

# Highlights From TIMSS 2011

Mathematics and Science Achievement of U.S. Fourth-  
and Eighth-Grade Students in an International Context

Appendix E: Standard Error Tables

**DECEMBER 2012**

**Table E-1. Standard errors for table 3: Average mathematics scores of 4th-grade students, by education system: 2011**

Grade 4			Grade 4		
Education system	Average score	s.e.	Education system	Average score	s.e.
TIMSS scale average	500	0.0	New Zealand	486	2.6
Singapore <sup>1</sup>	606	3.2	Spain	482	2.9
Korea, Rep. of	605	1.9	Romania	482	5.8
<i>Hong Kong-CHN<sup>1</sup></i>	602	3.4	Poland	481	2.2
<i>Chinese Taipei-CHN</i>	591	2.0	Turkey	469	4.7
Japan	585	1.7	Azerbaijan <sup>1,5</sup>	463	5.8
<i>Northern Ireland-GBR<sup>2</sup></i>	562	2.9	Chile	462	2.3
<i>Belgium (Flemish)-BEL</i>	549	1.9	Thailand	458	4.8
Finland	545	2.3	Armenia	452	3.5
<i>England-GBR</i>	542	3.5	Georgia <sup>3,5</sup>	450	3.7
Russian Federation	542	3.7	Bahrain	436	3.3
United States <sup>1</sup>	541	1.8	United Arab Emirates	434	2.0
Netherlands <sup>2</sup>	540	1.7	Iran, Islamic Rep. of	431	3.5
Denmark <sup>1</sup>	537	2.6	Qatar <sup>1</sup>	413	3.5
Lithuania <sup>1,3</sup>	534	2.4	Saudi Arabia	410	5.3
Portugal	532	3.4	Oman <sup>6</sup>	385	2.9
Germany	528	2.2	Tunisia <sup>6</sup>	359	3.9
Ireland	527	2.6	Kuwait <sup>3,7</sup>	342	3.4
Serbia <sup>1</sup>	516	3.0	Morocco <sup>7</sup>	335	4.0
Australia	516	2.9	Yemen <sup>7</sup>	248	6.0
Hungary	515	3.4			
Slovenia	513	2.2	Benchmarking education systems		
Czech Republic	511	2.4			
Austria	508	2.6	<i>North Carolina-USA<sup>1,3</sup></i>	554	4.2
Italy	508	2.6	<i>Florida-USA<sup>3,8</sup></i>	545	2.9
Slovak Republic	507	3.8	<i>Quebec-CAN</i>	533	2.4
Sweden	504	2.0	<i>Ontario-CAN</i>	518	3.1
Kazakhstan <sup>1</sup>	501	4.5	<i>Alberta-CAN<sup>1</sup></i>	507	2.5
Malta	496	1.3	<i>Dubai-UAE</i>	468	1.6
Norway <sup>4</sup>	495	2.8	<i>Abu Dhabi-UAE</i>	417	4.6
Croatia <sup>1</sup>	490	1.9			

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>5</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

NOTE: Education systems are ordered by 2011 average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-2. Standard errors for table 4: Average mathematics scores of 8th-grade students, by education system: 2011**

Grade 8			Grade 8		
Education system	Average score	s.e.	Education system	Average score	s.e.
TIMSS scale average	500	0.0	Tunisia	425	2.8
Korea, Rep. of	613	2.9	Chile	416	2.6
Singapore <sup>1</sup>	611	3.8	Iran, Islamic Rep. of <sup>6</sup>	415	4.3
<i>Chinese Taipei-CHN</i>	609	3.2	<i>Qatar</i> <sup>6</sup>	410	3.1
<i>Hong Kong-CHN</i>	586	3.8	Bahrain <sup>6</sup>	409	2.0
Japan	570	2.6	Jordan <sup>6</sup>	406	3.7
Russian Federation <sup>1</sup>	539	3.6	<i>Palestinian Nat'l Auth.</i> <sup>6</sup>	404	3.5
Israel <sup>2</sup>	516	4.1	Saudi Arabia <sup>6</sup>	394	4.6
Finland	514	2.5	Indonesia <sup>6</sup>	386	4.3
United States <sup>1</sup>	509	2.6	Syrian Arab Republic <sup>6</sup>	380	4.5
<i>England-GBR</i> <sup>3</sup>	507	5.5	Morocco <sup>7</sup>	371	2.0
Hungary	505	3.5	Oman <sup>6</sup>	366	2.8
Australia	505	5.1	Ghana <sup>7</sup>	331	4.3
Slovenia	505	2.2			
Lithuania <sup>4</sup>	502	2.5	Benchmarking		
Italy	498	2.4	education systems		
New Zealand	488	5.5	<i>Massachusetts-USA</i> <sup>1,4</sup>	561	5.3
Kazakhstan	487	4.0	<i>Minnesota-USA</i> <sup>4</sup>	545	4.6
Sweden	484	1.9	<i>North Carolina-USA</i> <sup>2,4</sup>	537	6.8
Ukraine	479	3.9	<i>Quebec-CAN</i>	532	2.3
Norway	475	2.4	<i>Indiana-USA</i> <sup>1,4</sup>	522	5.1
Armenia	467	2.7	<i>Colorado-USA</i> <sup>4</sup>	518	4.9
Romania	458	4.0	<i>Connecticut-USA</i> <sup>1,4</sup>	518	4.8
United Arab Emirates	456	2.1	<i>Florida-USA</i> <sup>1,4</sup>	513	6.4
Turkey	452	3.9	<i>Ontario-CAN</i> <sup>1</sup>	512	2.5
Lebanon	449	3.7	<i>Alberta-CAN</i> <sup>1</sup>	505	2.6
Malaysia	440	5.4	<i>California-USA</i> <sup>1,4</sup>	493	4.9
Georgia <sup>4,5</sup>	431	3.8	<i>Dubai-UAE</i>	478	2.1
Thailand	427	4.3	<i>Alabama-USA</i> <sup>4</sup>	466	5.9
Macedonia, Rep. of <sup>6</sup>	426	5.2	<i>Abu Dhabi-UAE</i>	449	3.7

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of National Target Population (see appendix A).

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

NOTE: Education systems are ordered by 2011 average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-3. Standard errors for figure 1: Change in average mathematics scores of 4th-grade students, by education system: 2007-2011 and 1995-2011**

Education system	1995		2007		2011		2007-2011		1995-2011	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Change in average score <sup>1</sup>	s.e.	Change in average score <sup>1</sup>	s.e.
Singapore <sup>2</sup>	590	4.5	599	3.7	606	3.2	6	4.9	16	5.6
Korea, Rep. of	581	1.8	—	†	605	1.9	—	†	24	2.6
Hong Kong-CHN <sup>2</sup>	557	4.0	607	3.6	602	3.4	-5	5.0	45	5.2
Chinese Taipei-CHN	—	†	576	1.7	591	2.0	15	2.6	—	†
Japan	567	1.9	568	2.1	585	1.7	17	2.7	18	2.5
<i>Belgium (Flemish)-BEL</i>	—	†	—	†	549	1.9	—	†	—	†
<i>England-GBR</i>	484	3.3	541	2.9	542	3.5	1	4.5	58	4.8
Russian Federation	—	†	544	4.9	542	3.7	-2	6.2	—	†
United States <sup>2</sup>	518	2.9	529	2.4	541	1.8	12	3.0	23	3.5
Netherlands <sup>3</sup>	549	3.0	535	2.1	540	1.7	5	2.7	-9	3.4
Denmark <sup>2</sup>	—	†	523	2.4	537	2.6	14	3.5	—	†
Lithuania <sup>2,4</sup>	—	†	530	2.4	534	2.4	4	3.4	—	†
Portugal	442	3.9	—	†	532	3.4	—	†	90	5.2
Germany	—	†	525	2.3	528	2.2	3	3.2	—	†
Ireland	523	3.5	—	†	527	2.6	—	†	5	4.3
Australia	495	3.4	516	3.5	516	2.9	#	4.5	21	4.5
Hungary	521	3.6	510	3.5	515	3.4	6	4.9	-6	5.0
Slovenia	462	3.1	502	1.8	513	2.2	11	2.8	51	3.8
Czech Republic	541	3.1	486	2.8	511	2.4	24	3.7	-30	3.9
Austria	531	2.9	505	2.0	508	2.6	3	3.3	-22	3.9
Italy	—	†	507	3.1	508	2.6	1	4.1	—	†
Slovak Republic	—	†	496	4.5	507	3.8	11	5.8	—	†
Sweden	—	†	503	2.5	504	2.0	1	3.2	—	†
Norway <sup>5</sup>	476	3.0	473	2.5	495	2.8	22	3.8	19	4.1
New Zealand	469	4.4	492	2.3	486	2.6	-6	3.5	17	5.1
Armenia	—	†	—	†	452	3.5	—	†	—	†
Georgia <sup>4,6</sup>	—	†	438	4.2	450	3.7	12	5.6	—	†
Iran, Islamic Rep. of	387	5.0	402	4.1	431	3.5	28	5.3	44	6.1
Tunisia <sup>7</sup>	—	†	327	4.5	359	3.9	32	5.9	—	†
Benchmarking education systems										
<i>Quebec-CAN</i>	550	4.2	519	3.0	533	2.4	14	3.9	-17	4.8
<i>Ontario-CAN</i>	489	3.5	512	3.1	518	3.1	6	4.4	29	4.7
<i>Alberta-CAN<sup>2</sup></i>	523	8.3	505	3.0	507	2.5	1	3.8	-17	8.7
<i>Dubai-UAE</i>	—	†	444	2.1	468	1.6	24	2.7	—	†

— Not available.

† Not applicable.

# Rounds to zero.

<sup>1</sup>The change in average score is calculated by subtracting the 2007 or 1995 estimate, respectively, from the 2011 estimate using unrounded numbers.<sup>2</sup>National Defined Population covers 90 percent to 95 percent of National Target Population for 2011 (see appendix A).<sup>3</sup>Met guidelines for sample participation rates only after replacement schools were included for 2011.<sup>4</sup>National Target Population does not include all of the International Target Population for 2011 (see appendix A).<sup>5</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included for 2011.<sup>6</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available for 2011.<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation for 2011 exceeds 15 percent, though it is less than 25 percent.

NOTE: Education systems are ordered by 2011 average scores. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Data are not shown for some education systems because comparable data from previous cycles are not available. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only.

For 1995, Korea, Portugal, Ontario-CAN had National Defined Population covering 90 to 95 percent of National Target Population; England-GBR had National Defined Population that covered less than 90 percent of National Target Population (but at least 77 percent) and met guidelines for sample participation rates only after replacement schools were included; Netherlands, Australia, and Austria did not satisfy guidelines for sample participation rates. For 2007, the United States, Quebec-CAN, Ontario-CAN, and Alberta-CAN had National Defined Population covering 90 to 95 percent of National Target Population; the United States and Denmark met guidelines for sample participation rates only after replacement schools were included; the Netherlands and Dubai-UAE nearly satisfied guidelines for sample participation rates after replacement schools were included; Georgia had a National Target Population that did not include all of the International Target Population; Dubai-UAE tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, 2007, and 2011.

**Table E-4. Standard errors for figure 2: Change in average mathematics scores of 8th-grade students, by education system: 2007–2011 and 1995–2011**

Education system	1995		2007		2011		2007–2011		1995–2011	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Change in average score <sup>1</sup>	s.e.	Change in average score <sup>1</sup>	s.e.
Korea, Rep. of	581	2.0	597	2.7	613	2.9	16	4.0	32	3.5
Singapore <sup>2</sup>	609	4.0	593	3.8	611	3.8	18	5.4	2	5.5
<i>Chinese Taipei-CHN</i>	—	†	598	4.5	609	3.2	11	5.5	—	†
<i>Hong Kong-CHN</i>	569	6.1	572	5.8	586	3.8	13	6.9	17	7.2
Japan	581	1.6	570	2.4	570	2.6	0	3.6	-11	3.1
Russian Federation <sup>2</sup>	524	5.3	512	4.1	539	3.6	27	5.4	15	6.4
United States <sup>2</sup>	492	4.7	508	2.8	509	2.6	1	3.9	17	5.4
<i>England-GBR<sup>3</sup></i>	498	3.0	513	4.8	507	5.5	-7	7.3	9	6.3
Hungary	527	3.2	517	3.5	505	3.5	-12	4.9	-22	4.7
Australia	509	3.7	496	3.9	505	5.1	9	6.4	-4	6.3
Slovenia	494	2.9	501	2.1	505	2.2	3	3.0	10	3.6
Lithuania <sup>4</sup>	472	4.1	506	2.3	502	2.5	-3	3.4	31	4.8
Italy	—	†	480	3.0	498	2.4	19	3.9	—	†
New Zealand	501	4.7	—	†	488	5.5	—	†	-13	7.2
Sweden	540	4.3	491	2.3	484	1.9	-7	3.0	-55	4.7
Ukraine	—	†	462	3.6	479	3.9	17	5.3	—	†
Norway	498	2.2	469	2.0	475	2.4	5	3.1	-24	3.3
Romania	474	4.6	461	4.1	458	4.0	-3	5.7	-16	6.1
Lebanon	—	†	449	4.0	449	3.7	#	5.5	—	†
Malaysia	—	†	474	5.0	440	5.4	-34	7.4	—	†
Georgia <sup>4,5</sup>	—	†	410	5.9	431	3.8	22	7.0	—	†
Thailand	—	†	441	5.0	427	4.3	-14	6.5	—	†
Tunisia	—	†	420	2.4	425	2.8	4	3.7	—	†
Iran, Islamic Rep. of <sup>6</sup>	418	3.9	403	4.1	415	4.3	12	6.0	-3	5.8
Bahrain <sup>6</sup>	—	†	398	1.6	409	2.0	11	2.5	—	†
Jordan <sup>6</sup>	—	†	427	4.1	406	3.7	-21	5.6	—	†
<i>Palestinian Nat'l Auth.<sup>6</sup></i>	—	†	367	3.5	404	3.5	37	5.0	—	†
Indonesia <sup>6</sup>	—	†	397	3.8	386	4.3	-11	5.8	—	†
Syrian Arab Republic <sup>6</sup>	—	†	395	3.8	380	4.5	-15	5.8	—	†
Oman <sup>6</sup>	—	†	372	3.4	366	2.8	-6	4.4	—	†
Benchmarking education systems										
<i>Massachusetts-USA<sup>2,4</sup></i>	—	†	547	4.6	561	5.3	13	7.0	—	†
<i>Minnesota-USA<sup>4</sup></i>	518	7.3	532	4.4	545	4.6	12	6.4	26	8.6
<i>Quebec-CAN</i>	556	5.9	528	3.5	532	2.3	3	4.2	-25	6.3
<i>Ontario-CAN<sup>2</sup></i>	501	2.9	517	3.5	512	2.5	-6	4.3	11	3.8
<i>Alberta-CAN<sup>2</sup></i>	527	3.9	—	†	505	2.6	—	†	-22	4.7
<i>Dubai-UAE</i>	—	†	461	2.4	478	2.1	17	3.2	—	†

— Not available.

