

APPENDIX A

Population Coverage and Sample Participation Rates

Exhibit A.1: Information About the Students Assessed in PIRLS 2021

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled

☐ **Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade**

The PIRLS target population is the grade that represents four years of schooling counting from the first year of ISCED Level 1. In 6 countries, delayed test administration due to COVID-19 occurred a full year later at the end of the fourth year of schooling for the next cohort (☒). In 14 Northern Hemisphere countries, delayed test administration occurred half a year later at the beginning of the fifth year of schooling (☐).

IEA has a policy that students do not fall under the minimum average age of 9.5 years old at the time of testing, so England, Malta, and New Zealand assessed students in their fifth year of formal schooling. Norway chose to assess students in the fifth year of schooling so students would be compared with similar age students in Sweden, Denmark, and Finland.

Average age at the time of testing can vary across countries by just over a year (e.g., from 9.8 to 10.9 years) depending on a country's policy on age of entry to school and dates of test administration. For information on age of entry policy and practice, see Exhibit 2 of the *PIRLS 2021 Encyclopedia*.

Country	Country's Name for Fourth Year of Schooling*	Data Collection Period	Average Age at Time of Testing (Years)
Albania	Grade 4	March–April 2021	10.0
Australia ☒	Year 4	September–December 2021	10.0
Austria	Grade 4	April–May 2021	10.3
Azerbaijan	Grade 4	April–June 2021	10.1
Bahrain	Grade 4 or Year 5	May–June 2021 September–October 2021	10.3
Belgium (Flemish)	Grade 4	April–June 2021	10.0
Belgium (French)	Grade 4	April–May 2021	10.0
Brazil ☒	Grade 4	November–December 2021	10.2
Bulgaria	Grade 4	March–April 2021	10.7
Chinese Taipei	Grade 4	March–May 2021	10.1
Croatia	Grade 4	October–November 2021	11.2
Cyprus	Grade 4	March–June 2021	9.8
Czech Republic	Grade 4	May–June 2021	10.4
Denmark	Grade 4	March–June 2021	10.9
Egypt	Grade 4	April 2021	10.0
England ☒	Year 5	May–July 2022	10.3
Finland	Grade 4	March–June 2021	10.8
France	Third Cycle Year 1 (CM1)	May–June 2021	9.9
Georgia	Grade 4	October–December 2021	10.6
Germany	Grade 4	April–July 2021	10.4
Hong Kong SAR	Primary 4	April–July 2021	10.1
Hungary	Grade 4	October–November 2021	11.2
Iran, Islamic Rep. of ☒	Grade 4	April–May 2022	10.2
Ireland	Fourth Class	September–October 2021	11.0
Israel ☒	Grade 4	May–June 2022	10.0
Italy	Primary Grade 4	March–May 2021	9.8
Jordan	Grade 4	May 2021	10.0
Kazakhstan	Grade 4	September–October 2021	10.8
Kosovo	Grade 4	June 2021	10.1
Latvia	Grade 4	September–November 2021	11.3
Lithuania	Grade 4	September–November 2021	11.3

* Countries' names for the fourth year of formal schooling were reported by National Research Coordinators.

Exhibit A.1: Information About the Students Assessed in PIRLS 2021
Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled

 ☐ **Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade**
(Continued)

