

APPENDIX B

Population Coverage and Sample Participation Rates

Appendix B.1: Information About the Students Assessed in TIMSS 2019

The TIMSS target populations are the grades that represent four years and eight years of schooling counting from the first year of ISCED Level 1. However, IEA has a policy that students do not fall under the minimum average age of 9.5 years old (Grade 4) or 13.5 years old (Grade 8) at the time of testing, so England, Malta, and New Zealand assessed students in their fifth or ninth year of formal schooling. Norway chose to assess students in the fifth and ninth years 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., at the fourth grade from 9.7 to 10.9 years) depending on a country's policy on age of entry to school. For information on age of entry policy and practice, see Exhibit 2 of the *TIMSS 2019 Encyclopedia*.

Country	Grade 4		Grade 8	
	Country's Name for Fourth Year of Schooling *	Average Age at Time of Testing	Country's Name for Eighth Year of Schooling *	Average Age at Time of Testing
Albania	Grade 4	10.0		
Armenia	Grade 4	9.9		
Australia	Year 4	10.1	Year 8	14.1
Austria	Grade 4	10.4		
Azerbaijan	Grade 4	10.3		
Bahrain	Grade 4	9.8	Grade 8	13.8
Belgium (Flemish)	Grade 4	10.0		
Bosnia and Herzegovina	Grade 4	10.1		
Bulgaria	Grade 4	10.7		
Canada	Grade 4	9.9		
Chile	Grade 4	10.1	Grade 8	14.2
Chinese Taipei	Grade 4	10.2	Grade 8	14.3
Croatia	Grade 4	10.5		
Cyprus	Grade 4	9.8	Grade 8	13.8
Czech Republic	Grade 4	10.4		
Denmark	Grade 4	10.9		
Egypt			Grade 8	13.9
England	Year 5	10.2	Year 9	14.0
Finland	Grade 4	10.8	Grade 8	14.8
France	Third Cycle Year 1 (CM1)	9.9	Fourth Cycle Year 2 (4 ^e)	13.9
Georgia	Grade 4	10.1	Grade 8	13.8
Germany	Grade 4	10.4		
Hong Kong SAR	Primary 4	10.1	Secondary 2	14.1
Hungary	Grade 4	10.5	Grade 8	14.6
Iran, Islamic Rep. of	Grade 4	10.2	Grade 8	14.1
Ireland	Fourth Class	10.4	Second Year	14.4
Israel			Grade 8	14.0
Italy	Primary Grade 4	9.6	Lower Secondary Grade 3	13.7
Japan	Grade 4	10.4	Grade 8	14.4
Jordan			Grade 8	13.9
Kazakhstan	Grade 4	10.4	Grade 8	14.3
Korea, Rep. of	Elementary School Grade 4	10.5	Middle School Grade 2	14.5
Kosovo	Grade 4	9.9		
Kuwait	Grade 4	9.7	Grade 8	13.8
Latvia	Grade 4	10.8		
Lebanon			Grade 8	14.0
Lithuania	Grade 4	10.7	Grade 8	14.7
Malaysia			Grade 8	14.3
Malta	Year 5	9.8		
Montenegro	Grade 4	9.8		
Morocco	Grade 4	10.1	Secondary School Year 2	14.5
Netherlands	Group 6	10.1		
New Zealand	Year 5	10.0	Year 9	13.9
North Macedonia	Grade 4	9.8		
Northern Ireland	Year 6	10.4		
Norway	Grade 5	10.7	Grade 9	14.7
Oman	Grade 4	9.7	Grade 8	13.9
Pakistan	Grade 4	10.6		
Philippines	Grade 4	10.1		
Poland	Grade 4	10.3		
Portugal	Grade 4	10.0	Grade 8	14.0
Qatar	Grade 4	9.9	Grade 8	14.0
Romania			Grade 8	14.8
Russian Federation	Grade 4	10.8	Grade 8	14.8
Saudi Arabia	Grade 4	9.9	Grade 8	13.9
Serbia	Grade 4	10.6		
Singapore	Primary 4	10.4	Secondary 2	14.3
Slovak Republic	Grade 4	10.4		
South Africa	Grade 5	11.5	Grade 9	15.5

* Countries' names for the fourth year and eighth year of formal schooling were reported by National Research Coordinators. An empty cell indicates country did not participate at that grade.

Appendix B.1: Information About the Students Assessed in TIMSS 2019

(Continued)

Country	Grade 4		Grade 8	
	Country's Name for Fourth Year of Schooling *	Average Age at Time of Testing	Country's Name for Eighth Year of Schooling *	Average Age at Time of Testing
Spain	Grade 4	9.9		
Sweden	Grade 4	10.8	Grade 8	14.8
Turkey	Grade 5	10.6	Grade 8	13.9
United Arab Emirates	Grade 4	9.7	Grade 8	13.7
United States	Grade 4	10.2	Grade 8	14.2
Benchmarking Participants				
Ontario, Canada	Grade 4	9.8	Grade 8	13.8
Quebec, Canada	Grade 4	10.1	Secondary 2	14.2
Moscow City, Russian Fed.	Grade 4	10.8	Grade 8	14.8
Madrid, Spain	Grade 4	9.9		
Gauteng, RSA			Grade 9	15.3
Western Cape, RSA			Grade 9	15.5
Abu Dhabi, UAE	Grade 4	9.7	Grade 8	13.7
Dubai, UAE	Grade 4 or Year 5	9.9	Grade 8 or Year 9	13.9

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
 Downloaded from <http://timss2019.org/download>

