

Appendix C

Population Coverage and Sample Participation Rates

Appendix C.1: Information about the Students Assessed in TIMSS 2011

Reported by National Research Coordinators

Country	Grade 4		Grade 8		Information About Age of Entry, Promotion, and Retention
	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Country's Name for Eighth Year of Formal Schooling*	Average Age at Time of Testing	
Armenia	Grade 4	10.0	Grade 8	14.6	Children must be 6 years old to begin school the following December 31st. The age of entry policy has changed within the past ten years. Promotion is automatic for Grades 1–5, but dependent on academic progress for Grades 6–8.
Australia	Year 4	10.0	Year 8	14.0	Varies by state, but children generally must begin school by age 6. Most children actually begin school at the minimum age of 4.5–5, and the age of entry policy has been revised within the past ten years. Policy on promotion and retention varies by state but, generally, there is automatic promotion for Grades 1–8.
Austria	Grade 4	10.3			Children must begin school in the September following their 6th birthday, but parents can request early admission for children who turn 6 by March 1st of the following year. Automatic promotion for Grade 1, but there is retention in Grades 2–4 for students failing one or more compulsory subjects.
Azerbaijan	Grade 4	10.2			Children must be 6 years old by the end of September to begin school on September 15 of that year, but children the Ministry of Education identifies as talented who are born before the end of November can begin school in September of the year they turn 6. Promotion is automatic for Grades 1–4, but is dependent on academic progress for Grades 5–8.
Bahrain	Grade 5	10.4	3rd Intermediate	14.4	Parents must register their children at school when they are 7 years old. Children must be 6 years old by the end of June to begin the following September. The age of entry policy has changed within the past ten years. Promotion is dependent upon passing Arabic, Mathematics, Science, and English.
Belgium (Flemish)	Grade 4	10.0			Children must begin school on September 1st of the year of their 6th birthday. Parents can keep their child in kindergarten until age 7, with approval. Promotion is decided by each school and/or parents; students not having fully attended preprimary education must pass a language qualification test to begin primary school.
Chile	Grade 4	10.1	Grade 8	14.2	Compulsory schooling begins at age 6. Children must be 6 years old by March 31st to begin in March of the same calendar year. Promotion is dependent on academic progress for all grades.
Chinese Taipei	Grade 4	10.2	Grade 8	14.2	Children must be 6 years old before September 1st to begin school in the September of the same calendar year. There is automatic promotion for Grades 1–8.
Croatia	Grade 4	10.7			The age of entry policy, which has changed within the past ten years, says that all children must begin school by 7 years old. Although children must be at least 6 years old by the end of March to begin the following September, children typically begin school at age 7. Student promotion is dependent on meeting minimum standards in Grades 1–8.
Czech Republic	Grade 4	10.4			Compulsory schooling begins at the beginning of the school year (September 1st) following the child's 6th birthday unless granted a postponement, which an increasing number of parents are seeking. Promotion is dependent on academic progress in all compulsory subjects, but is automatic for students who have repeated a year.
Denmark	Grade 4	11.0			Children begin preprimary education the year they turn 6 and primary education the following year. Delaying entry by a year requires municipal board approval, but parents can have their child begin a year early. This policy has changed within the past ten years. There is automatic promotion in Grades 1–8, though in special cases students may be promoted or retained based on individual assessments, with parental consent.
England	Year 5	10.2	Year 9	14.2	Children begin school the term (typically September, January, or April) of their 5th birthday. Many local authorities make provision for all children to begin in the September of the school year in which they will turn 5 and some have changed the discretionary time so that children can begin at a younger age, although all of this is subject to parental discretion. There is no policy on promotion and retention.
Finland	Grade 4	10.8	Grade 8	14.8	Children begin school the autumn of the year of their 7th birthday, although it is possible to enter school either one year earlier or one year later than the official policy, following discussions with an expert (e.g., school psychologist). There is automatic promotion for Grades 1–8, with retention only in extreme situations.
Georgia	Grade 4	10.0	Grade 8	14.2	Compulsory schooling begins at age 6 according to the Law on General Education, which has been updated within the past ten years. Promotion is automatic for Grades 1–4, and dependent on academic progress for Grades 5–8.
Germany	Grade 4	10.4			Compulsory schooling begins the year a child turns 6. Children must be at least 6 years old before a statutory qualifying date (which varies by state; in most states the date falls between June 30th and September 30th) to begin on August 1st. The official policy grants parents the right to request early admission or postponed enrollment, but the school administration has the final decision. The policy on age of entry has been revised within the past ten years. There is automatic promotion in Grade 1, and promotion policies differ between states for later grades.

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

* The TIMSS target population is the grade that represents four years or 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 (Fourth grade) or 13.5 years old (Eighth grade) at the time of testing, so England, Malta, and New Zealand assessed students in their fifth year or ninth year of formal schooling.

Appendix C.1: Information about the Students Assessed in TIMSS 2011 (Continued)

Country	Grade 4		Grade 8		Information About Age of Entry, Promotion, and Retention
	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Country's Name for Eighth Year of Formal Schooling*	Average Age at Time of Testing	
Ghana			Junior High School Form Two	15.8	Children begin school the calendar year of their 6th birthday. Promotion is automatic in Grades 1–6 and dependent on academic progress for Grades 7–9. Promotion is mostly automatic in public schools.
Hong Kong SAR	Primary 4	10.1	Secondary 2	14.2	Children begin school the September after they turn 5 years, 8 months old. Representatives of the Education Bureau may prescribe a maximum rate of repetition.
Hungary	Grade 4	10.7	Grade 8	14.7	Children begin school during the calendar year they turn 6 if their birthday is before May 31st; however, children may begin during the calendar year of their 6th, 7th, or 8th birthday at parental request. Promotion is automatic in Grades 1–3, and dependent on academic progress for Grades 4–8.
Indonesia			Grade 8	14.3	Children must be 7 years old by the end of June to begin on July 12th, although parents have some choice in starting children at age 6. Promotion is dependent on academic progress for Grades 1–8.
Iran, Islamic Rep. of	Grade 4	10.2	Grade 8	14.3	Children must be 6 years old by September 22nd to begin school September 23rd, although there are few private schools that allow registration at 6.5 years. Students with failing grades in June must take a cumulative exam in September to determine promotion or retention.
Ireland	Fourth Class	10.3			The Education (Welfare) Act of 2000 requires children to attend primary schools from the time that they are 6 years old but not before they are 4. In practice, nearly half of 4-year-olds and almost all 5-year-olds are enrolled in infant classes in primary schools. Children only are allowed to repeat a year for educational reasons and in exceptional circumstances.
Israel			Grade 8	14.0	The official policy is that children begin school the calendar year of their 6th birthday, but parents have the final say if they feel their children are not ready to begin. There is retention only in exceptional cases.
Italy	Grade 4	9.7	Grade 8	13.8	Children begin school the calendar year of their 6th birthday, but parents can enroll children who will turn 6 years old by April 30th of the following calendar year in the calendar year of their 5th birthday. The age of entry policy has been revised within the past ten years. Promotion is dependent on academic progress for Grades 1–8.
Japan	Grade 4	10.5	Grade 8	14.5	Compulsory schooling begins at age 6, and children must be 6 years old by April 1st to start school. There is no policy for promotion and retention.
Jordan			Grade 8	13.9	Compulsory schooling begins at 6 years old. Children must be at least 5 years, 8 months old by September 1st to begin school. Promotion is dependent on academic progress in Arabic and mathematics for Grades 1–3, with parental consent, and dependent on academic progress for Grades 4–8. Students should not repeat a grade more than twice.
Kazakhstan	Grade 4	10.4	Grade 8	14.6	According to the Law of Education (2007), children must begin school at age 6, though parents can postpone enrollment for one year. The age of entry policy has changed within the past ten years. Promotion is dependent on academic progress for Grades 1–4, and dependent on successfully passing exams for Grades 5–8.
Korea, Rep. of	Grade 4	10.4	Grade 8	14.3	Children begin school during the calendar year of their 6th birthday, and must be 6 years old by the end of December to begin school in March of that year. Parents can decide to send their children a year later (at age 7), for health reasons, or a year early (at age 5). Promotion is dependent on academic progress and attendance for Grades 1–8.
Kuwait	Grade 4	9.7			Children must be 6 years old by March 15th to begin school that calendar year, and children typically begin primary school at age 5.5 or 6. Promotion is automatic for Grades 1–3 and dependent on academic progress for Grades 4–8.
Lebanon			Grade 8	14.3	Children must be 6 years old by the end of June to begin school the following September, although in public schools, special cases may be authorized by the Ministry of Education. Promotion is automatic for Grades 1–6 and dependent on academic progress for Grades 7–8.
Lithuania	Grade 4	10.7	Grade 8	14.7	Children must begin school by the calendar year of their 7th birthday, but parents can enroll children one year early if the child satisfies the requirements of the Ministry of Education and Science. The age of entry policy has been revised within the past ten years. There is no national policy on promotion and retention; decisions are made at the school level.
Macedonia, Rep. of			Grade 8	14.7	Since 2007, children must be 6 years old by the end of December to begin school the following September. Before 2007, children had to be 6 years old by the end of May to begin school the following September. Promotion is automatic for Grades 1–5 and dependent on academic progress for Grades 6–8.
Malaysia			Form 2	14.4	Children begin school at the beginning of January of the calendar year of their 6th birthday. There is no policy for promotion and retention.
Malta	Year 5	9.8			Children begin school in late September of the calendar year of their 5th birthday. Students repeat a class only in exceptional circumstances in primary school and on the basis of their academic performance and other factors in exceptional circumstances in secondary school. Students can be retained only once during each education cycle.

