Highlights From TIMSS 2007:

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

Standard Error Tables

September 2009



	1995		2007	
Country	Average score	s.e.	Average score	s.e.
TIMSS average	500	0.0	500	0.0
Hong Kong SAR ¹	557	4.0	607	3.6
Singapore	590	4.5	599	3.7
Chinese Taipei	_	†	576	1.7
Japan	567	1.9	568	2.1
Kazakhstan ²	_	†	549	7.1
Russian Federation	_	†	544	4.9
England	484	3.3	541	2.9
Latvia ²	499	4.6	537	2.3
Netherlands ³	549	3.0	535	2.1
Lithuania ²	_	†	530	2.4
United States ^{4,5}	518	3.0	529	2.4
Germany	_	†	525	2.3
Denmark ⁴	_	†	523	2.4
Australia	495	3.4	516	3.5
Hungary	521	3.6	510	3.5
Italy	_	†	507	3.1
Austria	531	2.9	505	2.0
Sweden	_	†	503	2.5
Slovenia	462	3.1	502	1.8
Armenia	_	†	500	4.3
Slovak Republic	_	†	496	4.5
Scotland ⁴	493	4.2	494	2.2
New Zealand	469	4.4	492	2.3
Czech Republic	541	3.1	486	2.8
Norway	476	3.0	473	2.5
Ukraine	_	†	469	2.9
Georgia ²	_	†	438	4.2
Iran, Islamic Rep. of	387	5.0	402	4.1
Algeria	_	†	378	5.2
Colombia	_	†	355	5.0
Morocco	_	†	341	4.7
El Salvador	_	†	330	4.1
Tunisia	_	†	327	4.5
Kuwait ⁶	_	†	316	3.6
Qatar	_	†	296	1.0
Yemen	_	†	224	6.0

Table E-1. Standard errors for average mathematics scores of fourth-grade students, by country: 1995 and 2007

— Not available.

+ Not applicable.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²In 2007, National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³In 2007, nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴In 2007, met guidelines for sample participation rates only after substitute schools were included (see appendix A). ⁵In 2007, National Defined Population covered 90 percent to 95 percent of National Target Population

(see appendix A).

⁶In 2007, Kuwait tested the same cohort of students as other countries, but later in the year, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 average score. Standard error is noted by s.e.

	1995		2007	
Country	Average score	S. C .	Average score	s.e.
TIMSS average	500	0.0	500	0.0
Chinese Taipei	_	†	598	4.5
Korea, Rep. of	581	2.0	597	2.7
Singapore	609	4.0	593	3.8
Hong Kong SAR ^{1,2}	569	6.1	572	5.8
Japan	581	1.6	570	2.4
Hungary	527	3.2	517	3.5
England ²	498	3.0	513	4.8
Russian Federation	524	5.3	512	4.1
United States ^{2,3}	492	4.7	508	2.8
Lithuania⁴	472	4.1	506	2.3
Czech Republic	546	4.5	504	2.4
Slovenia	494	2.9	501	2.1
Armenia	_	+	499	3.5
Australia	509	3.7	496	3.9
Sweden	540	4.3	491	2.3
Malta	_	+	488	12
Scotland ²	493	57	487	37
Serbia ^{3,4}		+	486	3.3
Italy	_	+	480	3.0
Malaysia	_	+	400	5.0
Norway	498	22	469	2.0
Cyprus	468	2.2	465	1.6
Bulgaria	527	5.8	464	5.0
Israel ⁵		0.0 +	463	3.0
Likraine	_	+	462	3.6
Romania	474	46	461	41
Bosnia and Herzegovina	-1+	+	456	27
Lebanon	_	/ +	449	4.0
Thailand		/ +	441	5.0
Turkey	_	+	432	4.8
lordan	_	/ +	427	4.0
Tunisia		/ +	420	24
Georgia ⁴	_	/ +	410	6.0
Iran Islamic Rep. of	418	30	403	4 1
Bahrain		5.5	398	1.6
Indonesia		/ +	397	3.8
Syrian Arab Republic		/ +	395	3.8
Equat		1	393	3.6
Algoria	_	1 +	397	2.0
Colombia	333	56	390	2.1
Omen	552	5.0	370	2.0
Ollidii Delectinian Net'l Auth	_	1	372	25
Palesullian Nati Auti.	_	1	307	3.0
Bulswalla	_	1	304	2.3
	_	Ţ	354	2.3
El GalVaUUI Soudi Arabia	_	۲ ب	340	2.0
Sauui AidDia Chana	_	Ţ	3 <u>2</u> 9	2.9
Gnana	—	Ť	309	4.4
Qatar	_	+	307	1.4

Table E-2. Standard errors for average mathematics scores of eighth-grade students, by country: 1995 and 2007

Not available.

† Not applicable.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²In 2007, met guidelines for sample participation rates only after substitute schools were included (see appendix A).

³In 2007, National Target Population did not include all of the International Target Population (see appendix A). ⁴In 2007, National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵In 2007, National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶In 2007, Kuwait tested the same cohort of students as other countries, but later in the year, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 average score. Standard error is noted by s.e.

Table E-3. Standard errors for average mathematics content and cognitive domain scores of fourthgrade students, by country: 2007

NumberGeometric shapes and measuresData displayKnowingApplyingReasoningAverageAverageAverageAverageAverageAverageAverageAverageCountryscores.e.scores.e.scores.e.scores.e.scores.e.TIMSS average500*0.0500*0.0500*0.0500*0.0500*0.0500*0.0Hong Kong SAR1606*3.8599*3.1585*2.7617*3.5599*3.4589*Singapore611*4.3570*3.7583*3.2620*4.0590*3.7578*	s.e. 0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Numberand measuresData displayKnowingApplyingReasoningAverageAverageAverageAverageAverageAverageAverageAverageCountryscores.e.scores.e.scores.e.scores.e.scores.e.TIMSS average500*0.0500*0.0500*0.0500*0.0500*0.0500*0.0Hong Kong SAR1606*3.8599*3.1585*2.7617*3.5599*3.4589*Singapore611*4.3570*3.7583*3.2620*4.0590*3.7578*	s.e. 0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Average Average <t< th=""><th>s.e. 0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1</th></t<>	s.e. 0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Country score s.e. score s	s.e. 0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Hong Kong SAR ¹ 606* 3.8 599* 3.1 585* 2.7 617* 3.5 599* 3.4 589* Singapore 611* 4.3 570* 3.7 583* 3.2 620* 4.0 590* 3.7 578*	0.0 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Hong Kong SAR ¹ 606* 3.8 599* 3.1 585* 2.7 617* 3.5 599* 3.4 589* Singapore 611* 4.3 570* 3.7 583* 3.2 620* 4.0 590* 3.7 578*	 3.5 3.8 1.9 2.1 6.1 4.8 3.1
Singapore 611* 4.3 570* 3.7 583* 3.2 620* 4.0 590* 3.7 578*	3.8 1.9 2.1 6.1 4.8 3.1
	1.9 2.1 6.1 4.8 3.1
Chinese Taipei 581* 1.9 556* 2.2 567* 2.0 584* 1.7 569* 1.7 566*	2.1 6.1 4.8 3.1
Japan 561* 2.2 566* 2.2 578* 2.8 565* 2.1 566* 2.0 563*	6.1 4.8 3.1
Kazakhstan ² 556* 6.6 542* 7.4 522* 5.8 559* 7.3 547* 7.2 539*	4.8 3.1
Russian Federation 546* 4.4 538* 5.1 530* 4.9 538 4.5 547* 4.8 540*	3.1
England 531 3.2 548* 2.7 547 2.5 544 3.6 540* 3.1 537*	~ -
Latvia ² 536* 2.1 532* 2.6 536* 3.0 530* 2.2 540* 2.5 537*	2.5
Netherlands ³ 535* 2.2 522 2.3 543 2.3 525* 2.2 540* 2.0 534*	2.4
Lithuania ² 533* 2.3 518 2.4 530* 2.9 520* 2.8 539* 2.4 526	2.5
United States ^{4,5} 524 2.7 522 2.5 543 2.4 541 2.6 524 2.6 523	2.2
Germany 521 2.2 528 2.0 534* 3.1 514* 2.0 531* 2.2 528	2.5
Denmark ⁴ 509* 2.9 544* 2.6 529* 3.4 513* 2.7 528 2.5 524	2.1
Australia 496* 3.7 536* 3.1 534* 3.1 509* 4.2 523 3.5 516	3.4
Hungary 510* 3.7 510* 3.3 504* 3.5 511* 3.4 507* 3.5 509*	3.8
Italy 505* 3.2 509* 3.0 506* 3.4 514* 3.2 501* 2.9 509*	3.1
Austria 502* 2.2 509* 2.4 508* 2.6 505* 2.0 507* 1.8 506*	2.1
Sweden 490* 2.5 508* 2.3 529* 2.7 482* 2.5 508* 2.2 519	2.5
Slovenia 485* 1.9 522 1.8 518* 2.5 497* 1.8 504* 1.9 505*	2.1
Armenia 522 4.0 483* 4.7 458* 4.3 518* 4.8 493* 4.1 489*	4.7
Slovak Republic 495* 3.9 499* 4.3 492* 4.2 492* 3.9 498* 4.0 499*	4.0
Scotland ⁴ 481* 2.6 503* 2.6 516* 2.2 489* 2.6 500* 2.4 497*	2.2
New Zealand 478* 2.7 502* 2.3 513* 2.6 482* 2.5 495* 2.3 503*	2.8
Czech Republic 482* 2.8 494* 2.8 493* 3.3 473* 2.4 496* 2.7 493*	3.4
Norway 461* 2.8 490* 3.0 487* 2.6 461* 2.9 479* 2.8 489*	2.7
Ukraine 480* 2.9 457* 2.8 462* 3.2 472* 3.0 466* 3.1 474*	3.2
Georgia ² 464* 3.8 415* 4.8 414* 4.6 450* 4.0 433* 4.5 437*	4.2
Iran. Islamic Rep. of 398* 3.6 429* 3.3 400* 4.0 410* 3.6 405* 3.7 410*	3.8
Algeria 391* 5.0 383* 4.5 361* 5.2 384* 5.4 376* 5.2 387*	4.8
Colombia 360* 4.3 361* 4.8 363* 5.9 360* 5.2 357* 5.1 372*	49
Morocco 353* 4 7 365* 4 3 316* 6 1 354* 4 8 346* 4 7	+
El Salvador 317^* 3 9 333^* 4 3 367^* 3 5 312^* 4 1 339^* 3 7 356^*	40
Tunisia 352* 4.5 334* 4.5 307* 4.8 343* 4.9 329* 4.8	+
Kuwait ⁶ 321* 3.5 316* 3.6 318* 4.7 326* 4.6 305* 4.1	+
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	+
Yemen $-t$ $-t$ $-t$ $-t$ $-t$ $-t$ $-t$ $-t$	+

- Not available. Average achievement could not be estimated.

† Not applicable.

*p < .05. Average score is significantly different from U.S. average score.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁵National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A)

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 overall mathematics average scale score. The tests for significance take into account the standard error for the reported

difference. Thus, a small difference between the United States and one country may be significant while a large difference between the United States and another country may not be significant. Standard error is noted by s.e.

