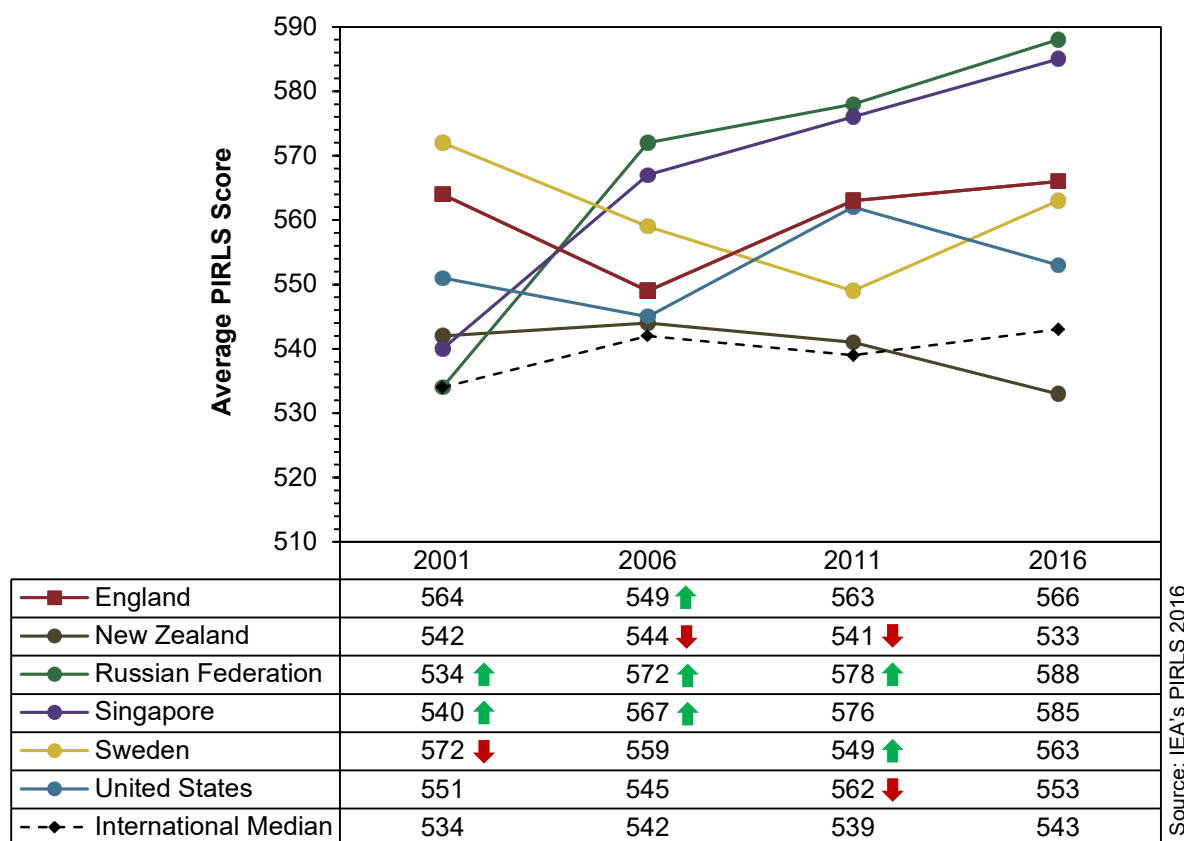
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

⬆ Indicates that the average score for that gender is significantly higher than for the other gender.

5.2.4.   Performance by gender on comprehension process scales

Table 5.5 below shows the average performance of girls and boys in England and the comparator countries on the *Retrieving and Straightforward Inferencing Scale* in PIRLS 2016. Average performances by gender are somewhat similar to those for the PIRLS 2016 average scores, with a slightly smaller gender-gap for this comprehension process than for performance generally. For example, in England, girls score 14-points higher than boys on the Retrieving and Straightforward Inferencing Scale. This compares to a 15-point gap in overall performance in England. The International Median follows a similar trend. The gender-gap on this scale in Sweden is 11-points, compared to a 15-point gap for the overall average scores. Similarly, the gender-gap on this process scale in New Zealand (18-points) is smaller than for overall performance (23-points). The gender-gap is largest in Australia, at 22-points. There are four countries without statistically significant differences on this scale; Portugal, Macao SAR, Austria and Italy.

83

Table 5.5 - Performance of girls and boys in England and comparator countries on the Retrieving and Straightforward Inferencing Scale in PIRLS 2016

Country	Retrieving and Straightforward Inferencing Scale score by Gender			
	Retrieving and Straightforward Inferencing Scale score	Girls average score	Boys average score	Gender-Gap
Australia	541 (2.6)	552 (2.7) ⬆	530 (3.0)	22
New Zealand	521 (2.3)	530 (2.5) ⬆	512 (3.1)	18
Northern Ireland	562 (2.1)	570 (2.6) ⬆	553 (3.0)	16
Singapore	573 (3.1)	580 (3.4) ⬆	566 (3.6)	14
England	**556 (2.0)**	**563 (2.4)** ⬆	**549 (2.5)**	**14**
Russian Federation	581 (2.3)	588 (2.5) ⬆	575 (2.8)	13
International Median	**541**	**546**	**535**	**13****
Sweden	560 (2.7)	566 (3.1) ⬆	555 (3.0)	11
Republic of Ireland	566 (2.6)	571 (3.2) ⬆	561 (3.5)	11
Canada	541 (1.8)	546 (2.2) ⬆	537 (1.9)	10
United States	543 (3.0)	547 (3.1) ⬆	539 (3.5)	7

Gender-gap in each country calculated as average score for girls – average score for boys.

** International Median Gender-gap is the median gender-gap across countries, not the gap between girls' and boys' medians.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

⬆ Indicates that the average score for that gender is significantly higher than for the other gender.

Table 5.6 below shows the average performance of girls and boys in England and the comparator countries on the *Interpreting, Integrating and Evaluating Scale* in PIRLS 2016. The differences between the performances of girls and boys on the two comprehension process scales is not as pronounced as it is for the reading purpose scales, with most countries having similar gender-gaps. In the case of England, the gender-gap is 14-points on both process scales. The gender-gap is 8-points on the two comprehension process scales in the United States. However, the gender-gap on the Interpreting, Integrating and Evaluating Process Scale is larger than the Retrieving and Straightforward Inferencing Scale in the remaining comparator countries, particularly for Sweden and New Zealand. Across all of the participating countries in PIRLS 2016, the gender-gap is slightly larger for the Interpreting, Integrating and Evaluating Process Scale in 2016, with an International Median gap of 16-points. The gender-gap is not significant in just two countries; Portugal and Macao SAR.

Table 5.6 - Performance of girls and boys in England and comparator countries on the Interpreting, Integrating and Evaluating Scale in PIRLS 2016

Country	Interpreting, Integrating and Evaluating Scale score by Gender			
	Interpreting, Integrating and Evaluating Scale score	Girls average score	Boys average score	Gender-Gap
New Zealand	525 (2.4)	536 (2.8) ⬆	513 (2.9)	23
Australia	549 (2.4)	561 (2.6) ⬆	538 (2.7)	23
Singapore	579 (3.2)	589 (3.4) ⬆	568 (3.4)	21
Northern Ireland	567 (2.2)	577 (2.6) ⬆	558 (3.0)	20
Sweden	553 (2.5)	562 (2.7) ⬆	544 (2.8)	18
International Median	**536**	**541**	**530**	**16****
England	**561 (1.9)**	**569 (2.4)** ⬆	**554 (2.3)**	**14**
Russian Federation	582 (2.2)	589 (2.4) ⬆	575 (2.6)	14
Republic of Ireland	569 (2.9)	576 (3.4) ⬆	562 (3.6)	14
Canada	545 (1.8)	552 (2.2) ⬆	539 (2.1)	13
United States	555 (3.1)	559 (3.3) ⬆	551 (3.5)	9

Source: IEA's PIRLS 2016

Gender-gap in each country calculated as average score for girls – average score for boys.

** International Median Gender-gap is the median gender-gap across countries, not the gap between girls' and boys' medians.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

⬆ Indicates that the average score for that gender is significantly higher than for the other gender.

5.2.5. Performance by gender at the 10th and 90th percentiles

Figure 5.4 below shows the 10th percentile scores of girls and boys in England across the four PIRLS studies. In PIRLS 2016, both girls and boys score higher at the 10th percentile than they have in any previous cycle, with a 9-point improvement from 2011 for girls, and a 20-point improvement for boys. The gap between the performance of girls and boys at the 10th percentile is 17-points, slightly higher than the gap in 2006, but down from 27-points in 2011.

Figure 5.4 – Performance of girls and boys in England at the 10th Percentile across PIRLS cycles

	2001	2006	2011	2016
Girls	454	433	454	464
Boys	421	417	427	447

Source: IEA's PIRLS 2016
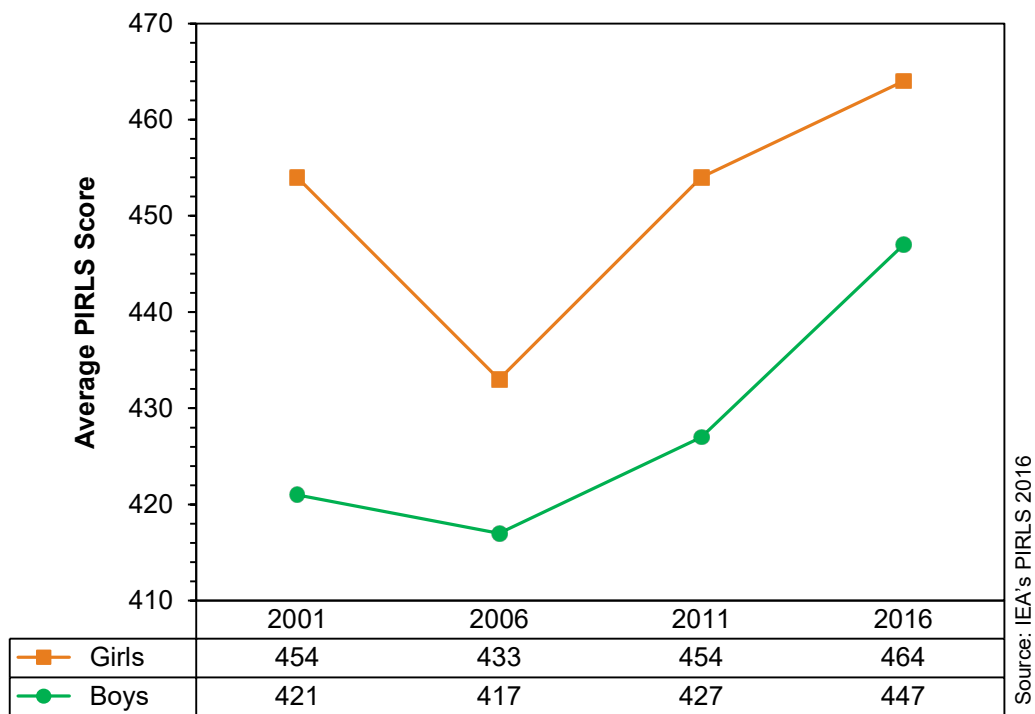
Figure 5.5 below shows the 90th percentile scores of girls and boys in England across the four PIRLS studies. Compared to the improvements at the 10th percentile, the improvements at the 90th percentile are smaller; boys improved by 8-points from 2011, whereas girls only improved by 1-point. Although boys score higher than they have in all of their previous cycles, the performance of girls at the 90th percentile is lower than in 2001. The gender-gap at the 90th percentile in 2016 is the smallest it has been across all four cycles, with 11-points separating girls and boys.

Figure 5.5 - Performance of girls and boys in England at the 90th Percentile across PIRLS cycles

	2001	2006	2011	2016
Girls	665	654	660	660
Boys	648	635	641	649
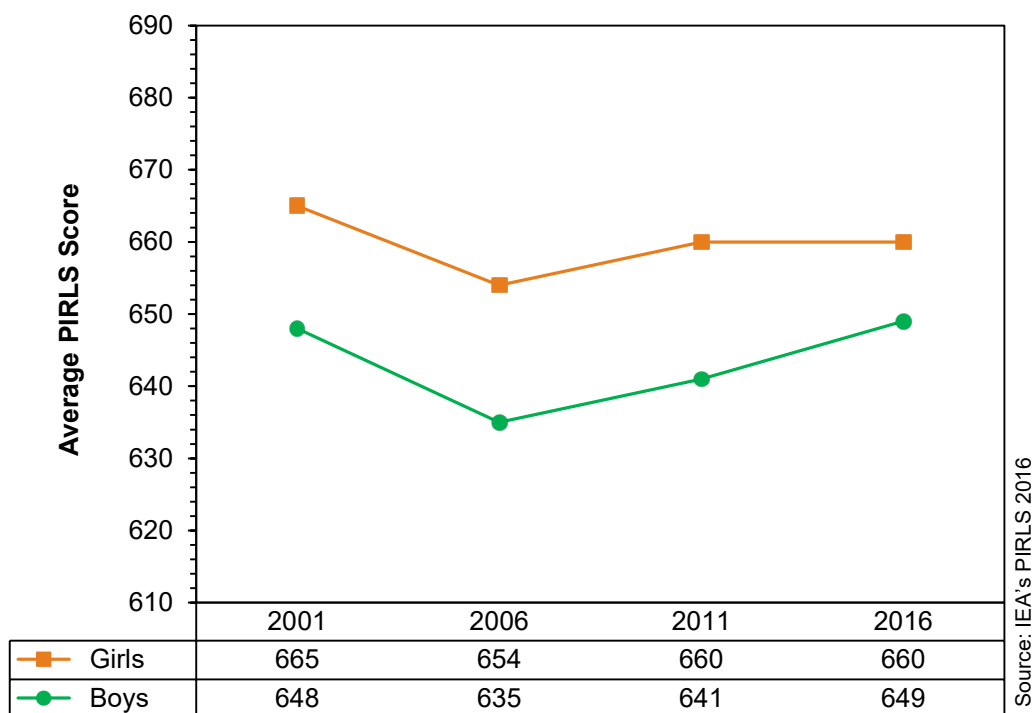
5.3. Performance by pupil age

The average age of pupils participating in PIRLS 2016 across all countries is 10.2 years[23]. This is very similar to the average age of the participating pupils in England (10.3 years). However, there is more than a year separating the average age of countries with the oldest and youngest pupils, with pupils in Latvia having an average age of 10.9, and pupils in Kuwait having an average age of 9.6. An average difference of more than a year at this stage of development represents a large maturational difference, which should be kept in mind when interpreting average performance differences across countries.

Figure 5.6 below plots the average age (X-axis) by average PIRLS performance (Y-axis) for each participating country scoring above the International Median of 539 in PIRLS 2016. This threshold in performance was selected to enhance comparability with England's pupils. The only comparator country not included in this figure is New Zealand, as their average score is below the International Median. The large red diamond represents England. Green diamonds represent English-speaking comparator countries (except New Zealand), and yellow diamonds represent the remaining comparator

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[23] Note that this number represents an age of 10 whole years and 0.2 (a fifth) of a year, not 10 years and 2 months. A pupil who has an age of 10.5 would be 10 and a half years old (i.e. 10 years, 6 months).

countries. Other countries of interest have also been labelled. The figure also shows a linear trendline representing the mean performance of this group of countries conditional on the average age of their pupils.

The trendline in Figure 5.6 indicates that countries with higher average ages tend to have higher average scores in PIRLS 2016, although this is only a moderate relationship (correlation = 0.39). Countries far above the trendline include both the Russian Federation (average PIRLS score = 581), whose pupils are among the oldest in the study (average of 10.8 years), as well as Hong Kong SAR (average PIRLS score = 569), whose pupils have an average age of 9.9 years. This represents almost a whole year difference in average age between the Russian Federation and Hong Kong SAR. England's pupils have an average age of 10.3 years and average PIRLS score of 559, putting them slightly above the calculated trendline, which predicts an average PIRLS performance of approximately 554 for England. In England, the correlation between pupil age and their performance in PIRLS 2016 is only 0.12, which is a weak, but still significant relationship.

Figure 5.6 – Average PIRLS score of countries scoring above the International Median by their average pupil age (2016)

Source: IEA's PIRLS 2016

88
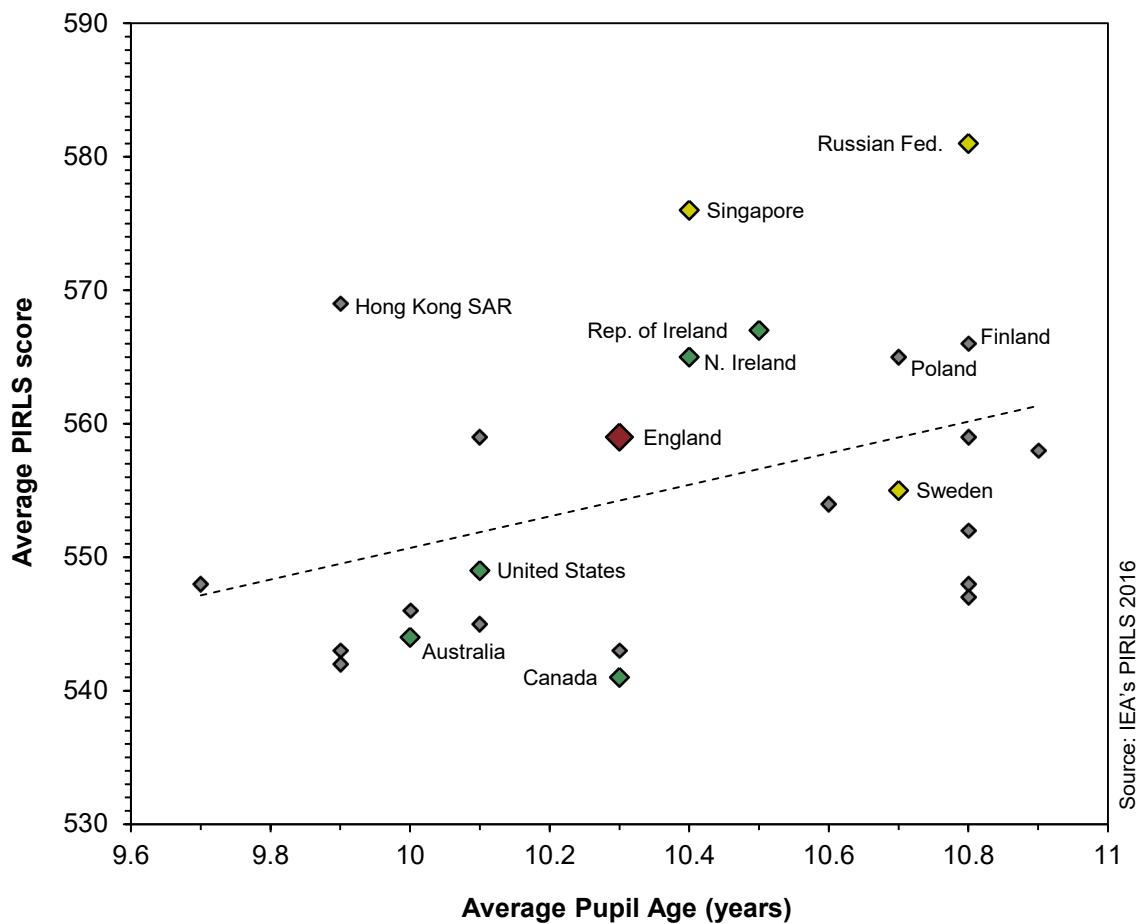
In England, previous research has established that children born in September, which coincides with the beginning of the academic year, fare better in numerous aspects of their education compared to those born in August, i.e., at the end of the academic year. At the onset of schooling, children born in September are nearly 5 years old, while August-born pupils have only recently turned 4 and are therefore almost a whole year younger. September-born children report higher levels of confidence in their academic abilities, are over 6% more likely to achieve 5 or more GCSEs at grade C or above, and are more likely to attend university and obtain degrees (Crawford, Dearden & Greaves, 2013). Additionally, September-born pupils are also less likely to be classified as having 'special educational needs', experience bullying at school, or engage in 'risky' behaviours such as smoking at an early age. (Crawford et al., 2013).

Figure 5.7 below shows the average scores of England's pupils in PIRLS 2016 with respect to their birth month. Pupils in England's PIRLS 2016 sample would be expected to be born between September 2005 and August 2006, and thus aged between 9.8 and 10.8 at the time of testing (May or June 2016). There were, however, 12 pupils taught out of their normal curriculum year; 9 pupils were born before September 2005, and 3 were born after August 2006. These pupils were excluded from this analysis.