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.1: Information about the Students Assessed in TIMSS 2011 (Continued)

Country	Grade 4		Grade 8		Information About Age of Entry, Promotion, and Retention
	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Country's Name for Eighth Year of Formal Schooling*	Average Age at Time of Testing	
Morocco	Grade 4	10.5	Grade 8	14.7	Children must be at least 5 years, 6 months old by the beginning of September to begin school, and parents rarely postpone the start. Promotion depends on academic progress for both primary and secondary grades.
Netherlands	Group 6	10.2			Children must begin kindergarten on the first school day of the month after their 5th birthday. Most children begin kindergarten when they turn 4 and primary education at age 6, although some children begin primary education a year later at age 7. Promotion and retention are decided by the school, dependent on academic progress.
New Zealand	Year 5	9.9	Year 9	14.1	Children must be enrolled in school by their 6th birthday but have the right to begin school at age 5, and nearly all children begin school on or soon after their 5th birthday. There is automatic promotion, with retention only in very special circumstances with school and parental input.
Northern Ireland	Year 6	10.4			Children must be 4 years old by July 1st to begin school in September. The majority of children start and continue with their age group, but some transfer to post-primary a year late or early.
Norway	Grade 4 (4. trinn)	9.7	Grade 8 (8.trinn)	13.7	Children must begin school the calendar year of their 6th birthday. There is automatic promotion for all grades.
Oman	Grade 4	9.9	Grade 8	14.1	Children begin school the year of their 6th birthday. Children must be at least 5 years, 9 months old at the start of the academic year (beginning of September), but parents can enroll their children in private schools where the official entry age is 5 years, 5 months. The age of entry policy has been revised within the past ten years. Promotion is automatic for Grades 1–4 and dependent on academic progress for Grades 5–8.
Palestinian Nat'l Auth.			Grade 8	13.9	Children must be 5 years, 9 months old by the beginning of the September in which they enroll. Parents can enroll children in private schools two months earlier than public schools. Promotion is automatic for Grades 1–3 and dependent on academic progress for Grades 4–8. A maximum of 5% of students in each class may be retained.
Poland	Grade 3	9.9			Children must begin school the calendar year of their 7th birthday, but parents can postpone the beginning of school for medical or psychological reasons. The age of entry policy has been revised within the past ten years. Parental consent is required for retention in Grades 1–6, and promotion is dependent upon academic progress in higher grades.
Portugal	Grade 4	10.0			Children must begin school the year of their 6th birthday if they turn 6 years old by September 15th. Parents can enroll children who turn 6 years old by the end of December, depending on school availability. The age of entry policy has been revised within the past ten years. Promotion is automatic for Grade 1, and dependent on academic progress for Grades 2–8.
Qatar	Grade 4	10.0	Grade 8	14.0	Children must begin school in the September of the calendar year of their 6th birthday, but parents can enroll their children in private schools where the official entry age is 5 years, 5 months. Promotion is dependent on academic progress for Grades 1–8.
Romania	Grade 4	10.9	Grade 8	14.9	According to the law of education, which has been revised within the past ten years, children must begin school at age 6, although parents can postpone enrollment for one year. Promotion is automatic for Grade 1, and dependent on academic progress for Grades 2–8.
Russian Federation	Grade 4	10.8	Grade 8	14.7	Children must be at least 6 years, 6 months old by the end of August to begin school in September but typically begin at age 7. Promotion is automatic for Grade 1 and dependent on academic progress for Grades 2–8.
Saudi Arabia	Grade 4	10.0	Intermediate Year 2	14.1	Children must begin school the calendar year of their 6th birthday. There is no policy on promotion and retention.
Serbia	Grade 4	10.8			Children must begin school between the ages of 6.5 and 7.5 years old. Schools may recommend one year of continued preparatory preschool for children not considered school ready. The age of entry policy has changed within the past ten years. Promotion is automatic for Grade 1 and generally automatic for Grades 2–3, except by parental request. In Grades 4–7, students failing 2 or more subjects must pass makeup exams.
Singapore	Primary 4	10.4	Secondary 2	14.4	According to the Compulsory Education Act, children must begin school the calendar year of their 7th birthday, although parents may seek a deferral of registration based on medical grounds. There is automatic promotion for Grades 1–4; retention is at principal's discretion for Grade 5 and dependent on academic progress for Grades 6–8.
Slovak Republic	Grade 4	10.4			Children must begin school in September if they turn 6 years old by August 31st. Children may begin school early or after an approved delay, based on psychological tests and professional recommendations. Promotion is dependent on academic progress. Students failing 1–2 required subjects must pass a makeup exam; students failing more than 2 are retained.
Slovenia	Grade 4	9.9	Grade 8	13.9	Children must begin school the calendar year of their 6th birthday, but some children who are 6 years old in January enter school in the September of the calendar year before they turn 6. The age of entry policy has been revised within the past ten years. Generally, there is automatic promotion for Grades 1–8, except for students with learning difficulties.

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Appendix C.1: Information about the Students Assessed in TIMSS 2011 (Continued)

Country	Grade 4		Grade 8		Information About Age of Entry, Promotion, and Retention
	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Country's Name for Eighth Year of Formal Schooling*	Average Age at Time of Testing	
Spain	Primary Education Year 4	9.8			Children must begin school the calendar year of their 6th birthday. Almost every child begins kindergarten at the age of 3 even though it is not compulsory. Students can be retained for 1 year during Grades 1–6, but students with special needs can be retained twice. Students that don't reach the goals in Grades 7 and 8 can be retained in both grades.
Sweden	Grade 4	10.7	Grade 8	14.8	Children begin school in the fall of the calendar year of their 7th birthday but can begin the year they turn 6 or 8 years old for special reasons. There is automatic promotion for all grades.
Syrian Arab Republic			Grade 8	13.9	Children must begin school the September following their 6th birthday. Promotion for Grades 1–8 is based on academic progress, but promotion is automatic when a student fails a grade for the second time.
Thailand	Primary 4	10.5	Middle School 2	14.3	Children must begin school by the year of their 7th birthday, but can begin at the age of 6. There is no policy for promotion and retention.
Tunisia	Year 4 of Primary Education	10.0	Year 8 of Basic Education	14.3	Children begin school in the September of the calendar year of their 6th birthday. Younger children are accepted if there are school vacancies in the area where they live. Promotion is dependent on academic progress in Arabic, French, mathematics, and science for Grades 1–6, and dependent on academic progress for Grades 7–8.
Turkey	Grade 4	10.1	Grade 8	14.0	Children begin school in September of the calendar year of their 6th birthday, although they can begin a year later, at parental discretion. Promotion is automatic for Grades 1–3 and dependent on academic progress for Grades 4–8.
Ukraine			Grade 8	14.2	Compulsory schooling begins at age 6. Children must be at least 6 years old by September 1st to begin school, and parents can decide if children begin school at age 6 or 7. Retention is decided by parents, and students can take external examinations to advance into higher grade levels.
United Arab Emirates	Grade 4	9.8	Grade 8	13.9	Children can begin school when they are 5.5 years old. Parents or guardians can decide when children begin school, but it must be by age 8. The age of entry policy has been revised within the past ten years. Students in Grades 1–5 are subject to remedial instruction for promotion, and promotion in Grades 6–8 is dependent on academic achievement.
United States	Grade 4	10.2	Grade 8	14.2	Varies by state, but children commonly begin kindergarten at age 5 (by parental choice) and typically begin primary school at age 6 (by law).
Yemen	Grade 4	11.2			Children can begin school the year of their 6th birthday, but some flexibility exists at the discretion of the school's director. Promotion is automatic for Grades 1–3 and dependent on academic progress for Grades 4–8.