Table E-4. Standard errors for average mathematics content and cognitive domain scores of eighthgrade students, by country: 2007

			C	ontent	domain						Cognitive de	omain		
	Numbe	er	Algebra	a	Geome	try	Data and ch	nance	Knowin	g	Applyin	g	Reasoni	ng
	Average		Average		Average		Average		Average		Average		Average	
Country	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.
TIMSS average	500*	0.0	500	0.0	500*	0.0	500*	0.0	500*	0.0	500	0.0	500*	0.0
Chinese Taipei	577*	4.2	617*	5.4	592*	4.6	566*	3.6	594*	4.5	592*	4.2	591*	4.1
Korea, Rep. of	583*	2.4	596*	3.0	587*	2.3	580*	2.0	596*	2.5	595*	2.8	579*	2.3
Singapore	597*	3.5	579*	3.7	578*	3.4	574*	3.9	581*	3.4	593*	3.6	579*	4.1
Hong Kong SAR ^{1,2}	567*	5.6	565*	5.6	570*	5.5	549*	4.7	574*	5.4	569*	5.9	557*	5.6
Japan	551*	2.3	559*	2.5	573*	2.2	573*	2.2	560*	2.2	565*	2.2	568*	2.4
Hungary	517	3.6	503	3.6	508*	3.6	524	3.3	518	3.3	513*	3.1	513*	3.2
England ²	510	5.0	492	4.6	510*	4.4	547*	5.0	503*	4.0	514*	4.9	518*	4.3
Russian Federation	507	3.8	518*	4.5	510*	4.1	487*	3.8	521	3.9	510	3.7	497	3.6
United States ^{2,3}	510	2.7	501	2.7	480	2.5	531	2.8	514	2.6	503	2.9	505	2.4
Lithuania ⁴	506	2.7	483*	2.7	507*	2.6	523*	2.3	508	2.5	511*	2.4	486*	2.5
Czech Republic	511	2.5	484*	2.4	498*	2.7	512*	2.8	502*	2.5	504	2.7	500	2.6
Slovenia	502*	2.3	488*	2.4	499*	2.4	511*	2.3	500*	2.2	503	2.0	496*	2.5
Armenia	492*	3.1	532*	2.5	493*	4.1	427*	3.9	507	3.1	493*	3.8	489*	3.8
Australia	503	3.7	471*	3.7	487	3.6	525	3.2	487*	3.3	500	3.4	502	3.3
Sweden	507	1.8	456*	2.4	472*	2.5	526	3.0	478*	2.0	497	2.0	490*	2.6
Malta	496*	1.3	473*	1.4	495*	1.1	487*	1.4	490*	1.6	492*	1.0	475*	1.3
Scotland ²	489*	3.7	467*	3.7	485	3.9	517*	3.5	481*	3.3	489*	3.7	495*	3.3
Serbia ^{3,4}	478*	2.9	500	3.2	486	3.6	458*	3.0	500*	3.2	478*	3.3	474*	3.3
Italy	478*	2.8	460*	3.2	490*	3.1	491*	3.1	476*	3.0	483*	2.9	483*	2.8
Malaysia	491*	5.1	454*	4.3	477	5.6	469*	4.1	477*	4.8	478*	4.9	468*	3.8
Norway	488*	2.0	425*	2.8	459*	2.3	505*	2.5	458*	1.8	477*	2.2	475*	2.3
Cyprus	464*	1.6	468*	2.0	458*	2.7	464*	1.6	468*	1.6	465*	1.8	461*	2.1
Bulgaria	458*	4.7	476*	5.1	468*	5.0	440*	4.7	477*	4.7	458*	4.8	455*	4.7
Israel ⁵	469*	3.2	470*	3.9	436*	4.3	465*	4.4	473*	3.7	456*	4.1	462*	4.1
Ukraine	460*	3.7	464*	3.9	467*	3.6	458*	3.5	471*	3.5	464*	3.5	445*	3.8
Romania	457*	3.5	478*	4.6	466*	4.0	429*	3.7	470*	4.2	462*	4.0	449*	4.6
Bosnia and Herzegovina	451*	3.0	475*	3.2	451*	3.5	437*	2.3	478*	2.9	440*	2.6	452*	2.9
Lebanon	454*	3.4	465*	3.2	462*	4.0	407*	4.4	464*	3.9	448*	4.6	429*	4.0
I hailand	444*	4.8	433*	5.0	442*	5.3	453*	4.1	436*	4.8	446*	4.7	456*	4.4
lurkey	429*	4.0	440*	5.1	411*	5.1	445*	4.4	439*	4.8	425*	4.5	441*	4.2
	416*	4.3	448*	4.1	436*	3.9	425*	3.8	432*	4.2	422*	4.1	440*	3.6
	425*	2.6	423*	2.6	437*	2.6	411*	2.3	421*	2.6	423*	2.4	425*	2.3
Georgia*	421*	5.6	421*	6.6	409*	6.7	373*	4.3	427*	5.8	401*	5.5	389*	5.8
Iran, Islamic Rep. of	395*	3.9	408^	3.9	423^	4.4	415*	3.5	403^	4.1	402*	4.2	427*	3.5
Banrain	388*	2.0	403*	1.8	412*	2.1	418*	2.1	395^	1.7	403*	1.9	413*	2.1
Indonesia	399*	3.7	405"	3.5	395"	4.5	402"	3.0	397"	4.0	398"	3.7	405"	3.3
Syrian Arab Republic	393"	3.4	406"	3.1	417*	3.4	387"	2.1	393"	4.2	401*	3.4	396"	3.4 2.4
Egypt	393*	3.1	409"	3.3	406"	3.4	384"	3.1	392"	3.0	393"	3.0	397"	3.4
	403*	1.7	349"	2.4	432"	2.1	371"	1.7	371"	1.9	412*	2.0		T
	369"	3.5	390"	3.1	371"	3.3	405"	3.8	364"	3.4	384"	3.7	416"	3.3
Oman Delectinion Net'l Auth	363"	2.7	391"	3.∠ 2.4	387*	3.0	389"	3.0	372"	3.5	308"	3.0	397*	3.3 2.5
Palesuman Nati Auth.	300	3.2	302	3.4	300	3.0	371	2.9	305	3.0	371	3.4	301	3.5 ⊥
DUISWalla	300^	∠.9 ⊃1	394^	2.2	325°	J.∠ 20	3841	∠.0 2.5	3/0^	2.1	3511	∠.0 2.7		Ţ
Ruwall ⁻ El Salvador	34/"	3.1	304" 221*	3.0	300° 210*	∠.0 37	360%	3.0	341"	3.1 3.1	30 l " 247*	2.1	_	1 +
	200*	3.U 2.2	331" 344*	ა./ ე ი	310° 250*	3.1 26	302" 240*	3.U 2.0	200° 200*	3.1 26	34/" 325*	ა. ა ე ე	_	1
Chana	309	3.3	350*	∠.0 2.6	009 07=*	2.0	321*	2.2	310*	2.0 1.6	000° 207*	2.3 19	_	1
Ontaria	334*	4.U 1 E	300° 310*	3.0 1 F	∠/0 201*	4.9 1 0	321	3.0 1.6	307*	4.0	29/	4.2 1 1	_	1
waidi	JJ4"	1.0	312"	1.5	301"	1.0	303"	1.0	307"	1.4	303"	1.4	—	

- Not available. Average achievement could not be estimated.

*p < .05. Average score is significantly different from U.S. average score.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

³National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁴National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 overall mathematics average scale score. The tests for significance take into account the standard error for the reported difference. Thus, a small difference between the United States and one country may be significant while a large difference between the United States and another country may not be significant. Standard error is noted by s.e.

[†] Not applicable.

Table E-5.Standard errors for percentage of U.S. fourth- and eighth-grade students
who reached each international mathematics benchmark compared with
the international median percentage, by international benchmark: 2007

	Low		Intermediate		High		Advanced	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
Grade four								
TIMSS international median	90	0.0	67	0.0	26	0.0	5	0.0
United States	95*	0.5	77*	1.2	40*	1.3	10*	0.8
Grade eight								
TIMSS international median	75	0.0	46	0.0	15	0.0	2	0.0
United States	92*	0.8	67*	1.4	31*	1.5	6*	0.6

*p < .05. U.S. percentage is significantly different from the Trends in International Mathematics and Science (TIMSS) international median percentage.

NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). The TIMSS international median represents all participating TIMSS jurisdictions, including the United States. The international median represents the percentage at which half of the participating countries have that percentage of students at or above the median and half have that percentage of students below the median. Standard error is noted by *s.e.*

	10th percentile		90th percentile	
Country	Cutpoint score	s.e.	Cutpoint score	s.e.
TIMSS average	366*	0.9	576*	0.7
Singapore	487*	7.1	702*	4.5
Hong Kong SAR ¹	520*	4.0	691*	6.0
Japan	471*	3.0	663*	3.3
Chinese Taipei	488*	2.3	663*	2.3
Kazakhstan ²	435	9.1	653*	7.3
England	429	5.2	647*	4.9
Russian Federation	436	4.7	647*	6.9
Latvia ²	444*	2.2	628	3.9
United States ^{3,4}	430	4.2	625	3.1
Lithuania ²	430	3.3	624	3.6
Hungary	389*	8.4	620	2.9
Australia	408*	6.5	620	2.9
Armenia	385*	5.1	617	8.2
Netherlands ⁵	454*	4.9	612*	2.6
Denmark ³	431	4.2	611*	3.6
Germany	440	3.8	607*	3.2
Italy	406*	5.6	601*	3.8
New Zealand	377*	4.8	598*	2.6
Slovak Republic	389*	9.7	597*	4.5
Scotland ³	389*	3.9	592*	2.7
Austria	416*	2.9	590*	3.7
Slovenia	408*	3.0	589*	3.2
Sweden	417*	4.4	586*	3.0
Czech Republic	392*	6.9	576*	2.8
Ukraine	356*	4.6	573*	2.6
Norway	372*	3.3	566*	3.0
Georgia ²	322*	5.7	549*	4.1
Iran, Islamic Rep. of	290*	4.4	508*	2.9
Algeria	261*	8.0	493*	6.2
Colombia	238*	4.7	470*	5.2
Tunisia	178*	5.5	469*	3.9
Morocco	223*	6.3	466*	6.3
El Salvador	212*	5.7	448*	5.0
Kuwait ⁶	184*	5.3	443*	5.5
Qatar	179*	1.8	413*	1.6
Yemen	81*	7.1	371*	6.8

Table E-6.Standard errors for mathematics scores of fourth-
grade students defining the 10th and the 90th
percentiles, by country: 2007

*p < .05. Percentile cutpoint score is significantly different from U.S. cutpoint score.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China. ²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ⁴National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered based on the 90th percentile cutpoint score. Cutpoints are calculated based on distribution of student scores within each country. Standard error is noted by s.e.