Appendix B.2: Coverage of TIMSS 2019 Target Population

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
Albania	100%		2.6%	1.6%	4.2%
Armenia	100%		0.9%	0.4%	1.2%
Australia	100%		1.9%	2.9%	4.8%
Austria	100%		0.9%	4.5%	5.4%
Azerbaijan	100%		2.3%	0.3%	2.6%
Bahrain	100%		0.4%	0.4%	0.8%
Belgium (Flemish)	100%		0.8%	2.2%	3.0%
Bosnia and Herzegovina	100%		0.6%	1.4%	2.0%
Bulgaria	100%		0.8%	2.6%	3.4%
^{1 2} Canada	79%	Students from the provinces of Alberta, Manitoba, Newfoundland, Ontario, and Quebec	3.1%	3.9%	7.0%
Chile	100%		1.2%	2.6%	3.8%
Chinese Taipei	100%		0.3%	1.6%	2.0%
Croatia	100%		1.1%	3.1%	4.2%
Cyprus	100%		1.1%	3.4%	4.6%
Czech Republic	100%		2.5%	2.2%	4.7%
Denmark	100%		1.6%	1.5%	3.1%
² England	100%		2.2%	3.6%	5.8%
Finland	100%		1.8%	1.5%	3.3%
France	100%		2.5%	1.9%	4.4%
¹ Georgia	92%	Students taught in Georgian	2.8%	1.8%	4.7%
Germany	100%		1.7%	2.2%	3.9%
Hong Kong SAR	100%		1.1%	2.4%	3.5%
Hungary	100%		2.1%	2.0%	4.1%
Iran, Islamic Rep. of	100%		3.0%	1.2%	4.2%
Ireland	100%		1.9%	1.1%	3.0%
Italy	100%		0.9%	4.1%	4.9%
Japan	100%		0.6%	1.5%	2.2%
² Kazakhstan	100%		2.7%	3.0%	5.8%
Korea, Rep. of	100%		0.9%	1.5%	2.3%
² Kosovo	100%		5.3%	3.3%	8.6%
Kuwait	100%		1.0%	0.7%	1.7%
² Latvia	100%		3.9%	3.0%	6.9%
² Lithuania	100%		2.6%	4.1%	6.7%
Malta	100%		1.4%	3.1%	4.5%
Montenegro	100%		1.3%	3.3%	4.6%
Morocco	100%		1.8%	0.0%	1.8%
Netherlands	100%		2.6%	0.9%	3.5%
² New Zealand	100%		2.6%	4.2%	6.9%
North Macedonia	100%		1.2%	2.5%	3.8%
Northern Ireland	100%		2.2%	0.6%	2.8%
Norway (5)	100%		1.4%	3.3%	4.7%
Oman	100%		1.4%	0.8%	2.2%
² Pakistan	100%		7.5%	0.0%	7.5%
² Philippines	100%		6.1%	1.6%	7.7%
Poland	100%		1.1%	2.0%	3.1%
² Portugal	100%		0.9%	6.9%	7.8%
Qatar	100%		1.2%	1.0%	2.2%
² Russian Federation	100%		2.4%	3.9%	6.3%
² Saudi Arabia	100%		10.1%	0.4%	10.5%
² Serbia	100%		4.0%	4.2%	8.2%
³ Singapore	100%		12.5%	0.4%	12.8%
² Slovak Republic	100%		3.6%	1.9%	5.5%
South Africa (5)	100%		1.1%	0.0%	1.1%
Spain	100%		1.6%	3.8%	5.4%
Sweden	100%		1.6%	3.8%	5.4%
² Turkey (5)	100%		1.0%	5.9%	7.0%
United Arab Emirates	100%		1.1%	2.0%	3.2%
² United States	100%		0.0%	7.2%	7.2%
Benchmarking Participants					
² Ontario, Canada	100%		2.3%	4.7%	7.0%
Quebec, Canada	100%		3.3%	1.2%	4.4%
Moscow City, Russian Fed.	100%		0.7%	1.4%	2.1%
Madrid, Spain	100%		0.5%	3.1%	3.6%
Abu Dhabi, UAE	100%		1.1%	2.5%	3.6%
² Dubai, UAE	100%		2.6%	3.0%	5.6%

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%).

Appendix B.3: School Sample Sizes

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	169	167	0	167
Armenia	150	150	150	0	150
Australia	290	288	285	2	287
Austria	197	194	193	0	193
Azerbaijan	200	199	186	8	194
Bahrain	185	185	185	0	185
Belgium (Flemish)	160	156	101	46	147
Bosnia and Herzegovina	178	178	178	0	178
Bulgaria	151	151	146	5	151
Canada	788	777	669	35	704
Chile	174	172	151	18	169
Chinese Taipei	163	163	155	7	162
Croatia	159	158	150	3	153
Cyprus	152	151	150	1	151
Czech Republic	156	152	151	1	152
Denmark	175	174	123	43	166
England	150	150	129	10	139
Finland	159	158	157	1	158
France	156	155	155	0	155
Georgia	158	157	151	3	154
Germany	206	203	198	5	203
Hong Kong SAR	159	159	109	30	139
Hungary	151	150	139	10	149
Iran, Islamic Rep. of	224	224	224	0	224
Ireland	151	150	150	0	150
Italy	162	162	153	9	162
Japan	150	150	126	21	147
Kazakhstan	169	168	168	0	168
Korea, Rep. of	152	152	151	0	151
Kosovo	150	145	145	0	145
Kuwait	170	167	163	1	164
Latvia	156	156	142	12	154
Lithuania	208	207	207	0	207
Malta	99	98	98	0	98
Montenegro	140	140	140	0	140
Morocco	265	264	264	0	264
Netherlands	151	149	71	41	112
New Zealand	164	161	138	22	160
North Macedonia	150	150	146	4	150
Northern Ireland	156	156	95	39	134
Norway (5)	167	167	119	31	150
Oman	228	228	226	2	228
Pakistan	150	142	121	18	139
Philippines	184	180	180	0	180
Poland	150	149	143	6	149
Portugal	182	181	158	23	181
Qatar	242	242	242	0	242
Russian Federation	202	202	200	0	200
Saudi Arabia	222	221	215	5	220
Serbia	170	165	159	6	165
Singapore	187	187	187	0	187
Slovak Republic	159	158	153	4	157
South Africa (5)	300	298	286	11	297
Spain	502	502	494	7	501
Sweden	150	145	144	1	145
Turkey (5)	181	180	179	1	180
United Arab Emirates	697	688	688	0	688
United States	329	325	249	38	287
Benchmarking Participants					
Ontario, Canada	171	170	160	3	163
Quebec, Canada	172	172	140	8	148
Moscow City, Russian Fed.	152	151	148	2	150
Madrid, Spain	167	167	167	0	167
Abu Dhabi, UAE	249	247	247	0	247
Dubai, UAE	205	199	199	0	199

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
 Downloaded from <http://timss2019.org/download>