† Not applicable.

# Rounds to zero.

<sup>1</sup>The change in average score is calculated by subtracting the 2007 or 1995 estimate, respectively, from the 2011 estimate using unrounded numbers.<sup>2</sup>National Defined Population covers 90 to 95 percent of National Target Population for 2011 (see appendix A).<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included for 2011.<sup>4</sup>National Target Population does not include all of the International Target Population for 2011 (see appendix A).<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available for 2011.<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation for 2011 exceeds 15 percent, though it is less than 25 percent.

NOTE: Education systems are ordered by 2011 average scores. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Data are not shown for some education systems because comparable data from previous cycles are not available. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. For 1995, Lithuania's National Target Population did not include all of the International Target Population; the Russian Federation and Lithuania had a National Defined Population that covered 90 to 95 percent of National Target Population; England-GBR had a National Defined Population that covered less than 90 percent of National Target Population (but at least 77 percent); the United States, England-GBR, and Minnesota-USA met guidelines for sample participation rates only after replacement schools were included. For 2007, Lithuania, Georgia, and Indonesia had National Target Populations that did not include all of the International Target Population; Massachusetts-USA, Quebec-CAN, and Ontario-CAN had National Defined Population that covered 90 to 95 percent of National Target Population; Hong Kong-CHN, England-GBR, and Minnesota-USA met guidelines for sample participation rates only after replacement schools were included; Dubai-UAE nearly satisfied guidelines for sample participation rates after replacement schools were included. Detail may not sum to totals because of rounding. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, 2007, and 2011.

**Table E-5. Standard errors for table 5: Average mathematics content domain scores of 4th-grade students, by education system: 2011**

Education system	Number		Geometric shapes and measures		Data display	
	Average score	s.e.	Average score	s.e.	Average score	s.e.
Singapore <sup>1</sup>	619	3.4	589	3.6	588	3.4
Korea, Rep. of	606	2.0	607	1.7	603	1.9
<i>Hong Kong-CHN<sup>1</sup></i>	604	3.3	605	3.4	593	3.6
<i>Chinese Taipei-CHN</i>	599	2.0	573	2.1	600	2.6
Japan	584	1.6	589	2.0	590	2.9
<i>Northern Ireland-GBR<sup>2</sup></i>	566	2.9	560	3.3	555	3.0
<i>Belgium (Flemish)-BEL</i>	552	2.2	552	2.0	536	3.0
Finland	545	2.3	543	2.9	551	3.5
Russian Federation	545	3.3	542	4.3	533	4.1
Netherlands <sup>2</sup>	543	1.7	524	2.9	559	2.9
United States <sup>1</sup>	543	2.0	535	2.2	545	1.8
<i>England-GBR</i>	539	3.7	545	3.9	549	4.6
Lithuania <sup>1,3</sup>	537	2.4	531	3.0	526	3.0
Denmark <sup>1</sup>	534	2.4	548	3.0	532	3.0
Ireland	533	2.6	520	3.1	523	2.8
Serbia <sup>1</sup>	529	3.0	497	3.8	503	3.8
Portugal	522	3.7	548	4.4	548	2.8
Germany	520	2.3	536	2.6	546	2.8
Hungary	515	3.2	520	3.6	510	4.2
Kazakhstan <sup>1</sup>	515	4.1	491	5.3	476	5.7
Slovak Republic	511	3.7	500	4.3	504	4.6
Italy	510	2.7	513	3.1	495	3.1
Czech Republic	509	2.5	513	3.0	519	3.1
Australia	508	3.2	534	3.0	515	3.1
Austria	506	2.5	512	3.4	515	3.1
Slovenia	503	2.7	526	2.3	532	2.6
Sweden	500	2.2	500	2.4	523	3.0
Malta	498	1.9	487	1.5	498	1.6
Romania	497	5.6	469	5.7	457	6.8
Croatia <sup>1</sup>	491	1.8	490	2.5	488	2.7
Azerbaijan <sup>1,4</sup>	491	5.3	437	7.3	407	6.4
Norway <sup>5</sup>	488	3.1	507	3.0	494	3.2
Spain	487	3.0	476	3.0	479	3.6
Armenia	484	3.2	424	4.2	386	4.9
New Zealand	483	2.5	483	2.5	491	2.7
Poland	480	2.2	475	2.7	489	2.9
Turkey	477	4.5	447	5.0	478	5.2
Georgia <sup>3,4</sup>	473	3.1	411	4.3	433	4.0
Thailand	464	4.5	437	5.6	467	5.1
Chile	462	2.7	455	3.0	465	2.5
Iran, Islamic Rep. of	440	3.3	435	3.9	397	4.3
Bahrain	439	3.0	422	3.9	442	4.1
United Arab Emirates	438	2.1	418	2.3	437	1.9
Qatar <sup>1</sup>	417	3.3	399	3.9	416	4.6
Saudi Arabia	410	5.7	404	6.4	403	6.0
Tunisia <sup>6</sup>	390	3.7	329	4.6	300	5.5
Oman <sup>6</sup>	384	3.1	376	3.3	381	3.1
Morocco <sup>7</sup>	340	3.8	350	4.0	271	4.7
Kuwait <sup>3,7</sup>	333	4.1	321	4.2	347	3.8
Yemen <sup>7</sup>	261	6.4	193	6.5	204	6.0

See notes at end of table.

**Table E-5. Standard errors for table 5: Average mathematics content domain scores of 4th-grade students, by education system: 2011—Continued**

Benchmarking education systems	Number		Geometric shapes and measures		Data display	
	Average score	s.e.	Average score	s.e.	Average score	s.e.
<i>North Carolina-USA<sup>1,3</sup></i>	564	4.0	536	5.0	558	5.2
<i>Florida-USA<sup>3,8</sup></i>	548	3.2	546	3.8	541	3.4
<i>Quebec-CAN</i>	531	2.6	536	3.2	538	3.7
<i>Alberta-CAN<sup>1</sup></i>	505	2.7	496	2.6	524	3.1
<i>Ontario-CAN</i>	504	3.4	535	3.4	536	3.5
<i>Dubai-UAE</i>	474	1.7	449	2.3	471	3.1
<i>Abu Dhabi-UAE</i>	420	4.7	401	5.3	418	4.3

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>5</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

NOTE: Education systems are ordered by 2011 average score in *number* domain. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.  
SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-6. Standard errors for table 6: Average mathematics content domain scores of 8th-grade students, by education system: 2011**

Education system	Number		Algebra		Geometry		Data and chance	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Average score	s.e.
Korea, Rep. of	618	2.6	617	3.2	612	2.7	616	2.5
Singapore <sup>1</sup>	611	3.6	614	4.1	609	3.9	607	4.4
<i>Chinese Taipei-CHN</i>	598	3.1	628	3.8	625	3.7	584	3.0
<i>Hong Kong-CHN</i>	588	3.7	583	3.9	597	4.3	581	4.1
Japan	557	3.0	570	3.0	586	3.5	579	3.0
Russian Federation <sup>1</sup>	534	3.2	556	3.7	533	4.0	511	3.9
Finland	527	2.4	492	2.9	502	2.9	542	3.1
Israel <sup>2</sup>	518	4.0	492	4.7	496	4.6	515	4.8
United States <sup>1</sup>	514	3.0	512	2.6	485	2.7	527	3.3
Australia	513	5.4	489	5.3	499	5.4	534	5.9
<i>England-GBR<sup>3</sup></i>	512	5.8	489	5.7	498	5.7	543	6.8
Slovenia	511	2.5	493	2.6	504	3.1	518	3.3
Hungary	510	3.9	496	4.0	501	4.1	517	4.3
Sweden	504	1.8	459	2.2	456	2.3	504	2.7
Lithuania <sup>4</sup>	501	2.5	492	2.8	500	3.1	515	2.8
Italy	496	2.9	491	2.7	512	3.5	499	3.2
Norway	492	2.8	432	2.7	461	3.5	513	3.6
New Zealand	492	5.9	472	5.5	483	5.5	513	6.7
Kazakhstan	479	4.0	506	4.4	491	4.4	444	4.5
Armenia	474	2.4	496	2.8	450	3.3	376	3.7
Ukraine	472	4.1	487	4.4	476	4.3	471	4.0
United Arab Emirates	459	2.2	468	2.2	431	2.4	440	2.4
Lebanon	451	3.8	471	3.8	447	3.8	393	5.2
Malaysia	451	5.8	430	5.2	432	6.4	429	5.3
Romania	448	4.1	477	4.3	453	4.5	429	4.0
Georgia <sup>4,5</sup>	435	3.5	450	3.8	406	4.2	392	4.5
Turkey	435	3.9	455	4.2	454	4.3	467	4.0
Tunisia	431	2.8	419	2.9	426	3.2	398	3.3
Thailand	425	4.6	425	4.3	415	5.4	431	4.1
Macedonia, Rep. of <sup>6</sup>	418	5.1	448	5.3	419	6.0	389	5.9
Chile	413	2.9	403	3.6	419	3.1	426	3.1
Qatar <sup>6</sup>	408	3.4	425	2.8	387	3.6	390	3.6
Iran, Islamic Rep. of <sup>6</sup>	402	4.9	422	4.3	437	4.8	393	4.9
<i>Palestinian Nat'l Auth.<sup>6</sup></i>	400	3.4	419	3.3	416	3.6	368	3.6
Bahrain <sup>6</sup>	397	1.7	424	1.7	398	2.6	407	2.6
Saudi Arabia <sup>6</sup>	393	4.8	399	4.9	364	5.3	387	5.1
Jordan <sup>6</sup>	390	3.8	432	3.9	407	3.7	379	3.7
Morocco <sup>7</sup>	379	2.6	357	2.7	390	2.5	332	2.0
Indonesia <sup>6</sup>	375	4.8	392	3.8	377	5.3	376	4.8
Syrian Arab Republic <sup>6</sup>	373	4.0	391	4.9	386	5.0	343	4.7
Oman <sup>6</sup>	351	3.0	383	2.8	377	2.7	342	3.1
Ghana <sup>7</sup>	321	4.5	358	4.0	315	4.3	296	4.5

See notes at end of table.



**Table E-6. Standard errors for table 6: Average mathematics content domain scores of 8th-grade students, by education system: 2011—Continued**

Benchmarking education systems	Number		Algebra		Geometry		Data and chance	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Average score	s.e.
<i>Massachusetts-USA<sup>1,4</sup></i>	567	5.9	559	5.6	548	5.5	584	7.3
<i>Minnesota-USA<sup>4</sup></i>	556	5.3	543	4.9	515	6.2	571	6.2
<i>North Carolina-USA<sup>2,4</sup></i>	547	7.3	537	6.8	515	8.1	548	8.3
<i>Quebec-CAN</i>	543	2.5	516	2.9	529	2.7	549	2.8
<i>Indiana-USA<sup>1,4</sup></i>	528	5.4	520	5.3	498	5.3	545	6.0
<i>Connecticut-USA<sup>1,4</sup></i>	527	4.9	510	5.4	490	5.1	546	6.3
<i>Alberta-CAN<sup>1</sup></i>	523	3.0	485	2.7	485	3.0	529	3.8
<i>Colorado-USA<sup>4</sup></i>	521	5.1	512	5.1	505	5.7	540	5.7
<i>Ontario-CAN<sup>1</sup></i>	519	2.6	497	2.4	512	2.7	531	4.1
<i>Florida-USA<sup>1,4</sup></i>	517	7.0	513	6.4	499	6.8	528	9.0
<i>California-USA<sup>1,4</sup></i>	492	5.2	509	5.2	454	5.0	495	6.0
<i>Dubai-UAE</i>	479	2.3	489	2.4	453	3.0	468	2.8
<i>Alabama-USA<sup>4</sup></i>	463	7.1	471	5.3	443	6.0	480	7.9
<i>Abu Dhabi-UAE</i>	452	3.8	459	3.8	424	4.4	434	4.3

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population.