Out of Grade Participants

Botswana	Standard 6	12.8	Form 2	15.8	Children must be 6 years old by the end of June to begin school in the January of the same calendar year, but children from remote areas may begin school later than age 6. There is up to 12.5% retention in each class and accelerated progression is possible after parent consultation.
Honduras	Grade 6	12.7	Grade 9	15.7	Children must be 7 years old by the end of January to begin school the following February, but about 30% of children typically begin primary school at age 6, per principals' decisions. Promotion is dependent on academic progress on exams prepared and administered by teachers.
South Africa			Grade 9	16.0	Children must be 6 years old by June 30th of the year in which they enroll and children are encouraged to begin at age 7. The age of entry policy has been revised within the past ten years. In principle, students should progress with their age cohort. The norm for repetition is one year per school phase where necessary.
Yemen	Grade 6	13.2			Children can begin school the year of their 6th birthday, but some flexibility exists at the discretion of the school's director. Promotion is automatic for Grades 1–3 and dependent on academic progress for Grades 4–8.

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Appendix C.1: Information about the Students Assessed in TIMSS 2011 (Continued)

Country	Grade 4		Grade 8		Information About Age of Entry, Promotion, and Retention
	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Country's Name for Eighth Year of Formal Schooling*	Average Age at Time of Testing	
Benchmarking Participants					
Alberta, Canada	Grade 4	9.9	Grade 8	13.9	The law requires all children who are 6 years old by September 1 to attend school, although school boards may set their own age requirements for entering school, and many allow children to enter Grade 1 if they are 6 years old by March 1 of the following year. Parental discretion or choice is allowed. School principals make promotion decisions in line with school policies.
Ontario, Canada	Grade 4	9.8	Grade 8	13.8	Children must attend school in September if they turn 6 years old by September 1 but also have the right to attend school in September if they will turn 6 by December 31 of that calendar year. Parents may choose to enroll their children in junior kindergarten at age 4 or senior kindergarten at age 5. School principals make promotion decisions, appealable to the school board.
Quebec, Canada	Grade 4	10.1	Secondary 2	14.2	Children must be 6 years old by September 30th to begin school in the September of that calendar year. School boards determine promotion and the Ministry sets rules for obtaining diplomas.
Abu Dhabi, UAE	Grade 4	9.7	Grade 8	13.8	Children must be 6 years old by October 1st of the school year in which they enroll. Parents sometimes place students in private schools that accept younger students, then transfer them to the public system. The age of entry policy has changed within the past ten years. There is automatic promotion in Grades 1–5, except in special cases and with parental consent. Promotion is dependent on academic progress in Grades 6–8.
Dubai, UAE	Grade 4	9.8	Grade 8	13.9	Children can begin school the calendar year of their 5th birthday. The policy on promotion and retention varies by school type.
Alabama, US			Grade 8	14.4	According to the code of Alabama 1875 Section 16-28-3, children must begin school at age 7, and typically children actually do begin at age 7. The age of entry policy has changed within the past ten years. There is no policy for promotion or retention.
California, US			Grade 8	14.1	California law requires a child to be 6 years old on or before December 2 for the 2011-12 school year to enter Grade 1. However, the cut-off date for entry is in the process of being moved earlier by several months (California Education Code Section 48010). Although kindergarten is not required, most parents and guardians choose to enroll their children in kindergarten. There is no policy for promotion and retention.
Colorado, US			Grade 8	14.2	Children 6 years old on or before August 1st are required to begin school during that calendar year. Parents may opt to send their children to private or parochial schools or home school them if they choose not to meet the state policy. The age of entry policy has changed within the past ten years. Promotion and retention policies are decided by local education agencies.
Connecticut, US			Grade 8	14.1	Children must begin school by the time they are 7 years old. A 4-year-old may enroll in preprimary education (kindergarten) at the beginning of a school year (August or September) if he or she will turn 5 on or before January 1 of that school year. Some parents elect to delay school enrollment for younger children, and state law allows this practice provided students are enrolled in school when they are 7 years of age. Promotion and retention decisions are made locally at the district or school level.
Florida, US	Grade 4	10.4	Grade 8	14.4	Florida law (Section 1003.21 (1) (a)) specifies that children who are 6 or who will be 6 by February 1st of that school year are required to attend school. If a child enters public school at age 6 without completing kindergarten, they will be placed in kindergarten. Children who have attained the age of 5 on or before September 1 of the school year are eligible for admission to public kindergarten during that school year based on rules prescribed by the school board. Statewide, students are retained after Grade 3 if they do not pass the state reading assessment. Otherwise, policies for promotion and retention are determined by districts, based on academic performance.
Indiana, US			Grade 8	14.4	Children are not required to be in school until the school year in which they turn 7 years old. Children must be 5 years old on or before August 1st to begin kindergarten during that calendar year. Students are retained after Grade 3 if they do not pass the state reading assessment.
Massachusetts, US			Grade 8	14.2	Each child must attend school beginning in September of the calendar year in which he or she turns 6. Each school committee may establish its own minimum permissible age for school attendance, provided that such age is not older than the state mandatory minimum age (established by state law 603CMR 8.00). There is no policy for promotion and retention.
Minnesota, US			Grade 8	14.3	Compulsory schooling begins at age 7. Children must be at least 5 years old by September 1st to begin kindergarten, or 6 years old by September 1st to begin Grade 1 (MN Statute 120A.20). Any school board may establish a policy for admission at an earlier age. There is no policy for promotion and retention.
North Carolina, US	Grade 4	10.2	Grade 8	14.2	Compulsory schooling begins at age 7. If the child is 5 years old on or before August 31st the child is eligible to begin kindergarten. The statute recognizes that some students will be presented for enrollment who can be more appropriately served at a higher grade level, and it authorizes the school principal to make such decisions. There is no policy for promotion and retention.

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.2: Coverage of TIMSS 2011 Target Population