	10th percentile		90th percentile	
Country	Cutpoint score	s.e.	Cutpoint score	s.e.
TIMSS average	339*	0.9	559*	0.7
Chinese Taipei	448*	6.5	721*	4.6
Korea, Rep. of	475*	3.9	711*	3.7
Singapore	463*	8.7	706*	4.3
Hong Kong SAR ^{1,2}	438	14.9	681*	4.3
Japan	460*	5.5	677*	4.0
Hungary	405	4.3	624*	5.4
England ²	400	9.0	618	6.8
Russian Federation	402	6.9	617	4.7
Lithuania ³	402	5.3	609	3.6
United States ^{2,4}	408	3.4	607	3.3
Armenia	390*	5.3	601	6.3
Australia	394	8.3	600	7.9
Czech Republic	408	3.2	599	3.6
Malta	359*	2.9	597*	1.8
Serbia ^{3,4}	368*	3.8	597	5.4
Slovenia	409	3.3	594*	3.1
Scotland ²	381*	6.5	590*	4.7
Romania	328*	7.5	587*	4.3
Bulgaria	324*	9.4	586*	4.6
Israel ⁵	328*	8.3	584*	7.3
Sweden	399	4.1	582*	2.8
Turkev	297*	4.9	581*	7.7
Malavsia	372*	8.0	578*	5.9
Cvprus	347*	2.5	575*	5.1
Italy	381*	53	574*	6.3
Ukraine	346*	7.0	572*	46
Thailand	327*	47	562*	11.0
Jordan	290*	72	556*	3.9
Norway	382*	2.3	552*	23
Bosnia and Herzegovina	352*	3.6	552*	2.6
Lebanon	354*	5.8	549*	3.9
Georgia ³	280*	84	532*	10.1
Favnt	258*	44	521*	4.5
Iran Islamic Rep. of	295*	47	516*	76
Indonesia	286*	87	509*	54
Tunisia	336*	27	508*	22
Bahrain	289*	5.3	505*	5.3
Svrian Arab Republic	290*	5.0	502*	6.2
Palestinian Nat'l Auth	233*	6.4	498*	2.5
Oman	245*	6.5	492*	2.8
Colombia	281*	6.7	477*	3.6
Algeria	311*	3.2	465*	19
Botswana	264*	3.6	460*	3.8
Kuwait ⁶	252*	4.6	455*	2.6
FLSalvador	202 248*	2.6	433*	3.2
Saudi Arabia	2-0 231*	43	42Q*	4.5
Ghana	102*	53	428*	5.5
Oatar	102	31	407*	23
Qalai	100	5.1	421	2.5

Table E-7.Standard errors for mathematics scores of eighth-
grade students defining the 10th and 90th percentiles,
by country: 2007

*p < .05. Percentile cutpoint score is significantly different from U.S. cutpoint score.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ³National Target Population did not include all of the International Target Population defined by the

Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁴National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

^sNational Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered based on the 90th percentile cutpoint score. Cutpoints are calculated based on distribution of student scores within each country. 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), 2007.

Table E-8.Standard errors for mathematics scores of U.S. fourth-
and eighth-grade students defining the 10th and 90th
percentiles, by content domain: 2007

	10th percentil	е	90th percent	ile
	Cutpoint score	s.e.	Cutpoint score	s.e.
Grade four				
Number	413	4.2	632	3.2
Geometric shapes and measures	428	4.2	615	3.7
Data display	464	3.2	621	3.0
Grade eight				
Number	406	3.7	615	4.9
Algebra	405	2.9	598	3.3
Geometry	388	2.7	572	3.6
Data and chance	418	3.9	643	3.8

NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Standard error is noted by s.e.

Population (see appendix A). 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), 2007.

Table E-9.Standard errors for trends in mathematics scores of U.S. fourth- and eighth-
grade students defining the 10th and 90th percentiles: 1995, 1999, 2003,
and 2007

	1995		1999		2003		2007	
	Cutpoint		Cutpoint		Cutpoint		Cutpoint	
	score	s.e.	score	s.e.	score	s.e.	score	s.e.
Grade four								
10th percentile	408*	3.3	_	†	417*	3.4	430	4.2
90th percentile	619	3.6	—	†	614*	2.8	625	3.1
Grade eight								
10th percentile	380*	6.5	387*	4.9	400	4.7	408	3.4
90th percentile	594*	5.1	611	5.6	608	4.5	607	3.3

Not available.

† Not applicable.

*p < .05. Percentile cutpoint score is significantly different from 2007 cutpoint score.

NOTE: No fourth-grade assessment was conducted in 1999. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Cutpoints are calculated based on distribution of U.S. student scores. 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, 1999, 2003, and 2007.

		lot	al			
	Male		Fomalo		Male-fem	ale
	Average		Average		Score	
Country	score	s.e.	score	s.e.	difference	s.e.
Colombia	364*	5.5	347	5.2	17	3.9
Italy	514*	3.6	499	3.2	15	2.5
Austria	512*	2.3	498	2.5	14	2.6
Germany	531*	2.5	519	2.5	12	2.1
Netherlands ¹	540*	2.4	530	2.7	10	2.7
El Salvador	334	5.5	325	4.6	9	5.8
Scotland ²	499*	2.8	490	2.6	9	3.1
Norway	477*	3.0	470	3.2	7	3.6
Denmark ²	526	3.2	520	2.9	7	3.7
Slovak Republic	499*	4.7	493	4.6	6	2.7
Sweden	506*	3.1	499	2.4	6	2.4
Czech Republic	489*	3.0	483	3.3	6	2.8
United States ^{2,3}	532*	2.7	526	2.7	6	2.4
Australia	519	3.6	513	4.2	6	3.4
Slovenia	504*	2.1	499	2.4	5	2.6
Hong Kong SAR ⁴	609	4.4	605	3.2	4	2.9
Hungary	511	3.8	508	4.6	3	4.7
Morocco	343	5.4	339	5.0	3	4.6
Chinese Taipei	577	2.0	575	2.0	2	2.1
New Zealand	493	3.1	492	2.4	1	3.0
Japan	568	2.7	568	2.5	#	3.1
England	542	3.6	541	3.2	#	3.7
Lithuania ⁵	530	3.2	530	2.8	#	3.6
Ukraine	469	3.4	469	3.3	#	3.4
Latvia ⁵	536	3.0	539	2.9	-3	3.7
Georgia ⁵	437	4.9	440	4.2	-3	3.7
Algeria	375	5.2	380	5.9	-5	3.8
Singapore	596	4.1	603*	3.8	-6	2.7
Russian Federation	540	4.9	548*	5.5	-7	3.6
Kazakhstan ⁵	545	7.9	553*	6.7	-8	3.7
Armenia	495	3.7	504*	5.7	-9	4.1
Iran, Islamic Rep. of	396	5.5	409	5.2	-14	7.0
Tunisia	319	5.0	337*	4.7	-18	4.1
Yemen	214	6.6	236*	8.0	-22	8.4
Qatar	285	2.1	307*	2.0	-22	3.6
Kuwait ⁶	297	6.2	333*	4.3	-37	7.6

Table E-10. Standard errors for average mathematics scores of fourth-grade students, by sex and country: 2007

Rounds to zero.

*p < .05. Average score is significantly higher than other sex's average score. ¹Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

³National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁴Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China. ⁵National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see

appendix A). ⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the

beginning of the next school year. NOTE: Countries are ordered by male-female difference. Detail may not sum to totals

because of rounding. Standard error is noted by s.e.

		T	otal			
	Male		Female		Male-femal difference	е
					Score	
Country	Average score	s.e.	Average score	s.e.	difference	s.e.
Colombia	396*	4.1	364	4.2	32	4.3
Ghana	319*	4.4	297	5.0	22	3.6
Tunisia	431*	2.7	410	2.8	21	2.4
El Salvador	351*	3.6	331	3.8	21	4.9
Syrian Arab Republic	403*	5.1	387	4.3	16	5.6
Australia	504*	5.4	488	5.5	15	7.7
Lebanon	456*	4.7	443	4.1	13	3.6
Italy	483	3.5	477	3.3	6	3.2
England ¹	516	6.1	511	5.0	6	5.7
Algeria	389*	2.2	384	2.4	5	1.8
Japan	572	3.2	568	3.2	4	4.3
Korea, Rep. of	599	3.1	595	3.3	4	3.4
United States ^{1,2}	510	3.1	507	3.0	4	2.2
Scotland ¹	489	4.4	486	3.8	3	3.5
Slovenia	503	2.6	500	2.7	2	3.2
Hungary	517	3.7	517	4.1	1	3.6
Malta	488	1.7	488	1.5	#	2.2
Turkey	432	5.0	432	5.3	-1	3.9
Chinese Taipei	598	5.3	599	4.6	-1	4.2
Bosnia and Herzegovina	455	2.8	456	3.1	-1	2.5
Czech Republic	503	2.8	505	2.5	-2	2.4
Israel ³	462	4.9	465	4.6	-3	5.4
Sweden	490	2.5	493	2.6	-4	2.5
Norway	467	2.6	471	2.1	-4	2.5
Indonesia	395	4.4	399	4.1	-4	4.0
Armenia	497	3.5	501	4.4	-4	3.7
Georgia ⁴	408	6.7	412	5.9	-4	4.3
Russian Federation	509	4.7	514	4.3	-5	3.8
Ukraine	459	39	465	3.9	-5	29
Serbia ^{2,4}	483	4.0	489	3.6	-6	3.9
Lithuania ⁴	502	23	509*	3.0	-7	26
Iran Islamic Rep. of	400	61	407	5.3	-7	81
Malavsia	468	5.3	479*	5.6	-11	44
Hong Kong SAR ^{1,5}	567	8.0	578	5.0	-11	67
Favot	384	4.6	397*	5.0	-13	64
Bulgaria	456	6.3	471*	4.6	-15	5.0
Singanore	586	4.6	600*	41	-15	44
Botswana	355	3.2	371*	24	-15	3.3
Romania	452	4.6	470*	42	-18	33
Cyprus	455	24	476*	2.2	-10	3.0
lordan	400	5.6	138*	61	-20	8.8
Kuwait ⁶	3/2	10	400	27	-20	18
Saudi Arabia	310	1.0	3/1*	2.7	-22	5.0
Thailand	430		452*	5.0	-23	17
Rahrain	400	2.0	400	0.0 2.0	-20	7.1
Damain Dalastinian Nat'l Auth	240	2.0	4 14 20 <i>5</i> *	4.2 19	-32	5.0
Cater	049 200	2.4	300° 205*	4.2 21	-30	20
Qalai	200	2.0	323	2.1	-30	2.9
Oman	344	5.0	399*	3.0	-54	5.6

Table E-11. Standard errors for average mathematics scores of eighth-grade students, by sex and country: 2007

Rounds to zero.

*p < .05. Average score is significantly higher than other sex's average score.

¹Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

²National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

³National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A)

⁴National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by male-female difference. Detail may not sum to totals because of rounding. Standard error is noted by s.e.

Table E-12.Standard errors for average mathematics and content
domain scores of U.S. fourth- and eighth-grade students,
by sex: 2007

	Male		Female	
Grade/content domain	Average score	s.e.	Average score	s.e.
Grade four				
Total score	532*	2.7	526	2.7
Number	528*	3.1	520	2.8
Geometric shapes and measures	523	2.7	522	2.6
Data display	544	2.9	543	2.6
Grade eight				
Total score	510	3.1	507	3.0
Number	515*	3.1	506	3.1
Algebra	498	3.2	503	2.9
Geometry	483*	2.8	477	2.7
Data and chance	535*	3.0	527	3.1

*p < .05. Average score is significantly higher than other sex's average score.

NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Standard error is noted by *s.e.*

	1995		1999		2003		2007		
Grade/sex	Average score	s.e.							
Grade four									
Male	520*	3.1	_	†	522*	2.7	532	2.7	
Female	516*	3.0	_	†	514*	2.4	526	2.7	
Gap (male-female)	3	1.8	_	†	8	1.8	6	2.4	
Grade eight									
Male	495*	5.5	505	4.8	507	3.5	510	3.1	
Female	490*	4.7	498	3.8	502	3.4	507	3.0	
Gap (male-female)	5	3.1	7	3.5	6	1.9	4	2.2	

Table E-13. Standard errors for trends in average mathematics scores of U.S. fourth- and eighthgrade students, by sex: 1995, 1999, 2003, and 2007

Not available.
† Not applicable.