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

NOTE: Education systems are ordered by 2011 average score in *number* domain. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by *s.e.*

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-7. Standard errors for figure 3: Percentage of 4th-grade students reaching the TIMSS international benchmarks in mathematics, by education system: 2011**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
Singapore <sup>1</sup>	43	2.0	78	1.4	94	0.7	99	0.2
Korea, Rep. of	39	1.3	80	0.8	97	0.4	100	0.1
<i>Hong Kong-CHN<sup>1</sup></i>	37	1.8	80	1.6	96	1.0	99	0.5
<i>Chinese Taipei-CHN</i>	34	1.2	74	1.1	93	0.6	99	0.2
Japan	30	1.0	70	1.0	93	0.5	99	0.2
<i>Northern Ireland-GBR<sup>2</sup></i>	24	1.3	59	1.4	85	1.2	96	0.5
<i>England-GBR</i>	18	1.3	49	1.7	78	1.4	93	0.7
Russian Federation	13	1.4	47	2.0	82	1.4	97	0.6
United States <sup>1</sup>	13	0.8	47	1.1	81	0.8	96	0.3
Finland	12	0.8	49	1.3	85	1.2	98	0.4
Lithuania <sup>1,3</sup>	10	0.8	43	1.5	79	1.2	96	0.6
<i>Belgium (Flemish)-BEL</i>	10	0.8	50	1.3	89	0.8	99	0.2
Australia	10	0.9	35	1.4	70	1.4	90	1.0
Denmark <sup>1</sup>	10	1.0	44	1.5	82	1.1	97	0.6
Hungary	10	0.8	37	1.4	70	1.5	90	1.0
Serbia <sup>1</sup>	9	0.8	36	1.5	70	1.4	90	1.0
Ireland	9	0.9	41	1.6	77	1.4	94	0.6
Portugal	8	1.2	40	1.9	80	1.7	97	0.6
Kazakhstan <sup>1</sup>	7	1.0	29	2.0	62	2.4	88	1.2
Romania	7	0.6	28	1.7	57	2.2	79	1.9
Slovak Republic	5	0.7	30	1.7	69	1.6	90	1.2
Germany	5	0.5	37	1.4	81	1.3	97	0.6
Azerbaijan <sup>1,4</sup>	5	1.0	21	2.3	46	2.3	72	1.9
Italy	5	0.6	28	1.4	69	1.3	93	0.8
Netherlands <sup>2</sup>	5	0.6	44	1.5	88	0.8	99	0.2
Czech Republic	4	0.5	30	1.5	72	1.3	93	0.8
Turkey	4	0.5	21	1.4	51	1.7	77	1.5
Slovenia	4	0.5	31	1.4	72	1.4	94	0.6
New Zealand	4	0.5	23	1.1	58	1.3	85	0.8
Malta	4	0.3	25	0.9	63	0.8	88	0.6
Sweden	3	0.4	25	1.2	69	1.4	93	0.7
Austria	2	0.3	26	1.5	70	1.9	95	0.8
Norway <sup>5</sup>	2	0.4	21	1.6	63	1.8	91	1.0
United Arab Emirates	2	0.2	12	0.5	35	0.8	64	1.0
Armenia	2	0.4	14	1.0	41	1.7	72	1.4
Qatar <sup>1</sup>	2	0.4	10	0.9	29	1.4	55	1.6
Georgia <sup>3,4</sup>	2	0.5	12	1.0	41	1.7	72	1.7
Chile	2	0.3	14	0.7	44	1.1	77	1.2
Saudi Arabia	2	0.7	7	1.3	24	1.9	55	1.8
Poland	2	0.3	17	1.1	56	1.3	87	0.9
Croatia <sup>1</sup>	2	0.3	19	1.0	60	1.2	90	0.9
Bahrain	1	0.3	10	0.9	34	1.4	67	1.4
Spain	1	0.3	17	1.1	56	1.9	87	1.3
Thailand	1	0.3	12	1.4	43	2.3	77	2.1
Iran, Islamic Rep. of	1	0.2	9	0.8	33	1.4	64	1.5
Oman <sup>6</sup>	1	0.1	5	0.3	20	0.8	46	1.2
Morocco <sup>7</sup>	#	0.2	2	0.7	10	1.2	26	1.5
Kuwait <sup>3,7</sup>	#	0.1	1	0.3	9	0.7	30	1.3
Yemen <sup>7</sup>	#	0.0	#	0.2	2	0.5	9	1.0
Tunisia <sup>6</sup>	#	0.0	2	0.3	11	1.0	35	1.8
International median	4	0.0	28	0.0	69	0.0	90	0.0

See notes at end of table.

**Table E-7. Standard errors for figure 3: Percentage of 4th-grade students reaching the TIMSS international benchmarks in mathematics, by education system: 2011—Continued**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
<i>North Carolina-USA<sup>1,3</sup></i>	16	1.8	54	2.6	86	1.7	98	0.6
<i>Florida-USA<sup>3,8</sup></i>	14	1.3	47	1.7	83	1.2	97	0.4
<i>Ontario-CAN</i>	7	0.8	34	1.7	73	1.6	94	0.7
<i>Quebec-CAN</i>	6	0.8	40	1.7	83	1.2	99	0.2
<i>Dubai-UAE</i>	5	0.5	22	0.8	50	0.8	75	0.9
<i>Alberta-CAN<sup>1</sup></i>	3	0.5	25	1.6	70	1.4	94	0.9
<i>Abu Dhabi-UAE</i>	1	0.4	8	1.1	29	2.0	58	2.0

# Rounds to zero.

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>5</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

NOTE: Education systems are ordered by percentage at *Advanced* international benchmark. Italics indicate participants identified and counted in this report as an education system and not as a separate country. The TIMSS international median represents all participating TIMSS education systems, including the United States, shown in the main part of the figure; benchmarking education systems are not included in the median. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-8. Standard errors for figure 4: Percentage of 8th-grade students reaching the TIMSS international benchmarks in mathematics, by education system: 2011**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
<i>Chinese Taipei-CHN</i>	49	1.5	73	1.0	88	0.7	96	0.4
Singapore <sup>1</sup>	48	2.0	78	1.8	92	1.1	99	0.3
Korea, Rep. of	47	1.6	77	0.9	93	0.6	99	0.2
<i>Hong Kong-CHN</i>	34	2.0	71	1.7	89	1.4	97	0.8
Japan	27	1.3	61	1.3	87	0.7	97	0.3
Russian Federation <sup>1</sup>	14	1.2	47	2.0	78	1.4	95	0.7
Israel <sup>2</sup>	12	1.2	40	1.7	68	1.8	87	1.2
Australia	9	1.7	29	2.6	63	2.4	89	1.1
<i>England-GBR</i> <sup>3</sup>	8	1.4	32	2.9	65	2.7	88	1.6
Hungary	8	0.7	32	1.4	65	1.6	88	1.2
Turkey	7	0.9	20	1.2	40	1.5	67	1.3
United States <sup>1</sup>	7	0.8	30	1.4	68	1.3	92	0.7
Romania	5	0.8	19	1.3	44	1.7	71	1.5
Lithuania <sup>4</sup>	5	0.6	29	1.3	64	1.4	90	0.7
New Zealand	5	0.8	24	2.6	57	2.8	84	1.6
Ukraine	5	0.6	22	1.6	53	2.0	81	1.4
Slovenia	4	0.4	27	1.2	67	1.4	93	0.7
Finland	4	0.5	30	1.5	73	1.5	96	0.6
Italy	3	0.5	24	1.1	64	1.4	90	1.1
Armenia	3	0.4	18	0.9	49	1.4	76	1.2
Kazakhstan	3	0.7	23	1.8	57	2.1	85	1.3
Macedonia, Rep. of <sup>5</sup>	3	0.6	12	1.3	35	1.9	61	1.9
Georgia <sup>4,6</sup>	3	0.3	13	1.0	36	1.5	62	1.6
United Arab Emirates	2	0.2	14	0.7	42	1.1	73	0.9
Qatar <sup>5</sup>	2	0.3	10	0.8	29	1.2	54	1.4
Iran, Islamic Rep. of <sup>5</sup>	2	0.5	8	1.1	26	1.6	55	1.8
Malaysia	2	0.4	12	1.5	36	2.4	65	2.5
Thailand	2	0.4	8	1.3	28	1.9	62	2.1
Bahrain <sup>5</sup>	1	0.2	8	0.7	26	0.7	53	0.8
Sweden	1	0.3	16	0.9	57	1.1	89	0.7
<i>Palestinian Nat'l Auth.</i> <sup>5</sup>	1	0.3	7	0.7	25	1.3	52	1.5
Lebanon	1	0.2	9	1.0	38	2.2	73	1.9
Norway	1	0.2	12	0.9	51	1.6	87	1.3
Saudi Arabia <sup>5</sup>	1	0.2	5	0.8	20	1.7	47	2.0
Chile	1	0.2	5	0.6	23	1.1	57	1.6
Jordan <sup>5</sup>	#	0.1	6	0.5	26	1.2	55	1.7
Oman <sup>5</sup>	#	0.1	4	0.3	16	0.6	39	1.1
Tunisia	#	0.2	5	0.9	25	1.4	61	1.3
Syrian Arab Republic <sup>5</sup>	#	0.1	3	0.5	17	1.4	43	1.9
Indonesia <sup>5</sup>	#	0.1	2	0.5	15	1.2	43	2.1
Morocco <sup>7</sup>	#	0.0	2	0.2	12	0.5	36	1.0
Ghana <sup>7</sup>	#	0.0	1	0.2	5	0.8	21	1.8
International median	3	0.0	17	0.0	46	0.0	75	0.0

See notes at end of table.

**Table E-8. Standard errors for figure 4: Percentage of 8th-grade students reaching the TIMSS international benchmarks in mathematics, by education system: 2011—Continued**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
<i>Massachusetts-USA<sup>1,4</sup></i>	19	3.0	57	3.2	88	1.4	98	0.3
<i>North Carolina-USA<sup>2,4</sup></i>	14	2.6	44	3.6	78	2.5	95	1.3
<i>Minnesota-USA<sup>4</sup></i>	13	2.3	49	2.8	83	1.9	97	0.7
<i>Connecticut-USA<sup>1,4</sup></i>	10	1.3	37	2.9	69	2.5	91	1.4
<i>Florida-USA<sup>1,4</sup></i>	8	1.6	31	3.2	68	3.3	94	1.3
<i>Colorado-USA<sup>4</sup></i>	8	1.1	35	2.7	71	2.5	93	1.1
<i>Indiana-USA<sup>1,4</sup></i>	7	1.2	35	3.3	74	2.3	95	1.0
<i>Quebec-CAN</i>	6	0.6	40	1.8	82	1.3	98	0.4
<i>Dubai-UAE</i>	5	0.7	23	1.2	53	1.0	79	0.8
<i>California-USA<sup>1,4</sup></i>	5	0.9	24	2.5	59	2.8	87	1.7
<i>Ontario-CAN<sup>1</sup></i>	4	0.6	31	1.4	71	1.4	94	0.7
<i>Alberta-CAN<sup>1</sup></i>	3	0.5	24	1.3	69	1.6	95	0.7
<i>Alabama-USA<sup>4</sup></i>	2	0.8	15	2.5	46	3.1	79	2.2
<i>Abu Dhabi-UAE</i>	2	0.5	12	1.2	39	1.8	71	1.5

# Rounds to zero.

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>6</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered covered and no official statistics were available.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

NOTE: Education systems are ordered by percentage at *Advanced* international benchmark. Italics indicate participants identified and counted in this report as an education system and not as a separate country. The TIMSS international median represents all participating TIMSS education systems, including the United States, shown in the main part of the figure; benchmarking education systems are not included in the median. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-9. Standard errors for figure 5: Difference in average mathematics scores of 4th-grade students, by sex and education system: 2011**

Education system	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
Spain	477	3.1	488	3.4	11	3.0
Czech Republic	505	2.8	516	2.7	11	2.7
Croatia <sup>1</sup>	485	2.4	495	2.4	10	2.8
Slovenia	508	2.2	518	3.1	10	3.2
Chile	457	2.7	466	2.8	9	3.3
Austria	504	2.7	513	3.3	9	2.8
Poland	476	2.4	486	2.5	9	2.5
Italy	503	3.1	512	2.9	9	3.0
United States <sup>1</sup>	536	2.1	545	1.9	9	1.7
Germany	523	2.7	532	2.6	8	2.7
Slovak Republic	503	4.0	511	3.9	8	2.6
<i>Belgium (Flemish)-BEL</i>	545	2.2	553	2.4	8	2.5
Netherlands <sup>2</sup>	536	2.1	544	2.1	8	2.4
Finland	542	2.5	549	2.9	7	2.8
Norway <sup>3</sup>	492	2.8	499	3.5	7	2.8
Malta	492	1.6	499	2.1	7	2.5
Korea, Rep. of	601	2.1	608	2.2	7	2.0
<i>Hong Kong-CHN<sup>1</sup></i>	598	3.2	604	3.9	6	2.3
Serbia <sup>1</sup>	513	3.8	519	3.5	6	4.1
Portugal	529	4.1	535	3.4	6	3.2
Australia	513	3.3	519	3.6	6	3.8
Denmark <sup>1</sup>	534	2.9	540	2.9	6	2.8
Kazakhstan <sup>1</sup>	498	4.4	504	4.8	5	2.6
Sweden	501	2.5	506	2.4	5	2.7
Ireland	526	3.7	529	3.3	3	4.6
<i>England-GBR</i>	541	4.2	544	3.5	3	3.4
Japan	584	2.0	587	2.5	3	3.0
Romania	481	6.7	484	5.9	3	4.5
Hungary	514	3.6	517	3.9	2	3.2
Lithuania <sup>1,4</sup>	533	2.6	534	2.9	1	2.6
Iran, Islamic Rep. of	431	5.2	431	5.4	#	8.0
New Zealand	486	3.3	486	2.8	#	3.1
<i>Northern Ireland-GBR<sup>2</sup></i>	562	3.3	563	3.6	#	3.8
Russian Federation	543	3.7	542	4.1	-1	2.4
<i>Chinese Taipei-CHN</i>	592	2.5	590	2.4	-2	2.8
Turkey	470	5.2	469	4.8	-2	3.8
Armenia	454	4.1	451	3.6	-3	3.0
Singapore <sup>1</sup>	608	3.6	604	3.5	-4	3.0
Azerbaijan <sup>1,5</sup>	466	6.4	460	5.9	-7	3.9
Morocco <sup>6</sup>	338	4.6	331	4.3	-7	3.9
Tunisia <sup>7</sup>	363	4.5	356	4.4	-7	4.4
Georgia <sup>4,5</sup>	454	3.2	447	4.9	-7	3.9
Bahrain	440	4.5	432	4.0	-7	5.5
United Arab Emirates	438	2.8	430	3.5	-8	5.0
Yemen <sup>6</sup>	255	7.0	243	7.0	-12	7.6
Qatar <sup>1</sup>	420	4.7	407	4.2	-13	5.6
Thailand	465	4.8	451	5.6	-14	4.4
Saudi Arabia	418	4.6	402	10.0	-16	11.2
Oman <sup>7</sup>	398	3.2	372	3.4	-26	3.3
Kuwait <sup>4,6</sup>	358	3.6	323	5.8	-35	6.8

See notes at end of table.