Figure 5.7 – Average PIRLS Score of pupils in England by their birth month (2016)

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
England	575	570	570	564	557	564	557	557	556	550	547	539

Source: IEA's PIRLS 2016
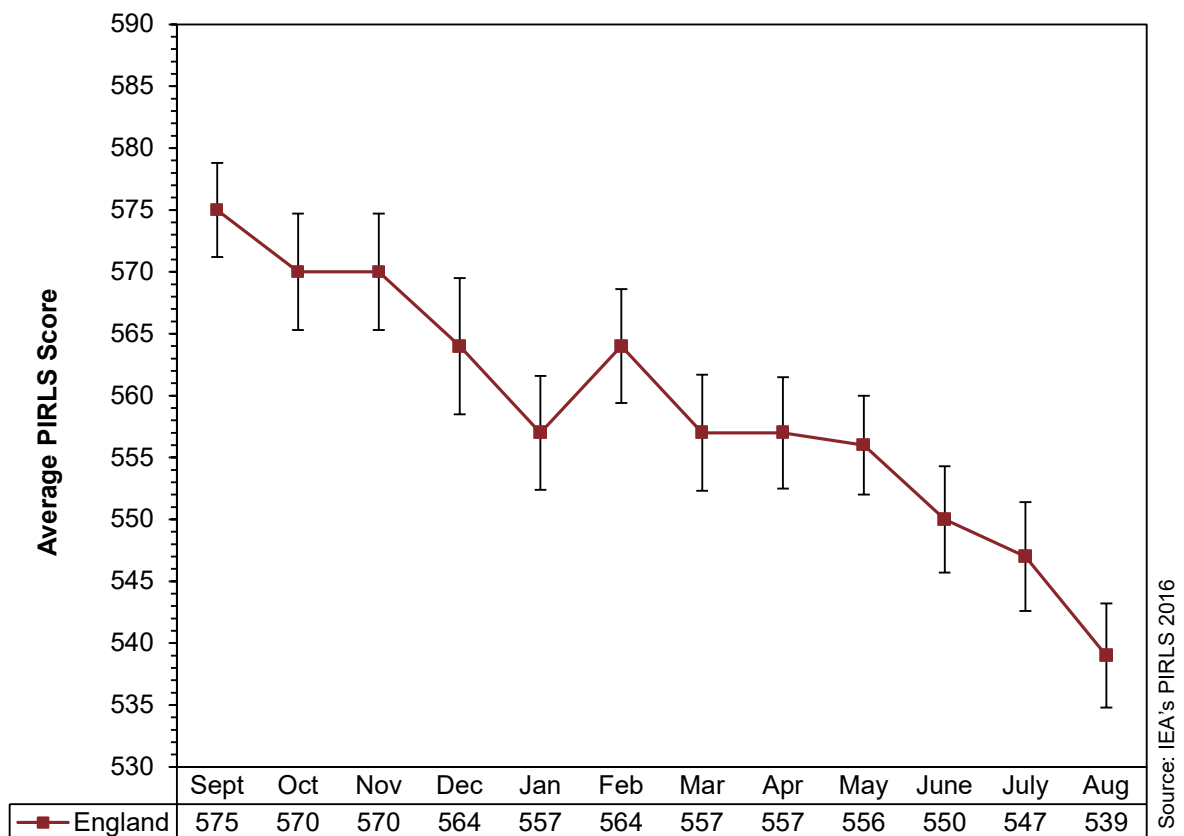
In England, 36-points separates the youngest and oldest pupils that took part in PIRLS 2016, with a generally linear decrease in performance across birth months. However, as previously mentioned, an analysis of pupil age only found a 0.12 correlation with performance in PIRLS for pupils in England, which indicates that there is a wide range of PIRLS scores within each birth month bracket. This suggests that there are likely to be factors other than just cognitive maturation that contribute to differences in PIRLS performance between Autumn-born and Summer-born pupils in England, which is reflected in the significance of the different pupil characteristics in the regression analysis presented in section 5.1.

5.4. Performance by socioeconomic/sociocultural background

5.4.1. Performance by ethnicity

In England, previous research has found that pupils from different ethnic groups have different levels of success in their GCSEs (Strand, 2014), or in other international assessments such as PISA (Jerrim & Shure, 2016). Table 5.7 below outlines the weighted percentage of pupils in England's PIRLS 2016 sample of different major ethnic groups. This includes those categorised as White, Black, Asian, Mixed, or as Other. These categorisations of ethnicity are consistent with those currently used for UK census data[24]. Table 5.7 also includes the pupils with no ethnicity data in the NPD due to refusal or other reasons. Ethnicity data was available for 4,819 pupils.

White pupils, identified as White British, Irish, Traveller, Gypsy/Roma, and those of other white ethnic backgrounds, made up 77% of the known ethnicities in the sample. Black pupils consisted of those of African or Caribbean heritage, or otherwise categorised as being of another black ethnicity, who made up 6% of the sample. Asian pupils included those with Bangladeshi, Indian, Pakistani or Chinese ethnicity, as well as those of other Asian ethnicities, who made up 10% of the sample. Mixed pupils are those of White ethnicity and another major group (e.g. White and Asian), who made up 5% of the sample. Other ethnicity pupils are those who were not categorised in any of the other four ethnicity categories, and made up 2% of pupils in the sample. These ethnic categorisations are broad and therefore may obscure differences in performance at a more nuanced level (e.g. potential differences in pupils of Black African compared to Black Caribbean ethnicity). This data is available within the NPD, but the sample sizes of

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24

https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/2011censusanalysisethnicityandreligionofthenonukbornpopulationinenglandandwales/2015-06-18#ethnicity-of-the-non-uk-born-population

these more precise ethnicity categories are not sufficiently large in the PIRLS 2016 sample to provide reliable estimates of group performance.

Of the five main ethnic groups, Table 5.7 shows that there is little variation in performance, with no groups scoring significantly higher than any other in PIRLS 2016; Black ethnicity pupils are the lowest performing group, but the gap between the other ethnicities is small. This is mostly consistent with the regression analysis in section 5.1, which found no evidence of a systematic difference in PIRLS performance by ethnicity, after accounting for other pupil characteristics.

Table 5.7 - Average performance of pupils in England by major ethnicity groups (2016)

Major Ethnicity Group	Percentage (%)	Mean score
White	77%	557 (2.2)
Black	6%	551 (4.1)
Asian	10%	558 (4.3)
Mixed	5%	556 (5.5)
Other	2%	559 (10.4)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

5.4.2.   Performance by English as an additional language (EAL)

The number of pupils in England identified as using English as an additional language (EAL) has been increasing over the past two decades (Strand, Malmberg & Hall, 2015). EAL data was available for 4,837 pupils in England's sample. Of these, 965 were classified as EAL pupils. Table 5.8 presents the average performance of England's EAL and non-EAL pupils in PIRLS 2016, alongside the weighted percentage of pupils in each group. The average performance of EAL pupils is not significantly different to non-EAL pupils, which is consistent with the findings of the regression analysis in section 5.1.

Table 5.8 - Average performance of English pupils by EAL status (2016)

English as an additional language (EAL)	Percentage (%)	Mean score
Non-EAL (English as a first language)	82%	558 (2.1)
EAL	18%	553 (3.8)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

5.4.3.   Performance by free-school-meal (FSM) eligibility

In England, some pupils in Key Stage 2 and above are eligible for free-school-meals if they meet certain family criteria, which typically relate to parental income. FSM eligibility

is, therefore, often used as an indicator of socioeconomic status. FSM eligibility information was available for 4,846 pupils in the sample. This included data for pupils who were FSM eligible in January 2017, and pupils that have been eligible for FSM in the past 6 years (Ever6 FSM).

Table 5.9 shows the number of pupils with either FSM status (Current FSM and Ever6 FSM), and their average performances in PIRLS 2016. In the sample, 696 pupils are presently eligible for free-school-meals (weighted percentage 13.3%) and 1,409 (weighted percentage 27.2%) had been FSM eligible in the past 6 years. In both FSM eligibility groups, pupils have an average performance around 40-points below pupils not eligible for free-school-meals.

Table 5.9 - Average performance of pupils in England by FSM eligibility (2016)

Free-School-Meal (FSM) Eligible	Percentage (%)	Mean score
Current FSM Eligibility		
Currently Eligible	14%	522 (3.7)
Not Currently Eligible	86%	562 (1.8)
Ever6 FSM Status		
Ever6 Eligible	29%	529 (2.7)
Not Ever6 Eligible	71%	568 (1.9)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

5.4.4. Associations between performance and educational resources at home

In the PIRLS 2016 student questionnaire, England's pupils were asked about the number of books they had at home, whether they had their own room at home, and whether their house had an internet connection. The percentage of pupils giving each response, and the mean score in PIRLS 2016 by each of these home characteristics is displayed below in Table 5.10.

There is a clear relationship between the number of books at home and average performance in PIRLS; the 9% of pupils reporting having 10 or fewer books at home have the lowest average performance, while the 16% of pupils reporting the highest number of books (201+) have an average score over 100-points higher. The trend was relatively linear with more books being associated with higher average performance at all levels of book access at home. This finding is similar to that of the regression analysis, although the average difference between those with the least and most books at home is larger here, suggesting that some of the variance in performance is shared with other pupil characteristics.

Three-quarters (75%) of pupils report having their own room at home. These pupils score, on average, 17-points higher on PIRLS 2016 than those who do not have their own room. However, there was no evidence in the regression analysis that this independently predicts differences in performance in PIRLS. Additionally, the overwhelming majority of pupils (97%) in England report having an internet connection at home. The 3% who report that they do not have an internet connection at home score, on average, nearly 60-points less.

Table 5.10 - Average performance of pupils in England by their access to home resources (2016)

Home Resources	Percentage (%)	Mean score
Number of books at home (pupil reported)		
None or very few (0-10 books)	9%	496 (4.5)
Enough to fill one shelf (11-25 books)	20%	527 (2.4)
Enough to fill one bookcase (26-100 books)	34%	559 (2.5)
Enough to fill two bookcases (101-200 books)	21%	588 (2.8)
Enough to fill three or more bookcases (more than 200 books)	16%	598 (3.2)
Pupil has their own room		
Pupil has their own room	75%	564 (1.9)
Pupil shares a room	25%	546 (3.4)
Available internet connection		
Pupil's home has an internet connection	97%	561 (1.8)
Pupil's home does not have an internet connection	3%	502 (8.8)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Compared to the International Median, a relatively large proportion of pupils in England report having more than 200 books at home, with fewer reporting less than 10 books, as shown in Table 5.11 below. Of the comparator countries, only Australia has a higher proportion of pupils reporting the most books at home, and fewer reporting the least number of books. Although a gap of around 100-points between the performance of pupils with the most and least books at home is relatively typical of the comparator countries, the International Median is much smaller, at just 68-points. There is only one country, Kuwait, in which pupils reporting the fewest books at home have a higher average score in PIRLS 2016 than those reporting the most books. In contrast, just one country, the Slovak Republic, has a higher performance-gap than Singapore, at 134-points.

Table 5.11 – Average performance of pupils in England and comparator countries in PIRLS 2016 by the number of books they reported having at home

Country	Amount of books at home (2016)				
	More than 200		10 or Fewer		Gap
	%	Av.Score	%	Av.Score	
Singapore	13%	617 (4.6)	9%	501 (5.0)	116
Australia	19%	578 (4.3)	8%	468 (6.5)	110
Northern Ireland	14%	598 (4.7)	11%	494 (4.6)	104
Republic of Ireland	15%	601 (4.3)	9%	498 (6.1)	103
England	**16%**	**598 (3.2)**	**9%**	**496 (4.5)**	**102****
New Zealand	14%	560 (3.8)	11%	460 (5.3)	100
Sweden	16%	586 (3.4)	7%	492 (4.7)	94
United States	11%	577 (5.4)	15%	502 (4.2)	75
International Median	**11%**	**565**	**11%**	**481**	**68**
Canada	14%	561 (5.0)	10%	494 (4.8)	68
Russian Federation	8%	605 (4.8)	11%	541 (4.5)	64

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

* Performance-gap in each country calculated as average scores for pupils with 'more than 200' books at home minus the average score for pupils with '10 or fewer' books at home

** International Median Performance-gap is the median performance-gap across countries, not the gap between the medians for '200 or more' and '10 or fewer' books at home.

Table 5.12 below shows that the gap in performance between pupils with the most and least books in England has remained relatively consistent over time, with no significant differences in the performance gap between cycles. However, the proportion of pupils reporting having more than 200 books at home has decreased over this time, down from a previous high of 23% in 2006. Although the performance of pupils reporting the most and least number of books at home has improved since 2001, it should be remembered that the overall performance of England in 2016 is not significantly different to England's performance in 2001. It is therefore likely that these increases in the performances of pupils reporting the most and least books at home is balanced by the performances of pupils reporting between 11 and 200 books at home across these two cycles.

Table 5.12 - Average performance of pupils in England by the number of books they reported having at home across PIRLS cycles

| Cycle | Amount of books at home (All cycles) | | | | Gap |
| | More than 200 | | 10 or Fewer | | |
	%	Av.Score	%	Av.Score	
England 2001	20%	577 (5.2)	7%	477 (7.1)	100
England 2006	23%	573 (4.5)	10%	475 (4.5)	97
England 2011	15%	584 (5.2)	9%	486 (6.0)	98
England 2016	**16%**	**598 (3.2)**	**9%**	**496 (4.5)**	**102**

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

* Performance-gap in each country calculated as average scores for pupils with 'more than 200' books at home minus the average score for pupils with '10 or fewer' books at home

5.4.5. PIRLS performance by pupils' school type

Two school-level strata were used during the sampling process for determining which schools would participate in PIRLS 2016 in England. This in turn identified six types of school that would be included; state-maintained schools (split into five categories based on their KS2 SATs performance in the 2013/2014 academic year), and a sixth group of Independent schools. Table 5.13 below outlines the performance of pupils by the type of school they attend.

Pupils in England attending independent schools are the highest average performers in PIRLS 2016, with an average score of 595. This group were not included in the regression analysis, as the vast majority of these pupils could not be linked to NPD data.

Of the pupils in state-maintained schools, the school's prior performance in KS2 assessments is positively associated with performance in PIRLS; those attending the highest performing schools score around 43-points higher than those attending the lowest performing schools. This is consistent with the findings of the regression analysis, although no significant differences were found between pupils in the Low Performing schools and those at Medium-Low or Medium Performing schools in that analysis. Additionally, the gap between the highest and lowest performing schools was only around 17-points in that analysis, indicating that some of the variance in performance is shared with other pupil characteristics.

Table 5.13 - Average performance of pupils in England by their school type (2016)

School Type	Percentage (%)	Mean score
State-Maintained Schools		
Low Performing	15%	535 (6.0)
Medium-Low Performing	19%	542 (3.6)
Medium Performing	23%	556 (4.8)
Medium-High Performing	20%	567 (3.4)
High Performing	18%	578 (3.2)
Independent Schools		
Independent	6%	595 (9.4)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

5.5. Contextualisation – Singapore's examination culture and the use of English language in education

Since PIRLS 2006, Singapore has consistently been among the highest-performing countries in PIRLS, and in 2016, they have achieved their highest average score across the four cycles. This success has been mirrored in both PISA and TIMSS, with Singapore achieving the highest scores out of all of the participating countries in all domains of those assessments. Singapore's success is perhaps even more impressive when one considers that all of the pupils in Singapore sit these assessments in English, yet the overwhelming majority of pupils do not speak English as their first language. Despite these successes, Singapore's educational practices have not been universally praised, as they have been criticised for an 'examination culture'. Box 5.1 overviews the role of the English language in the Singaporean education system and how it has helped to shape the wider educational culture in the country.

Box 5.1 – English as the language of education in Singapore

There are four official languages of Singapore; Malay, Tamil, Mandarin Chinese and English. Although Malay is the national language, English is considered the lingua franca, and is used for all administrative and educational purposes in the country. English is therefore the main language for all teaching in Singapore, except for the teaching of the pupils' 'mother tongue' language (Chan, Chua, Foo, Pang, Poon et al., 2017). In the past 15 years, a greater proportion of the population has become bilingual (73% in 2015, up from 56% in 2001). Additionally, 37% of the population report that they predominantly speak English at home (up from 23% in 2000), rather than their first-language (Department of Statistics, Ministry of Trade and Education, Singapore, 2015). These changes can perhaps be explained by the Singaporean educational system which places a very high emphasis on mastery of the English language.

Singapore is often considered an 'examination-oriented culture' (Lim-Ratnam, 2013). This encompasses the teaching practices of schools, as well as wider perceptions of what constitutes a successful education. The primary education system in Singapore is heavily centred around the Primary School Leaving Examination (PSLE), which consists of assessments taken in English. There are four main assessment subjects; Maths, Science, English, and a fourth assessment of the pupil's 'mother tongue'. Performance in the PSLE is used to determine the pupils' academic merits, and affects the type of secondary school that pupils are able to attend. The exams are therefore high-stakes for pupils. Preparation for these exams begins at the very start of primary school (Curdt-Christiansen & Silver, 2012), which means that other aspects of the Singaporean primary curriculum are often neglected (Lim-Ratnam & Tan, 2015). Pupils in Singapore therefore experience significant pressure from their schools, families and wider social contexts to perform well in the PSLE and other examinations, and these are almost always dependent on a high level of fluency in English. This provides Singaporean pupils with extensive experience in preparing for English-language examinations, and given their importance, it is perhaps unsurprising that English has become increasingly dominant outside of the administrative and school contexts.

Despite Singapore's strong overall performance in PIRLS 2016 (as well as other international assessments), it has been suggested that the socioeconomic gaps in educational performance are particularly wide in the country (Lim-Ratnam & Tan, 2015), and that these can be partially attributed to the English-language examination culture. Of the comparator countries, Singapore had the largest disparity in performance between those with the most books at home, and the least books at home. Of the pupils stating that they never speak English at home, 27% reported having 10 or fewer books. In comparison, only 7% of those who always speak English at home report having so few books. Therefore, this performance-gap is likely to reflect wider socioeconomic and sociocultural disadvantages for pupils who receive less support and exposure to English.

6. Reading performance by motivational aspects

Chapter outline

This chapter examines how performance in PIRLS, gender, and other background characteristics interrelate with three aspects of pupils' motivation to read: their engagement in reading lessons, their confidence in reading, and their liking of reading. The chapter concludes with a discussion of the interplay between reading motivation and attitudes, and the emergence of digital technologies in Sweden.

Key findings:

- Pupils in England report being slightly less engaged in their reading lessons compared with pupils internationally. England's least engaged pupils have a lower average performance in PIRLS 2016 compared to more engaged pupils.

- Confidence in reading is higher in England's pupils than the International Median. Confidence is strongly associated with performance, with the most confident pupils scoring, on average, more than 100-points above the least confident pupils.

- The percentage of pupils in England reporting that they like reading is lower than the International Median. Pupils who report liking reading the most perform, on average, 45-points above those pupils who indicate that they do not like reading.

- Girls in England report higher levels of engagement in reading lessons and liking of reading. They are also somewhat more likely to report high confidence in reading. While England's girls and boys with the lowest engagement in reading lessons and reading confidence perform similarly in PIRLS 2016, the gender-gap in performance is maintained in the most motivated readers.

- Asian ethnicity pupils in England report higher levels of liking reading and reading lesson engagement than pupils of other ethnic groups. No differences in reading confidence are observed between different ethnic groups.

- The number of books that pupils in England have at home is strongly related to reading confidence and enjoyment, as well as average performance in PIRLS 2016. There are no clear associations between access to other home educational resources and reading motivation and attitudes.

6.1. Performance by motivational aspects in PIRLS 2016

As discussed in Chapter 1, after completing the PIRLS 2016 reading assessment, pupils were asked to complete a brief questionnaire. This questionnaire included items about their beliefs, emotions and behaviours with respect to reading. The questionnaire had a number of statements pertaining to each aspect of pupil's reading attitudes and motivations, and pupils were asked to respond to each statement on a four-point scale, e.g., agree a lot, agree a little, disagree a little, or disagree a lot. Responses to the statements were then collated using psychometric modelling[25] to create a number of scale scores. These scale scores were further classified into three categories based on the scores' correspondence with patterns of agreement or disagreement across the relevant statements. For example, each pupil was categorised as either being "very engaged", "somewhat engaged", or "less than engaged" in their reading lessons based on their pattern of responses to the nine statements looking at pupil engagement. The scale cut-off score for pupils identified as, for example, "very engaged" corresponded with the pupil 'agreeing a lot' with five of the statements and 'agreeing a little' with the remaining four[26].

Table 6.1 below provides the percentages of pupils in England and the comparator countries categorised as either "very engaged", "somewhat engaged" or "less than engaged" in their reading lessons, and the average PIRLS 2016 performance of the pupils in each category. The statements that comprised this scale are provided in Appendix F.

Only 5% of pupils in England are categorised as being "less than engaged" in their reading lessons. These pupils have a substantially lower average performance than the rest of England's cohort. Nonetheless, the average performance of the least engaged pupils in England (530) is higher than the International Median of the least engaged pupils (514). In contrast, 57% of England's pupils are "very engaged" in reading lessons, which is similar to the International Median (59%). However, the average performance of "very engaged" pupils in England (562) is substantially higher than the International Median performance (540). The performance of "very engaged" pupils is very similar to the "somewhat engaged" (558) pupils in England.

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[25] For the scaling of the questionnaire data, the Rasch model was applied, which follows a similar, but far simpler process than for the reading assessment data described in Chapter 1, as all pupils are administered all items in the questionnaire and no plausible values are calculated.

[26] This explanation is somewhat simplified, as, in the absence of missing responses to some statements, the scale score corresponds with a total score (i.e. a simple summation of the responses across the statements when the four different response options are scored 0, 1, 2, 3) and there are multiple response patterns across the statements that would lead to the same total score.

Table 6.1 - Pupils' engagement in reading lessons in England and comparator countries (2016)

Country	Overall Average	'Engagement in Reading Lessons' Scale					
		Very engaged		Somewhat engaged		Less than engaged	
		%	Av. Score	%	Av. Score	%	Av. Score
Russian Federation	581 (2.2)	65%	582 (2.5)	32%	580 (2.8)	3%	568 (6.8)
Republic of Ireland	567 (2.5)	62%	569 (2.6)	34%	566 (3.3)	4%	553 (8.4)
United States	549 (3.1)	62%	556 (3.0)	32%	549 (4.1)	6%	521 (6.6)
Northern Ireland	565 (2.2)	61%	567 (2.6)	34%	566 (3.1)	4%	539 (10.4)
International Median	**539**	**59%**	**540**	**36%**	**540**	**5%**	**514**
Canada	543 (1.8)	58%	550 (2.2)	37%	540 (2.5)	4%	512 (5.1)
New Zealand	523 (2.2)	58%	526 (2.3)	38%	524 (3.1)	4%	501 (8.2)
England	**559 (1.9)**	**57%**	**562 (2.2)**	**38%**	**558 (2.3)**	**5%**	**530 (6.7)**
Australia	544 (2.5)	56%	547 (2.7)	39%	544 (3.3)	5%	529 (5.8)
Sweden	555 (2.4)	49%	559 (3.1)	46%	555 (2.9)	4%	537 (5.1)
Singapore	576 (3.2)	43%	579 (3.6)	50%	578 (3.2)	8%	555 (5.3)

Source: IEA's PIRLS 2016

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

The highest levels of pupil engagement in reading lessons are reported in Bulgaria (84% very engaged), Portugal (83%) and Azerbaijan (83%), with the lowest reported in Hong Kong SAR (34%) and the Netherlands (37%). Across the comparator countries, the performance of pupils categorised as "very engaged" is, for the most part, only marginally higher than those who are "somewhat engaged", although Canada is an exception to this with a 10-point difference. Moreover, while pupils categorised as "less than engaged" only made up a small percentage of pupils in each comparator country, their average performance is consistently, substantially lower compared to pupils in the other two categories.

Table 6.2 below presents the percentages of pupils in England and each comparator country that are categorised as either "very confident", "somewhat confident" or "not very confident" readers. The six items that made up this scale are provided in Appendix F.