*p < .05. Average score is significantly different from 2007 average score.

NOTE: No fourth-grade assessment was conducted in 1999. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Detail may not sum to totals because of rounding. Standard error is noted by s.e.

Table E-14. Standard errors for average mathematics scores of U.S. fourth- and eighth-grade students, by race/ ethnicity: 2007

	Grade fo	ur	Grade e	ight
Race/ethnicity	Average score	s.e.	Average score	s.e.
White students	550	2.3	533	2.7
Black students	482	4.1	457	3.7
Hispanic students	504	3.4	475	4.6
Asian students	582	7.7	549	5.4
Multiracial students	534	6.5	506	6.8
Other students	504	10.4	498	8.8

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/ Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Standard error is noted by *s.e.*

Table E-15. Standard errors for trends in average mathematics scores of U.S. fourth- and eighth-grade students, by race/ethnicity: 1995, 1999, 2003, and 2007

	Grade four						Grade eight							
	1995	5	2003	3	200	7	199	5	199	9	200	3	200	7
	Average		Average		Average		Average		Average		Average		Average	
Race/ethnicity	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.
White students	541*	3.5	542*	2.2	550	2.3	516*	3.5	525	4.6	525	3.0	533	2.7
Black students	457*	4.4	471*	3.4	482	4.1	419*	6.8	444*	5.3	447	5.2	457	3.7
Hispanic students	493	5.7	492*	3.6	504	3.4	443*	3.8	457*	6.3	465	5.4	475	4.6
Asian students	525*	9.0	550*	8.0	582	7.7	514*	12.9	539	10.5	537	8.4	549	5.4
Multiracial students	—	†	535	4.9	534	6.5	—	†	—	†	504	5.4	506	6.8
Other students	510	4.3	479	8.5	504	10.4	471	17.9	490	7.7	473	8.8	498	8.8

— Not available.

† Not applicable.

*p < .05. Average score is significantly different from 2007 average score.

NOTE: No fourth-grade assessment was conducted in 1999. Multiracial data were not collected in 1995 and 1999. Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). The tests for significance take into account the standard error for the reported difference. Thus, a small difference between averages for one student group may be significant while a large difference for another student group may not be significant. See appendix A in this report for more information. Standard error is noted by s.e.

Table E-16.Standard errors for average mathematics scores of
U.S. fourth- and eighth-grade students, by percentage
of students in public school eligible for free or
reduced-price lunch: 2007

	Grade fou	r	Grade eight		
Percentage in school eligible for free or reduced-price lunch	Average score	s.e.	Average score	s.e.	
Less than 10 percent	583	4.7	557	6.4	
10 to 24.9 percent	553	3.7	543	4.7	
25 to 49.9 percent	537	4.0	514	4.9	
50 to 74.9 percent	510	4.1	482	5.1	
75 percent or more	479	4.6	465	6.1	

NOTE: Analyses are limited to public schools only, based on school reports of the percentage of students in school eligible for the federal free or reduced-price lunch program. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). Standard error is noted by s.e.

Table E-17.Standard errors for trends in average mathematics scores of U.S.
fourth- and eighth-grade students, by percentage of students in
public school eligible for free or reduced-price lunch: 1999, 2003,
and 2007

		Grad	le four		Grade eight						
	2003	3	2007		1999		200	3	2007		
Percentage in school eligible	Average		Average		Average		Average		Average		
for free or reduced-price lunch	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	
Less than 10 percent	566*	5.0	583	4.7	546	11.0	547	7.3	557	6.4	
10 to 24.9 percent	543*	3.6	553	3.7	533	3.4	531	7.4	543	4.7	
25 to 49.9 percent	533	4.0	537	4.0	495*	7.5	505	5.2	514	4.9	
50 to 74.9 percent	499*	3.0	510	4.1	476	6.6	480	5.1	482	5.1	
75 percent or more	471	4.2	479	4.6	449	10.8	444	10.4	465	6.1	

*p < .05. Average score is significantly different from 2007 average score.

NOTE: Information on the percentage of students in school eligible for free or reduced-price lunch was not collected in 1995. No fourth-grade assessment was conducted in 1999. Analyses are limited to public schools only, based on school reports of the percentage of students in school eligible for the federal free or reduced-price lunch program. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). 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), 1999, 2003, and 2007.

Grade four		Grade eight	
	Standard		Standard
Country	deviation	Country	deviation
Hong Kong SAR ¹	67	Chinese Taipei	106
Singapore	84	Korea, Rep. of	92
Chinese Taipei	69	Singapore	93
Japan	76	Hong Kong SAR ^{1,4}	94
Kazakhstan ²	84	Japan	85
Russian Federation	83	Hungary	85
England	86	England ⁴	84
Latvia ²	72	Russian Federation	83
Netherlands ³	61	United States ^{4,5}	77
Lithuania ²	76	Lithuania ²	80
United States ^{4,5}	75	Czech Republic	74
Germany	68	Slovenia	72
Denmark ⁴	71	Armenia	85
Australia	83	Australia	79
Hungary	91	Sweden	70
Italy	77	Malta	92
Austria	68	Scotland ⁴	80
Sweden	66	Serbia ^{2,5}	89
Slovenia	71	Italy	76
Armenia	90	Malaysia	79
Slovak Republic	85	Norway	66
Scotland ⁴	79	Cyprus	89
New Zealand	86	Bulgaria	102
Czech Republic	71	Israel ⁷	99
Norway	76	Ukraine	89
Ukraine	84	Romania	100
Georgia ²	88	Bosnia and Herzegovina	78
Iran, Islamic Rep. of	84	Lebanon	75
Algeria	90	Thailand	92
Colombia	90	Turkey	109
Morocco	95	Jordan	102
El Salvador	91	Tunisia	67
Tunisia	111	Georgia ²	96
Kuwait ⁶	99	Iran, Islamic Rep. of	86
Qatar	90	Bahrain	84
Yemen	110	Indonesia	87
		Syrian Arab Republic	82
		Egypt	100
		Algeria	59
		Colombia	79
		Oman	95
		Palestinian Nat'l Auth.	102
		Botswana	77
		Kuwait ⁶	79
		El Salvador	73
		Saudi Arabia	76
		Ghana	92
		Qatar	93

Table E-18. Standard deviations of mathematics scores of fourthand eighth-grade students, by country: 2007

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ⁵National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

⁷National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

NOTE: Countries are ordered by 2007 average score.

	Grade four	Grade eight
Selected characteristic	Standard deviation	Standard deviation
Sex		
Male	77	78
Female	74	75
Race/ethnicity		
White	68	69
Black	70	70
Hispanic	70	73
Asian	74	68
Multiracial	84	73
Percentage of students eligible for fre or reduced-price lunch	ee	
Less than 10 percent	64	65
10 to 24.9 percent	66	68
25 to 49.9 percent	69	71
50 to 74.9 percent	71	71
75 percent or more	72	74

Table E-19. Standard deviations of mathematics scores of U.S. fourth- and eighth-grade students, by selected characteristics: 2007

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. Analyses based on percentage of students eligible for free or reduced-price lunch are limited to public schools only. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2007.

	1995		2007				
Country	Average score	s.e.	Average score	s.e.			
TIMSS average	500	0.0	500	0.0			
Singapore	523	4.8	587	4.1			
Chinese Taipei	_	†	557	2.0			
Hong Kong SAR ¹	508	3.3	554	3.5			
Japan	553	1.8	548	2.1			
Russian Federation	_	†	546	4.8			
Latvia ²	486	4.9	542	2.3			
England	528	3.1	542	2.9			
United States ^{3,4}	542	3.3	539	2.7			
Hungary	508	3.4	536	3.3			
Italy	_	†	535	3.2			
Kazakhstan ²	_	†	533	5.6			
Germany	_	†	528	2.4			
Australia	521	3.8	527	3.3			
Slovak Republic	_	†	526	4.8			
Austria	538	3.6	526	2.5			
Sweden	—	†	525	2.9			
Netherlands ⁵	530	3.2	523	2.6			
Slovenia	464	3.1	518	1.9			
Denmark ³	_	†	517	2.9			
Czech Republic	532	3.0	515	3.1			
Lithuania ²	—	†	514	2.4			
New Zealand	505	5.3	504	2.6			
Scotland	514	4.5	500	2.3			
Armenia	—	†	484	5.7			
Norway	504	3.7	477	3.5			
Ukraine	—	†	474	3.1			
Iran, Islamic Rep. of	380	4.6	436	4.3			
Georgia ²	—	†	418	4.6			
Colombia	—	†	400	5.4			
El Salvador	—	†	390	3.4			
Algeria	—	†	354	6.0			
Kuwait ⁶	—	†	348	4.4			
Tunisia	—	†	318	5.9			
Morocco	_	†	297	5.9			
Qatar	—	†	294	2.6			
Yemen	—	†	197	7.2			

Table E-20. Standard errors for average science scores of fourthgrade students, by country: 1995 and 2007

Not available.

† Not applicable.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²In 2007, National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³In 2007, met guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴In 2007, National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).
⁵In 2007, nearly satisfied guidelines for sample participation rates only after substitute schools were

^bIn 2007, nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶In 2007, Kuwait tested the same cohort of students as other countries, but later in the year, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 average score. Standard error is noted by s.e.

	1995		2007	
Country	Average score	s.e.	Average score	s.e.
TIMSS average	500	0.0	500	0.0
Singapore	580	5.5	567	4.4
Chinese Taipei	_	+	561	3.7
Japan	554	1.8	554	1.9
Korea, Rep. of	546	2.0	553	2.0
England ¹	533	3.6	542	4.5
Hungary	537	3.1	539	2.9
Czech Republic	555	4.5	539	1.9
Slovenia	514	2.7	538	2.2
Hong Kong SAR ^{1,2}	510	5.8	530	4.9
Russian Federation	523	4.5	530	3.9
United States ^{1,3}	513	5.6	520	2.9
Lithuania ⁴	464	4.0	519	2.6
Australia	514	3.9	515	3.6
Sweden	553	4.4	511	2.6
Scotland ¹	501	5.6	496	3.4
Italy	_	†	495	2.8
Armenia	_	t	488	5.8
Norway	514	2.4	487	2.2
Ukraine	_	†	485	3.5
Jordan	_	t	482	4.0
Malaysia	_	t	471	6.0
Thailand	_	†	471	4.3
Serbia ^{3,4}	_	†	470	3.2
Bulgaria ⁵	_	†	470	5.9
Israel ⁵	—	†	468	4.3
Bahrain	—	†	467	1.7
Bosnia and Herzegovina	_	†	466	2.8
Romania	471	5.1	462	3.9
Iran, Islamic Rep. of	463	3.6	459	3.6
Malta	_	†	457	1.4
Turkey	_	†	454	3.7
Syrian Arab Republic	—	†	452	2.9
Cyprus	452	2.1	452	2.0
Tunisia	—	†	445	2.1
Indonesia	—	†	427	3.4
Oman	—	†	423	3.0
Georgia ⁴	—	†	421	4.8
Kuwait ⁶	—	†	418	2.8
Colombia	365	6.2	417	3.5
Lebanon	—	†	414	5.9
Egypt	—	†	408	3.6
Algeria	—	†	408	1.7
Palestinian Nat'l Auth.	—	†	404	3.5
Saudi Arabia	—	t	403	2.4
El Salvador	—	t	387	2.9
Botswana	—	t	355	3.1
Qatar	—	t	319	1.7
Ghana	—	†	303	5.4

Table E-21. Standard errors for average science scores of eighthgrade students, by country: 1995 and 2007

Not available.