Appendix B.4: Student Sample Sizes

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	99%	4,548	31	25	4,492	66	4,426
Armenia	97%	5,612	32	0	5,580	181	5,399
Australia	94%	6,517	110	128	6,279	389	5,890
Austria	97%	4,901	33	256	4,612	148	4,464
Azerbaijan	95%	5,600	17	19	5,564	319	5,245
Bahrain	98%	5,903	25	22	5,856	94	5,762
Belgium (Flemish)	93%	5,113	26	114	4,973	318	4,655
Bosnia and Herzegovina	96%	6,048	61	74	5,913	285	5,628
Bulgaria	95%	4,632	70	88	4,474	206	4,268
Canada	95%	15,164	199	429	14,536	883	13,653
Chile	96%	4,578	77	112	4,389	215	4,174
Chinese Taipei	99%	3,958	65	65	3,828	63	3,765
Croatia	91%	4,395	8	148	4,239	454	3,785
Cyprus	97%	4,353	14	150	4,189	127	4,062
Czech Republic	96%	5,054	48	53	4,953	261	4,692
Denmark	87%	3,881	67	48	3,766	539	3,227
England	96%	3,759	78	127	3,554	158	3,396
Finland	97%	4,987	37	45	4,905	175	4,730
France	98%	4,456	35	104	4,317	131	4,186
Georgia	97%	4,019	28	83	3,908	121	3,787
Germany	97%	3,706	51	89	3,566	129	3,437
Hong Kong SAR	90%	3,461	18	101	3,342	374	2,968
Hungary	97%	4,867	34	89	4,744	173	4,571
Iran, Islamic Rep. of	99%	6,194	46	76	6,072	62	6,010
Ireland	91%	5,126	22	52	5,052	470	4,582
Italy	97%	4,109	22	199	3,888	147	3,741
Japan	97%	4,358	15	34	4,309	113	4,196
Kazakhstan	99%	4,932	37	38	4,857	66	4,791
Korea, Rep. of	98%	4,105	50	63	3,992	99	3,893
Kosovo	97%	4,757	43	95	4,619	123	4,496
Kuwait	96%	4,731	83	14	4,634	197	4,437
Latvia	94%	4,886	15	68	4,803	322	4,481
Lithuania	94%	4,198	12	186	4,000	259	3,741
Malta	96%	3,914	17	115	3,782	152	3,630
Montenegro	98%	5,248	49	37	5,162	86	5,076
Morocco	99%	8,051	217	0	7,834	111	7,723
Netherlands	97%	3,562	69	27	3,466	111	3,355
New Zealand	94%	5,611	100	164	5,347	328	5,019
North Macedonia	95%	3,531	32	44	3,455	185	3,270
Northern Ireland	91%	3,877	21	23	3,833	336	3,497
Norway (5)	94%	4,410	27	149	4,234	283	3,951
Oman	98%	7,079	94	57	6,928	114	6,814
Pakistan	98%	4,453	315	0	4,138	158	3,980
Philippines	98%	5,693	89	0	5,604	89	5,515
Poland	93%	5,427	44	100	5,283	401	4,882
Portugal	94%	5,015	35	366	4,614	314	4,300
Qatar	97%	5,251	127	60	5,064	131	4,933
Russian Federation	98%	4,282	8	144	4,130	108	4,022
Saudi Arabia	99%	5,585	23	25	5,537	84	5,453
Serbia	97%	4,667	53	93	4,521	141	4,380
Singapore	97%	6,209	22	0	6,187	201	5,986
Slovak Republic	97%	4,477	26	24	4,427	180	4,247
South Africa (5)	98%	12,289	107	0	12,182	291	11,891
Spain	95%	10,497	48	421	10,028	473	9,555
Sweden	95%	4,407	31	160	4,216	251	3,965
Turkey (5)	99%	4,554	142	319	4,093	65	4,028
United Arab Emirates	96%	28,029	414	564	27,051	1,217	25,834
United States	96%	9,955	152	601	9,202	426	8,776
Benchmarking Participants							
Ontario, Canada	95%	4,251	83	95	4,073	243	3,830
Quebec, Canada	96%	4,047	9	37	4,001	164	3,837
Moscow City, Russian Fed.	98%	3,992	11	35	3,946	103	3,843
Madrid, Spain	96%	3,666	17	123	3,526	136	3,390
Abu Dhabi, UAE	95%	9,822	38	239	9,545	508	9,037
Dubai, UAE	97%	8,125	362	213	7,550	285	7,265

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."

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
Downloaded from <http://timss2019.org/download>

Appendix B.5: Participation Rates (Weighted)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Albania	99%	99%	100%	99%	98%	98%
Armenia	100%	100%	100%	97%	97%	97%
Australia	99%	100%	100%	94%	93%	94%
Austria	99%	99%	100%	97%	97%	97%
Azerbaijan	94%	98%	100%	95%	89%	92%
Bahrain	100%	100%	100%	98%	98%	98%
† Belgium (Flemish)	66%	95%	100%	93%	62%	89%
Bosnia and Herzegovina	100%	100%	99%	96%	95%	95%
Bulgaria	97%	100%	100%	95%	92%	95%
Canada	86%	90%	100%	95%	82%	86%
Chile	89%	99%	100%	96%	86%	95%
Chinese Taipei	95%	99%	100%	99%	94%	98%
Croatia	95%	97%	99%	91%	85%	87%
Cyprus	99%	100%	100%	97%	96%	97%
Czech Republic	99%	100%	100%	96%	95%	96%
† Denmark	70%	95%	99%	87%	61%	83%
England	86%	93%	100%	96%	82%	89%
Finland	99%	100%	100%	97%	96%	97%
France	100%	100%	100%	98%	98%	98%
Georgia	97%	99%	100%	97%	94%	96%
Germany	97%	100%	100%	97%	94%	97%
† Hong Kong SAR	67%	88%	100%	90%	60%	79%
Hungary	93%	99%	100%	97%	90%	96%
Iran, Islamic Rep. of	100%	100%	100%	99%	99%	99%
Ireland	100%	100%	100%	91%	91%	91%
Italy	96%	100%	100%	97%	92%	97%
Japan	84%	98%	100%	97%	82%	95%
Kazakhstan	100%	100%	100%	99%	99%	99%
Korea, Rep. of	99%	99%	100%	98%	97%	97%
Kosovo	100%	100%	100%	97%	97%	97%
Kuwait	97%	98%	100%	96%	93%	94%
Latvia	92%	99%	100%	94%	87%	93%
Lithuania	100%	100%	100%	94%	94%	94%
Malta	100%	100%	100%	96%	96%	96%
Montenegro	100%	100%	100%	98%	98%	98%
Morocco	100%	100%	100%	99%	99%	99%
≡ Netherlands	46%	75%	100%	97%	45%	73%
New Zealand	87%	99%	100%	94%	81%	93%
North Macedonia	98%	100%	100%	95%	94%	95%
† Northern Ireland	60%	86%	100%	91%	55%	78%
† Norway (5)	70%	90%	100%	94%	66%	84%
Oman	99%	100%	100%	98%	98%	98%
Pakistan	77%	99%	100%	98%	75%	96%
Philippines	100%	100%	100%	98%	98%	98%
Poland	96%	100%	100%	93%	89%	93%
Portugal	87%	100%	99%	94%	81%	94%
Qatar	100%	100%	100%	97%	97%	97%
Russian Federation	99%	99%	100%	98%	97%	97%
Saudi Arabia	98%	99%	100%	99%	97%	98%
Serbia	97%	100%	100%	97%	95%	97%
Singapore	100%	100%	100%	97%	97%	97%
Slovak Republic	97%	99%	100%	97%	93%	96%
South Africa (5)	96%	99%	100%	98%	94%	97%
Spain	97%	99%	100%	95%	92%	95%
Sweden	100%	100%	100%	95%	95%	95%
Turkey (5)	99%	100%	100%	99%	98%	99%
United Arab Emirates	100%	100%	100%	96%	96%	96%
† United States	76%	88%	100%	96%	73%	84%
Benchmarking Participants						
Ontario, Canada	93%	95%	100%	95%	88%	90%
Quebec, Canada	82%	86%	100%	96%	79%	83%
Moscow City, Russian Fed.	99%	100%	100%	98%	97%	97%
Madrid, Spain	100%	100%	100%	96%	96%	96%
Abu Dhabi, UAE	100%	100%	100%	95%	95%	95%
Dubai, UAE	100%	100%	100%	97%	97%	97%

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of both schools and students, or a combined rate (the product of school 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

