

CHAPTER 6

International Comparisons of Education

This chapter offers a broad perspective on education across the nations of the world. It also provides an international context for examining the condition of education in the United States. Insights into the educational practices and outcomes of the United States are obtained by comparing them with those of other countries. The National Center for Education Statistics (NCES) carries out a variety of activities to provide statistical data for international comparisons of education.

This chapter presents data drawn from materials prepared by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Organization for Economic Cooperation and Development (OECD), the International Association for the Evaluation of Educational Achievement (IEA), and the Institute of International Education (IIE). Basic summary data on enrollments, teachers, enrollment ratios, and finances were synthesized from information appearing in *Education at a Glance*, published by OECD. Even though OECD tabulations are very carefully prepared, international data users should be cautioned about the many problems of definition and reporting involved in the collection of data about the educational systems of the world (see the OECD entry in Appendix A: Guide to Sources).

This chapter also presents data from the Trends in International Mathematics and Science Study (TIMSS), carried out under the aegis of the IEA and supported by NCES and the National Science Foundation. This survey was formerly known as the Third International Mathematics and Science Study. TIMSS, conducted every 4 years, is an assessment of fourth- and eighth-graders in mathematics and science. In 1995, TIMSS collected data for both grade 4 and grade 8. In 1999, TIMSS collected data for grade 8 only. With the 2003 data collection, TIMSS offers the first international trend comparisons in mathematics and science at grades 4 and 8. In 2003, the United States and a number of other countries participated in data collection at one or both grade levels: 25 nations collected data on fourth-graders, and 45 nations collected data on eighth-graders. For 15 of these nations, including the United States, TIMSS offers comparisons of fourth-grade student achievement between 1995 and 2003. For 34 of these nations, including the United States, TIMSS also offers comparisons of eighth-grade student achievement between 2003 and at least one prior data collection year, either 1995 or 1999.

This chapter includes additional information on performance scores of 15-year-olds in the areas of reading, mathematics, and science literacy from the Program for International Student Assessment (PISA). PISA also measures general, or cross-curricular, competencies such as learning strategies. While this study focuses on OECD countries, data from some non-OECD countries are also provided.

The role that the United States plays in the world of higher education is illuminated by data on foreign students enrolled in U.S. institutions of higher education. The IIE provides estimates of the number of foreign students and their countries of origin.

Further information on survey methodologies is in Appendix A: Guide to Sources and in the publications cited in the table source notes.

Population

Among the reporting OECD countries in 2005, Mexico had the largest percentage of its population made up of young people ages 5 to 14 (21 percent), followed by Turkey (19 percent) (table 400). Countries with relatively small percentages of people in this age group included Italy, Japan, and Spain (all at 9 percent) and the Czech Republic, Germany, Greece, and Portugal (all at 10 percent). In the United States, the proportion of 5- to 14-year-olds was 14 percent, which was higher than in most of the other OECD countries.

Enrollments

In 2005, about 1.3 billion students were enrolled in schools around the world (table 398). Of these students, 693 million were in elementary-level programs, 511 million were in secondary programs, and 138 million were in post-secondary programs. Between 1990 and 2005, enrollment changes varied from region to region. Changes in elementary enrollment ranged from increases of 68 percent in Africa, 16 percent in Oceania, 15 percent in Asia, and 8 percent in Northern America (defined in UNESCO tabulations as including the United States, Canada, Greenland, Bermuda, St. Pierre, and Miquelon) to a 22 percent decrease in Europe and a 9 percent decrease in Central and South America (figure 26). Over the same period, enrollment increases at the secondary level outpaced increases at the elementary level. At the secondary level, enrollments increased by 164 percent in Central and South America, 97 percent in Africa,

86 percent in Oceania, 70 percent in Asia, 27 percent in Northern America, and 2 percent in Europe.

At the postsecondary level, developing areas of the world also had increases in enrollment between 1990 and 2005 (table 398 and figure 26). Postsecondary enrollment rose by 191 percent in Africa, 169 percent in Asia, 106 percent in Oceania, 114 percent in Central and South America, 68 percent in Europe, and 19 percent in Northern America (figure 26). These increases are due to both growth in the percentages of people attending postsecondary institutions and increases in the total populations in these regions.

In 2005, the reporting OECD countries with the highest proportions of 22- to 25-year-olds enrolled in postsecondary education were Finland (40 percent), followed by Denmark (34 percent), the Republic of Korea and Sweden (both at 32 percent), and Norway and Poland (both at 30 percent) (table 401). The United States' proportion of enrolled 22- to 25-year-olds was 23 percent. Also in 2005, the reporting OECD countries with the highest proportions of 18- to 21-year-olds enrolled in postsecondary education were Greece and the Republic of Korea (both at 65 percent), followed by the United States (45 percent), and Flemish Belgium (43 percent). Postsecondary enrollment varied among countries due partially to differences in how postsecondary education is defined and the age at which postsecondary education begins. For example, programs classified as postsecondary education in some countries may be classified as long-duration secondary education in other countries.

In 2006–07, there were about 583,000 foreign students studying at U.S. colleges and universities (table 420). Fifty-nine percent of these students were from Asian countries. Between 1990 and 2006, the proportion of students at U.S. colleges who were nonresident aliens rose from 2.8 to 3.4 percent (table 226).

Achievement

On the 2003 TIMSS assessment, U.S. fourth-grade students scored 518, on average, in mathematics, exceeding the international average of 495 for the 25 participating educational systems (table 406). (Average scale scores from the TIMSS assessment are based on a range of possible scores from 0 to 1,000. Most participating educational systems represent countries; however, some represent subnational entities with separate educational systems, such as Hong Kong, SAR.¹) U.S. fourth-graders were outperformed by their peers in 11 educational systems, including 4 Asian educational systems (Chinese Taipei; Hong Kong, SAR; Japan; and Singapore) and 7 European educational systems (Flemish Belgium, England, Hungary, Latvia, Lithuania, the Netherlands, and the Russian Federation). On the other hand, U.S. fourth-graders outscored students in 13 educational systems. In 2003, U.S. eighth-grade students scored 504 in mathematics, on average, exceeding the international aver-

age of 467 for the 45 participating educational systems (table 407). U.S. eighth-graders were outperformed by their peers in 9 educational systems, including 5 Asian educational systems (Chinese Taipei; Hong Kong, SAR; Japan; the Republic of Korea; and Singapore) and 4 European educational systems (Flemish Belgium, Estonia, Hungary, and the Netherlands). On the other hand, U.S. eighth-graders outscored students in 25 educational systems.

On the 2006 PISA, the average score of U.S. 15-year-olds in mathematics literacy was 474, which was lower than the OECD average of 498 (table 403). (Possible scores on PISA assessments range from 0 to 1,000.) The average mathematics literacy score in the United States was lower than the average score in 23 of the other 29 OECD countries for which comparable PISA results were reported, higher than the average score in 4 of the other OECD countries, and not measurably different from the average score in 2 of the OECD countries. Comparable mathematics literacy results were also reported for 27 non-OECD jurisdictions, 8 of which had higher average scores than did the United States. In science literacy, the average score of 15-year-olds in the United States was lower than the average score in 16 of the other 29 OECD countries, higher than the average score in 5 of the other OECD countries, and not measurably different from the average score in 8 of the OECD countries. In 6 of the 27 non-OECD jurisdictions, the science literacy scores of 15-year-olds were higher than the average score in the United States. PISA 2006 reading literacy results were not reported for the United States because of an error in printing the test booklets (for more information, please refer to footnote 3 on table 403 and to the PISA publication cited in the table's source note).

Degrees

In OECD countries, ratios of bachelor's degrees conferred per 100 people at the typical age of graduation in 2005 ranged from 11 in Turkey and 15 in Mexico to 56 in Iceland and 60 in Australia (table 415 and figure 27). The ratio for the United States was 34 degrees per 100 people. In 2005, women had higher bachelor's degree ratios than men in 25 of the 28 OECD countries reporting data.

The percentages of undergraduate degrees awarded in mathematics and science fields—including natural sciences, mathematics and computer science, and engineering—varied across the 28 reporting OECD countries in 2005 (table 416). Three of the reporting OECD countries awarded at least 30 percent of their undergraduate degrees in mathematics and science fields: the Republic of Korea (37 percent), Germany (31 percent), and Finland (30 percent). Four of the countries awarded 15 percent or less of their undergraduate degrees in these fields: Hungary (11 percent), Iceland (14 percent), Norway (14 percent), and the Netherlands (15 percent). In 2005, the United States awarded 17 percent of its undergraduate degrees in mathematics and science fields, a lower percentage than most other reporting countries. The percentages of graduate degrees awarded in mathematics and science fields also ranged widely across countries in

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

2005 (table 417). Nine of the reporting OECD countries awarded at least 30 percent of their graduate degrees in mathematics and science fields: the Republic of Korea (44 percent), Greece (43 percent), Austria (39 percent), Spain (38 percent), the Slovak Republic (37 percent), Portugal (34 percent), Switzerland (32 percent), Germany (31 percent), and Finland (30 percent). Four OECD countries awarded 15 percent or less of their graduate degrees in mathematics and science fields: Hungary (6 percent), Poland (9 percent), the United States (13 percent), and Mexico (15 percent).

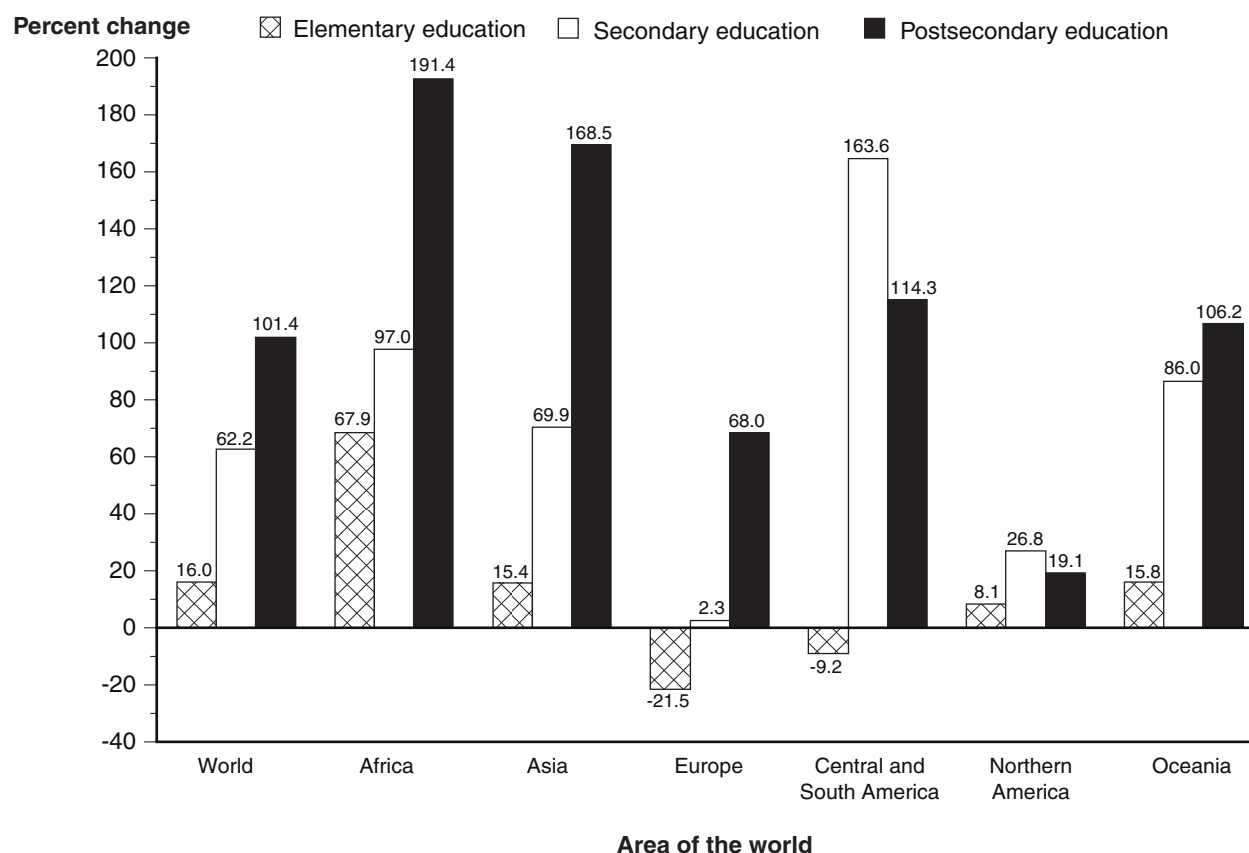
Finances

In 2005, per student expenditures at the elementary level of education were at least \$7,500 in eight OECD countries (table 418). Specifically, Luxembourg spent \$14,100 per student at the elementary level, Iceland \$9,300, the United States \$9,200, Norway \$9,000, Denmark \$8,500, Switzerland \$8,500, Austria \$8,300, and Sweden \$7,500. At the secondary level, six countries had expenditures of over \$9,000 per student: Luxembourg (\$18,800), Switzerland (\$12,900),

Norway (\$11,000), the United States (\$10,400), Austria (\$9,800), and Denmark (\$9,400). At the higher education level, the following seven countries had expenditures of at least \$14,000 per student in 2005: the United States (\$24,400), Switzerland (\$21,700), Sweden (\$15,900), Norway (\$15,600), Denmark (\$15,000), Austria (\$14,800), and Australia (\$14,600). These expenditures were adjusted to U.S. dollars using the purchasing-power-parity (PPP) index. This index is considered more stable and comparable than indexes using currency exchange rates.

A comparison of public direct expenditures on education as a percentage of gross domestic product (GDP) in reporting OECD countries shows that national investment in education in 2005 ranged from 3.4 percent in Japan and 3.7 percent in the Slovak Republic to 6.8 percent in Denmark and 7.2 percent in Iceland (table 419 and figure 28). Among reporting OECD countries, the average public investment in education in 2005 was 5.0 percent of GDP. In the United States, the public expenditure on education as a percentage of GDP was 4.8 percent.

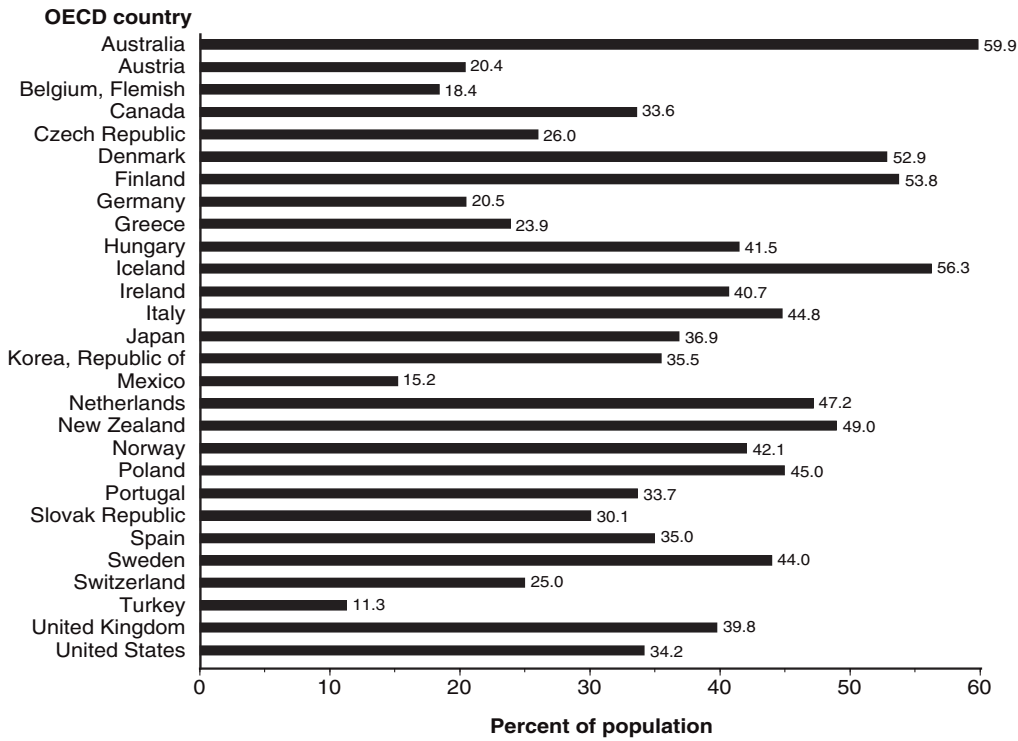
Figure 26. Percentage change in enrollment, by selected areas of the world and level of education: 1990 to 2005



NOTE: Northern America includes Bermuda, Canada, Greenland, St. Pierre and Miquelon, and the United States of America. Hawaii is included in Northern America rather than Oceania. Central and South America includes Latin America and the Caribbean. Oceania includes American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Pacific Islands, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and the Republic of Vanuatu. Data include imputed values for nonrespondent countries.

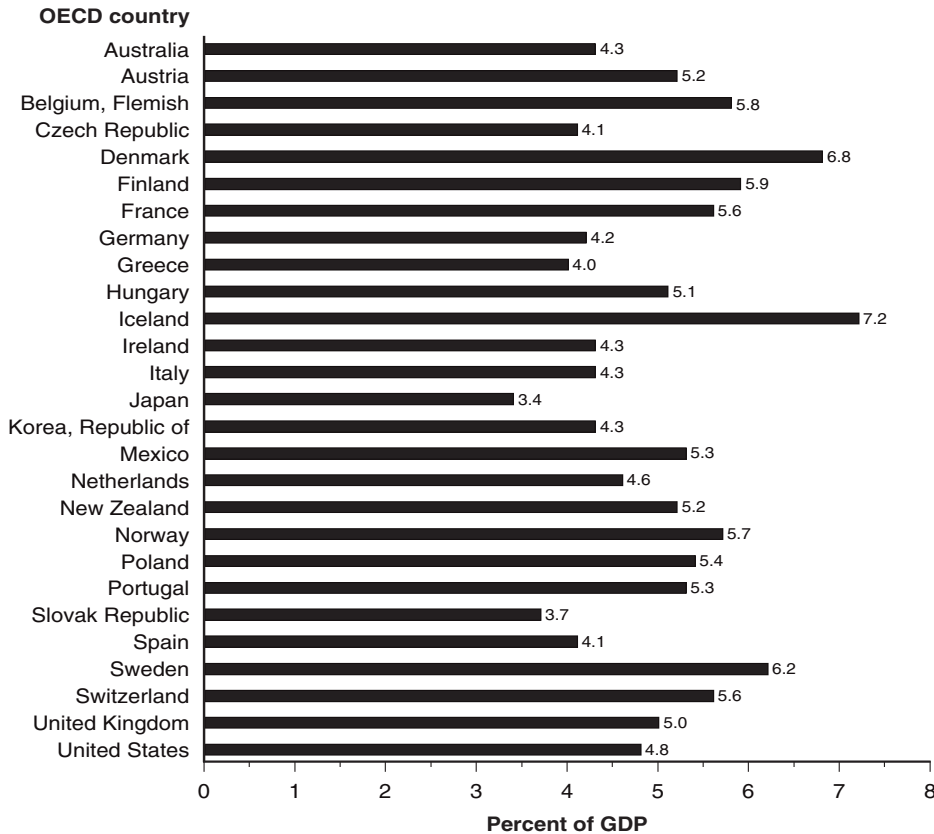
SOURCE: United Nations Educational, Scientific, and Cultural Organization (UNESCO), *Statistical Yearbook, 1999*, and unpublished tabulations.

Figure 27. Bachelor's degree recipients as a percentage of the population of the typical ages of graduation, by country: 2005



NOTE: Includes graduates of any age. Includes all OECD countries for which comparable data are available.
 SOURCE: Organization for Economic Cooperation and Development (OECD), Education Online Database.

Figure 28. Public direct expenditures for education as a percentage of the gross domestic product (GDP), by country: 2005



NOTE: Includes all OECD countries for which comparable data are available. Includes all government expenditures for education institutions, plus public subsidies to households for living costs that are not spent at education institutions.
 SOURCE: Organization for Economic Cooperation and Development (OECD), *Education at a Glance, 2008*.

Table 398. Selected population and finance statistics, school enrollment, and teachers, by major areas of the world: Selected years, 1980 through 2005

Selected characteristic	Major areas of the world						
	World total ¹	Africa ²	Asia ³	Europe ⁴	Central and South America ⁵	Northern America ⁵	Oceania ⁶
1	2	3	4	5	6	7	8
1980							
Population, all ages ⁷ (in thousands)	4,447,090	475,714	2,641,312	693,075	359,307	255,109	22,573
Enrollment, all levels (in thousands)	856,971	78,036	495,155	131,633	87,291	60,041	4,815
First (elementary) level ⁸	541,556	62,134	336,174	52,471	65,414	22,611	2,752
Second level ⁹	264,379	14,360	144,755	62,734	16,969	23,913	1,647
Third level ¹⁰	51,037	1,542	14,227	16,428	4,908	13,516	416
Teachers, all levels (in thousands)	38,285	2,338	19,641	8,225	3,730	4,079	272
First (elementary) level ⁸	19,044	1,661	10,874	2,541	2,260	1,580	129
Second level ⁹	15,398	584	7,554	4,387	1,083	1,679	112
Third level ¹⁰	3,843	94	1,213	1,297	387	820	31
Public expenditures on education							
In millions of U.S. dollars	516,400	22,900	93,800	200,600	33,500	155,100	10,400
As a percent of gross national product	4.8	5.3	4.0	5.1 ¹¹	3.8	5.2	5.6
1990							
Population, all ages ⁷ (in thousands)	5,281,986	629,389	3,184,342	722,109	437,822	282,020	26,304
Enrollment, all levels (in thousands)	980,474	107,871	569,179	131,255	104,968	62,007	5,194
First (elementary) level ⁸	596,853	80,640	364,213	48,968	75,505	24,810	2,717
Second level ⁹	315,008	24,378	181,652	63,366	22,194	21,569	1,849
Third level ¹⁰	68,613	2,853	23,314	18,922	7,269	15,628	628
Teachers, all levels (in thousands)	47,105	3,791	24,455	9,398	5,131	4,000	330
First (elementary) level ⁸	22,626	2,390	12,692	2,812	3,006	1,582	143
Second level ⁹	19,380	1,241	9,947	5,076	1,520	1,449	146
Third level ¹⁰	5,100	160	1,816	1,509	605	969	41
Public expenditures on education							
In millions of U.S. dollars	986,500	25,700	199,800	367,500	44,600	330,300	18,600
As a percent of gross national product	4.8	5.6	3.7	5.1 ¹¹	4.1	5.4	5.6
1995							
Population, all ages ⁷ (in thousands)	5,686,775	719,497	3,437,791	728,034	476,641	296,644	28,168
Enrollment, all levels (in thousands)	1,103,756	130,794	644,609	137,839	116,821	66,510	7,183
First (elementary) level ⁸	649,480	95,928	394,304	47,344	82,279	26,501	3,124
Second level ⁹	372,724	30,899	219,415	69,448	26,087	23,984	2,891
Third level ¹⁰	81,552	3,966	30,890	21,047	8,455	16,026	1,167
Teachers, all levels (in thousands)	52,047	4,486	26,955	10,113	5,784	4,269	439
First (elementary) level ⁸	24,356	2,811	13,499	2,863	3,374	1,649	161
Second level ⁹	21,746	1,471	11,273	5,561	1,696	1,528	217
Third level ¹⁰	5,945	205	2,183	1,689	714	1,092	61
2000							
Population, all ages ⁷ (in thousands)	6,084,908	810,432	3,678,484	731,386	520,405	313,565	30,637
Enrollment, all levels (in thousands)	1,204,015	151,472 ¹²	704,358 ¹²	137,084 ¹²	136,463	67,072	7,567 ¹²
First (elementary) level ⁸	653,681	107,046	404,478 ¹³	41,652	69,936	27,435	3,134
Second level ⁹	452,143	38,044 ¹³	259,820	70,458	55,213	25,220	3,390
Third level ¹⁰	98,191	6,382 ¹³	40,061	24,974 ¹³	11,314	14,417	1,043 ¹³
Teachers, all levels (in thousands)	57,044 ^{12,14}	5,061 ¹²	30,025 ¹²	10,417 ¹²	6,434	4,662	‡
First (elementary) level ⁸	25,701 ¹³	2,913	15,348 ¹³	2,755	2,726	1,806	154 ¹³
Second level ⁹	24,703 ¹⁴	1,887 ¹³	12,257	5,777 ¹³	2,850	1,695	‡
Third level ¹⁰	6,640 ¹⁴	262 ¹³	2,420	1,885	858	1,161	‡
2005							
Population, all ages ⁷ (in thousands)	6,470,340	909,350	3,912,346	730,314	557,143	328,251	32,937
Enrollment, all levels (in thousands)	1,341,560 ¹²	191,768 ¹²	791,490 ¹²	135,015	142,634	72,771	7,882
First (elementary) level ⁸	692,551	135,434	420,181 ¹³	38,426	68,549	26,813	3,147 ¹²
Second level ⁹	510,825 ¹³	48,022 ¹³	308,708 ¹³	64,802	58,510	27,344	3,440 ¹³
Third level ¹⁰	138,183 ¹³	8,312 ¹³	62,600 ¹³	31,787	15,575	18,613	1,295 ¹³
Teachers, all levels (in thousands)	64,438 ^{12,14}	6,003 ¹²	‡	10,641	7,697 ¹²	5,023	‡
First (elementary) level ⁸	27,179 ¹³	3,478 ¹³	16,025 ¹³	2,678	2,962	1,866	169 ¹³
Second level ⁹	28,452 ^{13,14}	2,206 ¹³	‡	5,728	3,542	1,806	‡
Third level ¹⁰	8,807 ^{13,14}	319 ¹³	3,636 ¹³	2,236	1,194 ¹³	1,351	‡

‡Reporting standards not met.

¹Enrollment and teacher data exclude the Democratic People's Republic of Korea.

²Excludes Rodrigues and other small islands.

³Includes five countries of the former Union of Soviet Socialist Republics (U.S.S.R.), Arab states, and both the Asian and the European portions of Turkey.

⁴Includes all countries of the former U.S.S.R. except Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan.

⁵Northern America includes Bermuda, Canada, Greenland, St. Pierre and Miquelon, and the United States of America. Hawaii is included in Northern America rather than in Oceania. Central and South America includes Latin America and the Caribbean.

⁶Includes American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Pacific Islands, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and the Republic of Vanuatu.

⁷Estimate of midyear population.

⁸First-level enrollment generally consists of elementary school, grades 1–6.

⁹Second-level enrollment includes general education, teacher training (at the second level), and technical and vocational education. This level generally corresponds to secondary education in the United States, grades 7–12.

¹⁰Third-level enrollment includes college and university enrollment, and technical and vocational education beyond the high school level. There is considerable variation in reporting from country to country.

¹¹This figure is for Europe, not including the former U.S.S.R.

¹²Estimated.

¹³Estimated by the UNESCO Institute for Statistics.

¹⁴Includes estimates for major areas of the world not separately shown.

NOTE: Detail may not sum to totals because of rounding. Public expenditure data not available for 1995, 2000, and 2005. Data in this table include imputed values for nonrespondent countries. SOURCE: United Nations Educational, Scientific, and Cultural Organization (UNESCO), *Statistical Yearbook, 1999*, and unpublished tabulations. (This table was prepared July 2008.)