**Table E-9. Standard errors for figure 5: Difference in average mathematics scores of 4th-grade students, by sex and education system: 2011—Continued**

Benchmarking education systems	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
<i>North Carolina-USA<sup>1,4</sup></i>	548	4.0	560	4.9	12	3.2
<i>Quebec-CAN</i>	527	2.8	538	2.7	11	2.6
<i>Alberta-CAN<sup>1</sup></i>	502	3.1	511	2.7	9	3.1
<i>Florida-USA<sup>4,8</sup></i>	542	2.8	549	3.9	7	3.3
<i>Ontario-CAN</i>	515	3.3	521	3.4	6	2.6
<i>Dubai-UAE</i>	466	3.5	470	3.9	4	6.7
<i>Abu Dhabi-UAE</i>	425	5.0	409	6.7	-16	7.9

# Rounds to zero.

<sup>1</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

NOTE: Education systems are ordered by male-female difference in average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-10. Standard errors for figure 6: Difference in average mathematics scores of 8th-grade students, by sex and education system: 2011**

Education system	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
Ghana <sup>1</sup>	318	4.8	342	4.3	23	2.9
New Zealand	478	5.5	496	6.2	18	4.7
Tunisia	417	3.1	433	3.1	17	2.5
Chile	409	3.2	424	3.0	14	3.6
Lebanon	444	4.2	456	4.7	12	4.7
Italy	493	2.9	504	2.8	11	2.9
Syrian Arab Republic <sup>2</sup>	375	5.3	385	5.3	11	5.7
Australia	500	4.7	509	7.3	9	6.9
Japan	566	3.1	574	3.5	8	4.1
Iran, Islamic Rep. of <sup>2</sup>	411	5.9	418	5.9	7	8.1
Korea, Rep. of	610	3.5	616	3.1	6	3.1
Hungary	502	3.9	508	3.9	6	3.5
Slovenia	502	2.4	507	2.8	5	2.8
United States <sup>3</sup>	508	2.9	511	2.8	4	2.2
Ukraine	478	4.0	481	4.9	3	4.4
Georgia <sup>4,5</sup>	430	4.1	432	4.4	3	4.0
Kazakhstan	486	4.1	488	4.5	2	3.3
Russian Federation <sup>3</sup>	539	3.8	539	3.9	1	2.9
Morocco <sup>1</sup>	371	2.3	371	2.7	#	3.2
Norway	476	2.9	473	2.9	-3	3.1
England-GBR <sup>6</sup>	508	5.7	505	6.6	-3	5.6
Sweden	486	2.1	482	2.4	-4	2.4
Finland	516	2.7	512	2.7	-4	2.3
Hong Kong-CHN	588	5.0	583	4.3	-6	5.5
Chinese Taipei-CHN	613	3.7	606	3.8	-6	4.1
Macedonia, Rep. of <sup>2</sup>	430	5.8	423	5.6	-7	4.7
Israel <sup>7</sup>	520	3.9	512	5.2	-8	4.4
Singapore <sup>3</sup>	615	3.7	607	4.5	-9	3.5
Turkey	457	3.8	448	4.7	-9	3.5
Lithuania <sup>4</sup>	507	2.6	498	3.2	-9	3.0
Armenia	472	3.1	462	3.2	-10	3.1
Romania	464	4.6	453	4.2	-11	3.6
Qatar <sup>2</sup>	415	5.8	404	5.5	-11	9.5
Indonesia <sup>2</sup>	392	4.9	379	4.5	-13	4.0
Saudi Arabia <sup>2</sup>	401	4.1	387	8.0	-15	8.9
United Arab Emirates	464	2.7	447	3.1	-17	4.2
Thailand	435	4.2	417	5.3	-18	4.4
Malaysia	449	5.2	430	6.2	-19	4.4
Palestinian Nat'l Auth. <sup>2</sup>	415	4.2	392	5.6	-23	7.0
Jordan <sup>2</sup>	420	4.3	392	5.9	-28	7.4
Bahrain <sup>2</sup>	431	2.5	388	3.1	-43	4.0
Oman <sup>2</sup>	397	3.1	334	3.8	-63	4.6

See notes at end of table.



**Table E-10. Standard errors for figure 6: Difference in average mathematics scores of 8th-grade students, by sex and education system: 2011—Continued**

Benchmarking education systems	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
<i>Indiana-USA<sup>3,4</sup></i>	518	5.1	526	5.9	8	4.0
<i>Florida-USA<sup>3,4</sup></i>	509	6.6	517	7.3	8	5.5
<i>Massachusetts-USA<sup>3,4</sup></i>	558	6.0	563	5.5	5	4.5
<i>Colorado-USA<sup>4</sup></i>	516	5.4	520	5.0	4	3.4
<i>California-USA<sup>3,4</sup></i>	491	5.6	494	5.0	3	4.1
<i>North Carolina-USA<sup>4,7</sup></i>	535	6.2	539	8.3	3	5.1
<i>Alberta-CAN<sup>3</sup></i>	504	3.3	506	2.7	2	3.0
<i>Minnesota-USA<sup>4</sup></i>	545	4.9	545	5.1	#	3.9
<i>Quebec-CAN</i>	531	2.9	532	2.5	#	2.7
<i>Ontario-CAN<sup>3</sup></i>	512	2.7	512	3.1	#	3.1
<i>Alabama-USA<sup>4</sup></i>	467	6.3	465	6.2	-2	3.9
<i>Abu Dhabi-UAE</i>	450	3.9	448	5.7	-2	6.4
<i>Connecticut-USA<sup>3,4</sup></i>	520	5.2	516	5.4	-4	4.5
<i>Dubai-UAE</i>	486	4.3	470	5.4	-16	8.9

# Rounds to zero.

<sup>1</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>2</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>3</sup>National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered covered and no official statistics were available.

<sup>6</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>7</sup>National Defined Population covers less than 90 percent, but at least 77 percent, of the National Target Population (see appendix A).

NOTE: Education systems are ordered by male-female difference in average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-11. Standard errors for figure 7: Average mathematics scores of U.S. 4th- and 8th-grade students, by race/ethnicity: 2011**

Race/ethnicity	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
White	559	2.1	530	2.8
Black	489	3.4	465	4.1
Hispanic	520	2.3	485	3.2
Asian	583	5.7	568	7.8
Multiracial	554	5.0	513	4.5

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Students who identified themselves as being of Hispanic origin were classified as Hispanic, regardless of their race. Although data for some race/ethnicities are not shown separately because the reporting standards were not met, they are included in the U.S. and state totals shown throughout the report. See appendix A in this report for more information. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-12. Standard errors for figure 8: Average mathematics scores of U.S. 4th- and 8th-grade students, by percentage of public school students eligible for free or reduced-price lunch: 2011**

Percentage of students in school eligible for free or reduced-price lunch	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
Less than 10 percent	596	3.8	533	7.7
10 percent to 24.9 percent	570	3.4	537	6.9
25 percent to 49.9 percent	557	2.8	519	4.4
50 percent to 74.9 percent	525	3.8	498	5.6
75 percent or more	505	3.6	468	5.0

NOTE: Analyses are limited to public schools only, based on school reports of the percentage of students in public school eligible for the federal free or reduced-price lunch program. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-13. Standard errors for table 9: Average mathematics scores in grade 8 for selected student groups in public schools in Alabama: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Alabama average	466	5.9
Sex		
Female	467	6.3
Male	465	6.3
Race/ethnicity		
White	489	6.5
Black	428	4.8
Hispanic	454	9.6
Asian	509	42.3
Multiracial	492	11.0
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	536	31.6
10 percent to 24.9 percent	510	23.4
25 percent to 49.9 percent	482	7.3
50 percent to 74.9 percent	464	6.0
75 percent or more	429	8.5

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-14. Standard errors for table 11: Average mathematics scores in grade 8 for selected student groups in public schools in California: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
California average	493	4.9
Sex		
Female	491	5.6
Male	494	5.0
Race/ethnicity		
White	525	6.7
Black	468	12.9
Hispanic	470	5.4
Asian	555	10.4
Multiracial	519	7.8
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	524	14.7
10 percent to 24.9 percent	540	12.8
25 percent to 49.9 percent	530	11.1
50 percent to 74.9 percent	489	10.5
75 percent or more	455	7.6

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-15. Standard errors for table 13: Average mathematics scores in grade 8 for selected student groups in public schools in Colorado: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Colorado average	518	4.9
Sex		
Female	516	5.3
Male	520	5.0
Race/ethnicity		
White	544	5.2
Black	487	19.1
Hispanic	480	5.1
Asian	545	12.6
Multiracial	522	13.1
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	507	18.6
10 percent to 24.9 percent	547	6.2
25 percent to 49.9 percent	534	7.1
50 percent to 74.9 percent	491	13.2
75 percent or more	460	15.0

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-16. Standard errors for table 15: Average mathematics scores in grade 8 for selected student groups in public schools in Connecticut: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Connecticut average	518	4.8
Sex		
Female	520	5.1
Male	516	5.5
Race/ethnicity		
White	543	5.4
Black	453	9.7
Hispanic	467	5.7
Asian	577	13.2
Multiracial	516	10.6
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	567	8.8
10 percent to 24.9 percent	535	10.6
25 percent to 49.9 percent	490	8.0
50 percent to 74.9 percent	456	20.7
75 percent or more	420	7.5

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-17. Standard errors for table 17: Average mathematics scores in grade 4 and 8 for selected student groups in public schools in Florida: 2011**

Reporting Groups	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
TIMSS scale average	500	0.0	500	0.0
U.S. average	541	1.8	509	2.6
Florida average	545	2.9	513	6.4
Sex				
Female	542	3.0	509	6.9
Male	549	3.8	517	7.4
Race/ethnicity				
White	570	4.2	531	6.1
Black	504	3.8	484	7.8
Hispanic	536	3.1	505	10.5
Asian	609	13.7	615	16.9
Multiracial	576	8.3	505	9.1
Percentage of public school students eligible for free or reduced-price lunch				
Less than 10 percent	606	5.8	†	†
10 percent to 24.9 percent	595	8.4	546	12.2
25 percent to 49.9 percent	555	5.8	529	7.8
50 percent to 74.9 percent	538	6.3	511	11.2
75 percent or more	521	4.0	492	18.9

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.



**Table E-18. Standard errors for table 19: Average mathematics scores in grade 8 for selected student groups in public schools in Indiana: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Indiana average	522	5.1
Sex		
Female	518	5.1
Male	526	5.8
Race/ethnicity		
White	530	5.7
Black	467	9.3
Hispanic	501	6.4
Asian	521	36.5
Multiracial	530	8.0
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	‡	†
10 percent to 24.9 percent	551	9.7
25 percent to 49.9 percent	527	7.3
50 percent to 74.9 percent	508	9.5
75 percent or more	474	12.6

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-19. Standard errors for table 21: Average mathematics scores in grade 8 for selected student groups in public schools in Massachusetts: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Massachusetts average	561	5.3
Sex		
Female	558	6.0
Male	563	5.7
Race/ethnicity		
White	572	5.9
Black	516	10.2
Hispanic	507	7.6
Asian	599	7.5
Multiracial	567	10.1
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	584	8.7
10 percent to 24.9 percent	576	9.7
25 percent to 49.9 percent	542	8.2
50 percent to 74.9 percent	559	11.6
75 percent or more	491	11.4

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-20. Standard errors for table 23: Average mathematics scores in grade 8 for selected student groups in public schools in Minnesota: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	509	2.6
Minnesota average	545	4.6
Sex		
Female	545	5.2
Male	545	5.3
Race/ethnicity		
White	558	4.8
Black	497	12.3
Hispanic	496	7.0
Asian	536	14.8
Multiracial	536	7.6
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	572	10.5
10 percent to 24.9 percent	559	9.2
25 percent to 49.9 percent	536	4.4
50 percent to 74.9 percent	549	12.1
75 percent or more	470	23.9

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-21. Standard errors for table 25: Average mathematics scores in grade 4 and 8 for selected student groups in public schools in North Carolina: 2011**

Reporting Groups	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
TIMSS scale average	500	0.0	500	0.0
U.S. average	541	1.8	509	2.6
North Carolina average	554	4.2	537	6.8
Sex				
Female	548	4.1	535	6.4
Male	560	4.9	539	8.1
Race/ethnicity				
White	577	3.3	563	7.3
Black	512	5.5	495	8.6
Hispanic	538	5.7	510	8.9
Asian	613	13.6	605	19.6
Multiracial	572	10.2	525	8.2
Percentage of public school students eligible for free or reduced-price lunch				
Less than 10 percent	‡	†	605	33.7
10 percent to 24.9 percent	587	14.4	572	10.9
25 percent to 49.9 percent	568	4.6	543	13.9
50 percent to 74.9 percent	550	5.8	521	14.5
75 percent or more	519	8.4	516	12.1

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-22. Standard errors for table 26: Average science scores of 4th-grade students, by education system: 2011**