† Not applicable.

¹In 2007, met guidelines for sample participation rates only after substitute schools were included (see appendix A).

²Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

³In 2007, National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁴In 2007, National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A). ⁵In 2007, National Defined Population covered less than 90 percent of National Target Population

(but at least 77 percent, see appendix A).

⁶In 2007, Kuwait tested the same cohort of students as other countries, but later in the year, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 average score. Standard error is noted by s.e.

			Content dor	nain					Cognitive do	main		
	Life scien	се	Physical sci	ence	Earth scie	nce	Knowing	3	Applyin	g	Reasonir	ng
	Average		Average		Average		Average		Average		Average	-
Country	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.
TIMSS average	500*	0.0	500*	0.0	500*	0.0	500*	0.0	500*	0.0	500*	0.0
Singapore	582*	4.1	585*	3.9	554*	3.3	587*	4.1	579*	3.7	568*	3.7
Chinese Taipei	541	2.1	559*	2.5	553*	1.9	536	2.5	556*	2.1	571*	2.4
Hong Kong SAR ¹	532	3.5	558*	3.5	560*	3.2	546	3.2	549*	3.0	561*	4.4
Japan	530*	2.0	564*	2.3	529	2.7	528*	2.2	542*	2.7	567*	2.1
Russian Federation	539	4.1	547*	4.6	536	4.3	542	4.8	546*	4.7	542	4.6
Latvia ²	535	2.1	544*	2.4	536	2.2	540	2.2	535	2.4	551*	2.7
England	532*	2.7	543*	2.7	538	2.9	543	2.9	536	2.7	537	2.7
United States ^{3,4}	540	2.5	534	2.4	533	2.6	541	2.3	533	2.8	535	2.6
Hungary	548*	2.9	529	3.3	517*	3.5	540	3.0	531	3.2	529	3.7
Italy	549*	3.0	521*	3.1	526	3.0	530*	3.9	539	3.1	526*	3.8
Kazakhstan ²	528*	5.0	528	5.8	534	5.2	534	5.8	536	4.9	519*	5.3
Germany	529*	2.0	524*	2.5	524*	2.4	527*	2.2	526	2.2	525*	2.3
Australia	528*	3.4	522*	3.1	534	3.2	529*	3.1	523*	3.3	530	3.4
Slovak Republic	532	4.0	513*	4.6	530	4.8	527*	4.4	527	4.4	513*	4.9
Austria	526*	2.0	514*	2.4	532	1.9	529*	2.0	526*	2.2	513*	2.3
Sweden	531*	2.5	508*	2.7	535	2.7	526*	2.5	521*	2.9	527	3.5
Netherlands ⁵	536	2.2	503*	2.3	524*	2.5	518*	2.5	525*	2.2	525*	2.3
Slovenia	511*	2.2	530	1.6	517*	2.5	511*	1.6	525*	2.1	527*	1.8
Denmark ³	527*	2.4	502*	2.5	522*	2.7	516*	2.9	515*	2.6	525*	3.8
Czech Republic	520*	2.9	511*	2.8	518*	2.6	520*	2.7	516*	3.1	510*	2.9
Lithuania ²	516*	1.8	514*	1.4	511*	2.5	511*	1.7	515*	2.8	524*	2.4
New Zealand	507*	2.5	498*	2.5	515*	2.6	511*	2.5	500*	2.4	505*	2.9
Scotland ³	504*	2.2	499*	1.9	508*	2.5	511*	2.0	494*	2.4	501*	2.2
Armenia	489*	5.9	492*	5.1	479*	5.5	486*	5.2	487*	5.6	484*	5.3
Norway	487*	2.5	469*	2.7	497*	2.9	485*	2.4	478*	2.8	480*	3.2
Ukraine	482*	2.5	475*	2.7	474*	3.1	476*	2.4	477*	3.2	478*	3.0
Iran, Islamic Rep. of	442*	4.4	454*	4.2	433*	4.1	437*	4.3	451*	4.3	436*	4.4
Georgia ²	427*	3.5	414*	4.0	432*	5.0	434*	3.8	424*	4.1	388*	4.9
Colombia	408*	5.2	411*	4.9	401*	5.6	409*	5.5	404*	5.4	409*	5.1
El Salvador	410*	3.6	392*	3.8	393*	3.3	410*	3.9	393*	3.6	376*	4.0
Algeria	351*	6.2	377*	5.3	365*	5.7	350*	5.8	379*	5.7	357*	5.8
Kuwait ⁶	353*	4.9	345*	5.2	363*	3.8	360*	3.9	338*	4.3	331*	5.4
Tunisia	323*	5.6	340*	6.4	325*	5.8	316*	5.9	329*	6.3	349*	5.3
Morocco	292*	6.8	324*	5.5	293*	6.2	291*	5.8	311*	6.3	318*	5.4
Qatar	291*	1.4	303*	2.1	305*	2.2	304*	2.3	283*	2.7	293*	2.9
Yemen	_	†	_	†	_	†	_	†	_	†	_	†

Table E-22. Standard errors for average science content and cognitive domain scores of fourth-grade students, by country: 2007

- Not available. Average achievement could not be estimated.

† Not applicable.

*p < .05. Average score is significantly different from U.S. average score.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Met quidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by 2007 overall science average scale score. The tests for significance take into account the standard error for the reported

difference. Thus, a small difference between the United States and one country may be significant while a large difference between the United States and another country may not be significant. Standard error is noted by *s.e.*

Table E-23. Standard errors for average science content and cognitive domain scores of eighth-grade students, by country: 2007

	Content domain								Cognitive do	omain				
	Biolog	y	Chemist	ry	Physic	s	Earth scie	nce	Knowin	g	Applyin	g	Reasoni	ng
	Average		Average	-	Average		Average		Average		Average		Average	
Country	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.
TIMSS average	500*	0.0	500*	0.0	500	0.0	500*	0.0	500*	0.0	500*	0.0	500*	0.0
Singapore	564*	4.2	560*	4.1	575*	3.9	541*	4.1	554*	4.5	567*	4.2	564*	4.1
Chinese Taipei	549*	3.4	573*	4.2	554*	3.7	545*	2.9	565*	3.5	560*	3.4	541*	3.5
Japan	553*	1.9	551*	1.9	558*	1.9	533	2.5	534*	2.2	555*	2.0	560*	2.0
Korea, Rep. of	548*	1.9	536*	2.4	571*	2.4	538*	2.2	543*	2.0	547*	2.0	558*	2.0
England	541*	4.4	534*	4.0	545*	4.0	529	4.3	530*	4.9	538*	4.0	547*	4.0
Hungary	534	2.7	536*	3.5	541*	3.2	531	2.9	524*	3.0	549*	3.0	530	3.0
Czech Republic	531	2.1	535*	2.7	537*	2.1	534*	2.0	533*	2.1	539*	1.9	534	2.3
Slovenia	530	2.3	539*	2.5	524*	2.0	542*	2.2	533*	2.0	533*	2.2	538*	2.2
Hong Kong SAR ^{1,2}	527	4.6	517	4.6	528*	4.8	532	4.5	532*	4.5	522	4.9	533	5.0
Russian Federation	525	3.6	535*	3.7	519*	4.0	525	3.4	534*	4.3	527*	3.8	520	3.7
United States ^{1,3}	530	2.8	510	2.7	503	2.7	525	3.1	512	2.9	516	2.7	529	2.9
Lithuania ⁴	527	2.3	507	2.3	505	2.9	515*	2.5	513	2.4	512	2.2	527	2.5
Australia	518*	3.4	505	3.6	508	4.2	519	3.8	501*	3.1	510	3.2	530	3.6
Sweden	515*	2.4	499*	2.4	506	2.7	510*	3.0	505	2.3	509	2.7	517*	2.6
Scotland ¹	495*	3.2	497*	3.2	494	3.7	498*	3.2	480*	3.9	495*	3.1	511*	3.6
Italy	502*	3.0	481*	2.9	489*	3.1	503*	3.1	494*	3.3	498*	2.9	493*	2.6
Armenia	490*	5.9	478*	6.3	503	5.6	475*	5.8	493*	6.4	502*	5.4	459*	6.5
Norway	487*	2.3	483*	2.2	475*	3.0	502*	2.5	486*	2.0	486*	2.3	491*	2.8
Ukraine	477*	3.4	490*	3.3	492*	3.9	482*	4.0	477*	3.8	488*	3.7	488*	3.9
Jordan	478*	3.8	491*	4.1	479*	4.2	484*	3.6	491*	4.5	485*	4.1	471*	4.1
Malaysia	469*	5.8	479*	5.0	484*	5.8	463*	5.4	458*	6.5	473*	5.9	487*	4.9
Thailand	478*	4.5	462*	4.1	458*	4.2	488*	3.8	473*	4.4	472*	4.1	473*	4.0
Serbia ^{3,4}	474*	3.2	467*	3.7	467*	3.0	466*	3.8	485*	2.8	469*	3.6	455*	3.5
Bulgaria ⁵	467*	6.0	472*	6.1	466*	5.6	480*	5.5	489*	5.8	471*	6.1	448*	6.1
Israel ⁵	472*	4.2	467*	4.6	472*	4.6	462*	4.1	456*	5.0	472*	4.2	481*	4.2
Bahrain	473*	2.0	468*	2.4	466*	1.5	465*	2.4	469*	2.1	468*	2.1	469*	2.0
Bosnia and Herzegovina	464*	3.0	468*	2.9	463*	3.1	469*	3.4	486*	3.7	463*	2.8	452*	3.1
Romania	459*	3.2	463*	4.0	458*	3.4	471*	3.3	451*	4.2	470*	3.5	460*	3.5
Iran, Islamic Rep. of	449*	3.6	463*	3.5	470*	3.6	476*	3.7	468*	3.9	454*	3.8	462*	3.8
Malta	453*	1.7	461*	2.1	470*	1.7	456*	1.5	436*	1.5	462*	1.6	473*	1.4
Turkey	462*	3.4	435*	5.2	445*	4.3	466*	3.3	462*	3.6	450*	3.6	462*	3.4
Syrian Arab Republic	459*	2.7	450*	2.9	447*	2.7	448*	3.2	474*	2.9	445*	3.0	440*	2.7
Cyprus	447*	1.9	452*	2.5	458*	2.8	457*	2.3	438*	2.6	456*	2.0	460*	2.3
Tunisia	452*	2.2	458*	2.5	432*	2.5	447*	1.8	441*	2.0	445*	2.3	458*	2.9
Indonesia	428*	3.1	421*	3.4	432*	3.1	442*	3.3	426*	3.6	425*	3.1	438*	3.2
Oman	414*	3.1	416*	3.6	443*	2.9	439*	2.5	428*	3.5	423*	3.2	428*	3.5
Georgia ⁴	423*	3.9	418*	4.6	416*	5.8	425*	4.1	440*	5.1	422*	4.5	394*	4.6
Kuwait ⁶	419*	2.6	418*	3.8	438*	2.8	410*	3.0	430*	2.5	417*	2.9	411*	2.9
Colombia	434*	3.7	420*	3.1	407*	3.5	407*	3.9	418*	4.0	417*	3.1	428*	2.7
Lebanon	405*	6.2	447*	5.5	431*	5.1	389*	6.4	403*	5.9	422*	5.8	420*	5.6
Egypt	406*	3.4	413*	4.0	413*	3.3	426*	3.8	434*	3.9	404*	3.6	395*	3.4
Algeria	411*	1.9	414*	1.7	397*	2.2	413*	1.6	409*	1.9	410*	2.4	414*	1.9
Palestinian Nat'l Auth.	402*	4.1	413*	4.2	414*	3.7	408*	3.7	407*	3.5	412*	4.0	396*	3.8
Saudi Arabia	407*	2.4	390*	2.5	408*	2.3	423*	2.3	417*	2.1	403*	2.7	395*	2.5
El Salvador	398*	3.0	377*	3.2	380*	3.5	400*	2.9	394*	3.2	388*	3.2	384*	3.4
Botswana	359*	2.9	371*	2.4	351*	3.2	361*	4.0	361*	2.9	358*	3.2	362*	2.7
Qatar	318*	1.7	322*	1.8	347*	2.1	312*	1.9	325*	1.7	322*	1.5	_	†
Ghana	304*	5.0	342*	4.9	276*	5.8	294*	5.8	316*	5.7	291*	5.5	_	†

- Not available. Average achievement could not be estimated.