Country	Country's Name for Fourth Year of Schooling*	Data Collection Period	Average Age at Time of Testing (Years)
Macao SAR	Primary 4	March–May 2021	9.9
Malta	Year 5	April–May 2021	9.9
Montenegro	Grade 4	April–May 2021	9.9
Morocco	Grade 4	October 2021	10.5
Netherlands	Group 6	March–June 2021 October–November 2021	10.1
New Zealand	Year 5	October–December 2020	10.0
North Macedonia	Grade 4	May 2021	9.9
Northern Ireland	Year 6	September–October 2021	10.8
Norway (5)	Grade 5	April–June 2021	10.8
Oman	Grade 4	February–May 2021	9.8
Poland	Grade 4	May–June 2021	10.9
Portugal	Grade 4	April–July 2021	10.1
Qatar	Grade 4	March–April 2021 September 2021	10.1
Russian Federation	Grade 4	April 2021	10.8
Saudi Arabia	Grade 4	November 2021	10.4
Serbia	Grade 4	March–April 2021	10.6
Singapore	Primary 4	October–November 2020	10.4
Slovak Republic	Grade 4	May–June 2021	10.5
Slovenia	Grade 4	March–June 2021	10.0
South Africa ☒	Grade 4	August–November 2021	10.2
Spain	Grade 4	April–June 2021	9.9
Sweden	Grade 4	March–April 2021	10.7
Turkiye	Grade 4	June 2021	9.9
United Arab Emirates	Grade 4	February–March 2021 October–November 2021	10.4
United States	Grade 4	October–November 2021	10.7
Uzbekistan	Grade 4	April 2021	10.6
Benchmarking Participants			
Alberta, Canada	Grade 4	April–June 2021	9.9
British Columbia, Canada	Grade 4	April–May 2021	9.8
Newfoundland & Labrador, Canada	Grade 4	May–June 2021	9.9
Quebec, Canada	Grade 4	October–December 2021	10.7
Moscow City, Russian Federation	Grade 4	April–May 2021	10.7
South Africa (6) ☒	Grade 6	August–October 2021	12.3
Abu Dhabi, UAE	Grade 4	October–November 2021	10.4
Dubai, UAE	Grade 4 or Year 5	February–March 2021 October–November 2021	10.2

* Countries' names for the fourth year of formal schooling were reported by National Research Coordinators.

Exhibit A.2: Coverage of PIRLS 2021 Target Population

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled

☐ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
² Albania	100%		2.6%	6.7%	9.2%
Australia ☒	100%		1.6%	2.8%	4.4%
Austria	100%		1.2%	3.6%	4.8%
Azerbaijan	100%		1.8%	0.7%	2.5%
Bahrain	100%		0.6%	0.4%	1.0%
Belgium (Flemish)	100%		0.5%	2.4%	2.9%
² Belgium (French)	100%		5.4%	2.0%	7.4%
² Brazil ☒	100%		3.8%	2.5%	6.3%
Bulgaria	100%		0.6%	2.8%	3.4%
Chinese Taipei	100%		0.0%	1.1%	1.1%
Croatia	100%		1.3%	3.1%	4.4%
Cyprus	100%		1.2%	4.3%	5.5%
Czech Republic	100%		2.6%	2.9%	5.5%
² Denmark	100%		2.1%	7.0%	9.1%
² Egypt	100%		8.0%	0.0%	8.0%
England ☒	100%		2.1%	3.3%	5.4%
Finland	100%		1.0%	1.3%	2.3%
France	100%		2.7%	2.4%	5.0%
¹ Georgia	92%	Students taught in Georgian	1.2%	1.5%	2.7%
Germany	100%		1.9%	2.0%	4.0%
² Hong Kong SAR	100%		6.9%	0.8%	7.7%
Hungary	100%		2.8%	2.1%	4.9%
Iran, Islamic Rep. of ☒	100%		1.7%	0.1%	1.8%
Ireland	100%		1.9%	1.7%	3.6%
³ Israel ☒	100%		22.5%	3.2%	25.7%
² Italy	100%		0.8%	4.9%	5.7%
Jordan	100%		0.0%	1.9%	1.9%
Kazakhstan	100%		1.0%	2.8%	3.9%
² Kosovo	100%		5.5%	4.1%	9.5%
Latvia	100%		4.3%	0.5%	4.8%
Lithuania	100%		1.9%	2.6%	4.5%
Macao SAR	100%		1.0%	2.5%	3.5%
Malta	100%		0.3%	2.2%	2.5%
³ Montenegro	100%		1.4%	12.0%	13.5%
Morocco	100%		1.6%	0.0%	1.6%
Netherlands	100%		4.1%	1.1%	5.1%
New Zealand	100%		1.1%	2.4%	3.5%
North Macedonia	100%		1.6%	3.7%	5.3%
² Northern Ireland	100%		2.2%	3.4%	5.5%
Norway (5)	100%		2.2%	2.1%	4.2%
Oman	100%		2.2%	1.4%	3.6%
Poland	100%		1.9%	2.9%	4.8%
² Portugal	100%		1.3%	5.1%	6.4%
Qatar	100%		1.9%	1.2%	3.1%
Russian Federation	100%		1.7%	3.7%	5.4%
³ Saudi Arabia	100%		10.4%	0.4%	10.8%
³ Serbia	100%		4.6%	7.4%	12.0%
³ Singapore	100%		14.1%	0.4%	14.5%
Slovak Republic	100%		1.5%	0.9%	2.4%
Slovenia	100%		1.8%	1.0%	2.8%
South Africa ☒	100%		1.6%	0.1%	1.7%
Spain	100%		1.8%	2.8%	4.6%
² Sweden	100%		1.2%	4.3%	5.5%
² Turkiye	100%		2.3%	6.7%	8.9%
United Arab Emirates	100%		1.1%	3.0%	4.1%
² United States	100%		0.0%	5.8%	5.8%
Uzbekistan	100%		1.8%	1.1%	2.9%
Benchmarking Participants					
³ Alberta, Canada	100%		5.7%	4.9%	10.6%
² British Columbia, Canada	100%		0.9%	5.9%	6.7%
² Newfoundland & Labrador, Canada	100%		4.2%	5.6%	9.8%
Quebec, Canada	100%		3.1%	1.6%	4.7%
Moscow City, Russian Federation	100%		0.5%	3.3%	3.9%
South Africa (6) ☒	100%		1.2%	0.0%	1.2%
Abu Dhabi, UAE	100%		0.8%	1.8%	2.7%
² Dubai, UAE	100%		2.5%	7.4%	10.0%