Table 399. Selected population and enrollment statistics for countries with populations over 10 million, by continent: Selected years, 1990 through 2006

Country ¹	Midyear population (in millions)			Persons per square kilo- meter, 2006	First level ²						Second level ³						Third level ⁴					
	1990	2000	2006		Enrollment (in thousands)			Gross enrollment ratio ⁵			Enrollment (in thousands)			Gross enrollment ratio ⁵			Enrollment (in thousands)			Gross enrollment ratio ⁵		
					1990-91	2000-01	2005-06	1990-91	2000-01	2005-06	1990-91	2000-01	2005-06	1990-91	2000-01	2005-06	1990-91	2000-01	2005-06	1990-91	2000-01	2005-06
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
World total ⁶	5,282	6,085	6,549	50	596,853	653,681	692,551 ⁷	99	101	106 ⁷	315,008	452,143	510,825 ^{7,8}	52	61	65 ^{7,8}	68,613	98,191	138,183 ^{7,8}	14	19	24 ^{7,8}
Africa																						
Algeria ⁹	25	30	33	14	4,189	4,843	4,197	100	108	110	2,176	—	—	61	—	—	286	—	818	11	—	22
Angola.....	9	13	12	10	990 ¹⁰	—	—	92	—	—	186	355	—	12	15	—	7	—	—	1	—	—
Burkina Faso.....	9	11	14	52	504	852	1,391	33	44	60	99	190	320	7	11	15	5	—	30	1	—	2
Cameroon.....	11	15	18	38	1,964	2,237 ¹¹	2,998	101	92 ¹¹	107	500	700	698	28	29	24	33	66 ⁸	120	3	5 ⁸	7
Cote d'Ivoire.....	12	16	19	61	1,415	1,944	2,112	67	70	71	361	620 ⁸	—	22	22 ⁸	—	30 ¹²	—	—	—	—	—
Democratic Rep. of the Congo	37	51	62	28	4,562	—	—	70	—	—	1,097 ¹²	1,253 ⁸	—	21 ¹²	18 ⁸	—	80	—	—	2	—	—
Egypt ⁹	56	64	79	79	6,964	7,947 ⁸	9,795	94	101 ⁸	103	5,507	8,028 ⁸	—	76	83 ⁸	—	628 ^{13,14}	—	—	16	—	—
Ethiopia.....	48	64	77	69	2,466	4,874	10,972	33	63	83	866	2,168	2,993	14	17	27	34	68	180	1	1	2
Ghana ⁹	15	19	22	97	1,945	2,561	3,131	75	80	92	—	1,057	1,454	36	37	46	10 ¹⁵	55	110	1	3	5
Kenya ⁹	23	30	36	63	5,392	5,035	6,101	95	98	106	618 ¹⁶	1,909	2,584	24	39	50	35 ¹⁵	89	—	2	3	—
Madagascar.....	13	16	19	33	1,571	2,208	3,699	103	100	139	323 ¹⁶	—	730	18	—	24	36	32	50	3	2	3
Malawi.....	9	11	13	141	1,401	2,695	2,934	68	139	119	61	487	565	8	32	29	5	—	—	1	—	—
Mali.....	8	11	12	10	395	1,017	1,610	26	53	80	84	258 ⁸	463	7	16 ⁸	28	5	20	—	1	2	—
Morocco ⁹	24	29	33	75	2,484	3,670	3,944	67	93	106	1,194	1,541	2,061	35	39	52	256	276	385	11	9	12
Mozambique ⁹	14	18	21	26	1,260	2,544	4,173	67	74	105	160	124	367	8	6	16	5 ¹⁷	12	—	#	1	—
Niger.....	8	11	13	10	369	579	1,127	29	30	51	77	106 ⁸	217	7	6 ⁸	11	—	—	11	1	—	1
Nigeria ⁹	96	127	140	154	13,607	18,802 ⁸	—	91	96 ⁸	—	2,908	—	—	25	—	—	208 ^{15,18}	—	—	4 ^{17,18}	—	—
Senegal.....	8	10	12	64	708	1,108	1,473	59	64	80	—	250	447 ⁸	16	15	24 ⁸	19	—	—	3	—	—
South Africa.....	37	43	48	39	6,952	7,445	—	122	107	—	2,742	4,142	—	74	85	—	439 ¹⁹	645	741	13	14	15
Sudan ⁹	24	34	39	16	2,043	2,567	3,881	53	51	66	732	980	1,447	24	26	34	60 ¹³	204 ⁸	—	3	6	—
Tunisia.....	8	10	10	66	1,406	1,414	1,134	113	114	108	565	1,104 ⁸	1,247	45	75 ⁸	85	69	180	345	9	19	31
Uganda.....	17	22	29	146	2,470 ^{20,21}	6,559	7,364	74	127	117	245 ^{16,21}	5,107	—	13	16	—	18	56	—	1	3	—
United Republic of Tanzania..	25	34	39	44	3,379	4,382	7,960	70	66	110	167	—	—	5	—	—	7 ¹²	—	—	#	—	—
Zambia.....	8	10	11	15	1,461	1,590	2,679	99	75	117	190	276	—	24	22	—	15	25 ⁸	—	2	2 ⁸	—
Zimbabwe.....	10	12	12	30	2,116	2,461	2,446	116	98	101	661	844	831	50	42	40	49	49 ⁸	—	5	4 ⁸	—
Asia																						
Afghanistan ⁹	15	24	31	48	623	749	—	27	19	—	182	—	—	9	—	—	24	—	—	2	—	—
Bangladesh.....	110	130	147	1,101	11,940	17,668	—	72	109	—	3,593	10,329	—	19	50	—	434	727	—	4	6	—
Cambodia.....	9	12	14	78	1,330	2,248	—	121	106	—	264	351	825	32	17	38	7	22	76	1	2	5
China.....	1,155	1,261	1,314	141	122,414	—	108,925	125	—	111	52,386	81,488	101,195	49	63	76	3,822	7,364	23,361	3	8	22
India.....	851	1,016	1,112	374	99,118	113,613	139,170	97	99	112	54,180 ¹⁶	71,031	—	44	48	—	4,951	9,404	12,853	6	10	—
Indonesia.....	183	210	232	127	29,754	28,207 ⁸	28,983	115	111 ⁸	114	10,965	14,264 ⁸	16,424	44	55 ⁸	64	1,773 ¹²	—	3,657	9	—	12
Iran, Islamic Republic of.....	59	64	65	40	9,370	8,288	7,274	112	94	118	5,085	9,955	—	55	78	—	312 ¹³	1,405	2,399	10	19	17
Iraq.....	18	23	27	62	3,328	3,639	—	111	91	—	1,024 ¹⁶	1,224	—	47	36	—	170 ²²	289	—	12 ²²	12	27
Japan.....	124	127	128	340	9,373	7,529	7,229	100	101	100	11,026	8,782	7,561	97	102	101	2,899 ¹²	3,982	4,085	30	47	—
Kazakhstan.....	17	15	15	6	1,197	1,208	973	87	99	104	2,144	2,003	1,982	98	91	95	537	370	781	40	28	57
Korea, North (DPR).....	20	22	23	192	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	53
Korea, South (Republic of)....	43	47	48	490	4,869	3,946	4,031	105	98	105	4,560	4,177	3,786	90	98	96	1,691	2,838	3,210	39	73	—
Malaysia.....	18	23	24	74	2,456	3,026	—	94	97	—	1,456	2,205	—	56	69	—	121	549	—	7	26	—
Myanmar.....	41	46	47	71	5,385	4,858	4,969	106	89	114	1,281	2,268	2,696	23	38	49	196 ¹²	551 ⁸	—	4	11 ⁸	—
Nepal ⁹	19	24	28	198	2,789	3,780 ¹¹	4,503	108	117 ¹¹	126	709	1,348	1,984 ⁸	33	35	43 ⁸	94	—	—	5	4	5
Pakistan.....	119	138	166	213	11,451 ²³	13,987 ²⁴	16,688	61	71 ²⁴	84	4,345	—	8,421	23	—	30	—	—	820	3	—	28
Philippines.....	61	76	92	309	10,427	—	13,007	111	—	110	4,034	—	6,302	73	—	83	1,709	—	2,484	28	—	91
Saudi Arabia.....	16	21	27	13	1,877	—	—	73	—	—	893	—	—	44	—	—	154	404	615 ⁸	12	22	29 ⁸
Sri Lanka ⁹	17	19	21	320	2,112	—	—	106	—	—	2,082	—	—	74	—	—	55 ^{12,25}	—	—	5	—	—
Syrian Arab Republic.....	12	16	19	103	2,452	2,775	2,280	108	105	126	914	1,069	2,465	52	41	70	222	—	—	18	—	—
Taiwan.....	20	22	23	706	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thailand.....	56	61	65	126	6,957	6,101	5,844	99	95	108	2,230	—	4,530	30	—	78	1,156 ¹⁷	1,900	2,339	19 ¹⁷	34	46
Turkey.....	56	65	70	91	6,862	7,850 ⁸	7,950 ⁸	99	96 ⁸	94 ⁸	3,808	—	5,388 ⁸	47	—	79 ⁸	750	1,588 ⁸	2,343	13	23	35
Uzbekistan.....	21	25	27	63	1,778	—	2,277	81	—	98	3,295	—	4,542	99	—	100	603	—	281	30	—	10
Vietnam.....	67	79	84	259	8,862	10,063	7,318	103	107	—	3,236	7,926	9,975	32	65	—	130	732	—	2	9	—
Yemen.....	12	18	21	41	2,679 ¹⁸	2,464 ⁸	—	79 ¹⁸	76 ⁸	—	212 ¹⁸	1,151 ⁸	—	23 ¹⁸	43 ⁸	—	53 ¹²	173 ⁸				

Table 399. Selected population and enrollment statistics for countries with populations over 10 million, by continent: Selected years, 1990 through 2006—Continued

Country ¹	Midyear population (in millions)			Persons per square kilometer, 2006	First level ²						Second level ³						Third level ⁴					
	1990	2000	2006		Enrollment (in thousands)			Gross enrollment ratio ⁵			Enrollment (in thousands)			Gross enrollment ratio ⁵			Enrollment (in thousands)			Gross enrollment ratio ⁵		
					6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Europe																						
Belgium.....	10	10	10	343	719	774	733	101	105	102	769	1,058	822	103	145	110	276	356	394	40	57	63
Czech Republic.....	10	10	10	133	546	645	473	96	104	100	1,268	958	966	91	88	96	118 ²⁶	254	338	16	29	50
France.....	57	59	63	99	4,149	3,885	4,052	108	106	110	5,522	5,929	5,994	99	110	114	1,699	2,015	2,201	40	53	56
Germany ²⁷	79	82	82	236	3,431	3,656	3,329	101	105	103	7,398	8,307	8,185	98	98	101	2,049	—	—	34	—	—
Greece.....	10	11	11	82	813	645	645	98	96	102	851	739	705	93	89	103	283	422	653	36	51	95
Italy ⁸	57	58	58	198	3,056	2,836	2,790	103	101	103	5,118	4,404	4,532	83	93	100	1,452	1,770	2,029	32	49	67
Netherlands ⁹	15	16	16	487	1,082	1,279	1,277	102	108	107	1,402	1,379	1,423	120	124	118	479	488	580	40	53	60
Poland ⁹	38	39	39	127	5,189	3,319	2,602	98	99	98	1,888	3,988	3,317	81	100	100	545	1,580	2,146	22	49	66
Portugal.....	10	10	11	115	1,020	811	750	123	125	115	670	831	662	67	108	97	186	374	367	23	48	55
Romania ⁹	23	22	22	97	1,253	1,189	938	91	102	105	2,838	2,226	2,013	92	81	86	193	453	835	10	24	52
Russian Federation.....	148	146	142	8	7,596	—	5,165	109	—	96	13,956	—	11,548	93	—	84	5,100	—	9,167	52	—	72
Serbia.....	9	10	10	115	—	—	312	—	—	99 ²⁴	—	—	623	—	—	87 ²⁴	—	—	—	—	—	—
Spain ⁹	39	39	40	81	2,820	2,540	2,501	109	107	105	4,755	3,246	3,091	104	112	119	1,222	1,829	1,789	37	58	67
Ukraine ⁹	52	50	47	77	3,991	2,079	1,754	89	105	102	3,408	5,204	3,896	93	97	93	1,652	1,812	2,740	47	50	73
United Kingdom ⁹	58	60	61	251	4,533	4,632	4,518	104	102	105	4,336	5,304	5,358	85	101	98	1,258	2,024	2,336	30	58	59
North America																						
Canada.....	28	31	33	4	2,376	2,456	—	103	99	—	2,292	2,621	—	101	107	—	1,917	1,212	—	95	59	—
Cuba.....	11	11	11	103	888	1,046	890	98	105	101	1,002	790	928	89	83	94	242	159	682	21	22	88
Guatemala.....	9	11	12	115	1,165	1,909	2,405	78	104	114	295 ¹²	504	809	23 ¹²	38	53	70 ¹⁷	—	112 ²⁴	8 ¹⁷	—	9 ²⁴
Mexico.....	83	98	107	56	14,402	14,766	14,595	114	109	113	6,704	9,094	10,883	53	72	87	1,311	1,963	2,447	15	19	26
United States.....	254	282	298	33	22,429	24,973	24,319	102	101	98	19,270	22,594	24,552	93	94	94	13,819	15,312	17,487	75	80	82
South America																						
Argentina.....	33	37	40	15	4,965	4,898	—	106	118	—	2,160	3,832	—	71	97	—	1,008 ¹²	1,767 ⁸	—	38 ¹²	53 ⁸	—
Brazil.....	148	170	191	23	28,944	20,212	—	106	151	—	3,499	26,097	—	38	104	—	1,540 ²⁹	2,781	—	11	16	—
Chile.....	13	15	16	22	1,991	1,799	1,695	100	100	104	720	1,391	1,634	73	83	91	262 ¹²	452	661	21 ¹²	37	47
Colombia.....	33	42	44	42	4,247	5,221	5,296	102	112	116	2,378 ¹²	3,569	4,484	50	70	82	487	934	1,315	13	23	31
Ecuador.....	10	13	14	49	1,846	1,925	2,006	116	115	117	786 ^{16,28}	917	1,103	55	57	68	207	—	—	20	—	—
Peru.....	22	26	28	22	3,855	4,338	4,026	118	121	116	1,698	2,374	2,760	67	86	94	678	—	952 ⁸	30	—	35 ⁸
Venezuela.....	20	24	26	29	4,053	3,328	3,452	96	102	104	281	1,543	2,105	35	59	77	550	668	1,381 ²⁴	29	28 ⁸	52 ²⁴
Oceania																						
Australia ⁹	17	19	20	3	1,583	1,906	1,939	108	99	105	1,278	2,589	2,537	82	159	150	485 ³⁰	845	1,040	36	65	73

—Not available.

#Rounds to zero.

¹Selection based on total population for midyear 2006.

²First-level enrollment consists of elementary school, typically corresponding to grades 1–6 in the United States.

³Second-level enrollment includes general education, teacher training (at the second level), and technical and vocational education.

This level generally corresponds to secondary education in the United States, grades 7–12.

⁴Third-level enrollment includes college and university enrollment, and technical and vocational education beyond the high school level. There is considerable variation in reporting from country to country.

⁵Data represent the total enrollment of all ages in the school level divided by the population of the specific age groups that correspond to the school level. Adjustments have been made for the varying lengths of first and second level programs. Ratios may exceed 100 because some countries have many students from outside the normal age range.

⁶Enrollment totals and ratios exclude Democratic People's Republic of Korea. Data do not include adult education or special education provided outside regular schools.

⁷World total data for 2004–05.

⁸Estimated by the UNESCO Institute for Statistics.

⁹Classification or data coverage of levels has been revised. Data by level may not be comparable over time.

¹⁰Data for 1994–95.

¹¹Policy change in 2000–01: introduction of free universal primary education.

¹²Data for 1991–92.

¹³Excludes private institutions.

¹⁴Data refer to universities and exclude Al Azhar.

¹⁵Excludes nonuniversity institutions (such as teacher training colleges and technical colleges) and excludes distance-learning universities.

¹⁶General education enrollment only. Excludes teacher training and vocational education enrollments.

¹⁷Data for 1992–93.

¹⁸Data for 1993–94.

¹⁹Not including the former Independent States of Transkei, Bophuthatswana, Venda, and Ciskei.

²⁰Estimated.

²¹Data refer to government aided and maintained schools only.

²²Data for 1985–86.

²³Includes preprimary education.

²⁴National estimation.

²⁵Excludes some nonuniversity institutions.

²⁶Includes full-time students only.

²⁷Data include both former East and West Germany.

²⁸Including vocational education.

²⁹Not including former ISCED level 7.

³⁰Data do not include Vocational Education and Training Institutes (VETS).

NOTE: Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.

SOURCE: United Nations Educational, Scientific, and Cultural Organization (UNESCO), *Statistical Yearbook, 1999*; *Global Education Digest, 2003* and *2007*; unpublished tabulations; and tables 3B, 5, and 14, retrieved July 11, 2008, from <http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx>. World Bank, *World Development Indicators, 2000* and *World Development Report, 2002*. U.S. Department of Commerce, Census Bureau, International Data Base, retrieved July 9, 2008, from <http://www.census.gov/ipc/www/idb/index.html>. (This table was prepared July 2008.)

Table 400. School-age populations as a percentage of total population, by age group and country: Selected years, 1985 through 2005

Country	5- to 14-year-olds as a percent of total population									15- to 19-year-olds as a percent of total population								
	1985 ¹	1990 ¹	1995 ¹	1998	1999	2002	2003	2004	2005	1985 ²	1990 ²	1995 ²	1998	1999	2002	2003	2004	2005
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
OECD countries																		
Australia	14	13	13	14	14	14	14	14	13	7	6	6	7	7	7	7	7	7
Austria	—	—	—	—	—	12	12	11	11	—	—	—	—	—	6	6	6	6
Belgium	11	11	11	12	12	12	12	12	12	6	5	5	6	6	6	6	6	6
Canada	13	12	12	14	14	—	13	13	13	6	5	5	7	7	—	7	7	7
Czech Republic	(³)	(³)	12	13	12	12	11	11	10	(³)	(³)	6	8	7	7	7	7	6
Denmark	12	10	10	11	12	12	13	13	13	6	6	5	6	5	5	5	5	6
Finland	11	12	11	13	13	12	12	12	12	6	5	5	6	6	6	6	6	6
France	13	12	12	13	13	12	12	12	12	6	6	5	7	7	7	6	6	7
Germany ⁴	9	9	10	11	11	11	10	10	10	6	4	4	6	6	6	6	6	6
Greece	—	—	11	11	11	10	10	10	10	—	5	6	7	7	6	6	6	6
Hungary	—	—	—	—	—	12	11	11	11	—	—	—	—	—	6	6	6	6
Iceland	16	15	14	16	16	16	16	15	15	7	7	6	8	8	7	7	7	7
Ireland	18	18	15	16	15	14	14	14	14	8	8	8	9	9	8	8	8	7
Italy	13	10	9	10	10	10	10	10	9	6	6	5	6	5	5	5	5	5
Japan	14	12	10	11	10	10	10	9	9	6	7	5	6	6	6	6	5	5
Korea, Republic of	—	—	14	14	14	14	14	14	14	—	—	7	9	8	7	7	6	7
Luxembourg	10	10	11	12	12	13	13	13	13	5	4	4	6	6	6	6	6	6
Mexico	—	—	—	—	—	22	22	22	21	—	—	—	—	—	10	10	10	10
Netherlands	12	11	11	12	12	12	12	12	12	7	5	5	6	6	6	6	6	6
New Zealand	15	13	13	15	15	15	15	15	15	7	7	6	7	7	7	7	7	7
Norway	13	11	11	13	13	13	14	14	13	6	6	5	6	6	6	6	6	6
Poland	—	—	—	—	—	13	13	12	12	—	—	—	—	—	9	8	8	8
Portugal	—	—	—	—	—	10	11	10	10	—	—	—	—	—	6	6	6	6
Slovak Republic	(³)	(³)	—	—	—	13	13	13	12	(³)	(³)	—	—	—	8	8	8	8
Spain	15	13	10	11	10	10	10	10	9	7	7	6	7	7	6	6	6	5
Sweden	11	10	11	13	13	13	13	13	12	5	5	5	6	6	6	6	6	6
Switzerland	11	10	10	12	12	12	12	11	11	6	5	5	6	6	6	6	6	6
Turkey	21	21	20	21	21	—	19	19	19	9	9	9	11	11	—	9	9	9
United Kingdom	11	11	12	13	13	13	13	13	12	6	5	5	6	6	6	6	7	7
United States	13	13	13	14	15	15	14	14	14	6	5	6	7	7	7	7	7	7
Reporting partner economies																		
Brazil	—	—	—	—	—	20	21	20	19	—	—	—	—	—	11	11	10	10
Chile	—	—	—	—	—	19	18	18	18	—	—	—	—	—	9	9	9	9
Estonia	(³)	(³)	—	—	—	—	—	—	11	(³)	(³)	—	—	—	—	—	—	8
Israel	—	—	—	—	—	18	18	18	18	—	—	—	—	—	9	9	8	8
Russian Federation	(³)	(³)	14	—	14	12	12	11	10	(³)	(³)	—	—	—	8	9	9	9
Slovenia	(³)	(³)	—	—	—	—	—	—	10	(³)	(³)	—	—	—	—	—	—	6

—Not available.

¹Data are for the 5- to 13-year-old population.

²Data are for the 14- to 17-year-old population.

³Country did not exist in its current form in the given year.

⁴Data for 1985 are for the former West Germany.

SOURCE: Organization for Economic Cooperation and Development (OECD), *Education at a Glance*, selected years, 1987 through 2001; and Education Online Database, retrieved July 11, 2008, from <http://stats.oecd.org/WBOS/Default.aspx>. (This table was prepared July 2008.)

Table 401. Percentage of population enrolled in secondary and postsecondary education, by age group and country: Selected years, 1985 through 2005

Country	Secondary, 16 years old, 2005	Secondary, 17 years old, 2005	Postsecondary education (total tertiary education)															
			18 to 21 years old					22 to 25 years old					26 to 29 years old					
			1985	1990	1999	2003	2005	1985	1990	1999	2003	2005	1985	1990	1999	2003	2005	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
OECD countries																		
Australia.....	93	80	—	—	31	34	34	—	—	15	20	21	—	—	8	10	10	
Austria.....	92	77	—	—	15	16	16	—	—	20	19	20	—	—	12	9	9	
Belgium (Flemish).....	101	99	25	—	42	42	43	7	—	15	18	19	2	—	3	5	6	
Canada.....	—	—	—	—	27	—	—	—	—	18	—	—	—	—	7	—	—	
Czech Republic.....	100	97	(¹)	(¹)	17	21	23	(¹)	(¹)	12	16	21	(¹)	(¹)	4	5	6	
Denmark.....	93	85	7	7	8	10	10	16	18	27	30	34	8	9	15	17	20	
Finland.....	96	95	9	14	23	23	24	17	21	35	39	40	8	10	18	19	20	
France.....	97	89	19	25	35	36	36	10	12	20	21	20	4	4	5	5	5	
Germany ²	96	92	9	9	11	13	13	—	16	19	21	23	9	10	11	12	13	
Greece.....	101	75	—	—	54	51	65	—	—	7	25	18	—	—	2	12	8	
Hungary.....	96	92	—	—	20	27	29	—	—	14	19	23	—	—	5	9	9	
Iceland.....	94	83	—	—	7	12	12	—	—	21	26	28	—	—	9	14	16	
Ireland.....	96	76	—	21	33	37	38	—	—	11	12	13	—	—	3	5	5	
Italy.....	88	83	—	—	22	27	29	—	—	21	22	23	—	—	7	8	8	
Japan.....	97	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Korea, Republic of.....	95	93	—	—	51	58	65	—	—	26	32	32	—	—	6	7	6	
Luxembourg.....	82	78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mexico.....	54	41	—	—	12	15	16	—	—	8	8	9	—	—	1	2	3	
Netherlands.....	95	83	14	18	26	28	29	12	13	20	22	24	6	5	5	6	7	
New Zealand.....	87	70	—	21	29	28	34	—	15	14	21	23	—	—	8	10	11	
Norway.....	94	92	9	14	19	19	19	14	17	28	29	30	6	8	12	14	14	
Poland.....	97	95	—	—	21	28	31	—	—	21	28	30	—	—	5	7	6	
Portugal.....	80	76	6	—	25	27	27	5	—	17	21	21	2	—	6	8	8	
Slovak Republic.....	95	90	(¹)	(¹)	—	21	22	(¹)	(¹)	—	14	16	(¹)	(¹)	—	4	5	
Spain.....	94	82	15	21	32	34	34	11	14	24	23	22	4	5	8	8	9	
Sweden.....	97	98	8	9	16	17	17	11	11	25	30	32	7	6	12	15	16	
Switzerland.....	90	86	6	6	10	11	12	11	12	17	19	20	5	6	9	9	10	
Turkey.....	55	28	—	7	14	14	20	—	4	9	6	11	—	2	4	2	4	
United Kingdom.....	94	80	15	16	29	30	28	7	11	12	12	13	—	—	6	7	7	
United States.....	96	83	37	41	44	39	45	15	17	18	23	23	8	9	11	11	11	
Reporting partner economies																		
Brazil.....	87	83	—	—	—	9	10	—	—	—	8	9	—	—	—	4	5	
Chile.....	95	89	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Estonia.....	97	92	(¹)	(¹)	—	—	32	(¹)	(¹)	—	—	22	(¹)	(¹)	—	—	12	
Israel.....	95	90	—	—	—	12	12	—	—	—	26	25	—	—	—	16	15	
Russian Federation.....	21	19	(¹)	(¹)	—	—	41	(¹)	(¹)	—	—	26	(¹)	(¹)	—	—	—	
Slovenia.....	98	94	(¹)	(¹)	—	—	37	(¹)	(¹)	—	—	35	(¹)	(¹)	—	—	11	

—Not available.

¹Country did not exist in its current form in the given year.

²Data for 1985 are for the former West Germany.

NOTE: Data refer to programs classified by the Organization for Economic Cooperation and Development (OECD) as International Standard Classification of Education (ISCED) level 3, level 5A (first and second award), level 5B, and level 6. ISCED level 3 corresponds to secondary education in the United States. ISCED levels 5A (first and second award), 5B, and 6 together make up total tertiary education, which corresponds to 2-year and 4-year college undergraduate and graduate programs in the United States. Includes both full-time and part-

time students. Some increases in enrollment rates may be due to more complete reporting by countries. Enrollment figures may not be directly comparable due to differing definitions of postsecondary (tertiary) education and the age at which it begins. Differences in reference dates between enrollment and population data can result in enrollment rates that exceed 100 percent. Some data have been revised from previously published figures.

SOURCE: Organization for Economic Cooperation and Development (OECD), *Education at a Glance*, selected years, 1987 through 2001; and Education Online Database, retrieved June 30, 2008, from <http://stats.oecd.org/WBOS/Default.aspx>. (This table was prepared July 2008.)

Table 402. Pupils per teacher in public and private elementary and secondary schools, by level of education and country: Selected years, 1985 through 2006

Country	Elementary								Junior high school (lower secondary)								Senior high school (upper secondary)							
	1985	1990	2000	2002	2003	2004	2005	2006	1985	1990	2000	2002	2003	2004	2005	2006	1985	1990	2000	2002	2003	2004	2005	2006
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OECD average	—	—	17.7	16.6	16.5	16.9	16.7	16.2	—	—	15.0	14.4	14.3	13.7	13.7	13.3	—	—	13.9	13.1	13.0	12.7	13.0	12.4
Australia.....	13.8 ¹	—	17.3	16.9	16.6	16.4	16.2	16.0	—	—	—	—	—	—	—	—	3.2	—	—	12.5 ^{2,3}	12.4 ^{2,3}	12.3 ^{2,3}	12.1 ^{2,3}	12.2 ^{2,3}
Austria.....	11.3	11.6	—	14.4	14.4	15.1	14.1	13.9	9.2	7.7	—	9.8	10.0	10.4	10.6	10.4	15.2	12.4	—	10.3	10.2	11.0	11.3	11.3
Belgium.....	—	—	15.0 ⁴	13.1	13.1	12.9	12.8	12.6	—	—	—	—	10.6	10.6	9.4	9.4	—	—	9.7 ^{2,5}	9.3 ^{2,5}	9.6 ⁵	9.2 ⁵	9.9 ⁵	10.2 ⁵
Canada.....	18.1	17.1	18.1	—	—	—	—	—	16.0	15.5	18.1	—	—	—	—	—	16.0	15.3	19.5	—	—	—	—	—
Czech Republic.....	(⁶)	(⁶)	19.7	18.9	18.3	17.9	17.5	17.3	(⁶)	(⁶)	14.7	14.4	14.3	13.5	13.5	12.3	(⁶)	(⁶)	11.5	12.9 ⁵	12.6	12.6	12.8	11.9
Denmark.....	12.7	11.2	10.4	—	—	—	—	—	10.2	9.3	11.4	10.9 ⁷	10.8 ⁷	11.3 ⁷	11.9 ⁷	11.4 ⁷	14.8	13.3	14.4	14.2	13.4	—	—	—
Finland.....	—	—	16.9	15.8	16.6	16.3	15.9	15.0	—	—	10.7	10.6	9.8	10.0	10.0	9.7	—	—	17.0 ^{5,8}	16.0 ^{5,8}	15.9 ^{5,8}	16.2 ^{5,8}	18.0 ^{5,8}	15.8 ^{5,8}
France.....	—	—	19.8	19.4	19.4	19.4	19.4	19.3 ⁹	—	—	14.7	13.7	13.7	14.1	14.2	14.1 ⁹	—	—	10.4	10.6	10.6	10.3	10.3	9.7 ⁹
Germany ¹⁰	20.7	20.3	19.8	18.9	18.7	18.8	18.8	18.7	16.9	14.6	15.7	15.7	15.6	15.6	15.5	15.5	23.7	21.0	13.9	13.6	13.7	13.9	14.0	14.3
Greece.....	—	—	13.4	12.5	12.1	11.3	11.1	10.6	—	—	10.8	9.3	8.7	8.2	7.9	8.0	—	—	10.5	9.3	8.6	8.4	8.8	8.3
Hungary.....	—	—	10.9	10.8	10.6	10.7	10.6	10.4	—	—	10.9	10.7	10.6	10.2	10.4	10.2	—	—	11.4 ⁵	13.1	13.2	12.3	12.2	12.3
Iceland.....	—	—	—	—	—	—	—	—	—	—	12.7 ⁷	11.4 ⁷	11.3 ⁷	11.4 ⁷	11.3 ⁷	10.6 ⁷	—	—	9.7	10.6	10.7 ⁵	11.1	10.8 ⁵	10.8 ⁵
Ireland.....	—	—	21.5	19.5	18.7	18.3	17.9	19.4	—	—	—	—	—	—	—	—	7.2	8.3	15.9 ^{2,5}	14.3 ^{2,5}	13.7 ^{2,5}	14.3 ^{2,5}	15.5 ^{2,5}	14.6 ^{2,5}
Italy.....	12.8	10.7	11.0	10.6	10.9	10.7	10.6	10.7	9.6	8.5	10.4	9.9	10.3	10.3	10.1	10.3	10.8	10.7	10.2	10.3	10.8	11.5	11.0	11.0
Japan.....	—	20.8 ¹	20.9	20.3	19.9	19.6	19.4	19.2	—	18.6	16.8	16.2	15.7	15.3	15.1	14.9	—	16.2	14.0	13.7 ⁵	13.5 ⁵	13.2 ⁵	13.0 ⁵	12.7 ⁵
Korea, Republic of.....	—	—	32.1	31.4	30.2	29.1	28.0	26.7	—	—	21.5	20.7	19.9	20.4	20.8	20.8	—	—	20.9	16.5	16.0	15.9	16.0	15.9
Luxembourg.....	—	—	15.9 ¹	11.6 ¹	10.8 ¹	—	—	11.3 ¹	—	—	—	—	—	—	—	—	—	—	9.2 ^{1,2}	9.0 ^{1,2}	9.0 ^{1,2}	9.0 ^{1,2}	9.0 ^{1,2,5}	9.0 ^{1,2,5}
Mexico.....	—	—	27.2	26.9	26.7	28.5	28.3	28.0	—	—	34.8	31.5	32.4	33.7	33.7	33.4	—	—	26.5	24.3	24.0	25.2	25.8	25.4
Netherlands.....	20.2	19.2	16.8 ⁴	17.0 ⁴	16.0 ⁴	15.9 ⁴	15.9 ⁴	15.3 ⁴	12.7	12.4	—	—	—	—	—	—	—	—	17.1 ²	15.9 ²	15.7 ²	15.8 ²	16.2 ²	15.8 ^{2,5}
New Zealand.....	20.1	19.1	20.6	19.6	19.9	16.7	18.1	17.7	—	—	19.9	19.4	18.8	17.3	16.8	16.6	—	—	13.1	13.8	10.9	12.5	12.9	12.7
Norway.....	—	—	12.4	10.3 ¹	11.7 ¹	11.9 ¹	—	10.9 ¹	—	—	9.9	10.1 ¹	10.4 ¹	10.5 ¹	—	10.2 ¹	—	—	9.7	9.2 ^{1,5}	9.2 ^{1,5}	9.6 ^{1,5}	—	9.7 ^{1,5}
Poland.....	—	—	12.7	12.8	11.9	—	11.7	11.5	—	—	11.5	14.1	12.6	—	12.7	12.6	—	—	16.9	13.7	13.5	—	12.9	12.8
Portugal.....	—	—	12.1	11.0	—	11.1	10.8	10.6	—	—	10.4	9.3	—	10.0	8.2	8.3	—	—	7.9	7.5	—	7.3	8.0	7.5 ⁵
Slovak Republic.....	(⁶)	(⁶)	18.3	20.1	19.4	18.9	18.9	18.6	(⁶)	(⁶)	13.5	14.0	13.9	13.9	14.1	13.7	(⁶)	(⁶)	12.8	13.3	14.0	14.2	14.3	14.2
Spain.....	26.8	21.2	14.9	14.6	14.3	14.3	14.3	14.2	21.4	18.8	—	13.7	13.3	12.9	12.5	12.5	15.3	14.8	11.9 ²	8.3	7.9	8.0	8.1	7.8
Sweden.....	11.6	10.6	12.8	12.5	12.3	12.1	12.2	12.1	10.8	10.2	12.8	12.2	12.1	11.9	12.0	11.4	13.1	11.9	15.2	14.1	14.1	14.0	14.0	13.8
Switzerland.....	—	—	—	—	—	14.3 ¹	14.6 ¹	15.1 ¹	—	—	—	—	—	11.2 ¹	11.7 ¹	12.3 ¹	—	—	—	—	—	11.1 ¹	10.5 ^{1,3}	10.5 ^{1,3}
Turkey.....	31.1	30.6	30.5	27.5	25.9	26.5	25.8	26.7	41.3	48.4	—	†	†	†	†	†	11.0	12.1	14.0	17.7	18.0	16.9	16.2	15.8
United Kingdom.....	19.7	22.0	21.2	19.9	20.0	21.1	20.7	19.8	—	18.5	17.6 ³	17.6 ³	17.4	17.1	17.0	16.7	11.1	13.9	12.5 ³	12.5 ³	12.6 ³	12.3 ^{3,5}	11.8 ^{3,5}	11.6 ^{3,5}
United States.....	17.0	15.6	15.8	15.5	15.0	14.9	14.6	16.5	16.5	15.9	16.3	15.5	15.5	15.2	15.1	14.7	16.2	15.8	14.1	15.6	16.0	16.0	16.0	15.7
Reporting partner economies																								
Brazil.....	—	—	—	22.4	—	23.5	22.9	22.5	—	—	—	17.9	—	18.8	18.1	17.6	—	—	—	16.7	—	18.3	17.6	17.0
Chile.....	—	—	—	33.1	33.9	27.1	25.9	25.5	—	—	—	32.9	33.5	44.3	25.9	25.5	—	—	—	31.5	32.3	26.8	26.6	26.3
Estonia.....	(⁶)	(⁶)	—	—	—	—	—	14.1	(⁶)	(⁶)	—	—	—	—	12.3	(⁶)	(⁶)	(⁶)	(⁶)	—	—	—	—	13.3
Israel.....	—	—	—	20.3	20.9	16.9	17.3	17.2	—	—	—	13.0	13.4	14.1	13.4	14.1	—	—	—	14.0	12.9	12.2	13.4	13.2
Russian Federation.....	(⁶)	(⁶)	—	17.1	17.0	17.0	—	—	(⁶)	(⁶)	—	—	—	—	—	—	(⁶)	(⁶)	—	11.3 ²	8.5 ²	10.3 ^{2,5}	11.2 ^{5,11}	9.9 ^{2,5,11}
Slovenia.....	(⁶)	(⁶)	—	—	—	—	15.0	14.9	(⁶)	(⁶)	—	—	—	—	11.1	10.2	(⁶)	(⁶)	—	—	—	14.6	14.0 ⁵	—

—Not available.