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Armenia	100%		2.0%	0.0%	2.0%
Australia	100%		2.1%	2.3%	4.4%
Austria	100%		1.3%	3.8%	5.1%
^{2 a} Azerbaijan	100%		2.3%	4.9%	7.2%
Bahrain	100%		0.4%	0.7%	1.1%
Belgium (Flemish)	100%		0.5%	4.5%	5.0%
Chile	100%		1.8%	1.9%	3.7%
Chinese Taipei	100%		0.1%	1.4%	1.4%
² Croatia	100%		2.9%	5.0%	7.9%
Czech Republic	100%		4.1%	0.9%	5.1%
² Denmark	100%		1.6%	4.7%	6.3%
England	100%		1.7%	0.4%	2.0%
Finland	100%		1.6%	1.5%	3.1%
^{1 a} Georgia	92%	Students taught in Georgian	1.4%	3.5%	4.9%
Germany	100%		0.9%	1.0%	1.9%
² Hong Kong SAR	100%		5.8%	2.7%	8.6%
Hungary	100%		2.2%	2.0%	4.2%
Iran, Islamic Rep. of	100%		4.4%	0.1%	4.5%
Ireland	100%		1.6%	0.9%	2.5%
Italy	100%		0.0%	3.7%	3.7%
Japan	100%		2.2%	1.0%	3.2%
² Kazakhstan	100%		3.7%	2.5%	6.3%
Korea, Rep. of	100%		1.5%	1.0%	2.5%
¹ Kuwait	78%	Students in public schools	0.3%	0.0%	0.3%
^{1 2} Lithuania	93%	Students taught in Lithuanian	1.9%	3.7%	5.6%
Malta	100%		0.0%	3.6%	3.6%
Morocco	100%		2.0%	0.0%	2.0%
Netherlands	100%		3.7%	0.4%	4.0%
New Zealand	100%		2.8%	2.2%	4.9%
Northern Ireland	100%		2.6%	0.9%	3.5%
Norway	100%		0.9%	3.3%	4.3%
Oman	100%		0.8%	0.7%	1.5%
Poland	100%		2.3%	1.5%	3.8%
Portugal	100%		1.4%	1.1%	2.5%
² Qatar	100%		4.3%	1.9%	6.2%
Romania	100%		1.1%	2.9%	4.0%
Russian Federation	100%		2.9%	2.4%	5.3%
Saudi Arabia	100%		1.4%	0.2%	1.6%
² Serbia	100%		5.3%	4.1%	9.4%
² Singapore	100%		5.9%	0.4%	6.3%
Slovak Republic	100%		3.8%	0.8%	4.6%
Slovenia	100%		2.3%	0.3%	2.6%
Spain	100%		1.6%	3.6%	5.3%
Sweden	100%		1.9%	2.2%	4.1%
Thailand	100%		1.5%	0.0%	1.5%
Tunisia	100%		2.3%	0.1%	2.5%
Turkey	100%		1.0%	1.5%	2.5%
United Arab Emirates	100%		1.4%	1.8%	3.3%
² United States	100%		0.0%	7.0%	7.0%
Yemen	100%		3.0%	0.7%	3.7%

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- 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%).
- a Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

Appendix C.2: Coverage of TIMSS 2011 Target Population (Continued)

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Sixth Grade Participants					
Botswana	100%		0.1%	0.2%	0.3%
Honduras	100%		3.8%	0.7%	4.5%
Yemen	100%		3.3%	0.7%	4.0%
Benchmarking Participants					
² Alberta, Canada	100%		1.5%	6.1%	7.5%
Ontario, Canada	100%		1.0%	4.3%	5.3%
Quebec, Canada	100%		2.7%	1.0%	3.7%
Abu Dhabi, UAE	100%		1.4%	1.3%	2.7%
Dubai, UAE	100%		0.4%	4.8%	5.1%
^{1 3} Florida, US	89%	Students in public schools	0.0%	12.1%	12.1%
^{1 2} North Carolina, US	93%	Students in public schools	0.0%	10.1%	10.1%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.3: Coverage of TIMSS 2011 Target Population

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Armenia	100%		1.5%	0.0%	1.5%
Australia	100%		1.3%	1.9%	3.2%
Bahrain	100%		0.5%	1.1%	1.6%
Chile	100%		1.1%	1.7%	2.8%
Chinese Taipei	100%		0.1%	1.2%	1.3%
England	100%		2.2%	0.1%	2.2%
Finland	100%		2.6%	0.9%	3.4%
^{1 a} Georgia	93%	Students taught in Georgian	0.9%	3.7%	4.5%
Ghana	100%		0.6%	0.0%	0.6%
Hong Kong SAR	100%		3.9%	1.3%	5.3%
Hungary	100%		2.3%	2.1%	4.4%
Indonesia	100%		3.2%	0.0%	3.2%
Iran, Islamic Rep. of	100%		2.2%	0.0%	2.2%
³ Israel	100%		16.4%	6.1%	22.6%
Italy	100%		0.0%	4.6%	4.7%
Japan	100%		1.8%	1.0%	2.8%
Jordan	100%		0.0%	0.4%	0.4%
Kazakhstan	100%		3.8%	1.3%	5.1%
Korea, Rep. of	100%		1.0%	0.9%	1.9%
Lebanon	100%		1.4%	0.0%	1.4%
¹ Lithuania	93%	Students taught in Lithuanian	1.4%	3.4%	4.8%
Macedonia, Rep. of	100%		2.8%	0.6%	3.3%
Malaysia	100%		0.1%	0.0%	0.1%
Morocco	100%		0.1%	0.0%	0.1%
New Zealand	100%		2.0%	1.2%	3.2%
Norway	100%		0.5%	1.4%	1.9%
Oman	100%		0.9%	0.3%	1.2%
Palestinian Nat'l Auth.	100%		0.6%	0.9%	1.5%
Qatar	100%		4.0%	0.5%	4.5%
Romania	100%		0.0%	1.2%	1.3%
² Russian Federation	100%		2.9%	3.1%	6.0%
Saudi Arabia	100%		1.2%	0.1%	1.2%
² Singapore	100%		5.7%	0.4%	6.0%
Slovenia	100%		1.7%	0.6%	2.3%
Sweden	100%		2.2%	2.9%	5.1%
Syrian Arab Republic	100%		1.9%	0.0%	1.9%
Thailand	100%		1.4%	0.1%	1.5%
Tunisia	100%		0.3%	0.1%	0.3%
Turkey	100%		0.2%	1.2%	1.5%
Ukraine	100%		2.5%	0.4%	2.8%
United Arab Emirates	100%		1.5%	1.3%	2.8%
² United States	100%		0.0%	7.2%	7.2%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

- 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%).
- a Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

Appendix C.3: Coverage of TIMSS 2011 Target Population (Continued)

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Ninth Grade Participants					
Botswana	100%		0.0%	0.0%	0.0%
² Honduras	100%		3.0%	2.7%	5.6%
South Africa	100%		1.4%	0.0%	1.4%
Benchmarking Participants					
² Alberta, Canada	100%		1.5%	5.9%	7.4%
² Ontario, Canada	100%		0.8%	4.8%	5.6%
Quebec, Canada	100%		2.0%	3.0%	4.9%
Abu Dhabi, UAE	100%		1.1%	0.6%	1.7%
Dubai, UAE	100%		0.2%	3.8%	4.0%
¹ Alabama, US	92%	Students in public schools	0.0%	4.6%	4.6%
^{1 2} California, US	91%	Students in public schools	0.0%	5.6%	5.6%
¹ Colorado, US	94%	Students in public schools	0.0%	4.1%	4.1%
^{1 2} Connecticut, US	90%	Students in public schools	0.0%	8.5%	8.5%
^{1 2} Florida, US	89%	Students in public schools	0.0%	6.9%	6.9%
^{1 2} Indiana, US	90%	Students in public schools	0.0%	6.3%	6.3%
^{1 2} Massachusetts, US	89%	Students in public schools	0.0%	7.9%	7.9%
¹ Minnesota, US	90%	Students in public schools	0.0%	4.3%	4.3%
^{1 3} North Carolina, US	93%	Students in public schools	0.0%	11.4%	11.4%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.4: 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
Armenia	150	150	150	0	150
Australia	290	284	275	5	280
Austria	160	158	158	0	158
Azerbaijan	170	169	142	27	169
Bahrain	174	172	159	0	159
Belgium (Flemish)	156	150	114	28	142
Chile	203	202	169	31	200
Chinese Taipei	150	150	150	0	150
Croatia	152	152	150	2	152
Czech Republic	180	178	161	16	177
Denmark	240	235	186	30	216
England	150	150	122	3	125
Finland	150	146	141	4	145
Georgia	180	177	172	1	173
Germany	200	199	190	7	197
Hong Kong SAR	154	154	134	2	136
Hungary	150	150	146	3	149
Iran, Islamic Rep. of	250	244	244	0	244
Ireland	152	151	147	3	150
Italy	205	205	166	36	202
Japan	150	150	144	5	149
Kazakhstan	150	149	147	2	149
Korea, Rep. of	150	150	150	0	150
Kuwait	150	150	148	0	148
Lithuania	160	154	145	9	154
Malta	99	96	96	0	96
Morocco	289	287	286	0	286
Netherlands	151	148	75	53	128
New Zealand	189	189	154	26	180
Northern Ireland	160	160	100	36	136
Norway	150	145	84	35	119
Oman	338	333	327	0	327
Poland	150	150	150	0	150
Portugal	150	150	132	15	147
Qatar	175	167	166	0	166
Romania	150	148	147	1	148
Russian Federation	202	202	202	0	202
Saudi Arabia	175	171	163	8	171
Serbia	160	156	152	4	156
Singapore	176	176	176	0	176
Slovak Republic	200	198	187	10	197
Slovenia	202	201	193	2	195
Spain	152	152	147	4	151
Sweden	161	153	148	4	152
Thailand	168	168	143	25	168
Tunisia	222	222	222	0	222
Turkey	260	257	251	6	257
United Arab Emirates	478	460	459	0	459
United States	450	437	347	22	369
Yemen	223	218	216	0	216