Appendix B.6: Trends in Student Populations

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Armenia				
2019	4	9.9	1.2%	97%
^x 2015	4	9.9	1.0%	96%
2011	4	10.0	2.0%	98%
2003	4	10.9	2.9%	90%
Australia				
2019	4	10.1	4.8%	94%
2015	4	10.0	4.2%	94%
2011	4	10.0	4.4%	93%
2007	4	9.9	4.0%	95%
[†] 2003	4	9.9	2.7%	85%
[≡] 1995	4 or 5	10.2	1.8%	66%
Austria				
2019	4	10.4	5.4%	97%
2011	4	10.3	5.1%	98%
2007	4	10.3	5.0%	97%
[≡] 1995	4	10.5	2.8%	69%
Azerbaijan				
2019	4	10.3	2.6%	92%
² 2011	4	10.2	7.2%	100%
Bahrain				
2019	4	9.8	0.8%	98%
² 2015	4	9.9	5.6%	99%
^x 2011	4	10.4	1.1%	90%
Belgium (Flemish)				
[†] 2019	4	10.0	3.0%	89%
[†] 2015	4	10.1	1.4%	95%
2011	4	10.0	5.0%	92%
² 2003	4	10.0	6.3%	97%
Bulgaria				
2019	4	10.7	3.4%	95%
2015	4	10.8	2.9%	93%
Canada				
¹² 2019	4	9.9	7.0%	86%
^{12†} 2015	4	9.9	6.1%	80%
Chile				
2019	4	10.1	3.8%	95%
2015	4	10.2	3.7%	88%
2011	4	10.1	3.7%	95%
Chinese Taipei				
2019	4	10.2	2.0%	98%
2015	4	10.2	2.4%	99%
2011	4	10.2	1.4%	99%
2007	4	10.2	2.8%	100%
2003	4	10.2	3.1%	99%
Croatia				
2019	4	10.5	4.2%	87%
2015	4	10.6	4.4%	94%
² 2011	4	10.7	7.9%	95%
Cyprus				
2019	4	9.8	4.6%	97%
2015	4	9.8	4.6%	98%
2003	4	9.9	2.9%	97%
1995	4	9.8	3.2%	83%
Czech Republic				
2019	4	10.4	4.7%	96%
2015	4	10.4	4.2%	95%
2011	4	10.4	5.1%	94%
2007	4	10.3	4.9%	92%
1995	4	10.4	4.1%	86%
Denmark				
[†] 2019	4	10.9	3.1%	83%
^{2†} 2015	4	10.9	7.5%	86%
² 2011	4	11.0	6.3%	87%
² 2007	4	11.0	4.1%	85%

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

Data are included only for assessment years with comparable results for each country.

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

^x Tested the same cohort of students as other countries, but later in the assessment year.

Armenia began testing younger students in 2011 due to educational reforms.

Bahrain in 2015 administered both TIMSS and TIMSS Numeracy assessments to fourth grade students. Results for 2015 in mathematics are based on the average of both.

Appendix B.6: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
England				
² 2019	5	10.2	5.8%	89%
2015	5	10.1	2.3%	96%
2011	5	10.2	2.0%	78%
2007	5	10.2	2.1%	84%
† 2003	5	10.3	1.9%	76%
³ † 1995	5	10.0	12.1%	83%
Finland				
2019	4	10.8	3.3%	97%
2015	4	10.8	2.0%	97%
2011	4	10.8	3.1%	96%
France				
2019	4	9.9	4.4%	98%
2015	4	9.9	5.3%	97%
Georgia				
¹ 2019	4	10.1	4.7%	96%
¹ 2015	4	9.7	4.9%	98%
¹ 2011	4	10.0	4.9%	96%
¹ 2007	4	10.1	4.8%	98%
Germany				
2019	4	10.4	3.9%	97%
2015	4	10.4	2.7%	95%
2011	4	10.4	1.9%	95%
2007	4	10.4	1.3%	96%
Hong Kong SAR				
† 2019	4	10.1	3.5%	79%
† 2015	4	10.1	2.2%	76%
² 2011	4	10.1	8.5%	82%
2007	4	10.2	5.4%	81%
† 2003	4	10.2	3.8%	83%
1995	4	10.1	2.7%	83%
Hungary				
2019	4	10.5	4.1%	96%
2015	4	10.7	4.8%	96%
2011	4	10.7	4.2%	96%
2007	4	10.7	4.4%	96%
² 2003	4	10.5	8.1%	93%
1995	4	10.4	3.8%	92%
Iran, Islamic Rep. of				
2019	4	10.2	4.2%	99%
2015	4	10.2	4.0%	99%
2011	4	10.2	4.5%	99%
2007	4	10.2	3.0%	99%
² 2003	4	10.4	5.7%	98%
1995	4	10.5	1.3%	97%
Ireland				
2019	4	10.4	3.0%	91%
2015	4	10.4	2.7%	96%
2011	4	10.3	2.5%	95%
² 1995	4	10.3	6.9%	90%
Italy				
2019	4	9.6	4.9%	97%
² 2015	4	9.7	6.2%	94%
2011	4	9.7	3.7%	95%
2007	4	9.8	5.3%	97%
2003	4	9.8	4.2%	97%
Japan				
2019	4	10.4	2.2%	95%
2015	4	10.5	2.9%	97%
2011	4	10.5	3.2%	96%
2007	4	10.5	1.1%	95%
2003	4	10.4	0.8%	97%
1995	4	10.4	3.0%	92%

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

Data are included only for assessment years with comparable results for each country.

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

Georgia in 2011 excluded schools in South Ossetia and Abkhazia due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

Iran in 2015 administered both TIMSS and TIMSS Numeracy assessments to fourth grade students. Results for 2015 in mathematics are based on the average of both.

Appendix B.6: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Kazakhstan				
² 2019	4	10.4	5.8%	99%
² 2011	4	10.4	6.3%	99%
Korea, Rep. of				
2019	4	10.5	2.3%	97%
2015	4	10.5	2.5%	97%
2011	4	10.4	2.5%	98%
² 1995	4	10.3	6.6%	95%
Kuwait				
2019	4	9.7	1.7%	94%
2015	4	9.7	3.0%	90%
Latvia				
² 2019	4	10.8	6.9%	93%
2003	4	11.1	4.4%	88%
Lithuania				
² 2019	4	10.7	6.7%	94%
² 2015	4	10.7	6.1%	94%
^{1,2} 2011	4	10.7	5.6%	94%
¹ 2007	4	10.8	5.4%	94%
¹ 2003	4	10.9	4.6%	87%
Malta				
2019	4	9.8	4.5%	96%
2011	5	9.8	3.6%	95%
Morocco				
2019	4	10.1	1.8%	99%
2015	4	10.3	1.5%	99%
2011	4	10.5	2.0%	96%
Netherlands				
≡ 2019	4	10.1	3.5%	73%
† 2015	4	10.0	3.2%	83%
† 2011	4	10.2	4.0%	79%
‡ 2007	4	10.2	4.8%	91%
† 2003	4	10.2	5.2%	84%
≡ 1995	4	10.3	4.4%	59%
New Zealand				
² 2019	4.5 - 5.5	10.0	6.9%	93%
2015	4.5 - 5.5	10.0	4.8%	90%
2011	4.5 - 5.5	9.9	4.9%	90%
2007	4.5 - 5.5	10.0	5.4%	96%
2003	4.5 - 5.5	10.0	4.0%	93%
1995	4.5 - 5.5	10.0	1.3%	95%
Northern Ireland				
† 2019	4	10.4	2.8%	78%
‡ 2015	4	10.4	2.7%	71%
† 2011	4	10.4	3.5%	79%
Norway (5)				
† 2019	5	10.7	4.7%	84%
2015	5	10.7	4.7%	89%
Norway (4)				
2015	4	9.7	5.0%	89%
‡ 2011	4	9.7	4.3%	70%
2007	4	9.8	5.1%	92%
2003	3	9.8	4.4%	88%
1995	3	9.9	3.0%	91%
Oman				
2019	4	9.7	2.2%	98%
2015	4	9.6	0.8%	97%
2011	4	9.9	1.5%	96%
Philippines				
² 2019	4	10.1	7.7%	98%
2003	4	10.8	4.5%	81%

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

Data are included only for assessment years with comparable results for each country.