†Not applicable.

¹Public schools only.

²Includes junior high school data.

³Includes only general programs.

⁴Includes preprimary data.

⁵Includes postsecondary non-higher-education.

⁶Country did not exist in its current form in the given year.

⁷Includes elementary school data.

⁸Includes tertiary type B education (i.e., occupation-specific education corresponding to that offered at the associate's degree level in the United States).

⁹Excludes independent private institutions.

¹⁰Data for 1985 are for the former West Germany.

¹¹Excludes general programs in upper secondary education.

NOTE: In the U.S. data in this table, elementary corresponds to grades 1 through 6, junior high school corresponds to grades 7 through 9, and senior high school corresponds to grades 10 through 12.

SOURCE: Organization for Economic Cooperation and Development (OECD), Education Online Database; *Annual National Accounts, Vol. 1, 1997*; and *Education at a Glance, 2002 through 2008*. (This table was prepared July 2008.)

Table 403. Average mathematics literacy, reading literacy, and science literacy scores of 15-year-olds, by sex and country: 2006

Country or other jurisdiction	Mathematics literacy			Reading literacy			Science literacy		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7	8	9	10
OECD total¹	484 (1.2)	489 (1.3)	478 (1.3)	484 (1.0)	466 (1.2)	502 (1.3)	491 (1.2)	492 (1.4)	490 (1.3)
OECD average²	498 (0.5)	503 (0.7)	492 (0.6)	492 (0.6)	473 (0.7)	511 (0.7)	500 (0.5)	501 (0.7)	499 (0.6)
Australia.....	520 (2.2)	527 (3.2)	513 (2.4)	513 (2.1)	495 (3.0)	532 (2.2)	527 (2.3)	527 (3.2)	527 (2.7)
Austria.....	505 (3.7)	517 (4.4)	494 (4.1)	490 (4.1)	468 (4.9)	513 (5.5)	511 (3.9)	515 (4.2)	507 (4.9)
Belgium.....	520 (3.0)	524 (4.1)	517 (3.4)	501 (3.0)	482 (4.1)	522 (3.5)	510 (2.5)	511 (3.3)	510 (3.2)
Canada.....	527 (2.0)	534 (2.4)	520 (2.0)	527 (2.4)	511 (2.8)	543 (2.5)	534 (2.0)	536 (2.5)	532 (2.1)
Czech Republic.....	510 (3.6)	514 (4.2)	504 (4.8)	483 (4.2)	463 (5.0)	509 (5.4)	513 (3.5)	515 (4.2)	510 (4.8)
Denmark.....	513 (2.6)	518 (2.9)	508 (3.0)	494 (3.2)	480 (3.6)	509 (3.5)	496 (3.1)	500 (3.6)	491 (3.4)
Finland.....	548 (2.3)	554 (2.7)	543 (2.6)	547 (2.1)	521 (2.7)	572 (2.3)	563 (2.0)	562 (2.6)	565 (2.4)
France.....	496 (3.2)	499 (4.0)	492 (3.3)	488 (4.1)	470 (5.2)	505 (3.9)	495 (3.4)	497 (4.3)	494 (3.6)
Germany.....	504 (3.9)	513 (4.6)	494 (3.9)	495 (4.4)	475 (5.3)	517 (4.4)	516 (3.8)	519 (4.6)	512 (3.8)
Greece.....	459 (3.0)	462 (4.3)	457 (3.0)	460 (4.0)	432 (5.7)	488 (3.5)	473 (3.2)	468 (4.5)	479 (3.4)
Hungary.....	491 (2.9)	496 (3.5)	486 (3.7)	482 (3.3)	463 (3.7)	503 (3.9)	504 (2.7)	507 (3.3)	501 (3.5)
Iceland.....	506 (1.8)	503 (2.6)	508 (2.2)	484 (1.9)	460 (2.8)	509 (2.3)	491 (1.6)	488 (2.6)	494 (2.1)
Ireland.....	501 (2.8)	507 (3.7)	496 (3.2)	517 (3.5)	500 (4.5)	534 (3.8)	508 (3.2)	508 (4.3)	509 (3.3)
Italy.....	462 (2.3)	470 (2.9)	453 (2.7)	469 (2.4)	448 (3.4)	489 (2.8)	475 (2.0)	477 (2.8)	474 (2.5)
Japan.....	523 (3.3)	533 (4.8)	513 (4.9)	498 (3.6)	483 (5.4)	513 (5.2)	531 (3.4)	533 (4.9)	530 (5.1)
Korea, Republic of.....	547 (3.8)	552 (5.3)	543 (4.5)	556 (3.8)	539 (4.6)	574 (4.5)	522 (3.4)	521 (4.8)	523 (3.9)
Luxembourg.....	490 (1.1)	498 (1.7)	482 (1.8)	479 (1.3)	464 (2.0)	495 (2.1)	486 (1.1)	491 (1.8)	482 (1.8)
Mexico.....	406 (2.9)	410 (3.4)	401 (3.1)	410 (3.1)	393 (3.5)	427 (3.0)	410 (2.7)	413 (3.2)	406 (2.6)
Netherlands.....	531 (2.6)	537 (3.1)	524 (2.8)	507 (2.9)	495 (3.7)	519 (3.0)	525 (2.7)	528 (3.2)	521 (3.1)
New Zealand.....	522 (2.4)	527 (3.1)	517 (3.6)	521 (3.0)	502 (3.6)	539 (3.6)	530 (2.7)	528 (3.9)	532 (3.6)
Norway.....	490 (2.6)	493 (3.3)	487 (2.8)	484 (3.2)	462 (3.8)	508 (3.3)	487 (3.1)	484 (3.8)	489 (3.2)
Poland.....	495 (2.4)	500 (2.8)	491 (2.7)	508 (2.8)	487 (3.4)	528 (2.8)	498 (2.3)	500 (2.7)	496 (2.6)
Portugal.....	466 (3.1)	474 (3.7)	459 (3.2)	472 (3.6)	455 (4.4)	488 (3.5)	474 (3.0)	477 (3.7)	472 (3.2)
Slovak Republic.....	492 (2.8)	499 (3.7)	485 (3.5)	466 (3.1)	446 (4.2)	488 (3.8)	488 (2.6)	491 (3.9)	485 (3.0)
Spain.....	480 (2.3)	484 (2.6)	476 (2.6)	461 (2.2)	443 (2.6)	479 (2.3)	488 (2.6)	491 (2.9)	486 (2.7)
Sweden.....	502 (2.4)	505 (2.7)	500 (3.0)	507 (3.4)	488 (4.0)	528 (3.5)	503 (2.4)	504 (2.7)	503 (2.9)
Switzerland.....	530 (3.2)	536 (3.3)	523 (3.6)	499 (3.1)	484 (3.2)	515 (3.3)	512 (3.2)	514 (3.3)	509 (3.6)
Turkey.....	424 (4.9)	427 (5.6)	421 (5.1)	447 (4.2)	427 (5.1)	471 (4.3)	424 (3.8)	418 (4.6)	430 (4.1)
United Kingdom.....	495 (2.1)	504 (2.6)	487 (2.6)	495 (2.3)	480 (3.0)	510 (2.6)	515 (2.3)	520 (3.0)	510 (2.8)
United States ³	474 (4.0)	479 (4.6)	470 (3.9)	— (†)	— (†)	— (†)	489 (4.2)	489 (5.1)	489 (4.0)
Reporting partner economies									
Argentina.....	381 (6.2)	388 (6.5)	375 (7.2)	374 (7.2)	345 (8.3)	399 (7.4)	391 (6.1)	384 (6.5)	397 (6.8)
Azerbaijan.....	476 (2.3)	475 (2.4)	477 (2.6)	353 (3.1)	343 (3.5)	363 (3.3)	382 (2.8)	379 (3.1)	386 (2.7)
Brazil.....	370 (2.9)	380 (3.4)	361 (3.0)	393 (3.7)	376 (4.3)	408 (3.7)	390 (2.8)	395 (3.2)	386 (2.9)
Bulgaria.....	413 (6.1)	412 (6.7)	415 (6.5)	402 (6.9)	374 (7.7)	432 (6.9)	434 (6.1)	426 (6.6)	443 (6.9)
Chile.....	411 (4.6)	424 (5.5)	396 (4.7)	442 (5.0)	434 (6.0)	451 (5.4)	438 (4.3)	448 (5.4)	426 (4.4)
Colombia.....	370 (3.8)	382 (4.1)	360 (5.0)	385 (5.1)	375 (5.6)	394 (5.6)	388 (3.4)	393 (4.1)	384 (4.1)
Croatia.....	467 (2.4)	474 (3.2)	461 (2.8)	477 (2.8)	452 (3.8)	502 (3.3)	493 (2.4)	492 (3.3)	494 (3.1)
Estonia.....	515 (2.7)	515 (3.3)	514 (3.0)	501 (2.9)	478 (3.2)	524 (3.1)	531 (2.5)	530 (3.1)	533 (2.9)
Hong Kong-China.....	547 (2.7)	555 (3.9)	540 (3.7)	536 (2.4)	520 (3.5)	551 (3.0)	542 (2.5)	546 (3.5)	539 (3.5)
Indonesia.....	391 (5.6)	399 (8.3)	382 (4.0)	393 (5.9)	384 (8.7)	402 (4.2)	393 (5.7)	399 (8.2)	387 (3.7)
Israel.....	442 (4.3)	448 (6.6)	436 (4.3)	439 (4.6)	417 (6.5)	460 (4.6)	454 (3.7)	456 (5.6)	452 (4.2)
Jordan.....	384 (3.3)	381 (5.3)	388 (3.9)	401 (3.3)	373 (5.6)	428 (3.4)	422 (2.8)	408 (4.5)	436 (3.3)
Kyrgyzstan.....	311 (3.4)	311 (4.0)	310 (3.4)	285 (3.5)	257 (4.4)	308 (3.3)	322 (2.9)	319 (3.6)	325 (3.0)
Latvia.....	486 (3.0)	489 (3.5)	484 (3.2)	479 (3.7)	454 (4.3)	504 (3.5)	490 (3.0)	486 (3.5)	493 (3.2)
Liechtenstein.....	525 (4.2)	525 (7.4)	525 (7.0)	510 (3.9)	486 (7.7)	531 (6.3)	522 (4.1)	516 (7.6)	527 (6.3)
Lithuania.....	486 (2.9)	487 (3.3)	485 (3.3)	470 (3.0)	445 (3.5)	496 (3.2)	488 (2.8)	483 (3.1)	493 (3.1)
Macao-China.....	525 (1.3)	530 (2.1)	520 (1.7)	492 (1.1)	479 (1.8)	505 (1.5)	511 (1.1)	513 (1.8)	509 (1.6)
Montenegro.....	399 (1.4)	405 (2.3)	393 (1.9)	392 (1.2)	370 (2.0)	415 (1.8)	412 (1.1)	411 (1.7)	413 (1.7)
Qatar.....	318 (1.0)	311 (1.6)	325 (1.3)	312 (1.2)	280 (1.9)	346 (1.6)	349 (0.9)	334 (1.2)	365 (1.3)
Romania.....	415 (4.2)	418 (4.2)	412 (4.9)	396 (4.7)	374 (4.5)	418 (5.2)	418 (4.2)	417 (4.1)	419 (4.8)
Russian Federation.....	476 (3.9)	479 (4.6)	473 (3.9)	440 (4.3)	420 (4.8)	458 (4.3)	479 (3.7)	481 (4.1)	478 (3.7)
Serbia.....	435 (3.5)	438 (4.0)	433 (4.4)	401 (3.5)	381 (3.4)	422 (4.2)	436 (3.0)	433 (3.3)	438 (3.8)
Slovenia.....	504 (1.0)	507 (1.8)	502 (1.8)	494 (1.0)	467 (1.9)	521 (1.4)	519 (1.1)	515 (2.0)	523 (1.9)
Chinese Taipei.....	549 (4.1)	556 (4.7)	543 (5.9)	496 (3.4)	486 (4.4)	507 (4.2)	532 (3.6)	536 (4.3)	529 (5.1)
Thailand.....	417 (2.3)	413 (3.8)	420 (2.6)	417 (2.6)	386 (4.0)	440 (3.0)	421 (2.1)	411 (3.4)	428 (2.5)
Tunisia.....	365 (4.0)	373 (4.4)	358 (4.4)	380 (4.0)	361 (4.6)	398 (3.9)	386 (3.0)	383 (3.2)	388 (3.5)
Uruguay.....	427 (2.6)	433 (3.6)	420 (3.1)	413 (3.4)	389 (4.4)	435 (3.8)	428 (2.7)	427 (4.0)	430 (2.7)

—Not available.

†Not applicable.

¹Illustrates how a country compares with the OECD area as a whole. Computed taking the OECD countries as a single entity, to which each country contributes in proportion to the number of 15-year-olds enrolled in its schools.

²Refers to the mean of the data values for all OECD countries, to which each country contributes equally, regardless of the absolute size of the student population of each country.

³PISA 2006 reading literacy results are not reported for the United States because of an error in printing the test booklets. In several areas of the reading literacy assessment, students were incorrectly instructed to refer to the passage on the "opposite page" when, in

fact, the necessary passage appeared on the previous page. Because of the small number of items used in assessing reading literacy, it was not possible to recalibrate the score to exclude the affected items. Also, as a result of the printing error, the mean performance in mathematics and science may be misestimated by approximately 1 score point. The impact is below one standard error.

NOTE: Possible scores range from 0 to 1,000. Standard errors appear in parentheses. SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2006. *PISA 2006 Science Competencies for Tomorrow's World*. (This table was prepared July 2008.)

Table 404. Mean scores and percentage distribution of 15-year-olds scoring at each mathematics literacy proficiency level, by country: 2006

Country or other jurisdiction	Mean score	Percentage distribution at levels of proficiency ¹							
		Below level 1	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	
1	2	3	4	5	6	7	8	9	
OECD total²	484 (1.2)	10.2 (0.35)	16.2 (0.31)	23.2 (0.40)	22.8 (0.40)	16.7 (0.29)	8.3 (0.21)	2.6 (0.10)	
OECD average³	498 (0.5)	7.7 (0.14)	13.6 (0.15)	21.9 (0.17)	24.3 (0.16)	19.1 (0.16)	10.0 (0.12)	3.3 (0.09)	
Australia.....	520 (2.2)	3.3 (0.28)	9.7 (0.41)	20.5 (0.62)	26.9 (0.57)	23.2 (0.54)	12.1 (0.48)	4.3 (0.47)	
Austria.....	505 (3.7)	7.5 (0.95)	12.5 (1.09)	19.5 (1.06)	23.3 (0.90)	21.3 (1.12)	12.3 (0.79)	3.5 (0.50)	
Belgium.....	520 (3.0)	7.1 (0.85)	10.2 (0.71)	17.0 (0.69)	21.4 (0.67)	21.9 (0.79)	16.0 (0.68)	6.4 (0.40)	
Canada.....	527 (2.0)	2.8 (0.29)	8.0 (0.52)	18.6 (0.65)	27.5 (0.73)	25.1 (0.66)	13.6 (0.58)	4.4 (0.37)	
Czech Republic.....	510 (3.6)	7.2 (0.72)	11.9 (0.84)	20.5 (0.99)	23.0 (0.92)	19.1 (1.06)	12.3 (0.75)	6.0 (0.67)	
Denmark.....	513 (2.6)	3.6 (0.54)	10.0 (0.67)	21.4 (0.78)	28.8 (0.88)	22.5 (0.85)	10.9 (0.58)	2.8 (0.39)	
Finland.....	548 (2.3)	1.1 (0.21)	4.8 (0.53)	14.4 (0.70)	27.2 (0.73)	28.1 (0.83)	18.1 (0.76)	6.3 (0.50)	
France.....	496 (3.2)	8.4 (0.82)	13.9 (1.00)	21.4 (1.16)	24.2 (1.01)	19.6 (0.95)	9.9 (0.67)	2.6 (0.47)	
Germany.....	504 (3.9)	7.3 (1.01)	12.5 (0.80)	21.2 (1.13)	24.0 (1.07)	19.4 (0.90)	11.0 (0.78)	4.5 (0.50)	
Greece.....	459 (3.0)	13.3 (1.10)	19.0 (1.19)	26.8 (0.94)	23.2 (1.12)	12.6 (1.05)	4.2 (0.47)	0.9 (0.17)	
Hungary.....	491 (2.9)	6.7 (0.56)	14.5 (0.80)	25.1 (1.01)	26.5 (0.94)	16.9 (1.07)	7.7 (0.72)	2.6 (0.47)	
Iceland.....	506 (1.8)	5.1 (0.41)	11.7 (0.68)	22.3 (0.88)	26.6 (1.00)	21.7 (0.88)	10.1 (0.65)	2.5 (0.32)	
Ireland.....	511 (2.8)	4.1 (0.50)	12.3 (0.93)	24.1 (1.00)	28.6 (0.90)	20.6 (0.94)	8.6 (0.67)	1.6 (0.25)	
Italy.....	462 (2.3)	13.5 (0.72)	19.3 (0.69)	25.5 (0.75)	22.1 (0.67)	13.3 (0.56)	5.0 (0.36)	1.3 (0.27)	
Japan.....	523 (3.3)	3.9 (0.59)	9.1 (0.71)	18.9 (0.89)	26.1 (1.00)	23.7 (1.03)	13.5 (0.79)	4.8 (0.51)	
Korea, Republic of.....	547 (3.8)	2.3 (0.52)	6.5 (0.71)	15.2 (0.69)	23.5 (1.07)	25.5 (0.99)	18.0 (0.78)	9.1 (1.29)	
Luxembourg.....	490 (1.1)	8.3 (0.55)	14.5 (0.67)	23.2 (0.72)	25.2 (0.83)	18.2 (1.02)	8.2 (0.54)	2.3 (0.28)	
Mexico.....	406 (2.9)	28.4 (1.37)	28.1 (0.88)	25.2 (0.85)	13.1 (0.64)	4.3 (0.40)	0.8 (0.19)	0.1 (0.04)	
Netherlands.....	531 (2.6)	2.4 (0.61)	9.1 (0.82)	18.9 (0.94)	24.3 (0.88)	24.1 (1.06)	15.8 (0.76)	5.4 (0.64)	
New Zealand.....	522 (2.4)	4.0 (0.32)	10.0 (0.79)	19.5 (0.99)	25.5 (1.13)	22.1 (1.02)	13.2 (0.75)	5.7 (0.50)	
Norway.....	490 (2.6)	7.3 (0.73)	14.9 (0.97)	24.3 (0.81)	25.6 (1.01)	17.4 (0.85)	8.3 (0.74)	2.1 (0.25)	
Poland.....	495 (2.4)	5.7 (0.42)	14.2 (0.70)	24.7 (0.80)	26.2 (0.69)	18.6 (0.78)	8.6 (0.67)	2.0 (0.29)	
Portugal.....	466 (3.1)	12.0 (1.05)	18.7 (0.87)	25.1 (0.90)	24.0 (0.92)	14.4 (0.81)	4.9 (0.45)	0.8 (0.20)	
Slovak Republic.....	492 (2.8)	8.1 (0.72)	12.8 (0.86)	24.1 (1.03)	25.3 (0.97)	18.8 (0.87)	8.6 (0.69)	2.4 (0.41)	
Spain.....	480 (2.3)	8.6 (0.52)	16.1 (0.85)	25.2 (0.94)	26.2 (0.61)	16.8 (0.54)	6.1 (0.43)	1.2 (0.18)	
Sweden.....	502 (2.4)	5.4 (0.60)	12.9 (0.83)	23.0 (0.82)	26.0 (0.97)	20.1 (0.89)	9.7 (0.61)	2.9 (0.37)	
Switzerland.....	530 (3.2)	4.6 (0.49)	9.0 (0.60)	17.4 (0.96)	23.2 (0.82)	23.2 (0.91)	15.9 (0.72)	6.8 (0.63)	
Turkey.....	424 (4.9)	24.0 (1.37)	28.1 (1.35)	24.3 (1.25)	12.8 (0.80)	6.7 (0.95)	3.0 (0.77)	1.2 (0.55)	
United Kingdom.....	495 (2.1)	5.9 (0.60)	13.8 (0.70)	24.7 (0.79)	26.3 (0.71)	18.1 (0.60)	8.7 (0.48)	2.5 (0.27)	
United States ⁴	474 (4.0)	9.9 (1.15)	18.2 (0.91)	26.1 (1.21)	23.1 (1.09)	15.1 (0.99)	6.4 (0.66)	1.3 (0.24)	
Reporting partner economies									
Argentina.....	381 (6.2)	39.4 (2.72)	24.7 (1.46)	20.4 (1.66)	10.6 (1.05)	3.8 (0.56)	0.9 (0.31)	0.1 (0.11)	
Azerbaijan.....	476 (2.3)	0.2 (0.10)	10.4 (0.99)	47.6 (1.64)	34.4 (1.59)	6.6 (0.86)	0.6 (0.26)	0.2 (0.13)	
Brazil.....	370 (2.9)	46.6 (1.40)	25.9 (1.25)	16.6 (0.90)	7.1 (0.58)	2.8 (0.42)	0.8 (0.25)	0.2 (0.10)	
Bulgaria.....	413 (6.1)	29.4 (2.18)	23.9 (1.12)	22.0 (1.04)	14.9 (1.08)	6.7 (0.82)	2.5 (0.57)	0.6 (0.28)	
Chile.....	411 (4.6)	28.2 (1.94)	26.9 (1.20)	23.9 (1.14)	13.9 (1.03)	5.6 (0.71)	1.3 (0.34)	0.1 (0.07)	
Colombia.....	370 (3.8)	44.6 (1.76)	27.3 (1.13)	18.2 (1.27)	7.6 (0.67)	1.9 (0.44)	0.4 (0.18)	# (†)	
Croatia.....	467 (2.4)	9.3 (0.69)	19.3 (0.92)	28.9 (1.06)	24.3 (0.86)	13.6 (0.67)	4.0 (0.47)	0.8 (0.21)	
Estonia.....	515 (2.7)	2.7 (0.46)	9.4 (0.82)	21.9 (0.91)	30.2 (1.01)	23.3 (1.11)	10.0 (0.63)	2.6 (0.36)	
Hong Kong-China.....	547 (2.7)	2.9 (0.45)	6.6 (0.63)	14.4 (0.84)	22.7 (1.07)	25.6 (0.90)	18.7 (0.78)	9.0 (0.82)	
Indonesia.....	391 (5.6)	35.2 (2.21)	30.5 (1.58)	20.4 (0.99)	10.6 (2.04)	2.8 (0.74)	0.4 (0.16)	# (†)	
Israel.....	442 (4.3)	22.2 (1.54)	19.8 (1.01)	21.8 (1.03)	18.4 (0.93)	11.8 (0.76)	4.8 (0.54)	1.3 (0.24)	
Jordan.....	384 (3.3)	36.9 (1.44)	29.4 (1.00)	21.9 (0.91)	9.3 (0.79)	2.2 (0.41)	0.2 (0.13)	# (†)	
Kyrgyzstan.....	311 (3.4)	72.9 (1.54)	16.5 (1.01)	7.1 (0.65)	2.8 (0.46)	0.7 (0.22)	# (†)	# (†)	
Latvia.....	486 (3.0)	6.4 (0.62)	14.3 (0.92)	26.3 (0.90)	29.0 (0.96)	17.4 (1.05)	5.5 (0.49)	1.1 (0.28)	
Liechtenstein.....	525 (4.2)	4.0 (1.10)	9.2 (1.98)	18.2 (2.97)	26.4 (3.78)	23.7 (2.92)	12.6 (2.05)	5.8 (1.21)	
Lithuania.....	486 (2.9)	7.8 (0.64)	15.2 (0.77)	25.1 (0.97)	25.1 (1.06)	17.8 (0.83)	7.3 (0.84)	1.8 (0.37)	
Macao-China.....	525 (1.3)	2.6 (0.26)	8.3 (0.63)	20.0 (0.92)	27.3 (0.89)	24.4 (0.76)	13.6 (0.56)	3.8 (0.41)	
Montenegro.....	399 (1.4)	31.6 (0.85)	28.4 (0.80)	23.3 (0.85)	11.8 (0.62)	4.0 (0.38)	0.8 (0.18)	0.1 (0.07)	
Qatar.....	318 (1.0)	71.7 (0.53)	15.5 (0.50)	7.5 (0.59)	3.3 (0.29)	1.4 (0.18)	0.5 (0.10)	0.1 (0.05)	
Romania.....	415 (4.2)	24.7 (2.17)	28.0 (1.88)	26.5 (1.77)	14.1 (1.09)	5.4 (0.83)	1.1 (0.29)	0.1 (0.06)	
Russian Federation.....	476 (3.9)	9.1 (0.94)	17.6 (1.15)	27.0 (1.42)	24.2 (0.93)	14.7 (1.02)	5.7 (0.63)	1.7 (0.30)	
Serbia.....	435 (3.5)	19.6 (1.31)	23.0 (1.06)	26.8 (0.86)	18.7 (0.98)	9.1 (0.66)	2.4 (0.36)	0.4 (0.14)	
Slovenia.....	504 (1.0)	4.6 (0.31)	13.1 (0.75)	23.5 (0.77)	26.0 (0.78)	19.2 (0.79)	10.3 (0.82)	3.4 (0.45)	
Chinese Taipei.....	549 (4.1)	3.6 (0.58)	8.3 (0.73)	14.3 (0.86)	19.4 (0.70)	22.4 (0.84)	20.1 (0.89)	11.8 (0.83)	
Thailand.....	417 (2.3)	23.3 (1.26)	29.7 (1.39)	26.4 (0.92)	14.0 (0.70)	5.3 (0.43)	1.1 (0.22)	0.2 (0.07)	
Tunisia.....	365 (4.0)	48.5 (1.75)	24.0 (1.12)	16.5 (1.06)	8.1 (0.94)	2.4 (0.56)	0.5 (0.23)	# (†)	
Uruguay.....	427 (2.6)	24.4 (1.05)	21.7 (0.98)	24.3 (0.84)	18.3 (1.08)	8.2 (0.69)	2.6 (0.36)	0.6 (0.16)	

†Not applicable.