Sixth Grade Participants

Botswana	150	149	149	0	149
Honduras	152	147	133	14	147
Yemen	150	147	146	0	146

Benchmarking Participants

Alberta, Canada	150	144	141	2	143
Ontario, Canada	150	149	145	1	146
Quebec, Canada	200	197	189	1	190
Abu Dhabi, UAE	168	165	164	0	164
Dubai, UAE	152	139	139	0	139
Florida, US	81	80	77	0	77
North Carolina, US	49	49	46	0	46

Appendix C.5: 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
Armenia	153	153	153	0	153
Australia	290	287	276	1	277
Bahrain	97	96	95	0	95
Chile	197	196	166	27	193
Chinese Taipei	150	150	150	0	150
England	150	150	113	5	118
Finland	150	148	143	2	145
Georgia	180	175	171	1	172
Ghana	163	161	161	0	161
Hong Kong SAR	150	150	116	1	117
Hungary	150	147	144	2	146
Indonesia	154	153	153	0	153
Iran, Islamic Rep. of	250	238	237	1	238
Israel	152	151	143	8	151
Italy	204	204	166	31	197
Japan	150	150	128	10	138
Jordan	232	230	230	0	230
Kazakhstan	150	147	146	1	147
Korea, Rep. of	150	150	150	0	150
Lebanon	150	150	136	11	147
Lithuania	150	142	132	9	141
Macedonia, Rep. of	150	150	150	0	150
Malaysia	180	180	180	0	180
Morocco	285	280	279	0	279
New Zealand	162	162	141	17	158
Norway	150	150	134	0	134
Oman	338	333	323	0	323
Palestinian Nat'l Auth.	203	201	201	0	201
Qatar	113	110	109	0	109
Romania	150	147	145	2	147
Russian Federation	210	210	210	0	210
Saudi Arabia	154	153	150	3	153
Singapore	165	165	165	0	165
Slovenia	191	191	183	3	186
Sweden	159	156	152	1	153
Syrian Arab Republic	150	150	148	0	148
Thailand	172	172	160	12	172
Tunisia	217	211	207	0	207
Turkey	240	239	237	2	239
Ukraine	150	148	146	2	148
United Arab Emirates	477	460	458	0	458
United States	600	574	499	2	501

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Ninth Grade Participants

Botswana	150	150	150	0	150
Honduras	160	155	134	21	155
South Africa	298	285	283	2	285

Benchmarking Participants

Alberta, Canada	150	147	133	12	145
Ontario, Canada	150	146	142	1	143
Quebec, Canada	200	198	189	0	189
Abu Dhabi, UAE	170	167	166	0	166
Dubai, UAE	143	131	130	0	130
Alabama, US	63	60	55	0	55
California, US	94	93	79	3	82
Colorado, US	60	60	50	3	53
Connecticut, US	63	62	62	0	62
Florida, US	65	64	60	0	60
Indiana, US	62	58	55	1	56
Massachusetts, US	58	56	56	0	56
Minnesota, US	60	56	51	4	55
North Carolina, US	62	60	59	0	59

Appendix C.6: Student Sample Sizes

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Armenia	98%	5,292	1	0	5,291	145	5,146
Australia	95%	6,709	103	122	6,484	338	6,146
Austria	98%	4,976	25	175	4,776	108	4,668
Azerbaijan	100%	5,098	206	0	4,892	10	4,882
Bahrain	98%	4,213	32	20	4,161	78	4,083
Belgium (Flemish)	98%	5,219	84	196	4,939	90	4,849
Chile	96%	6,010	81	79	5,850	265	5,585
Chinese Taipei	99%	4,376	18	35	4,323	39	4,284
Croatia	95%	5,097	27	245	4,825	241	4,584
Czech Republic	95%	4,895	28	35	4,832	254	4,578
Denmark	95%	4,452	54	183	4,215	228	3,987
England	94%	3,689	49	13	3,627	230	3,397
Finland	96%	4,917	23	53	4,841	203	4,638
Georgia	99%	4,958	23	56	4,879	80	4,799
Germany	96%	4,229	37	21	4,171	176	3,995
Hong Kong SAR	93%	4,330	21	65	4,244	287	3,957
Hungary	97%	5,488	40	67	5,381	177	5,204
Iran, Islamic Rep. of	99%	5,932	98	5	5,829	69	5,760
Ireland	95%	4,836	22	43	4,771	211	4,560
Italy	97%	4,529	26	153	4,350	150	4,200
Japan	97%	4,595	10	48	4,537	126	4,411
Kazakhstan	99%	4,521	37	41	4,443	61	4,382
Korea, Rep. of	98%	4,494	46	42	4,406	72	4,334
Kuwait	94%	4,431	0	0	4,431	289	4,142
Lithuania	94%	5,140	37	131	4,972	284	4,688
Malta	95%	3,958	24	142	3,792	185	3,607
Morocco	97%	8,414	273	0	8,141	300	7,841
Netherlands	97%	3,461	120	13	3,328	99	3,229
New Zealand	94%	6,172	129	96	5,947	375	5,572
Northern Ireland	93%	3,942	27	49	3,866	295	3,571
Norway	85%	3,881	21	122	3,738	617	3,121
Oman	98%	10,840	129	75	10,636	225	10,411
Poland	96%	5,316	15	71	5,230	203	5,027
Portugal	94%	4,384	18	64	4,302	260	4,042
Qatar	99%	4,394	178	70	4,146	29	4,117
Romania	98%	4,879	91	12	4,776	103	4,673
Russian Federation	98%	4,693	30	89	4,574	107	4,467
Saudi Arabia	99%	4,625	42	4	4,579	64	4,515
Serbia	97%	4,603	32	54	4,517	138	4,379
Singapore	96%	6,687	33	3	6,651	283	6,368
Slovak Republic	96%	5,933	45	46	5,842	226	5,616
Slovenia	97%	4,674	13	14	4,647	155	4,492
Spain	97%	4,461	16	156	4,289	106	4,183
Sweden	92%	5,235	75	84	5,076	413	4,663
Thailand	99%	4,556	74	0	4,482	34	4,448
Tunisia	99%	5,057	81	4	4,972	60	4,912
Turkey	98%	7,905	159	105	7,641	162	7,479
United Arab Emirates	97%	15,428	135	113	15,180	460	14,720
United States	95%	14,205	185	839	13,181	612	12,569
Yemen	97%	8,794	412	20	8,362	304	8,058

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.”