Table 6.2 - Pupils' confidence in reading in England and comparator countries (2016)

Country	Overall Average	'Confidence in Reading' Scale					
		Very confident		Somewhat confident		Not very confident	
		%	Av. Score	%	Av. Score	%	Av. Score
Sweden	555 (2.4)	65%	575 (2.3)	28%	532 (3.2)	8%	488 (5.2)
Republic of Ireland	567 (2.5)	55%	593 (2.6)	31%	550 (2.7)	14%	505 (4.2)
England	**559 (1.9)**	**53%**	**591 (1.9)**	**31%**	**541 (2.6)**	**16%**	**488 (3.1)**
Canada	543 (1.8)	51%	574 (1.6)	32%	530 (2.4)	17%	482 (3.2)
Northern Ireland	565 (2.2)	50%	598 (2.2)	33%	553 (3.0)	17%	493 (4.1)
United States	549 (3.1)	50%	583 (2.6)	32%	540 (3.4)	19%	496 (4.1)
Australia	544 (2.5)	49%	585 (2.4)	34%	526 (2.9)	16%	465 (3.7)
Singapore	576 (3.2)	48%	612 (2.6)	36%	562 (3.1)	16%	503 (4.8)
International Median	**539**	**45%**	**567**	**34%**	**529**	**19%**	**483**
Russian Federation	581 (2.2)	43%	609 (2.3)	38%	575 (2.4)	19%	532 (3.4)
New Zealand	523 (2.2)	35%	577 (2.5)	41%	520 (2.7)	24%	457 (3.8)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Source: IEA's PIRLS 2016

Both in England and internationally, higher levels of confidence are strongly associated with higher average performance in PIRLS 2016. Moreover, countries with higher overall levels of confidence generally have higher average performance than countries with lower overall levels of reading confidence. In England, 53% of pupils are categorised as being "very confident" readers, which is higher than the International Median of 45%, and the average PIRLS score for these very confident pupils is 591. This percentage of high confidence is very similar to the Republic of Ireland (55%), Northern Ireland (50%), the United States (50%) and Canada (51%). Looking at all participating countries in PIRLS 2016, Sweden have the highest percentage of pupils categorised as "very confident" readers at 65%, followed by Finland (60%) and Poland (59%). High levels of reading confidence are least common in South Africa (20% "very confident"), who are the lowest performing country in PIRLS 2016, and Macao SAR (21%), who score (546) slightly above the PIRLS 2016 International Median (539).

The average score of "not very confident" readers in England is more than 100-points lower than "very confident" readers at 488. Similar to the findings for the engagement scale, the least confident pupils in England perform similarly to the International Median, whereas the most confident pupils in England score substantially above the International Median for very confident pupils. In terms of the comparator countries, pupils categorised as "very confident" readers consistently perform substantially above pupils categorised as "somewhat confident", and in turn, these latter pupils consistently perform substantially above pupils categorised as "not very confident." However, it should be noted that all pupils had just completed the reading assessments, which would have

influenced their sense of confidence, and so it is unsurprising to see such a systematic relationship between reported confidence and average PIRLS performance.

Table 6.3 outlines the percentage of pupils in England and each comparator country who were categorised as liking reading "very much", liking reading "somewhat", and those who "do not like" reading, alongside their average PIRLS reading performance. The ten items that made up the 'Liking of Reading' Scale are provided in Appendix F.

Across the countries participating in PIRLS 2016, the International Median percentage of pupils categorised as liking reading very much was 40%. This compares to just 35% of pupils in England categorised at this high level of liking of reading. Similarly, England has a slightly higher proportion (20%) of pupils who were categorised as not liking reading compared to the International Median of 17%. The difference in the performance of pupils categorised as liking reading very much and pupils categorised as not liking reading in England is 45-points, which is greater than the 30-point gap between the International Medians for these categorisations of pupils.

Table 6.3 - Pupils' liking of reading in England and comparator countries (2016)

Country	Overall Average	'Liking of Reading' Scale					
		Likes very much		Likes somewhat		Does not like	
		%	Av. Score	%	Av. Score	%	Av. Score
Russian Federation	581 (2.2)	46%	582 (2.9)	44%	581 (2.5)	10%	572 (3.4)
Republic of Ireland	567 (2.5)	46%	580 (3.0)	40%	565 (2.9)	15%	534 (4.6)
New Zealand	523 (2.2)	44%	535 (2.6)	42%	520 (2.9)	14%	508 (4.2)
Australia	544 (2.5)	43%	558 (3.3)	41%	543 (3.0)	16%	517 (3.0)
International Median	**539**	**40%**	**550**	**43%**	**542**	**17%**	**520**
Northern Ireland	565 (2.2)	39%	580 (2.9)	42%	567 (2.7)	19%	531 (3.8)
Canada	543 (1.8)	37%	555 (2.2)	45%	543 (2.1)	18%	525 (2.9)
United States	549 (3.1)	36%	557 (3.8)	42%	553 (3.4)	22%	538 (3.8)
England	**559 (1.9)**	**35%**	**575 (2.5)**	**45%**	**559 (2.2)**	**20%**	**530 (3.3)**
Singapore	576 (3.2)	31%	598 (3.6)	50%	574 (3.3)	19%	548 (3.7)
Sweden	555 (2.4)	18%	572 (4.3)	50%	563 (2.5)	31%	535 (3.2)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Across the comparator countries, there is a fairly consistent correlation between the degree of liking of reading and average performance in the PIRLS reading assessment, although this relationship is less marked than for reading confidence. The Russian Federation is one exception to this, as there is only a 10-point gap in performance between their pupils who like reading the most and least. Moreover, despite having more "very confident" readers than any other participating country, Sweden also has the lowest percentage of pupils who like reading "very much", at just 18%. Liking of reading is

similarly low across the other Scandinavian countries, including Denmark (20%) and Norway (22%). Additionally, 31% of pupils in Sweden were categorised as not liking reading, the joint highest percentage with the Netherlands and Flemish Belgium.

In terms of all participating countries, Portugal has the highest percentage of pupils who like reading "very much" at 72%, followed closely by Kazakhstan (71%) and the Islamic Republic of Iran (70%). Most of the countries with percentages of pupils above the International Median for liking of reading perform below the International Median PIRLS score, demonstrating the less clear relationship between these two aspects of reading. Nonetheless, within countries, those pupils who report higher levels of liking tend to have a higher average performance on the reading assessment. The only high performing-country where pupils report both very high levels of confidence and liking of reading is Kazakhstan (55% of pupils very confident readers, 71% like reading very much), where there is no difference in average performance between the most and least confident readers.

6.1.1. Performance at percentiles by motivational factors

Figure 6.1 below displays the 10th, 50th and 90th percentile scores for pupils in England in PIRLS 2016 differentiated by their categorisation on the *Engaged in Reading Lessons Scale*. It shows that the least engaged pupils score between 31 and 35-points less than their most engaged peers across the three percentiles. Though the distributions were similar, the range between low and high-performing pupils is slightly narrower for the somewhat engaged pupils compared to the very engaged pupils; there are 195-points between the 10th and 90th percentiles for the somewhat engaged pupils, compared to a 202-point gap for those categorised as very engaged in their reading lessons.

Figure 6.1 - Performance of England's pupils at the 10th, 50th and 90th percentiles by their engagement in reading lessons (2016)

	Less than engaged	Somewhat engaged	Very engaged
■ 10th Percentile	426	459	457
■ 50th Percentile	537	563	568
■ 90th Percentile	624	654	659

Source: IEA's PIRLS 2016
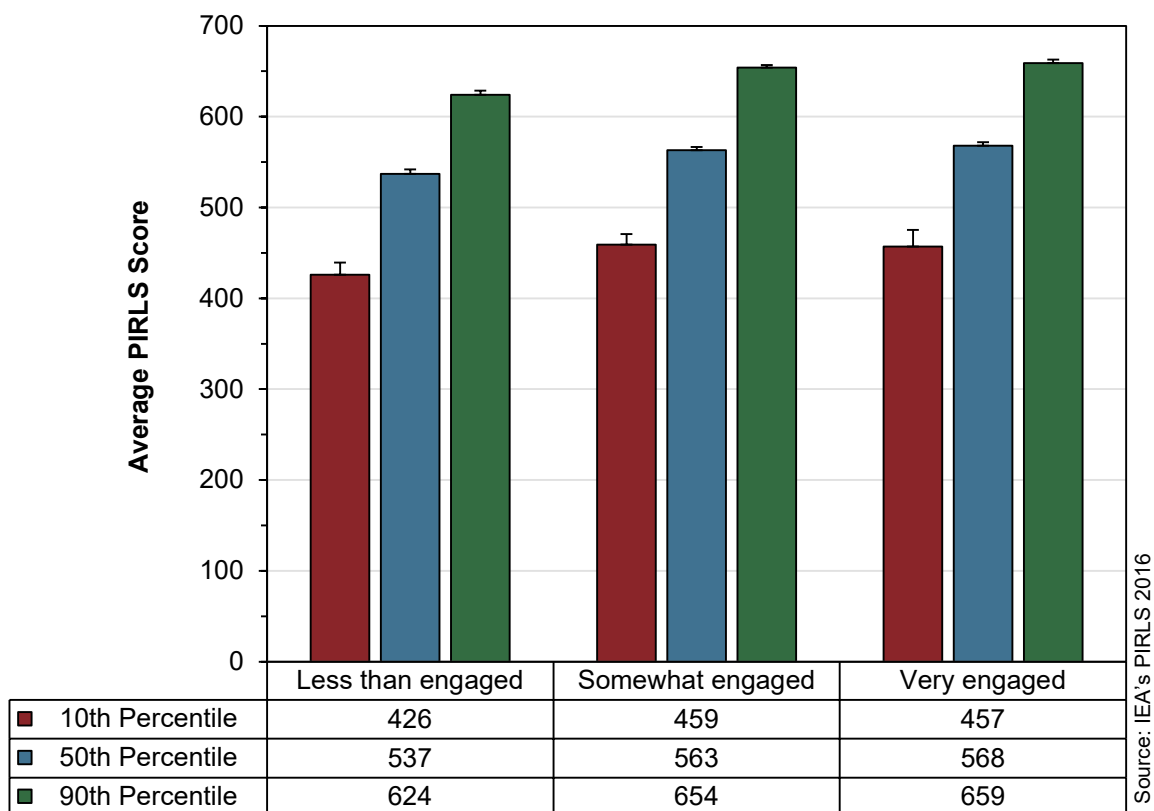
Figure 6.2 below shows the 10th, 50th and 90th percentile scores for pupils in England in PIRLS 2016 differentiated by their *Confidence in Reading Scale* categorisation. There is a wide gap in scores between the 10th and 90th percentiles for pupils who report being not very confident readers (193-points), which is similar to the overall high-low gap for England. In contrast, this gap is smaller for the most confident pupils (169-points) in England, which is similar to the overall high-low gaps observed for the Russian Federation and Sweden, as discussed in section 4.1.

At all percentiles, there was further evidence that confidence is strongly associated with performance in PIRLS 2016, with the lowest-performing, very confident pupils scoring higher than the median score (50th percentile) of pupils who were categorised as not very confident readers. The median score of very confident readers in England is also higher than the median score of any participating country in PIRLS 2016, although this finding is again confounded by the fact that the pupils had just completed the reading assessment.

Figure 6.2 - Performance of England's pupils by their confidence in reading at the 10th, 50th and 90th percentile

	Not very confident	Somewhat confident	Very confident
■ 10th Percentile	389	451	505
■ 50th Percentile	492	544	594
■ 90th Percentile	583	629	674
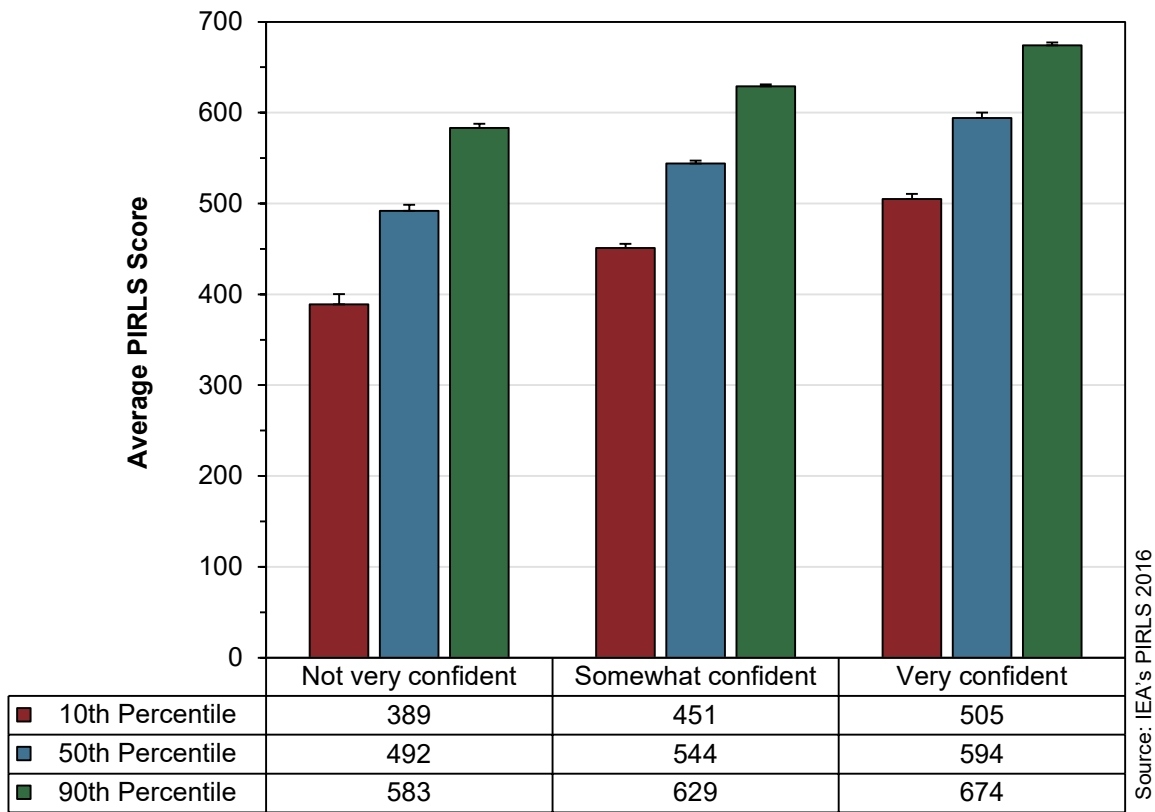
Figure 6.3 below presents the 10th, 50th, and 90th percentile scores for pupils in England separated by their *Liking of Reading Scale* categorisation. The difference in performance for pupils at the 10th and 90th percentiles is similar across the three categories of liking of reading, at around 189-197 points. Moreover, there is further evidence of an association between liking of reading and PIRLS performance, as across these 10th, 50th and 90th percentile groups, pupils who like reading the most score around 43-49 points more than pupils who like reading the least.

Figure 6.3 - Performance of England's pupils by their liking of reading at the 10th, 50th and 90th percentile

	Does not like reading	Likes reading somewhat	Likes reading very much
■ 10th Percentile	431	457	475
■ 50th Percentile	536	565	582
■ 90th Percentile	620	655	669

Source: IEA's PIRLS 2016
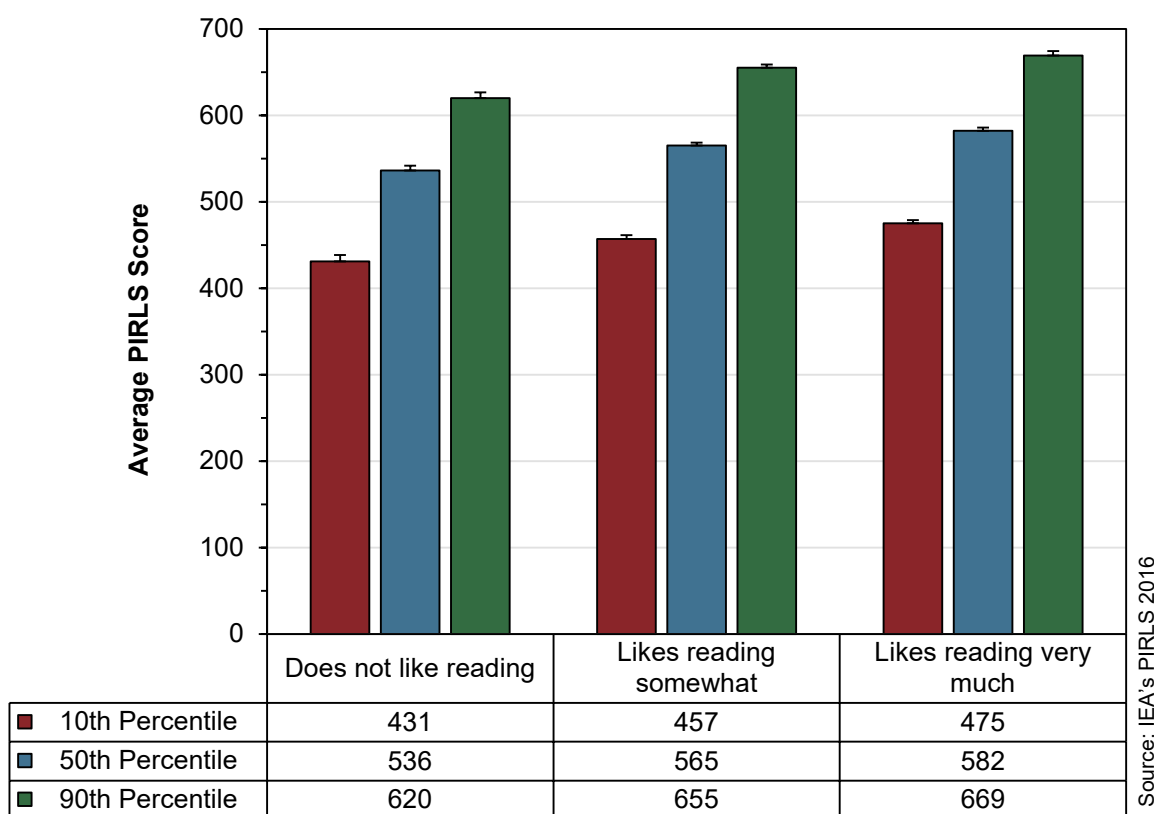
6.1.2. Reading motivational factors by gender

Table 6.4 below shows that more girls in England report the highest levels of engagement and liking of reading than boys, as well as slightly more girls reporting the highest level of confidence in reading. The trajectories of PIRLS scores across different levels of engagement, confidence, and liking of reading are similar for both boys and girls, with higher levels in these three aspects corresponding with higher average performance in the PIRLS reading assessment. The gender-gap, addressed in Chapter 5, is not observed in the least engaged boys and girls, and quite reduced in the least confident girls and boys, but this gap is maintained at the lowest levels of liking reading.

Table 6.4 – England's pupils' engagement in reading lessons, reading confidence and liking of reading by gender (2016)

| Gender | Level of Engagement / Confidence / Liking | | | | | |
| | Highest | | Middle | | Low | |
	%	Av. Score	%	Av. Score	%	Av. Score
Pupil Engagement						
Girls	61%	570 (2.8)	35%	566 (3.2)	3%	530 (11.1)
Boys	53%	554 (3.0)	41%	551 (2.9)	6%	531 (8.6)
Pupil Confidence						
Girls	55%	598 (2.3)	31%	547 (3.2)	14%	491 (4.3)
Boys	51%	584 (2.7)	31%	536 (3.0)	18%	485 (4.0)
Pupil Likes Reading						
Girls	41%	580 (3.1)	43%	566 (2.8)	16%	539 (4.1)
Boys	30%	570 (3.9)	47%	553 (3.0)	24%	524 (4.2)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

6.2. Trends in reading motivational factors

Although the reading engagement, reading confidence, and liking of reading scales were also used in PIRLS 2011, the items that were used in these scales have substantially changed in PIRLS 2016. This means that it is not possible to compare the proportions of pupils in the above discussed categorisations across the two PIRLS cycles. Nonetheless, there are some items that are common to both cycles and so the following discussion presents how the pupils' patterns of responses to these items have changed in England from PIRLS 2011 to 2016.

Table 6.5 below presents the percentages of girls and boys in England who reported that their teachers gave them interesting things to read in their reading lessons in PIRLS 2011 and PIRLS 2016. This item contributed to the '*Engagement in Reading Lessons*' scale. Across both cycles, a greater percentage of girls felt that they were given interesting things to read than boys did. In both 2011 and 2016, around 16% of girls disagreed a little or a lot that their teacher gave them interesting things to read. Although more boys disagreed with this statement in both 2011 and 2016 than girls did, only 22% of boys disagreed in 2016, compared to 26% in 2011. The average performance of pupils who 'agreed a lot' with this item is lower than those who only agreed a little. This is consistent for both girls and boys, and across both PIRLS 2011 and 2016. In PIRLS 2016, pupils who 'agreed a lot' to this item only score marginally higher than those who 'disagreed a lot'.

Table 6.5 - Percentages of girls and boys in England who reported that their teacher gives them interesting things to read, and their performance in PIRLS 2011 and PIRLS 2016

Gender	Year	"My teacher gives me interesting things to read"							
		Agree a lot		Agree a little		Disagree a little		Disagree a lot	
		%	Av Score	%	Av Score	%	Av Score	%	Av Score
Girls	2011	41%	553 (4.4)	42%	572 (3.7)	12%	576 (6.6)	4%	553 (10.7)
	2016	45%	563 (3.1)	38%	574 (2.8)	13%	565 (4.9)	3%	553 (9.8)
Boys	2011	35%	528 (5.2)	39%	548 (4.0)	17%	556 (5.5)	9%	526 (7.2)
	2016	40%	543 (3.1)	39%	559 (3.8)	15%	556 (4.8)	7%	548 (6.8)
Overall	2011	38%	541 (3.9)	41%	560 (3.2)	15%	564 (4.4)	7%	534 (6.7)
	2016	43%	554 (2.5)	38%	567 (2.5)	14%	561 (3.3)	5%	549 (5.5)

Source: IEA's PIRLS 2016

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 6.6 shows the percentages of girls and boys in England who reported that they find reading easy in PIRLS 2011 and 2016. This item contributed to the '*Confidence in Reading*' scale. In both 2011 and 2016, somewhat more girls indicated that they find reading easy than boys, and there has been little change in these percentages across the two cycles. In PIRLS 2016, there is no significant gender-gap in performance observed for pupils who either report that they 'disagree a little' or 'disagree a lot' that reading is easy. From PIRLS 2011 to PIRLS 2016, the average reading performance of boys who indicate the greatest level of disagreement with the statement that reading is easy increased from 439-points to 499-points. The gender-gap in performance has remained relatively stable for those pupils who report finding reading very easy. For both boys and girls, and across cycles, pupils who report finding reading very easy score substantially higher than those who indicate lower levels of reading confidence.