#Rounds to zero.

¹Level 1: Able to answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. Level 2: Able to interpret and recognize situations in contexts that require no more than direct inference, extract relevant information from a single source, and employ direct reasoning for literal interpretations of results. Level 3: Able to execute clearly described procedures, interpret and use representations based on different information sources, and develop short communications reporting their interpretations, results, and reasoning. Level 4: Able to work effectively with explicit models for complex concrete situations that may involve constraints or call for making assumptions, select and integrate different representations, reason with some insight, and construct and communicate explanations and arguments based on their interpretations and actions. Level 5: Able to develop and work with models for complex situations, work strategically using broad, well-developed thinking and reasoning skills, and communicate their interpretations and reasoning. Level 6: Able to conceptualize, generalize, and utilize information, link differ-

ent information sources and representations, and formulate and precisely communicate actions and reflections regarding findings and interpretations.

²Illustrates how a country compares with the OECD area as a whole. Computed by taking the OECD countries as a single entity to which each country contributes in proportion to the number of 15-year-olds enrolled in its schools.

³Refers to the mean of the data values for all OECD countries, to which each country contributes equally, regardless of the absolute size of the student population of each country.

⁴As a result of a printing error, the mean performance in mathematics may be misestimated by approximately 1 score point. The impact is below one standard error.

NOTE: Possible scores range from 0 to 1,000. Standard errors appear in parentheses. Detail may not sum to totals because of rounding.

SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2006. *PISA 2006 Science Competencies for Tomorrow's World*. (This table was prepared July 2008.)

Table 405. Mean scores and percentage distribution of 15-year-olds scoring at each scientific literacy proficiency level, by country: 2006

Country or other jurisdiction	Mean score	Percentage distribution at levels of proficiency ¹							
		Below Level 1	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	
1	2	3	4	5	6	7	8	9	
OECD total²	491 (1.2)	6.9 (0.28)	16.3 (0.30)	24.2 (0.35)	25.1 (0.27)	18.7 (0.30)	7.4 (0.18)	1.4 (0.08)	
OECD average³	500 (0.5)	5.2 (0.11)	14.1 (0.15)	24.0 (0.17)	27.4 (0.17)	20.3 (0.16)	7.7 (0.10)	1.3 (0.04)	
Australia.....	527 (2.3)	3.0 (0.25)	9.8 (0.46)	20.2 (0.63)	27.7 (0.51)	24.6 (0.53)	11.8 (0.53)	2.8 (0.26)	
Austria.....	511 (3.9)	4.3 (0.88)	12.0 (0.98)	21.8 (1.05)	28.3 (1.05)	23.6 (1.12)	8.8 (0.69)	1.2 (0.20)	
Belgium.....	510 (2.5)	4.8 (0.72)	12.2 (0.62)	20.8 (0.84)	27.6 (0.84)	24.5 (0.77)	9.1 (0.47)	1.0 (0.17)	
Canada.....	534 (2.0)	2.2 (0.27)	7.8 (0.47)	19.1 (0.64)	28.8 (0.58)	27.7 (0.65)	12.0 (0.52)	2.4 (0.25)	
Czech Republic.....	513 (3.5)	3.5 (0.57)	12.1 (0.84)	23.4 (1.17)	27.8 (1.09)	21.7 (0.92)	9.8 (0.86)	1.8 (0.32)	
Denmark.....	496 (3.1)	4.3 (0.64)	14.1 (0.75)	26.0 (1.07)	29.3 (1.04)	19.5 (0.91)	6.1 (0.66)	0.7 (0.18)	
Finland.....	563 (2.0)	0.5 (0.13)	3.6 (0.45)	13.6 (0.68)	29.1 (1.07)	32.2 (0.89)	17.0 (0.72)	3.9 (0.35)	
France.....	495 (3.4)	6.6 (0.71)	14.5 (1.05)	22.8 (1.12)	27.2 (1.09)	20.9 (1.00)	7.2 (0.60)	0.8 (0.17)	
Germany.....	516 (3.8)	4.1 (0.68)	11.3 (0.96)	21.4 (1.06)	27.9 (1.08)	23.6 (0.95)	10.0 (0.62)	1.8 (0.24)	
Greece.....	473 (3.2)	7.2 (0.86)	16.9 (0.88)	28.9 (1.19)	29.4 (1.01)	14.2 (0.83)	3.2 (0.33)	0.2 (0.09)	
Hungary.....	504 (2.7)	2.7 (0.33)	12.3 (0.83)	26.0 (1.15)	31.1 (1.07)	21.0 (0.87)	6.2 (0.57)	0.6 (0.16)	
Iceland.....	491 (1.6)	5.8 (0.50)	14.7 (0.84)	25.9 (0.71)	28.3 (0.92)	19.0 (0.74)	5.6 (0.49)	0.7 (0.18)	
Ireland.....	508 (3.2)	3.5 (0.47)	12.0 (0.82)	24.0 (0.91)	29.7 (0.98)	21.4 (0.87)	8.3 (0.62)	1.1 (0.19)	
Italy.....	475 (2.0)	7.3 (0.46)	18.0 (0.62)	27.6 (0.78)	27.4 (0.61)	15.1 (0.58)	4.2 (0.31)	0.4 (0.09)	
Japan.....	531 (3.4)	3.2 (0.45)	8.9 (0.73)	18.5 (0.86)	27.5 (0.85)	27.0 (1.14)	12.4 (0.63)	2.6 (0.33)	
Korea, Republic of.....	522 (3.4)	2.5 (0.49)	8.7 (0.77)	21.2 (1.05)	31.8 (1.17)	25.5 (0.91)	9.2 (0.83)	1.1 (0.29)	
Luxembourg.....	486 (1.1)	6.5 (0.39)	15.6 (0.65)	25.4 (0.66)	28.6 (0.93)	18.1 (0.71)	5.4 (0.34)	0.5 (0.11)	
Mexico.....	410 (2.7)	18.2 (1.22)	32.8 (0.89)	30.8 (0.95)	14.8 (0.66)	3.2 (0.34)	0.3 (0.09)	# (†)	
Netherlands.....	525 (2.7)	2.3 (0.38)	10.7 (0.88)	21.1 (0.98)	26.9 (0.87)	25.8 (1.04)	11.5 (0.81)	1.7 (0.24)	
New Zealand.....	530 (2.7)	4.0 (0.43)	9.7 (0.58)	19.7 (0.80)	25.1 (0.71)	23.9 (0.81)	13.6 (0.74)	4.0 (0.37)	
Norway.....	487 (3.1)	5.9 (0.84)	15.2 (0.84)	27.3 (0.79)	28.5 (0.99)	17.1 (0.72)	5.5 (0.44)	0.6 (0.13)	
Poland.....	498 (2.3)	3.2 (0.36)	13.8 (0.63)	27.5 (0.94)	29.4 (1.02)	19.3 (0.80)	6.1 (0.44)	0.7 (0.14)	
Portugal.....	474 (3.0)	5.8 (0.76)	18.7 (1.05)	28.8 (0.92)	28.8 (1.22)	14.7 (0.88)	3.0 (0.35)	0.1 (0.05)	
Slovak Republic.....	488 (2.6)	5.2 (0.60)	15.0 (0.87)	28.0 (0.96)	28.1 (0.99)	17.9 (1.02)	5.2 (0.49)	0.6 (0.14)	
Spain.....	488 (2.6)	4.7 (0.44)	14.9 (0.69)	27.4 (0.77)	30.2 (0.68)	17.9 (0.75)	4.5 (0.38)	0.3 (0.10)	
Sweden.....	503 (2.4)	3.8 (0.44)	12.6 (0.64)	25.2 (0.88)	29.5 (0.90)	21.1 (0.90)	6.8 (0.47)	1.1 (0.21)	
Switzerland.....	512 (3.2)	4.5 (0.52)	11.6 (0.56)	21.8 (0.87)	28.2 (0.81)	23.5 (1.07)	9.1 (0.78)	1.4 (0.27)	
Turkey.....	424 (3.8)	12.9 (0.83)	33.7 (1.31)	31.3 (1.42)	15.1 (1.06)	6.2 (1.15)	0.9 (0.32)	# (†)	
United Kingdom.....	515 (2.3)	4.8 (0.49)	11.9 (0.61)	21.8 (0.71)	25.9 (0.68)	21.8 (0.62)	10.9 (0.53)	2.9 (0.31)	
United States ⁴	489 (4.2)	7.6 (0.94)	16.8 (0.88)	24.2 (0.94)	24.0 (0.79)	18.3 (0.97)	7.5 (0.62)	1.5 (0.25)	
Reporting partner economies									
Argentina.....	391 (6.1)	28.3 (2.34)	27.9 (1.39)	25.6 (1.27)	13.6 (1.29)	4.1 (0.63)	0.4 (0.14)	# (†)	
Azerbaijan.....	382 (2.8)	19.4 (1.50)	53.1 (1.57)	22.4 (1.41)	4.7 (0.86)	0.4 (0.15)	# (†)	# (†)	
Brazil.....	390 (2.8)	27.9 (0.99)	33.1 (0.96)	23.8 (0.93)	11.3 (0.88)	3.4 (0.42)	0.5 (0.21)	# (†)	
Bulgaria.....	434 (6.1)	18.3 (1.72)	24.3 (1.32)	25.2 (1.23)	18.8 (1.14)	10.3 (1.13)	2.6 (0.51)	0.4 (0.18)	
Chile.....	438 (4.3)	13.1 (1.12)	26.7 (1.54)	29.9 (1.18)	20.1 (1.44)	8.4 (1.01)	1.8 (0.32)	0.1 (0.06)	
Colombia.....	388 (3.4)	26.2 (1.71)	34.0 (1.55)	27.2 (1.53)	10.6 (1.04)	1.9 (0.35)	0.2 (0.05)	# (†)	
Croatia.....	493 (2.4)	3.0 (0.43)	14.0 (0.71)	29.3 (0.91)	31.0 (0.99)	17.7 (0.86)	4.6 (0.44)	0.5 (0.12)	
Estonia.....	531 (2.5)	1.0 (0.23)	6.7 (0.57)	21.0 (0.88)	33.7 (0.96)	26.2 (0.94)	10.1 (0.71)	1.4 (0.27)	
Hong Kong-China.....	542 (2.5)	1.7 (0.36)	7.0 (0.68)	16.9 (0.81)	28.7 (0.95)	29.7 (0.95)	13.9 (0.80)	2.1 (0.30)	
Indonesia.....	393 (5.7)	20.3 (1.71)	41.3 (2.23)	27.5 (1.46)	9.5 (1.99)	1.4 (0.53)	# (†)	# (†)	
Israel.....	454 (3.7)	14.9 (1.18)	21.2 (1.01)	24.0 (0.95)	20.8 (0.96)	13.8 (0.80)	4.4 (0.49)	0.8 (0.18)	
Jordan.....	422 (2.8)	16.2 (0.86)	28.2 (0.86)	30.8 (0.83)	18.7 (0.81)	5.6 (0.66)	0.6 (0.20)	# (†)	
Kyrgyzstan.....	322 (2.9)	58.2 (1.56)	28.2 (1.13)	10.0 (0.81)	2.9 (0.39)	0.7 (0.18)	# (†)	# (†)	
Latvia.....	490 (3.0)	3.6 (0.49)	13.8 (0.98)	29.0 (1.19)	32.9 (0.95)	16.6 (0.96)	3.8 (0.39)	0.3 (0.09)	
Liechtenstein.....	522 (4.1)	2.6 (0.99)	10.3 (2.11)	21.0 (2.84)	28.7 (2.58)	25.2 (2.54)	10.0 (1.77)	2.2 (0.84)	
Lithuania.....	488 (2.8)	4.3 (0.44)	16.0 (0.83)	27.4 (0.91)	29.8 (0.85)	17.5 (0.85)	4.5 (0.60)	0.4 (0.15)	
Macao-China.....	511 (1.1)	1.4 (0.24)	8.9 (0.50)	26.0 (0.97)	35.7 (1.14)	22.8 (0.73)	5.0 (0.34)	0.3 (0.09)	
Montenegro.....	412 (1.1)	17.3 (0.79)	33.0 (1.20)	31.0 (0.91)	14.9 (0.65)	3.6 (0.37)	0.3 (0.11)	# (†)	
Qatar.....	349 (0.9)	47.6 (0.62)	31.5 (0.63)	13.9 (0.49)	5.0 (0.35)	1.6 (0.14)	0.3 (0.09)	# (†)	
Romania.....	418 (4.2)	16.0 (1.53)	30.9 (1.55)	31.8 (1.62)	16.6 (1.24)	4.2 (0.77)	0.5 (0.14)	# (†)	
Russian Federation.....	479 (3.7)	5.2 (0.65)	17.0 (1.08)	30.2 (0.93)	28.3 (1.32)	15.1 (1.09)	3.7 (0.46)	0.5 (0.13)	
Serbia.....	436 (3.0)	11.9 (0.91)	26.6 (1.18)	32.3 (1.26)	21.8 (1.18)	6.6 (0.57)	0.8 (0.18)	# (†)	
Slovenia.....	519 (1.1)	2.8 (0.34)	11.1 (0.72)	23.1 (0.68)	27.6 (1.08)	22.5 (1.13)	10.7 (0.57)	2.2 (0.29)	
Chinese Taipei.....	532 (3.6)	1.9 (0.29)	9.7 (0.82)	18.6 (0.86)	27.3 (0.80)	27.9 (1.03)	12.9 (0.77)	1.7 (0.24)	
Thailand.....	421 (2.1)	12.6 (0.80)	33.5 (1.03)	33.2 (0.88)	16.3 (0.80)	4.0 (0.42)	0.4 (0.12)	# (†)	
Tunisia.....	386 (3.0)	27.7 (1.12)	35.1 (0.94)	25.0 (0.97)	10.2 (0.98)	1.9 (0.45)	0.1 (0.06)	# (†)	
Uruguay.....	428 (2.7)	16.7 (1.25)	25.4 (1.09)	29.8 (1.50)	19.7 (1.07)	6.9 (0.54)	1.3 (0.21)	0.1 (0.07)	

†Not applicable.

#Rounds to zero.

¹Level 1: Able to present scientific explanations that are obvious and that follow explicitly from given evidence. Level 2: Able to provide possible explanations in familiar contexts, draw conclusions based on simple investigations, and make literal interpretations of the results of scientific inquiry or technological problem solving. Level 3: Able to select facts to explain phenomena and apply simple models or inquiry strategies, develop short statements using facts, and make decisions based on scientific knowledge. Level 4: Able to select and integrate explanations from different disciplines of science or technology, link those explanations directly to aspects of life situations, and communicate decisions using scientific knowledge and evidence. Level 5: Able to apply scientific concepts and knowledge to many complex life situations, select and evaluate appropriate scientific evidence, bring critical insights to situations, and construct explanations based on evidence and arguments based on critical analysis. Level 6: Able to consistently explain and apply scientific knowledge in a variety of complex life situations, use evidence from different sources to justify

decisions, clearly and consistently demonstrate advanced scientific thinking and reasoning, and develop arguments in support of recommendations and decisions that center on personal, social, or global situations.

²Illustrates how a country compares with the OECD area as a whole. Computed by taking the OECD countries as a single entity to which each country contributes in proportion to the number of 15-year-olds enrolled in its schools.

³Refers to the mean of the data values for all OECD countries, to which each country contributes equally, regardless of the absolute size of the student population of each country.

⁴As a result of a printing error, the mean performance in science may be misestimated by approximately 1 score point. The impact is below one standard error.

NOTE: Possible scores range from 0 to 1,000. Standard errors appear in parentheses. Detail may not sum to totals because of rounding.

SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2006, *PISA 2006 Science Competencies for Tomorrow's World*. (This table was prepared July 2008.)

Table 406. Average fourth-grade mathematics scores, by content areas, index of time students spend doing mathematics homework in a normal school week, and country: 2003

Country or other jurisdiction	Average score by content area						Index of time students spend doing mathematics homework (TMH) in a normal school week					
	Mathematics overall	Number ¹	Patterns and relationships ²	Measurement ³	Geometry ⁴	Data ⁵	High TMH ⁶		Medium TMH ⁷		Low TMH ⁸	
							Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13
International average	495 (0.8)	495 (0.7)	495 (0.7)	495 (0.7)	495 (0.7)	495 (0.6)	18 (0.2)	489 (1.3)	56 (0.3)	500 (0.9)	26 (0.3)	494 (1.6)
Armenia ⁹	456 (3.5)	473 (3.0)	461 (4.1)	465 (3.1)	431 (3.8)	417 (3.6)	33 (1.3)	467 (5.1)	65 (1.3)	465 (3.5)	2 (0.3)	‡ (†)
Australia ¹⁰	499 (3.9)	479 (4.3)	495 (3.7)	514 (3.7)	524 (3.7)	525 (3.6)	7 (0.8)	486 (13.0)	43 (2.1)	500 (4.6)	50 (2.1)	505 (4.4)
Belgium (Flemish).....	551 (1.8)	549 (1.9)	542 (1.9)	550 (1.4)	533 (1.8)	548 (2.2)	9 (0.7)	538 (3.9)	48 (1.7)	549 (2.7)	43 (2.0)	557 (2.0)
Chinese Taipei.....	564 (1.8)	568 (1.8)	555 (2.4)	557 (1.6)	553 (2.5)	564 (2.3)	11 (0.6)	546 (3.5)	62 (1.1)	569 (2.0)	27 (1.2)	561 (2.7)
Cyprus.....	510 (2.4)	514 (2.7)	519 (2.4)	506 (2.3)	505 (2.3)	509 (2.3)	14 (0.6)	494 (4.6)	76 (0.9)	521 (2.4)	10 (0.6)	497 (5.3)
England ¹⁰	531 (3.7)	519 (4.1)	523 (3.9)	535 (3.3)	542 (3.7)	552 (3.4)	4 (0.6)	489 (14.3)	37 (1.8)	531 (4.8)	59 (1.9)	540 (4.2)
Hong Kong, SAR ^{10,11}	575 (3.2)	574 (3.3)	568 (3.5)	563 (2.7)	557 (2.9)	562 (2.3)	24 (1.0)	575 (3.8)	71 (0.9)	580 (3.2)	5 (0.5)	530 (5.6)
Hungary.....	529 (3.1)	524 (2.9)	545 (3.7)	532 (2.7)	514 (3.3)	513 (3.2)	17 (0.9)	515 (4.9)	78 (1.1)	538 (3.1)	5 (0.9)	535 (10.6)
Iran, Islamic Republic of.....	389 (4.2)	410 (3.7)	394 (3.9)	398 (3.2)	416 (3.9)	356 (4.4)	31 (2.3)	404 (5.1)	52 (1.8)	391 (5.0)	17 (2.3)	376 (8.1)
Italy.....	503 (3.7)	502 (3.6)	496 (4.3)	504 (3.4)	522 (3.5)	497 (3.0)	24 (1.1)	496 (5.2)	52 (1.1)	504 (4.5)	24 (1.6)	512 (3.6)
Japan.....	565 (1.6)	556 (2.0)	554 (1.4)	568 (1.6)	559 (1.9)	593 (1.6)	8 (0.6)	543 (4.6)	57 (1.8)	568 (2.3)	35 (2.1)	565 (2.7)
Latvia.....	536 (2.8)	531 (2.6)	532 (3.4)	545 (2.6)	523 (2.2)	526 (2.7)	25 (1.1)	525 (4.1)	71 (1.1)	546 (2.7)	4 (0.6)	517 (9.1)
Lithuania ¹²	534 (2.8)	535 (2.9)	531 (3.0)	540 (2.7)	524 (2.2)	517 (2.5)	29 (1.2)	527 (3.8)	66 (1.3)	545 (3.1)	5 (0.6)	510 (10.7)
Moldova, Republic of.....	504 (4.9)	507 (4.7)	521 (5.1)	505 (4.0)	501 (4.9)	477 (4.3)	31 (2.0)	518 (6.3)	66 (1.9)	504 (5.4)	3 (0.6)	494 (10.9)
Morocco ¹³	347 (5.1)	359 (4.7)	360 (4.7)	345 (5.5)	362 (4.9)	355 (5.0)	22 (1.3)	362 (5.9)	58 (1.9)	365 (4.8)	20 (2.1)	353 (12.3)
Netherlands ¹⁰	540 (2.1)	536 (2.2)	527 (2.4)	545 (2.2)	521 (3.2)	553 (2.4)	1 (0.2)	‡ (†)	10 (0.8)	508 (6.6)	89 (0.9)	546 (1.8)
New Zealand.....	493 (2.2)	475 (2.3)	495 (2.9)	503 (2.0)	517 (1.8)	522 (2.0)	7 (0.4)	489 (6.7)	41 (1.1)	491 (3.3)	52 (1.3)	504 (3.1)
Norway ¹⁴	451 (2.3)	440 (2.2)	439 (2.7)	475 (2.2)	478 (2.2)	479 (2.3)	12 (1.0)	447 (4.7)	56 (1.8)	462 (3.2)	32 (2.1)	467 (4.0)
Philippines.....	358 (7.9)	380 (7.4)	382 (7.0)	330 (7.8)	335 (8.8)	384 (7.5)	17 (0.8)	349 (7.0)	52 (1.7)	362 (6.7)	31 (1.9)	372 (15.7)
Russian Federation.....	532 (4.7)	532 (4.6)	531 (5.0)	538 (3.8)	528 (4.8)	505 (4.1)	38 (1.3)	531 (5.3)	59 (1.2)	537 (4.7)	2 (0.4)	‡ (†)
Scotland ¹⁰	490 (3.3)	475 (3.3)	495 (2.9)	499 (3.1)	511 (2.5)	516 (2.7)	6 (0.8)	477 (6.8)	40 (2.0)	488 (4.2)	54 (2.2)	498 (3.4)
Singapore.....	594 (5.6)	612 (6.0)	579 (5.4)	566 (4.6)	570 (5.5)	575 (3.9)	40 (1.5)	604 (6.0)	49 (1.3)	595 (5.8)	11 (0.6)	575 (7.2)
Slovenia.....	479 (2.6)	461 (2.7)	490 (2.7)	497 (2.8)	498 (2.2)	486 (2.7)	14 (0.9)	466 (6.7)	76 (1.2)	490 (2.6)	10 (0.9)	455 (8.6)
Tunisia ¹³	339 (4.7)	360 (4.1)	330 (4.7)	308 (5.5)	346 (5.1)	308 (4.7)	22 (2.2)	373 (8.6)	50 (2.8)	365 (6.3)	28 (3.0)	365 (8.0)
United States ¹⁰	518 (2.4)	516 (2.6)	524 (2.7)	500 (2.1)	518 (2.2)	549 (2.0)	12 (0.6)	504 (4.0)	63 (1.3)	524 (2.7)	25 (1.5)	520 (3.5)

†Not applicable.

‡Reporting standards not met.

¹Topic includes whole numbers; fractions and decimals; integers; and ratio, proportion, and percent.

²Topic includes patterns, equations and formulas, and relationships.

³Topic includes attributes and units and tools, techniques, and formulas.

⁴Topic includes lines and angles, two- and three-dimensional shapes, congruence and similarity, locations and spatial relationships, and symmetry and transformations.

⁵Topic includes data collection and organization, data representation, and data interpretation.

⁶High level indicates more than 30 minutes of mathematics homework assigned 3–4 times a week.

⁷Medium level includes all possible combinations of responses not included in the high or low level categories (see below for details on the low level).

⁸Low level indicates no more than 30 minutes of mathematics homework assigned no more than twice a week.

⁹Response rate for the TMH index was at least 70 but less than 85 percent of the students, with missing data having not been explicitly accounted for in the analysis.

¹⁰Met international guidelines for participation rates only after replacement schools were included.

¹¹SAR = Special Administrative Region.

¹²National Desired Population does not cover all of the International Desired Population.

¹³Response rate for the TMH index was at least 50 but less than 70 percent of the students, with missing data having not been explicitly accounted for in the analysis.

¹⁴Students had received 4 years of formal schooling, but first grade is called “First grade/preschool.”

NOTE: TMH index data are provided by students. Data are for fourth-grade students or equivalent in most countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Mathematics Report*, by Ina V.S. Mullis et al. (This table was prepared March 2005.)

Table 407. Average eighth-grade mathematics scores, by content areas, index of time students spend doing mathematics homework in a normal school week, and country: 2003

Country or other jurisdiction	Average score by content area						Index of time students spend doing mathematics homework (TMH) in a normal school week					
	Mathematics overall	Number ¹	Algebra ²	Measurement ³	Geometry ⁴	Data ⁵	High TMH ⁶		Medium TMH ⁷		Low TMH ⁸	
							Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13
International average⁹	467 (0.5)	467 (0.5)	467 (0.5)	467 (0.5)	467 (0.5)	467 (0.5)	26 (0.2)	468 (0.8)	54 (0.2)	471 (0.6)	19 (0.2)	456 (1.0)
Armenia	478 (3.0)	473 (3.1)	489 (2.6)	488 (3.3)	481 (3.1)	419 (2.7)	35 (1.3)	490 (3.9)	60 (1.2)	478 (3.7)	4 (0.4)	475 (7.5)
Australia	505 (4.6)	498 (4.6)	499 (4.4)	511 (4.3)	491 (4.8)	531 (3.8)	19 (1.6)	520 (6.0)	50 (1.5)	509 (5.4)	31 (2.0)	497 (5.5)
Bahrain	401 (1.7)	380 (1.9)	411 (2.5)	388 (2.1)	438 (2.1)	414 (2.1)	18 (0.8)	387 (3.3)	69 (1.2)	409 (2.0)	13 (1.1)	398 (4.9)
Belgium (Flemish)	537 (2.8)	539 (2.7)	523 (2.8)	535 (2.5)	527 (3.1)	546 (2.9)	13 (1.1)	542 (4.5)	42 (1.4)	546 (3.2)	44 (2.0)	532 (3.7)
Botswana	366 (2.6)	382 (2.2)	377 (2.7)	377 (2.0)	335 (3.9)	375 (2.7)	25 (0.8)	385 (3.9)	53 (0.8)	368 (2.6)	22 (0.9)	355 (3.0)
Bulgaria	476 (4.3)	477 (4.1)	481 (4.0)	473 (4.6)	484 (4.5)	458 (3.9)	33 (1.8)	482 (6.4)	54 (1.5)	478 (4.6)	14 (1.5)	469 (5.4)
Chile	387 (3.3)	390 (3.1)	384 (3.1)	404 (2.9)	378 (3.3)	412 (3.4)	10 (0.7)	387 (6.9)	43 (1.0)	389 (3.8)	47 (1.4)	388 (3.7)
Chinese Taipei	585 (4.6)	585 (4.6)	585 (4.9)	574 (4.4)	588 (5.1)	568 (3.4)	18 (1.5)	611 (6.0)	45 (1.2)	594 (4.4)	37 (2.0)	563 (5.6)
Cyprus	459 (1.7)	464 (1.5)	455 (1.7)	459 (2.2)	457 (2.4)	458 (1.7)	21 (0.8)	459 (2.8)	70 (0.7)	469 (1.8)	9 (0.6)	438 (5.3)
Egypt	406 (3.5)	421 (3.0)	408 (3.9)	401 (3.3)	408 (3.6)	393 (3.2)	26 (0.8)	402 (4.3)	60 (1.0)	418 (3.6)	14 (0.7)	419 (4.7)
England ¹⁰	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)	† (†)
Estonia	531 (3.0)	523 (3.1)	528 (2.6)	528 (3.0)	540 (2.6)	535 (2.8)	28 (1.3)	519 (4.0)	66 (1.3)	538 (3.2)	7 (1.2)	523 (10.3)
Ghana	276 (4.7)	289 (5.1)	288 (4.8)	262 (3.7)	278 (4.3)	293 (4.1)	24 (0.9)	288 (5.8)	56 (0.9)	280 (4.5)	20 (1.0)	275 (7.5)
Hong Kong, SAR ^{11,12}	586 (3.3)	586 (3.2)	580 (3.2)	584 (3.3)	588 (3.6)	566 (3.0)	32 (1.9)	600 (3.5)	49 (1.5)	587 (3.6)	19 (1.5)	566 (7.6)
Hungary	529 (3.2)	529 (3.6)	534 (3.1)	525 (3.1)	515 (3.1)	526 (2.9)	20 (1.2)	516 (5.8)	77 (1.2)	537 (3.1)	3 (0.5)	501 (14.1)
Indonesia ¹³	411 (4.8)	421 (4.6)	418 (4.5)	394 (4.9)	413 (4.6)	418 (4.0)	37 (1.1)	435 (4.3)	48 (0.8)	406 (5.3)	15 (0.8)	391 (7.3)
Iran, Islamic Republic of	411 (2.4)	416 (2.3)	412 (3.1)	399 (2.6)	437 (3.1)	404 (2.6)	24 (1.2)	420 (3.8)	52 (0.9)	414 (2.8)	25 (1.1)	403 (3.4)
Israel ¹⁴	496 (3.4)	504 (3.3)	498 (3.2)	480 (3.4)	488 (3.7)	492 (3.3)	33 (1.4)	498 (3.9)	55 (1.3)	505 (4.1)	12 (0.9)	479 (6.3)
Italy	484 (3.2)	480 (3.2)	477 (3.4)	500 (3.2)	469 (3.5)	490 (3.0)	54 (1.4)	484 (3.8)	40 (1.1)	487 (3.6)	7 (0.7)	471 (8.0)
Japan	570 (2.1)	557 (2.3)	568 (2.0)	559 (2.0)	587 (2.1)	573 (1.9)	6 (0.7)	565 (10.1)	36 (1.5)	566 (2.8)	58 (1.9)	576 (2.1)
Jordan	424 (4.1)	413 (4.4)	434 (4.4)	418 (4.4)	446 (4.0)	430 (3.5)	25 (0.8)	425 (4.7)	64 (1.1)	437 (4.1)	11 (0.9)	411 (4.9)
Korea, Republic of ¹⁵	589 (2.2)	586 (2.1)	597 (2.2)	577 (2.0)	598 (2.6)	569 (2.0)	11 (1.0)	582 (4.3)	46 (1.6)	592 (2.6)	43 (2.0)	590 (2.8)
Latvia	508 (3.2)	507 (3.2)	508 (3.2)	500 (3.0)	515 (3.3)	506 (3.8)	33 (1.3)	502 (4.7)	61 (1.3)	516 (3.0)	6 (0.7)	508 (9.3)
Lebanon	433 (3.1)	430 (3.3)	448 (3.1)	430 (3.7)	459 (3.0)	394 (4.0)	42 (1.7)	436 (3.5)	52 (1.7)	437 (3.5)	5 (0.6)	412 (7.6)
Lithuania ¹³	502 (2.5)	500 (2.7)	501 (2.4)	492 (3.0)	506 (2.5)	502 (2.5)	32 (1.4)	493 (3.1)	63 (1.3)	509 (3.0)	5 (0.8)	490 (8.7)
Macedonia, Republic of ¹⁴	435 (3.5)	438 (3.5)	442 (3.6)	434 (3.6)	442 (3.7)	419 (3.6)	26 (1.1)	440 (4.5)	61 (1.3)	444 (3.9)	13 (1.3)	439 (6.0)
Malaysia	508 (4.1)	524 (4.0)	495 (3.9)	504 (4.5)	495 (4.8)	505 (3.2)	33 (1.3)	515 (4.4)	56 (1.1)	510 (4.5)	11 (0.8)	485 (5.9)
Moldova, Republic of	460 (4.0)	463 (3.8)	464 (4.2)	468 (4.0)	463 (4.7)	428 (3.4)	38 (1.4)	472 (4.3)	57 (1.3)	458 (4.6)	5 (0.5)	437 (8.3)
Morocco ^{13,16,17}	387 (2.5)	384 (2.7)	400 (2.8)	376 (3.4)	415 (2.3)	374 (2.5)	34 (1.5)	390 (4.5)	52 (1.1)	392 (3.2)	14 (1.0)	380 (4.8)
Netherlands ¹¹	536 (3.8)	539 (3.6)	514 (4.0)	549 (3.7)	513 (4.1)	560 (3.1)	19 (1.3)	540 (5.2)	62 (1.4)	542 (4.4)	19 (1.7)	518 (6.5)
New Zealand	494 (5.3)	481 (6.0)	490 (5.2)	500 (4.8)	488 (4.6)	526 (5.1)	14 (1.1)	488 (5.1)	49 (1.8)	505 (6.0)	37 (2.1)	492 (7.2)
Norway	461 (2.5)	456 (2.3)	428 (2.7)	481 (2.9)	461 (2.8)	498 (2.5)	26 (1.3)	454 (4.0)	52 (1.3)	466 (2.5)	22 (1.3)	472 (3.5)
Palestinian National Authority	390 (3.1)	385 (3.6)	392 (3.5)	386 (2.8)	423 (3.1)	390 (2.8)	27 (1.1)	393 (3.5)	65 (1.1)	398 (3.5)	8 (0.6)	371 (6.6)
Philippines	378 (5.2)	393 (5.1)	400 (5.2)	372 (4.8)	344 (5.3)	390 (4.5)	24 (0.9)	390 (5.4)	54 (1.0)	382 (5.5)	22 (1.2)	361 (6.6)
Romania	475 (4.8)	474 (4.9)	480 (4.7)	485 (4.7)	476 (4.9)	445 (4.6)	68 (1.6)	492 (4.5)	28 (1.4)	451 (6.4)	3 (0.4)	437 (13.0)

See notes at end of table.