Appendix C.6: Student Sample Sizes (Continued)

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Sixth Grade Participants							
Botswana	99%	4,298	39	8	4,251	53	4,198
Honduras	97%	4,186	117	0	4,069	150	3,919
Yemen	96%	5,364	212	15	5,137	208	4,929
Benchmarking Participants							
Alberta, Canada	96%	4,086	84	187	3,815	170	3,645
Ontario, Canada	96%	5,022	75	165	4,782	212	4,570
Quebec, Canada	95%	4,529	33	50	4,446	211	4,235
Abu Dhabi, UAE	98%	4,308	13	29	4,266	102	4,164
Dubai, UAE	96%	6,553	71	74	6,408	257	6,151
Florida, US	95%	3,121	43	265	2,813	152	2,661
North Carolina, US	95%	2,104	13	203	1,888	96	1,792

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.7: Student Sample Sizes

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Armenia	97%	6,057	0	0	6,057	211	5,846
Australia	90%	9,007	192	141	8,674	1,118	7,556
Bahrain	98%	4,960	185	27	4,748	108	4,640
Chile	95%	6,290	95	82	6,113	278	5,835
Chinese Taipei	99%	5,166	34	22	5,110	68	5,042
England	89%	4,382	88	3	4,291	449	3,842
Finland	95%	4,549	16	26	4,507	241	4,266
Georgia	98%	4,779	66	51	4,662	99	4,563
Ghana	97%	8,073	486	0	7,587	264	7,323
Hong Kong SAR	96%	4,261	42	55	4,164	149	4,015
Hungary	96%	5,489	28	55	5,406	228	5,178
Indonesia	96%	6,201	190	0	6,011	216	5,795
Iran, Islamic Rep. of	99%	6,264	141	0	6,123	94	6,029
Israel	92%	5,174	19	64	5,091	392	4,699
Italy	96%	4,379	23	210	4,146	167	3,979
Japan	94%	4,747	14	46	4,687	273	4,414
Jordan	96%	8,439	344	28	8,067	373	7,694
Kazakhstan	98%	4,551	70	25	4,456	66	4,390
Korea, Rep. of	99%	5,315	43	42	5,230	64	5,166
Lebanon	96%	4,231	103	0	4,128	154	3,974
Lithuania	93%	5,285	50	100	5,135	388	4,747
Macedonia, Rep. of	95%	4,360	67	23	4,270	208	4,062
Malaysia	98%	6,209	334	0	5,875	142	5,733
Morocco	94%	9,869	333	0	9,536	550	8,986
New Zealand	90%	6,079	128	41	5,910	574	5,336
Norway	94%	4,229	30	53	4,146	284	3,862
Oman	98%	9,947	140	36	9,771	229	9,542
Palestinian Nat'l Auth.	98%	8,069	120	27	7,922	110	7,812
Qatar	99%	4,641	167	18	4,456	34	4,422
Romania	99%	5,704	94	1	5,609	86	5,523
Russian Federation	98%	5,146	38	96	5,012	119	4,893
Saudi Arabia	98%	4,477	35	3	4,439	95	4,344
Singapore	95%	6,314	36	48	6,230	303	5,927
Slovenia	94%	4,722	11	29	4,682	267	4,415
Sweden	94%	6,210	114	137	5,959	386	5,573
Syrian Arab Republic	93%	4,756	0	0	4,756	343	4,413
Thailand	99%	6,404	201	0	6,203	79	6,124
Tunisia	97%	5,464	195	2	5,267	139	5,128
Turkey	97%	7,348	104	94	7,150	222	6,928
Ukraine	98%	3,491	27	14	3,450	72	3,378
United Arab Emirates	97%	14,716	106	48	14,562	473	14,089
United States	94%	11,864	302	398	11,164	687	10,477

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.”

Appendix C.7: Student Sample Sizes (Continued)

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Ninth Grade Participants							
Botswana	98%	5,610	94	0	5,516	116	5,400
Honduras	96%	4,975	339	0	4,636	218	4,418
South Africa	95%	13,179	455	0	12,724	755	11,969
Benchmarking Participants							
Alberta, Canada	93%	5,579	96	294	5,189	390	4,799
Ontario, Canada	95%	5,198	31	143	5,024	268	4,756
Quebec, Canada	93%	6,879	91	75	6,713	564	6,149
Abu Dhabi, UAE	97%	4,513	11	4	4,498	125	4,373
Dubai, UAE	96%	5,915	57	36	5,822	251	5,571
Alabama, US	92%	2,414	27	87	2,300	187	2,113
California, US	94%	2,898	52	47	2,799	185	2,614
Colorado, US	94%	2,395	60	47	2,288	121	2,167
Connecticut, US	94%	2,356	16	115	2,225	126	2,099
Florida, US	91%	1,986	25	87	1,874	162	1,712
Indiana, US	96%	2,501	49	97	2,355	95	2,260
Massachusetts, US	96%	2,296	20	112	2,164	89	2,075
Minnesota, US	95%	2,720	32	61	2,627	127	2,500
North Carolina, US	95%	2,434	24	203	2,207	104	2,103

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.8: Participation Rates (Weighted)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Armenia	100%	100%	100%	98%	98%	98%
Australia	96%	98%	100%	95%	91%	93%
Austria	100%	100%	100%	98%	98%	98%
Azerbaijan	84%	100%	100%	100%	84%	100%
Bahrain	92%	92%	100%	98%	90%	90%
Belgium (Flemish)	76%	95%	99%	98%	75%	92%
Chile	86%	99%	100%	96%	82%	95%
Chinese Taipei	100%	100%	100%	99%	99%	99%
Croatia	99%	100%	100%	95%	94%	95%
Czech Republic	90%	99%	100%	95%	85%	94%
Denmark	79%	92%	100%	95%	75%	87%
England	81%	83%	100%	94%	76%	78%
Finland	97%	99%	100%	96%	93%	96%
Georgia	97%	98%	100%	99%	95%	96%
Germany	96%	99%	100%	96%	92%	95%
Hong Kong SAR	87%	88%	100%	93%	81%	82%
Hungary	98%	99%	100%	97%	94%	96%
Iran, Islamic Rep. of	100%	100%	100%	99%	99%	99%
Ireland	97%	99%	100%	95%	93%	95%
Italy	81%	98%	100%	97%	78%	95%
Japan	96%	99%	100%	97%	93%	97%
Kazakhstan	99%	100%	100%	99%	98%	99%
Korea, Rep. of	100%	100%	100%	98%	98%	98%
Kuwait	99%	99%	99%	94%	91%	91%
Lithuania	94%	100%	100%	94%	89%	94%
Malta	100%	100%	100%	95%	95%	95%
Morocco	100%	100%	100%	97%	96%	96%
† Netherlands	49%	82%	99%	97%	47%	79%
New Zealand	83%	96%	100%	94%	77%	90%
† Northern Ireland	62%	85%	100%	93%	58%	79%
‡ Norway	57%	82%	100%	85%	48%	70%
Oman	98%	98%	100%	98%	96%	96%
Poland	100%	100%	100%	96%	96%	96%
Portugal	87%	98%	99%	94%	81%	92%
Qatar	100%	100%	100%	99%	99%	99%
Romania	99%	100%	100%	98%	97%	97%
Russian Federation	100%	100%	100%	98%	98%	98%
Saudi Arabia	95%	100%	100%	99%	94%	99%
Serbia	97%	100%	100%	97%	94%	97%
Singapore	100%	100%	100%	96%	96%	96%
Slovak Republic	95%	99%	100%	96%	91%	96%
Slovenia	96%	97%	100%	97%	93%	94%
Spain	96%	99%	100%	97%	94%	97%
Sweden	97%	99%	100%	92%	89%	91%
Thailand	85%	100%	100%	99%	84%	99%
Tunisia	100%	100%	100%	99%	99%	99%
Turkey	97%	100%	100%	98%	95%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
United States	79%	84%	100%	95%	76%	80%
Yemen	99%	99%	100%	97%	95%	95%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85% of both schools and students, or a combined rate (the product of school and student participation) of 75%. 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 C.8: Participation Rates (Weighted) (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Sixth Grade Participants						
Botswana	100%	100%	100%	99%	99%	99%
Honduras	91%	100%	100%	97%	88%	97%
Yemen	99%	99%	100%	96%	96%	96%
Benchmarking Participants						
Alberta, Canada	98%	99%	100%	96%	93%	95%
Ontario, Canada	97%	98%	100%	96%	93%	94%
Quebec, Canada	95%	96%	100%	95%	90%	91%
Abu Dhabi, UAE	99%	99%	100%	98%	97%	97%
Dubai, UAE	100%	100%	100%	96%	96%	96%
Florida, US	96%	96%	100%	95%	91%	91%
North Carolina, US	94%	94%	100%	95%	89%	89%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.9: Participation Rates (Weighted)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Armenia	100%	100%	100%	97%	97%	97%
Australia	96%	98%	100%	90%	87%	88%
Bahrain	99%	99%	100%	98%	97%	97%
Chile	88%	99%	100%	95%	84%	95%
Chinese Taipei	100%	100%	100%	99%	99%	99%
‡ England	75%	79%	100%	89%	67%	70%
Finland	97%	98%	100%	95%	91%	93%
Georgia	97%	98%	100%	98%	96%	97%
Ghana	100%	100%	100%	97%	97%	97%
Hong Kong SAR	77%	78%	100%	96%	74%	75%
Hungary	98%	99%	100%	96%	94%	95%
Indonesia	100%	100%	100%	96%	96%	96%
Iran, Islamic Rep. of	100%	100%	100%	99%	98%	99%
Israel	94%	100%	100%	92%	87%	92%
Italy	83%	97%	100%	96%	80%	93%
Japan	85%	92%	100%	94%	80%	87%
Jordan	100%	100%	100%	96%	96%	96%
Kazakhstan	99%	100%	100%	98%	98%	98%
Korea, Rep. of	100%	100%	100%	99%	99%	99%
Lebanon	90%	98%	100%	96%	87%	94%
Lithuania	92%	99%	100%	93%	85%	92%
Macedonia, Rep. of	100%	100%	100%	95%	95%	95%
Malaysia	100%	100%	100%	98%	98%	98%
Morocco	100%	100%	100%	94%	94%	94%
New Zealand	87%	98%	100%	90%	78%	88%
Norway	89%	89%	100%	94%	84%	84%
Oman	99%	99%	100%	98%	97%	97%
Palestinian Nat'l Auth.	100%	100%	100%	98%	98%	98%
Qatar	99%	99%	100%	99%	99%	99%
Romania	99%	100%	100%	99%	97%	99%
Russian Federation	100%	100%	100%	98%	98%	98%
Saudi Arabia	98%	100%	100%	98%	96%	98%
Singapore	100%	100%	100%	95%	95%	95%
Slovenia	96%	98%	100%	94%	91%	92%
Sweden	97%	98%	100%	94%	91%	92%
Syrian Arab Republic	99%	99%	100%	93%	92%	92%
Thailand	92%	100%	100%	99%	90%	99%
Tunisia	99%	99%	100%	97%	97%	97%
Turkey	99%	100%	100%	97%	96%	97%
Ukraine	98%	100%	100%	98%	97%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
United States	87%	87%	100%	94%	81%	81%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85% of both schools and students, or a combined rate (the product of school and student participation) of 75%. 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 C.9: Participation Rates (Weighted) (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Ninth Grade Participants						
Botswana	100%	100%	100%	98%	98%	98%
Honduras	88%	100%	100%	96%	84%	96%
South Africa	100%	100%	100%	95%	94%	95%
Benchmarking Participants						
Alberta, Canada	91%	99%	100%	93%	85%	92%
Ontario, Canada	97%	98%	100%	95%	92%	93%
Quebec, Canada	96%	96%	99%	93%	88%	88%
Abu Dhabi, UAE	99%	99%	100%	97%	96%	96%
Dubai, UAE	99%	99%	100%	96%	95%	95%
Alabama, US	92%	92%	100%	92%	84%	84%
California, US	85%	88%	99%	94%	79%	82%
Colorado, US	84%	89%	100%	94%	79%	84%
Connecticut, US	100%	100%	100%	94%	94%	94%
Florida, US	94%	94%	98%	91%	84%	84%
Indiana, US	94%	97%	100%	96%	91%	93%
Massachusetts, US	100%	100%	100%	96%	96%	96%
Minnesota, US	91%	98%	100%	95%	86%	94%
North Carolina, US	98%	98%	100%	95%	93%	93%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix C.10: Trends in Student Populations