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

Results for Lithuania before 2015 do not include students taught in Polish or Russian.

Morocco and the Philippines in 2019 administered the less difficult fourth grade mathematics assessment.

Kuwait and Morocco in 2015 administered both TIMSS and TIMSS Numeracy assessments to fourth grade students. Results for 2015 in mathematics are based on the average of both.

Appendix B.6: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Poland				
2019	4	10.3	3.1%	93%
2015	4	10.7	4.0%	92%
Portugal				
² 2019	4	10.0	7.8%	94%
² 2015	4	9.9	6.5%	92%
2011	4	10.0	2.5%	92%
² 1995	4	10.4	7.3%	92%
Qatar				
2019	4	9.9	2.2%	97%
2015	4	10.1	3.8%	99%
² 2011	4	10.0	6.2%	99%
Russian Federation				
² 2019	4	10.8	6.3%	97%
2015	4	10.8	4.0%	98%
2011	4	10.8	5.3%	98%
2007	4	10.8	3.6%	98%
² 2003	3 or 4	10.6	6.8%	97%
Saudi Arabia				
² 2019	4	9.9	10.5%	98%
2015	4	10.0	1.9%	93%
2011	4	10.0	1.6%	99%
Serbia				
² 2019	4	10.6	8.2%	97%
³ 2015	4	10.7	11.3%	96%
² 2011	4	10.8	9.4%	97%
Singapore				
³ 2019	4	10.4	12.8%	97%
² 2015	4	10.4	10.1%	96%
² 2011	4	10.4	6.3%	96%
2007	4	10.4	1.5%	96%
2003	4	10.3	0.0%	98%
1995	4	10.3	0.0%	98%
Slovak Republic				
² 2019	4	10.4	5.5%	96%
2015	4	10.4	4.2%	97%
2011	4	10.4	4.6%	96%
2007	4	10.4	3.3%	97%
South Africa (5)				
2019	5	11.5	1.1%	97%
^x 2015	5	11.5	2.2%	98%
Spain				
2019	4	9.9	5.4%	95%
² 2015	4	9.9	5.6%	95%
2011	4	9.8	5.3%	97%
Sweden				
2019	4	10.8	5.4%	95%
² 2015	4	10.8	5.7%	95%
2011	4	10.7	4.1%	91%
2007	4	10.8	3.1%	97%
United Arab Emirates				
2019	4	9.7	3.2%	96%
2015	4	9.8	4.7%	97%
2011	4	9.8	3.3%	97%
United States				
^{2†} 2019	4	10.2	7.2%	84%
^{2†} 2015	4	10.2	6.8%	81%
² 2011	4	10.2	7.0%	80%
^{2†} 2007	4	10.3	9.2%	84%
[†] 2003	4	10.2	5.1%	78%
1995	4	10.2	4.7%	80%

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

Data are included only for assessment years with comparable results for each country.

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

^x Tested the same cohort of students as other countries, but later in the assessment year.

Saudi Arabia and South Africa in 2019 administered the less difficult fourth grade mathematics assessment. South Africa in 2015 participated in only TIMSS Numeracy at the fifth grade.

Appendix B.6: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Benchmarking Participants				
Ontario, Canada				
² 2019	4	9.8	7.0%	90%
2015	4	9.8	3.4%	90%
2011	4	9.8	5.3%	94%
² 2007	4	9.8	6.3%	92%
2003	4	9.8	4.8%	90%
² 1995	4	9.8	-	92%
Quebec, Canada				
2019	4	10.1	4.4%	83%
[≡] 2015	4	10.1	5.4%	59%
2011	4	10.1	3.7%	91%
² 2007	4	10.1	6.4%	84%
2003	4	10.1	3.6%	91%
1995	4	10.3	-	81%
Abu Dhabi, UAE				
2019	4	9.7	3.6%	95%
² 2015	4	9.8	5.8%	97%
2011	4	9.7	2.7%	97%
Dubai, UAE				
² 2019	4	9.9	5.6%	97%
2015	4	9.8	5.3%	97%
2011	4	9.8	5.1%	96%
[‡] 2007	4	10.0	5.4%	67%

* Represents years of schooling counting from the first year of ISCED Level 1. Data are included only for assessment years with comparable results for each country. See Appendix B.2 for population coverage notes 1, 2, and 3. See Appendix B.5 for sampling guidelines and sampling participation notes †, ‡, and ≡. ‡ Tested the same cohort of students as other countries, but later in the assessment year. Ontario and Quebec in 1995 participated as part of Canada. A dash (-) indicates comparable data not available.

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
 Downloaded from <http://timss2019.org/download>

Appendix B.7: Coverage of TIMSS 2019 Target Population

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
Australia	100%		1.7%	2.1%	3.8%
Bahrain	100%		0.3%	0.2%	0.6%
Chile	100%		0.3%	1.9%	2.2%
Chinese Taipei	100%		0.1%	1.3%	1.5%
Cyprus	100%		0.5%	2.3%	2.8%
² Egypt	100%		7.6%	1.5%	9.1%
England	100%		2.9%	2.0%	4.8%
Finland	100%		1.5%	1.5%	3.1%
France	100%		2.8%	1.0%	3.8%
¹ Georgia	91%	Students taught in Georgian	2.2%	2.1%	4.3%
Hong Kong SAR	100%		1.2%	2.1%	3.3%
Hungary	100%		2.5%	1.9%	4.4%
Iran, Islamic Rep. of	100%		0.4%	0.5%	0.9%
Ireland	100%		0.0%	0.9%	1.0%
³ Israel	100%		19.5%	3.8%	23.2%
Italy	100%		0.8%	3.6%	4.3%
Japan	100%		0.9%	1.0%	1.8%
Jordan	100%		0.0%	0.2%	0.2%
² Kazakhstan	100%		2.9%	2.9%	5.8%
Korea, Rep. of	100%		0.7%	0.9%	1.6%
Kuwait	100%		1.0%	1.0%	2.0%
Lebanon	100%		1.2%	0.0%	1.2%
Lithuania	100%		3.2%	2.0%	5.3%
Malaysia	100%		1.9%	1.3%	3.2%
Morocco	100%		0.0%	0.0%	0.0%
New Zealand	100%		1.5%	2.7%	4.2%
Norway (9)	100%		1.4%	2.5%	4.0%
Oman	100%		0.5%	1.6%	2.2%
Portugal	100%		1.0%	4.5%	5.5%
Qatar	100%		1.3%	0.9%	2.2%
Romania	100%		2.7%	0.5%	3.2%
² Russian Federation	100%		2.8%	2.9%	5.7%
² Saudi Arabia	100%		9.1%	0.9%	10.0%
² Singapore	100%		10.1%	0.2%	10.3%
South Africa (9)	100%		1.0%	0.1%	1.1%
² Sweden	100%		1.7%	4.6%	6.3%
Turkey	100%		1.1%	2.4%	3.4%
United Arab Emirates	100%		1.1%	1.3%	2.4%
United States	100%		0.0%	3.9%	3.9%
Benchmarking Participants					
Ontario, Canada	100%		2.1%	3.4%	5.5%
Quebec, Canada	100%		3.3%	0.9%	4.2%
Moscow City, Russian Fed.	100%		0.7%	0.8%	1.5%
Gauteng, RSA (9)	100%		1.8%	0.2%	2.1%
Western Cape, RSA (9)	100%		0.8%	0.3%	1.1%
Abu Dhabi, UAE	100%		0.9%	0.8%	1.7%
² Dubai, UAE	100%		3.0%	2.5%	5.5%