Table 407. Average eighth-grade mathematics scores, by content areas, index of time students spend doing mathematics homework in a normal school week, and country: 2003—Continued

Country or other jurisdiction	Average score by content area						Index of time students spend doing mathematics homework (TMH) in a normal school week					
	Mathematics overall	Number ¹	Algebra ²	Measurement ³	Geometry ⁴	Data ⁵	High TMH ⁶		Medium TMH ⁷		Low TMH ⁸	
							Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13
Russian Federation.....	508 (3.7)	505 (4.0)	516 (3.2)	507 (3.9)	515 (4.2)	484 (3.2)	53 (1.2)	509 (4.4)	45 (1.2)	511 (3.4)	2 (0.2)	‡ (†)
Saudi Arabia.....	332 (4.6)	307 (5.3)	331 (4.7)	338 (3.4)	382 (4.3)	339 (3.8)	15 (1.0)	315 (8.1)	62 (1.6)	335 (4.6)	23 (1.6)	345 (5.7)
Scotland ¹¹	498 (3.7)	484 (4.2)	488 (3.9)	508 (3.6)	491 (3.3)	531 (3.7)	8 (0.8)	493 (5.8)	46 (2.1)	507 (4.5)	46 (2.5)	496 (4.1)
Serbia ¹³	477 (2.6)	477 (2.8)	488 (2.5)	475 (2.5)	471 (3.0)	456 (2.6)	25 (1.3)	466 (4.1)	54 (1.2)	481 (3.5)	20 (1.7)	497 (3.5)
Singapore.....	605 (3.6)	618 (3.5)	590 (3.5)	611 (3.6)	580 (3.7)	579 (3.2)	38 (1.1)	621 (3.1)	51 (0.9)	604 (3.8)	11 (0.8)	566 (7.8)
Slovak Republic.....	508 (3.3)	514 (3.3)	505 (3.3)	508 (3.7)	501 (3.6)	495 (2.9)	11 (0.9)	495 (6.4)	81 (1.4)	511 (3.4)	8 (1.3)	500 (7.7)
Slovenia.....	493 (2.2)	498 (2.0)	487 (2.3)	496 (2.3)	483 (2.5)	494 (2.3)	25 (1.1)	482 (2.9)	71 (1.2)	500 (2.5)	4 (0.8)	463 (8.8)
South Africa.....	264 (5.5)	274 (5.4)	275 (5.1)	298 (4.7)	247 (5.4)	296 (5.3)	21 (0.8)	275 (8.1)	58 (0.8)	270 (6.3)	20 (1.0)	260 (5.4)
Sweden.....	499 (2.6)	496 (2.6)	480 (3.0)	512 (2.6)	467 (3.4)	539 (3.0)	4 (0.5)	453 (7.0)	38 (1.4)	494 (3.5)	58 (1.5)	509 (2.7)
Tunisia.....	410 (2.2)	419 (2.3)	405 (2.4)	407 (2.2)	427 (2.0)	387 (2.2)	39 (1.1)	410 (2.7)	50 (1.1)	414 (2.2)	11 (0.9)	414 (4.3)
United States ¹⁶	504 (3.3)	508 (3.4)	510 (3.1)	495 (3.2)	472 (3.1)	527 (3.2)	31 (1.0)	518 (4.1)	60 (0.9)	506 (3.2)	9 (0.9)	461 (6.3)

†Not applicable.

‡Reporting standards not met.

¹Topic includes whole numbers; fractions and decimals; integers; and ratio, proportion, and percent.

²Topic includes patterns, algebraic expressions, equations and formulas, and relationships.

³Topic includes attributes and units and tools, techniques, and formulas.

⁴Topic includes lines and angles, two- and three-dimensional shapes, congruence and similarity, locations and spatial relationships, and symmetry and transformations.

⁵Topic includes data collection and organization, data representation, data interpretation, and uncertainty and probability.

⁶High level indicates more than 30 minutes of mathematics homework assigned 3–4 times a week.

⁷Medium level includes all possible combinations of responses not included in the high or low level categories (see below for details on the low level).

⁸Low level indicates no more than 30 minutes of mathematics homework assigned no more than twice a week.

⁹The international average of 467 may sometimes appear as 466. In that case, the TIMSS 2003 average for eighth-graders published in the National Center for Education Statistics report reflects the deletion of England from the average.

¹⁰Did not satisfy guidelines for sample participation rates.

¹¹Met guidelines for sample participation rates only after replacement schools were included.

¹²SAR = Special Administrative Region.

¹³National Desired Population does not cover all of International Desired Population.

¹⁴National Defined Population covers less than 90 percent of National Desired Population.

¹⁵Korea tested the same cohort of students as other countries, but later in 2003, at the beginning of the next school year.

¹⁶Nearly satisfied guidelines for sample participation rates only after replacement schools were included.

¹⁷Response rate for the TMH index was at least 70 but less than 85 percent of the students, with missing data having not been explicitly accounted for in the analysis.

NOTE: TMH index data are provided by students. Data are for eighth grade or equivalent in most countries. Possible scores range from 0 to 1,000. Standard errors appear in parentheses. Detail may not sum to totals because of rounding.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Mathematics Report*, by Ina V.S. Mullis et al. (This table was prepared April 2005.)

Table 408. Percentage of lesson time spent on various mathematics activities, yearly mathematics instructional time, and mathematics instructional time as a percentage of total instructional time in eighth grade, by country: 2003

Country or other jurisdiction	Percentage of time in mathematics lessons students spend on various activities in a typical week									Students' average yearly mathematics instructional time, in hours	Mathematics instructional time as a percent of total instructional time
	Reviewing homework	Listening to lecture-style presentations	Working problems with teacher's guidance	Working problems on their own without teacher's guidance	Listening to teachers reteach and clarify content/procedures	Taking tests and quizzes	Participating in classroom management tasks not related to the lesson's content/purpose	Other student activities			
1	2	3	4	5	6	7	8	9	10	11	
International average.....	11 (0.1)	19 (0.1)	22 (0.2)	18 (0.2)	11 (0.1)	10 (0.1)	5 (0.1)	4 (0.1)	123 (0.4)	12 (#)	
Armenia.....	10 ¹ (0.5)	14 ¹ (0.8)	26 ¹ (1.1)	19 ¹ (0.9)	13 ¹ (0.6)	11 ¹ (0.6)	4 ¹ (0.3)	4 ¹ (0.3)	‡ (†)	‡ (†)	
Australia.....	8 (0.5)	15 (0.8)	23 (1.2)	28 (1.2)	9 (0.4)	7 (0.4)	7 (0.6)	3 (0.4)	136 ¹ (2.9)	13 ¹ (0.3)	
Bahrain.....	13 (0.5)	24 (0.9)	17 (0.5)	12 (0.5)	12 (0.3)	13 (0.5)	6 (0.5)	6 (0.3)	142 (0.8)	16 (0.1)	
Belgium (Flemish).....	7 (0.4)	14 (1.0)	26 (1.0)	20 (0.9)	16 (0.8)	11 (0.4)	4 (0.3)	2 (0.2)	123 ² (2.2)	13 (0.3)	
Botswana.....	13 ¹ (0.9)	16 ¹ (1.1)	19 ¹ (1.1)	21 ¹ (1.2)	11 ¹ (0.8)	10 ¹ (0.7)	6 ¹ (0.5)	5 ¹ (0.4)	‡ (†)	‡ (†)	
Bulgaria.....	10 (0.6)	18 (1.3)	26 (1.0)	16 (0.8)	17 (0.9)	8 (0.5)	3 (0.4)	2 (0.3)	96 ¹ (1.7)	11 ¹ (0.2)	
Chile.....	10 (0.4)	18 (0.8)	21 (0.9)	18 (0.8)	14 (0.7)	11 (0.5)	6 (0.4)	3 (0.3)	160 ¹ (4.1)	14 ¹ (0.4)	
Chinese Taipei.....	12 (0.5)	42 (1.3)	13 (0.6)	7 (0.5)	9 (0.4)	10 (0.4)	4 (0.3)	3 (0.3)	141 (2.0)	13 (0.2)	
Cyprus.....	22 ¹ (0.4)	16 ¹ (0.5)	20 ¹ (0.5)	14 ¹ (0.4)	12 ¹ (0.4)	10 ¹ (0.5)	5 ¹ (0.2)	2 ¹ (0.2)	75 ² (0.4)	8 (0.1)	
Egypt.....	11 (0.4)	18 (1.0)	17 (0.8)	15 (0.7)	15 (0.8)	11 (0.4)	6 (0.3)	7 (0.4)	‡ (†)	‡ (†)	
England ³	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ ² (†)	‡ (†)	‡ (†)	
Estonia.....	10 (0.4)	12 (0.6)	25 (1.0)	25 (0.8)	11 (0.5)	13 (0.6)	3 (0.3)	2 (0.3)	125 (1.2)	12 (0.2)	
Ghana.....	11 ¹ (0.4)	16 ¹ (0.9)	20 ¹ (0.8)	18 ¹ (0.7)	12 ¹ (0.7)	12 ¹ (0.4)	7 ¹ (0.4)	6 ¹ (0.3)	‡ (†)	‡ (†)	
Hong Kong, SAR ^{4,5}	8 (0.4)	36 (1.5)	18 (0.7)	16 (0.8)	9 (0.7)	6 (0.3)	4 (0.5)	4 (0.4)	145 ² (5.2)	15 (0.5)	
Hungary.....	12 (0.4)	13 (0.7)	25 (0.9)	25 (1.0)	10 (0.4)	10 (0.4)	3 (0.3)	3 (0.3)	112 ² (2.0)	11 (0.2)	
Indonesia ⁶	12 ¹ (0.5)	25 ¹ (1.1)	20 ¹ (0.9)	14 ¹ (0.9)	12 ¹ (0.5)	12 ¹ (0.7)	3 ¹ (0.4)	3 ¹ (0.5)	169 ² (4.4)	13 (0.4)	
Iran, Islamic Republic of.....	12 (0.6)	17 (0.8)	18 (0.7)	14 (0.7)	15 (0.7)	11 (0.5)	6 (0.3)	6 (0.6)	115 ² (3.5)	12 (0.4)	
Israel ⁷	14 ¹ (0.6)	15 ¹ (0.8)	22 ¹ (0.7)	21 ¹ (0.8)	11 ¹ (0.4)	10 ¹ (0.5)	5 ¹ (0.5)	3 ¹ (0.3)	‡ (†)	‡ (†)	
Italy.....	15 (0.6)	22 (0.6)	19 (0.6)	13 (0.6)	13 (0.4)	11 (0.5)	4 (0.3)	2 (0.3)	132 ¹ (1.7)	13 ¹ (0.2)	
Japan.....	7 (0.6)	29 (1.3)	28 (1.1)	11 (1.0)	15 (0.9)	6 (0.4)	2 (0.2)	2 (0.4)	107 (2.6)	10 (0.2)	
Jordan.....	15 (0.7)	23 (1.0)	17 (0.8)	13 (0.8)	11 (0.5)	9 (0.4)	6 (0.4)	6 (0.5)	110 (0.9)	12 (0.2)	
Korea, Republic of ⁸	6 ² (0.3)	30 ² (1.2)	19 ² (0.6)	20 ² (0.7)	9 ² (0.4)	8 ² (0.4)	5 ² (0.3)	3 ² (0.5)	109 ² (1.2)	9 (0.1)	
Latvia.....	8 ¹ (0.6)	12 ¹ (0.7)	25 ¹ (1.1)	22 ¹ (0.9)	11 ¹ (0.6)	15 ¹ (0.7)	2 ¹ (0.2)	4 ¹ (0.4)	122 ² (1.4)	13 (0.3)	
Lebanon.....	24 ² (1.6)	17 ² (0.9)	23 ² (1.1)	8 ² (0.8)	10 ² (0.6)	11 ² (0.6)	4 ² (0.4)	4 ² (0.4)	‡ (†)	‡ (†)	
Lithuania ⁶	9 (0.5)	7 (0.6)	30 (1.2)	26 (0.9)	11 (0.7)	14 (0.6)	1 (0.2)	2 (0.2)	122 ¹ (0.9)	11 ¹ (0.2)	
Macedonia, Republic of ⁷	7 (0.3)	37 (1.1)	19 (0.7)	15 (0.7)	6 (0.4)	8 (0.4)	3 (0.3)	4 (0.3)	80 ¹ (1.2)	9 ¹ (0.2)	
Malaysia.....	13 (0.7)	21 (1.0)	21 (0.9)	16 (0.8)	9 (0.5)	8 (0.4)	6 (0.4)	6 (0.4)	120 (1.4)	12 (0.1)	
Moldova, Republic of.....	9 ² (0.6)	15 ² (1.0)	23 ² (1.0)	18 ² (0.9)	11 ² (0.8)	14 ² (0.8)	4 ² (0.7)	5 ² (0.6)	‡ (†)	‡ (†)	
Morocco ^{8,9}	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	
Netherlands ⁴	15 (1.1)	13 (0.7)	21 (2.0)	28 (2.5)	7 (0.5)	8 (0.5)	5 (0.5)	4 (0.4)	94 ² (1.4)	9 (0.1)	
New Zealand.....	7 (0.4)	17 (0.8)	24 (1.1)	23 (1.3)	9 (0.4)	8 (0.4)	7 (0.5)	4 (0.5)	136 (1.7)	14 (0.2)	
Norway.....	8 (0.4)	19 (0.6)	26 (1.2)	25 (1.5)	10 (0.4)	6 (0.3)	4 (0.3)	3 (0.4)	114 (2.3)	13 (0.3)	
Palestinian National Authority.....	13 ¹ (0.6)	23 ¹ (1.0)	18 ¹ (0.8)	16 ¹ (0.9)	11 ¹ (0.5)	9 ¹ (0.3)	6 ¹ (0.3)	6 ¹ (0.4)	127 ² (2.3)	14 (0.3)	
Philippines.....	9 ¹ (0.4)	20 ¹ (0.9)	16 ¹ (0.8)	15 ¹ (1.0)	11 ¹ (0.5)	16 ¹ (0.7)	7 ¹ (0.3)	6 ¹ (0.4)	193 (3.6)	17 (0.4)	
Romania.....	9 (0.4)	24 (0.8)	29 (1.0)	15 (0.7)	10 (0.4)	9 (0.5)	3 (0.3)	2 (0.2)	120 ¹ (2.1)	13 ¹ (0.3)	
Russian Federation.....	11 (0.2)	20 (0.7)	20 (0.7)	18 (0.7)	8 (0.4)	18 (0.5)	1 (0.2)	3 (0.3)	128 ¹ (2.1)	15 ¹ (0.3)	
Saudi Arabia.....	15 ¹ (1.0)	16 ¹ (1.6)	13 ¹ (1.0)	8 ¹ (0.7)	23 ¹ (2.2)	12 ¹ (1.0)	6 ¹ (0.4)	7 ¹ (0.8)	110 ² (1.0)	11 (0.2)	
Scotland ⁴	8 ¹ (0.3)	22 ¹ (0.7)	26 ¹ (1.3)	22 ¹ (1.5)	8 ¹ (0.5)	4 ¹ (0.3)	6 ¹ (0.5)	3 ¹ (0.5)	142 ² (2.2)	14 (0.2)	
Serbia ⁶	7 (0.4)	25 (1.4)	23 (1.2)	20 (1.2)	9 (0.5)	7 (0.4)	3 (0.3)	5 (0.5)	107 ² (1.5)	13 (0.2)	
Singapore.....	11 (0.4)	27 (0.7)	19 (0.6)	15 (0.5)	9 (0.3)	8 (0.3)	6 (0.4)	4 (0.4)	114 (1.6)	13 (0.2)	

See notes at end of table.

Table 408. Percentage of lesson time spent on various mathematics activities, yearly mathematics instructional time, and mathematics instructional time as a percentage of total instructional time in eighth grade, by country: 2003—Continued

Country or other jurisdiction	Percentage of time in mathematics lessons students spend on various activities in a typical week								Students' average yearly mathematics instructional time, in hours	Mathematics instructional time as a percent of total instructional time
	Reviewing homework	Listening to lecture-style presentations	Working problems with teacher's guidance	Working problems on their own without teacher's guidance	Listening to teachers reteach and clarify content/procedures	Taking tests and quizzes	Participating in classroom management tasks not related to the lesson's content/purpose	Other student activities		
1	2	3	4	5	6	7	8	9	10	11
Slovak Republic	8 (0.3)	17 (0.7)	27 (0.9)	17 (0.7)	13 (0.5)	12 (0.4)	3 (0.3)	3 (0.3)	126 ¹ (1.9)	14 ¹ (0.3)
Slovenia	11 (0.4)	21 (0.8)	24 (0.7)	22 (0.9)	10 (0.6)	6 (0.3)	2 (0.2)	4 (0.4)	116 (1.3)	11 (0.1)
South Africa	15 ² (0.9)	13 ² (0.7)	19 ² (0.9)	18 ² (0.9)	11 ² (0.6)	12 ² (0.6)	7 ² (0.4)	5 ² (0.4)	‡ (†)	‡ (†)
Sweden	4 (0.4)	11 (0.6)	37 (1.8)	28 (1.8)	9 (0.3)	6 (0.3)	3 (0.3)	3 (0.4)	91 ¹ (1.6)	10 ¹ (0.2)
Tunisia	18 ¹ (0.9)	14 ¹ (1.0)	17 ¹ (0.9)	18 ¹ (0.9)	14 ¹ (0.8)	13 ¹ (0.7)	4 ¹ (0.4)	4 ¹ (0.5)	‡ (†)	‡ (†)
United States ⁵	13 (0.5)	18 (0.7)	21 (0.6)	18 (0.6)	11 (0.3)	11 (0.4)	5 (0.3)	4 (0.4)	135 ² (2.2)	13 (0.2)

†Not applicable.

#Rounds to zero.

‡Reporting standards not met.

¹Data available for at least 70 but less than 85 percent of students, with missing data having not been explicitly accounted for in the analysis.

²Data available for at least 50 but less than 70 percent of students, with missing data having not been explicitly accounted for in the analysis.

³Did not satisfy guidelines for sample participation rates.

⁴Met guidelines for sample participation rates only after replacement schools were included.

⁵SAR = Special Administrative Region.

⁶National Desired Population does not cover all of International Desired Population.

⁷National Defined Population covers less than 90 percent of National Desired Population.

⁸Korea tested the same cohort of students as other countries, but later in 2003, at the beginning of the next school year.

⁹Nearly satisfied guidelines for sample participation rates only after replacement schools were included.

NOTE: Percentage of time in mathematics lessons students spend on various activities in a typical week provided by teachers. Mathematics instructional time provided by teachers and total instructional time provided by schools. Data are for eighth grade or equivalent in most countries. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Mathematics Report*, by Ina V.S. Mullis et al. (This table was prepared April 2005.)

Table 409. Average size and scores of eighth-grade mathematics classes and Index of Teachers' Emphasis on Mathematics Homework (EMH), by country: 2003

Country or other jurisdiction	Overall average class size	Percentage distribution and mean scores of mathematics classes, by average class size								Index of Teachers' Emphasis on Mathematics Homework (EMH) ¹					
		1 to 24 students		25 to 32 students		33 to 40 students		41 or more students		High EMH ²		Medium EMH ³		Low EMH ⁴	
		Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
International average.....	30 (0.1)	29 (0.5)	461 (1.9)	35 (0.5)	473 (1.4)	24 (0.5)	470 (2.1)	13 (0.3)	448 (1.7)	30 (0.5)	473 (1.4)	51 (0.6)	469 (0.9)	19 (0.4)	453 (1.7)
Armenia.....	27 ⁵ (0.9)	39 (4.4)	474 (5.6)	43 (4.3)	485 (5.0)	7 (1.8)	460 (9.9)	11 (2.8)	462 (8.4)	65 ⁶ (4.6)	481 (4.2)	31 (4.7)	474 (6.6)	4 (2.1)	467 (11.5)
Australia.....	26 (0.5)	31 (4.2)	482 (9.4)	65 (4.7)	518 (5.9)	4 (2.2)	492 (14.2)	# (†)	‡ (†)	10 (3.0)	544 (19.7)	56 (4.1)	518 (5.9)	34 (3.8)	475 (9.5)
Bahrain.....	32 (0.1)	6 (0.7)	451 (5.8)	52 (2.7)	402 (2.1)	40 (2.6)	395 (3.5)	3 (#)	412 (3.8)	15 (2.5)	389 (6.1)	72 (3.7)	404 (2.3)	14 (3.1)	396 (8.7)
Belgium (Flemish).....	20 (0.3)	90 (2.3)	538 (3.3)	10 (2.3)	553 (10.5)	# (†)	‡ (†)	# (†)	‡ (†)	9 (2.5)	555 (6.5)	30 (3.8)	555 (5.8)	60 (3.9)	529 (5.6)
Botswana.....	37 (0.4)	1 (0.7)	‡ (†)	14 (2.6)	392 (9.1)	60 (4.3)	360 (3.7)	25 (4.1)	362 (4.1)	44 (4.6)	364 (4.0)	49 (4.5)	368 (4.0)	7 (2.5)	379 (7.0)
Bulgaria.....	22 (0.5)	64 (4.2)	468 (4.9)	32 (3.9)	503 (8.0)	3 (2.4)	423 (5.0)	1 (#)	‡ (†)	53 (4.2)	483 (6.1)	38 (4.2)	467 (7.7)	9 (2.5)	469 (15.6)
Chile.....	35 (0.4)	9 (1.5)	385 (17.0)	22 (2.6)	384 (8.1)	47 (3.6)	390 (5.7)	23 (3.0)	389 (6.9)	10 (2.2)	401 (14.9)	49 (3.6)	388 (5.1)	40 (3.3)	383 (5.5)
Chinese Taipei.....	37 (0.4)	4 (1.5)	598 (28.9)	14 (2.8)	567 (11.5)	65 (4.0)	575 (4.7)	17 (3.2)	636 (8.7)	29 (3.9)	602 (8.6)	39 (3.9)	588 (6.3)	32 (3.9)	570 (7.6)
Cyprus.....	26 (0.1)	21 (1.9)	463 (3.2)	79 (1.9)	460 (2.0)	# (†)	‡ (†)	# (†)	‡ (†)	35 (3.1)	455 (3.2)	65 (3.1)	462 (2.3)	# (†)	‡ (†)
Egypt.....	38 (0.6)	3 (1.2)	422 (13.8)	9 (2.1)	428 (11.3)	61 (4.1)	403 (4.3)	27 (3.7)	407 (7.5)	23 (3.3)	401 (8.6)	57 (3.8)	409 (4.8)	20 (3.2)	406 (8.1)
England ⁷	‡ ⁸ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ ⁶ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)
Estonia.....	27 (0.5)	32 (3.4)	523 (5.1)	41 (4.2)	530 (4.3)	27 (3.8)	550 (5.4)	# (†)	‡ (†)	12 (2.3)	540 (9.9)	78 (3.2)	532 (3.3)	9 (2.5)	518 (14.1)
Ghana.....	37 ⁵ (1.0)	16 (2.7)	232 (7.4)	18 (3.1)	249 (8.9)	29 (4.0)	292 (9.0)	37 (4.7)	289 (9.1)	48 (5.0)	271 (7.9)	37 (5.0)	275 (7.1)	15 (3.0)	284 (10.2)
Hong Kong, SAR ^{9,10}	39 (0.3)	3 (1.1)	504 (28.1)	6 (1.6)	513 (21.3)	49 (4.1)	575 (5.7)	43 (4.1)	612 (4.7)	26 (3.7)	598 (6.0)	50 (4.6)	593 (6.0)	24 (4.0)	566 (10.0)
Hungary.....	22 (0.4)	64 (3.9)	522 (4.2)	35 (4.0)	540 (6.5)	2 (0.9)	‡ (†)	# (†)	‡ (†)	8 (2.0)	532 (8.9)	90 (2.2)	530 (3.5)	2 (0.9)	‡ (†)
Indonesia ¹¹	40 (0.5)	3 (1.7)	413 (8.6)	10 (2.8)	366 (20.0)	38 (4.1)	413 (8.3)	48 (4.3)	421 (6.7)	45 (3.9)	421 (7.4)	45 (4.4)	402 (9.4)	10 (2.6)	412 (15.3)
Iran, Islamic Republic of.....	29 (0.4)	23 (2.9)	397 (5.7)	50 (4.0)	413 (4.5)	25 (3.3)	420 (6.0)	3 (1.4)	431 (13.7)	63 (4.4)	417 (3.2)	26 (4.0)	406 (7.2)	12 (2.8)	399 (9.3)
Israel ¹²	34 ⁵ (0.4)	9 (2.2)	512 (18.3)	23 (3.7)	500 (9.2)	64 (4.5)	490 (4.9)	4 (1.7)	531 (4.5)	50 (3.8)	501 (5.4)	44 (4.1)	500 (6.1)	6 (1.7)	438 (17.8)
Italy.....	22 (0.3)	78 (3.1)	483 (3.4)	22 (3.1)	488 (8.3)	# (†)	‡ (†)	# (†)	‡ (†)	71 (3.5)	482 (3.2)	25 (3.2)	489 (8.4)	4 (1.5)	480 (11.2)
Japan.....	35 (0.2)	3 (1.2)	561 (6.1)	18 (2.6)	557 (4.5)	78 (2.6)	571 (2.7)	1 (1.0)	‡ (†)	7 (2.2)	583 (23.4)	29 (3.8)	573 (6.9)	64 (3.9)	567 (2.5)
Jordan.....	35 (0.7)	14 (2.8)	430 (9.4)	26 (3.6)	424 (13.3)	32 (4.4)	417 (5.9)	28 (3.8)	428 (7.4)	30 (3.8)	422 (5.5)	55 (4.4)	430 (6.3)	14 (2.8)	410 (8.6)
Korea, Republic of ¹³	37 ⁸ (0.4)	1 (0.9)	‡ (†)	20 (3.0)	569 (4.6)	57 (4.6)	594 (2.9)	22 (3.5)	600 (7.0)	9 ¹⁴ (2.1)	582 (10.8)	31 (3.6)	589 (4.7)	60 (3.5)	591 (3.5)
Latvia.....	24 (0.7)	52 (3.5)	497 (4.4)	42 (3.4)	519 (5.5)	3 (1.0)	527 (20.3)	3 (1.7)	506 (12.6)	17 (2.9)	523 (8.8)	75 (3.8)	505 (3.5)	9 (2.6)	500 (11.7)
Lebanon.....	29 (0.9)	32 (3.9)	429 (6.0)	44 (4.8)	429 (5.1)	16 (3.1)	443 (10.4)	8 (3.1)	464 (8.7)	49 (4.6)	433 (4.6)	45 (4.4)	436 (5.8)	6 (1.9)	401 (13.1)
Lithuania ¹²	25 (0.3)	39 (3.2)	486 (4.2)	61 (3.2)	510 (3.0)	# (†)	‡ (†)	# (†)	‡ (†)	13 (2.7)	512 (7.7)	76 (3.6)	501 (4.8)	11 (2.6)	477 (11.3)
Macedonia, Republic of ¹²	28 (0.4)	24 (3.5)	439 (9.2)	58 (4.3)	435 (5.9)	17 (3.6)	429 (13.7)	1 (1.0)	‡ (†)	22 (3.3)	450 (8.1)	66 (3.9)	428 (5.2)	12 (2.6)	432 (13.8)
Malaysia.....	37 (0.4)	1 (0.7)	‡ (†)	18 (3.3)	514 (11.0)	56 (4.4)	503 (5.1)	25 (3.5)	515 (8.8)	60 (4.5)	508 (5.0)	34 (4.2)	515 (8.5)	5 (1.9)	466 (10.1)
Moldova, Republic of.....	24 ⁵ (0.5)	56 (4.5)	449 (6.0)	38 (4.6)	460 (7.0)	5 (2.5)	485 (25.2)	1 (0.6)	‡ (†)	43 ⁶ (4.8)	451 (6.1)	52 (5.0)	463 (7.9)	5 (1.9)	468 (10.1)
Morocco ^{11,15}	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	54 ¹⁴ (6.2)	391 (5.9)	37 (6.4)	383 (5.2)	9 (4.1)	389 (11.1)
Netherlands ⁹	26 (0.3)	33 (3.9)	514 (9.4)	66 (4.1)	546 (5.8)	1 (1.0)	‡ (†)	# (†)	‡ (†)	7 (2.4)	550 (15.3)	82 (3.7)	541 (4.9)	11 (3.1)	495 (14.1)
New Zealand.....	27 (0.4)	22 (3.0)	469 (8.9)	72 (4.1)	500 (5.7)	6 (3.2)	538 (17.8)	# (†)	‡ (†)	7 (2.1)	479 (15.6)	67 (4.1)	510 (6.6)	25 (4.2)	471 (5.3)
Norway.....	25 (0.3)	34 (3.8)	467 (4.3)	65 (3.6)	460 (3.5)	1 (0.7)	‡ (†)	1 (0.7)	‡ (†)	25 (3.4)	460 (6.5)	46 (4.3)	465 (3.8)	29 (4.3)	455 (5.0)
Palestinian National Authority..	39 (0.6)	6 (2.0)	398 (20.0)	17 (2.8)	393 (7.4)	27 (3.9)	394 (8.9)	50 (3.7)	385 (4.2)	30 (4.0)	389 (6.4)	58 (4.3)	391 (4.6)	12 (2.5)	388 (14.9)
Philippines.....	54 (0.7)	1 (0.6)	‡ (†)	1 (0.7)	‡ (†)	7 (2.0)	448 (23.4)	91 (2.1)	372 (5.4)	24 (4.0)	358 (10.9)	61 (4.8)	384 (7.1)	15 (3.7)	377 (19.1)
Romania.....	24 (0.5)	51 (4.5)	469 (6.7)	46 (4.5)	480 (7.4)	3 (1.4)	534 (34.7)	1 (#)	‡ (†)	78 (3.3)	478 (5.5)	21 (3.3)	463 (10.1)	1 (0.7)	‡ (†)
Russian Federation.....	24 (0.6)	47 (4.2)	500 (5.1)	47 (3.6)	515 (5.0)	6 (3.4)	533 (11.0)	# (†)	‡ (†)	56 (3.5)	514 (4.3)	43 (3.5)	499 (4.7)	1 (0.5)	‡ (†)
Saudi Arabia.....	28 (0.9)	36 (5.3)	333 (7.5)	26 (4.8)	340 (8.1)	29 (5.8)	330 (5.6)	8 (3.0)	325 (4.1)	14 (3.0)	331 (8.9)	69 (3.9)	332 (4.6)	17 (3.0)	346 (15.0)
Scotland ⁹	27 ⁵ (0.5)	33 (3.9)	457 (7.2)	56 (4.4)	520 (6.2)	11 (3.4)	548 (10.1)	1 (0.7)	‡ (†)	3 (1.7)	549 (10.6)	45 (4.6)	527 (5.7)	51 (4.5)	477 (6.2)
Serbia ¹¹	26 (0.4)	38 (3.7)	464 (4.4)	51 (4.0)	483 (3.8)	11 (2.9)	489 (8.2)	# (†)	‡ (†)	34 (4.1)	474 (4.9)	45 (4.3)	481 (4.5)	22 (3.7)	470 (5.6)
Singapore.....	38 (0.2)	2 (0.6)	‡ (†)	8 (1.6)	613 (18.0)	63 (2.7)	606 (5.0)	26 (2.5)	607 (5.7)	59 (2.4)	620 (4.2)	33 (2.5)	592 (6.6)	8 (1.3)	563 (13.1)