Country	Years of Formal Schooling*				Average Age at Time of Testing				Overall Exclusion Rates				Overall Participation Rates (After Replacement)			
	2011	2007	2003	1995	2011	2007	2003	1995	2011	2007	2003	1995	2011	2007	2003	1995
a Armenia	4		4		10.0		10.9		2.0%		2.9%		98%		90%	
Australia	4	4	4	4 or 5	10.0	9.9	9.9	10.2	4.4%	4.0%	2.7%	1.8%	93%	95%	85%	66%
Austria	4	4		4	10.3	10.3		10.5	5.1%	5.0%		2.8%	98%	97%		69%
Belgium (Flemish)	4		4		10.0		10.0		5.0%		6.3%		92%		97%	
Chinese Taipei	4	4	4		10.2	10.2	10.2		1.4%	2.8%	3.1%		99%	100%	99%	
Czech Republic	4	4		4	10.4	10.3		10.4	5.1%	4.9%		4.1%	94%	92%		86%
Denmark	4	4			11.0	11.0			6.3%	4.1%			87%	85%		
England	5	5	5	5	10.2	10.2	10.3	10.0	2.0%	2.1%	1.9%	12.1%	78%	84%	76%	83%
b Georgia	4	4			10.0	10.1			4.9%	4.8%			96%	98%		
Germany	4	4			10.4	10.4			1.9%	1.3%			95%	96%		
Hong Kong SAR	4	4	4	4	10.1	10.2	10.2	10.1	8.5%	5.4%	3.8%	2.7%	82%	81%	83%	83%
Hungary	4	4	4	4	10.7	10.7	10.5	10.4	4.2%	4.4%	8.1%	3.8%	96%	96%	93%	92%
Iran, Islamic Rep. of	4	4	4	4	10.2	10.2	10.4	10.5	4.5%	3.0%	5.7%	1.3%	99%	99%	98%	97%
Ireland	4			4	10.3			10.3	2.5%			6.9%	95%			90%
Italy	4	4	4		9.7	9.8	9.8		3.7%	5.3%	4.2%		95%	97%	97%	
Japan	4	4	4	4	10.5	10.5	10.4	10.4	3.2%	1.1%	0.8%	3.0%	96%	95%	97%	92%
Korea, Rep. of	4			4	10.4			10.3	2.5%			6.6%	98%			95%
Lithuania	4	4	4		10.7	10.8	10.9		5.6%	5.4%	4.6%		94%	94%	87%	
Morocco	4	4	4		10.5	10.6	11.0		2.0%	1.4%	2.2%		96%	77%	81%	
Netherlands	4	4	4	4	10.2	10.2	10.2	10.3	4.0%	4.8%	5.2%	4.4%	79%	91%	84%	59%
New Zealand	4.5–5.5	4.5–5.5	4.5–5.5	4.5–5.5	9.9	10.0	10.0	10.0	4.9%	5.4%	4.0%	1.3%	90%	96%	93%	95%
Norway	4	4	3	3	9.7	9.8	9.8	9.9	4.3%	5.1%	4.4%	3.1%	70%	92%	88%	91%
Portugal	4			4	10.0			10.4	2.5%			7.3%	92%			92%
Russian Federation	4	4	3 or 4		10.8	10.8	10.6		5.3%	3.6%	6.8%		98%	98%	97%	
Singapore	4	4	4	4	10.4	10.4	10.3	10.3	6.3%	1.5%	0.0%	0.0%	96%	96%	98%	98%
Slovak Republic	4	4			10.4	10.4			4.6%	3.3%			96%	97%		
Slovenia	4	4	3 or 4	3	9.9	9.8	9.8	9.9	2.6%	2.1%	1.3%	1.9%	94%	93%	91%	76%
Sweden	4	4			10.7	10.8			4.1%	3.1%			91%	97%		
Tunisia	4	4	4		10.0	10.2	10.4		2.5%	2.9%	0.9%		99%	99%	99%	
United States	4	4	4	4	10.2	10.3	10.2	10.2	7.0%	9.2%	5.1%	4.7%	80%	84%	78%	80%
Yemen	4	4			11.2	11.2			3.7%	2.0%			95%	98%		

Benchmarking Participants

Alberta, Canada	4	4		4	9.9	9.8		9.8	7.5%	7.6%		–	95%	94%		91%
Ontario, Canada	4	4	4	4	9.8	9.8	9.8	9.8	5.3%	6.3%	4.8%	–	94%	92%	90%	92%
Quebec, Canada	4	4	4	4	10.1	10.1	10.1	10.3	3.7%	6.4%	3.6%	–	91%	84%	91%	81%
Dubai, UAE	4	4			9.8	10.0			5.1%	5.4%			96%	67%		

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

a Age in 2011 lower due to educational reforms.