Table 6.6 - Percentages of girls and boys in England who reported that they find reading easy, and their performance in PIRLS 2011 and PIRLS 2016

Gender	Year	"Reading is easy for me"							
		Agree a lot		Agree a little		Disagree a little		Disagree a lot	
		%	Av Score	%	Av Score	%	Av Score	%	Av Score
Girls	2011	58%	579 (3.3)	33%	551 (4.5)	7%	512 (6.5)	2%	498 (19.9)
	2016	59%	586 (2.7)	31%	553 (3.1)	7%	505 (5.5)	3%	485 (11.1)
Boys	2011	54%	562 (4.1)	35%	530 (4.4)	8%	495 (8.1)	4%	439 (10.8)
	2016	56%	571 (2.8)	32%	536 (3.3)	8%	504 (5.8)	3%	499 (11.1)
Overall	2011	56%	571 (3.0)	34%	540 (3.7)	7%	503 (5.6)	3%	458 (11.1)
	2016	58%	579 (1.9)	32%	544 (2.7)	8%	504 (4.2)	3%	493 (8.4)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 6.7 provides the percentages of girls and boys in England who reported that they enjoy reading in PIRLS 2011 and PIRLS 2016. This item contributed to the '*Liking of Reading*' scale. While more boys report that they do not enjoy reading compared to girls in both cycles, the proportion of girls who indicate some level of disagreement with the enjoying reading item increased from 10% in 2011 to 13% in 2016. For boys, there was a decrease from 24% to 22%. Similarly, the percentage of girls who report enjoying reading 'a lot' went down from 66% to 62%, while there was a small increase in the percentage of boys giving this response. For both girls and boys, pupils who report that they enjoy reading the most had the highest average performance in PIRLS 2016. There is no evidence of a significant gender-gap in performance among the boys and girls who disagreed a lot with this statement in 2016.

Table 6.7 - Percentages of girls and boys in England who reported that they enjoy reading, and their performance in PIRLS 2011 and PIRLS 2016

Gender	Year	"I enjoy reading"							
		Agree a lot		Agree a little		Disagree a little		Disagree a lot	
		%	Av Score	%	Av Score	%	Av Score	%	Av Score
Girls	2011	66%	573 (3.5)	24%	555 (4.4)	6%	529 (6.1)	4%	509 (11.5)
	2016	62%	583 (2.7)	25%	552 (3.1)	8%	544 (6.5)	5%	502 (6.9)
Boys	2011	49%	558 (4.2)	27%	536 (4.1)	11%	527 (6.4)	13%	497 (6.9)
	2016	50%	571 (3.1)	28%	546 (3.5)	11%	525 (5.1)	11%	505 (5.3)
Overall	2011	57%	567 (3.2)	25%	544 (3.0)	8%	528 (4.8)	9%	500 (6.7)
	2016	56%	577 (2.2)	27%	549 (2.5)	9%	533 (4.0)	8%	504 (4.3)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

6.3. Reading motivational factors by pupil background characteristics

6.3.1. Motivational factors to read by ethnicity and EAL status

Table 6.8 below presents the variations in the proportions of pupils' categorised in the different levels of reading lesson engagement by their ethnic background and EAL status. Of the Asian ethnicity pupils in England's PIRLS 2016 sample, 65% report the highest levels of reading engagement, compared to 55% of White pupils. The association with average performance in PIRLS is less clear, although Mixed ethnicity pupils who report the highest levels of engagement score 17-points higher than those only somewhat engaged. The opposite trend is observed for Black ethnicity pupils. There are no clear differences in performance for White and Asian pupils in terms of different levels of reading engagement.

EAL pupils are also slightly more likely to be engaged in reading than non-EAL pupils (61% and 56% respectively). But again, the associations with average performance in PIRLS are not clear. This lack of clarity may be related to the lack of average performance information for pupils that are categorised as 'less than engaged', as the sample sizes were very small for the groups when further differentiated by ethnicity and EAL status[27]. This is supported by the observation that the White and non-EAL pupils who report the lowest average levels of engagement have average performances approximately 33-points below their 'very engaged' peers.

Table 6.8 - Engagement in reading lessons by ethnicity and EAL status (2016)

| Pupil Background | Engaged in reading lessons | | | | | |
| | Very engaged | | Somewhat engaged | | Less than engaged | |
	%	Av. Score	%	Av. Score	%	Av. Score
Pupil Ethnicity						
White	55%	560 (2.7)	39%	557 (2.8)	5%	527 (6.8)
Black	57%	546 (5.6)	40%	562 (7.1)	4%	-
Asian	65%	558 (5.0)	34%	559 (6.4)	1%	-
Mixed	54%	566 (7.5)	42%	549 (8.5)	4%	-
EAL status						
Non-EAL	56%	561 (2.5)	40%	557 (2.7)	5%	528 (6.4)
EAL	61%	554 (4.7)	36%	555 (4.9)	3%	506 (16.7)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
Average scores for some 'Less than engaged' pupil backgrounds cannot be calculated because of insufficient sample sizes.

Table 6.9 below shows confidence in reading differentiated by ethnic background and EAL status for pupils in England. The percentage of pupils categorised in the highest levels of confidence did not substantially vary between the different ethnic and EAL groups. In all groups, just over half of pupils are categorised as "very confident" in reading. Across all groups, levels of confidence are strongly associated with average performance in PIRLS 2016. In particular, the pupils categorised as "not very confident" in the White, Asian, EAL and non-EAL groups all have average performances approximately 100-points less than their "very confident" counterparts.

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[27] Average PIRLS scores were not calculated for categories with less than 15 pupils due to the unreliability of estimates based on such small sample sizes. This applies across Chapter 6.

Table 6.9 – Reading confidence by ethnicity and EAL status (2016)

Pupil Background	Confidence in Reading					
	Very confident		**Somewhat confident**		**Not very confident**	
	%	Av. Score	%	Av. Score	%	Av. Score
Pupil Ethnicity						
White	52%	591 (2.3)	31%	539 (3.1)	17%	486 (3.4)
Black	56%	575 (5.7)	32%	538 (8.1)	12%	485 (19.1)
Asian	57%	587 (4.2)	31%	530 (6.6)	12%	491 (7.8)
Mixed	52%	590 (6.6)	29%	542 (8.3)	19%	486 (14.3)
EAL status						
Non-EAL	52%	591 (2.2)	31%	541 (2.8)	17%	487 (3.5)
EAL	55%	585 (4.4)	31%	529 (4.9)	14%	484 (7.0)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 6.10 displays the percentages of pupils categorised at different levels of liking of reading differentiated by their ethnicity and EAL status. A substantially higher proportion of Asian pupils (44%) in England are categorised as liking reading very much compared to the other ethnic groups. The patterns of associations between liking of reading and average performance in PIRLS 2016 is relatively consistent across ethnic groups, with greater liking corresponding with higher performance. A higher proportion of EAL pupils are categorised as liking reading 'very much'. However, non-EAL pupils who are categorised in the highest level of reading liking have an average performance above their EAL peers.

Table 6.10 – Liking of reading by ethnicity and EAL status (2016)

Pupil Background	Likes Reading					
	Likes very much		**Likes somewhat**		**Does not like**	
	%	Av. Score	%	Av. Score	%	Av. Score
Pupil Ethnicity						
White	34%	574 (3.0)	45%	558 (2.6)	21%	529 (3.8)
Black	32%	556 (6.3)	50%	550 (6.1)	18%	547 (11.4)
Asian	44%	570 (4.6)	41%	556 (7.5)	15%	528 (8.2)
Mixed	33%	574 (8.3)	47%	551 (9.4)	21%	539 (11.3)
EAL status						
Non-EAL	34%	574 (2.7)	45%	558 (2.4)	21%	530 (3.6)
EAL	40%	565 (5.1)	43%	551 (5.9)	16%	532 (6.0)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

6.3.2. Motivational factors to read by home educational resources

Table 6.11 shows the proportions of England's pupils categorised into different levels of engagement in reading lessons differentiated by their access to different home resources. Overall, there does not appear to be a relationship between level of engagement in reading lessons and either the number of books that pupils have access to at home, or whether they have their own room. Pupils without access to the internet at home appear to have a higher proportion of engagement in reading lessons, although this finding should be interpreted with caution as there was only a very small percentage (3%) of pupils in this category.

Table 6.11 – England's pupils' engagement in reading lessons by their home resources (2016)

Home Resources	Engaged in Reading Lessons					
	Very engaged		Somewhat engaged		Less than engaged	
	%	Av. Score	%	Av. Score	%	Av. Score
Number of books at home						
None or very few (0-10 books)	55%	490 (7.1)	35%	501 (6.2)	10%	508 (12.9)
Enough to fill one shelf (11-25 books)	57%	529 (3.3)	39%	527 (4.8)	4%	500 (10.9)
Enough to fill one bookcase (26-100 books)	57%	562 (3.2)	40%	558 (3.2)	3%	537 (10.3)
Enough to fill two bookcases (101-200 books)	59%	594 (3.7)	37%	585 (4.5)	3%	546 (15.1)
Enough to fill three+ bookcases (more than 200 books)	56%	604 (3.6)	39%	595 (5.4)	6%	561 (13.3)
Pupil has their own room						
Pupil has their own room	57%	567 (2.3)	39%	562 (2.8)	5%	536 (7.2)
Pupil shares a room	58%	548 (4.6)	38%	548 (4.1)	4%	512 (9.9)
Internet connection at home						
Has internet at home	57%	565 (2.2)	39%	559 (2.3)	4%	534 (7.0)
Does not have internet at home	68%	502 (11.0)	25%	514 (15.7)	7%	-

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
- Average scores for some cross-tabulations cannot be calculated because of insufficient sample sizes.

Table 6.12 below presents the proportions of pupils categorised at different levels of reading confidence differentiated by their access to different home resources. There is a strong association between level of confidence in reading and the number of books a pupil has access to at home. Specifically, while less than a third (32%) of pupils with 10 or fewer books at home are categorised in the high level of reading confidence, 73% pupils with more than 200 books at home are categorised at this level. Conversely, 34% of pupils with 10 or fewer books at home are categorised at the lowest level of

confidence, compared to just 8% of pupils who have the highest number of books at home. There is also a consistent large difference in average performance between the most and least confident pupils for each of the 'number of books at home' categories.

Pupils with access to their own room and the internet at home also tend to be categorised at higher levels of reading confidence, which in turn corresponds with higher average performance in PIRLS for the former. No such comparison is possible with respect to home internet access due to the small sample size of pupils without home internet access.

Table 6.12 – England's pupils' reading confidence by their home resources (2016)

Home Resources	Confidence in Reading					
	Very confident		Somewhat confident		Not very confident	
	%	Av. Score	%	Av. Score	%	Av. Score
Number of books at home						
None or very few (0-10 books)	32%	542 (4.7)	33%	493 (6.7)	34%	454 (8.0)
Enough to fill one shelf (11-25 books)	41%	558 (3.6)	38%	521 (3.6)	21%	477 (5.4)
Enough to fill one bookcase (26-100 books)	51%	585 (2.8)	34%	546 (3.7)	15%	503 (5.0)
Enough to fill two bookcases (101-200 books)	63%	610 (3.4)	27%	566 (4.8)	10%	515 (7.1)
Enough to fill three+ bookcases (more than 200 books)	73%	615 (3.1)	20%	573 (6.3)	8%	503 (10.3)
Pupil has their own room						
Pupil has their own room	55%	594 (2.1)	30%	544 (2.9)	15%	492 (3.8)
Pupil shares a room	47%	584 (4.2)	34%	533 (4.2)	19%	480 (5.5)
Internet connection at home						
Has internet at home	54%	592 (2.0)	31%	544 (2.6)	15%	492 (2.9)
Does not have internet at home	39%	577 (9.4)	35%	480 (10.2)	26%	425 (17.8)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 6.13 below displays the associations between pupils' level of liking of reading and their access to different home resources, as well as their average performance in PIRLS. There is a strong association between the number of books a pupil has access to at home and how much they report liking reading. Only 18% of pupils with 10 or fewer books in their home are categorised as liking reading very much, compared to more than half of pupils (53%) with access to more than 200 books at home. For pupils with access to more than 25 books at home, increases in the levels of reading liking are associated with higher average PIRLS scores. There is no clear relationship between liking of

reading and average PIRLS performance for pupils with access to 25 or fewer books at home.

There are minimal to no differences in the percentages of pupils categorised at different level of liking reading in terms of whether they have access to their own at room at home, and only minimal differences in percentages of liking reading in terms of whether a pupil has access to internet at home.

Table 6.13 – England's pupils' liking of reading by their home resources (2016)

Home Resources	Likes Reading					
	Likes very much		Likes somewhat		Does not like	
	%	Av. Score	%	Av. Score	%	Av. Score
Number of books at home						
None or very few (0-10 books)	18%	485 (10.8)	40%	492 (8.0)	42%	504 (5.6)
Enough to fill one shelf (11-25 books)	24%	522 (4.9)	51%	536 (3.4)	25%	513 (5.9)
Enough to fill one bookcase (26-100 books)	35%	567 (3.6)	46%	560 (3.8)	20%	544 (4.7)
Enough to fill two bookcases (101-200 books)	41%	601 (4.4)	47%	588 (4.2)	12%	544 (8.9)
Enough to fill three+ bookcases (more than 200 books)	53%	610 (4.0)	35%	592 (6.0)	12%	563 (7.4)
Pupil has their own room						
Pupil has their own room	35%	581 (2.7)	45%	565 (2.3)	20%	530 (3.7)
Pupil shares a room	35%	560 (5.5)	44%	542 (4.8)	21%	532 (5.0)
Internet connection at home						
Has internet at home	35%	578 (2.5)	45%	562 (2.1)	20%	531 (3.2)
Does not have internet at home	42%	523 (14.0)	39%	487 (13.7)	19%	-

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Average scores for some cross-tabulations cannot be calculated because of insufficient sample sizes.

6.4. Contextualisation: confident but uninterested in reading - the Swedish pupil profile

Of all the participating countries in PIRLS 2016, more pupils in Sweden were categorised as being 'very confident' readers than in any other country, and Sweden also has the lowest proportion of pupils categorised as 'not very confident' in reading. Despite this high confidence, the exact opposite pattern was observed in terms of their liking of reading, as Sweden has the highest observed proportion of pupils indicating that they do not like reading. While this reflects a general trend across countries with more confident readers, this relationship is most evident in Sweden and other Nordic countries, including

Norway and Finland. Box 6.1 discusses possible reasons why pupils in Sweden might report such high levels of confidence in reading in Swedish, yet such low liking of reading.

Box 6.1 – Confident in Swedish, more interested in English?

High levels of confidence, but low levels of reading enjoyment are reported in many of the high-performing countries in PIRLS 2016, including England. This relationship is strong in many of the Nordic countries, but particularly in Sweden, with the most confident readers of any country, though also the fewest pupils who like reading. While Sweden's average performance in PIRLS 2016 is up significantly from PIRLS 2011, and has reversed the downward trend seen over the previous two PIRLS cycles, the high confidence, but low enjoyment of reading seen in PIRLS 2011 appears to have been maintained.

One reason given for both the decrease in reading performance from PIRLS 2001 to 2011, and for changes in reading motivation, has been the proliferation of tablets and digital information sources (Skolverket, 2012). This argument was supported by Rosén and Gustafsson (2014), who suggested that the changing popularity of reading in Sweden can be attributed to a displacement of traditional methods for reading with the use of computers in the country. Using data from the IEA's Ten-Year Trend Study conducted in 1991, and data from PIRLS 2001, 2006 and 2011, Rosén and Gustafsson found a negative trend in reading for fun over time; while about half of all Swedish pupils reported reading for fun in 1991, only around a third responded this way in the PIRLS 2006 and PIRLS 2011 cycles. Similarly, in PIRLS 2001, 60% of Sweden's pupils were in the highest category for reading attitude, compared to just 21% in the 2011 cycle, although it should be noted that Rosén and Gustafsson were comparing two different, albeit similar scales. Rosén and Gustafsson (2016) draw specific comparisons to the rise in computer technology over this time; while virtually no pupils in 1991 had access to a computer at home in Sweden, 39% of pupils reported using a computer at home every day in 2001, increasing to 67% by 2011. Their assumption that the rise of computing has led to a decrease in the enjoyment of reading would explain the international trend, but alone does not account for why this has been particularly strong in Sweden.

Sundqvist and Sylven (2014) found that, when using computers, Swedish boys spent more time engaging in English-language computer-activities than girls, such as playing video games with people in other countries and watching English-language videos. Girls were more likely to engage in Swedish-language activities, such as speaking to close friends over social media. Boys also reported greater motivation to use English than girls. It is possible that the prevalence of, and attraction to the English language proliferated by the rise of computer-based entertainment has reduced the relative interest in Swedish-language reading, particularly for boys, though this speculation requires further empirical investigation. Nonetheless, English is treated in high-regard in Sweden, with parents valuing its educational importance for future success, and English is a popular subject choice among pupils in Swedish schools (Cabau, 2009).

7. Teacher and teaching characteristics

Chapter outline

This chapter examines how different aspects of teacher training and experience vary across countries in PIRLS 2016, as well as how they relate to average PIRLS reading performance. These aspects of teacher training and experience include the types of qualifications teachers and headteachers hold, the content of teacher training, the years of experience as a teacher, the types of ongoing professional development received in schools, and teachers' career satisfaction. Next, the chapter moves to a discussion of the types of texts and tasks that teachers assign their pupils in reading lessons, and their general association with PIRLS performance in England and internationally. The chapter ends with a discussion of the career satisfaction of primary school teachers in the Republic of Ireland, who in both PIRLS 2011 and 2016 have reported higher levels of career satisfaction than in many other high-performing countries.

Key findings:

- Teachers in England have a lower average number of years of experience compared to the International Median, and spend less time, on average, on professional development in teaching reading. However, neither of these aspects have an association with average performance of pupils in England or internationally.

- Teachers in England report slightly lower career satisfaction than the International Median, although teacher career satisfaction in England is slightly higher than in most of the countries in PIRLS 2016 who performed above the International Median. Career satisfaction is higher than in both the Russian Federation and Singapore, the highest-performing countries in PIRLS 2016.

- Teachers in England are more likely to assign longer texts to their pupils than in most other countries. They are also less likely to ask their pupils to draw comparisons between other read texts and aspects of experience than in most other countries.

7.1. Teacher characteristics in 2016

7.1.1. Teacher qualifications and professional development

The teachers of pupils who participated in PIRLS 2016 were asked a number of questions about their backgrounds, their teacher training, and other aspects of their professional practice. Table 7.1 presents the percentage of pupils[28] whose teachers have achieved each level of education in England and the comparator countries. Countries are displayed in descending order of the percentage of pupils taught by teachers educated to a postgraduate degree level or higher[29].

Table 7.1 - Percentage of pupils in England and comparator countries whose teachers have reached or exceeded different educational levels (2016)

Country	Highest educational level achieved by teachers (%)							
	Postgraduate degree or higher		Bachelor's degree		Post-Secondary qualifications		Upper-Secondary qualifications	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
United States	55%	552 (4.2)	45%	546 (5.0)	0%		0%	-
Russian Federation	43%	587 (3.3)	37%	584 (4.3)	19%	561 (6.4)	0%	-
Republic of Ireland	26%	559 (4.5)	74%	569 (2.9)	0%	-	0%	-
Northern Ireland	19%	575 (5.7)	80%	562 (2.7)	1%	-	0%	-
Canada	16%	548 (2.8)	84%	543 (2.2)	0%	-	0%	-
Sweden	13%	554 (6.9)	81%	556 (2.9)	5%	550 (8.5)	0%	-
International Median	**12%**	**542**	**71%**	**533**	**5%**	**530**	**0%**	**443**
Australia	12%	560 (9.6)	82%	542 (2.5)	7%	552 (10.1)	0%	-
Singapore	9%	569 (10.2)	72%	580 (4.0)	18%	562 (7.3)	1%	-
England	**8%**	**564 (10.2)**	**92%**	**559 (2.1)**	**0%**	**-**	**0%**	**-**
New Zealand	5%	507 (20.1)	82%	529 (2.5)	13%	516 (9.5)	0%	-

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

While most Year 5 teachers in England will have a postgraduate certificate in Education (Lenkeit & McGrane, 2017), only 8% of pupils' teachers report having a postgraduate

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[28] Note that these percentages pertain to the pupils and are not intended as estimates of the percentages of teachers that have attained each education level in England and the comparator countries. This applies to all other data presented in this chapter whereby the figures relate to the pupils. This also applies in Chapter 8.

[29] The postgraduate certificate of Education (PGCE) is the typical route into teaching for England's teachers and is considered the equivalent of a postgraduate degree. The low percentage of teachers reporting having a postgraduate degree or higher is likely attributable to teachers not interpreting their qualification as being a postgraduate degree.

degree. This is below the International Median[30] of 12% of teachers who report having a postgraduate degree or higher. The comparator countries with the highest proportion of teachers reporting having a postgraduate degree or higher include the United States and the Russian Federation. In the Russian Federation and Singapore, the two top-performing countries in PIRLS 2016, 19% and 18% of pupils respectively are taught by teachers who do not have a Bachelor's degree. There is no clear relationship between the levels of teachers' formal education and the average performance of their pupils in the majority of comparator countries. However, the International Median score of pupils taught by teachers with postgraduate qualifications is higher than those with upper-secondary qualifications.

Table 7.2 presents the percentage of pupils whose teachers report that their formal teacher training placed an emphasis on language, teaching of reading, and reading theory. Countries are displayed in descending order of their average PIRLS score.