See notes at end of table.

Table 409. Average size and scores of eighth-grade mathematics classes and Index of Teachers' Emphasis on Mathematics Homework (EMH), by country: 2003—Continued

Country or other jurisdiction	Overall average class size	Percentage distribution and mean scores of mathematics classes, by average class size								Index of Teachers' Emphasis on Mathematics Homework (EMH) ¹					
		1 to 24 students		25 to 32 students		33 to 40 students		41 or more students		High EMH ²		Medium EMH ³		Low EMH ⁴	
		Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Slovak Republic	25 (0.4)	42 (4.6)	498 (4.7)	53 (4.7)	512 (5.4)	5 (1.8)	543 (19.7)	# (†)	‡ (†)	5 (1.5)	510 (12.4)	79 (2.9)	511 (4.0)	16 (2.7)	492 (6.3)
Slovenia	22 (0.3)	70 (4.1)	491 (3.0)	30 (4.1)	500 (4.1)	# (†)	‡ (†)	# (†)	‡ (†)	13 (2.9)	490 (9.2)	85 (3.1)	495 (2.5)	3 (1.0)	473 (9.7)
South Africa	45 ⁸ (1.3)	4 (1.2)	309 (35.8)	14 (3.0)	290 (23.8)	30 (3.7)	265 (11.7)	52 (4.1)	249 (8.7)	26 ⁶ (3.4)	266 (9.2)	54 (3.9)	267 (9.6)	20 (3.3)	250 (9.1)
Sweden	21 (0.4)	71 (3.6)	491 (3.3)	27 (3.7)	522 (5.5)	1 (1.0)	‡ (†)	# (†)	‡ (†)	17 (2.8)	503 (7.0)	25 (3.2)	506 (6.0)	59 (3.7)	494 (4.0)
Tunisia	34 (0.3)	1 (1.0)	‡ (†)	26 (3.3)	404 (3.6)	71 (3.5)	412 (3.2)	2 (1.1)	‡ (†)	12 (2.5)	423 (9.1)	84 (3.0)	407 (2.2)	4 (1.6)	442 (11.3)
United States ¹⁵	24 ⁵ (0.4)	56 (2.9)	504 (3.9)	39 (2.7)	510 (5.1)	4 (1.2)	531 (16.4)	1 (0.7)	‡ (†)	27 (2.5)	531 (8.0)	62 (2.9)	504 (3.8)	11 (2.2)	471 (9.5)

†Not applicable.

#Rounds to zero.

‡Reporting standards not met.

¹Index based on teachers' responses to two questions about how often they usually assign mathematics homework and how many minutes of mathematics homework they usually assign.

²High EMH indicates the assignment of more than 30 minutes of homework in about half of the lessons or more.

³Medium level includes all possible combinations of responses not included in the high or low level categories (see below for details on the low level).

⁴Low level indicates no assignment or the assignment of less than 30 minutes of homework in about half the lessons or less.

⁵Class size data available for at least 70 but less than 85 percent of students, with missing data having not been explicitly accounted for in the analysis.

⁶EMH data available for at least 70 but less than 85 percent of students, with missing data having not been explicitly accounted for in the analysis.

⁷Did not satisfy guidelines for sample participation rates.

⁸Class size data available for at least 50 but less than 70 percent of students, with missing data having not been explicitly accounted for in the analysis.

⁹Met guidelines for sample participation rates only after replacement schools were included.

¹⁰SAR = Special Administrative Region.

¹¹National Desired Population does not cover all of International Desired Population.

¹²National Defined Population covers less than 90 percent of National Desired Population.

¹³Korea tested the same cohort of students as other countries, but later in 2003, at the beginning of the next school year.

¹⁴EMH data available for at least 50 but less than 70 percent of students, with missing data having not been explicitly accounted for in the analysis.

¹⁵Nearly satisfied guidelines for sample participation rates only after replacement schools were included.

NOTE: Background data provided by teachers. Data are for eighth grade or equivalent in most countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Mathematics Report*, by Ina V.S. Mullis et al. (This table was prepared April 2005.)

Table 410. Eighth-grade students' perceptions about mathematics and hours spent on leisure activities, by country: 2003

Country or other jurisdiction	Index of students' self-confidence in learning mathematics (SCM) ¹						Average hours spent each day ²								
	High SCM		Medium SCM		Low SCM		Watching TV or videos	Playing computer games	Playing or talking with friends	Doing jobs at home	Playing sports	Reading for enjoyment	Using the Internet	Working at a paid job	
	Percent	Mean score	Percent	Mean score	Percent	Mean score									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Armenia	41 (1.1)	505 (4.0)	40 (1.0)	468 (3.7)	19 (0.9)	462 (4.1)	1.8 (0.03)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	
Australia	50 (1.7)	542 (4.5)	31 (1.1)	483 (3.7)	19 (1.2)	451 (6.4)	2.0 (0.03)	0.9 (0.02)	1.7 (0.04)	1.0 (0.02)	1.6 (0.03)	0.7 (0.02)	1.3 (0.04)	0.4 (0.03)	
Bahrain	44 (0.9)	437 (2.0)	38 (0.9)	379 (2.4)	18 (0.6)	366 (3.2)	2.0 (0.03)	1.2 (0.02)	1.6 (0.03)	1.2 (0.02)	1.5 (0.03)	0.9 (0.02)	1.4 (0.03)	0.6 (0.02)	
Belgium (Flemish)	45 (0.9)	556 (3.2)	30 (0.7)	526 (3.0)	25 (0.8)	518 (3.5)	2.1 (0.03)	1.0 (0.03)	1.9 (0.03)	0.9 (0.02)	1.6 (0.03)	0.5 (0.01)	1.3 (0.03)	0.2 (0.02)	
Botswana	38 (0.9)	390 (2.8)	45 (0.8)	361 (2.5)	17 (0.8)	352 (3.4)	1.4 (0.03)	0.5 (0.02)	2.1 (0.04)	2.3 (0.03)	1.5 (0.02)	1.8 (0.03)	0.7 (0.02)	0.6 (0.03)	
Bulgaria	33 (1.3)	519 (5.5)	39 (1.4)	467 (4.2)	28 (1.2)	445 (4.8)	2.5 (0.04)	1.1 (0.04)	2.6 (0.05)	1.5 (0.03)	1.2 (0.04)	0.7 (0.03)	1.0 (0.04)	0.3 (0.02)	
Chile	35 (0.9)	427 (3.9)	42 (0.7)	369 (3.4)	23 (0.7)	361 (3.9)	2.2 (0.02)	0.7 (0.02)	2.3 (0.02)	1.5 (0.02)	1.8 (0.03)	0.6 (0.01)	0.7 (0.02)	0.3 (0.02)	
Chinese Taipei	26 (1.0)	661 (4.1)	30 (0.7)	593 (5.1)	44 (1.1)	534 (4.0)	1.7 (0.03)	1.4 (0.04)	1.4 (0.03)	0.7 (0.01)	1.0 (0.02)	1.0 (0.02)	1.4 (0.04)	0.2 (0.01)	
Cyprus	46 (0.8)	503 (2.0)	32 (0.8)	437 (2.2)	22 (0.7)	407 (3.6)	2.1 (0.03)	1.3 (0.02)	2.1 (0.03)	1.0 (0.03)	1.7 (0.03)	0.9 (0.02)	1.2 (0.02)	0.6 (0.02)	
Egypt	58 (1.0)	437 (3.3)	35 (0.9)	383 (3.7)	7 (0.4)	374 (5.3)	0.8 (0.02)	0.7 (0.02)	0.8 (0.02)	1.3 (0.03)	1.1 (0.02)	1.0 (0.02)	0.6 (0.02)	0.6 (0.02)	
England ³	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	
Estonia	41 (0.9)	569 (3.2)	32 (0.7)	520 (3.1)	28 (0.8)	489 (3.5)	2.3 (0.03)	1.1 (0.03)	2.8 (0.03)	1.1 (0.02)	1.4 (0.03)	0.7 (0.02)	1.5 (0.04)	0.4 (0.02)	
Ghana	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	0.7 (0.02)	0.6 (0.02)	1.2 (0.03)	1.5 (0.03)	1.3 (0.02)	1.7 (0.03)	0.8 (0.03)	0.8 (0.03)	
Hong Kong, SAR ⁴	30 (0.9)	627 (2.9)	38 (0.7)	581 (4.1)	33 (0.9)	556 (4.0)	2.3 (0.03)	2.0 (0.04)	1.6 (0.03)	0.7 (0.01)	1.0 (0.02)	1.1 (0.02)	2.0 (0.03)	0.1 (0.01)	
Hungary	44 (1.0)	574 (3.3)	32 (1.0)	507 (3.9)	24 (0.8)	479 (3.9)	2.1 (0.03)	1.1 (0.03)	2.2 (0.03)	1.1 (0.02)	1.5 (0.03)	0.8 (0.02)	0.6 (0.02)	0.2 (0.02)	
Indonesia	27 (1.1)	420 (6.6)	59 (0.8)	408 (4.5)	15 (0.9)	416 (4.7)	1.5 (0.03)	0.5 (0.02)	1.3 (0.03)	2.2 (0.03)	1.1 (0.02)	1.1 (0.02)	0.3 (0.02)	0.8 (0.03)	
Iran, Islamic Republic of	35 (0.9)	447 (3.5)	49 (0.8)	399 (2.6)	16 (0.7)	377 (3.4)	1.6 (0.03)	0.4 (0.02)	1.4 (0.03)	1.5 (0.03)	1.4 (0.04)	1.0 (0.02)	0.2 (0.02)	0.7 (0.05)	
Israel	59 (1.2)	526 (3.5)	30 (0.9)	461 (3.8)	11 (0.7)	451 (5.7)	2.5 (0.04)	1.9 (0.03)	2.3 (0.03)	1.4 (0.03)	1.6 (0.03)	0.9 (0.02)	1.8 (0.04)	0.6 (0.02)	
Italy	46 (0.9)	521 (3.3)	29 (0.9)	466 (3.6)	25 (1.0)	439 (3.4)	1.8 (0.03)	1.0 (0.02)	2.6 (0.03)	1.1 (0.03)	1.8 (0.03)	0.7 (0.02)	0.6 (0.02)	0.9 (0.02)	
Japan	17 (0.6)	634 (3.1)	38 (0.7)	580 (2.7)	45 (0.8)	538 (2.3)	2.7 (0.03)	0.9 (0.02)	1.6 (0.04)	0.6 (0.01)	1.3 (0.03)	0.9 (0.02)	0.6 (0.02)	0.1 (0.01)	
Jordan	49 (1.2)	463 (4.7)	38 (1.0)	400 (3.7)	13 (0.7)	390 (4.4)	1.5 (0.03)	0.9 (0.03)	1.2 (0.03)	1.3 (0.03)	1.2 (0.03)	0.9 (0.02)	0.6 (0.03)	0.6 (0.03)	
Korea, Republic of ⁵	30 (0.7)	650 (2.8)	36 (0.6)	592 (2.5)	34 (0.8)	534 (2.3)	1.7 (0.03)	1.5 (0.03)	1.8 (0.03)	0.7 (0.01)	0.7 (0.02)	0.6 (0.01)	1.7 (0.03)	0.1 (0.01)	
Latvia	34 (1.0)	555 (3.4)	33 (0.9)	499 (3.2)	33 (1.0)	473 (3.4)	2.4 (0.03)	1.0 (0.02)	2.8 (0.03)	1.6 (0.03)	1.3 (0.03)	0.8 (0.03)	0.8 (0.03)	0.5 (0.02)	
Lebanon	43 (1.4)	462 (3.6)	44 (1.1)	416 (3.1)	13 (0.7)	403 (4.4)	1.8 (0.04)	1.3 (0.03)	1.6 (0.04)	1.3 (0.03)	1.6 (0.03)	1.0 (0.02)	1.0 (0.03)	0.8 (0.03)	
Lithuania	36 (1.0)	552 (3.1)	37 (0.9)	486 (2.8)	26 (0.9)	456 (2.7)	2.1 (0.03)	1.1 (0.03)	2.6 (0.04)	1.6 (0.04)	1.1 (0.03)	0.6 (0.02)	0.7 (0.03)	0.3 (0.02)	
Macedonia, Republic of	33 (1.0)	482 (4.0)	37 (1.0)	418 (4.7)	31 (1.0)	424 (3.9)	2.3 (0.04)	1.3 (0.03)	2.2 (0.03)	1.6 (0.03)	1.8 (0.03)	1.0 (0.02)	0.9 (0.03)	0.7 (0.03)	
Malaysia	39 (1.2)	546 (4.2)	45 (1.0)	490 (3.7)	16 (0.7)	471 (4.4)	2.1 (0.04)	0.8 (0.03)	1.5 (0.03)	1.7 (0.02)	1.1 (0.02)	1.2 (0.02)	0.6 (0.02)	0.3 (0.02)	
Moldova, Republic of	30 (1.2)	494 (5.0)	50 (0.9)	451 (4.5)	20 (1.1)	441 (5.3)	1.9 (0.04)	0.7 (0.03)	2.0 (0.04)	2.2 (0.06)	1.3 (0.03)	1.1 (0.03)	0.7 (0.03)	0.5 (0.03)	
Morocco	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	1.3 (0.04)	2.3 (0.06)	1.3 (0.03)	1.8 (0.03)	1.5 (0.03)	‡ (†)	‡ (†)	‡ (†)	
Netherlands	45 (1.4)	557 (4.4)	33 (1.0)	527 (4.7)	23 (1.0)	511 (4.8)	2.1 (0.05)	1.2 (0.04)	2.0 (0.05)	0.8 (0.02)	1.7 (0.04)	0.5 (0.02)	1.5 (0.04)	0.8 (0.05)	
New Zealand	43 (1.4)	534 (6.4)	36 (1.1)	475 (5.4)	21 (0.9)	452 (4.1)	2.1 (0.04)	1.0 (0.04)	1.8 (0.05)	1.0 (0.02)	1.5 (0.03)	0.7 (0.03)	1.3 (0.04)	0.6 (0.03)	
Norway	46 (1.1)	502 (2.0)	32 (0.8)	445 (2.9)	21 (0.8)	405 (3.4)	2.2 (0.03)	1.2 (0.03)	2.7 (0.03)	1.0 (0.03)	1.8 (0.03)	0.6 (0.02)	1.2 (0.03)	0.7 (0.02)	
Palestinian National Authority	43 (1.0)	428 (3.9)	41 (0.9)	370 (2.9)	16 (0.6)	355 (3.6)	1.2 (0.02)	0.7 (0.02)	1.3 (0.03)	1.5 (0.03)	1.1 (0.03)	1.0 (0.02)	0.5 (0.02)	0.6 (0.03)	
Philippines	29 (0.7)	405 (6.1)	59 (0.7)	369 (4.8)	12 (0.5)	366 (6.5)	1.6 (0.04)	0.6 (0.02)	1.7 (0.03)	1.9 (0.03)	1.4 (0.02)	1.2 (0.02)	0.5 (0.03)	0.8 (0.04)	
Romania	30 (1.2)	533 (4.6)	45 (1.1)	465 (4.5)	25 (0.9)	442 (5.4)	2.0 (0.04)	0.9 (0.03)	2.1 (0.03)	1.7 (0.05)	1.3 (0.03)	1.0 (0.03)	0.8 (0.04)	0.5 (0.04)	
Russian Federation	43 (1.1)	548 (3.0)	30 (0.8)	492 (4.1)	27 (0.8)	466 (4.6)	2.0 (0.03)	1.0 (0.03)	2.5 (0.04)	1.6 (0.03)	1.3 (0.02)	1.1 (0.03)	0.4 (0.02)	0.2 (0.02)	
Saudi Arabia	41 (1.4)	361 (4.8)	43 (1.1)	321 (5.4)	16 (0.9)	303 (5.8)	1.6 (0.05)	1.1 (0.03)	1.3 (0.03)	1.5 (0.04)	1.2 (0.04)	0.9 (0.02)	0.8 (0.05)	0.8 (0.03)	
Scotland	52 (1.5)	524 (3.9)	32 (1.0)	477 (3.8)	15 (0.9)	456 (5.0)	2.2 (0.03)	1.4 (0.04)	2.7 (0.03)	0.8 (0.02)	1.7 (0.03)	0.6 (0.02)	1.4 (0.03)	0.5 (0.03)	
Serbia	44 (1.1)	530 (2.8)	26 (0.7)	458 (3.2)	30 (1.1)	422 (3.4)	2.1 (0.03)	1.0 (0.03)	2.1 (0.03)	1.3 (0.03)	1.7 (0.03)	0.8 (0.02)	0.6 (0.03)	0.3 (0.02)	
Singapore	39 (0.8)	639 (3.0)	34 (0.7)	594 (3.9)	27 (0.7)	571 (4.6)	2.3 (0.02)	1.4 (0.02)	1.7 (0.02)	0.7 (0.02)	1.4 (0.02)	0.9 (0.02)	1.6 (0.02)	0.2 (0.02)	
Slovak Republic	40 (1.1)	556 (3.7)	35 (1.0)	487 (3.9)	25 (1.0)	462 (4.1)	2.5 (0.03)	1.1 (0.03)	2.8 (0.03)	1.5 (0.03)	1.9 (0.04)	0.9 (0.02)	0.6 (0.03)	0.4 (0.02)	
Slovenia	40 (0.9)	533 (3.2)	39 (1.0)	474 (2.5)	20 (0.9)	453 (2.8)	2.2 (0.03)	1.3 (0.03)	2.0 (0.03)	1.2 (0.03)	1.7 (0.03)	0.8 (0.02)	1.1 (0.03)	0.4 (0.02)	
South Africa	37 (0.9)	300 (8.3)	48 (0.9)	242 (3.9)	15 (0.8)	255 (9.9)	1.5 (0.03)	0.7 (0.02)	2.0 (0.03)	1.8 (0.03)	1.6 (0.02)	1.6 (0.03)	0.8 (0.02)	0.8 (0.02)	
Sweden	49 (1.3)	534 (2.6)	36 (0.9)	477 (3.1)	16 (0.9)	446 (3.4)	2.1 (0.03)	1.1 (0.03)	2.8 (0.03)	1.0 (0.02)	1.6 (0.03)	0.6 (0.02)	1.7 (0.04)	0.4 (0.02)	
Tunisia	44 (1.0)	436 (2.7)	36 (0.8)	399 (2.5)	20 (0.9)	384 (2.2)	1.4 (0.02)	0.8 (0.03)	1.5 (0.02)	1.9 (0.03)	1.5 (0.02)	1.3 (0.02)	0.7 (0.02)	0.6 (0.02)	
United States	51 (0.8)	534 (3.3)	29 (0.6)	483 (3.5)	20 (0.6)	461 (3.6)	2.2 (0.03)	1.1 (0.02)	2.4 (0.03)	1.2 (0.02)	1.8 (0.02)	0.7 (0.01)	1.8 (0.03)	0.6 (0.02)	

—Not available.

†Not applicable.

‡Reporting standards not met.

¹Index based on students' responses to four statements about mathematics: 1) I usually do well in mathematics; 2) Mathematics is more difficult for me than for many of my classmates (reverse scored); 3) Mathematics is not one of my strengths (reverse scored); 4) I learn things quickly in mathematics. Average is computed across the four items based on a 4-point scale: 1. Agree a lot; 2. Agree a little; 3. Disagree a little; 4. Disagree a lot. Students showing positive attitudes a little or a lot of the time across the four statements were assigned to the high level. Students showing negative attitudes a little or a lot of the time across the four statements were assigned to the low level. Students showing mixed attitudes across the four statements were assigned to the middle level.

²Number of hours based on: No time = 0; Less than 1 hour = 0.5; 1–2 hours = 1.5; More than 2, but less than 4 hours = 3; 4 or more hours = 4.5. Activities are not necessarily exclusive; students may have reported engaging in more than one activity at the same time.

³Did not satisfy guidelines for sample participation rates.

⁴SAR = Special Administrative Region.

⁵Korea tested the same cohort of students as other countries, but later in 2003, at the beginning of the next school year.

NOTE: Data are for eighth grade or equivalent in most countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Mathematics Report*, by Ina V. S. Mullis et al. (This table was prepared April 2005.)

Table 411. Average mathematics scores at the end of secondary school, by sex, average time spent studying mathematics out of school, and country: 1995

Country	Average score in mathematics			Amount of daily out-of-school study time in mathematics						Average hours ¹
	Total	Males	Females	Less than 1 hour		1 to 2 hours		3 or more hours		
				Percent	Mean score	Percent	Mean score	Percent	Mean score	
1	2	3	4	5	6	7	8	9	10	11
Australia ²	522 (9.3)	540 (10.3)	510 (9.3)	59 (2.2)	521 (8.3)	36 (2.2)	557 (10.2)	5 (0.8)	534 (13.4)	1.0 (0.04)
Austria ²	518 (5.3)	545 (7.2)	503 (5.5)	77 (1.7)	526 (5.8)	19 (1.6)	533 (9.4)	4 (0.8)	502 (13.7)	0.6 (0.04)
Canada ²	519 (2.8)	537 (3.8)	504 (3.5)	56 (2.1)	539 (5.1)	38 (1.9)	547 (5.0)	7 (1.0)	526 (14.6)	1.1 (0.05)
Cyprus ²	446 (2.5)	454 (4.9)	439 (3.7)	63 (2.1)	435 (4.3)	29 (1.8)	471 (4.8)	8 (1.3)	451 (9.0)	1.0 (0.05)
Czech Republic.....	466 (12.3)	488 (11.3)	443 (16.8)	92 (1.5)	464 (13.8)	8 (1.4)	482 (17.8)	# (†)	— (†)	0.4 (0.03)
Denmark ²	547 (3.3)	575 (4.0)	523 (4.0)	68 (2.0)	571 (4.9)	28 (1.6)	563 (4.7)	4 (0.7)	562 (11.9)	0.9 (0.04)
France ²	523 (5.1)	544 (5.6)	506 (5.3)	59 (2.3)	517 (5.1)	35 (2.3)	539 (6.7)	5 (0.7)	505 (14.7)	1.0 (0.04)
Germany ²	495 (5.9)	509 (8.7)	480 (8.8)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)
Hungary.....	483 (3.2)	485 (4.9)	481 (4.8)	74 (0.9)	480 (3.2)	24 (0.8)	496 (5.5)	2 (0.2)	— (†)	0.7 (0.02)
Iceland ²	534 (2.0)	558 (3.4)	514 (2.2)	79 (1.1)	553 (3.2)	19 (1.1)	542 (7.0)	2 (0.4)	— (†)	0.7 (0.02)
Italy ²	476 (5.5)	490 (7.4)	464 (6.0)	55 (2.6)	479 (6.3)	40 (2.2)	486 (7.2)	5 (0.9)	477 (11.2)	1.0 (0.05)
Lithuania ²	469 (6.1)	485 (7.3)	461 (7.7)	67 (1.8)	472 (5.8)	29 (1.7)	480 (5.2)	4 (0.5)	484 (11.5)	0.8 (0.03)
Netherlands ²	560 (4.7)	585 (5.6)	533 (5.9)	82 (1.7)	606 (6.2)	16 (1.6)	581 (11.1)	1 (0.3)	— (†)	0.7 (0.03)
New Zealand.....	522 (4.5)	536 (4.9)	507 (6.2)	75 (1.4)	544 (6.1)	23 (1.4)	552 (5.9)	2 (0.3)	— (†)	0.7 (0.03)
Norway ²	528 (4.1)	555 (5.3)	501 (4.8)	85 (1.4)	541 (5.1)	14 (1.3)	558 (9.5)	1 (0.3)	— (†)	0.5 (0.03)
Russian Federation ²	471 (6.2)	488 (6.5)	460 (6.6)	56 (2.0)	463 (5.9)	33 (1.4)	484 (7.5)	11 (1.2)	494 (8.1)	1.2 (0.06)
Slovenia ²	512 (8.3)	535 (12.7)	490 (8.0)	72 (2.7)	521 (9.4)	25 (2.6)	518 (9.5)	2 (0.6)	— (†)	0.7 (0.05)
South Africa ²	356 (8.3)	365 (9.3)	348 (10.8)	33 (1.8)	394 (17.1)	51 (1.8)	375 (10.9)	17 (1.2)	344 (7.2)	1.7 (0.05)
Sweden.....	552 (4.3)	573 (5.9)	531 (3.9)	90 (0.9)	579 (5.4)	9 (0.9)	580 (7.8)	1 (0.2)	— (†)	0.4 (0.02)
Switzerland.....	540 (5.8)	555 (6.4)	522 (7.4)	67 (1.6)	569 (4.9)	28 (1.3)	550 (5.6)	5 (0.9)	522 (10.6)	0.9 (0.04)
United States ²	461 (3.2)	466 (4.1)	456 (3.6)	76 (1.5)	475 (3.8)	22 (1.5)	486 (5.9)	2 (0.2)	— (†)	0.7 (0.02)

—Not available.

†Not applicable.

#Rounds to zero.

¹Average hours based on: No time = 0; Less than 1 hour = 0.5; 1–2 hours = 1.5; 3–5 hours = 4; More than 5 hours = 7.

²Countries did not meet all International Association for the Evaluation of Educational Achievement sampling specifications.

NOTE: End of secondary school is equivalent to 12th grade in the United States and a few other countries, but ranges from 9th to 14th grades among the survey countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, *Mathematics and Science Achievement in the Final Year of Secondary School*, by Ina V. S. Mullis et al. (This table was prepared October 1998.)