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

A dash (–) indicates comparable data not available.

Country	Years of Formal Schooling*					Average Age at Time of Testing				
	2011	2007	2003	1999	1995	2011	2007	2003	1999	1995
^a Armenia	9		8			14.6		14.9		
Australia	8	8	8		8 or 9	14.0	13.9	13.9		14.2
^c Bahrain	8	8	8			14.4	14.1	14.1		
Chile	8		8	8		14.2		14.2	14.4	
Chinese Taipei	8	8	8	8		14.2	14.2	14.2	14.2	
England	9	9	9	9	9	14.2	14.2	14.3	14.2	14.0
Finland (Grade 7)	7			7		13.8			13.8	
^b Georgia	8	8				14.2	14.2			
Ghana	8	8	8			15.8	15.8	15.5		
Hong Kong SAR	8	8	8	8	8	14.2	14.4	14.4	14.2	14.2
Hungary	8	8	8	8	8	14.7	14.6	14.5	14.4	14.3
Indonesia	8	8				14.3	14.3			
Iran, Islamic Rep. of	8	8	8	8	8	14.3	14.2	14.4	14.6	14.6
Italy	8	8	8	8		13.8	13.9	13.9	14.0	
Japan	8	8	8	8	8	14.5	14.5	14.4	14.4	14.4
Jordan	8	8	8	8		13.9	14.0	13.9	14.0	
^c Korea, Rep. of	8	8	8	8	8	14.3	14.3	14.6	14.4	14.2
Lebanon	8	8	8			14.3	14.4	14.6		
^c Lithuania	8	8	8	8.5	8	14.7	14.9	14.9	15.2	14.3
Macedonia, Rep. of	8		8	8		14.7		14.6	14.6	
Malaysia	8	8	8	8		14.4	14.3	14.3	14.4	
New Zealand	8.5–9.5		8.5–9.5	8.5–9.5	8.5–9.5	14.1		14.1	14.0	14.0
Norway	8	8	7		7	13.7	13.8	13.8		13.9
Oman	8	8				14.1	14.3			
Palestinian Nat'l Auth.	8	8	8			13.9	14.0	14.1		
Romania	8	8	8	8	8	14.9	15.0	15.0	14.8	14.6
Russian Federation	8	7 or 8	7 or 8	7 or 8	7 or 8	14.7	14.6	14.2	14.1	14.0
Singapore	8	8	8	8	8	14.4	14.4	14.3	14.4	14.5
Slovenia	8	7 or 8	7 or 8		7	13.9	13.8	13.8		13.8
Sweden	8	8	8		7	14.8	14.8	14.9		14.9
Syrian Arab Republic	8	8				13.9	13.9			
Thailand	8	8		8		14.3	14.3		14.5	
Tunisia	8	8	8	8		14.3	14.5	14.8	14.8	
Ukraine	8	8				14.2	14.2			
United States	8	8	8	8	8	14.2	14.3	14.2	14.2	14.2

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Benchmarking Participants

Alberta, Canada	8			8	8	13.9			13.9	14.0
Ontario, Canada	8	8	8	8	8	13.8	13.8	13.8	13.9	14.0
Quebec, Canada	8	8	8	8	8	14.2	14.2	14.2	14.3	14.5
^c Dubai, UAE	8	8				13.9	14.2			
Connecticut, US	8			8		14.1			14.0	
Indiana, US	8		8	8		14.4		13.5	14.4	
Massachusetts, US	8	8		8		14.2	14.2		14.1	
Minnesota, US	8	8			8	14.3	14.3			14.3
North Carolina, US	8			8		14.2			14.2	

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

^a Age in 2011 lower due to educational reforms.

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

^c Bahrain in 2011, Korea in 2003, Lithuania in 1999, and Dubai (UAE) in 2007 tested the same cohort of students as other countries, but later in the assessment year.

A dash (-) indicates comparable data not available.

Appendix C.11: Trends in Student Populations (Continued)

Country	Overall Exclusion Rates					Overall Participation Rates (After Replacement)				
	2011	2007	2003	1999	1995	2011	2007	2003	1999	1995
a Armenia	1.5%		2.9%			97%		89%		
Australia	3.2%	1.9%	1.3%		0.8%	88%	93%	83%		70%
c Bahrain	1.6%	1.5%	0.0%			97%	97%	98%		
Chile	2.8%		2.2%	2.8%		95%		99%	96%	
Chinese Taipei	1.3%	3.3%	4.8%	1.6%		99%	99%	99%	99%	
England	2.2%	2.3%	2.1%	5.0%	11.3%	70%	75%	46%	77%	77%
Finland (Grade 7)	3.8%			3.7%		96%			96%	
b Georgia	4.5%	3.9%				97%	97%			
Ghana	0.6%	0.9%	0.9%			97%	98%	93%		
Hong Kong SAR	5.3%	3.8%	3.4%	0.8%	2.0%	75%	75%	80%	74%	81%
Hungary	4.4%	3.9%	8.5%	4.3%	3.8%	95%	96%	94%	93%	87%
Indonesia	3.2%	3.4%				96%	97%			
Iran, Islamic Rep. of	2.2%	0.5%	6.5%	4.4%	0.3%	99%	98%	98%	98%	98%
Italy	4.7%	5.0%	3.6%	6.7%		93%	96%	97%	97%	
Japan	2.8%	3.5%	0.6%	1.3%	0.6%	87%	91%	93%	89%	90%
Jordan	0.4%	2.0%	1.3%	3.0%		96%	96%	96%	99%	
c Korea, Rep. of	1.9%	1.6%	4.9%	4.0%	3.8%	99%	99%	98%	100%	95%
Lebanon	1.4%	1.4%	1.4%			94%	85%	91%		
c Lithuania	4.8%	4.2%	2.6%	4.5%	6.6%	92%	90%	84%	89%	83%
Macedonia, Rep. of	3.3%		12.5%	1.1%		95%		96%	98%	
Malaysia	0.1%	3.3%	4.0%	4.6%		98%	98%	98%	99%	
New Zealand	3.2%		4.4%	2.4%	1.7%	88%		90%	91%	94%
Norway	1.9%	2.6%	2.3%		2.2%	84%	86%	85%		93%
Oman	1.2%	1.2%				97%	99%			
Palestinian Nat'l Auth.	1.5%	1.0%	0.5%			98%	98%	99%		
Romania	1.3%	1.8%	0.5%	3.7%	2.8%	99%	97%	98%	97%	89%
Russian Federation	6.0%	2.3%	5.5%	1.7%	6.3%	98%	97%	96%	97%	95%
Singapore	6.0%	1.8%	0.0%	0.0%	4.6%	95%	95%	97%	98%	95%
Slovenia	2.3%	1.9%	1.4%		2.6%	92%	92%	91%		77%
Sweden	5.1%	3.6%	2.8%		0.9%	92%	94%	87%		90%
Syrian Arab Republic	1.9%	0.6%				92%	96%			
Thailand	1.5%	3.4%		3.3%		99%	99%		99%	
Tunisia	0.3%	0.0%	1.8%	0.1%		97%	98%	98%	98%	
Ukraine	2.8%	0.2%				98%	95%			
United States	7.2%	7.9%	4.9%	3.9%	2.1%	81%	77%	73%	85%	78%

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Benchmarking Participants

Alberta, Canada	7.4%			–	–	92%			95%	92%
Ontario, Canada	5.6%	6.2%	6.0%	5.1%	–	93%	89%	89%	93%	90%
Quebec, Canada	4.9%	13.6%	4.8%	1.3%	–	88%	77%	85%	92%	89%
c Dubai, UAE	4.0%	5.0%				95%	69%			
Connecticut, US	8.5%			5.0%		94%			90%	
Indiana, US	6.3%		7.8%	6.0%		93%		94%	79%	
Massachusetts, US	7.9%	8.4%		5.0%		96%	92%		93%	
Minnesota, US	4.3%	7.5%			–	94%	93%			–
North Carolina, US	11.4%			4.0%		93%			92%	