Table 7.2 - Percentage of pupils in England and comparator countries whose teachers' formal training emphasised different aspects of reading education (2016)

Country	Average PIRLS Score	Areas emphasised in teacher training (%)		
		Language	Pedagogy / Teaching Reading	Reading Theory
Russian Federation	581 (2.2)	75%	85%	46%
Singapore	576 (3.2)	83%	80%	28%
Republic of Ireland	567 (2.5)	69%	76%	36%
Northern Ireland	565 (2.2)	69%	56%	26%
England	**559 (1.9)**	**74%**	**65%**	**16%**
Sweden	555 (2.4)	82%	56%	46%
United States	549 (3.1)	45%	76%	39%
Australia	544 (2.5)	81%	68%	38%
Canada	543 (1.8)	55%	61%	20%
International Median	**539**	**73%**	**65%**	**32%**
New Zealand	523 (2.2)	70%	73%	39%

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

In England, 74% of pupils' teachers report receiving language as an area of emphasis in their training, which is similar to the International Median of 73%. This compares to the United States, which has the lowest percentage (45%) of the comparator countries. This

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[30] The calculations of International Medians of pupil performance presented herein (Chapters 7 and 8) exclude countries where the percentage of pupils in that category was less than 2.5% of that country's sample. This is consistent with the approach used in the International Report for calculating similar International Means (Mullis, Martin, Foy & Hooper, 2017).

area of emphasis is most prevalent in Bulgaria (average PIRLS score of 552), where 97% of pupils' teachers report receiving training that emphasised language.

The percentage of pupils in England whose teachers report receiving pedagogy and/or teaching reading as an area of emphasis in their training has increased from 48% since PIRLS 2011 to 65% in PIRLS 2016, matching the International Median. Of the comparator countries, the Russian Federation and Singapore have the highest percentage of pupils whose teachers said that their formal training had teaching of reading as an area of emphasis. The highest percentage of all of the participating countries for this aspect of teacher training is again observed in Bulgaria (95%).

Of the comparator countries, England has the lowest percentage (16%) of pupils' teachers reporting that reading theory is an area of emphasis in their teacher training, which is also similar to their PIRLS 2011 figure of 17%. This compares to the International Median of 32% in 2016. Of the comparator countries, the Russian Federation and Sweden (46% in both cases) have the highest percentage of pupils' teachers reporting that reading theory is an area of emphasis in the training, and Azerbaijan have the highest percentage (69%) of all the participating countries. Both in England and internationally, there are no differences in the average reading performance of pupils taught by teachers whose formal training had different levels of emphasis on any of these areas.

Table 7.3 below shows the average number of years of teaching experience that pupils' teachers have in England and the comparator countries. On average, teachers of pupils in England have 11 years of experience, which is lower than all of the comparator countries. The International Median PIRLS performance of pupils taught by the most experienced teachers is higher than the International Median performance of those taught by teachers with the least experience. No such association between teaching experience and PIRLS performance is observed in England. Moreover, the two top-performing countries, the Russian Federation and Singapore, have very different distributions of their teachers' years of experience, yet they have a similar overall performance.

Table 7.3 – Percentage of pupils whose teachers have different durations of teaching experience

Country	Years of teaching experience							
	20 years or more		10-20 years		5-10 years		Less than 5 years	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Russian Federation	75%	583 (2.9)	12%	572 (9.1)	7%	582 (10.6)	6%	570 (10.2)
Northern Ireland	45%	558 (3.3)	29%	570 (5.2)	15%	577 (6.0)	11%	554 (8.6)
Australia	40%	547 (4.4)	23%	542 (4.2)	15%	549 (7.4)	22%	542 (7.6)
International Median	**40%**	**542**	**29%**	**540**	**15%**	**535**	**12%**	**525**
United States	30%	557 (4.9)	37%	549 (5.7)	16%	553 (6.9)	17%	535 (8.7)
Canada	28%	545 (3.4)	37%	545 (3.0)	20%	540 (3.9)	16%	540 (6.4)
New Zealand	21%	529 (5.9)	40%	532 (3.6)	18%	521 (6.0)	22%	520 (7.7)
England	**20%**	**563 (4.7)**	**26%**	**554 (4.6)**	**18%**	**563 (4.3)**	**35%**	**557 (4.1)**
Republic of Ireland	20%	567 (5.0)	29%	569 (4.0)	34%	567 (4.8)	17%	563 (5.5)
Sweden	19%	554 (4.9)	43%	559 (3.1)	17%	563 (6.4)	21%	544 (4.3)
Singapore	19%	580 (9.1)	36%	578 (5.3)	22%	579 (6.4)	22%	567 (6.3)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 7.4 below shows that in the past two years, the percentage of pupils in England with teachers that have had dedicated time for reading-related professional development is substantially lower than many of the comparator countries. While 20% of pupils' teachers in England received the highest amounts of professional development (16 or more hours over the past two years), the International Median for this response is 34%. Countries providing the largest amount of professional development related to reading include Georgia (68% of pupils' teachers receiving 16 hours or more) and Azerbaijan (67%). Of the comparator countries, England also has the highest percentage (18%) of pupils' teachers receiving no professional development related to reading over the past two years. A few countries outside of the comparator set also have very high percentages of teachers not receiving this professional development, including Morocco (66%) and Finland (59%). Nonetheless, there is no obvious correspondence between hours devoted to reading-related professional development and average PIRLS reading performance. In England, pupils taught by teachers with no professional development actually perform, on average, 15-points higher than pupils with teachers with the most professional development.

Table 7.4 - Percentage of pupils in England and comparator countries whose teachers have received different amounts of reading-related professional development (2016)

Country	Hours devoted to reading-related professional development (%)							
	16 hours or more		6-15 hours		Less than 6 hours		None	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Russian Federation	59%	582 (3.5)	16%	577 (6.1)	15%	581 (5.7)	10%	580 (5.9)
United States	55%	539 (4.3)	28%	566 (5.0)	15%	556 (8.2)	2%	-
Australia	49%	542 (3.8)	27%	544 (5.2)	21%	556 (5.7)	3%	536 (12.8)
Singapore	46%	584 (5.0)	31%	571 (5.6)	16%	573 (8.7)	7%	562 (10.8)
New Zealand	41%	517 (4.0)	30%	529 (3.8)	22%	534 (5.5)	7%	547 (8.3)
Sweden	37%	555 (3.8)	25%	556 (5.3)	24%	557 (4.6)	15%	554 (5.7)
Canada	34%	537 (3.3)	30%	545 (3.1)	29%	546 (3.1)	8%	556 (4.5)
International Median	**34%**	**539**	**27%**	**540**	**21%**	**541**	**10%**	**540**
Republic of Ireland	34%	564 (5.9)	22%	567 (4.8)	35%	567 (4.2)	10%	572 (6.2)
Northern Ireland	25%	566 (5.6)	31%	559 (5.1)	34%	565 (4.2)	10%	568 (8.5)
England	**20%**	**551 (5.8)**	**29%**	**560 (5.3)**	**34%**	**556 (3.5)**	**18%**	**566 (4.5)**

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

Source: IEA's PIRLS 2016

7.1.2. Teacher career satisfaction

Table 7.5 below outlines teacher career satisfaction in England and the comparator countries. The items for this scale are presented in Appendix F. In England, 51% of pupils' teachers are categorised as being 'very satisfied' in their teaching careers, compared to the International Median of 54%. The seven English-speaking countries all have higher proportions of pupils with 'very satisfied' teachers than the other three comparator countries, although England had the lowest of these. In England, 7% of pupils' teachers are categorised as 'less than satisfied' with their careers, which is slightly higher than the International Median of 4%. Of the comparator countries, the Russian Federation and Australia have the lowest proportion of pupils' teachers (2%) categorised in the lowest level of career satisfaction. Singapore has the highest percentage of career dissatisfaction of the comparator countries, at 14%, which was only behind the 19% of pupils' teachers reporting low career satisfaction in Hong Kong SAR.

Generally, countries that have a lower average performance in PIRLS 2016 have higher levels of teacher satisfaction. More than 85% of pupils' teachers in Iran, Saudi Arabia and Oman are categorised as being 'very satisfied', but all of these countries have average PIRLS scores of less than 450. None of the top-10 countries for teacher satisfaction have average performances above the PIRLS Scale Centrepoint of 500. Of the countries performing above the International Median score of 539, the proportion of pupils'

teachers categorised at the highest levels of career satisfaction is the lowest in France (26%) and comparatively high in England (51%). Within and across countries, there are no clear associations between teacher career satisfaction and average PIRLS reading performance; there are no significant differences in the performance of pupils taught by 'very satisfied' and 'less than satisfied' teachers in England.

Table 7.5 - Percentage of pupils in England and comparator countries whose teachers report different levels of career satisfaction (2016)

Country	Teacher Career Satisfaction					
	Very Satisfied		Somewhat Satisfied		Less than Satisfied	
	%	Av. Score	%	Av. Score	%	Av. Score
Northern Ireland	62%	564 (3.4)	31%	567 (4.0)	7%	548 (9.0)
Republic of Ireland	60%	570 (3.8)	36%	561 (3.9)	4%	561 (8.9)
Australia	58%	546 (3.6)	39%	545 (4.3)	2%	-
United States	57%	554 (3.8)	37%	547 (5.8)	6%	522 (9.2)
New Zealand	57%	531 (3.0)	40%	521 (4.4)	4%	527 (15.8)
Canada	56%	542 (2.4)	40%	545 (2.6)	4%	542 (8.4)
International Median	**54%**	**542**	**40%**	**538**	**4%**	**540**
England	**51%**	**558 (3.4)**	**42%**	**559 (2.8)**	**7%**	**563 (7.1)**
Russian Federation	47%	582 (3.5)	52%	579 (3.7)	2%	-
Sweden	41%	554 (4.0)	52%	557 (3.3)	6%	549 (9.4)
Singapore	40%	576 (6.2)	46%	573 (4.5)	14%	587 (6.6)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

7.2. Teaching characteristics in 2016

7.2.1. Strategies of teaching reading

The IEA identify nine main skills and strategies that teachers emphasise in their reading instruction. In PIRLS 2016, teachers reported on how frequently they asked their pupils to perform any of the following nine tasks at least once a week:

1. Locate information within the text
2. Identify the main ideas of what they have read
3. Explain or support their understanding of what they have read
4. Compare what they have read with experiences they have had
5. Compare what they have read with other things they have read
6. Make predictions about what will happen next in the text
7. Make generalisations and draw inferences

8. Describe the style or structure of the text
9. Determine the author's perspective or intention

Between PIRLS 2011 and 2016, there has been little change in how frequently these tasks are asked of pupils, with no percentages changing more than 2% across the two cycles in England. Table 7.6 outlines the percentage of pupils in England and the comparator countries whose teachers ask them to perform each of these tasks in their reading lessons on a weekly or more frequent basis. In England, the vast majority of pupils are asked to locate information in texts, identify main ideas of texts, and explain what they have read at least once a week in reading lessons. Compared to the International Median, it is less common for teachers in England to ask their pupils to compare their reading to personal experiences or other texts they have read, whereas this is much more common practice in the Russian Federation, where 97% and 93% of pupils' teachers ask them to do these tasks on a weekly basis. In Sweden, all nine of these reading tasks are less frequently requested of pupils than the International Median.

Table 7.6 - Percentage of pupils in England and comparator countries whose teachers ask them to complete tasks requiring different reading skills at least once a week (2016)

Country	Reading Skills*								
	1	2	3	4	5	6	7	8	9
Australia	98%	96%	98%	89%	87%	94%	93%	83%	82%
Canada	96%	91%	92%	82%	72%	88%	86%	61%	59%
England	**98%**	**99%**	**99%**	**76%**	**72%**	**94%**	**94%**	**83%**	**74%**
Republic of Ireland	98%	99%	97%	90%	82%	96%	88%	66%	62%
New Zealand	98%	96%	95%	87%	76%	94%	90%	70%	66%
Northern Ireland	99%	96%	98%	78%	78%	93%	86%	73%	67%
Russian Federation	100%	100%	100%	97%	93%	90%	100%	90%	99%
Singapore	93%	89%	91%	81%	79%	90%	87%	66%	62%
Sweden	89%	79%	79%	67%	53%	68%	71%	36%	28%
United States	100%	98%	99%	91%	89%	91%	96%	82%	85%
International Median	**98%**	**96%**	**97%**	**88%**	**78%**	**84%**	**86%**	**74%**	**70%**

*1 – Locate information within the text; 2 – Identify the main ideas of what they have read; 3 – Explain or support their understanding of what they have read; 4 – Compare what they have read with experiences they have had; 5 – Compare what they have read with other things they have read; 6 – Make predictions about what will happen next in the text; 7 – Make generalisations and draw inferences; 8 – Describe the style or structure of the text; 9 – Determine the author's perspective or intention

7.2.2. Use of instructional materials

Teachers were also asked whether they assign their pupils any of the following six types of text on a weekly or more regular basis:

1. Short stories
2. Longer fiction books with chapters
3. Plays
4. Nonfiction subject area books
5. Longer nonfiction books with chapters
6. Nonfiction articles

Table 7.7 outlines the percentage of pupils whose teachers assign different literary and informational texts. Compared to the International Median, pupils in England are more likely to be assigned longer fiction and nonfiction books with chapters, and less likely to be given shorter stories. These trends are similar across the English-speaking countries.

Table 7.7 - Percentage of pupils in England and comparator countries whose teachers assign different types of instructional reading materials at least once a week (2016)

| Country | Instructional Materials* | | | | | |
| | Literary Texts | | | Informational Texts | | |
	1	2	3	4	5	6
Australia	85%	80%	7%	83%	50%	67%
Canada	76%	69%	2%	89%	37%	50%
England	**61%**	**71%**	**8%**	**67%**	**33%**	**51%**
Republic of Ireland	88%	76%	1%	83%	33%	37%
New Zealand	77%	62%	16%	83%	38%	65%
Northern Ireland	60%	90%	4%	69%	37%	34%
Russian Federation	90%	61%	6%	75%	32%	38%
Singapore	75%	35%	3%	59%	21%	45%
Sweden	62%	93%	3%	84%	28%	34%
United States	77%	70%	6%	94%	33%	79%
International Median	**78%**	**31%**	**7%**	**71%**	**22%**	**37%**

Because of rounding some results may appear inconsistent.
* 1 – Short Stories; 2 – Longer Fiction Books with Chapters; 3 – Plays; 4 – Nonfiction Subject Area Books; 5 – Longer Nonfiction Books with Chapters; 6 – Nonfiction Articles

Teachers in the United States report that they assign their pupils informational texts more frequently than the International Median, which is consistent with the discussion in section 3.3. In contrast, teachers in Singapore report assigning informational texts much less frequently, even though Singapore has maintained a relative strength on the Informational Purpose Scale since PIRLS 2006. Across nearly all of the participating countries, including England, it is rare for teachers to regularly assign plays as part of their reading lessons, with an International Median of just 7%.

7.3. Contextualisation: teacher satisfaction in the Republic of Ireland

The career satisfaction of primary teachers in England is similar to the International Median, with just over half of pupils' teachers categorised at the highest level job satisfaction. In Northern Ireland and the Republic of Ireland, teacher career satisfaction is considerably higher, with more than 60% of pupils' teachers at the highest level of job satisfaction. This is the highest level of career satisfaction observed across all of the comparator countries, and is higher than in all of the other countries with average scores above the International Median. Box 7.1 addresses potential explanations for why career satisfaction of teachers in the Republic of Ireland may be particularly high.

Box 7.1 – Career satisfaction of primary school teachers in the Republic of Ireland

In both PIRLS 2011 and 2016, the reported career satisfaction of teachers in the Republic of Ireland has been higher than in many other countries, including England, with similarly high average performance in PIRLS. A closer look at the items comprising the Career Satisfaction scale shows that although a greater proportion of pupils' teachers in England reported the highest level of pride in their work, a much higher proportion of pupils' teachers in the Republic of Ireland reported being content in their jobs and being enthusiastic about their work. Other studies, such as the 'Growing up in Ireland' longitudinal study, have looked specifically at teacher career satisfaction in an Irish context. Darmody and Smyth (2011) found that 98% of Irish primary school teachers reported being happy in their job, even though 45% reported some level of occupational stress. The Republic of Ireland shares many cultural similarities with England, but there are differences in the educational systems and perceptions of primary teaching that may account for these differences in career satisfaction.

In England and a number of other countries, teacher recruitment and retention has become a growing problem (Struyven & Vanthournout, 2014), whereas this has not been the case in Ireland, where teacher training courses remain highly competitive and trainee teachers are typically academically high achievers (Clarke, 2009). Previous research has found that teachers in the United Kingdom are typically those with sufficient qualifications, but rarely the highest-academic achievers (Huat See, 2004). This competition for teacher training places in Ireland has helped to ensure that teaching is perceived as a highly valued and respected career in the country, which has not been the case elsewhere (Buckley, Schneider & Shang, 2005). There is also evidence, albeit contested, that primary school teachers in the Republic of Ireland are among the best paid in Europe (OECD, 2013). Teachers in primary schools in Ireland also typically have a 9-week summer vacation, compared to six in England. This greater perceived level of respect for teachers and the teaching profession in their local communities, as well as the higher levels of compensation, both in time and money, may substantially contribute to the higher self-reported career satisfaction of Irish teachers.

8. School characteristics

Chapter outline

This chapter examines how different aspects of school climate vary across the participating countries in PIRLS 2016. These aspects include the amount of emphasis schools place on the academic success of their pupils, how safe and orderly the schools are, and how well the schools deal with issues of pupil discipline. The chapter also addresses how teachers and headteachers in England perceive parental involvement in their schools. It concludes with a discussion of the educational philosophy of the Finnish schooling system, which has a history of strong performance in international assessments, including PIRLS. This is despite teachers and headteachers in PIRLS 2016 reporting that the emphasis on academic success in their schools is comparatively low.

Key findings:

- The majority of teachers and headteachers in England believe that their school's emphasis on academic success is high, with nearly a quarter of headteachers and a fifth of teachers indicating that their school's emphasis on academic success is 'very high'. This is much higher than the International Median percentages of pupils' teachers and headteachers responding this way. Of the high-performing countries in PIRLS 2016, only teachers in Northern Ireland and the Republic of Ireland report that their schools have similarly high levels of emphasis on academic success.

- Year 5 teachers in England believe that their schools are safe and orderly, and headteachers report that issues with discipline are rare in their schools, with fewer English headteachers reporting problems with discipline than the majority of other participating countries. Despite this, a slightly greater percentage of pupils in England report that they face regular bullying at school than the International Median.

8.1. School climate

Both teachers and headteachers at the schools who took part in PIRLS 2016 were asked to report on aspects of their school environment, such as how much the school emphasises academic success, manages pupil behaviour, and ensures pupil safety. Pupils were also asked some questions about their perceptions of their school climate, as well as how often they experienced bullying. This chapter begins by focusing on four scales covering aspects of the school climate, as judged by headteachers, teachers and pupils. The items comprising these scales are presented in Appendix F.

As shown in Table 8.1, the vast majority of pupils in England attend schools evaluated by the headteacher and teacher to place high or very high emphasis on academic success. Of the comparator countries, only Northern Ireland and the Republic of Ireland have similarly high proportions of pupils attending schools where headteachers and teachers believe the emphasis on academic success in their school is 'very high'. In contrast, the reported emphasis on academic success is lowest in the Russian Federation, with less than 2% of pupils' headteachers and 1% of pupils' teachers reporting a 'very high' emphasis on academic success in their school.

Table 8.1 - Percentage of pupils in England and comparator countries whose teachers believe their school places different levels of emphasis on academic success (2016)

Country	School Emphasis on Academic Success (%)					
	Very High		High		Medium	
	%	Av. Score	%	Av. Score	%	Av. Score
Headteacher Responses						
England	**24%**	**572 (4.4)**	**62%**	**559 (3.0)**	**15%**	**535 (4.9)**
Northern Ireland	23%	571 (5.3)	67%	565 (3.5)	9%	547 (12.4)
Republic of Ireland	23%	580 (3.6)	66%	569 (2.9)	12%	527 (5.9)
New Zealand	17%	547 (5.1)	66%	528 (3.2)	17%	491 (9.5)
Sweden	15%	571 (5.1)	47%	561 (3.8)	38%	541 (3.2)
Australia	14%	567 (6.0)	49%	556 (3.8)	36%	519 (4.4)
Singapore	12%	615 (8.8)	59%	576 (3.7)	30%	560 (6.7)
United States	11%	574 (8.4)	52%	555 (4.4)	36%	533 (5.1)
Canada	8%	564 (4.8)	63%	551 (2.5)	30%	523 (3.1)
International Median	**5%**	**557**	**56%**	**549**	**36%**	**521**
Russian Federation	2%	-	48%	594 (3.8)	49%	568 (3.9)
Teacher Responses						
England	**19%**	**568 (4.4)**	**62%**	**559 (2.6)**	**18%**	**548 (4.7)**
Northern Ireland	19%	579 (5.6)	68%	561 (3.0)	14%	556 (8.2)
Republic of Ireland	16%	579 (6.7)	67%	571 (2.9)	17%	539 (6.1)
Australia	15%	584 (6.7)	59%	546 (3.0)	27%	523 (4.4)
New Zealand	13%	545 (6.9)	65%	532 (3.0)	23%	501 (5.7)
United States	9%	562 (7.1)	58%	563 (3.3)	33%	524 (5.4)
Canada	8%	556 (6.6)	56%	549 (2.2)	36%	532 (3.5)
Sweden	7%	567 (8.8)	55%	560 (3.1)	38%	547 (3.4)
International Median	**6%**	**547**	**55%**	**546**	**37%**	**521**
Singapore	5%	610 (16.3)	49%	588 (4.4)	46%	560 (4.4)
Russian Federation	1%	-	53%	592 (2.7)	46%	567 (3.7)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Internationally, the United Arab Emirates and Qatar are the only countries with higher indications of emphasis on academic success, and both score below the PIRLS Scale Centrepoint of 500. In England, pupils in schools judged by the headteacher to place a 'very high' emphasis on academic success have an average PIRLS performance 36-points above those in 'medium' emphasis schools.

Teachers in England also report high levels of school safety and orderliness, as shown in Table 8.2. In England, 82% of pupils' teachers believe that their primary schools are 'very safe and orderly', which is substantially higher than the International Median of 62%, and is one of highest percentages of all participating countries in PIRLS 2016. Less than 1% of teachers in England report that their school is 'less than safe and orderly'.