1 National Target Population does not include all of the International Target Population.

2 National Defined Population covers 90% to 95% of National Target Population.

3 National Defined Population covers less than 90% of National Target Population (but at least 77%).

Exhibit A.3: School Sample Sizes

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled

☐ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Albania	180	179	177	0	177
Australia ☒	290	288	278	3	281
Austria	160	160	156	4	160
Azerbaijan	200	200	184	0	184
Bahrain	186	186	186	0	186
Belgium (Flemish)	168	167	134	7	141
Belgium (French)	158	158	146	12	158
Brazil ☒	244	240	156	31	187
Bulgaria	151	151	151	0	151
Chinese Taipei	184	184	182	2	184
Croatia	166	162	150	4	154
Cyprus	162	162	160	0	160
Czech Republic	197	197	196	0	196
Denmark	218	217	166	31	197
Egypt	192	192	192	0	192
England ☒	170	169	148	14	162
Finland	221	219	219	0	219
France	190	190	184	0	184
Georgia	194	194	187	3	190
Germany	261	261	248	4	252
Hong Kong SAR	152	151	120	24	144
Hungary	165	164	147	10	157
Iran, Islamic Rep. of ☒	220	218	218	0	218
Ireland	151	148	148	0	148
Israel ☒	196	195	193	1	194
Italy	169	165	155	9	164
Jordan	221	217	216	0	216
Kazakhstan	268	267	267	0	267
Kosovo	150	150	150	0	150
Latvia	160	158	153	3	156
Lithuania	204	199	190	0	190
Macao SAR	64	64	63	0	63
Malta	78	78	78	0	78
Montenegro	140	140	140	0	140
Morocco	266	266	266	0	266
Netherlands	164	162	72	59	131
New Zealand	205	205	155	29	184
North Macedonia	150	150	147	1	148
Northern Ireland	160	160	120	23	143
Norway (5)	161	160	157	1	158
Oman	224	222	214	1	215
Poland	150	150	140	10	150
Portugal	198	196	162	34	196
Qatar	263	262	259	0	259
Russian Federation	204	204	202	2	204
Saudi Arabia	190	143	122	20	142
Serbia	170	169	169	0	169
Singapore	183	183	183	0	183
Slovak Republic	186	186	140	29	169
Slovenia	166	166	157	3	160
South Africa ☒	330	327	319	2	321
Spain	452	452	449	3	452
Sweden	156	151	144	2	146
Türkiye	192	192	192	0	192
United Arab Emirates	684	664	663	0	663
United States	122	118	61	17	78
Uzbekistan	182	180	178	2	180
Benchmarking Participants					
Alberta, Canada	179	178	96	20	116
British Columbia, Canada	181	180	176	3	179
Newfoundland & Labrador, Canada	136	134	133	0	133
Quebec, Canada	172	171	100	12	112
Moscow City, Russian Federation	174	174	173	1	174
South Africa (6) ☒	255	255	249	4	253
Abu Dhabi, UAE	267	262	262	0	262
Dubai, UAE	204	191	190	0	190