+ Not applicable.

*p < .05. Average score is significantly different from U.S. average score.

¹Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

²Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

³National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁴National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered based on the 2007 overall science average scale score. The tests for significance take into account the standard error for the

reported difference. Thus, a small difference between the United States and one country may be significant while a large difference between the United States and another country may not be significant. Standard error is noted by s.e.

Table E-24.Standard errors for percentage of U.S. fourth- and eighth-grade students who reached
each international science benchmark compared with the international median
percentage, by international benchmark: 2007

	Low		Intermedia	te	High		Advanced		
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.	
Grade four									
TIMSS international median	93	0.0	74	0.0	34	0.0	7	0.0	
United States	94	0.6	78*	1.1	47*	1.4	15*	0.9	
Grade eight									
TIMSS international median	78	0.0	49	0.0	17	0.0	3	0.0	
United States	92*	0.7	71*	1.3	38*	1.4	10*	0.7	

*p < .05. U.S. percentage is significantly different from the Trends in International Mathematics and Science (TIMSS) international median percentage. NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). The TIMSS international median represents all participating TIMSS jurisdictions, including the United States. Standard error is noted by *s.e.*

	10th percentile	Э	90th percentile	rcentile			
Country	Cutpoint score	s.e.	Cutpoint score	s.e.			
TIMSS average	359*	1.1	586*	0.9			
Singapore	464*	7.0	701*	5.0			
Chinese Taipei	457*	3.0	653*	2.2			
Russian Federation	443*	4.9	646	4.9			
United States ^{1,2}	427	4.3	643	2.8			
England	438	3.7	641	4.8			
Armenia	336*	8.6	640	15.2			
Hungary	425	6.1	637	6.3			
Hong Kong SAR ³	466*	4.5	637	4.1			
Italy	429	6.3	636	3.8			
Japan	459*	3.4	633*	3.4			
Slovak Republic	416	8.3	627*	4.0			
Australia	423	3.7	626*	1.4			
Latvia ⁴	454*	4.5	625*	3.3			
Kazakhstan ⁴	433	9.2	623*	3.8			
Germany	427	4.3	623*	4.2			
Austria	423	4.8	620*	4.1			
Sweden	429	4.0	617*	2.4			
New Zealand	382*	4.7	614*	3.1			
Denmark ¹	417	9.9	610*	1.6			
Slovenia	416*	1.7	610*	2.7			
Czech Republic	416*	3.5	610*	5.1			
Netherlands ⁵	445*	3.6	598*	4.1			
Lithuania ⁴	428	3.3	595*	2.2			
Scotland ¹	400*	3.7	593*	4.1			
Ukraine	364*	5.1	576*	4.2			
Norway	374*	7.7	570*	3.4			
Iran, Islamic Rep. of	304*	5.5	558*	3.4			
Georgia ⁴	306*	7.3	524*	5.2			
Colombia	271*	7.9	522*	4.9			
El Salvador	267*	6.2	507*	3.4			
Kuwait ⁶	182*	8.0	505*	5.9			
Tunisia	119*	14.0	497*	4.6			
Algeria	220*	10.0	483*	6.8			
Morocco	139*	7.5	465*	9.4			
Qatar	121*	3.8	464*	2.0			
Yemen	20*	8.3	379*	8.6			

Table E-25. Standard errors for science scores of fourth-grade students defining 10th and 90th percentiles, by country: 2007

*p < .05. Percentile cutpoint score is significantly different from U.S. cutpoint score. ¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ⁴National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered based on the 90th percentile cutpoint scores. Cutpoints are calculated based on distribution of student scores within each country. Standard error is noted by s.e.

	10th percentile		90th percentile	
Country	Cutpoint score	<i>s.e</i> .	Cutpoint score	s.e.
TIMSS average	352*	0.9	573*	0.6
Singapore	421	7.9	694*	3.0
Chinese Taipei	439*	6.4	665*	3.3
England ¹	427*	6.9	649*	4.9
Japan	454*	4.3	648*	3.1
Korea, Rep. of	452*	4.2	646*	2.1
Hungary	437*	5.2	635*	3.5
Czech Republic	447*	2.3	630	3.4
Slovenia	442*	3.2	628	3.3
Russian Federation	427*	6.6	627	5.1
Hong Kong SAR ^{1,2}	419	11.2	625	4.4
United States ^{1,3}	410	3.5	623	2.6
Australia	410	6.0	617	6.2
Lithuania ⁴	414	6.8	616	3.9
Armenia	366*	7.0	612	13.7
Sweden	405	4.1	608*	2.6
Jordan	349*	5.3	601*	5.0
Scotland ¹	388*	5.4	597*	5.1
Bulgaria ⁵	330*	16.9	595*	6.8
Malta	298*	2.9	595*	2.3
Israel ⁵	329*	6.0	591*	4.3
Italy	393*	5.3	590*	3.4
Ukraine	374*	7.3	588*	3.3
Malaysia	357*	9.9	581*	7.6
Norway	389*	5.6	578*	1.7
Thailand	363*	5.7	578*	5.6
Turkey	336*	4.3	577*	4.0
Bahrain	351*	3.8	575*	2.4
Romania	345*	6.3	572*	4.5
Serbia ^{3,4}	359*	6.6	571*	2.5
Iran, Islamic Rep. of	355*	4.0	566*	5.2
Bosnia and Herzegovina	359*	5.5	565*	3.8
Cyprus	339*	3.7	556*	3.1
Syrian Arab Republic	355*	5.1	546*	3.0
Palestinian Nat'l Auth.	255*	8.1	543*	4.4
Oman	293*	5.3	541*	3.3
Lebanon	284*	7.2	539*	5.7
Egypt	275*	5.6	537*	4.3
Kuwait ^o	298*	4.8	530*	3.2
Georgia	309*	7.3	527*	4.4
Tunisia	367*	2.2	524^	2.3
Colombia	330"	4.8	520"	3.9
Colombia Soudi Arabia	319	4.7	514	3.9 24
Algoria	300	5.0	503	3.4
Alyella	J∠/"	2.0 1 E	400	1.0
Rotewana	140	4.5	400	2.3
El Salvador	220	4.3 10	410 177*	3.0
Chana	∠30 162*	7.9 80	411 AAE*	9.4 8.6
Gilalia	105	0.0		0.0

Table E-26.Standard errors for science scores of eighth-grade
students defining 10th and 90th percentiles,
by country: 2007

*p < .05. Percentile cutpoint score is significantly different from U.S. cutpoint score.

¹Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ²Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

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

⁴National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered based on the 90th percentile cutpoint scores. Cutpoints are calculated based on distribution of student scores within each country. Standard error is noted by *s.e.*

Table E-27.Standard errors for science scores of U.S. fourth-
and eighth-grade students defining the 10th and 90th
percentiles, by content domain: 2007

	10th percentile		90th percentile	ntile <u>s.e.</u> 3.8 3.1 3.5 3.5 3.5 3.1
	Cutpoint score	s.e.	Cutpoint score	s.e.
Grade four				
Life science	433	4.6	641	3.8
Physical science	433	4.1	630	3.1
Earth science	433	4.5	630	3.5
Grade eight				
Biology	421	3.8	633	3.5
Chemistry	410	3.8	607	3.1
Physics	399	4.4	603	3.4
Earth science	410	5.0	634	3.5

NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Standard error is noted by *s.e.*

Table E-28.Standard errors for trends in science scores of U.S. fourth- and eighth-grade
students defining the 10th and 90th percentiles: 1995, 1999, 2003,
and 2007

	1995	1995			2003		2007	
	Cutpoint		Cutpoint		Cutpoint		Cutpoint	
	score	s.e.	score	s.e.	score	s.e.	score	s.e.
Grade four								
10th percentile	419	5.3	_	†	426	3.4	427	4.3
90th percentile	654*	4.0	—	†	636	3.1	643	2.8
Grade eight								
10th percentile	384*	9.8	386*	6.9	419	5.2	410	3.5
90th percentile	628	4.3	636*	4.7	628	3.5	623	2.6

Not available.

† Not applicable.

**p* < .05. Cutpoint score is significantly different from 2007 cutpoint score.

NOTE: No fourth-grade assessment was conducted in 1999. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Cutpoints are calculated based on distribution of U.S. student scores. 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, 1999, 2003, and 2007.

	Male		Female		Male-fema differenc	ale e
					Score	
Country	Average score	s.e.	Average score	s.e.	difference	s.e.
Colombia	408*	6.0	393	5.5	15	3.7
Germany	535*	2.9	520	2.6	15	2.7
Austria	532*	2.9	519	2.7	13	2.6
El Salvador	396*	4.6	383	4.5	13	6.1
Italy	541*	3.7	529	3.2	13	2.6
Netherlands ¹	528*	2.8	518	3.0	11	2.5
Slovak Republic	530*	4.8	521	5.2	8	2.9
Czech Republic	518*	3.4	511	3.7	7	3.3
Denmark ²	520	3.6	514	3.2	6	3.9
Australia	530	3.5	525	4.0	5	3.5
United States ³	541	3.1	536	3.0	5	2.7
Hong Kong SAR ^₄	556	4.3	553	3.6	3	3.7
Hungary	538	3.6	535	4.4	3	4.5
Norway	478	4.2	475	3.8	2	3.9
Chinese Taipei	558	2.4	556	2.3	2	2.5
Scotland ²	501	2.4	500	3.0	2	3.0
Singapore	587	4.4	587	4.4	#	3.0
Slovenia	518	2.4	518	2.4	#	2.8
Japan	547	2.4	548	2.5	-1	2.6
Kazakhstan ⁵	532	6.3	533	5.5	-1	3.6
Sweden	524	3.7	526	2.7	-2	2.9
Ukraine	473	3.5	475	3.4	-2	3.1
England	540	3.4	543	3.1	-3	3.0
Russian Federation	544	5.0	548	5.1	-4	3.2
Lithuania ⁵	512	2.9	516	2.7	-4	3.0
New Zealand	502	3.5	506	2.8	-4	3.5
Latvia ⁵	539	3.0	545	2.8	-6	3.6
Morocco	292	6.8	302	6.4	-10	6.1
Algeria	349	6.0	359'	6.5	-10	3.2
Georgia ⁵	413	5.1	423	4.7	-10	3.6
Iran Islamic Rep. of	429	6.0	443	56	-14	7.9
Armenia	476	52	493'	7.3	-17	5.3
Yemen	188	81	209	9.9	-21	10.8
Qatar	281	2.8	307	2.9	-26	27
Tunisia	304	6.2	335	64	-31	4.8
Kuwait ⁶	315	7.3	379'	4.6	-64	8.6

Table E-29. Standard errors for average science scores of fourth-grade students, by sex and country: 2007

Rounds to zero.