Table 412. Average fourth-grade science scores in content areas and average time spent teaching science in school, by country: 2003

Country or other jurisdiction	Average score by content area								Average yearly science instructional time in hours	Science instructional time as a percent of total instructional time ¹		
	Science overall		Life science		Physical science		Earth science					
1	2		3		4		5		6		7	
Armenia.....	437	(4.3)	435	(4.4)	429	(4.3)	450	(3.6)	‡	(†)	‡	(†)
Australia ²	521	(4.2)	523	(3.8)	518	(3.9)	518	(4.1)	45 ³	(2.6)	5	(0.3)
Belgium (Flemish).....	518	(1.8)	524	(1.7)	507	(2.3)	522	(1.7)	‡	(†)	‡	(†)
Chinese Taipei.....	551	(1.7)	540	(1.6)	554	(2.0)	559	(2.6)	84	(1.0)	11	(0.2)
Cyprus.....	480	(2.4)	482	(2.1)	479	(2.3)	487	(2.5)	46 ³	(1.4)	5	(0.2)
England ²	540	(3.6)	532	(3.1)	546	(3.2)	535	(3.5)	‡	(†)	‡	(†)
Hong Kong, SAR ^{2,4}	542	(3.1)	535	(2.6)	548	(2.7)	536	(2.7)	77 ³	(5.4)	8	(0.5)
Hungary.....	530	(3.0)	536	(2.5)	526	(2.7)	526	(3.7)	54 ³	(1.0)	6	(0.1)
Iran, Islamic Republic of....	414	(4.1)	424	(4.6)	419	(4.5)	428	(3.0)	‡	(†)	‡	(†)
Italy.....	516	(3.8)	521	(3.5)	512	(3.5)	519	(3.7)	73 ⁵	(2.3)	8 ⁵	(0.3)
Japan.....	543	(1.5)	530	(1.3)	557	(1.7)	535	(1.9)	81	(1.2)	8	(0.2)
Latvia.....	532	(2.5)	531	(2.3)	532	(2.6)	534	(2.9)	‡	(†)	‡	(†)
Lithuania ⁶	512	(2.6)	516	(2.0)	512	(2.5)	503	(3.2)	53	(1.6)	6	(0.2)
Moldova, Republic of.....	496	(4.6)	504	(3.9)	489	(3.9)	505	(4.9)	‡	(†)	‡	(†)
Morocco.....	304	(6.7)	300	(6.1)	308	(7.0)	311	(6.1)	‡	(†)	‡	(†)
Netherlands ²	525	(2.0)	547	(1.8)	505	(1.9)	503	(2.3)	33 ³	(1.8)	3	(0.2)
New Zealand.....	520	(2.5)	520	(2.3)	516	(2.3)	522	(2.3)	65 ³	(3.5)	7	(0.4)
Norway.....	466	(2.6)	480	(2.2)	456	(2.3)	473	(2.8)	38 ⁵	(1.8)	4 ⁵	(0.2)
Philippines.....	332	(9.4)	330	(9.0)	343	(9.6)	324	(9.2)	176 ⁵	(3.2)	16 ⁵	(0.4)
Russian Federation.....	526	(5.2)	526	(4.7)	527	(5.2)	527	(6.0)	33 ³	(1.2)	5	(0.2)
Scotland ²	502	(2.9)	506	(3.1)	503	(2.6)	498	(2.6)	‡	(†)	‡	(†)
Singapore.....	565	(5.5)	506	(3.1)	503	(2.6)	498	(2.6)	64	(0.6)	7	(0.1)
Slovenia.....	490	(2.5)	489	(2.9)	497	(2.3)	490	(2.7)	75 ⁵	(2.2)	9 ⁵	(0.3)
Tunisia.....	314	(5.7)	290	(5.9)	324	(5.3)	336	(4.8)	‡	(†)	‡	(†)
United States ²	536	(2.5)	537	(2.2)	531	(2.3)	535	(2.5)	83 ⁵	(3.0)	8 ⁵	(0.3)

†Not applicable.

‡Reporting standards not met.

¹Computed as the ratio of science instructional time to the total instructional time averaged across students.

²Met guidelines for participation rates only after replacement schools were included.

³Data are available for at least 50 but less than 70 percent of the students.

⁴SAR = Special Administrative Region.

⁵Data are available for at least 70 but less than 85 percent of the students.

⁶National Desired Population does not cover all of International Desired Population.

NOTE: Data are for fourth grade or equivalent in most countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Science Report*, by Michael O. Martin et al. (This table was prepared October 2005.)

Table 413. Average eighth-grade science scores in content areas and average time spent studying out of school, by country: 2003

Country or other jurisdiction	Average score by content area											Index of time students spend doing science homework (TSH) in a normal school week ¹												
	Science overall		Life science		Chemistry		Physics		Earth science		Environmental science	High TSH		Medium TSH		Low TSH								
	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score	Percent	Mean score								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18							
International average.....	473	(0.5)	474	(0.5)	474	(0.5)	474	(0.5)	474	(0.5)	474	(0.5)	13	(0.2)	458	(1.3)	44	(0.2)	466	(0.9)	43	(0.3)	467	(0.9)
Armenia.....	461	(3.5)	453 ²	(3.3)	466 ²	(4.2)	479	(3.2)	460 ²	(3.7)	417 ²	(4.4)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Australia.....	527	(3.8)	532 ³	(3.8)	506 ³	(3.8)	521 ³	(3.7)	531 ³	(4.2)	536 ³	(3.4)	9	(0.8)	520	(6.4)	35	(1.6)	530	(3.3)	56	(2.0)	530	(4.4)
Bahrain.....	438	(1.8)	445 ²	(1.9)	441 ²	(2.6)	443 ²	(2.0)	440 ²	(2.4)	439 ²	(3.1)	13	(0.7)	426	(4.1)	56	(1.3)	441	(2.5)	31	(1.4)	445	(2.6)
Belgium (Flemish).....	516	(2.5)	526 ³	(2.4)	503 ³	(2.0)	514 ³	(2.5)	508 ³	(2.5)	523 ³	(2.7)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Botswana.....	365	(2.8)	370 ²	(2.7)	348 ²	(3.1)	371 ²	(3.2)	361 ²	(3.1)	381 ²	(3.3)	14	(0.7)	378	(6.1)	45	(1.0)	368	(3.2)	40	(1.2)	366	(3.6)
Bulgaria.....	479	(5.2)	474	(5.2)	482	(5.7)	485 ³	(5.0)	491 ³	(4.9)	464 ³	(5.0)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Chile.....	413	(2.9)	427 ²	(2.7)	405 ²	(3.3)	401 ²	(3.1)	435 ²	(3.1)	436 ²	(2.9)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Chinese Taipei.....	571	(3.5)	563 ³	(3.1)	584 ³	(4.0)	569 ³	(3.3)	548 ³	(3.1)	560 ³	(3.1)	12 ⁴	(1.2)	588 ⁴	(4.6)	37 ⁴	(1.3)	581 ⁴	(4.0)	51 ⁴	(2.1)	561 ⁴	(3.5)
Cyprus.....	441	(2.0)	437 ²	(2.2)	443 ²	(2.6)	450 ²	(1.7)	447 ²	(2.1)	442 ²	(2.3)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Egypt.....	421	(3.9)	425 ²	(3.7)	442 ²	(3.8)	414 ²	(4.1)	403 ²	(4.4)	430 ²	(4.0)	23	(0.7)	416	(4.4)	64	(0.8)	436	(4.0)	13	(0.6)	430	(6.6)
England ⁵	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)	‡	(†)
Estonia.....	552	(2.5)	547 ³	(2.4)	552 ³	(2.1)	544 ³	(2.4)	558 ³	(2.9)	540 ³	(2.2)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Ghana.....	255	(5.9)	256 ²	(5.6)	276 ²	(6.6)	239 ²	(5.4)	254 ²	(5.6)	267 ²	(6.2)	25	(1.2)	267	(8.5)	54	(1.0)	262	(6.0)	22	(1.0)	258	(8.1)
Hong Kong, SAR ^{6,7}	556	(3.0)	551 ³	(2.9)	542 ³	(2.6)	555 ³	(2.8)	549 ³	(2.9)	555 ³	(2.6)	6	(0.5)	548	(4.6)	43	(1.4)	563	(2.9)	50	(1.4)	554	(3.9)
Hungary.....	543	(2.8)	536 ³	(2.7)	560 ³	(3.1)	536 ³	(2.7)	537 ³	(3.1)	528 ³	(2.9)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Indonesia ⁸	420	(4.1)	424 ²	(3.9)	391 ²	(3.8)	430 ²	(4.0)	431 ²	(3.8)	454 ²	(3.4)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Iran, Islamic Republic of.....	453	(2.3)	447 ²	(2.6)	445 ²	(2.7)	445 ²	(3.0)	468 ²	(2.9)	487 ³	(2.1)	8	(0.7)	451	(5.6)	42	(1.4)	457	(2.9)	49	(1.7)	452	(2.7)
Israel ⁹	488	(3.1)	491 ³	(3.0)	499 ³	(3.4)	484 ³	(2.9)	485 ³	(3.0)	486 ³	(2.9)	13	(0.9)	480	(4.7)	43	(1.6)	485	(4.3)	44	(2.0)	505	(3.4)
Italy.....	491	(3.1)	498 ³	(3.2)	487 ³	(3.3)	470	(3.2)	513 ³	(3.2)	497 ³	(3.0)	14	(1.0)	489	(5.9)	41	(1.1)	487	(3.7)	45	(1.4)	496	(3.7)
Japan.....	552	(1.7)	549 ³	(2.0)	552 ³	(2.1)	564 ³	(1.9)	530 ³	(2.1)	537 ³	(2.0)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Jordan.....	475	(3.8)	475	(4.0)	478	(4.4)	465 ²	(3.8)	472	(4.0)	492 ³	(3.2)	19	(0.9)	466	(4.2)	52	(1.2)	478	(3.9)	29	(1.5)	499	(5.0)
Korea, Republic of ¹⁰	558	(1.6)	558 ³	(1.6)	529 ³	(2.5)	579 ³	(1.6)	540 ³	(1.9)	544 ³	(1.4)	4	(0.4)	549	(6.3)	26	(1.7)	562	(2.4)	70	(2.0)	559	(1.9)
Latvia.....	513	(2.9)	511 ³	(2.5)	514 ³	(3.2)	512 ³	(2.4)	514 ³	(2.8)	508 ³	(3.3)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Lebanon.....	393	(4.3)	360 ²	(5.0)	433 ²	(4.9)	419 ²	(4.0)	395 ²	(4.0)	374 ²	(5.1)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Lithuania ⁸	519	(2.1)	517	(2.4)	534 ³	(2.3)	519 ³	(2.7)	512 ³	(2.7)	507 ³	(2.0)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Macedonia ⁹	449	(3.6)	448 ²	(3.8)	467 ²	(3.9)	458 ²	(3.1)	440 ²	(4.3)	442 ²	(3.7)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Malaysia.....	510	(3.7)	504 ³	(3.7)	514 ³	(3.8)	519 ³	(3.6)	502 ³	(3.8)	513 ³	(3.2)	20	(1.0)	513	(4.4)	49	(0.9)	510	(3.6)	31	(1.3)	510	(4.6)
Moldova, Republic of.....	472	(3.4)	466 ²	(3.7)	479	(3.9)	479	(3.7)	475	(4.0)	454 ²	(3.8)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Morocco ^{8,11}	396	(2.5)	390 ²	(2.6)	402 ²	(2.7)	410 ²	(2.7)	397 ²	(3.4)	396 ²	(3.3)	14 ⁷	(0.7)	391 ⁷	(5.3)	47 ⁷	(1.1)	396 ⁷	(3.4)	39 ⁷	(1.3)	408 ⁷	(3.5)
Netherlands ⁷	536	(3.1)	536 ³	(3.3)	514 ³	(2.6)	538 ³	(3.4)	534 ³	(3.2)	539 ³	(2.8)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
New Zealand.....	520	(5.0)	523 ³	(5.1)	501 ³	(5.6)	515 ³	(4.7)	525 ³	(4.8)	525 ³	(3.9)	10	(1.3)	519	(6.2)	41	(1.6)	531	(6.9)	48	(2.0)	518	(5.1)
Norway.....	494	(2.2)	496 ³	(2.5)	485 ³	(3.0)	488 ³	(2.6)	517 ³	(2.7)	496 ³	(2.2)	13	(0.8)	485	(3.7)	44	(1.2)	493	(3.1)	43	(1.7)	503	(2.3)
Palestinian National Authority.....	435	(3.2)	435 ²	(3.6)	444 ²	(3.9)	432 ²	(3.6)	439 ²	(3.0)	444 ²	(3.7)	21	(1.1)	433	(4.4)	56	(1.3)	442	(3.4)	23	(1.3)	441	(4.8)
Philippines ¹²	377	(5.8)	387 ²	(5.8)	342 ²	(6.1)	380 ²	(4.7)	377 ²	(5.7)	403 ²	(5.4)	17	(0.7)	381	(7.5)	50	(0.8)	379	(5.7)	33	(1.2)	381	(7.2)
Romania.....	470	(4.9)	471	(4.8)	474	(4.9)	473	(4.1)	469	(5.2)	472	(4.7)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Russian Federation.....	514	(3.7)	514 ³	(3.3)	527 ³	(4.0)	511 ³	(3.4)	518 ³	(3.3)	491 ³	(3.2)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Saudi Arabia.....	398	(4.0)	412 ²	(3.9)	382 ²	(4.8)	394 ²	(3.9)	394 ²	(4.0)	410 ²	(3.8)	8	(0.7)	382	(6.0)	61	(1.5)	402	(4.6)	31	(1.7)	403	(4.6)
Scotland ⁷	512	(3.4)	512 ³	(3.3)	499 ³	(3.2)	515 ³	(3.0)	515 ³	(3.8)	511 ³	(3.5)	3	(0.4)	487	(14.2)	27	(1.4)	508	(5.0)	71	(1.5)	517	(3.4)
Serbia ⁸	468	(2.5)	468 ²	(2.6)	474	(3.2)	471	(2.6)	471	(3.0)	457 ²	(2.4)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
Singapore.....	578	(4.3)	569 ³	(4.0)	582 ³	(4.2)	579 ³	(3.4)	549 ³	(3.9)	568 ³	(3.8)	18	(0.7)	595	(4.1)	48	(0.7)	585	(4.4)	34	(0.9)	564	(5.5)

See notes at end of table.

Table 413. Average eighth-grade science scores in content areas and average time spent studying out of school, by country: 2003—Continued

Country or other jurisdiction	Average score by content area						Index of time students spend doing science homework (TSH) in a normal school week ¹					
	Science overall	Life science	Chemistry	Physics	Earth science	Environmental science	High TSH		Medium TSH		Low TSH	
							Percent	Mean score	Percent	Mean score	Percent	Mean score
1	2	3	4	5	6	7	8	9	10	11	12	13
Slovak Republic.....	517 (3.2)	514 ³ (2.9)	519 ³ (3.6)	519 ³ (2.9)	523 ³ (3.3)	509 ³ (2.8)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)
Slovenia.....	520 (1.8)	521 ³ (2.2)	532 ³ (2.6)	509 ³ (1.8)	523 ³ (2.2)	515 ³ (2.2)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)
South Africa.....	244 (6.7)	250 ² (6.0)	285 ² (5.9)	244 ² (6.2)	247 ² (6.3)	261 ² (6.6)	17 (0.7)	234 (9.6)	52 (0.9)	246 (7.9)	32 (0.9)	263 (7.4)
Sweden.....	524 (2.7)	528 ³ (2.7)	526 ³ (2.6)	525 ³ (2.9)	532 ³ (3.3)	499 ³ (2.6)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)
Tunisia.....	404 (2.1)	417 ² (2.0)	413 ² (2.5)	386 ² (2.5)	408 ² (2.0)	436 ² (2.2)	9 (0.6)	398 (4.0)	35 (0.9)	400 (2.8)	56 (1.2)	411 (2.6)
United States ¹¹	527 (3.1)	537 ³ (3.0)	513 ³ (3.2)	515 ³ (2.9)	532 ³ (2.9)	533 ³ (2.9)	13 (0.7)	519 (4.3)	43 (1.4)	530 (3.4)	45 (1.7)	531 (3.7)

—Not available.

†Not applicable.

‡Reporting standards not met.

¹Index based on students' reports on the frequency and amount of science homework they are given. High level indicates more than 30 minutes of science homework assigned 3–4 times a week. Low level indicates no more than 30 minutes of science homework no more than twice a week. Medium level includes all other possible combinations of responses.

²Country average significantly lower than international average.

³Country average significantly higher than international average.

⁴Students were asked about natural science; data pertain to grade 8 physics/chemistry course.

⁵Did not satisfy guidelines for sample participation rates.

⁶SAR = Special Administrative Region.

⁷Met guidelines for sample participation rates only after replacement schools were included.

⁸National Desired Population does not cover all of International Desired Population.

⁹National Defined Population covers less than 90 percent of National Desired Population.

¹⁰Korea tested the same cohort of students as other countries, but later in 2003, at the beginning of the next school year.

¹¹Nearly satisfied guidelines for sample participation rates only after replacement schools were included.

¹²Students study only biology at grade 8.

NOTE: Data are for eighth grade or equivalent in most countries. Possible scores range from 0 to 1,000. Detail may not sum to totals because of rounding. Standard errors appear in parentheses.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 2003, *TIMSS 2003 International Science Report*, by Michael O. Martin et al. (This table was prepared October 2005.)

Table 414. Instructional practices and time spent teaching science in eighth grade, by country: 2003

Country or other jurisdiction	Percent of students who reported doing activity about half the lessons or more						Students' average yearly instructional time in hours				
	Watch the teacher demonstrate an experiment or investigation	Design or plan an experiment or investigation	Conduct an experiment or investigation	Work in small groups on an experiment or investigation	Write explanations about what was observed and why it happened	Relate what is being learned in science to our daily lives	General integrated science	Earth science	Chemistry	Biology	Physics
1	2	3	4	5	6	7	8	9	10	11	12
International average.....	64 (0.2)	49 (0.2)	57 (0.3)	59 (0.3)	66 (0.2)	57 (0.2)	117 (0.7)	55 (0.6)	61 (0.8)	61 (0.8)	68 (0.6)
Australia.....	54 (1.6)	49 (1.7)	60 (2.2)	68 (2.1)	75 (1.5)	42 (1.1)	132 ¹ (3.6)	— (†)	— (†)	— (†)	— (†)
Bahrain.....	83 (0.8)	63 (0.8)	64 (0.8)	66 (1.1)	68 (0.9)	64 (0.9)	119 (1.1)	— (†)	— (†)	— (†)	— (†)
Belgium (Flemish).....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	52 ¹ (3.2)	— (†)	55 ¹ (3.3)	58 ¹ (2.7)
Botswana.....	61 (0.9)	45 (0.8)	48 (1.0)	50 (1.1)	61 (0.9)	71 (0.8)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Bulgaria.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	53 ² (2.2)	63 ² (2.9)	65 ¹ (3.2)	64 ² (3.3)
Chile.....	57 (1.3)	56 (1.4)	54 (1.5)	61 (1.4)	69 (1.0)	62 (0.7)	118 ² (2.2)	— (†)	— (†)	— (†)	— (†)
Chinese Taipei.....	48 ³ (1.1)	24 ³ (0.9)	36 ³ (1.3)	37 ³ (1.5)	37 ³ (1.1)	40 ³ (1.0)	— (†)	— (†)	— ⁴ (†)	— (†)	134 ⁴ (2.0)
Cyprus.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	53 ¹ (0.7)	34 ¹ (1.6)	— (†)	52 ¹ (0.8)
Egypt.....	80 (0.7)	61 (1.0)	62 (1.0)	60 (0.8)	71 (0.7)	73 (0.7)	‡ (†)	— (†)	— (†)	— (†)	— (†)
England.....	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Estonia.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	‡ (†)	55 (2.9)	65 (3.9)	80 (4.8)	59 (1.8)
Ghana.....	73 (1.2)	54 (1.3)	55 (1.3)	54 (1.5)	64 (1.5)	75 (1.0)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Hong Kong, SAR ⁵	66 (1.2)	35 (1.0)	71 (1.5)	75 (1.2)	67 (1.2)	61 (0.8)	103 ¹ (4.0)	— (†)	— (†)	— (†)	— (†)
Hungary.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	58 ¹ (2.5)	59 ¹ (2.1)	61 ¹ (2.8)	57 ¹ (2.5)
Indonesia.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	93 ¹ (3.6)	93 ¹ (3.3)
Iran, Islamic Republic of.....	87 (1.0)	66 (1.4)	77 (1.2)	73 (1.5)	78 (1.0)	70 (1.0)	106 ¹ (3.7)	— (†)	— (†)	— (†)	— (†)
Israel.....	73 (1.6)	56 (1.4)	63 (1.6)	52 (1.8)	76 (1.3)	56 (1.0)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Italy.....	26 (1.3)	16 (0.9)	13 (0.8)	12 (0.8)	32 (1.4)	35 (1.1)	69 ¹ (1.1)	— (†)	— (†)	— (†)	— (†)
Japan.....	66 (1.5)	51 (1.7)	75 (1.7)	79 (1.6)	69 (1.5)	27 (1.1)	99 ² (1.5)	— (†)	— (†)	— (†)	— (†)
Jordan.....	67 (1.5)	56 (1.4)	55 (1.7)	53 (1.6)	66 (1.3)	70 (1.1)	135 (0.8)	— (†)	— (†)	— (†)	— (†)
Korea, Republic of.....	31 (1.0)	14 (0.8)	20 (1.1)	39 (1.3)	44 (1.3)	36 (0.9)	103 ¹ (2.7)	— (†)	— (†)	— (†)	— (†)
Latvia.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	‡ (†)	64 ¹ (4.2)	56 ¹ (4.1)
Lebanon.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Lithuania.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	59 ² (0.4)	65 ² (1.2)	46 ² (3.5)	60 ² (0.8)
Macedonia.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	53 ² (1.4)	64 ² (2.5)	59 ² (2.0)	79 ² (1.5)
Malaysia.....	83 (1.1)	46 (1.3)	71 (1.7)	77 (1.3)	73 (1.0)	72 (1.0)	119 (1.8)	— (†)	— (†)	— (†)	— (†)
Moldova, Republic of.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Morocco.....	82 (1.2)	62 (1.3)	61 ² (1.2)	50 (1.3)	74 (1.0)	65 ² (1.2)	— (†)	— ⁶ (†)	— ⁴ (†)	‡ ⁶ (†)	‡ ⁴ (†)
Netherlands.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	54 ¹ (1.7)	— ⁴ (†)	58 ¹ (1.8)	68 ^{2,4} (2.4)
New Zealand.....	60 (2.0)	50 (2.1)	56 (2.5)	66 (2.3)	73 (1.8)	45 (1.3)	132 (2.4)	— (†)	— (†)	— (†)	— (†)
Norway.....	40 (1.5)	34 (1.6)	49 (2.2)	49 (2.2)	56 (1.9)	31 (0.9)	92 (2.5)	— (†)	— (†)	— (†)	— (†)
Palestinian National Authority.....	70 (1.2)	56 (1.2)	57 (1.0)	54 (1.5)	66 (1.2)	69 (0.9)	101 ¹ (1.8)	— (†)	— (†)	— (†)	— (†)
Philippines ⁷	74 (0.9)	58 (1.2)	57 (1.0)	62 (1.1)	72 (1.0)	76 (0.8)	202 (4.2)	— (†)	— (†)	— (†)	— (†)
Romania.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	60 ² (1.1)	67 ² (2.4)	38 ² (2.6)	67 ² (2.4)
Russian Federation.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	49 ² (0.7)	59 ² (1.2)	49 ² (0.8)	49 ² (0.9)

See notes at end of table.

Table 414. Instructional practices and time spent teaching science in eighth grade, by country: 2003—Continued

Country or other jurisdiction	Percent of students who reported doing activity about half the lessons or more						Students' average yearly instructional time in hours				
	Watch the teacher demonstrate an experiment or investigation	Design or plan an experiment or investigation	Conduct an experiment or investigation	Work in small groups on an experiment or investigation	Write explanations about what was observed and why it happened	Relate what is being learned in science to our daily lives	General integrated science	Earth science	Chemistry	Biology	Physics
1	2	3	4	5	6	7	8	9	10	11	12
Saudi Arabia	68 (1.3)	50 (1.3)	51 (1.4)	43 (1.4)	60 (1.3)	67 (1.0)	106 ¹ (1.6)	— (†)	— (†)	— (†)	— (†)
Scotland.....	69 (1.4)	54 (1.3)	74 (1.4)	81 (1.2)	83 (1.1)	47 (1.0)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Serbia	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	53 ² (2.2)	61 ¹ (3.7)	53 ¹ (1.0)	56 ¹ (2.5)
Singapore	49 (0.9)	31 (0.6)	55 (1.0)	57 (0.8)	68 (0.8)	58 (0.7)	107 (1.9)	— (†)	— (†)	— (†)	— (†)
Slovak Republic	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	66 ² (3.9)	76 ² (3.8)	72 ² (5.2)	70 ² (4.5)
Slovenia	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	59 (1.1)	56 (0.7)	57 ² (0.5)
South Africa	72 (1.1)	64 (1.2)	63 (1.1)	70 (1.1)	73 (0.7)	77 (0.7)	‡ (†)	— (†)	— (†)	— (†)	— (†)
Sweden.....	— (†)	— (†)	— (†)	— (†)	— (†)	— (†)	131 ² (7.6)	— (†)	— (†)	— (†)	— (†)
Tunisia.....	79 (0.7)	65 (1.0)	69 (1.0)	55 (1.2)	73 (0.8)	54 (0.9)	‡ (†)	— (†)	— (†)	— (†)	— (†)
United States.....	57 (1.3)	48 (1.2)	55 (1.4)	65 (1.5)	65 (1.4)	51 (0.9)	135 ¹ (2.2)	— (†)	— (†)	— (†)	— (†)

—Not available.

†Not applicable.

‡Reporting standards not met.

¹Data are available for at least 50 but less than 70 percent of the students.

²Data are available for at least 70 but less than 85 percent of the students.

³Students in Chinese Taipei were asked about natural science; data pertain to grade 8 physics/chemistry course.

⁴Data reported in physics column are for grade 8 physics/chemistry.

⁵SAR = Special Administrative Region.

⁶Data reported in biology column are for grade 8 biology/earth science.

⁷Students study only biology at grade 8.

NOTE: Data are for eighth grade or equivalent in most countries. Standard errors appear in parentheses. Detail may not sum to totals because of rounding.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS) 2003, *TIMSS 2003 International Science Report*, by Michael O. Martin et al. (This table was prepared April 2005.)

Table 415. Number of bachelor's degree recipients per 100 persons of the typical age of graduation, by sex and country: 2002 through 2005

Country	Typical age of graduation	Male and female				Male				Female			
		2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
1	2	3	4	5	6	7	8	9	10	11	12	13	14
OECD countries													
Australia	20–22	50.7	54.8	46.9	59.9	43.0	46.7	37.4	47.9	58.8	63.4	57.0	72.5
Austria	22–23	18.0	19.0	19.6	20.4	17.9	18.7	19.0	19.0	18.1	19.4	20.3	21.8
Belgium (Flemish)	22–24	19.2	—	18.3	18.4	18.7	—	17.5	17.0	19.7	—	19.0	19.8
Canada	22–23	—	—	31.5	33.6	—	—	24.3	25.2	—	—	39.1	42.2
Czech Republic	22–25	15.4	17.3	21.0	26.0	14.3	15.9	18.8	22.6	16.6	18.8	23.4	29.5
Denmark	22–26	34.4	38.6	49.9	52.9	23.4	25.1	35.6	37.2	45.7	52.3	64.4	69.2
Finland	22–28	51.8	55.8	54.7	53.8	37.7	40.4	39.5	38.8	66.4	72.2	70.5	69.7
France	(¹)	39.0	41.5	40.0	—	32.9	34.9	33.4	—	45.3	48.4	46.9	—
Germany	25–26	19.2	19.5	20.6	20.5	19.3	19.3	20.3	20.0	19.1	19.7	20.9	21.1
Greece	21–24	—	—	19.1	23.9	—	—	13.3	16.3	—	—	25.4	32.2
Hungary	(¹)	31.1	33.6	37.3	41.5	23.2	24.6	26.6	29.0	39.3	43.2	48.4	54.5
Iceland	23–25	40.0	44.2	50.5	56.3	27.2	29.4	31.4	33.6	53.1	59.1	70.3	80.5
Ireland	21–24	30.9	36.8	38.6	40.7	25.6	29.7	31.9	33.3	36.2	44.0	45.3	48.0
Italy	22–25	22.4	27.8	40.1	44.8	19.2	24.0	33.3	37.3	25.6	31.6	47.2	52.7
Japan	22–24	34.1	34.4	36.3	36.9	40.2	40.1	41.4	41.3	27.6	28.5	31.0	32.2
Korea, Republic of	(¹)	31.5	31.7	32.3	35.5	31.6	32.1	31.5	34.8	31.3	31.2	33.2	36.2
Mexico	(¹)	16.5	14.3	13.8	15.2	15.6	13.3	13.1	14.5	17.4	15.3	14.4	15.9
Netherlands	22–24	38.6	42.5	42.9	47.2	34.4	36.4	37.2	40.2	42.9	48.7	48.6	54.3
New Zealand	21–24	41.6	39.0	47.6	49.0	31.8	29.1	34.9	36.6	51.3	49.1	61.0	62.0
Norway	22–24	41.1	42.0	43.3	42.1	29.7	30.0	31.5	28.8	52.8	54.2	55.3	55.8
Poland	24–25	—	—	44.4	45.0	—	—	32.6	32.8	—	—	56.6	57.6
Portugal	22–23	—	—	32.9	33.7	—	—	20.4	21.7	—	—	45.6	46.0
Slovak Republic	21–24	—	—	28.3	30.1	—	—	24.4	25.6	—	—	32.4	34.8
Spain	20–22	33.1	32.0	35.2	35.0	26.4	25.5	27.5	27.1	40.0	38.9	43.2	43.3
Sweden	23–26	35.2	38.4	39.9	44.0	26.5	28.6	29.7	30.8	44.1	48.5	50.5	57.6
Switzerland	23–26	20.8	20.9	22.4	25.0	23.3	23.5	24.0	26.1	18.3	18.4	20.9	23.9
Turkey	22–28	—	—	14.0	11.3	—	—	15.2	11.8	—	—	12.7	10.7
United Kingdom	21–23	—	—	39.2	39.8	—	—	34.2	34.1	—	—	44.3	45.7
United States	22–24	36.1	33.4	33.2	34.2	29.7	27.6	27.5	28.1	42.9	39.4	39.2	40.7
Reporting partner economies													
Brazil	(¹)	—	—	15.6	17.5	—	—	11.8	13.3	—	—	19.4	21.6
Chile	(¹)	—	—	25.1	11.5	—	—	22.9	9.7	—	—	27.5	13.4
Estonia	(¹)	—	—	—	28.5	—	—	—	17.6	—	—	—	39.5
Israel	22–26	—	—	32.3	32.9	—	—	25.3	25.7	—	—	39.6	40.2
Russian Federation	(¹)	—	—	—	45.9	—	—	—	—	—	—	—	—
Slovenia	(¹)	—	—	—	21.6	—	—	—	14.3	—	—	—	29.4

—Not available.