Exhibit A.4: Student Sample Sizes

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Within-School Student Participation (Weighted Percentage)	Number of Students Sampled in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Students Eligible	Number of Students Absent	Number of Students Assessed
Albania	95%	4,539	26	55	4,458	245	4,213
Australia ☒	92%	6,333	196	177	5,960	473	5,487
Austria	96%	5,201	28	192	4,981	175	4,806
Azerbaijan	92%	5,753	41	23	5,689	480	5,209
Bahrain	91%	5,786	136	22	5,628	420	5,208
Belgium (Flemish)	96%	5,479	42	104	5,333	219	5,114
Belgium (French)	95%	4,595	12	80	4,503	224	4,279
Brazil ☒	86%	6,314	330	158	5,826	885	4,941
Bulgaria	92%	4,584	59	105	4,420	377	4,043
Chinese Taipei	98%	5,737	39	55	5,643	88	5,555
Croatia	84%	5,020	137	134	4,749	812	3,937
Cyprus	95%	5,044	9	213	4,822	233	4,589
Czech Republic	91%	7,353	41	93	7,219	598	6,621
Denmark	94%	5,466	53	289	5,124	303	4,821
Egypt	94%	8,681	142	0	8,539	560	7,979
England ☒	92%	4,682	5	156	4,521	371	4,150
Finland	97%	7,368	33	67	7,268	250	7,018
France	94%	5,879	65	155	5,659	320	5,339
Georgia	94%	5,808	92	79	5,637	396	5,241
Germany	88%	5,296	12	71	5,213	602	4,611
Hong Kong SAR	91%	4,518	238	33	4,247	417	3,830
Hungary	95%	5,813	97	102	5,614	302	5,312
Iran, Islamic Rep. of ☒	97%	6,262	79	6	6,177	215	5,962
Ireland	94%	5,160	130	53	4,977	314	4,663
Israel ☒	89%	5,591	26	37	5,528	638	4,890
Italy	94%	6,149	25	313	5,811	371	5,440
Jordan	96%	6,776	290	98	6,388	238	6,150
Kazakhstan	97%	7,666	299	121	7,246	223	7,023
Kosovo	97%	4,874	38	113	4,723	166	4,557
Latvia	91%	4,903	38	13	4,852	483	4,369
Lithuania	87%	5,451	7	131	5,313	690	4,623
Macao SAR	92%	5,685	19	144	5,522	429	5,093
Malta	90%	3,475	15	79	3,381	351	3,030
Montenegro	95%	4,972	22	202	4,748	259	4,489
Morocco	96%	8,121	749	0	7,372	355	7,017
Netherlands	95%	4,604	23	42	4,539	226	4,313
New Zealand	91%	6,392	82	150	6,160	603	5,557
North Macedonia	89%	3,323	8	31	3,284	355	2,929
Northern Ireland	90%	4,698	42	150	4,506	456	4,050
Norway (5)	95%	5,819	58	113	5,648	266	5,382
Oman	89%	6,183	123	59	6,001	680	5,321
Poland	87%	5,086	51	159	4,876	697	4,179
Portugal	96%	6,791	75	324	6,392	281	6,111
Qatar	89%	6,161	228	77	5,856	598	5,258
Russian Federation	97%	5,585	13	168	5,404	187	5,217
Saudi Arabia	93%	5,293	136	28	5,129	351	4,778
Serbia	87%	4,870	25	146	4,699	662	4,037
Singapore	97%	6,921	21	0	6,900	181	6,719
Slovak Republic	92%	5,303	27	23	5,253	412	4,841
Slovenia	95%	5,456	6	67	5,383	273	5,110
South Africa ☒	87%	14,833	210	47	14,576	2,150	12,422
Spain	92%	9,539	20	277	9,242	691	8,551
Sweden	93%	5,822	48	207	5,567	392	5,175
Turkiye	90%	7,621	361	466	6,794	762	6,032
United Arab Emirates	91%	31,032	436	575	30,021	2,573	27,448
United States	95%	1,826	22	64	1,740	83	1,657
Uzbekistan	99%	5,986	33	22	5,931	85	5,846
Benchmarking Participants							
Alberta, Canada	91%	3,492	41	146	3,305	285	3,020
British Columbia, Canada	91%	5,546	91	304	5,151	476	4,675
Newfoundland & Labrador, Canada	93%	2,806	25	153	2,628	183	2,445
Quebec, Canada	95%	4,015	12	51	3,952	213	3,739
Moscow City, Russian Federation	98%	6,048	25	127	5,896	151	5,745
South Africa (6) ☒	90%	10,776	199	0	10,577	1,260	9,317
Abu Dhabi, UAE	89%	11,864	74	224	11,566	1,185	10,381
Dubai, UAE	92%	8,978	329	211	8,438	727	7,711