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%).

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
Downloaded from <http://timss2019.org/download>

Appendix B.8: School Sample Sizes

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
Australia	289	284	282	2	284
Bahrain	112	112	112	0	112
Chile	169	167	147	17	164
Chinese Taipei	206	205	200	3	203
Cyprus	99	98	98	0	98
Egypt	174	169	168	1	169
England	151	151	125	11	136
Finland	158	154	154	0	154
France	150	150	150	0	150
Georgia	158	157	142	3	145
Hong Kong SAR	158	158	112	24	136
Hungary	155	155	146	8	154
Iran, Islamic Rep. of	220	220	220	0	220
Ireland	152	152	147	2	149
Israel	161	161	152	5	157
Italy	158	158	153	5	158
Japan	150	150	125	17	142
Jordan	248	235	235	0	235
Kazakhstan	169	168	168	0	168
Korea, Rep. of	168	168	168	0	168
Kuwait	178	172	171	0	171
Lebanon	218	216	189	15	204
Lithuania	195	195	194	0	194
Malaysia	178	177	175	2	177
Morocco	253	251	251	0	251
New Zealand	154	151	115	19	134
Norway (9)	166	165	132	25	157
Oman	230	228	223	5	228
Portugal	158	158	149	7	156
Qatar	152	152	152	0	152
Romania	198	198	189	9	198
Russian Federation	204	204	203	1	204
Saudi Arabia	212	209	208	1	209
Singapore	153	153	153	0	153
South Africa (9)	524	520	516	3	519
Sweden	153	151	149	1	150
Turkey	181	181	180	1	181
United Arab Emirates	631	623	623	0	623
United States	325	321	231	42	273
Benchmarking Participants					
Ontario, Canada	172	170	157	1	158
Quebec, Canada	166	161	119	5	124
Moscow City, Russian Fed.	152	151	147	3	150
Gauteng, RSA (9)	150	150	148	2	150
Western Cape, RSA (9)	150	149	148	1	149
Abu Dhabi, UAE	230	230	230	0	230
Dubai, UAE	171	163	163	0	163

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
Downloaded from <http://timss2019.org/download>

Appendix B.9: Student Sample Sizes

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
Australia	91%	10,383	213	161	10,009	949	9,060
Bahrain	97%	5,947	44	12	5,891	166	5,725
Chile	96%	4,469	68	76	4,325	210	4,115
Chinese Taipei	98%	5,185	106	42	5,037	122	4,915
Cyprus	96%	3,800	23	94	3,683	162	3,521
Egypt	97%	7,700	214	0	7,486	276	7,210
England	95%	3,785	140	70	3,575	210	3,365
Finland	96%	5,252	62	62	5,128	254	4,874
France	97%	4,122	53	49	4,020	146	3,874
Georgia	97%	3,540	37	73	3,430	115	3,315
Hong Kong SAR	94%	3,612	12	73	3,527	262	3,265
Hungary	97%	4,862	23	86	4,753	184	4,569
Iran, Islamic Rep. of	98%	6,242	110	35	6,097	117	5,980
Ireland	88%	4,763	46	39	4,678	560	4,118
Israel	93%	4,154	36	51	4,067	336	3,731
Italy	97%	3,919	22	153	3,744	125	3,619
Japan	94%	4,763	3	17	4,743	297	4,446
Jordan	98%	7,856	484	13	7,359	183	7,176
Kazakhstan	99%	4,587	34	28	4,525	72	4,453
Korea, Rep. of	98%	4,025	18	37	3,970	109	3,861
Kuwait	97%	4,818	92	0	4,726	152	4,574
Lebanon	95%	5,117	151	0	4,966	236	4,730
Lithuania	93%	4,262	19	98	4,145	319	3,826
Malaysia	98%	7,323	120	0	7,203	138	7,065
Morocco	98%	9,081	395	0	8,686	228	8,458
New Zealand	91%	6,775	119	79	6,577	526	6,051
Norway (9)	89%	5,335	41	141	5,153	578	4,575
Oman	99%	7,024	132	37	6,855	104	6,751
Portugal	96%	3,752	32	152	3,568	191	3,377
Qatar	97%	4,196	138	32	4,026	142	3,884
Romania	94%	4,803	13	15	4,775	281	4,494
Russian Federation	97%	4,125	28	76	4,021	120	3,901
Saudi Arabia	99%	5,762	19	13	5,730	50	5,680
Singapore	96%	5,074	19	0	5,055	202	4,853
South Africa (9)	96%	22,658	921	0	21,737	908	20,829
Sweden	92%	4,683	64	213	4,406	410	3,996
Turkey	99%	4,377	111	123	4,143	66	4,077
United Arab Emirates	96%	23,974	251	315	23,408	1,074	22,334
United States	94%	9,924	307	242	9,375	677	8,698
Benchmarking Participants							
Ontario, Canada	94%	4,194	63	75	4,056	280	3,776
Quebec, Canada	95%	3,411	28	7	3,376	198	3,178
Moscow City, Russian Fed.	97%	3,963	21	19	3,923	140	3,783
Gauteng, RSA (9)	97%	6,025	188	0	5,837	204	5,633
Western Cape, RSA (9)	95%	5,901	284	0	5,617	266	5,351
Abu Dhabi, UAE	96%	8,770	41	86	8,643	439	8,204
Dubai, UAE	96%	6,308	199	141	5,968	240	5,728

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."