Grade 4			Grade 4		
Education system	Average score	s.e.	Education system	Average score	s.e.
TIMSS scale average	500	0.0	New Zealand	497	2.3
Korea, Rep. of	587	2.0	Kazakhstan <sup>1</sup>	495	5.1
Singapore <sup>1</sup>	583	3.4	Norway <sup>4</sup>	494	2.3
Finland	570	2.6	Chile	480	2.4
Japan	559	1.9	Thailand	472	5.6
Russian Federation	552	3.5	Turkey	463	4.5
<i>Chinese Taipei-CHN</i>	552	2.2	Georgia <sup>3,5</sup>	455	3.8
United States <sup>1</sup>	544	2.1	Iran, Islamic Rep. of	453	3.7
Czech Republic	536	2.5	Bahrain	449	3.5
<i>Hong Kong-CHN<sup>1</sup></i>	535	3.8	Malta	446	1.9
Hungary	534	3.7	Azerbaijan <sup>1,5</sup>	438	5.6
Sweden	533	2.7	Saudi Arabia	429	5.4
Slovak Republic	532	3.8	United Arab Emirates	428	2.5
Austria	532	2.8	Armenia	416	3.8
Netherlands <sup>2</sup>	531	2.2	Qatar <sup>1</sup>	394	4.3
<i>England-GBR</i>	529	2.9	Oman	377	4.3
Denmark <sup>1</sup>	528	2.8	Kuwait <sup>3,6</sup>	347	4.7
Germany	528	2.9	Tunisia <sup>6</sup>	346	5.3
Italy	524	2.7	Morocco <sup>7</sup>	264	4.5
Portugal	522	3.9	Yemen <sup>7</sup>	209	7.3
Slovenia	520	2.7			
<i>Northern Ireland-GBR<sup>2</sup></i>	517	2.6	Benchmarking education systems		
Ireland	516	3.4			
Croatia <sup>1</sup>	516	2.1	<i>Florida-USA<sup>3,8</sup></i>	545	3.7
Australia	516	2.8	<i>Alberta-CAN<sup>1</sup></i>	541	2.4
Serbia <sup>1</sup>	516	3.1	<i>North Carolina-USA<sup>1,3</sup></i>	538	4.6
Lithuania <sup>1,3</sup>	515	2.4	<i>Ontario-CAN</i>	528	3.0
<i>Belgium (Flemish)-BEL</i>	509	2.0	<i>Quebec-CAN</i>	516	2.7
Romania	505	5.9	<i>Dubai-UAE</i>	461	2.3
Spain	505	3.0	<i>Abu Dhabi-UAE</i>	411	4.9
Poland	505	2.6			

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>5</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

NOTE: Education systems are ordered by 2011 average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-23. Standard errors for table 27: Average science scores of 8th-grade students, by education system: 2011**

Grade 8			Grade 8		
Education system	Average score	s.e.	Education system	Average score	s.e.
TIMSS scale average	500	0.0	Armenia	437	3.1
Singapore <sup>1</sup>	590	4.3	Saudi Arabia	436	3.9
<i>Chinese Taipei-CHN</i>	564	2.3	Malaysia	426	6.3
<i>Korea, Rep. of</i>	560	2.0	Syrian Arab Republic	426	3.9
<i>Japan</i>	558	2.4	<i>Palestinian Nat'l Auth.</i>	420	3.2
Finland	552	2.5	Georgia <sup>4,5</sup>	420	3.0
<i>Slovenia</i>	543	2.7	Oman	420	3.2
Russian Federation <sup>1</sup>	542	3.2	Qatar	419	3.4
<i>Hong Kong-CHN</i>	535	3.4	Macedonia, Rep. of	407	5.4
<i>England-GBR<sup>2</sup></i>	533	4.9	Lebanon	406	4.9
United States <sup>1</sup>	525	2.6	Indonesia	406	4.5
Hungary	522	3.1	Morocco	376	2.2
Australia	519	4.8	Ghana <sup>6</sup>	306	5.2
Israel <sup>3</sup>	516	4.0			
Lithuania <sup>4</sup>	514	2.6	Benchmarking		
New Zealand	512	4.6	education systems		
Sweden	509	2.5	<i>Massachusetts-USA<sup>1,4</sup></i>	567	5.1
Italy	501	2.5	<i>Minnesota-USA<sup>4</sup></i>	553	4.6
Ukraine	501	3.4	<i>Alberta-CAN<sup>1</sup></i>	546	2.4
Norway	494	2.6	<i>Colorado-USA<sup>4</sup></i>	542	4.4
Kazakhstan	490	4.3	<i>Indiana-USA<sup>1,4</sup></i>	533	4.8
Turkey	483	3.4	<i>Connecticut-USA<sup>1,4</sup></i>	532	4.6
Iran, Islamic Rep. of	474	4.0	<i>North Carolina-USA<sup>3,4</sup></i>	532	6.3
Romania	465	3.5	<i>Florida-USA<sup>1,4</sup></i>	530	7.3
United Arab Emirates	465	2.4	<i>Ontario-CAN<sup>1</sup></i>	521	2.5
Chile	461	2.5	<i>Quebec-CAN</i>	520	2.5
Bahrain	452	2.0	<i>California-USA<sup>1,4</sup></i>	499	4.6
Thailand	451	3.9	<i>Alabama-USA<sup>4</sup></i>	485	6.2
Jordan	449	4.0	<i>Dubai-UAE</i>	485	2.5
Tunisia	439	2.5	<i>Abu Dhabi-UAE</i>	461	4.0

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>3</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

NOTE: Education systems are ordered by 2011 average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-24. Standard errors for figure 9: Change in average science scores of 4th-grade students, by education system: 2007–2011 and 1995–2011**

Education system	1995		2007		2011		2007–2011		1995–2011	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Change in average score <sup>1</sup>	s.e.	Change in average score <sup>1</sup>	s.e.
Korea, Rep. of	576	2.1	—	†	587	2.0	—	†	11	2.9
Singapore <sup>2</sup>	523	4.8	587	4.1	583	3.4	-3	5.3	60	5.9
Japan	553	1.8	548	2.1	559	1.9	11	2.8	5	2.6
Russian Federation	—	†	546	4.8	552	3.5	6	5.9	—	†
Chinese Taipei-CHN	—	†	557	2.0	552	2.2	-5	3.0	—	†
United States <sup>2</sup>	542	3.3	539	2.7	544	2.1	5	3.4	2	3.9
Czech Republic	532	3.0	515	3.1	536	2.5	21	4.0	5	3.9
Hong Kong-CHN <sup>2</sup>	508	3.3	554	3.5	535	3.8	-19	5.2	27	5.0
Hungary	508	3.4	536	3.3	534	3.7	-2	5.0	27	5.0
Sweden	—	†	525	2.9	533	2.7	9	3.9	—	†
Slovak Republic	—	†	526	4.8	532	3.8	6	6.1	—	†
Austria	538	3.6	526	2.5	532	2.8	6	3.8	-6	4.6
Netherlands <sup>3</sup>	530	3.2	523	2.6	531	2.2	8	3.4	1	3.9
England-GBR	528	3.1	542	2.9	529	2.9	-13	4.1	1	4.3
Denmark <sup>2</sup>	—	†	517	2.9	528	2.8	11	4.0	—	†
Germany	—	†	528	2.4	528	2.9	#	3.7	—	†
Italy	—	†	535	3.2	524	2.7	-11	4.2	—	†
Portugal	452	4.1	—	†	522	3.9	—	†	70	5.6
Slovenia	464	3.1	518	1.9	520	2.7	2	3.3	56	4.1
Ireland	515	3.5	—	†	516	3.4	—	†	1	4.8
Australia	521	3.8	527	3.3	516	2.8	-12	4.4	-6	4.8
Lithuania <sup>2,4</sup>	—	†	514	2.4	515	2.4	#	3.4	—	†
New Zealand	505	5.3	504	2.6	497	2.3	-7	3.5	-8	5.8
Norway <sup>5</sup>	504	3.7	477	3.5	494	2.3	17	4.2	-10	4.4
Georgia <sup>4,6</sup>	—	†	418	4.6	455	3.8	37	6.0	—	†
Iran, Islamic Rep. of	380	4.6	436	4.3	453	3.7	17	5.7	73	5.9
Tunisia <sup>7</sup>	—	†	318	5.9	346	5.3	27	7.9	—	†
Benchmarking education systems										
Alberta-CAN <sup>2</sup>	555	8.4	543	3.8	541	2.4	-1	4.5	-14	8.8
Ontario-CAN	516	3.7	536	3.7	528	3.0	-8	4.8	11	4.8
Quebec-CAN	529	4.8	517	2.7	516	2.7	-1	3.8	-12	5.6
Dubai-UAE	—	†	460	2.8	461	2.3	2	3.6	—	†

— Not available.

† Not applicable.

# Rounds to zero.

<sup>1</sup>The change in average score is calculated by subtracting the 2007 or 1995 estimate, respectively, from the 2011 estimate using unrounded numbers.<sup>2</sup>National Defined Population covers 90 to 95 percent of National Target Population for 2011 (see appendix A).<sup>3</sup>Met guidelines for sample participation rates only after replacement schools were included for 2011.<sup>4</sup>National Target Population does not include all of the International Target Population for 2011 (see appendix A).<sup>5</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included for 2011.<sup>6</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available for 2011.<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent for 2011.

NOTE: Education systems are ordered by 2011 average scores. Italics indicate participants identified and counted in this report as an education system and not as a separate country. All education systems met international sampling and other guidelines in 2011, except as noted. Data are not shown for some education systems because comparable data from previous cycles are not available. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. For 1995, Korea, Portugal, and Ontario-CAN had National Defined Population covering 90 to 95 percent of National Target Population; England-GBR had National Defined Population that covered less than 90 percent of National Target Population (but at least 77 percent); England-GBR, Netherlands, Australia, and Austria did not satisfy guidelines for sample participation rates. For 2007, the United States, Quebec-CAN, Ontario-CAN, and Alberta-CAN had National Defined Population covering 90 to 95 percent of National Target Population; the United States and Denmark met guidelines for sample participation rates only after replacement schools were included; the Netherlands and Dubai-UAE nearly satisfied guidelines for sample participation rates after replacement schools were included; Georgia had a National Target Population that did not include all of the International Target Population; Dubai-UAE tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-25. Standard errors for figure 10: Change in average science scores of 8th-grade students, by education system: 2007–2011 and 1995–2011**

Education system	1995		2007		2011		2007–2011		1995–2011	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Change in average score <sup>1</sup>	s.e.	Change in average score <sup>1</sup>	s.e.
Singapore <sup>2</sup>	580	5.5	567	4.4	590	4.3	23	6.2	10	7.0
<i>Chinese Taipei-CHN</i>	—	†	561	3.7	564	2.3	3	4.4	—	†
Korea, Rep. of	546	2.0	553	2.0	560	2.0	7	2.9	14	2.9
Japan	554	1.8	554	1.9	558	2.4	4	3.1	3	3.0
Slovenia	514	2.7	538	2.2	543	2.7	5	3.5	29	3.9
Russian Federation <sup>2</sup>	523	4.5	530	3.9	542	3.2	13	5.1	20	5.5
<i>Hong Kong-CHN</i>	510	5.8	530	4.9	535	3.4	5	6.0	25	6.7
<i>England-GBR<sup>3</sup></i>	533	3.6	542	4.5	533	4.9	-9	6.6	#	6.1
United States <sup>2</sup>	513	5.6	520	2.9	525	2.6	5	3.8	12	6.1
Hungary	537	3.1	539	2.9	522	3.1	-17	4.3	-14	4.4
Australia	514	3.9	515	3.6	519	4.8	4	6.0	6	6.2
Lithuania <sup>4</sup>	464	4.0	519	2.5	514	2.6	-5	3.6	50	4.8
New Zealand	511	4.9	—	†	512	4.6	—	†	1	6.7
Sweden	553	4.4	511	2.6	509	2.5	-1	3.6	-43	5.0
Italy	—	†	495	2.8	501	2.5	6	3.8	—	†
Ukraine	—	†	485	3.5	501	3.4	16	4.9	—	†
Norway	514	2.4	487	2.2	494	2.6	8	3.4	-20	3.6
Iran, Islamic Rep. of	463	3.6	459	3.6	474	4.0	15	5.4	12	5.4
Romania	471	5.1	462	3.9	465	3.5	3	5.2	-6	6.2
Bahrain	—	†	467	1.7	452	2.0	-15	2.6	—	†
Thailand	—	†	471	4.3	451	3.9	-20	5.8	—	†
Jordan	—	†	482	4.0	449	4.0	-33	5.7	—	†
Tunisia	—	†	445	2.1	439	2.5	-6	3.3	—	†
Malaysia	—	†	471	6.0	426	6.3	-44	8.7	—	†
Syrian Arab Republic	—	†	452	2.9	426	3.9	-26	4.8	—	†
<i>Palestinian Nat'l Auth.</i>	—	†	404	3.5	420	3.2	16	4.8	—	†
Georgia <sup>4,5</sup>	—	†	421	4.8	420	3.0	-1	5.6	—	†
Oman	—	†	423	3.0	420	3.2	-3	4.4	—	†
Lebanon	—	†	414	5.9	406	4.9	-8	7.7	—	†
Indonesia	—	†	427	3.4	406	4.5	-21	5.6	—	†
Ghana <sup>6</sup>	—	†	303	5.4	306	5.2	3	7	—	†
Benchmarking education systems										
<i>Massachusetts-USA<sup>2,4</sup></i>	—	†	556	4.6	567	5.1	11	6.9	—	†
<i>Minnesota-USA<sup>4</sup></i>	544	7.9	539	4.8	553	4.6	15	6.7	10	9.2
<i>Alberta-CAN<sup>2</sup></i>	550	4.8	—	†	546	2.4	—	†	-4	5.4
<i>Ontario-CAN<sup>2</sup></i>	496	3.7	526	3.6	521	2.5	-5	4.4	25	4.5
<i>Quebec-CAN</i>	510	6.9	507	3.1	520	2.5	13	4.0	10	7.4
<i>Dubai-UAE</i>	—	†	489	2.8	485	2.5	-4	3.8	—	†

— Not available.