Students attending a sampled class at the time the sample was chosen but leaving the class before the assessment was administered were classified as "withdrawn."

Students with a disability or language barrier that prevented them from participating in the assessment were classified as "excluded."

Students not present when the assessment was administered, and not subsequently assessed in a make-up session, were classified as "absent."

Exhibit A.5: Participation Rates (Weighted)

Assessed Fourth Grade Students at the End of the School Year

⌘ Assessed one year later than originally scheduled

▣ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Albania	99%	99%	100%	95%	94%	94%
Australia ⌘	98%	98%	100%	92%	90%	90%
Austria	98%	100%	100%	96%	95%	96%
Azerbaijan	92%	92%	100%	92%	84%	84%
Bahrain	100%	100%	100%	91%	91%	91%
Belgium (Flemish)	80%	84%	100%	96%	77%	81%
Belgium (French)	92%	100%	100%	95%	87%	95%
† Brazil ⌘	67%	85%	100%	86%	58%	73%
Bulgaria	100%	100%	100%	92%	92%	92%
Chinese Taipei	99%	100%	100%	98%	97%	98%
† Croatia	92%	95%	97%	84%	74%	77%
Cyprus	99%	99%	100%	95%	94%	94%
Czech Republic	99%	99%	100%	91%	91%	91%
† Denmark	76%	90%	100%	94%	72%	85%
Egypt	100%	100%	100%	94%	94%	94%
England ⌘	88%	96%	100%	92%	81%	88%
Finland	100%	100%	100%	97%	97%	97%
France	97%	97%	99%	94%	91%	91%
Georgia	97%	98%	99%	94%	91%	91%
Germany	95%	97%	100%	88%	84%	85%
† Hong Kong SAR	79%	96%	100%	91%	72%	87%
Hungary	90%	96%	100%	95%	86%	91%
Iran, Islamic Rep. of ⌘	100%	100%	100%	97%	97%	97%
Ireland	100%	100%	100%	94%	94%	94%
Israel ⌘	99%	99%	100%	89%	88%	88%
Italy	93%	99%	99%	94%	87%	92%
Jordan	99%	99%	100%	96%	96%	96%
Kazakhstan	100%	100%	100%	97%	97%	97%
Kosovo	100%	100%	100%	97%	97%	97%
Latvia	97%	99%	100%	91%	88%	90%
Lithuania	95%	95%	99%	87%	82%	82%
Macao SAR	98%	98%	100%	92%	91%	91%
Malta	100%	100%	100%	90%	89%	89%
Montenegro	100%	100%	99%	95%	94%	94%
Morocco	100%	100%	100%	96%	96%	96%
≡ Netherlands	44%	79%	100%	95%	41%	75%
† New Zealand	78%	92%	100%	91%	71%	83%
North Macedonia	98%	99%	96%	89%	84%	85%
† Northern Ireland	74%	90%	100%	90%	67%	81%
Norway (5)	98%	99%	100%	95%	93%	94%
Oman	97%	97%	100%	89%	86%	86%
Poland	93%	100%	99%	87%	81%	87%
Portugal	82%	100%	100%	96%	78%	96%
Qatar	99%	99%	100%	89%	88%	88%
Russian Federation	99%	100%	100%	97%	96%	97%
Saudi Arabia	95%	100%	100%	93%	89%	93%
Serbia	100%	100%	99%	87%	86%	86%
Singapore	100%	100%	100%	97%	97%	97%
† Slovak Republic	80%	94%	100%	92%	73%	87%
Slovenia	95%	97%	100%	95%	90%	92%
South Africa ⌘	97%	98%	98%	87%	83%	84%
Spain	100%	100%	100%	92%	92%	92%
Sweden	95%	97%	100%	93%	88%	90%
Türkiye	100%	100%	100%	90%	90%	90%
United Arab Emirates	100%	100%	100%	91%	90%	90%
≡ United States	54%	67%	100%	95%	51%	64%
Uzbekistan	99%	100%	100%	99%	97%	99%
Benchmarking Participants						
≡ Alberta, Canada	55%	68%	91%	91%	46%	57%
British Columbia, Canada	97%	99%	97%	91%	86%	88%
Newfoundland & Labrador, Canada	99%	99%	100%	93%	92%	92%
≡ Quebec, Canada	62%	69%	99%	95%	57%	64%
Moscow City, Russian Federation	100%	100%	100%	98%	97%	98%
South Africa (6) ⌘	98%	99%	99%	90%	88%	89%
Abu Dhabi, UAE	100%	100%	99%	89%	88%	88%
Dubai, UAE	99%	99%	100%	92%	92%	92%