Table 8.2 - Percentage of pupils in England and comparator countries whose teachers believe their school has different levels of safety and orderliness (2016)

| Country | Teacher Perception of School Safety and Orderliness (%) | | | | | |
| | Very Safe & Orderly | | Somewhat Safe & Orderly | | Less than Safe & Orderly | |
	%	Av. Score	%	Av. Score	%	Av. Score
Northern Ireland	83%	567 (2.6)	16%	547 (7.3)	1%	-
England	**82%**	**562 (2.4)**	**17%**	**543 (4.4)**	**0%**	-
Republic of Ireland	79%	570 (3.0)	19%	555 (4.8)	2%	-
Australia	78%	551 (2.9)	20%	526 (5.9)	2%	-
New Zealand	77%	536 (2.4)	21%	497 (6.1)	2%	-
Singapore	67%	578 (4.1)	30%	573 (5.5)	2%	-
International Median	**62%**	**546**	**35%**	**531**	**2%**	**477**
United States	62%	563 (3.3)	30%	531 (7.1)	8%	517 (8.8)
Canada	62%	548 (2.1)	36%	538 (2.7)	3%	497 (16.8)
Russian Federation	59%	581 (3.2)	40%	580 (4.0)	1%	-
Sweden	47%	564 (3.4)	49%	551 (3.0)	4%	512 (12.4)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

Of the comparator countries, Northern Ireland, the Republic of Ireland, Australia, and New Zealand have similarly high proportions of pupils' teachers reporting that their schools are 'very safe and orderly'. Sweden have the lowest proportion (47%) of pupils' teachers responding this way. Across all participating countries, Kazakhstan have the highest proportion (92%), while Italy have the lowest (20%). In the United States, 8% of pupils' teachers report that their school is 'less than safe and orderly', the only comparator country well above the International Median of 2%. Most high-performing countries have relatively few teachers reporting low levels of safety and orderliness, while Trinidad and Tobago (14%) and South Africa (11%) have the highest proportion of their pupils' teachers reporting this. Both of these countries perform below the PIRLS Scale

Centrepoint of 500. In England and internationally, pupils attending 'very safe and orderly' schools score higher than those with lower safety and orderliness; 20-points separate the average reading performance of pupils at 'very' and 'somewhat' safe and orderly schools in England. For many countries, including England, the average performance of pupils attending 'less than safe and orderly' schools could not be reliably calculated due to insufficient sample sizes in this category.

Headteachers in England also report that their schools have few problems with discipline, as shown in Table 8.3, with 82% of pupils' headteachers reporting 'hardly any problems'. Similarly, none of the headteachers in England provide responses that classify their school as having 'moderate to severe problems' with discipline. This compares to the International Median of 4% for this category.

Table 8.3 - Percentage of pupils in England and comparator countries whose headteachers believe their school has different levels of problems with school discipline (2016)

| Country | Headteacher Perception of School Discipline (%) | | | | | |
| | Hardly any Problems | | Minor Problems | | Moderate to Severe Problems | |
	%	Av. Score	%	Av. Score	%	Av. Score
Northern Ireland	85%	566 (2.8)	15%	557 (10.8)	0%	-
Republic of Ireland	83%	571 (2.5)	15%	550 (8.8)	2%	-
England	**82%**	**563 (2.1)**	**18%**	**539 (4.1)**	**0%**	**-**
Russian Federation	70%	580 (3.0)	30%	583 (4.0)	0%	-
New Zealand	69%	539 (3.0)	29%	497 (6.2)	2%	-
Canada	68%	550 (2.1)	31%	532 (4.4)	2%	-
Australia	67%	556 (3.2)	29%	525 (4.1)	4%	475 (12.3)
Singapore	67%	580 (4.3)	33%	569 (6.2)	0%	-
International Median	**65%**	**546**	**30%**	**529**	**4%**	**469**
United States	65%	561 (3.4)	31%	529 (6.0)	4%	520 (9.3)
Sweden	53%	562 (3.3)	44%	548 (4.0)	3%	522 (15.7)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient sample size to calculate average performance.

Among the comparator countries, the two countries with the greatest percentages of moderate to severe discipline problems are Australia and the United States, matching the International Median. In contrast, 62% of pupils' headteachers in Morocco indicate that their schools have moderate to severe problems with school discipline. Of all 50 countries that took part in PIRLS 2016, England has one of the highest percentages of pupils' headteachers indicating that there are "hardly any problems" with school discipline. Of the comparator countries, only Northern Ireland and the Republic of Ireland have similarly high percentages. Sweden has the lowest proportion of pupils' headteachers responding this way, at 53%. Average performance in PIRLS 2016 is

highest for pupils' in schools with few discipline problems, both in England and internationally. In England, schools with "hardly any problems" perform, on average, 24-points above schools with "minor problems". Again, reliable estimates of average performance for pupils attending schools with 'moderate to severe' problems with discipline could not be calculated for many countries in PIRLS 2016.

In contrast to the otherwise positive findings for England in this chapter, Table 8.4 shows that England's pupils report somewhat more frequent episodes of bullying than the International Median. Just over half (52%) of pupils report almost never experiencing bullying at school, which compares to the International Median of 57%. Similar proportions report frequent (about weekly) bullying in England (15%) and internationally (14%).

Table 8.4 - Percentage of pupils in England and comparator countries who report being bullied (2016)

Country	Frequency of pupil being bullied (%)					
	Almost Never		About Monthly		About Weekly	
	%	Av. Score	%	Av. Score	%	Av. Score
Republic of Ireland	74%	575 (2.3)	20%	551 (3.8)	5%	526 (7.6)
Sweden	71%	562 (2.7)	23%	547 (2.9)	6%	526 (6.3)
Northern Ireland	59%	576 (2.6)	29%	557 (2.9)	11%	531 (5.7)
International Median	**57%**	**548**	**30%**	**537**	**14%**	**517**
United States	56%	561 (3.4)	30%	549 (3.3)	15%	521 (4.6)
England	**52**%	**569 (2.3)**	**33**%	**558 (2.5)**	**15**%	**531 (3.8)**
Russian Federation	52%	588 (2.7)	34%	578 (2.6)	14%	565 (3.5)
Canada	50%	554 (1.9)	33%	539 (2.1)	16%	521 (3.3)
Singapore	50%	590 (3.2)	33%	572 (3.2)	16%	543 (4.8)
Australia	46%	557 (3.4)	35%	544 (2.7)	19%	519 (4.6)
New Zealand	40%	541 (2.9)	36%	525 (3.0)	24%	494 (3.4)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

\- Insufficient sample size to calculate average performance.

Source: IEA's PIRLS 2016

Of the comparator countries, the Republic of Ireland has the highest proportion of pupils who report 'almost never' experiencing bullying at school, and the lowest percentage of pupils categorised as being bullied on a weekly basis. In contrast, bullying was most common in New Zealand, where almost a quarter of pupils report experiencing bullying 'about weekly'. Pupils in England who are categorised as being bullied 'about weekly' have a substantially lower average PIRLS performance (531) than their peers who are categorised as 'almost never' bullied (569). This association between experience of bullying and reading performance reflects an international trend.
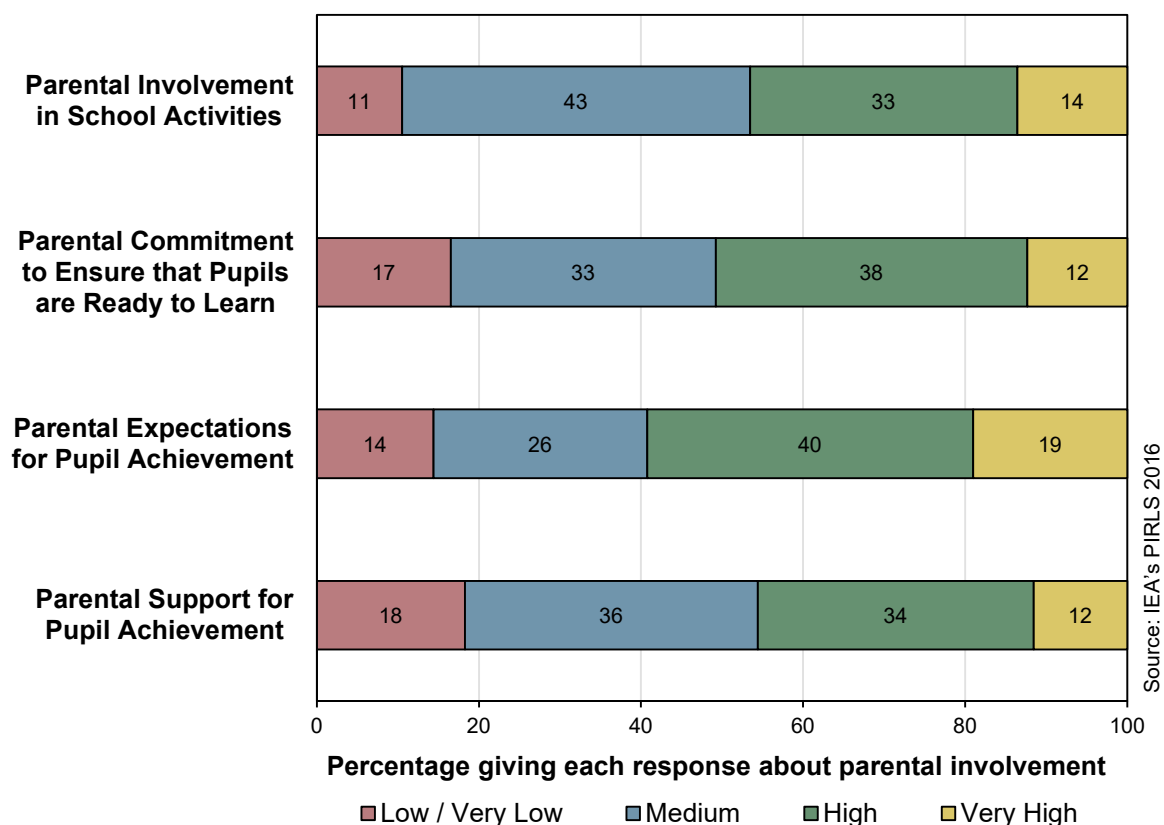
8.2. Parental involvement policies

Four of the items that make up the 'School Emphasis on Academic Success' scale relate to headteacher and teacher perceptions of parental involvement in and support for the school. These are:

- 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

Figure 8.1 displays the percentage of pupils' in England whose headteachers report one of the four different levels (low or very low, medium, high, very high) of parental involvement for each of the above items.

Figure 8.1 – English headteachers' perceptions of level of parental involvement in their school and pupils' achievement (2016)

Source: IEA's PIRLS 2016

Percentage giving each response about parental involvement

Low / Very Low Medium High Very High

* Because of rounding some results may appear inconsistent.

For each of the four items, the majority of pupils' headteachers indicate that there is at least a medium level of parental involvement in their schools. Interestingly, even though 59% of pupils' headteachers report that parental expectations for pupil achievement are

high or very high, only 46% indicate that they have high or very high parental support for such achievement, with 18% stating that this parental support was low or very low. In total, half of pupils' headteachers report that parents of pupils at their school are highly committed to ensuring their children are ready to learn.

Tables 8.5 to 8.8 show the proportions of pupils' headteachers in each comparator country reporting different levels of parental involvement, commitment, expectations, and support. Each table is ordered by the proportion of pupils' headteachers reporting the highest level of parental engagement, in descending order. As shown in Table 8.5, headteachers of pupils in England report higher levels of parental involvement than the International Median. This is generally higher in the English-speaking countries than in the other comparator countries. However, the United States, Canada, Australia, and Sweden all have more than a fifth of pupils' headteachers reporting that parental involvement is low or very low, which is more than the International Median. Moreover, pupils attending schools rated as having higher levels of parental involvement have higher average PIRLS scores, both in England and internationally.

Table 8.5 - Percentage of pupils in England and comparator countries whose headteachers believe that parents are involved in school activities (2016)

Country	Parental involvement in school activities (%)							
	Very High		High		Medium		Low / Very Low	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
United States	21%	577 (5.3)	25%	561 (6.1)	34%	538 (6.0)	20%	525 (5.9)
New Zealand	18%	548 (4.7)	41%	531 (4.7)	33%	515 (6.1)	8%	481 (9.7)
Republic of Ireland	14%	570 (5.3)	40%	574 (3.5)	36%	564 (4.9)	10%	543 (10.5)
England	**14%**	**574 (6.5)**	**33%**	**568 (3.8)**	**43%**	**553 (3.3)**	**11%**	**535 (6.2)**
Northern Ireland	13%	574 (6.8)	53%	565 (4.0)	29%	561 (5.6)	5%	552 (8.2)
Canada	12%	561 (4.5)	33%	555 (2.5)	35%	542 (2.6)	21%	517 (5.1)
Australia	10%	573 (6.6)	30%	557 (6.4)	38%	543 (3.9)	22%	515 (5.5)
Singapore	8%	622 (6.9)	37%	585 (5.5)	48%	565 (5.3)	7%	541 (11.2)
International Median	**8%**	**554**	**32%**	**547**	**43%**	**538**	**13%**	**515**
Sweden	4%	567 (7.7)	25%	567 (4.1)	49%	556 (3.4)	21%	535 (4.9)
Russian Federation	4%	611 (12.1)	32%	585 (5.4)	55%	580 (2.9)	9%	556 (11.5)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Although more pupils' headteachers in England report 'very high' parental commitment compared to the International Median, there is also a slightly greater than average percentage reporting that this commitment is 'low or very low', as shown in Table 8.6 below. Of the comparator countries, only the United States has a higher proportion of pupils' headteachers responding in a similar way. In contrast, the Republic of Ireland has

the highest proportion of headteachers reporting 'very high' parental commitment and among the lowest proportion of 'low or very low' commitment. In England, there is a 51-point difference in average PIRLS performance for pupils attending schools with 'very high' versus 'low or very low' parental commitment, which is similar to the International Median.

Table 8.6 - Percentage of pupils in England and comparator countries whose headteachers believe that parents are committed to ensuring that pupils are ready to learn (2016)

Country	Parental commitment to ensure pupils are ready to learn (%)							
	Very High		High		Medium		Low / Very Low	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Republic of Ireland	19%	579 (4.3)	45%	573 (3.7)	29%	556 (4.9)	6%	526 (8.1)
Northern Ireland	14%	582 (7.3)	53%	567 (3.3)	27%	554 (6.2)	6%	545 (12.8)
Australia	13%	578 (6.2)	30%	563 (4.7)	43%	535 (3.5)	14%	499 (6.6)
England	**12%**	**584 (4.8)**	**38%**	**568 (3.3)**	**33%**	**552 (3.7)**	**17%**	**533 (4.4)**
New Zealand	11%	561 (6.9)	42%	539 (4.1)	42%	509 (4.3)	5%	474 (14.1)
United States	10%	570 (10.2)	29%	575 (6.5)	40%	541 (4.6)	21%	520 (5.4)
Singapore	10%	609 (8.0)	44%	588 (4.6)	41%	558 (5.3)	4%	546 (18.3)
Sweden	9%	573 (6.6)	31%	571 (3.6)	45%	547 (3.6)	15%	533 (4.7)
Canada	7%	574 (5.6)	35%	553 (2.4)	45%	541 (3.1)	13%	508 (4.2)
International Median	**5%**	**558**	**30%**	**552**	**47%**	**539**	**15%**	**504**
Russian Federation	3%	593 (14.7)	26%	590 (5.1)	60%	580 (3.1)	11%	560 (8.3)

Source: IEA's PIRLS 2016

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Of the comparator countries, as shown in Table 8.7 below, England has the largest proportion of pupils' headteachers who believe that parental expectations for pupil achievement are 'low or very low' (14%). This is much higher than the International Median of 3%. However, a slightly higher proportion of pupils' headteachers report 'very high' parental expectations at their school compared to the International Median. The countries with the highest percentage of pupils' headteachers reporting high parental expectations are Northern Ireland and the Republic of Ireland. In both of these countries, only 3% report 'low or very low' parental expectations for pupil achievement. Although the Russian Federation has the lowest percentage of pupils' headteachers reporting 'very high' pupil expectations, they also have the least reporting 'low or very low' expectations.

Pupils at schools with the highest parental expectations for pupil achievement score, on average, approximately 60-points higher in PIRLS 2016 than those with the lowest expectations, both in England and internationally.

Table 8.7 - Percentage of pupils in England and comparator countries whose headteachers believe that parents have high expectations for pupil achievement (2016)

| Country	Very High %	Very High Av. Score	High %	High Av. Score	Medium %	Medium Av. Score	Low / Very Low %	Low / Very Low Av. Score
	Parental expectations for pupil achievement (%)							
Northern Ireland	31%	582 (3.8)	49%	565 (4.1)	17%	539 (7.9)	3%	-
Republic of Ireland	29%	583 (3.3)	43%	570 (4.1)	22%	550 (4.6)	7%	525 (8.2)
Sweden	24%	569 (3.4)	31%	563 (4.6)	41%	544 (3.2)	4%	515 (10.2)
Australia	23%	575 (5.1)	39%	550 (4.4)	29%	523 (4.5)	8%	506 (7.4)
New Zealand	22%	554 (4.4)	52%	530 (3.5)	23%	490 (8.2)	3%	485 (16.0)
Singapore	20%	609 (6.2)	51%	576 (4.0)	26%	551 (6.7)	2%	-
England	**19%**	**584 (3.5)**	**40%**	**563 (3.0)**	**26%**	**552 (4.0)**	**14%**	**526 (4.5)**
International Median	**17%**	**557**	**51%**	**542**	**28%**	**523**	**3%**	**500**
United States	16%	578 (6.9)	34%	560 (5.8)	40%	535 (4.4)	10%	524 (6.4)
Canada	16%	565 (3.6)	52%	545 (3.0)	27%	537 (3.7)	5%	502 (7.5)
Russian Federation	5%	594 (12.2)	64%	585 (3.1)	31%	570 (4.8)	0%	-

Source: IEA's PIRLS 2016

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient number of pupils' headteachers responding this way to calculate average performance.

A similar trend was reported with respect to parental support for pupil achievement, as shown in Table 8.8 below, with England having higher proportions of pupils' headteachers reporting both 'very high' support (12%) and 'low or very low' (18%) parental support compared to the International Medians (4% and 11% respectively). The Republic of Ireland have the highest proportion of pupils' headteachers reporting 'very high' parental support. In England, 50-points separates the average reading performance of pupils attending schools with 'very high' versus 'low or very low' parental support, which is similar to the 42-point gap internationally.

Table 8.8 - Percentage of pupils in England and comparator countries whose headteachers believe that parents support the school in ensuring high pupil achievement (2016)

Country	Parental support for pupil achievement (%)							
	Very High		High		Medium		Low / Very Low	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Republic of Ireland	23%	583 (4.0)	49%	570 (3.6)	23%	551 (5.2)	5%	528 (10.7)
Northern Ireland	17%	576 (5.5)	51%	574 (4.0)	27%	545 (5.5)	5%	542 (13.1)
Australia	14%	565 (6.7)	35%	566 (4.1)	38%	534 (3.5)	13%	496 (6.9)
England	**12%**	**583 (6.2)**	**34%**	**569 (3.5)**	**36%**	**555 (3.7)**	**18%**	**533 (4.5)**
New Zealand	12%	545 (6.1)	56%	536 (3.4)	29%	502 (6.9)	4%	477 (14.3)
Singapore	10%	620 (8.5)	49%	586 (4.1)	34%	554 (6.6)	7%	542 (14.0)
Canada	10%	566 (5.3)	36%	555 (2.6)	45%	539 (2.6)	9%	496 (3.9)
United States	9%	568 (10.0)	33%	565 (6.4)	41%	545 (5.3)	17%	521 (4.6)
International Median	**4%**	**542**	**34%**	**550**	**46%**	**541**	**11%**	**500**
Sweden	4%	553 (8.3)	37%	571 (3.5)	45%	548 (3.6)	14%	534 (4.9)
Russian Federation	1%	-	12%	601 (9.6)	74%	581 (2.5)	14%	565 (5.9)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient number of pupils' headteachers responding this way to calculate average performance.

Source: IEA's PIRLS 2016

Figure 8.2 below presents the percentage of pupils' in England whose teachers report one of the five levels of parental involvement across the same four items. The findings for the teachers are generally very similar to the headteachers, with a large proportion of pupils' teachers also agreeing that parental expectations for pupil achievement are high or very high, with high parental support also being less frequently indicated. However, fewer pupils' teachers than headteachers report that parental expectations or support for pupil achievement are low or very low.

A large proportion of pupils' teachers also indicate that parental expectations for pupil achievement are high or very high, with high parental support also being less frequently indicated. However, fewer pupils' teachers than headteachers report that parental expectations or support for pupil achievement are low or very low.

Figure 8.2 – English teachers' perceptions of level of parental involvement in their school (2016)

Source: IEA's PIRLS 2016
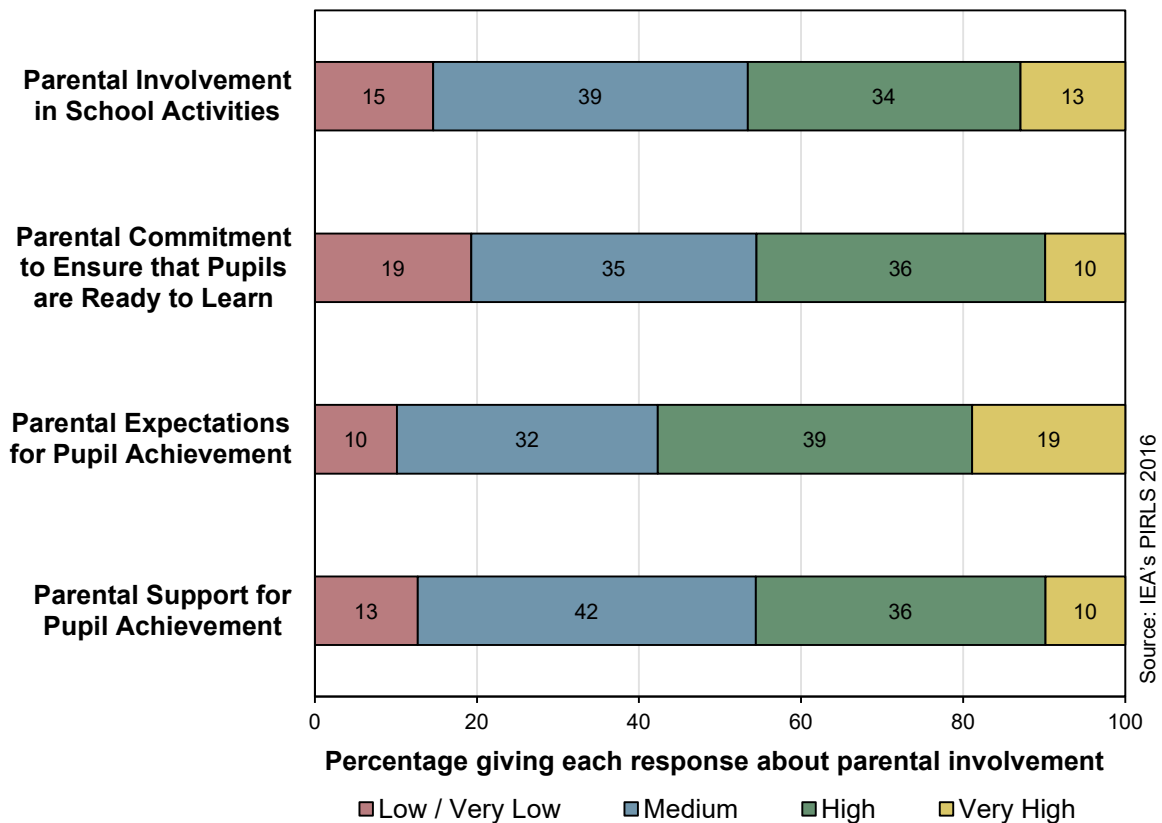
* Because of rounding some results may appear inconsistent.