† Not applicable.

# Rounds to zero.

<sup>1</sup>The change in average score is calculated by subtracting the 2007 or 1995 estimate, respectively, from the 2011 estimate using unrounded numbers.<sup>2</sup>National Defined Population covers 90 to 95 percent of National Target Population for 2011 (see appendix A).<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included for 2011.<sup>4</sup>National Target Population does not include all of the International Target Population for 2011 (see appendix A).<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available for 2011.<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent for 2011.

NOTE: Education systems are ordered by 2011 average scores. Italics indicate participants identified and counted in this report as an education system and not as a separate country. All education systems met international sampling and other guidelines in 2011, except as noted. Data are not shown for some education systems because comparable data from previous cycles are not available. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. For 1995, Lithuania's National Target Population did not include all of the International Target Population; the Russian Federation, and Lithuania had a National Defined Population that covered 90 to 95 percent of National Target Population; England-GBR and Ontario-CAN had a National Defined Population that covered less than 90 percent of National Target Population (but at least 77 percent); the United States, England-GBR, and Minnesota-USA met guidelines for sample participation rates only after replacement schools were included. For 2007, Lithuania, Georgia, and Indonesia had National Target Populations that did not include all of the International Target Population; the United States, Massachusetts-USA, Minnesota-USA, and Ontario-CAN had National Defined Population that covered 90 to 95 percent of National Target Population; Hong Kong-CHN, England-GBR, and Minnesota-USA met guidelines for sample participation rates only after replacement schools were included; Dubai-UAE nearly satisfied guidelines for sample participation rates after replacement schools were included. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, 2007, and 2011.



**Table E-26. Standard errors for table 28: Average science content domain scores of 4th-grade students, by education system: 2011**

Education system	Life science		Physics		Earth science	
	Average score	s.e.	Average score	s.e.	Average score	s.e.
Singapore <sup>1</sup>	597	4.3	598	3.5	541	3.0
Finland	574	2.8	568	2.8	566	2.9
Korea, Rep. of	571	2.2	597	2.6	603	1.8
Russian Federation	556	3.6	548	4.0	552	4.1
Hungary	552	3.5	520	3.8	524	4.4
Czech Republic	550	3.0	519	3.1	537	3.4
United States <sup>1</sup>	547	2.1	544	2.0	539	2.1
Japan	540	1.9	589	1.9	551	1.8
<i>Chinese Taipei-CHN</i>	538	2.4	569	2.0	553	2.5
Netherlands <sup>2</sup>	537	1.8	526	2.0	525	2.7
Italy	535	2.7	509	3.0	523	3.6
Slovak Republic	534	3.5	527	4.0	535	3.8
Sweden	534	2.7	528	2.5	538	3.2
<i>England-GBR</i>	530	2.8	535	3.5	522	3.8
Denmark <sup>1</sup>	530	2.8	526	2.5	527	3.0
Austria	526	2.6	535	2.9	539	3.6
Germany	525	2.6	535	3.1	520	3.7
Croatia <sup>1</sup>	525	2.0	502	2.7	521	2.7
<i>Hong Kong-CHN<sup>1</sup></i>	524	3.7	539	4.4	548	3.3
Slovenia	524	2.6	524	3.4	506	2.7
Portugal	520	4.2	517	4.2	531	4.4
Lithuania <sup>1,3</sup>	520	2.9	514	3.1	501	3.0
<i>Northern Ireland-GBR<sup>2</sup></i>	519	2.9	520	3.2	507	2.7
Serbia <sup>1</sup>	518	2.9	523	3.8	497	3.6
Australia	516	3.1	514	3.2	520	3.5
Poland	514	2.5	495	3.3	496	3.3
Spain	513	2.8	497	2.7	499	3.8
Ireland	513	3.6	517	3.1	520	3.8
<i>Belgium (Flemish)-BEL</i>	510	2.4	507	2.1	505	2.8
Romania	504	6.1	508	5.7	502	6.0
Kazakhstan <sup>1</sup>	500	5.1	486	5.2	491	5.8
New Zealand	497	2.5	493	2.7	499	3.2
Norway <sup>4</sup>	496	3.0	482	3.4	506	3.0
Chile	490	2.2	471	2.5	475	2.7
Thailand	480	6.1	462	5.9	460	5.9
Georgia <sup>3,5</sup>	461	3.6	440	4.2	458	4.3
Turkey	460	4.5	466	4.7	456	5.1
Iran, Islamic Rep. of	449	4.1	453	4.0	457	3.5
Bahrain	444	4.1	453	4.6	445	3.7
Azerbaijan <sup>1,5</sup>	440	5.2	436	5.9	408	7.2
Malta	439	2.4	453	2.5	447	2.2
Armenia	424	3.9	399	3.8	398	4.1
United Arab Emirates	420	2.7	429	2.7	435	2.4
Saudi Arabia	415	6.4	439	6.0	432	6.3
Qatar <sup>1</sup>	383	5.0	397	5.0	401	4.8
Oman	370	3.8	370	4.8	371	4.6
Tunisia <sup>6</sup>	342	5.1	342	5.6	319	6.6
Kuwait <sup>3,6</sup>	323	5.0	348	4.5	352	4.7
Yemen <sup>7</sup>	313	7.7	367	6.8	350	7.4
Morocco <sup>7</sup>	245	4.5	256	5.3	208	4.7

See notes at end of table.

**Table E-26. Standard errors for table 28: Average science content domain scores of 4th-grade students, by education system: 2011—Continued**

Benchmarking education systems	Life science		Physics		Earth science	
	Average score	s.e.	Average score	s.e.	Average score	s.e.
<i>Florida-USA<sup>3,8</sup></i>	549	4.2	542	3.9	537	4.4
<i>Alberta-CAN<sup>1</sup></i>	542	2.6	542	3.0	539	3.2
<i>North Carolina-USA<sup>1,3</sup></i>	541	4.6	541	5.1	529	6.2
<i>Ontario-CAN</i>	535	3.4	528	3.2	514	3.9
<i>Quebec-CAN</i>	524	2.5	507	3.1	516	3.5
<i>Dubai-UAE</i>	455	2.9	460	3.2	469	3.0
<i>Abu Dhabi-UAE</i>	403	5.6	415	5.2	418	5.1

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>5</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined population covers less than 90 percent, but at least 77 percent of National Target population (see appendix A).

NOTE: Education systems are ordered by average score in *life science* domain. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-27. Standard errors for table 29: Average science content domain scores of 8th-grade students, by education system: 2011**

Education system	Biology		Chemistry		Physics		Earth Science	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Average score	s.e.
Singapore <sup>1</sup>	594	4.8	590	4.7	602	4.2	566	4.5
Korea, Rep. of	561	2.4	551	2.2	577	2.8	548	3.2
Japan	561	2.3	560	2.6	558	2.7	548	2.8
<i>Chinese Taipei-CHN</i>	557	2.5	585	3.9	552	3.4	568	2.9
Finland	548	2.9	554	2.5	540	2.7	574	3.0
Russian Federation <sup>1</sup>	537	3.3	554	3.5	547	3.5	535	3.7
<i>Hong Kong-CHN</i>	535	3.5	526	3.6	539	3.6	539	3.7
<i>England-GBR<sup>2</sup></i>	533	4.9	529	5.2	533	4.6	536	5.3
Slovenia	532	2.7	558	3.2	532	2.8	560	3.2
United States <sup>1</sup>	530	2.5	520	2.6	513	2.5	533	2.8
Australia	527	4.7	501	5.1	511	5.1	533	5.4
Israel <sup>3</sup>	523	4.1	514	5.1	514	4.1	504	4.4
Hungary	520	3.0	534	3.4	525	3.7	511	3.3
Lithuania <sup>4</sup>	517	2.8	517	2.3	503	3.3	517	3.5
New Zealand	514	4.7	501	5.1	509	4.6	523	4.8
Sweden	513	3.0	502	2.7	498	3.2	520	2.8
Italy	503	3.0	491	3.1	490	2.8	513	3.8
Ukraine	492	3.1	512	3.9	503	3.8	495	3.6
Norway	491	2.5	488	2.8	481	3.6	516	3.5
Turkey	484	3.7	477	4.0	494	3.7	468	3.5
Kazakhstan	483	4.3	508	4.8	489	4.2	472	4.9
Iran, Islamic Rep. of	466	3.8	469	4.4	483	4.1	477	3.9
United Arab Emirates	463	2.4	464	2.2	461	2.3	466	2.5
Chile	462	2.5	447	3.0	453	2.6	476	2.8
Thailand	460	4.3	436	4.6	430	4.5	466	4.1
Romania	458	3.8	469	4.3	456	3.9	470	3.6
Tunisia	449	3.0	434	3.3	436	2.6	414	3.6
Bahrain	449	2.1	448	2.7	457	1.8	451	1.8
Jordan	447	4.3	463	4.4	446	4.2	436	4.2
Georgia <sup>4,5</sup>	435	3.3	395	3.2	401	4.2	417	3.7
Saudi Arabia	430	4.5	428	4.4	437	4.2	441	3.5
Malaysia	427	6.2	426	6.6	435	6.6	401	6.5
Syrian Arab Republic	425	4.3	424	3.7	426	4.4	414	4.8
Armenia	420	3.2	452	3.9	441	3.7	421	3.3
Qatar	411	4.2	416	4.1	426	3.8	408	3.8
Indonesia	410	4.7	378	4.9	397	5.4	412	5.6
Oman	407	3.6	408	3.5	427	3.3	431	3.0
<i>Palestinian Nat'l Auth.</i>	407	3.9	432	4.0	432	3.8	406	3.3
Macedonia, Rep. of	400	6.0	416	5.5	398	6.0	403	6.5
Lebanon	395	5.2	435	5.3	405	5.4	365	6.4
Morocco	378	3.0	374	2.2	349	2.5	377	3.3
Ghana <sup>6</sup>	290	6.2	331	5.9	292	5.9	265	6.5

See notes at end of table.

**Table E-27. Standard errors for table 29: Average science content domain scores of 8th-grade students, by education system: 2011—Continued**

Benchmarking education systems	Biology		Chemistry		Physics		Earth Science	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Average score	s.e.
<i>Massachusetts-USA<sup>1,4</sup></i>	575	5.2	568	6.0	555	5.7	577	6.0
<i>Minnesota-USA<sup>4</sup></i>	563	5.5	538	5.0	541	5.6	574	6.2
<i>Alberta-CAN<sup>1</sup></i>	554	2.7	521	2.6	545	2.4	559	2.7
<i>Colorado-USA<sup>4</sup></i>	551	4.6	528	5.1	530	5.3	555	4.6
<i>North Carolina-USA<sup>3,4</sup></i>	541	6.0	531	7.2	510	6.0	540	6.5
<i>Indiana-USA<sup>1,4</sup></i>	540	5.0	526	5.0	522	5.1	540	5.8
<i>Connecticut-USA<sup>1,4</sup></i>	539	5.0	520	5.3	520	5.4	542	5.6
<i>Ontario-CAN<sup>1</sup></i>	531	2.6	495	2.5	521	2.7	528	3.4
<i>Florida-USA<sup>1,4</sup></i>	529	7.9	525	8.2	530	7.2	536	7.7
<i>Quebec-CAN</i>	525	2.9	515	3.1	502	3.2	536	2.9
<i>California-USA<sup>1,4</sup></i>	500	4.7	503	6.0	487	4.6	499	4.8
<i>Alabama-USA<sup>4</sup></i>	491	6.1	480	6.6	476	5.9	487	7.9
<i>Dubai-UAE</i>	485	2.7	487	2.3	482	2.1	487	3.1
<i>Abu Dhabi-UAE</i>	459	4.3	461	3.9	459	3.9	461	4.7

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>3</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