PIRLS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of schools, 95 percent of classes, and 85 percent of students, or a combined rate (the product of school, class, and student participation) of 75 percent.

Participants not meeting these guidelines were annotated as follows:

† Met guidelines for sample participation rates only after replacement schools were included

‡ Nearly satisfied guidelines for sample participation rates after replacement schools were included

≡ Did not satisfy guidelines for sample participation rates

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

☐ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Australia ☒				
2021	4	10.0	4.4%	90%
2016	4	10.0	4.8%	94%
2011	4	10.0	4.4%	93%
Austria				
2021	4	10.3	4.8%	96%
² 2016	4	10.3	5.6%	98%
2011	4	10.3	5.1%	98%
2006	4	10.3	5.1%	97%
Azerbaijan				
2021	4	10.1	2.5%	84%
2016	4	10.1	2.1%	96%
² 2011	4	10.2	7.2%	100%
Bahrain				
2021	4	10.3	1.0%	91%
2016	4	9.9	2.7%	98%
Belgium (Flemish)				
2021	4	10.0	2.9%	81%
2016	4	10.1	1.6%	92%
^{2†} 2006	4	10.0	7.1%	91%
Belgium (French)				
² 2021	4	10.0	7.4%	95%
² 2016	4	10.0	6.0%	97%
^{2†} 2011	4	10.1	5.6%	82%
2006	4	9.9	3.9%	95%
Bulgaria				
2021	4	10.7	3.4%	92%
2016	4	10.8	4.3%	95%
2011	4	10.7	2.5%	95%
² 2006	4	10.9	6.4%	94%
2001	4	10.9	2.7%	93%
Chinese Taipei				
2021	4	10.1	1.1%	98%
2016	4	10.1	0.9%	98%
2011	4	10.2	1.4%	99%
2006	4	10.1	2.9%	99%
Croatia				
[†] 2021	4	11.2	4.4%	77%
² 2011	4	10.7	7.9%	95%
Cyprus				
2021	4	9.8	5.5%	94%
2001	4	9.7	2.0%	97%
Czech Republic				
2021	4	10.4	5.5%	91%
2016	4	10.3	3.4%	95%
2011	4	10.4	5.1%	94%
2001	4	10.5	5.0%	90%
Denmark				
^{2†} 2021	4	10.9	9.1%	85%
² 2016	4	10.8	9.8%	90%
² 2011	4	10.9	7.3%	95%
² 2006	4	10.9	6.2%	96%
Egypt				
^{2ψ} 2021	4	10.0	8.0%	94%
⁺ 2016	4	10.0	1.2%	97%
England ☒				
2021	5	10.3	5.4%	88%
2016	5	10.3	3.7%	96%
[†] 2011	5	10.3	2.4%	82%
2006	5	10.3	2.4%	92%
^{2†} 2001	5	10.2	5.7%	82%
Finland				
2021	4	10.8	2.3%	97%
2016	4	10.8	2.4%	96%
2011	4	10.8	3.1%	95%
France				
2021	4	9.9	5.0%	91%
2016	4	9.8	5.4%	96%
2011	4	10.0	5.2%	97%
2006	4	10.0	3.8%	95%
2001	4	10.1	5.3%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.

Trend data are included only for assessment years reported in PIRLS 2021.

ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

+ Participated in Literacy version of PIRLS 2016.

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

☐ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Georgia				
¹ 2021	4	10.6	2.7%	91%
¹ 2016	4	9.7	3.8%	96%
¹ 2011	4	10.0	4.9%	96%
^{1,2} 2006	4	10.1	7.3%	98%
Germany				
2021	4	10.4	4.0%	85%
2016	4	10.3	4.2%	95%
2011	4	10.4	1.9%	95%
2006	4	10.5	0.7%	92%
2001	4	10.5	1.8%	86%
Hong Kong SAR				
^{2†} 2021	4	10.1	7.7%	87%
^{2†} 2016	4	9.9	10.1%	79%
³ 2011	4	10.1	11.8%	83%
2006	4	10.0	3.9%	97%
2001	4	10.2	2.8%	97%
Hungary				
2021	4	11.2	4.9%	91%
2016	4	10.6	4.5%	97%
2011	4	10.7	4.2%	96%
2006	4	10.7	3.7%	97%
2001	4	10.7	2.1%	95%
Iran, Islamic Rep. of ☒				
2021	4	10.2	1.8%	97%
[±] 2016	4	10.2	4.1%	99%
2011	4	10.2	4.5%	99%
2006	4	10.2	3.8%	99%
2001	4	10.4	0.5%	98%
Ireland				
2021	4	11.0	3.6%	94%
2016	4	10.5	3.1%	96%
2011	4	10.3	2.5%	95%
Israel ☒				
³ 2021	4	10.0	25.7%	88%
³ 2016	4	10.0	24.9%	94%
³ 2011	4	10.1	24.6%	93%
Italy				
² 2021	4	9.8	5.7%	92%
2016	4	9.7	4.9%	95%
2011	4	9.7	3.7%	95%
2006	4	9.7	5.3%	97%
2001	4	9.8	2.9%	98%
Kazakhstan				
2021	4	10.8	3.9%	97%
2016	4	10.3	4.9%	99%
Latvia				
2021	4	11.3	4.8%	90%
² 2016	4	10.9	7.8%	91%
2006	4	11.0	4.7%	92%
2001	4	11.0	4.6%	89%
Lithuania				
2021	4	11.3	4.5%	82%
2016	4	10.8	4.2%	95%
^{1,2} 2011	4	10.7	5.6%	94%
¹ 2006	4	10.7	5.1%	92%
¹ 2001	4	10.9	3.8%	83%
Macao SAR				
2021	4	9.9	3.5%	91%
2016	4	10.0	3.6%	98%
Morocco				
2021	4	10.5	1.6%	96%
[±] 2016	4	10.2	1.7%	99%
[✱] 2011	4	10.5	2.0%	95%
Netherlands				
[≡] 2021	4	10.1	5.1%	75%
[†] 2016	4	10.1	3.1%	86%
[†] 2011	4	10.2	3.7%	89%
[†] 2006	4	10.3	3.6%	90%
[†] 2001	4	10.3	3.7%	87%

* Represents years of schooling counting from the first year of ISCED Level 1.

Trend data are included only for assessment years reported in PIRLS 2021.

✱ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

Georgia assessed students taught in Georgian and in Azerbaijani in PIRLS 2016.

± Participated in both regular and Literacy versions of PIRLS 2016.