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
 Downloaded from <http://timss2019.org/download>

Appendix B.10: Participation Rates (Weighted)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	98%	100%	100%	91%	89%	91%
Bahrain	100%	100%	100%	97%	97%	97%
Chile	90%	99%	100%	96%	86%	95%
Chinese Taipei	98%	99%	100%	98%	96%	97%
Cyprus	100%	100%	100%	96%	96%	96%
Egypt	99%	100%	100%	97%	96%	97%
England	83%	90%	100%	95%	79%	85%
Finland	100%	100%	100%	96%	95%	95%
France	100%	100%	100%	97%	97%	97%
Georgia	90%	92%	100%	97%	88%	89%
† Hong Kong SAR	70%	86%	100%	94%	66%	81%
Hungary	95%	99%	100%	97%	92%	96%
Iran, Islamic Rep. of	100%	100%	100%	98%	98%	98%
Ireland	97%	98%	100%	88%	85%	86%
Israel	95%	98%	100%	93%	88%	91%
Italy	97%	100%	100%	97%	94%	97%
Japan	83%	94%	100%	94%	77%	88%
Jordan	100%	100%	100%	98%	98%	98%
Kazakhstan	100%	100%	100%	99%	99%	99%
Korea, Rep. of	100%	100%	100%	98%	98%	98%
Kuwait	99%	99%	100%	97%	96%	96%
Lebanon	82%	93%	100%	95%	78%	88%
Lithuania	99%	99%	100%	93%	92%	92%
Malaysia	99%	100%	100%	98%	97%	98%
Morocco	100%	100%	100%	98%	98%	98%
† New Zealand	77%	89%	100%	91%	70%	81%
† Norway (9)	79%	95%	99%	89%	70%	84%
Oman	99%	100%	100%	99%	97%	99%
Portugal	95%	99%	99%	96%	90%	94%
Qatar	100%	100%	100%	97%	97%	97%
Romania	95%	100%	100%	94%	89%	94%
Russian Federation	99%	100%	100%	97%	97%	97%
Saudi Arabia	100%	100%	100%	99%	99%	99%
Singapore	100%	100%	100%	96%	96%	96%
South Africa (9)	99%	100%	100%	96%	95%	96%
Sweden	98%	99%	100%	92%	90%	91%
Turkey	100%	100%	100%	99%	98%	99%
United Arab Emirates	100%	100%	100%	96%	96%	96%
† United States	72%	85%	100%	94%	67%	79%
Benchmarking Participants						
Ontario, Canada	93%	93%	100%	94%	87%	88%
‡ Quebec, Canada	74%	77%	99%	95%	70%	73%
Moscow City, Russian Fed.	99%	100%	100%	97%	96%	97%
Gauteng, RSA (9)	99%	100%	100%	97%	95%	97%
Western Cape, RSA (9)	99%	100%	100%	95%	95%	95%
Abu Dhabi, UAE	100%	100%	100%	96%	96%	96%
Dubai, UAE	100%	100%	100%	96%	96%	96%

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of both schools and students, or a combined rate (the product of school 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

SOURCE: IEA's Trends in International Mathematics and Science Study TIMSS 2019
 Downloaded from <http://timss2019.org/download>

Appendix B.11: Trends in Student Populations

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Australia				
2019	8	14.1	3.8%	91%
2015	8	14.0	3.5%	90%
2011	8	14.0	3.2%	88%
2007	8	13.9	1.9%	93%
2003	8	13.9	1.3%	83%
‡ 1995	8 or 9	14.2	0.8%	70%
Bahrain				
2019	8	13.8	0.6%	97%
2015	8	14.0	3.8%	97%
ⓧ 2011	8	14.4	1.6%	97%
2007	8	14.1	1.5%	97%
2003	8	14.1	0.0%	98%
Chile				
2019	8	14.2	2.2%	95%
2015	8	14.3	1.9%	85%
2011	8	14.2	2.8%	95%
2003	8	14.2	2.2%	99%
1999	8	14.4	2.8%	96%
Chinese Taipei				
2019	8	14.3	1.5%	97%
2015	8	14.3	1.7%	98%
2011	8	14.2	1.3%	99%
2007	8	14.2	3.3%	99%
2003	8	14.2	4.8%	99%
1999	8	14.2	1.6%	99%
Cyprus				
2019	8	13.8	2.8%	96%
2007	8	13.8	2.5%	96%
2003	8	13.8	2.5%	96%
1999	8	13.8	0.8%	97%
1995	8	13.7	0.0%	97%
Egypt				
² 2019	8	13.9	9.1%	97%
2015	8	14.1	0.1%	91%
2007	8	14.1	0.5%	98%
2003	8	14.4	3.4%	97%
England				
2019	9	14.0	4.8%	85%
2015	9	14.1	2.3%	92%
‡ 2011	9	14.2	2.2%	70%
† 2007	9	14.2	2.3%	75%
≡ 2003	9	14.3	2.1%	46%
† 1999	9	14.2	5.0%	77%
³ † 1995	9	14.0	11.3%	77%
Finland				
2019	8	14.8	3.1%	95%
2011	8	14.8	3.4%	93%
France				
2019	8	13.9	3.8%	97%
1995	8	14.3	2.0%	82%
Georgia				
¹ 2019	8	13.8	4.3%	89%
^{1,2} 2015	8	13.7	6.0%	98%
¹ 2011	8	14.2	4.5%	97%
¹ 2007	8	14.2	3.9%	97%
Hong Kong SAR				
† 2019	8	14.1	3.3%	81%
2015	8	14.2	1.6%	81%
2011	8	14.2	5.3%	75%
† 2007	8	14.4	3.8%	75%
† 2003	8	14.4	3.4%	80%
† 1999	8	14.2	0.8%	74%
1995	8	14.2	2.0%	81%

* Represents years of schooling counting from the first year of ISCED Level 1. Data are included only for assessment years with comparable results for each country. See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and ≡. ⓧ Tested the same cohort of students as other countries, but later in the assessment year. Egypt's 2015 exclusion rate may be underestimated. Georgia in 2011 excluded schools in South Ossetia and Abkhazia due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

Appendix B.11: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Hungary				
2019	8	14.6	4.4%	96%
2015	8	14.7	5.4%	96%
2011	8	14.7	4.4%	95%
2007	8	14.6	3.9%	96%
² 2003	8	14.5	8.5%	94%
1999	8	14.4	4.3%	93%
1995	8	14.3	3.8%	87%
Iran, Islamic Rep. of				
2019	8	14.1	0.9%	98%
2015	8	14.2	2.2%	98%
2011	8	14.3	2.2%	99%
2007	8	14.2	0.5%	98%
² 2003	8	14.4	6.5%	98%
1999	8	14.6	4.4%	98%
1995	8	14.6	0.3%	98%
Ireland				
2019	8	14.4	1.0%	86%
2015	8	14.4	1.2%	91%
1995	8	14.4	0.4%	81%
Israel				
³ 2019	8	14.0	23.2%	91%
³ 2015	8	14.0	22.8%	93%
³ 2011	8	14.0	22.6%	92%
Italy				
2019	8	13.7	4.3%	97%
² 2015	8	13.8	6.1%	93%
2011	8	13.8	4.7%	93%
2007	8	13.9	5.0%	96%
2003	8	13.9	3.6%	97%
² 1999	8	14.0	6.7%	97%
Japan				
2019	8	14.4	1.8%	88%
2015	8	14.5	2.3%	93%
2011	8	14.5	2.8%	87%
2007	8	14.5	3.5%	91%
2003	8	14.4	0.6%	93%
1999	8	14.4	1.3%	89%
1995	8	14.4	0.6%	90%
Jordan				
2019	8	13.9	0.2%	98%
2015	8	13.8	1.0%	96%
2011	8	13.9	0.4%	96%
2007	8	14.0	2.0%	96%
2003	8	13.9	1.3%	96%
1999	8	14.0	3.0%	99%
Kazakhstan				
² 2019	8	14.3	5.8%	99%
2011	8	14.6	5.1%	98%
Korea, Rep. of				
2019	8	14.5	1.6%	98%
2015	8	14.4	2.1%	98%
2011	8	14.3	1.9%	99%
2007	8	14.3	1.6%	99%
^z 2003	8	14.6	4.9%	98%
1999	8	14.4	4.0%	100%
1995	8	14.2	3.8%	95%
Kuwait				
2019	8	13.8	2.0%	96%
2015	8	13.7	3.3%	85%
Lebanon				
2019	8	14.0	1.2%	88%
2015	8	14.2	1.3%	88%
2011	8	14.3	1.4%	94%
2007	8	14.4	1.4%	85%
2003	8	14.6	1.4%	91%