NOTE: Education systems are ordered by average score in *biology* domain. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-28. Standard errors for figure 11: Percentage of 4th-grade students reaching the TIMSS international benchmarks in science, by education system: 2011**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
Singapore <sup>1</sup>	33	1.7	68	1.7	89	0.9	97	0.4
Korea, Rep. of	29	1.5	73	1.0	95	0.4	99	0.1
Finland	20	1.1	65	1.7	92	0.8	99	0.3
Russian Federation	16	1.4	52	2.0	86	1.2	98	0.4
<i>Chinese Taipei-CHN</i>	15	0.9	53	1.3	85	1.1	97	0.4
United States <sup>1</sup>	15	0.8	49	1.1	81	0.8	96	0.4
Japan	14	1.0	58	1.3	90	0.7	99	0.2
Hungary	13	0.9	46	2.0	78	1.5	93	0.9
Romania	11	0.9	37	2.3	66	2.3	84	1.8
<i>England-GBR</i>	11	0.9	42	1.6	76	1.3	93	0.7
Sweden	10	1.0	44	1.5	79	1.1	95	0.5
Czech Republic	10	0.9	44	1.5	81	1.1	97	0.7
Slovak Republic	10	1.0	44	1.7	79	1.8	94	1.0
<i>Hong Kong-CHN<sup>1</sup></i>	9	0.9	45	2.1	82	1.5	96	1.2
Austria	8	0.8	42	1.6	79	1.7	96	0.6
Denmark <sup>1</sup>	8	0.8	39	1.6	78	1.4	95	0.7
Serbia <sup>1</sup>	8	0.7	35	1.7	72	1.5	91	1.0
Italy	8	0.7	37	1.6	76	1.3	95	1.0
Australia	7	0.7	35	1.4	72	1.3	91	1.0
Portugal	7	1.1	35	1.8	75	2.0	95	1.0
Germany	7	0.6	39	1.6	78	1.5	96	0.7
Kazakhstan <sup>1</sup>	7	1.1	28	2.1	58	2.6	84	1.6
Ireland	7	0.9	35	1.7	72	1.6	92	0.9
Slovenia	7	0.6	36	1.6	74	1.3	93	0.6
Poland	5	0.5	29	1.5	67	1.2	91	0.8
New Zealand	5	0.5	28	1.1	63	1.3	86	0.9
<i>Northern Ireland-GBR<sup>2</sup></i>	5	0.6	33	1.6	74	1.3	94	1.0
Spain	4	0.6	28	1.5	67	1.6	92	1.2
Lithuania <sup>1,3</sup>	4	0.5	31	1.6	73	1.2	95	0.6
Thailand	4	0.6	20	1.7	52	2.3	78	2.2
Bahrain	4	0.4	17	1.1	43	1.2	70	1.4
Turkey	3	0.4	18	1.3	48	1.7	76	1.5
Croatia <sup>1</sup>	3	0.4	30	1.1	75	1.4	96	0.5
United Arab Emirates	3	0.3	14	0.6	36	0.9	61	1.0
Netherlands <sup>2</sup>	3	0.5	37	1.8	86	1.4	99	0.4
Iran, Islamic Rep. of	3	0.4	16	1.2	44	1.7	72	1.5
Saudi Arabia	3	0.8	12	1.3	35	1.7	63	2.0
Chile	2	0.4	19	0.9	54	1.4	85	1.1
Azerbaijan <sup>1,4</sup>	2	0.7	13	1.7	37	2.5	65	2.1
Qatar <sup>1</sup>	2	0.5	11	1.0	29	1.3	50	1.5
Malta	2	0.3	14	0.7	41	1.0	70	1.1
<i>Belgium (Flemish)-BEL</i>	2	0.3	24	1.2	73	1.4	96	0.5
Georgia <sup>3,4</sup>	1	0.4	13	1.2	44	1.8	75	1.6
Oman	1	0.3	7	0.7	23	1.0	45	1.5
Norway <sup>5</sup>	1	0.2	19	1.2	64	1.7	92	0.8
Armenia	1	0.2	6	0.8	26	1.5	58	1.8
Kuwait <sup>3,6</sup>	1	0.2	4	0.5	16	1.1	37	1.5
Morocco <sup>7</sup>	#	0.1	1	0.4	6	0.7	16	1.0
Tunisia <sup>6</sup>	#	0.1	3	0.4	14	1.1	35	1.9
Yemen <sup>7</sup>	#	#	#	0.2	2	0.4	6	0.9
International median	5	0.0	32	0.0	72	0.0	92	0.0

See notes at end of table.

**Table E-28. Standard errors for figure 11: Percentage of 4th-grade students reaching the TIMSS international benchmarks in science, by education system: 2011—Continued**

Benchmarking education systems	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
<i>Florida-USA</i> <sup>3,8</sup>	14	1.5	48	2.3	82	1.3	97	0.5
<i>North Carolina-USA</i> <sup>1,3</sup>	12	1.5	46	2.6	80	1.9	95	0.9
<i>Alberta-CAN</i> <sup>1</sup>	11	0.9	47	1.6	83	1.2	97	0.5
<i>Ontario-CAN</i>	9	0.9	40	1.6	77	1.6	94	0.6
<i>Dubai-UAE</i>	6	0.7	23	0.9	48	0.9	72	1.1
<i>Quebec-CAN</i>	3	0.5	29	1.5	76	1.6	97	0.4
<i>Abu Dhabi-UAE</i>	2	0.3	10	0.9	30	1.9	55	2.1

# Rounds to zero.

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>3</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>4</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>5</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

NOTE: Education systems are ordered by percentage at *Advanced* international benchmark. Italics indicate participants identified and counted in this report as an education system and not as a separate country. The TIMSS international median represents all participating TIMSS education systems, including the United States. The TIMSS international median represents all participating TIMSS education systems, including the United States, shown in the main part of the figure; benchmarking education systems are not included in the median. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by *s.e.*

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-29. Standard errors for figure 12: Percentage of 8th-grade students reaching the TIMSS international benchmarks in science, by education system: 2011**

Education system	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
Singapore <sup>1</sup>	40	1.7	69	2.0	87	1.6	96	0.7
<i>Chinese Taipei-CHN</i>	24	1.4	60	1.2	85	0.8	96	0.4
Korea, Rep. of	20	0.9	57	1.1	86	0.7	97	0.4
Japan	18	1.1	57	1.3	86	0.9	97	0.4
Russian Federation <sup>1</sup>	14	1.1	48	1.8	81	1.2	96	0.7
<i>England-GBR</i> <sup>2</sup>	14	1.5	44	2.6	76	2.3	93	1.2
Slovenia	13	0.8	48	1.4	82	1.2	96	0.5
Finland	13	1.2	53	1.7	88	1.0	99	0.3
Israel <sup>3</sup>	11	1.1	39	1.7	69	1.7	88	1.1
Australia	11	1.6	35	2.5	70	2.0	92	0.8
United States <sup>1</sup>	10	0.7	40	1.3	73	1.1	93	0.7
<i>Hong Kong-CHN</i>	9	1.1	47	1.8	80	1.7	95	1.0
New Zealand	9	1.0	34	2.2	67	2.2	90	1.2
Hungary	9	0.8	39	1.5	75	1.4	92	0.8
Turkey	8	0.9	26	1.4	54	1.4	79	1.0
Sweden	6	0.5	33	1.3	68	1.4	91	0.7
Lithuania <sup>4</sup>	6	0.7	33	1.4	71	1.3	92	0.6
Ukraine	6	0.8	29	1.7	64	1.6	88	1.1
Iran, Islamic Rep. of	5	0.7	21	1.3	50	2.0	79	1.5
United Arab Emirates	4	0.4	19	0.8	47	1.1	75	0.9
Italy	4	0.5	27	1.4	65	1.4	90	1.1
Kazakhstan	4	0.6	23	1.9	58	2.5	86	1.2
Bahrain	3	0.3	17	0.7	44	1.0	70	0.7
Qatar	3	0.5	14	1.1	34	1.4	58	1.2
Norway	3	0.4	22	1.2	62	1.4	90	1.1
Romania	3	0.5	16	1.3	47	1.5	78	1.5
Jordan	2	0.3	15	1.0	45	1.5	72	1.5
Macedonia, Rep. of	2	0.4	10	1.0	30	1.7	53	2.0
Oman	2	0.2	11	0.5	34	1.0	59	1.3
Armenia	1	0.2	12	0.8	37	1.5	66	1.3
Malaysia	1	0.4	11	1.4	34	2.4	62	2.6
Thailand	1	0.5	10	1.3	39	2.1	74	1.7
Chile	1	0.2	12	0.9	43	1.4	79	1.5
<i>Palestinian Nat'l Auth.</i>	1	0.2	10	0.8	33	1.3	59	1.3
Lebanon	1	0.2	7	0.8	25	2.0	54	2.3
Saudi Arabia	1	0.2	8	0.8	33	2.0	68	1.8
Georgia <sup>4,5</sup>	#	0.1	6	0.6	28	1.5	62	1.5
Syrian Arab Republic	#	0.1	6	0.8	29	1.8	63	1.9
Tunisia	#	0.1	5	0.7	30	1.4	72	1.3
Indonesia	#	0.1	3	0.4	19	1.4	54	2.3
Morocco	#	#	2	0.2	13	0.7	39	1.0
Ghana <sup>6</sup>	#	0.1	1	0.2	6	0.8	22	1.7
International median	4	0.0	21	0.0	52	0.0	79	0.0

See notes at end of table.

**Table E-29. Standard errors for figure 12: Percentage of 8th-grade students reaching the TIMSS international benchmarks in science, by education system: 2011—Continued**

Benchmarking education systems	Advanced (625)		High (550)		Intermediate (475)		Low (400)	
	Average score	s.e.	Average score	s.e.	Average score	s.e.	Average score	s.e.
<i>Massachusetts-USA<sup>1,4</sup></i>	24	2.6	61	2.8	87	1.5	96	0.7
<i>Minnesota-USA<sup>4</sup></i>	16	1.9	54	2.6	85	2.0	98	0.7
<i>Colorado-USA<sup>4</sup></i>	14	1.6	48	2.6	80	2.0	96	0.7
<i>Connecticut-USA<sup>1,4</sup></i>	14	1.5	45	2.5	74	2.0	92	1.3
<i>Florida-USA<sup>1,4</sup></i>	13	2.0	42	3.5	74	3.6	93	1.5
<i>North Carolina-USA<sup>3,4</sup></i>	12	2.2	42	3.2	75	3.0	94	1.4
<i>Alberta-CAN<sup>1</sup></i>	12	0.9	48	1.5	85	1.1	98	0.4
<i>Indiana-USA<sup>1,4</sup></i>	10	1.4	43	2.9	78	2.1	95	0.9
<i>Dubai-UAE</i>	7	0.7	28	1.0	57	1.3	79	1.0
<i>California-USA<sup>1,4</sup></i>	6	0.7	28	1.9	62	2.5	88	1.6
<i>Ontario-CAN<sup>1</sup></i>	6	0.7	35	1.5	76	1.3	96	0.6
<i>Quebec-CAN</i>	5	0.6	34	1.6	76	1.4	96	0.7
<i>Alabama-USA<sup>4</sup></i>	5	1.0	24	2.7	56	3.5	83	1.9
<i>Abu Dhabi-UAE</i>	4	0.7	17	1.5	45	1.9	74	1.5

# Rounds to zero.

<sup>1</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>2</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>3</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

NOTE: Education systems are ordered by percentage at *Advanced* international benchmark. Italics indicate participants identified and counted in this report as an education system and not as a separate country. The TIMSS international median represents all participating TIMSS education systems, including the United States, shown in the main part of the figure; benchmarking education systems are not included in the median. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.



**Table E-30. Standard errors for figure 13: Difference in average science scores of 4th-grade students, by sex and education system: 2011**

Education system	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
Czech Republic	529	2.9	544	2.7	15	2.6
Austria	525	2.8	538	3.6	12	2.9
Germany	522	3.0	534	3.2	12	2.5
Chile	474	2.8	486	2.8	12	2.9
<i>Belgium (Flemish)-BEL</i>	503	2.6	514	2.3	11	2.9
Netherlands <sup>1</sup>	526	2.4	537	2.6	10	2.1
United States <sup>2</sup>	539	2.3	549	2.1	10	1.5
Spain	500	2.8	510	3.7	10	2.8
Slovak Republic	528	4.3	536	3.6	8	2.7
Kazakhstan <sup>2</sup>	490	5.1	498	5.5	8	3.0
Korea, Rep. of	583	2.4	590	2.3	8	2.3
Italy	520	3.2	528	3.0	7	2.9
<i>Chinese Taipei-CHN</i>	548	2.6	555	2.4	7	2.3
Malta	443	2.2	449	2.8	6	3.3
Poland	502	3.0	508	2.9	6	2.8
<i>Hong Kong-CHN<sup>2</sup></i>	532	3.6	538	4.3	6	2.5
Slovenia	517	2.8	523	3.4	6	3.2
Japan	556	2.7	561	2.1	5	2.8
Portugal	519	4.6	524	3.8	5	3.2
Croatia <sup>2</sup>	514	2.5	518	2.5	5	2.7
Hungary	532	4.0	537	3.9	5	2.9
Singapore <sup>2</sup>	581	3.7	585	3.7	4	2.7
Norway <sup>3</sup>	492	2.5	496	3.2	4	3.1
Sweden	532	3.0	535	3.2	4	3.0
Serbia <sup>2</sup>	514	3.6	517	3.7	3	3.9
Iran, Islamic Rep. of	452	5.8	454	5.7	2	8.8
Denmark <sup>2</sup>	527	3.3	529	3.1	2	3.0
Lithuania <sup>2,4</sup>	514	2.4	515	3.0	1	2.6
New Zealand	496	3.0	497	2.6	1	3.2
Ireland	516	4.0	516	4.6	1	5.5
Australia	516	3.1	516	3.7	#	3.9
Romania	505	6.9	506	5.7	#	4.7
Finland	570	2.9	570	3.0	#	3.0
<i>England-GBR</i>	529	3.3	528	3.3	-1	3.1
Russian Federation	553	3.5	552	3.8	-1	2.4
<i>Northern Ireland-GBR<sup>1</sup></i>	517	3.2	516	3.2	-1	3.8
Turkey	465	5.0	461	4.7	-4	3.8
Armenia	419	4.0	414	4.3	-5	3.4
Azerbaijan <sup>2,5</sup>	442	6.3	434	5.7	-8	4.0
Georgia <sup>4,5</sup>	459	3.2	451	5.1	-9	3.9
Morocco <sup>6</sup>	268	5.1	259	4.9	-9	4.4
Thailand	476	5.7	467	6.6	-10	5.0
United Arab Emirates	437	3.4	419	3.8	-18	5.3
Bahrain	461	5.5	438	4.6	-23	7.0
Tunisia <sup>7</sup>	359	5.6	334	5.6	-25	4.3
Qatar <sup>2</sup>	408	5.1	382	5.7	-26	6.5
Yemen <sup>6</sup>	225	7.3	198	8.8	-27	8.0
Oman	394	4.7	360	4.6	-34	3.8
Saudi Arabia	453	4.7	405	9.9	-48	11.0
Kuwait <sup>4,7</sup>	371	5.5	319	7.1	-53	8.6

See notes at end of table.

**Table E-30. Standard errors for figure 13: Difference in average science scores of 4th-grade students, by sex and education system: 2011—Continued**

Benchmarking education systems	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
<i>North Carolina-USA<sup>2,4</sup></i>	534	5.1	543	4.9	9	4.0
<i>Florida-USA<sup>4,8</sup></i>	540	3.8	549	4.3	9	3.4
<i>Alberta-CAN<sup>2</sup></i>	537	2.9	545	2.8	9	2.8
<i>Quebec-CAN</i>	512	3.0	520	3.0	8	2.4
<i>Ontario-CAN</i>	525	3.1	530	3.8	6	3.4
<i>Dhabi-UAE</i>	462	3.8	461	4.7	-1	7.3
<i>Abu Dhabi-UAE</i>	427	5.8	396	6.8	-30	8.6

# Rounds to zero.

<sup>1</sup>Met guidelines for sample participation rates only after replacement schools were included.