*p < .05. Average score is significantly higher than other sex's average score.

¹Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

³National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

⁴Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

⁵National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by male-female difference. Detail may not sum to totals because of rounding. Standard error is noted by s.e.

		10	tal			
	Male		Female		Male-fema differenc	ale e
					Score	
Country	Average score	s.e.	Average score	s.e.	difference	s.e.
Colombia	435*	3.7	400	4.4	35	4.5
Ghana	316*	5.6	288	5.9	29	4.2
El Salvador	399*	4.1	377	3.7	22	5.1
Tunisia	455*	2.6	436	2.3	19	2.4
Australia	524*	5.4	505	5.1	18	7.7
Hungary	545*	3.3	533	3.5	12	3.3
United States ^{1,2}	526*	3.2	514	3.0	12	2.3
Syrian Arab Republic	457*	4.2	448	3.3	9	4.7
Czech Republic	543*	2.4	534	2.2	9	2.7
England	546	5.8	537	4.6	9	5.5
Italy	499*	3.1	491	3.3	8	3.1
Korea, Rep. of	557*	2.5	549	2.7	8	3.2
Lebanon	417	6.7	410	6.2	7	4.9
Russian Federation	533	4.2	527	4.3	6	3.4
Scotland	498	4.2	493	3.5	5	3.7
Chinese Taipei	563	4.4	559	3.7	5	3.5
Japan	556	2.5	552	2.8	4	3.8
Bosnia and Herzegovina	467	2.9	464	3.4	3	2.8
Malta	458	2.2	456	1.8	2	2.9
Slovenia	539	2.7	536	2.6	2	3.0
Ukraine	486	3.6	484	3.9	2	3.0
Indonesia	428	3.6	426	3.8	2	3.2
Lithuania	519	2.7	518	3.2	1	2.9
Algeria	408	2.2	408	1.9	-1	2.3
Norway	486	3.0	487	2.4	-1	3.2
Sweden	510	2.8	512	3.0	-2	2.8
Serbia ^{1,3}	469	3.8	472	3.7	-3	4.0
Hong Kong SAR ^₄	528	6.6	533	4.5	-5	5.6
Turkey	452	4.0	457	4.0	-5	3.0
Singapore	563	5.2	571	4.7	-8	4.4
Armenia	484	5.2	492	7.1	-8	4.8
Romania	458	4.6	466*	4.1	-8	4.1
Israel ⁵	463	5.2	472	4.9	-9	5.2
Malaysia	466	6.7	475	6.4	-9	5.5
Bulgaria ⁵	464	6.8	477*	6.2	-12	5.9
Iran, Islamic Rep. of	453	5.4	466	4.6	-12	7.2
Cyprus	444	2.4	460*	2.8	-16	3.2
Egypt	400	4.6	417*	4.8	-17	6.3
Thailand	462	4.9	480*	4.5	-18	4.2
Botswana	343	3.6	365*	3.7	-22	4.1
Georgia ³	410	5.2	432*	4.8	-22	3.2
Jordan	466	5.5	499*	5.8	-34	8.2
Palestinian Nat'l Auth.	386	5.1	422*	4.5	-36	6.5
Saudi Arabia	383	3.9	426*	2.9	-43	4.6
Kuwait ⁶	391	4.2	441*	3.4	-49	5.1
Oman	391	4.6	452*	3.6	-61	5.9
Bahrain	437	2.6	499*	1.9	-62	3.0
Qatar	284	2.3	354*	2.3	-70	3.1

Table E-30. Standard errors for average science scores of eighthgrade students, by sex and country: 2007

*p < .05. Average score is significantly higher than other sex's average score.

¹National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A).

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A). ³National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁴Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

⁵National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

NOTE: Countries are ordered by male-female difference. Detail may not sum to totals because of rounding. Standard error is noted by s.e.

Table E-31.	Standard errors for average science and content
	domain scores of U.S. fourth- and eighth-grade students,
	by sex: 2007

	Male		Female	
Grade/content domain	Average score	s.e.	Average score	s.e.
Grade four				
Total score	541	3.1	536	3.0
Life science	541	2.9	538	3.0
Physical science	536	2.7	532	2.5
Earth science	536*	2.7	531	2.9
Grade eight				
Total score	526*	3.2	514	3.0
Biology	533*	2.9	527	3.2
Chemistry	512	2.9	508	3.2
Physics	514*	3.1	491	3.2
Earth science	534*	3.7	516	3.5

*p < .05. Average score is significantly higher than other sex's average score.

NOTE: The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Standard error is noted as s.e.

(see appendix A). Standard error is noted as s.e. SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2007.

Table E-32. Standard errors for trends in average science scores of U.S. fourth- and eighth-grade students, by sex: 1995, 1999, 2003, and 2007

	1995		1999		2003		2007	
Grade/sex	Average score s.e. Average score s.e. Average score s.		s.e.	Average score	s.e.			
Grade four								
Male	548	3.4	_	†	538	2.8	541	3.1
Female	536	3.7	_	†	533	2.5	536	3.0
Gap (male-female)	12*	2.5	—	†	5	1.7	5	2.7
Grade eight								
Male	520	5.9	524	5.2	536*	3.4	526	3.2
Female	505	5.5	505	4.6	519	3.2	514	3.0
Gap (male-female)	14	3.0	19	4.1	16	2.1	12	2.3

- Not available. † Not applicable.

*p < .05. Average score is significantly different from 2007 average score.

NOTE: No fourth-grade assessment was conducted in 1999. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). 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, 1999, 2003, and 2007.

Table E-33. Standard errors for average science scores of U.S. fourth- and eighth-grade students, by race/ ethnicity: 2007

	Grade for	ur	Grade eight			
Race/ethnicity	Average score	s.e.	Average score	s.e.		
White students	567	2.5	551	2.5		
Black students	488	3.5	455	3.5		
Hispanic students	502	3.6	480	4.6		
Asian students	573	7.7	543	6.7		
Multiracial students	550	6.4	522	7.0		
Other students	508	11.5	512	9.0		

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/ Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Standard error is noted by *s.e.*

Table E-34. Standard errors for trends in average science scores of U.S. fourth- and eighth-grade students, by race/ethnicity: 1995, 1999, 2003, and 2007

			Grade	four						Grad	le eight			
	1995	5	2003	3	200	7	199	5	199	9	200	3	200)7
	Average		Average		Average		Average		Average		Average		Average	
Race/ethnicity	score	s.e.	score	s.e.	score	s.e.								
White students	572	3.0	565	2.2	567	2.5	544	3.3	547	4.0	552	2.6	551	2.5
Black students	462*	5.1	486	3.3	488	3.5	422*	8.3	438*	5.7	461	5.0	455	3.5
Hispanic students	503	5.3	498	3.6	502	3.6	446*	5.0	462*	7.4	482	5.3	480	4.6
Asian students	525*	8.9	543*	6.7	573	7.7	506*	12.6	527	9.3	536	7.5	543	6.7
Multiracial students	—	†	556	4.9	550	6.4	_	†	_	†	532	6.0	522	7.0
Other students	539*	6.3	507	8.9	508	11.5	491	22.2	499	11.3	486	10.5	512	9.0

Not available.

† Not applicable.

*p < .05. Average score is significantly different from 2007 average score.

NOTE: No fourth-grade assessment was conducted in 1999. Multiracial data were not collected in 1995 and 1999. Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). The tests for significance take into account the standard error for the reported difference. Thus, a small difference between averages for one student group may be significant while a large difference for another student group may not be significant. See appendix A in this report for more information. Standard error is noted by s.e.

Table E-35.Standard errors for average science scores of U.S.
fourth- and eighth-grade students, by percentage
of students in public school eligible for free or
reduced-price lunch: 2007

	Grade fou	r	Grade ei	ght
Percentage in school eligible for free or reduced-price lunch	Average score	s.e.	Average score	s.e.
Less than 10 percent	590	5.2	572	5.9
10 to 24.9 percent	567	3.4	559	4.0
25 to 49.9 percent	550	4.0	528	4.9
50 to 74.9 percent	520	4.7	495	5.5
75 percent or more	477	4.9	466	6.3

NOTE: Analyses are limited to public schools only, based on school reports of the percentage of students in school eligible for the federal free or reduced-price lunch program. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Standard error is noted by s.e.

Table E-36.Standard errors for trends in average science scores of U.S. fourth-
and eighth-grade students, by percentage of students in public
school eligible for free or reduced-price lunch: 1999, 2003,
and 2007

	Grade four				Grade eight						
	2003	3	2007		1999		2003		2007		
Percentage in school eligible	Average		Average		Average		Average		Average		
for free or reduced-price lunch	score	s.e.	score	s.e.	score	s.e.	score	s.e.	score	s.e.	
Less than 10 percent	580	5.0	590	5.2	568	8.8	571	6.6	572	5.9	
10 to 24.9 percent	567	4.0	567	3.4	556	5.0	554	6.8	559	4.0	
25 to 49.9 percent	551	4.0	550	4.0	513	8.6	529	5.1	528	4.9	
50 to 74.9 percent	519	4.2	520	4.7	484	7.2	504	5.3	495	5.5	
75 percent or more	480	4.3	477	4.9	440*	9.8	461	10.2	466	6.3	

*p < .05. Average score is significantly different from 2007 average score.

NOTE: Information on the percentage of students in school eligible for free or reduced-price lunch was not collected in 1995. No fourth-grade assessment was conducted in 1999. Analyses are limited to public schools only, based on school reports of the percentage of students in school eligible for the federal free or reduced-price lunch program. In 2007, the United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of the National Target Population (see appendix A). 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), 1999, 2003, and 2007.

Grade four		Grade eight	
	Standard		Standard
Country	deviation	Country	deviation
Singapore	93	Singapore	104
Chinese Taipei	77	Chinese Taipei	89
Hong Kong SAR ¹	68	Japan	77
Japan	70	Korea, Rep. of	76
Russian Federation	81	England ³	85
Latvia ²	67	Hungary	77
England	80	Czech Republic	71
United States ^{3,4}	84	Slovenia	72
Hungary	85	Hong Kong SAR ^{1,3}	81
Italy	81	Russian Federation	78
Kazakhstan ²	74	United States ^{3,4}	82
Germany	79	Lithuania ²	78
Australia	80	Australia	80
Slovak Republic	87	Sweden	78
Austria	77	Scotland ³	81
Sweden	74	Italy	78
Netherlands ⁵	60	Armenia	101
Slovenia	76	Norway	73
Denmark ³	77	Ukraine	84
Czech Republic	76	Jordan	98
Lithuania ²	65	Malaysia	88
New Zealand	90	Thailand	83
Scotland ³	76	Serbia ^{2,4}	85
Armenia	119	Bulgaria/	103
Norway	77	Israel ⁷	101
Ukraine	83	Bahrain	86
Iran, Islamic Rep. of	97	Bosnia and Herzegovina	79
Georgia ²	85	Romania	88
	97	Iran, Islamic Rep. of	81
El Salvador	93	Maita	114
Algeria	102		92
Kuwait ^o	123	Syrian Arab Republic	/5
Maraaaa	141	Cyprus	60 60
Norocco	124	l ul IISIa	60 74
Qalar	129	Indonesia	74
remen	130	Coorgia ²	90
		Georgia- Kuwait ⁶	03
		Colombia	77
		Lobanon	07
		Equat	97
		Algeria	63
		Palestinian Nat'l Auth	111
		Saudi Arabia	78
		Fl Salvador	70
		Botswana	ga
		Qatar	126
		Ghana	108
Italy Kazakhstan ² Germany Australia Slovak Republic Austria Sweden Netherlands ⁵ Slovenia Denmark ³ Czech Republic Lithuania ² New Zealand Scotland ³ Armenia Norway Ukraine Iran, Islamic Rep. of Georgia ² Colombia El Salvador Algeria Kuwait ⁶ Tunisia Morocco Qatar Yemen	81 74 79 80 87 77 74 60 76 77 76 65 90 76 119 77 83 97 85 97 93 102 123 141 124 129 130	Russian Federation United States ^{3,4} Lithuania ² Australia Sweden Scotland ³ Italy Armenia Norway Ukraine Jordan Malaysia Thailand Serbia ^{2,4} Bulgaria ⁷ Israel ⁷ Bahrain Bosnia and Herzegovina Romania Iran, Islamic Rep. of Malta Turkey Syrian Arab Republic Cyprus Tunisia Indonesia Oman Georgia ² Kuwait ⁶ Colombia Lebanon Egypt Algeria Palestinian Nat'l Auth. Saudi Arabia El Salvador Botswana Qatar Ghana	78 82 78 80 78 81 78 101 73 84 98 88 83 85 103 101 86 79 88 81 114 92 75 85 60 74 96 83 89 77 97 99 63 111 78 70 99 126 108

Table E-37. Standard deviations of science scores of fourth- and eighthgrade students, by country: 2007

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population did not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). ⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A). ⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

⁷National Defined Population covered less than 90 percent of National Target Population (but at least 77 percent, see appendix A).