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

☒ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
New Zealand				
[†] 2021	4.5 - 5.5	10.0	3.5%	83%
2016	4.5 - 5.5	10.1	3.7%	92%
2011	4.5 - 5.5	10.1	3.3%	93%
2006	4.5 - 5.5	10.0	5.3%	95%
2001	4.5 - 5.5	10.1	3.2%	96%
North Macedonia				
2021	4	9.9	5.3%	85%
2006	4	10.6	4.9%	96%
2001	4	10.7	4.2%	94%
Northern Ireland				
^{2†} 2021	4	10.8	5.5%	81%
2016	4	10.4	3.0%	84%
[†] 2011	4	10.4	3.5%	79%
Norway (5)				
2021	5	10.8	4.2%	94%
2016	5	10.8	5.3%	95%
Norway (4)				
2016	4	9.8	5.1%	95%
[‡] 2011	4	9.7	4.2%	71%
[‡] 2006	4	9.8	3.8%	71%
2001	4	10.0	2.8%	82%
Oman				
2021	4	9.8	3.6%	86%
2016	4	9.7	0.6%	98%
^ψ 2011	4	9.9	1.5%	96%
Poland				
2021	4	10.9	4.8%	87%
2016	4	10.7	3.9%	90%
Portugal				
² 2021	4	10.1	6.4%	96%
² 2016	4	9.8	7.5%	93%
2011	4	10.0	2.5%	93%
Qatar				
2021	4	10.1	3.1%	88%
2016	4	10.0	3.9%	97%
² 2011	4	10.0	6.2%	99%
Russian Federation				
2021	4	10.8	5.4%	97%
2016	4	10.8	4.1%	98%
2011	4	10.8	5.3%	98%
² 2006	4	10.8	5.9%	97%
² 2001	3 or 4	10.3	6.6%	97%
Saudi Arabia				
³ 2021	4	10.4	10.8%	93%
2016	4	9.9	2.3%	96%
2011	4	10.0	1.6%	98%
Singapore				
³ 2021	4	10.4	14.5%	97%
³ 2016	4	10.4	11.1%	97%
² 2011	4	10.4	6.3%	96%
2006	4	10.4	0.9%	95%
2001	4	10.1	0.1%	98%
Slovak Republic				
[†] 2021	4	10.5	2.4%	87%
2016	4	10.4	4.8%	97%
2011	4	10.4	4.6%	96%
2006	4	10.4	3.6%	94%
2001	4	10.3	2.0%	96%
Slovenia				
2021	4	10.0	2.8%	92%
2016	4	9.9	2.4%	90%
2011	4	9.9	2.6%	94%
2006	3 or 4	9.9	0.8%	93%
2001	3	9.8	0.3%	94%
South Africa ☒				
[✱] 2021	4	10.2	1.7%	84%
⁺ 2016	4	10.6	2.5%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.

Trend data are included only for assessment years reported in PIRLS 2021.

^ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

[✱] Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

⁺ Participated in Literacy version of PIRLS 2016.

Singapore's increased exclusions in 2016 resulted from increased enrollment in private schools, which predominantly serve international students and are different from public schools in many respects (e.g., different language of instruction and calendar year).

Exhibit A.6: Trends in Student Populations
Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

 □ **Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade**

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Spain				
2021	4	9.9	4.6%	92%
2016	4	9.9	4.8%	97%
2011	4	9.8	5.4%	96%
2006	4	9.9	5.3%	97%
Sweden				
² 2021	4	10.7	5.5%	90%
2016	4	10.7	5.2%	95%
2011	4	10.7	4.1%	91%
2006	4	10.9	3.9%	96%
2001	4	10.8	5.0%	92%
Türkiye				
² 2021	4	9.9	8.9%	90%
2001	4	10.2	3.9%	97%
United Arab Emirates				
2021	4	10.4	4.1%	90%
2016	4	9.8	3.3%	95%
2011	4	9.8	3.3%	97%
United States				
² = 2021	4	10.7	5.8%	64%
† 2016	4	10.1	4.8%	86%
² 2011	4	10.2	7.2%	81%
² † 2006	4	10.1	5.9%	82%
† 2001	4	10.2	5.3%	83%
Benchmarking Participants				
Alberta, Canada				
³ = 2021	4	9.9	10.6%	57%
² 2011	4	9.9	6.8%	94%
² 2006	4	9.9	7.1%	96%
British Columbia, Canada				
² 2021	4	9.8	6.7%	88%
² 2006	4	9.8	7.6%	94%
Quebec, Canada				
≡ 2021	4	10.7	4.7%	64%
≡ 2016	4	10.1	5.1%	64%
2011	4	10.1	3.7%	92%
2006	4	10.1	3.6%	81%
2001	4	10.2	3.3%	89%
Moscow City, Russian Federation				
2021	4	10.7	3.9%	98%
2016	4	10.8	3.3%	97%
Abu Dhabi, UAE				
2021	4	10.4	2.7%	88%
2016	4	9.7	3.9%	96%
2011	4	9.7	2.7%	96%
Dubai, UAE				
² 2021	4	10.2	10.0%	92%
2016	4	9.9	3.2%	95%
2011	4	9.8	5.1%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.

Trend data are included only for assessment years reported in PIRLS 2021.

See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

 SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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