<sup>2</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>5</sup>Exclusion rates for Azerbaijan and Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

<sup>6</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 25 percent.

<sup>7</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>8</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

NOTE: Education systems are ordered by male-female difference in average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by *s.e.*

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-31. Standard errors for figure 14: Difference in average science scores of 8th-grade students, by sex and education system: 2011**

Education system	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
Ghana <sup>1</sup>	290	5.7	320	5.4	30	4.0
New Zealand	501	4.6	522	5.1	20	3.9
Hungary	513	3.5	531	3.7	18	3.7
Tunisia	431	2.6	447	2.9	17	2.6
Australia	511	4.5	527	6.5	16	5.9
Chile	454	3.2	470	2.9	16	3.6
Italy	493	3.1	508	2.6	15	2.8
United States <sup>2</sup>	519	2.8	530	2.9	11	2.4
Japan	554	2.9	562	2.9	8	3.3
Russian Federation <sup>2</sup>	539	3.6	546	3.5	7	2.9
Syrian Arab Republic	424	4.4	429	4.9	6	5.2
Korea, Rep. of	558	2.6	563	2.4	5	3.1
Ukraine	499	3.7	503	4.3	4	4.1
Slovenia	541	3.0	545	3.4	4	3.4
Lebanon	404	5.4	408	6.5	4	6.7
Singapore <sup>2</sup>	589	4.2	591	5.3	1	4.1
<i>Chinese Taipei-CHN</i>	564	2.7	564	2.8	#	3.0
Norway	495	3.2	494	3.0	-1	3.4
<i>Hong Kong-CHN</i>	536	4.5	534	3.7	-2	4.6
Romania	466	3.8	464	4.0	-2	3.4
<i>England-GBR<sup>3</sup></i>	534	5.0	532	6.2	-2	5.6
Sweden	511	2.7	508	3.1	-3	3.0
Morocco	378	2.6	374	2.7	-4	3.0
Kazakhstan	492	4.6	488	4.6	-4	3.6
Finland	555	2.4	550	3.1	-5	2.7
Iran, Islamic Rep. of	477	5.3	472	5.3	-5	7.0
Israel <sup>4</sup>	519	3.7	512	5.2	-7	4.2
Indonesia	409	5.1	402	4.5	-7	3.6
Lithuania <sup>5</sup>	518	3.0	510	3.1	-8	3.3
Georgia <sup>5,6</sup>	425	3.3	415	3.5	-10	3.4
Malaysia	434	6.3	419	7.3	-15	5.5
Thailand	458	3.9	443	5.2	-15	4.9
Turkey	491	3.2	475	4.3	-16	3.2
Macedonia, Rep. of	417	5.6	399	6.1	-18	4.7
Armenia	446	3.5	428	3.6	-18	3.4
United Arab Emirates	477	2.9	452	3.3	-25	4.2
Qatar	432	7.0	406	5.4	-26	10.7
Saudi Arabia	450	3.5	424	6.4	-26	7.2
<i>Palestinian Nat'l Auth.</i>	434	3.8	406	5.4	-27	6.8
Jordan	471	4.3	428	6.4	-43	7.6
Bahrain	482	2.2	423	3.6	-59	4.4
Oman	458	2.9	380	4.4	-78	4.9

See notes at end of table.

**Table E-31. Standard errors for figure 14: Difference in average science scores of 8th-grade students, by sex and education system: 2011—Continued**

Benchmarking education systems	Female		Male		Male-female difference	
	Average score	s.e.	Average score	s.e.	Score difference	s.e.
<i>Indiana-USA<sup>2,5</sup></i>	526	4.9	541	5.4	15	4.0
<i>Florida-USA<sup>2,5</sup></i>	522	8.5	537	7.6	15	6.8
<i>Minnesota-USA<sup>5</sup></i>	548	4.9	559	5.3	12	3.8
<i>California-USA<sup>2,5</sup></i>	493	5.0	504	5.0	12	4.0
<i>North Carolina-USA<sup>4,5</sup></i>	526	5.7	537	7.7	12	4.7
<i>Colorado-USA<sup>5</sup></i>	537	4.7	548	5.2	11	4.5
<i>Alabama-USA<sup>5</sup></i>	482	6.3	489	6.8	7	4.0
<i>Massachusetts-USA<sup>2,5</sup></i>	564	5.8	570	5.1	7	3.6
<i>Alberta-CAN<sup>2</sup></i>	542	2.8	549	2.5	6	2.5
<i>Quebec-CAN</i>	518	3.0	522	3.0	4	3.0
<i>Connecticut-USA<sup>2,5</sup></i>	530	4.5	533	5.9	3	5.1
<i>Ontario-CAN<sup>2</sup></i>	521	2.6	522	3.0	1	2.7
<i>Abu Dhabi-UAE</i>	465	4.5	458	6.0	-6	6.9
<i>Dubai-UAE</i>	500	4.6	472	5.8	-28	9.3

# Rounds to zero.

<sup>1</sup>The TIMSS & PIRLS International Study Center has reservations about the reliability of the average achievement score because the percentage of students with achievement too low for estimation exceeds 15 percent, though it is less than 25 percent.

<sup>2</sup>National Defined Population covers 90 to 95 percent of National Target Population (see appendix A).

<sup>3</sup>Nearly satisfied guidelines for sample participation rates after replacement schools were included.

<sup>4</sup>National Defined Population covers less than 90 percent, but at least 77 percent of National Target Population (see appendix A).

<sup>5</sup>National Target Population does not include all of the International Target Population (see appendix A).

<sup>6</sup>Exclusion rates for Georgia are slightly underestimated as some conflict zones were not covered and no official statistics were available.

NOTE: Education systems are ordered by male-female difference in average score. Italics indicate participants identified and counted in this report as an education system and not as a separate country. Participants that did not administer TIMSS at the target grade are not shown; see the international report for their results. All U.S. state data are based on public school students only. Standard error is noted by s.e. SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-32. Standard errors for figure 15: Average science scores of U.S. 4th- and 8th-grade students, by race/ethnicity: 2011**

Race/ethnicity	Grade 4		Grade 8	
	2011		2011	
	Average score	s.e.	Average score	s.e.
White	568	2.1	553	2.5
Black	490	4.3	470	3.9
Hispanic	517	2.9	493	3.2
Asian	570	6.0	556	7.0
Multiracial	559	4.8	534	4.0

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Students who identified themselves as being of Hispanic origin were classified as Hispanic, regardless of their race. Although data for some race/ethnicities are not shown separately because the reporting standards were not met, they are included in the U.S. and state totals shown throughout the report. See appendix A in this report for more information. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-33. Standard errors for figure 16: Average science scores of U.S. 4th- and 8th-grade students, by percentage of public school students eligible for free or reduced-price lunch: 2011**

Percentage of students in school eligible for free or reduced-price lunch	Grade 4		Grade 8	
	2011		2011	
	Average score	s.e.	Average score	s.e.
Less than 10 percent	600	2.9	554	6.8
10 percent to 24.9 percent	575	3.3	552	6.1
25 percent to 49.9 percent	561	3.0	536	4.1
50 percent to 74.9 percent	528	4.0	515	5.3
75 percent or more	502	3.8	476	4.7

NOTE: Analyses are limited to public schools only, based on school reports of the percentage of students in public school eligible for the federal free or reduced-price lunch program. Standard error is noted by s.e.  
SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-34. Standard errors for table 32: Average science scores in grade 8 for selected student groups in public schools in Alabama: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Alabama average	485	6.2
Sex		
Female	482	6.7
Male	489	6.7
Race/ethnicity		
White	519	5.7
Black	435	5.7
Hispanic	470	10.5
Asian	493	39.8
Multiracial	511	10.6
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	557	17.3
10 percent to 24.9 percent	521	22.6
25 percent to 49.9 percent	504	7.0
50 percent to 74.9 percent	492	5.6
75 percent or more	441	9.6

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-35. Standard errors for table 34: Average science scores in grade 8 for selected student groups in public schools in California: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
California average	499	4.6
Sex		
Female	493	5.1
Male	504	5.1
Race/ethnicity		
White	546	7.0
Black	460	13.1
Hispanic	475	5.3
Asian	542	9.5
Multiracial	529	7.4
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	547	13.9
10 percent to 24.9 percent	542	11.4
25 percent to 49.9 percent	539	10.3
50 percent to 74.9 percent	493	8.9
75 percent or more	457	7.6

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.



**Table E-36. Standard errors for table 36: Average science scores in grade 8 for selected student groups in public schools in Colorado: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Colorado average	542	4.4
Sex		
Female	537	4.6
Male	548	5.1
Race/ethnicity		
White	572	4.4
Black	507	18.0
Hispanic	499	5.0
Asian	549	14.7
Multiracial	552	11.1
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	534	17.9
10 percent to 24.9 percent	568	6.0
25 percent to 49.9 percent	560	6.5
50 percent to 74.9 percent	514	11.9
75 percent or more	486	13.6

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-37. Standard errors for table 38: Average science scores in grade 8 for selected student groups in public schools in Connecticut: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Connecticut average	532	4.6
Sex		
Female	530	4.6
Male	533	5.8
Race/ethnicity		
White	562	5.0
Black	459	10.7
Hispanic	474	5.2
Asian	565	14.7
Multiracial	543	11.8
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	581	7.7
10 percent to 24.9 percent	549	10.6
25 percent to 49.9 percent	509	7.8
50 percent to 74.9 percent	471	20.9
75 percent or more	420	7.5

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-38. Standard errors for table 40: Average science scores in grade 4 and 8 for selected student groups in public schools in Florida: 2011**

Reporting Groups	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
TIMSS scale average	500	0.0	500	0.0
U.S. average	544	2.1	525	2.6
Florida average	545	3.7	530	7.3
Sex				
Female	540	3.9	522	8.2
Male	549	4.2	537	7.9
Race/ethnicity				
White	575	4.7	560	6.0
Black	504	5.2	485	9.3
Hispanic	531	4.1	523	11.1
Asian	593	12.7	600	16.9
Multiracial	577	8.5	524	11.8
Percentage of public school students eligible for free or reduced-price lunch				
Less than 10 percent	613	12.6	‡	†
10 percent to 24.9 percent	599	9.4	566	19.8
25 percent to 49.9 percent	556	6.0	550	7.8
50 percent to 74.9 percent	541	7.6	530	12.3
75 percent or more	517	4.8	498	20.1

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-39. Standard errors for table 42: Average science scores in grade 8 for selected student groups in public schools in Indiana: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Indiana average	533	4.8
Sex		
Female	526	4.9
Male	541	5.5
Race/ethnicity		
White	546	5.4
Black	460	10.7
Hispanic	499	5.7
Asian	492	38.6
Multiracial	534	9.1
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	‡	†
10 percent to 24.9 percent	563	8.4
25 percent to 49.9 percent	540	6.6
50 percent to 74.9 percent	519	8.2
75 percent or more	476	15.9

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-40. Standard errors for table 44: Average science scores in grade 8 for selected student groups in public schools in Massachusetts: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Massachusetts average	567	5.1
Sex		
Female	564	5.8
Male	570	5.1
Race/ethnicity		
White	587	5.2
Black	514	11.2
Hispanic	494	9.6
Asian	576	7.6
Multiracial	576	10.1
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	594	7.1
10 percent to 24.9 percent	589	8.0
25 percent to 49.9 percent	553	6.2
50 percent to 74.9 percent	550	10.7
75 percent or more	477	14.6

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-41. Standard errors for table 46: Average science scores in grade 8 for selected student groups in public schools in Minnesota: 2011**

	Average score	s.e.
TIMSS scale average	500	0.0
U.S. average	525	2.6
Minnesota average	553	4.6
Sex		
Female	548	4.9
Male	559	5.5
Race/ethnicity		
White	570	4.4
Black	489	12.3
Hispanic	512	7.5
Asian	511	13.1
Multiracial	537	9.4
Percentage of public school students eligible for free or reduced-price lunch		
Less than 10 percent	578	10.6
10 percent to 24.9 percent	570	7.3
25 percent to 49.9 percent	547	4.3
50 percent to 74.9 percent	555	16.0
75 percent or more	458	21.2

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.

**Table E-42. Standard errors for Table 48: Average science scores in grade 4 and 8 for selected student groups in public schools in North Carolina: 2011**

Reporting Groups	Grade 4		Grade 8	
	Average score	s.e.	Average score	s.e.
TIMSS scale average	500	0.0	500	0.0
U.S. average	544	2.1	525	2.6
North Carolina average	538	4.6	532	6.3
Sex				
Female	534	4.9	526	5.6
Male	543	5.0	537	7.3
Race/ethnicity				
White	565	3.7	565	6.1
Black	492	5.6	481	6.7
Hispanic	519	5.6	502	8.2
Asian	590	13.7	577	19.8
Multiracial	553	8.5	513	8.4
Percentage of public school students eligible for free or reduced-price lunch				
Less than 10 percent	‡	†	595	32.1
10 percent to 24.9 percent	574	13.3	569	10.7
25 percent to 49.9 percent	555	5.3	538	12.7
50 percent to 74.9 percent	534	6.8	518	13.2
75 percent or more	498	7.2	504	10.7

† Not applicable.

‡ Reporting standards not met.

NOTE: Black includes African American and Hispanic includes Latino. Racial categories exclude Hispanic origin. Not all race/ethnicity categories are shown, but they are all included in the U.S. and state totals shown throughout the report. Standard error is noted by s.e.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2011.