Tables 8.9 to 8.12 show the proportions of pupils' teachers in each comparator country reporting different levels of parental involvement, commitment, expectations, and support. Again, tables are ordered by the proportion of pupils' teachers reporting 'very high' levels of parental engagement, in descending order.

As shown in Table 8.9 below, teachers of pupils in England report higher levels of parental involvement than the International Median. Similar to the headteacher findings, indications of high parental involvement are generally higher in the English-speaking countries than in the other comparator countries. Pupils attending schools evaluated by their teachers as having higher levels of parental involvement, in turn, have slightly higher average PIRLS scores, both in England and internationally.

Table 8.9 - Percentage of pupils in England and comparator countries whose teachers believe that parents are involved in school activities (2016)

Country	Parental involvement in school activities (%)							
	Very High		High		Medium		Low / Very Low	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Northern Ireland	17%	563 (4.9)	43%	566 (4.4)	33%	561 (4.4)	8%	562 (10.3)
United States	16%	576 (7.2)	29%	569 (4.5)	30%	539 (5.4)	25%	523 (6.4)
New Zealand	15%	549 (6.1)	36%	531 (4.8)	33%	523 (4.5)	16%	502 (7.0)
Canada	15%	564 (4.5)	25%	544 (3.3)	40%	544 (2.9)	21%	528 (4.0)
Republic of Ireland	14%	582 (6.0)	30%	567 (5.8)	39%	567 (3.4)	17%	551 (7.5)
England	**13%**	**563 (5.6)**	**34%**	**567 (4.7)**	**39%**	**556 (3.4)**	**15%**	**543 (7.1)**
Australia	12%	586 (6.5)	38%	551 (4.9)	30%	537 (4.5)	20%	521 (5.5)
International Median	**9%**	**549**	**34%**	**545**	**41%**	**538**	**14%**	**512**
Singapore	8%	604 (11.7)	40%	591 (5.0)	42%	566 (5.1)	11%	542 (9.1)
Russian Federation	5%	577 (17.0)	27%	590 (5.7)	63%	580 (3.1)	5%	549 (7.3)
Sweden	5%	564 (11.3)	24%	566 (4.1)	48%	554 (3.4)	23%	546 (4.6)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 8.10 below shows that a slightly higher proportion of pupils' teachers in England report 'very high' parental commitment to pupil learning compared to the International Median, although a slightly larger proportion also report that this parental commitment is 'low or very low'. The Republic of Ireland and Northern Ireland have similarly low percentages of pupils' teachers reporting that this commitment was 'low or very low', but the Republic of Ireland have a much higher proportion of teachers reporting that parental commitment is 'very high'. In England, there is a 31-point difference in average PIRLS performance for pupils attending schools where parents are 'very highly' committed to pupil learning compared to those at schools with 'low or very low' commitment.

Table 8.10 – Percentage of pupils in England and comparator countries whose teachers believe that parents are committed to ensuring that pupils are ready to learn (2016)

| Country | Parental commitment to ensure pupils are ready to learn (%) | | | | | | | |
| | Very High | | High | | Medium | | Low / Very Low | |
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Republic of Ireland	17%	585 (5.9)	37%	575 (3.5)	38%	558 (3.7)	7%	523 (6.3)
Australia	13%	589 (6.7)	34%	556 (3.5)	39%	531 (4.0)	14%	517 (6.9)
New Zealand	12%	552 (6.3)	34%	542 (4.3)	42%	519 (4.0)	12%	489 (6.6)
England	**10%**	**573 (8.6)**	**36%**	**565 (4.0)**	**35%**	**557 (2.9)**	**19%**	**542 (6.3)**
Northern Ireland	9%	583 (5.6)	49%	571 (3.6)	35%	555 (4.2)	6%	527 (7.0)
Canada	7%	569 (5.8)	33%	549 (2.8)	43%	542 (2.8)	17%	525 (4.6)
Sweden	7%	569 (9.1)	40%	563 (3.9)	45%	552 (2.9)	8%	529 (8.2)
United States	6%	570 (7.4)	30%	572 (4.4)	40%	547 (4.9)	24%	521 (5.5)
Singapore	6%	602 (13.7)	36%	597 (5.5)	48%	565 (4.3)	10%	535 (9.4)
International Median	**6%**	**540**	**31%**	**548**	**47%**	**538**	**14%**	**508**
Russian Federation	3%	608 (18.0)	28%	581 (5.1)	61%	584 (2.6)	9%	548 (8.7)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Source: IEA's PIRLS 2016

Similarly, as presented in Table 8.11 below, the proportion of pupils' teachers reporting that parents have 'very high' expectations for pupil achievement in England is slightly above the International Median, although the proportion is also higher at the other end of the scale, with 10% of pupils' teachers reporting 'low or very low' parental expectations. The only comparator country with a higher proportion of pupils' teachers reporting 'low or very low' parental expectations is the United States, at 12%. The Russian Federation has both the lowest percentage reporting 'very high' expectations (3%), and the lowest percentage reporting 'low or very low' expectations (1%). In England, there is a 45-point difference in average reading performance for pupils in schools evaluated by the teacher as having 'very high' versus 'low or very low' parental expectations for pupil achievement.

Table 8.11 – Percentage of pupils in England and comparator countries whose teachers believe that parents have high expectations for pupil achievement (2016)

Country	Very High %	Very High Av. Score	High %	High Av. Score	Medium %	Medium Av. Score	Low / Very Low %	Low / Very Low Av. Score
Australia	26%	581 (4.9)	38%	545 (2.8)	29%	524 (4.5)	7%	499 (7.1)
Republic of Ireland	25%	586 (3.5)	47%	569 (3.6)	22%	549 (5.4)	6%	525 (8.8)
Northern Ireland	24%	581 (4.9)	52%	565 (3.1)	22%	543 (4.9)	2%	-
New Zealand	22%	556 (4.7)	43%	532 (3.9)	31%	503 (5.0)	4%	486 (7.3)
England	**19%**	**574 (5.5)**	**39%**	**566 (3.3)**	**32%**	**550 (3.2)**	**10%**	**529 (5.9)**
Canada	15%	564 (4.5)	43%	543 (2.4)	34%	541 (3.0)	8%	512 (6.1)
Singapore	15%	613 (9.0)	46%	588 (4.2)	35%	551 (6.1)	4%	519 (11.0)
International Median	**15%**	**550**	**49%**	**542**	**30%**	**522**	**4%**	**486**
Sweden	14%	569 (4.9)	45%	560 (3.8)	39%	547 (3.0)	3%	533 (19.8)
United States	12%	580 (7.3)	31%	562 (4.5)	44%	540 (5.4)	12%	521 (6.5)
Russian Federation	3%	596 (14.8)	63%	588 (2.6)	33%	566 (4.8)	1%	-

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Source: IEA's PIRLS 2016

As shown in Table 8.12 below, a slightly greater proportion of pupils' teachers report 'very high' parental support for pupil achievement in England (10%) compared to the International Median (5%). Parental support is strongest in the Republic of Ireland, where 20% of pupils' teachers report 'very high' support. In contrast, less than 1% of pupils' teachers respond this way in the Russian Federation. The United States has the largest proportion of teachers reporting 'low or very low' support for pupil achievement, at 19%. In England, there is a 40-point difference in average reading performance for pupils at schools rated by teachers to have 'very high' versus 'low or very low' level of parental support.

Table 8.12 - Percentage of pupils in England and comparator countries whose teachers believe that parents support the school in ensuring high pupil achievement (2016)

Country	Parental support for pupil achievement (%)							
	Very High		High		Medium		Low / Very Low	
	%	Av. Score	%	Av. Score	%	Av. Score	%	Av. Score
Republic of Ireland	20%	584 (5.1)	42%	575 (3.3)	32%	552 (4.3)	6%	527 (7.1)
Australia	12%	584 (7.7)	40%	559 (3.3)	39%	531 (3.8)	9%	500 (5.1)
England	**10%**	**571 (7.6)**	**36%**	**567 (3.9)**	**42%**	**557 (2.7)**	**13%**	**531 (6.9)**
New Zealand	10%	548 (7.2)	43%	540 (4.0)	39%	514 (3.9)	8%	491 (8.3)
Northern Ireland	9%	590 (7.0)	50%	571 (3.5)	35%	549 (4.5)	6%	549 (9.9)
Canada	7%	563 (7.0)	38%	550 (2.6)	40%	542 (2.8)	15%	518 (5.9)
Singapore	7%	608 (11.5)	36%	599 (5.4)	47%	566 (4.7)	10%	514 (7.6)
International Median	**5%**	**551**	**33%**	**550**	**47%**	**539**	**11%**	**504**
United States	5%	571 (6.4)	26%	574 (4.9)	50%	546 (4.6)	19%	519 (6.6)
Sweden	5%	575 (7.6)	33%	565 (3.9)	54%	551 (2.5)	8%	533 (8.8)
Russian Federation	0%	-	13%	585 (8.5)	73%	585 (2.5)	13%	554 (7.1)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

- Insufficient number of pupils' headteachers responding this way to calculate average performance.

8.3. Contextualisation: educational philosophy in Finland

A large proportion of headteachers and teachers in England report that their schools have a very high emphasis on academic success, and as discussed, this includes different aspects of parental involvement and support for the school. In contrast, just 4% of headteachers and 2% of teachers in Finland report that their schools have a very high emphasis on academic success, also having much smaller proportions of teachers and headteachers indicating that parental involvement and support is high. Despite this, Finland has a history of success in international assessments and has been among the highest-scoring countries in both the 2011 and 2016 PIRLS cycles. Box 8.1 discusses the philosophy of the Finnish education system and its potential links to Finland's success in international assessments, which has been the source of much scrutiny and debate.

Box 8.1 – The philosophy of Finnish education

In contrast to the English system, Finland has had no school inspections since the 1980's, no standardised curriculum, no high-stakes pupil assessment, nor test-based accountability (Sahlberg, 2010). Compared to other Nordic countries, Finnish school leaders also report that results from their schools are hardly published in newspapers (Hopfenbeck, Kjærnsli & Throndsen, 2010). Instead, teachers are trusted and valued as experts in curriculum development, teaching and assessment, and are free to choose the learning materials used in their classes (Pehkonen, Ahtee & Lavonen, 2007).

Different views have been offered on the Finnish success in international studies such as PISA and PIRLS. Sahlberg (2010) argues that entrusting the curriculum, school assessment, school improvement and community involvement to teachers gives them autonomy and respect as a profession. It is possible that this more 'hands-off' approach to schooling leads teachers and headteachers to feel less external pressure to ensure academic success, as reported by Finnish teachers in PIRLS 2016, while allowing for a focus on developing well-rounded citizens with a wide range of skills.

Other researchers have made the argument that it is more a matter of how Finnish teacher teach, as they have had a traditional approach to teaching up until 2000, with less pupil-led methods (Sahlgren, 2015). Claiming that a more teacher-led and structured approach to teaching leads to higher achievements, and hence high literacy scores in international assessments, Sahlgren suggests that more emphasis should be placed on the teaching of literacy rather than on the teachers themselves. Teacher-focused instruction has previously been documented in a study of 50 classrooms in Finland, where the researchers reported the teaching style was very traditional with 'whole classes following line by line what is written in the textbooks, at a pace determined by the teacher' (Norris, Asplund, MacDonald, Schostak, & Zamorski, 1996, p.85). In addition, they concluded the same teaching was found in all schools visited; "We have moved from school to school and seen almost identical lessons, you could have swapped the teachers over and the children would never have noticed the difference" (Norris et al., 1996, p.29). According to Simola (2005), it is still possible to teach in the traditional way in Finland, as teachers still believe in the traditional teaching model and pupils accept the traditional pupil role. He argues that traditional teaching methods are trusted by the public, and support for teachers is found among people at both the lower and higher ends of the social spectrum (Simola, 2005).

No matter what perspective is taken, the trust in Finnish teachers is also part of the reason why the teaching profession is among the most popular and

competitive professions among Finnish pupils, as can be seen in terms of the university entrance examinations (Kansanen, 2003), with the teacher-training process lasting five years.

Moreover, although Finland has consistently been a high achiever in international assessments, the Ministry of Education and Culture recently funded a three-year national program called Joy of Reading (2013–2015) with the aim to support the development of reading comprehension in children and enhance their joy of reading (Lukuinto, 2015). The Joy of Reading Handbook describes the program philosophy, which particularly emphasises collaboration between schools, libraries and parents to strengthen pupils' reading development.

9. PIRLS and England's educational policy context

One of the main purposes of participating in PIRLS is to gather data to compare the standards of English literacy skills of Year 5 primary school pupils in England with those in other countries, based upon a common assessment. Unlike some other international assessments (such as PISA), PIRLS attempts to be a curriculum-aligned assessment. Care is taken to ensure that it assesses knowledge and skills that are relevant to the primary curriculum in England and the other participating countries. The results of PIRLS 2016 clearly show that the average performance of Year 5 pupils in England is higher than both the PIRLS International Median performance and most other European countries (Republic of Ireland, Finland, Poland and Northern Ireland have a significantly higher average performance). England's average performance in PIRLS has significantly improved compared to the last two PIRLS cycles, and this has been driven largely by improvements by the lower performing groups, including boys.

9.1. Current and past policy developments in England

Drawing unqualified conclusions about the causal effects of policy is impossible on the basis of PIRLS data alone. However, we should not disregard these data, as they are pertinent to system-level evaluation. Some policies will not have been in place for long enough to have an effect upon Year 5 pupils' literacy levels in 2016 and might be expected to have a greater impact on the outcomes of future PIRLS cycles.

9.1.1. National Curriculum

A revised National Curriculum was introduced in 2014. Therefore, the Year 5 pupils who participated in PIRLS 2016 in England had only experienced the new curriculum in Years 4 and 5. As a consequence, evaluation of its impact will potentially be less ambiguous in the next PIRLS cycle, where participating pupils will have been taught exclusively under the new curriculum.

9.1.2. Key Stage Tests

The new National Curriculum was assessed for the first time in 2016. The expected standard was raised to drive improvements in teaching and learning. In the PIRLS 2021 cycle, England's participating pupils will have sat the new Key Stage 1 (KS1) reading assessments, which will enable an evaluation of the relationships between PIRLS performance and these new reading assessments. For PIRLS 2016, England's participating pupils were among the second year to sit the revised Key Stage 2 (KS2) tests in the summer of 2017. However, these results were not available during the preparation of this report and so comparisons could not be made with PIRLS 2016 performance. These comparisons will be possible in follow-up publications.

9.1.3. Phonics programme

A statutory phonics screening check was introduced in 2012 for pupils in Year 1. The Year 5 pupils participating in PIRLS 2016 in England are among the first year group to experience the phonics screening test. This was previously discussed in section 4.3.1, where there were clear associations between average PIRLS performance and the Year 1 phonics check results.

The Education Endowment Fund toolkit advised that phonics approaches to teaching have a moderate impact for a very low cost, based upon a low cost base of under £80 per pupil. These conclusions were based upon the findings of seven meta-analyses and one best-evidence synthesis. The present PIRLS findings provide additional support for the efficacy of phonics approaches, and in particular, the utility of the phonics check for flagging pupils' potential for lower reading performance in their future schooling. Additionally, the correlation between the phonics check and PIRLS performance also potentially bodes well for England's pupils' average performance in future PIRLS cycles, as 58% of pupils met the phonics check expected standard in 2012, whereas this has increased to 81% in 2017[31]. Pupils who met this standard in 2012 had an average PIRLS 2016 performance of 587, compared to the overall average of 559.

Nonetheless, as will be addressed in section 9.2, the current results should be somewhat cautiously interpreted given that other countries have also adopted phonics approaches over varying lengths of time and the results have been mixed in terms of average PIRLS performance.

9.1.4. Gender

As a group, boys have a lower average performance in PIRLS than girls internationally. In PIRLS 2011, the gender-gap for England was the largest of all of the participating European countries. In PIRLS 2016, the gender-gap in England has reduced substantially and is now in line with the International Median and most European countries.

Specific policies have not been introduced to reduce the literacy attainment gap, but rather, the focus has been upon improving literacy for all. Nonetheless, these policies may have particularly helped boys, and specifically for those who are lower-performing. As discussed in sections 5.2.2 and 6.2, the gender-gap has narrowed for overall performance in PIRLS, and for the reading purposes and comprehension processes. Moreover, as addressed in section 5.2.5, this narrowing of the gender-gap was

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[31] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654859/Phonics_KS1_SFR_Text_2017_.pdf

particularly pronounced for the lowest performing boys. This is despite boys' motivation for reading remaining relatively stable with some small improvements since PIRLS 2011.

9.1.5. Pupil Premium

To help address the attainment gap for disadvantaged pupils [pupils from poorer homes, and current or former looked after children], the pupil premium grant was introduced in April 2011[32]. The pupil premium is a financial award to schools of £1,320 for every primary school pupil who is registered for free school meals in 2016/17 or was at any point in the last 6 years. Children who are, or have been looked after by a local authority also attract a higher rate of pupil premium funding to their school. The performance of pupils in England in PIRLS 2016 who are eligible for free-school-meals was discussed in section 5.4.3, which demonstrated that the pupils have significantly lower PIRLS performance than their non-eligible peers. This is also true of previously eligible pupils, and those who are or have been looked after. Schools have the autonomy to decide how to use pupil premium funding; every local authority maintained school and most academies must publish their strategy on their website.

The Education Endowment Foundation produces a range of materials to support schools to develop and evaluate their strategy, including comparing their performance against similar schools and showcasing successful case study schools. Accountability systems also take into account how well schools have used the pupil premium funding to increase the progress of eligible pupils, with Ofsted inspections reporting on this and other bodies also having the power to recommend a review of the effectiveness of a school's strategy (the local authority, regional schools commissioner and the Department for Education). The Department for Education does not expect the full effect of the pupil premium to be seen in attainment data until 2023[33]. While socio-economic related differences were evident in the analysis, the pupil premium funding should reduce those differences over time and would be expected to have a more marked impact in the PIRLS 2021 and 2026 cycles.

Additionally, the Department for Education has created 12 opportunity areas and allocated £72 million in funding over three years from 2017-18 to improve social mobility in these areas. Literacy improvement programmes form part of the Teaching and Leadership Innovation Fund which supports the opportunity areas. The impacts of these policies will also be more apparent in future PIRLS cycles.

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[32] https://www.gov.uk/government/publications/2010-to-2015-government-policy-education-of-disadvantaged-children/2010-to-2015-government-policy-education-of-disadvantaged-children

[33] https://www.nao.org.uk/report/funding-for-disadvantaged-pupils/

9.1.6. Teacher recruitment and retention

A number of training routes into teaching have been introduced, including in-school training programs. In 2015/16, the number of trainees recruited exceeded the Government's targets[34]. Primary schools have recruited 19,000 additional teachers since 2005 to keep pace with the growing numbers of pupils (+7% between 2011 and 2014) and the pupil-teacher ratio has stayed stable, at 1 teacher to every 21.0 pupils between 2008 and 2014.

The proportion of primary teachers leaving state-funded schools was 10.2% for primary schools in 2015[35]. Approximately 20% of those retired. The Department spent around £35.7 million in 2016-17 to support the existing workforce with issues such as workload, pupil behaviour interventions and other measures to improve teacher retention across the education system[36]. There are plans to increase this spending to approximately £70 million per annum, including the Teaching and Leadership Innovation Fund mentioned above. There has been little change in England's teachers' reported career satisfaction and perceptions of school climate in PIRLS 2016 relative to previous cycles. However, the recent nature of these policy changes suggests that their impact will potentially be more apparent in future PIRLS cycles.

9.1.7. Teacher professional development

Support for teaching as a profession will be improved by the establishment of the Chartered College of Teachers which opened in January 2017. Over four years, the College will be provided with £5m funding from the Department for Education and it is anticipated that the College will be self-funding thereafter through membership fees and activities.

Schools are expected to make efficiency savings over the next few years, which have been estimated at approximately 8% of their total budget by 2019-20[34]. This could present challenges to financing teacher professional development, which is potentially concerning, as England's teachers already indicate that they have less time on reading-related professional development compared to the International Median, as discussed in section 7.1.1. However, the Department for Education anticipates that most of these savings will derive from more efficient deployment of staff.

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[34] https://www.nao.org.uk/wp-content/uploads/2016/02/Training-new-teachers.pdf
[35] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/550970/SFR44_2016_text.pdf
[36] https://www.nao.org.uk/wp-content/uploads/2017/09/Retaining-and-developing-the-teaching-workforce.pdf

9.1.8.   Educational policies in relation to PIRLS and other participating countries

As previously discussed, a wide range of policies affect literacy development and therefore PIRLS scores in countries, which makes cross-country comparisons on specific policies very difficult. A range of countries reported using phonics programmes to at least some extent in the 2011 PIRLS Encyclopaedia. Australia had introduced phonics teaching into the curriculum, the Netherlands reported that three quarters of schools used phonics programmes, and a long list of other countries used phonics to at least some extent in their pedagogical approaches (Austria, Malta, Northern Ireland, Oman, Singapore, South Africa and Trinidad and Tobago). Notably, the range of countries using phonics programmes incorporates countries at the top of the rankings for PIRLS average scores (e.g. Singapore), and at the bottom (e.g. South Africa), and spreads across the range in between.