NOTE: Countries are ordered by 2007 average score.

	Grade four	Grade eight
Selected characteristic	Standard deviation	Standard deviation
Sex		
Male	86	85
Female	82	79
Race/ethnicity		
White	73	70
Black	76	73
Hispanic	81	77
Asian	81	69
Multiracial	85	77
Percentage of students eligible for fro or reduced-price lunch	ee	
Less than 10 percent	67	68
10 to 24.9 percent	72	69
25 to 49.9 percent	76	77
50 to 74.9 percent	82	78
75 percent or more	81	79

Table E-38.Standard deviations of science scores
of U.S. fourth- and eighth-grade students,
by selected characteristics: 2007

NOTE: Reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Black includes African American. 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. totals shown throughout the report. Analyses based on percentage of students eligible for free or reduced-price lunch are limited to public schools only. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2007.

Table E-39.Standard errors for average mathematics scores of U.S. fourth- and eighth-grade
students and the TIMSS scale average: 1995, 1999, 2003, and 2007

	1995		1999		2003		2007	
	Average score	s.e.						
Grade four								
United States	518*	3.0	_	+	518*	2.4	529*	2.4
TIMSS scale average	500	0.0	_	†	500	0.0	500	0.0
Grade eight								
United States	492	4.7	502	4.0	504	3.3	508*	2.8
TIMSS scale average	500	0.0	500	0.0	500	0.0	500	0.0

-Not available.

† Not applicable.

*p < .05. Difference between U.S. average and Trends in International Mathematics and Science Study (TIMSS) scale average is statistically significant. NOTE: No fourth-grade assessment was conducted in 1999. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Difference calculated by subtracting the TIMSS scale average (500) from the U.S. average mathematics score. Standard error is noted by s.e.

Table E-40. Standard errors for average science scores of U.S. fourth- and eighth-grade students and the TIMSS scale average: 1995, 1999, 2003, and 2007

	1995	1995		1999		2003		2007	
	Average score	s.e.							
Grade four									
United States	542*	3.3	_	†	536*	2.5	539*	2.7	
TIMSS scale average	500	0.0	_	†	500	0.0	500	0.0	
Grade eight									
United States	513*	5.6	515*	4.6	527*	3.1	520*	2.9	
TIMSS scale average	500	0.0	500	0.0	500	0.0	500	0.0	

Not available.

† Not applicable.

*p < .05. Difference between U.S. average and Trends in International Mathematics and Science Study (TIMSS) scale average is statistically significant. NOTE: No fourth-grade assessment was conducted in 1999. The United States met guidelines for sample participation rates only after substitute schools were included. The National Defined Population covered 90 percent to 95 percent of National Target Population (see appendix A). Difference calculated by subtracting the TIMSS scale average (500) from the U.S. average science score. Standard error is noted by s.e.

Table E-41. Standard errors for the percentage of fourth- and eighth-grade students who reached the TIMSS advanced international benchmark in mathematics, by country: 2007

Grade four			Grade eight		
Country	Percent	s.e.	Country	Percent	s.e.
International median	5	0.0	International median	2	0.0
Singapore	41	2.1	Chinese Taipei	45	1.9
Hong Kong SAR ¹	40	2.2	Korea, Rep. of	40	1.2
Chinese Taipei	24	1.2	Singapore	40	1.9
Japan	23	1.2	Hong Kong SAR ^{1,3}	31	2.1
Kazakhstan ²	19	2.1	Japan	26	1.3
England	16	1.2	Hungary	10	1.0
Russian Federation	16	1.8	England ³	8	1.5
Latvia ²	11	0.8	Russian Federation	8	0.9
United States ^{3,4}	10	0.8	Lithuania ²	6	0.7
Lithuania	10	0.7	United States ^{3,4}	6	0.6
Hungary	9	0.8	Australia	6	1.3
Australia	9	0.8	Armenia	6	0.9
Armenia	8	1.5	Czech Republic	6	07
Denmark ³	7	0.7	Turkey	5	0.6
Netherlands ⁵	7	0.7	Serbia ^{2,4}	5	0.8
Germany	6	0.5	Malta	5	0.4
Italy	6	0.7	Bulgaria	4	0.8
New Zealand	5	0.5	Slovenia	4	0.6
Slovak Republic	5	0.7	Israel ⁷	4	0.5
Scotland ³	4	0.5	Romania	4	0.6
Slovenia	3	0.4	Scotland ³	4	0.6
Austria	3	0.3	Thailand	3	0.8
Sweden	3	0.3	Ukraine	3	0.5
Ukraine	2	0.5	Italy	3	0.6
Czech Republic	2	0.4	Malavsia	2	0.5
Norway	2	0.3	Cyprus	2	0.3
Georgia ²	1	0.4	Sweden	2	0.3
Colombia	#	0.1	Jordan	1	0.2
Morocco	#	0.2	Bosnia and Herzegovina	1	0.2
Iran, Islamic Rep. of	#	0.1	Iran Islamic Rep. of	1	02
Algeria	#	0.1	Lebanon	1	0.2
Tunisia	#	0.1	Georgia ²	1	0.3
El Salvador	#	#	Eavot	1	0.1
Kuwait ⁶	#	#	Indonesia	#	02
Qatar	#	#	Norway	#	01
Yemen	#	#	Palestinian Nat'l Auth	#	01
			Colombia	#	0.0
			Bahrain	#	01
			Svrian Arab Republic	#	01
			Tunisia	#	01
			Oman	#	#
			Qatar	#	#
			Kuwait ⁶	 #	#
			Botswana	 #	#
			El Salvador	#	#
			Ghana	#	#
			Algeria		#
			Saudi Arabia	#	#

Rounds to zero.

¹Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

²National Target Population does not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

³Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁴National Defined Population covers 90 percent to 95 percent of National Target Population (see appendix A).

⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

⁷National Defined Population covers less than 90 percent of National Target Population (but at least 77 percent, see appendix A). NOTE: The Trends in International Mathematics and Science Study (TIMSS) international median represents all participating TIMSS jurisdictions, including the United States. The international median represents the percentage at which half of the participating countries have that percentage of students at or above the median and half have that percentage of students below the median. Standard error is noted by s.e.

Table E-42. Standard errors for the percentage of fourth- and eighth-grade students who reached the TIMSS advanced international benchmark in science, by country: 2007

Grade four			Grade eight		
Country	Percent	s.e.	Country	Percent	s.e.
International median	7	0.0	International median	3	0.0
Singapore	36	1.9	Singapore	32	1.6
Chinese Taipei	19	1.0	Chinese Taipei	25	1.5
Russian Federation	16	1.9	Japan	17	0.9
United States ^{1,2}	15	0.9	England ²	17	1.6
England	14	1.2	Korea Rep of	17	0.9
Hong Kong SAR ³	14	14	Hungary	13	1 1
Hungary	13	10		11	0.0
Italy	13	1.0	Slovenia	11	0.9
lanan	12	1.0	Bussian Enderation	11	1.0
Armonia	12	1.0		11	1.0
Alliellia Slovak Dopublic	12	1.0	Hong Kong SAR ^{2,0}	10	1.0
	10	0.0		10	0.7
	10	0.7	Armenia	8	1.7
	10	1.1	Australia	8	1.4
Germany	10	0.7	Lithuania⁴	8	0.6
Kazakhstan ⁴	10	1.3	Sweden	6	0.6
Austria	9	0.7	Jordan	5	0.6
Sweden	8	0.6	Malta	5	0.3
New Zealand	8	0.5	Bulgaria ⁷	5	0.9
Czech Republic	7	0.7	Scotland ²	5	0.6
Denmark ²	7	0.8	Israel ⁷	5	0.6
Slovenia	6	0.6	Italy	4	0.7
Scotland ²	4	0.6	Turkey	3	0.5
Netherlands ⁵	4	0.8	Ukraine	3	0.4
Lithuania ⁴	3	0.4	Thailand	3	0.8
Ukraine	2	0.3	Malaysia	3	07
Iran, Islamic Rep. of	2	0.3	Iran Islamic Rep. of	2	0.5
Norway	1	0.4	Bahrain	2	0.4
Colombia	1	0.2	Serbia ^{1,4}	2	03
Georgia ⁴	1	0.2	Romania	2	0.0
FL Salvador	#	01	Norway	2	0.0
Kuwait ⁶	#	0.2	Rospia and Horzogovina	2	0.2
Morocco	#	0.2	Cuprup	4	0.5
Algeria	#	0.2	Cypius Delectinion Net'l Auth	1	0.3
Tunisia	#	0.1		1	0.2
Optor	# #	U.1 #	Lebanon Curica Arab Depublic	1	0.4
Vaman	#	#	Syrian Arab Republic	1	0.2
Temen	#	#	Egypt	1	0.1
			Oman	1	0.2
			Colombia	1	0.1
			Kuwait	#	0.1
			Georgia⁴	#	0.1
			Indonesia	#	0.1
			Tunisia	#	0.1
			Saudi Arabia	#	#
			Qatar	#	#
			Ghana	#	#
			El Salvador	#	0.1
			Botswana	#	#
			Algeria	#	#

Rounds to zero.

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

²Met guidelines for sample participation rates only after substitute schools were included (see appendix A).

³Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

⁴National Target Population does not include all of the International Target Population defined by the Trends in International Mathematics and Science Study (TIMSS) (see appendix A).

⁵Nearly satisfied guidelines for sample participation rates only after substitute schools were included (see appendix A).

⁶Kuwait tested the same cohort of students as other countries, but later in 2007, at the beginning of the next school year.

⁷National Defined Population covers less than 90 percent of National Target Population (but at least 77 percent, see appendix A). NOTE: The Trends in International Mathematics and Science Study (TIMSS) international median represents all participating TIMSS jurisdictions, including the United States. The international median represents the percentage at which half of the participating countries have that percentage of students at or above the median and half have that percentage of students below the median. Standard error is noted by *s.e.*