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

Data are included only for assessment years with comparable results for each country.

See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and §.

z Tested the same cohort of students as other countries, but later in the assessment year.

Appendix B.11: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Lithuania				
2019	8	14.7	5.3%	92%
² 2015	8	14.7	7.0%	93%
¹ 2011	8	14.7	4.8%	92%
¹ 2007	8	14.9	4.2%	90%
¹ 2003	8	14.9	2.6%	84%
^{1x} 1999	8	15.2	4.5%	89%
¹² 1995	8	14.3	6.6%	83%
Malaysia				
2019	8	14.3	3.2%	98%
2015	8	14.3	4.3%	98%
2011	8	14.4	0.1%	98%
2007	8	14.3	3.3%	98%
2003	8	14.3	4.0%	98%
1999	8	14.4	4.6%	99%
Morocco				
2019	8	14.5	0.0%	98%
2015	8	14.5	0.0%	95%
2011	8	14.7	0.1%	94%
New Zealand				
[†] 2019	8.5 - 9.5	13.9	4.2%	81%
[†] 2015	8.5 - 9.5	14.1	3.1%	81%
2011	8.5 - 9.5	14.1	3.2%	88%
2003	8.5 - 9.5	14.1	4.4%	90%
1999	8.5 - 9.5	14.0	2.4%	91%
1995	8.5 - 9.5	14.0	1.7%	94%
Norway (9)				
[†] 2019	9	14.7	4.0%	84%
2015	9	14.7	3.7%	87%
Norway (8)				
2015	8	13.7	4.1%	87%
2011	8	13.7	1.9%	84%
2007	8	13.8	2.6%	86%
2003	7	13.8	2.3%	85%
1995	7	13.9	2.2%	93%
Oman				
2019	8	13.9	2.2%	99%
2015	8	14.0	0.4%	96%
2011	8	14.1	1.2%	97%
2007	8	14.3	1.2%	99%
Portugal				
2019	8	14.0	5.5%	94%
1995	8	14.5	0.3%	92%
Qatar				
2019	8	14.0	2.2%	97%
2015	8	14.1	3.2%	96%
2011	8	14.0	4.5%	99%
Romania				
2019	8	14.8	3.2%	94%
2011	8	14.9	1.3%	99%
2007	8	15.0	1.8%	97%
2003	8	15.0	0.5%	98%
1999	8	14.8	3.7%	97%
1995	8	14.6	2.8%	89%
Russian Federation				
² 2019	8	14.8	5.7%	97%
2015	8	14.7	3.7%	97%
² 2011	8	14.7	6.0%	98%
2007	7 or 8	14.6	2.3%	97%
2003	7 or 8	14.2	5.5%	96%
1999	7 or 8	14.1	1.7%	97%
² 1995	7 or 8	14.0	6.3%	95%
Saudi Arabia				
² 2019	8	13.9	10.0%	99%
2015	8	14.1	2.1%	97%
2011	8	14.1	1.2%	98%

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

Data are included only for assessment years with comparable results for each country.

See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and §.

‡ Tested the same cohort of students as other countries, but later in the assessment year.

Results for Lithuania before 2015 do not include students taught in Polish or Russian. Lithuania in 1999 tested the same cohort of students as other countries, but later in the assessment year.

Appendix B.11: Trends in Student Populations

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Singapore				
² 2019	8	14.3	10.3%	96%
² 2015	8	14.4	7.0%	97%
² 2011	8	14.4	6.0%	95%
2007	8	14.4	1.8%	95%
2003	8	14.3	0.0%	97%
1999	8	14.4	0.0%	98%
1995	8	14.5	4.6%	95%
South Africa (9)				
2019	9	15.5	1.1%	96%
^x 2015	9	15.7	1.5%	96%
2011	9	16.0	1.4%	95%
Sweden				
² 2019	8	14.8	6.3%	91%
2015	8	14.7	5.4%	94%
2011	8	14.8	5.1%	92%
2007	8	14.8	3.6%	94%
2003	8	14.9	2.8%	87%
1995	7	14.9	0.9%	90%
Turkey				
2019	8	13.9	3.4%	99%
2015	8	13.9	1.3%	98%
2011	8	14.0	1.5%	97%
United Arab Emirates				
2019	8	13.7	2.4%	96%
2015	8	13.9	3.6%	97%
2011	8	13.9	2.8%	97%
United States				
[†] 2019	8	14.2	3.9%	79%
[†] 2015	8	14.2	5.1%	78%
² 2011	8	14.2	7.2%	81%
^{2†} 2007	8	14.3	7.9%	77%
[‡] 2003	8	14.2	4.9%	73%
1999	8	14.2	3.9%	85%
[†] 1995	8	14.2	2.1%	78%
Benchmarking Participants				
Ontario, Canada				
2019	8	13.8	5.5%	88%
2015	8	13.8	2.5%	87%
² 2011	8	13.8	5.6%	93%
² 2007	8	13.8	6.2%	89%
² 2003	8	13.8	6.0%	89%
1999	8	13.9	5.1%	93%
1995	8	14.0	-	90%
Quebec, Canada				
[‡] 2019	8	14.2	4.2%	73%
[≡] 2015	8	14.3	5.3%	58%
2011	8	14.2	4.9%	88%
³ 2007	8	14.2	13.6%	77%
2003	8	14.2	4.8%	85%
1999	8	14.3	1.3%	92%
1995	8	14.5	-	89%
Abu Dhabi, UAE				
2019	8	13.7	1.7%	96%
2015	8	13.9	4.1%	98%
2011	8	13.8	1.7%	96%
Dubai, UAE				
² 2019	8	13.9	5.5%	96%
2015	8	13.9	5.2%	97%
2011	8	13.9	4.0%	95%
^{x‡} 2007	8	14.2	5.0%	69%

* Represents years of schooling counting from the first year of ISCED Level 1.
 Data are included only for assessment years with comparable results for each country.
 See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 † Tested the same cohort of students as other countries, but later in the assessment year.
 Ontario and Quebec in 1995 and 1999 participated as part of Canada. A dash (-) indicates comparable data not available.