In terms of trends, Australia, like England, has seen a significant increase in average performance in PIRLS 2016; both having recently introduced phonics programmes. The Netherlands has had phonics programmes in place for a longer time and has seen relatively stable performance across the last three PIRLS cycles. Other countries in which phonics programmes are part of the pedagogy have increased their average score (Austria and Oman), stayed the same (Northern Ireland, Singapore, South Africa and Trinidad and Tobago), or decreased in their average performance (Malta and the US). Therefore, it is possible that introduction of phonics programmes have helped to improve the average PIRLS reading performances in Australia and England, but there is no sustained evidence that countries with phonics programmes have higher average PIRLS performances in general. These mixed findings regarding the implementation of phonics programmes and PIRLS performance may also suggest that the specific content and implementation of these programmes in each country may play an important moderating role in their effect on reading development and attainment. However, such a suggestion requires substantiation that goes beyond the PIRLS performance of these countries.

9.2. Concluding remarks on policy changes in England and PIRLS

While the average PIRLS scores of the lowest performing pupils in England have increased since 2011, it appears too hasty to claim that these improvements are attributable to policy changes, like the introduction of the pupil premium. There have been many policy changes in recent years, including the new National Curriculum, the introductions of the phonics screening check, pupil premium and new routes into teaching. However, educational systems are complex and it therefore takes time for educational policies to produce large-scale changes to systems and the attainment of pupils within those systems. Nonetheless, studies such as PIRLS are valuable in tracking

how policy changes affect pupils' learning, and in future cycles, it may be possible to make more substantial conclusions linking recent policy changes in England to general and specific changes in pupils' reading performance.

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11. Appendices

Appendix A: Summary of marks in PIRLS 2016

Table 11.1 – Marks available in PIRLS 2016 test-items

Purpose / Process	Multiple-choice	Constructed response	Total
Reading Purposes			
Literary Purpose	46 marks (41%)	67 marks (59%)	113 marks
Informational Purpose	40 marks (36%)	70 marks (64%)	110 marks
Comprehension Processes			
Retrieve explicitly stated information	25 marks (44%)	32 marks (56%)	57 marks
Make straightforward inferences	35 marks (59%)	24 marks (41%)	59 marks
Interpret and integrate ideas and information	11 marks (14%)	68 marks (86%)	79 marks
Evaluate and critique content	15 marks (54%)	13 marks (46%)	28 marks
Total items	**86 marks (39%)**	**137 marks (61%)**	**223 marks**

Appendix B: Example PIRLS 2016 test-items

Figures 11.1 to 11.5 show example test-items from the Literary text '*Macy and the Red Hen*'. For each test-item, the associated benchmark, comprehension process, mode of response, and number of available marks is given. The correct response, or a response that was deemed worthy of all the marks available is also given in each. None of the test-items in 'Macy and the Red Hen' were targeted at the Low Benchmark. A full version of 'Macy and the Red Hen' and the associated test-items is available in the PIRLS 2016 International Report (Mullis, Martin, Foy & Hooper, 2017).

Figure 11.1 - Example Literary Purpose Test-Item 1

(Intermediate Benchmark, Evaluate and Critique Content, Multiple-Choice, Worth 1 mark)

2. How does the author show you what the red hen is like?

   Ⓐ by describing what the red hen looks like

   Ⓑ by describing the red hen's favorite food

   Ⓒ by describing where the red hen lives

   ● by describing how the red hen behaves

Figure 11.2 - Example Literary Purpose Test-Item 2

(Intermediate Benchmark, Interpret and Integrate Ideas, Multiple-Choice, Worth 1 mark)

12. Macy "hit the wings with her hands and pushed the wings away."

    What does Macy want the hen to think?

    ● that Macy is saving the hen

    Ⓑ that Macy is angry with the hen

    Ⓒ that Macy is terrified of the owl

    Ⓓ that Macy is playing with the owl

Figure 11.3 - Example Literary Purpose Test-Item 3

(High Benchmark, Retrieve Explicitly Stated Information, Constructed Response, Worth 2 marks)

6. Macy wants the red hen to go into the cage.

What are two things Macy does that **do not** work?

1. She tries to pick up the hen

2. She puts food in the hen's cage

Figure 11.4 - Example Literary Purpose Test-Item 4

(High Benchmark, Make Straightforward Inferences, Multiple-Choice, Worth 1 mark)

9. Why does Mum say, "I would like your job"?

Ⓐ Mum feels sorry for Macy.

Ⓑ Macy should do more jobs around the house.

Ⓒ Mum really likes looking after hens.

● Macy should understand Mum has harder jobs.

Figure 11.5 - Example Literary Purpose Test-Item 5

(Advanced Benchmark, Interpret and Integrate Ideas, Constructed Response, Worth 3 marks)

13.   You learn what Macy is like from the things she does.

Describe what Macy is like and give two examples from the story that show this.

Macy is determined because she does not give up when the red hen is naughty and she continues to try different ways to get the hen in the cage.

Figures 11.6 to 11.10 show example test-items from the Informational text '*The Green Sea Turtle*'. For each test-item, the associated benchmark, comprehension process, mode of response, and number of available marks is given. The correct response, or a response that was deemed worthy of all the marks available is also given in each. None of the test-items in 'The Green Sea Turtle' were targeted at the Low Benchmark. A full version of 'The Green Sea Turtle' and the associated test-items is available in the PIRLS 2016 International Report (Mullis, Martin, Foy & Hooper, 2017).

Figure 11.6 - Example Informational Purpose Test-Item 1

(Intermediate Benchmark, Make Straightforward Inferences, Multiple-Choice, Worth 1 mark)

1.   What is the first section "Out From the Sand" about?

(A)   what different sea turtles look like

(B)   how sea turtles learn to swim

(C)   what sea turtles like to eat

●   how sea turtles' eggs hatch

Figure 11.7 - Example Informational Purpose Test-Item 2

(High Benchmark, Evaluate and Critique Content, Constructed Response, Worth 1 mark)

14. A diagram from the article is shown below.

What does this diagram help you to understand?
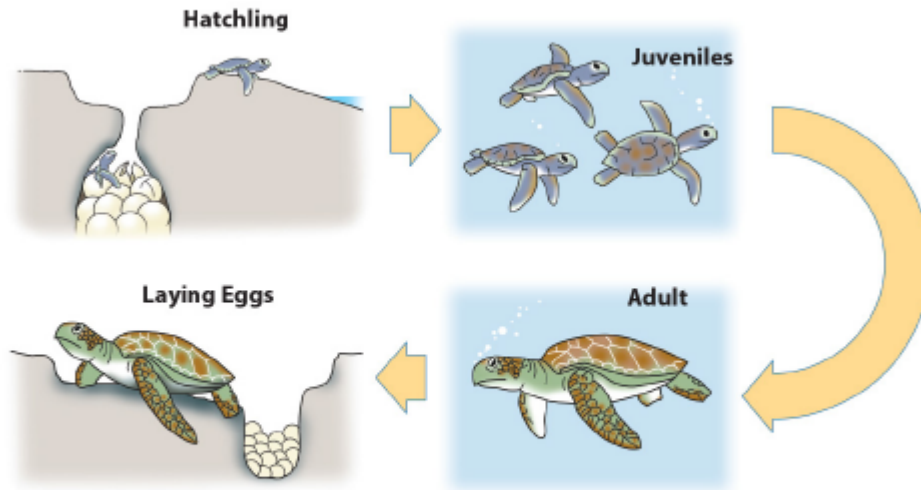
what all the parts
of the life cycle are

Figure 11.8 - Example Informational Purpose Test-Item 3

(High Benchmark, Retrieve Explicitly Stated Information, Constructed Response, Worth 2 marks)

2. "One of the baby sea turtles begins to stir and hatch from her egg."

Write the first two things the hatchling does next.

1. She opens the egg.

2. She breaks out of the shell.

Figure 11.9 - Example Informational Purpose Test-Item 4

(Advanced Benchmark, Interpret and Integrate Ideas, Constructed Response, Worth 3 marks)

11. What information does the article provide about the sea turtle's size and food at each stage of its life?

Complete the table below.

Three have been done for you.

Stage of life	Size	Food
egg	golf ball	The egg has its own food.
hatchling	walnut	shrimp
juvenile	dinner plate	algae
adult	3 feet	algae and sea grass

Source: IEA's PIRLS 2016 International Report. Permission must be obtained from the IEA before using or reproducing this material.

Figure 11.10 - Example Informational Purpose Test-Item 5

(Advanced Benchmark, Make Straightforward Inferences, Multiple-Choice, Worth 1 mark)

13. Which activity in an adult female green sea turtle's life is not fully understood by scientists?

  (A) how she can swim over 600 miles

  (B) how she makes a nest for her eggs

  (C) how she avoids being eaten by predators

  ● how she finds the right beach to lay her eggs

Source: IEA's PIRLS 2016 International Report. Permission must be obtained from the IEA before using or reproducing this material.

Appendix C: PIRLS 2016 countries by language(s) of testing

Table 11.2 – Languages of testing in PIRLS 2016 participating countries

Countries testing in a single language		Countries testing in multiple languages		
Country	**Language**	**Country**	**Language(s)***	**Percentages**
Australia	English	Azerbaijan	**Azeri**, Russian	**92%**, 8%
Austria	German	Bahrain	**Arabic**, English	**67%**, 33%
Belgium (Flemish)	Dutch	Canada	**English**, French	**75%**, 25%
Belgium (French)	French	Finland	**Finnish**, Swedish	**94%**, 6%
Bulgaria	Bulgarian	Georgia	**Georgian**, Azeri	**95%**, 5%
Chile	Spanish	Israel	**Hebrew**, Arabic	**72%**, 28%
Chinese Taipei	Chinese	Kazakhstan	**Kazakh**, Russian	**66%**, 34%
Czech Republic	Czech	Kuwait	**Arabic**, English	**79%**, 21%
Denmark	Danish	Latvia	**Latvian**, Russian	**73%**, 27%
Egypt	Arabic	Lithuania	**Lithuanian**, Russian, Polish	**91%**, 5%, 4%
England	**English**	Macao SAR	**Chinese**, English, Portuguese	**89%**, 10%, 1%
France	French	Oman	**Arabic**, English	**89%**, 11%
Germany	German	New Zealand	**English**, Maori	**98%**, 2%
Hong Kong SAR	Chinese	Norway	**Bokmal**, Nynorsk	**87%**, 13%
Hungary	Hungarian	Qatar	**English**, Arabic	**50%**, 50%
Iran	Persian	Saudi Arabia	**Arabic**, English	**99%**, 1%
Republic of Ireland	English	Slovak Republic	**Slovak**, Hungarian	**93%**, 7%
Italy	Italian	South Africa	**English**, isiZulu, isiXhosa, Sepedi, Afrikaans, Setswana, Sesotho, Xitsonga, siSwati, Tshivenda, isiNedbele	**23%**, 22%, 15%, 9%, 9%, 7%, 5%, 4%, 2%, 2%, <1%
Malta	Maltese			
Morocco	Arabic			
Netherlands	Dutch			
Northern Ireland	English	Spain	**Spanish**, Catalan, Basque, Valencian, Galician	**75%**, 18%, 3%, 3%, 2%
Poland	Polish			
Portugal	Portuguese	United Arab Emirates	**English**, Arabic, French	**60%**, 39%, <1%
Russian Federation	Russian			
Singapore	English	• For countries with multiple testing languages, the most common language is in bold.		
Slovenia	Slovene			
Sweden	Swedish			
Trinidad and Tobago	English			
United States	English			

Appendix D: Missing data from the NPD

Table 11.3 – Missing NPD data for pupils in England's PIRLS 2016 sample

Pupil Background Characteristic	PIRLS 2016 Sample
	Number of pupils with missing NPD data
No NPD Data	249
Missing Ethnicity**	276
Missing EAL	258
Missing FSM and Ever6FSM	249
Missing Y1 phonics check Score	454
Missing KS1 Reading Level	413

* Because of rounding, cases of missing data, and pupils recorded in alternative categories, some results may appear inconsistent.

** Clarifications of ethnicity categories provided in **Section *5.4***.

Appendix E: Performance by fine-levels of prior attainment and birth month

Table 11.4 - Distribution of Year 1 phonics check scores (0-20 marks) in England's PIRLS 2016 sample

Y1 Phonics Check Mark	n	Unweighted %	Weighted %	Average PIRLS Score
0	48	1.0%	0.9%	436 (14.3)
1	20	0.4%	0.4%	439 (17.7)
2	24	0.5%	0.5%	422 (20.5)
3	14	0.3%	0.3%	464 (16.9)
4	22	0.5%	0.4%	488 (15.8)
5	18	0.4%	0.4%	473 (18.7)
6	21	0.5%	0.4%	470 (22.9)
7	23	0.5%	0.5%	431 (18.8)
8	31	0.7%	0.6%	489 (16.8)
9	32	0.7%	0.6%	462 (10.1)
10	48	1.0%	1.1%	500 (11.8)
11	30	0.6%	0.6%	480 (13.9)
12	43	0.9%	0.9%	502 (9.6)
13	53	1.1%	1.2%	482 (10.9)
14	57	1.2%	1.2%	497 (9.6)
15	41	0.9%	0.9%	498 (13.5)
16	63	1.4%	1.5%	512 (9.6)
17	52	1.1%	1.1%	507 (14.5)
18	60	1.3%	1.3%	516 (8.8)
19	73	1.6%	1.6%	522 (8.9)
20	72	1.6%	1.6%	524 (8.9)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 11.5 - Distribution of Year 1 phonics check scores (21-40 marks) in England's PIRLS 2016 sample

Y1 Phonics Check Mark	n	Unweighted %	Weighted %	Average PIRLS Score
21	64	1.4%	1.5%	523 (9.8)
22	91	2.0%	2.0%	512 (8.4)
23	77	1.7%	1.8%	526 (8.8)
24	76	1.6%	1.7%	530 (7.9)
25	108	2.3%	2.3%	535 (7.5)
26	98	2.1%	2.1%	534 (7.6)
27	91	2.0%	1.9%	543 (8.3)
28	102	2.2%	2.3%	540 (7.2)
29	101	2.2%	2.4%	557 (8.1)
30	119	2.6%	2.6%	554 (6.9)
31	71	1.5%	1.7%	546 (9.9)
32	356	7.7%	7.5%	555 (4.3)
33	292	6.3%	6.3%	558 (5.1)
34	263	5.7%	5.7%	568 (5.3)
35	267	5.8%	5.7%	577 (5.7)
36	239	5.1%	4.9%	577 (4.4)
37	258	5.6%	5.8%	587 (4.5)
38	278	6.0%	5.9%	595 (4.3)
39	352	7.6%	7.8%	606 (4.0)
40	493	10.6%	10.4%	617 (3.5)
Total	**4,641**	**100%**	**100%**	**558 (1.9)**

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 11.6 - Distribution of Year 2 phonics check scores in England's PIRLS 2016 sample

Y2 Phonics Check Mark	n	Unweighted %	Weighted %	Average PIRLS Score
0-21	162	8.7%	8.4%	442 (7.0)
22-26	143	7.7%	8.2%	477 (8.6)
27-31	151	8.1%	8.0%	502 (7.6)
32	185	9.9%	9.7%	513 (6.5)
33	150	8.0%	8.2%	511 (6.1)
34	172	9.2%	9.0%	526 (6.1)
35	144	7.7%	7.3%	530 (6.8)
36	135	7.2%	7.2%	536 (7.2)
37	181	9.7%	9.9%	536 (4.5)
38	182	9.7%	10.0%	543 (6.5)
39	146	7.8%	8.2%	558 (6.3)
40	117	6.3%	5.8%	563 (6.4)
Total	**1,868**	**100%**	**100%**	**519 (2.8)**

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 11.7 - Distribution of KS1 reading levels in England's PIRLS 2016 sample

KS1 Reading Level	n	Unweighted %	Weighted %	Average PIRLS Score
Level 1	351	7.5%	7.6%	458 (5.2)
Level 2C	430	9.2%	9.6%	490 (4.5)
Level 2B	1,103	23.6%	23.8%	530 (2.7)
Level 2A	1,352	28.9%	28.7%	571 (2.2)
Level 3	1,446	30.9%	30.3%	615 (2.3)
Total	**4,682**	**100%**	**100%**	**558 (1.9)**

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Table 11.8 – Birth months of pupils in England's PIRLS 2016 sample

Birth Month	n	Unweighted %	Weighted %	Average PIRLS Score
January	406	8.0%	8.0%	557 (4.6)
February	407	8.0%	8.1%	564 (4.6)
March	435	8.6%	8.7%	557 (4.7)
April	430	8.5%	8.4%	557 (4.5)
May	426	8.4%	8.5%	556 (4.0)
June	412	8.1%	8.3%	550 (4.3)
July	421	8.3%	7.9%	547 (4.4)
August	457	9.0%	8.8%	539 (4.2)
September	423	8.3%	8.1%	575 (3.8)
October	443	8.7%	8.8%	570 (4.7)
November	398	7.8%	8.3%	570 (4.7)
December	425	8.4%	8.2%	564 (5.5)
Total	**5,083**	**100%**	**100%**	**559 (1.9)**

* Twelve children taught out of the normal curriculum year as defined by their date of birth have been excluded from this analysis.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Appendix F: Scale Items

Table 11.9 – Items comprising the '*Engagement in Reading Lessons*' Scale (2016)

How much do you agree with these statements about your <u>reading lessons</u>?	Agree a lot	Agree a little	Disagree a little	Disagree a lot
I like what I read about in school	◯	◯	◯	◯
My teacher gives me interesting things to read	◯	◯	◯	◯
I know what my teacher expects me to do	◯	◯	◯	◯
My teacher is easy to understand	◯	◯	◯	◯
I am interested in what my teacher says	◯	◯	◯	◯
My teacher encourages me to say what I think about what I have read	◯	◯	◯	◯
My teacher lets me show what I have learned	◯	◯	◯	◯
My teacher does a variety of things to help us learn	◯	◯	◯	◯
My teacher tells me how to do better when I make a mistake	◯	◯	◯	◯

Source: IEA's PIRLS 2016

Table 11.10 – Items comprising the '*Confidence in Reading*' Scale (2016)

How well do you read? Tell how much you agree with each of these statements.	Agree a lot	Agree a little	Disagree a little	Disagree a lot
I usually do well in reading	◯	◯	◯	◯
Reading is easy for me	◯	◯	◯	◯
I have trouble reading stories with difficult words *	◯	◯	◯	◯
Reading is harder for me than for many of my classmates *	◯	◯	◯	◯
Reading is harder for me than any other subject *	◯	◯	◯	◯
I am just not good at reading *	◯	◯	◯	◯

Source: IEA's PIRLS 2016

* The item was reverse coded.

Table 11.11 – Items comprising the '*Liking of Reading*' Scale (2016)

What do you think about reading? Tell how much you agree with each of these statements.	Agree a lot	Agree a little	Disagree a little	Disagree a lot
I like talking about what I have read with other people	○	○	○	○
I would be happy if someone gave me a book as a present	○	○	○	○
I think reading is boring *	○	○	○	○
I would like to have more time for reading	○	○	○	○
I enjoy reading	○	○	○	○
I learn a lot from reading	○	○	○	○
I like to read things that make me think	○	○	○	○
I like it when a book helps me imagine other world	○	○	○	○
How often do you do these things <u>outside of school</u>?	**Every day or almost every day**	**Once or twice a week**	**Once or twice a month**	**Never or almost never**
I read for fun	○	○	○	○
I read to find out about things I want to learn	○	○	○	○

Source: IEA's PIRLS 2016

* The item was reverse coded.

Table 11.12 – Items comprising the *'Teacher Career Satisfaction'* Scale (2016)

How often do you feel the following way about being a teacher?	Very often	Often	Sometimes	Never or almost never
I am content with my profession as a teacher	○	○	○	○
I find my work full of meaning and purpose	○	○	○	○
I am enthusiastic about my job	○	○	○	○
My work inspires me	○	○	○	○
I am proud of the work I do	○	○	○	○

Source: IEA's PIRLS 2016

Table 11.13 – Items comprising the '*School Emphasis on Academic Success'* Scale (2016)

How would you characterise each of the following with your school?	Very high	High	Medium	Low	Very low
Teachers' understanding of the school's curricular goals	○	○	○	○	○
Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
Teacher's expectations for pupil achievement	○	○	○	○	○
Teachers' ability to inspire pupils	○	○	○	○	○
Collaboration between school leadership (including master teachers) and teachers to plan instruction	○	○	○	○	○
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	○	○	○	○	○
Pupils' desire to do well in school	○	○	○	○	○
Pupils' ability to reach school's academic goals	○	○	○	○	○
Pupils' respect for classmates who excel academically	○	○	○	○	○

Source: IEA's PIRLS 2016

Table 11.14 – Items comprising the '*Safe and Orderly Schools'* Scale (2016)

Thinking about your current school, indicate the extent to which you agree or disagree with the following statements.	Agree a lot	Agree a little	Disagree a little	Disagree a lot
The school is located in a safe neighbourhood	○	○	○	○
I feel safe at this school	○	○	○	○
The school's security policies and practices are sufficient	○	○	○	○
The pupils behave in an orderly manner	○	○	○	○
The pupils are respectful of the teachers	○	○	○	○
The pupils respect school property	○	○	○	○
This school has clear rules about pupil conduct	○	○	○	○
This school's rules are enforced in a fair and consistent manner.	○	○	○	○

Source: IEA's PIRLS 2016

Table 11.15 – Items comprising the '*School Discipline'* Scale (2016)

To what degree is each of the following a problem among Year 5 pupils in your school?	Not a problem	Minor problem	Moderate problem	Serious problem
Arriving late at school	○	○	○	○
Absenteeism (i.e. unjustified absence)	○	○	○	○
Classroom disturbance	○	○	○	○
Cheating	○	○	○	○
Profanity	○	○	○	○
Vandalism	○	○	○	○
Theft	○	○	○	○
Intimidation or verbal abuse among pupils	○	○	○	○
Intimidation or verbal abuse of teachers or staff	○	○	○	○

Source: IEA's PIRLS 2016

Table 11.16 – Items comprising the '*Student Bullying'* Scale (2016)

During this school year, how often have other pupils from your school done any of the following things to you (including through texting or the Internet)?	Never	A few times a year	Once or twice a month	At least once a week
Made fun of me or called me names	○	○	○	○
Left me out of their games or activities	○	○	○	○
Spread lies about me	○	○	○	○
Stole something from me	○	○	○	○
Hit or hurt me (e.g. shoving, hitting, kicking)	○	○	○	○
Made me do things I didn't want to do	○	○	○	○
Shared embarrassing information about me	○	○	○	○
Threatened me	○	○	○	○

Source: IEA's PIRLS 2016

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internationalevidence.statistics@education.gov.uk or www.education.gov.uk/contactus

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