¹Typical age of graduation data not available. Estimates calculated using the age range 22–23.
NOTE: Data in this table refer to degrees classified by the Organization for Economic Cooperation and Development (OECD) as International Standard Classification of Education (ISCED) level 5A, first award. This level corresponds to the bachelor's degree in the United States. The recipients per 100 persons ratio relates the number of people of all ages earning bachelor's degrees in a particular year to the number of people in the population at the typical age of graduation. The typical age is based on full-time attendance and normal progression through the edu-

cation system (without repeating a year, taking a year off, etc.); this age varies across countries because of differences in their education systems and differences in program duration. Data for Luxembourg are not shown because tertiary students study for only 1 year in Luxembourg. Some data have been revised from previously published figures.
SOURCE: Organization for Economic Cooperation and Development (OECD), *Education at a Glance*, 2004 through 2007; and Education Online Database, retrieved July 1, 2008, from <http://stats.oecd.org/WBQS/Default.aspx>. (This table was prepared July 2008.)

Table 416. Percentage of bachelor's degrees awarded in mathematics and science, by field and country: Selected years, 1985 through 2005

Country	All mathematics and science degrees ¹						Natural sciences ²						Mathematics and computer science ³						Engineering					
	1985	1990	1995	2000	2004	2005	1985	1990	1995	2000	2004	2005	1985	1990	1995	2000	2004	2005	1985	1990	1995	2000	2004	2005
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OECD countries																								
Australia	—	—	19.3	21.1	24.6	21.1	—	—	9.9	7.6	7.2	5.9	—	—	3.8	5.1	9.7	8.2	—	—	5.6	8.5	7.7	7.0
Austria	16.8	19.6	21.1	25.7	26.0	26.8	5.0	5.3	6.0	5.0	4.8	5.4	4.1	5.2	5.3	3.4	5.6	7.2	7.7	9.0	9.9	17.3	15.6	14.2
Belgium (Flemish)	—	—	—	23.6	25.1	24.7	4.6	—	—	6.4	6.9	5.7	1.7	—	—	2.3	3.1	5.2	—	—	—	14.9	15.1	13.8
Canada	17.1	16.4	16.7	20.0	20.3	20.7	4.9	6.0	6.5	8.1	7.2	6.5	4.5	4.2	3.8	4.3	5.3	5.9	7.7	6.2	6.4	7.6	7.8	8.2
Czech Republic	(⁴)	(⁴)	—	29.5	29.5	26.7	(⁴)	(⁴)	—	4.2	4.8	3.9	(⁴)	(⁴)	—	8.4	4.0	3.8	(⁴)	(⁴)	—	16.9	20.7	19.0
Denmark	—	—	—	10.5	16.4	16.3	6.3	4.4	2.5	6.8	2.7	2.4	—	—	—	3.1	3.4	3.1	16.2	21.7	17.0	0.6	10.3	10.8
Finland	39.3	33.5	37.2	32.2	30.0	30.0	7.7	4.1	4.0	3.9	3.3	2.7	6.3	5.9	6.9	3.3	5.4	5.6	25.3	23.4	26.3	24.9	21.3	21.7
France	—	—	—	30.1	27.1	26.0	—	—	—	12.2	9.0	6.5	—	—	—	5.5	4.7	5.5	—	—	—	12.5	13.4	14.0
Germany ⁵	23.8	31.3	31.6	31.7	30.3	31.3	5.0	7.2	6.7	6.4	6.0	6.3	2.3	3.5	5.2	4.9	7.0	8.1	16.5	20.5	19.7	20.3	17.3	16.9
Greece	—	—	—	—	22.9	25.9	—	—	—	—	—	11.2	8.3	—	—	—	8.2	8.4	—	—	—	—	—	3.6
Hungary	—	—	—	12.6	11.9	11.0	—	—	—	1.1	1.4	1.2	—	—	—	1.2	2.4	2.4	—	—	—	10.4	8.1	7.4
Iceland	—	—	—	16.5	17.1	14.1	—	—	—	6.0	4.5	5.0	—	—	—	4.0	6.8	3.5	—	—	—	6.5	5.8	5.5
Ireland	28.8	34.1	32.3	29.3	26.0	17.7	12.8	14.1	16.9	11.5	7.6	3.5	4.0	6.3	4.7	7.2	8.6	4.4	12.0	13.7	10.7	10.6	9.8	9.9
Italy	19.5	19.7	19.5	27.5	24.9	23.9	8.1	7.6	6.8	5.9	5.1	4.8	3.1	3.9	3.8	3.2	2.5	2.2	8.3	8.3	8.9	18.4	17.3	16.9
Japan	—	—	—	—	—	—	2.4	2.4	3.4	—	—	—	—	—	—	—	—	—	20.3	21.0	19.3	18.9	17.5	17.4
Korea, Republic of	—	—	—	36.9	37.6	37.0	—	—	—	6.3	5.9	5.2	—	—	—	4.3	5.3	5.4	—	—	—	26.3	26.4	26.3
Mexico	—	—	—	23.0	26.9	27.3	—	—	—	2.2	2.6	2.6	—	—	—	6.7	8.9	9.3	—	—	—	14.1	15.5	15.3
Netherlands	21.8	21.1	—	16.2	15.1	14.9	8.5	7.1	—	3.2	2.5	2.5	1.2	1.6	1.6	1.9	4.5	4.6	12.1	12.4	—	11.1	8.2	7.7
New Zealand	20.5	19.5	—	17.8	19.6	19.9	11.7	8.2	—	11.2	6.5	6.7	5.5	5.5	—	1.9	7.8	7.6	3.3	5.8	3.2	4.7	5.3	5.6
Norway	—	12.9	16.8	11.6	16.2	13.7	2.5	2.1	3.1	0.7	0.8	0.8	1.8	0.6	0.5	3.4	6.1	4.7	—	10.2	13.2	7.5	9.3	8.2
Poland	—	—	—	16.7	17.4	17.7	—	—	—	2.7	2.3	2.3	—	—	—	2.0	4.6	5.3	—	—	—	12.0	10.5	10.1
Portugal	—	—	15.0	17.5	—	25.6	6.5	6.7	2.2	1.7	—	6.0	—	—	2.8	3.6	—	6.2	—	10.5	9.9	12.2	—	13.4
Slovak Republic	(⁴)	(⁴)	—	21.9	23.8	24.6	(⁴)	(⁴)	—	2.0	3.6	3.7	(⁴)	(⁴)	—	4.6	4.9	4.4	(⁴)	(⁴)	—	15.3	15.4	16.5
Spain	13.9	15.0	18.2	22.7	24.5	24.1	5.5	5.7	4.3	5.3	4.4	4.2	1.3	2.6	4.5	4.3	4.9	5.2	7.0	6.7	9.4	13.1	15.2	14.7
Sweden	15.4	24.0	26.4	27.7	31.5	26.9	2.6	4.1	3.9	3.7	4.1	3.6	1.6	4.7	5.5	3.7	4.2	4.0	11.3	15.2	17.0	20.3	23.2	19.2
Switzerland	20.2	23.0	22.3	25.1	24.5	24.2	10.3	11.2	10.4	6.0	6.7	6.9	2.1	3.7	3.7	1.8	5.0	4.7	7.9	8.1	8.3	17.3	12.8	12.7
Turkey	23.0	20.6	20.9	24.1	16.9	22.3	3.6	4.6	5.1	7.4	4.9	6.1	1.6	2.1	2.7	3.6	3.0	4.1	17.8	13.8	13.1	13.1	9.0	12.0
United Kingdom	—	—	—	28.5	27.2	26.0	—	—	—	12.5	9.4	9.2	—	—	—	5.8	8.8	8.3	—	—	—	10.2	9.0	8.4
United States	21.7	16.9	—	17.1	15.8	16.7	6.3	5.1	—	6.6	4.4	5.8	5.5	4.0	3.3	3.9	5.2	4.8	9.8	7.8	6.7	6.6	6.2	6.2
Reporting partner economies																								
Brazil	—	—	—	—	13.4	11.4	—	—	—	—	3.2	3.2	—	—	—	—	4.4	3.5	—	—	—	—	5.8	4.8
Chile	—	—	—	—	22.1	22.9	—	—	—	—	2.9	3.2	—	—	—	—	4.1	2.6	—	—	—	—	15.0	17.2
Estonia	(⁴)	(⁴)	—	—	—	23.8	(⁴)	(⁴)	—	—	—	6.3	(⁴)	(⁴)	—	—	6.2	(⁴)	(⁴)	(⁴)	(⁴)	—	—	11.3
Israel	—	—	—	19.0	26.2	26.7	—	—	—	3.1	4.8	5.1	—	—	—	6.8	8.7	7.5	—	—	—	9.1	12.6	14.1
Russian Federation	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—
Slovenia	(⁴)	(⁴)	—	—	—	17.7	(⁴)	(⁴)	—	—	—	4.1	(⁴)	(⁴)	—	—	—	2.0	(⁴)	(⁴)	—	—	—	11.7

—Not available.

¹Includes life sciences, physical sciences, mathematics/statistics, computer science, and engineering.²Includes life sciences and physical sciences.³Includes mathematics/statistics and computer science.⁴Country did not exist in its current form in the given year.⁵Data for 1985 are for the former West Germany.

NOTE: Data in this table refer to degrees classified by the Organization for Economic Cooperation and Development (OECD) as International Standard Classification of Education (ISCED) level 5A, first award. This level corresponds to the bachelor's degree in the United States. Data for Luxembourg are not shown because tertiary students study for only 1 year in Luxembourg. Some data have been revised from previously published figures.

SOURCE: Organization for Economic Cooperation and Development (OECD), Education Online Database. Retrieved July 9, 2008, from <http://stats.oecd.org/WBOS/Default.aspx>. (This table was prepared July 2008.)

Table 417. Percentage of graduate degrees awarded in mathematics and science, by field and country: Selected years, 1985 through 2005

Country	All mathematics and science degrees ¹						Natural sciences ²						Mathematics and computer science ³						Engineering						
	1985	1990	1996	2000	2004	2005	1985	1990	1996	2000	2004	2005	1985	1990	1996	2000	2004	2005	1985	1990	1996	2000	2004	2005	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
OECD countries																									
Australia	—	—	14.0	15.2	17.9	20.0	—	—	5.4	4.0	2.4	3.1	—	—	3.8	4.9	9.3	8.7	—	—	4.7	6.3	6.1	8.1	
Austria	43.3	37.7	38.8	39.2	34.0	38.6	14.2	12.3	17.5	16.7	12.4	15.0	7.3	4.6	4.7	4.7	5.4	6.6	21.7	20.8	16.6	17.7	16.2	16.9	
Belgium (Flemish)	—	—	—	19.7	19.1	18.7	—	—	—	—	12.7	9.6	9.3	—	—	—	—	4.8	3.3	—	—	—	7.0	4.6	6.2
Canada	19.7	20.0	22.3	22.4	16.6	18.8	7.5	7.8	7.7	7.4	5.5	5.0	2.8	3.4	3.5	4.1	3.1	4.0	9.4	8.8	11.2	10.9	8.0	9.8	
Czech Republic	(⁴)	(⁴)	—	21.0	11.8	26.1	(⁴)	(⁴)	—	5.3	3.2	8.3	(⁴)	(⁴)	—	7.9	2.6	5.6	(⁴)	(⁴)	—	7.7	6.0	12.3	
Denmark	16.0	22.2	12.3	27.8	24.2	23.4	4.1	5.8	3.1	9.8	7.3	7.5	2.7	4.8	1.5	2.5	9.2	9.2	9.2	11.6	7.8	15.4	7.7	6.7	
Finland	47.6	30.6	28.3	28.7	29.6	30.5	24.0	14.7	11.6	11.3	12.1	11.6	6.3	5.4	4.0	2.4	3.0	4.1	17.2	10.5	12.7	14.9	14.5	14.8	
France	—	—	—	26.4	34.4	28.4	—	—	—	13.5	17.1	12.5	—	—	—	5.6	8.5	7.0	—	—	—	7.3	8.8	8.9	
Germany ⁵	27.7	33.2	38.6	38.1	35.1	30.9	18.7	23.5	25.5	24.9	22.1	14.8	1.8	2.3	3.5	3.7	4.0	4.8	7.2	7.4	9.5	9.5	9.1	11.3	
Greece	—	—	—	—	49.3	42.8	—	—	—	—	24.8	22.3	—	—	—	—	11.4	5.3	—	—	—	—	13.1	15.2	
Hungary	—	—	—	9.9	5.6	6.4	—	—	—	1.7	1.8	1.8	—	—	—	0.7	1.4	1.7	—	—	—	7.5	2.3	2.9	
Iceland	—	—	—	35.9	15.9	23.0	—	—	—	19.4	8.8	9.5	—	—	—	#	3.4	3.0	—	—	—	16.5	3.7	10.5	
Ireland	31.4	34.5	23.1	28.1	17.5	16.8	18.9	19.5	10.9	6.9	4.8	4.1	2.6	5.8	3.0	15.2	6.5	6.3	9.9	9.3	9.2	6.0	6.2	6.4	
Italy	—	—	—	11.7	13.7	15.9	—	—	—	0.3	3.4	3.5	—	—	—	5.8	3.5	3.5	—	—	—	5.7	6.8	8.9	
Japan	50.1	54.6	—	—	—	—	9.5	9.5	10.2	—	—	—	—	—	—	—	—	—	40.5	45.1	44.4	41.9	38.0	38.0	
Korea, Republic of	—	—	—	48.4	45.4	43.9	—	—	—	8.5	9.7	9.5	—	—	—	5.7	3.3	2.0	—	—	—	34.3	32.4	32.4	
Mexico	—	—	—	31.4	16.1	14.7	—	—	—	18.9	3.4	3.3	—	—	—	4.1	3.6	3.2	—	—	—	8.4	9.2	8.2	
Netherlands	—	28.9	18.6	—	22.5	18.2	20.6	17.7	4.4	—	6.7	4.1	—	1.5	3.7	—	1.3	2.3	7.5	9.7	10.6	1.2	14.4	11.9	
New Zealand	45.1	22.6	16.7	20.5	17.2	16.6	24.6	13.8	12.7	11.6	7.4	7.2	5.4	4.7	1.1	1.4	5.6	5.2	15.1	4.0	3.0	7.5	4.1	4.2	
Norway	40.1	33.4	38.3	22.0	16.5	25.8	17.9	8.0	8.7	14.9	7.6	7.8	3.5	2.1	1.9	4.6	5.8	11.9	18.7	23.3	27.7	2.5	3.0	6.1	
Poland	—	—	—	3.3	4.9	8.7	—	—	—	0.7	1.0	1.5	—	—	—	0.7	1.4	3.7	—	—	—	1.9	2.4	3.5	
Portugal	—	—	—	39.3	40.7	33.8	—	—	—	11.7	15.2	12.0	—	—	—	9.4	10.9	10.0	—	—	—	18.2	14.6	11.9	
Slovak Republic	(⁴)	(⁴)	—	38.1	34.5	36.8	(⁴)	(⁴)	—	12.6	12.1	10.8	(⁴)	(⁴)	—	4.7	4.4	4.2	(⁴)	(⁴)	—	20.9	18.0	21.8	
Spain	35.6	26.9	36.0	36.1	34.9	37.5	28.6	19.7	24.8	23.9	22.7	23.8	1.8	1.4	4.1	5.4	4.8	4.6	5.1	5.7	7.1	6.8	7.4	9.1	
Sweden	48.0	48.5	32.3	40.5	32.5	23.7	21.2	19.4	9.2	14.3	10.6	8.0	6.8	9.2	5.9	4.0	4.2	2.8	20.0	19.9	17.1	22.2	17.7	12.9	
Switzerland	30.7	30.2	40.1	42.7	26.6	32.0	20.3	22.0	25.8	11.7	10.6	11.7	2.8	1.7	4.1	19.5	2.4	3.4	7.6	6.5	10.1	11.6	13.6	16.9	
Turkey	35.8	24.0	—	25.7	19.9	21.4	6.6	7.6	—	7.6	6.1	6.7	2.8	3.3	—	3.0	2.8	3.4	26.3	13.2	—	15.2	10.9	11.2	
United Kingdom	—	—	—	21.7	19.8	20.3	—	—	—	7.4	5.7	5.5	—	—	—	5.0	5.9	5.7	—	—	—	9.2	8.2	9.0	
United States	13.5	14.5	13.8	13.0	12.5	13.5	4.5	4.2	4.0	3.4	1.9	3.3	2.8	3.4	3.2	3.4	3.8	3.5	6.3	6.9	6.7	6.2	6.8	6.7	
Reporting partner economies																									
Brazil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chile	—	—	—	—	—	8.5	—	—	—	—	—	—	2.2	—	—	—	—	1.6	—	—	—	—	—	4.6	
Estonia	(⁴)	(⁴)	—	—	—	23.9	(⁴)	(⁴)	—	—	—	—	10.0	(⁴)	(⁴)	—	—	5.0	(⁴)	(⁴)	—	—	—	8.9	
Israel	—	—	—	18.1	17.7	17.9	—	—	—	9.2	8.9	8.9	—	—	—	2.8	3.3	3.2	—	—	—	6.1	5.5	5.9	
Russian Federation	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—	(⁴)	(⁴)	—	—	—	—	
Slovenia	(⁴)	(⁴)	—	—	—	24.2	(⁴)	(⁴)	—	—	—	—	6.4	(⁴)	(⁴)	—	—	4.2	(⁴)	(⁴)	—	—	—	13.6	

—Not available.

#Rounds to zero.

¹Includes life sciences, physical sciences, mathematics/statistics, computer science, and engineering.²Includes life sciences and physical sciences.³Includes mathematics/statistics and computer science.⁴Country did not exist in its current form in the given year.⁵Data for 1985 are for the former West Germany.

NOTE: Data in this table refer to degrees classified by the Organization for Economic Cooperation and Development (OECD) as International Standard Classification of Education (ISCED) level 5A, second award, and as ISCED 6. ISCED 5A, second award, corresponds to master's and first-professional degrees in the United States, and ISCED 6 corresponds to doctor's degrees. Data for Luxembourg are not shown because tertiary students study for only 1 year in Luxembourg. Some data have been revised from previously published figures.

SOURCE: Organization for Economic Cooperation and Development (OECD), Education Online Database. Retrieved July 14, 2008, from <http://stats.oecd.org/WBOS/Default.aspx>. (This table was prepared July 2008.)

Table 418. Public and private education expenditures per student, by level of education and country: Selected years, 2000 through 2005

Country	Elementary education				Secondary education				Higher education			
	2000	2003	2004	2005	2000	2003	2004	2005	2000	2003	2004	2005
1	2	3	4	5	6	7	8	9	10	11	12	13
Current dollars												
Australia.....	\$4,967	\$5,494	\$5,776	\$5,992	\$6,894	\$7,788	\$8,160	\$8,408	\$12,854	\$12,406	\$14,036	\$14,579
Austria.....	6,560	7,139	7,669	8,259	8,578	8,943	9,446	9,751	10,851	12,344	13,959	14,775
Belgium.....	4,310	6,180	6,636	6,648	6,889 ¹	7,708 ¹	7,751 ¹	7,731 ¹	10,771	11,824	11,842	11,960
Canada.....	—	—	—	—	5,947 ²	—	7,837 ²	—	14,983	—	—	—
Czech Republic.....	1,827	2,273	2,791	2,812	3,239	4,088	4,779	4,847	5,431	6,774	6,752	6,649
Denmark.....	7,074	7,814	8,081	8,513	7,726	8,183	8,849	9,407 ¹	11,981	14,014	15,225	14,959
Finland.....	4,317	5,321	5,581	5,557	6,094 ¹	7,402 ¹	7,441 ¹	7,324 ¹	8,244	12,047	12,505	12,285
France.....	4,486	4,939	5,082	5,365	7,636	8,653	8,737	8,927	8,373	10,704	10,668	10,995
Germany.....	4,198	4,624	4,948	5,014	6,826	7,173	7,576	7,636	10,898	11,594	12,255	12,446
Greece.....	3,318 ^{3,4}	4,218 ⁴	4,595 ⁴	5,146 ⁴	3,859 ³	4,954	5,213	8,423	3,402 ³	4,924	5,593	6,130
Hungary ³	2,245	3,286	3,841	4,438	2,446	3,948	3,692	3,806	7,024	8,576	7,095	6,244
Iceland.....	5,854 ³	7,752	8,434	9,254	6,518 ³	6,898	7,721	8,411	7,994 ³	8,023	8,881	9,474
Ireland.....	3,385	4,760	5,422	5,732	4,638	6,374	7,110	7,500	11,083	9,341	10,211	10,468
Italy ³	5,973	7,366	7,390	6,835	7,218	7,938	7,843	7,648	8,065	8,764	7,723	8,026
Japan.....	5,507	6,350	6,551	6,744	6,266	7,283	7,615	7,908	10,914	11,556	12,193	12,326
Korea, Republic of.....	3,155	4,098	4,490	4,691	4,069	6,410	6,761	6,645	6,118	7,089	7,068	7,606
Luxembourg.....	—	11,481 ⁴	13,458 ^{3,4}	14,079 ^{3,4}	—	17,078	17,876 ³	18,845 ³	—	—	—	—
Mexico.....	1,291	1,656	1,694	1,913	1,615	1,918	1,922	2,180	4,688	5,774	5,778	6,402
Netherlands.....	4,325	5,836	6,222	6,266	5,912	6,996	7,541	7,741	11,934	13,444	13,846	13,883
New Zealand.....	—	4,841	5,190	4,780	—	5,693	6,299	6,278	—	8,832	8,866	10,262
Norway.....	6,550	7,977	8,533	9,001	8,476 ^{1,3}	10,919 ¹	11,109 ¹	10,995 ¹	13,353 ³	13,772	14,997	15,552
Poland.....	2,105 ³	2,859 ³	3,130 ³	3,312 ³	—	2,951 ³	2,889 ³	3,055	3,222 ³	4,589 ³	4,412 ³	5,593 ³
Portugal.....	3,672	4,503 ³	4,681 ³	4,871 ³	5,349	6,094 ³	6,168 ³	6,473 ³	4,766	7,200 ³	7,741 ³	8,787 ³
Slovak Republic.....	1,308	2,020	2,073	2,806	1,927	2,401	2,744	2,716	4,949	4,678	6,535	5,783
Spain.....	3,941	4,829	4,965	5,502	5,185 ¹	6,418 ¹	6,701	7,211	6,666	8,943	9,378	10,089
Sweden.....	6,336	7,291	7,469	7,532	6,339	7,662	8,039	8,198	15,097	16,073	16,218	15,946
Switzerland ³	6,631	8,131	8,570	8,469	9,780	12,209	12,176	12,861	18,450	25,900	21,966	21,734
Turkey ³	—	869	1,120	—	—	1,428	1,808	—	4,121	—	—	—
United Kingdom.....	3,877	5,851	5,941	6,361	5,991 ¹	7,290 ¹	7,090 ¹	7,167 ¹	9,657	11,866	11,484	13,506
United States.....	6,995	8,305	8,805	9,156	8,855	9,590	9,938	10,390	20,358	24,074	22,476	24,370
Constant 2007 dollars												
Australia.....	\$5,981	\$6,192	\$6,340	\$6,362	\$8,301	\$8,778	\$8,957	\$8,927	\$15,477	\$13,983	\$15,408	\$15,479
Austria.....	7,899	8,046	8,418	8,768	10,329	10,080	10,369	10,353	13,065	13,913	15,323	15,687
Belgium.....	5,190	6,966	7,285	7,058	8,295 ¹	8,688 ¹	8,508 ¹	8,208 ¹	12,969	13,327	12,999	12,698
Canada.....	—	—	—	—	7,161 ²	—	8,603 ²	—	18,041	—	—	—
Czech Republic.....	2,200	2,562	3,064	2,985	3,900	4,608	5,246	5,146	6,539	7,635	7,412	7,059
Denmark.....	8,518	8,807	8,871	9,039	9,303	9,223	9,714	9,988 ¹	14,426	15,795	16,713	15,882
Finland.....	5,198	5,997	6,126	5,900	7,338 ¹	8,343 ¹	8,168 ¹	7,775 ¹	9,926	13,578	13,727	13,043
France.....	5,401	5,567	5,579	5,696	9,194	9,753	9,591	9,477	10,082	12,065	11,711	11,674
Germany.....	5,055	5,212	5,432	5,323	8,219	8,085	8,316	8,107	13,122	13,068	13,453	13,214
Greece.....	3,995 ^{3,4}	4,754 ⁴	5,044 ⁴	5,463 ⁴	4,647 ³	5,584	5,722	8,942	4,096 ³	5,550	6,140	6,509
Hungary ³	2,703	3,704	4,216	4,712	2,945	4,450	4,053	4,041	8,457	9,666	7,788	6,630
Iceland.....	7,049 ³	8,737	9,258	9,825	7,848 ³	7,775	8,476	8,930	9,625 ³	9,043	9,749	10,059
Ireland.....	4,076	5,365	5,952	6,086	5,585	7,184	7,805	7,963	13,345	10,528	11,209	11,114
Italy ³	7,192	8,302	8,112	7,257	8,691	8,947	8,609	8,120	9,711	9,878	8,478	8,521
Japan.....	6,631	7,157	7,191	7,160	7,545	8,209	8,359	8,396	13,141	13,025	13,385	13,087
Korea, Republic of.....	3,799	4,619	4,929	4,980	4,899	7,225	7,422	7,055	7,367	7,990	7,759	8,075
Luxembourg.....	—	12,940 ⁴	14,773 ^{3,4}	14,948 ^{3,4}	—	19,249	19,623 ³	20,008 ³	—	—	—	—
Mexico.....	1,554	1,867	1,860	2,031	1,945	2,162	2,110	2,314	5,645	6,508	6,343	6,797
Netherlands.....	5,208	6,578	6,830	6,653	7,119	7,885	8,278	8,218	14,369	15,153	15,199	14,740
New Zealand.....	—	5,456	5,697	5,075	—	6,417	6,915	6,666	—	9,955	9,732	10,895
Norway.....	7,887	8,991	9,367	9,556	10,206 ^{1,3}	12,307 ¹	12,195 ¹	11,673 ¹	16,078 ³	15,523	16,463	16,512
Poland.....	2,535 ³	3,222 ³	3,436 ³	3,516 ³	—	3,326 ³	3,171 ³	3,244	3,880 ³	5,172 ³	4,843 ³	5,938 ³
Portugal.....	4,421	5,075 ³	5,138 ³	5,172 ³	6,441	6,869 ³	6,771 ³	6,873 ³	5,739	8,115 ³	8,497 ³	9,330 ³
Slovak Republic.....	1,575	2,277	2,276	2,979	2,320	2,706	3,012	2,883	5,959	5,273	7,174	6,140
Spain.....	4,745	5,443	5,450	5,842	6,243 ¹	7,234 ¹	7,356	7,656	8,026	10,080	10,294	10,712
Sweden.....	7,629	8,218	8,199	7,997	7,633	8,636	8,825	8,704	18,178	18,116	17,803	16,930
Switzerland ³	7,984	9,165	9,408	8,991	11,776	13,761	13,366	13,654	22,215	29,192	24,113	23,075
Turkey ³	—	979	1,229	—	—	1,610	1,985	—	4,962	—	—	—
United Kingdom.....	4,668	6,595	6,522	6,753	7,214 ¹	8,217 ¹	7,783 ¹	7,609 ¹	11,628	13,374	12,606	14,340
United States.....	8,423	9,361	9,665	9,721	10,662	10,809	10,909	11,031	24,513	27,134	24,672	25,874

—Not available.

¹Includes postsecondary non-higher-education.

²Includes elementary education.

³Public institutions only.

⁴Includes preprimary education.

NOTE: Data adjusted to U.S. dollars using the purchasing-power-parity (PPP) index. Constant dollars based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor.

SOURCE: Organization for Economic Cooperation and Development (OECD), *Education at a Glance*, 2002 through 2008. (This table was prepared July 2008.)

Table 419. Total public direct expenditures on education as a percentage of the gross domestic product, by level and country: Selected years, 1985 through 2005

Country	All institutions							Primary and secondary institutions							Higher education institutions						
	1985	1990	1995	2000 ¹	2003 ¹	2004 ¹	2005 ¹	1985	1990	1995	2000 ¹	2003 ¹	2004 ¹	2005 ¹	1985	1990	1995	2000 ¹	2003 ¹	2004 ¹	2005 ¹
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Average for OECD countries	5.3	4.9	4.9	5.2	5.3	5.0	5.0	3.7	3.5	3.5	3.5	3.7	3.5	3.5	1.1	1.0	0.9	1.2	1.1	1.1	1.0
Average for all countries listed	5.3	4.9	4.9	5.1	5.3	5.0	4.9	3.7	3.5	3.5	3.5	3.7	3.5	3.5	1.1	1.0	0.9	1.2	1.1	1.0	1.0
OECD countries																					
Australia	5.4	4.3	4.5	5.1	4.3	4.3	4.3	3.5	3.2	3.2	3.9	3.4	3.5	3.4	1.7	1.0	1.2	1.2	0.8	0.8	0.8
Austria	5.6	5.2	5.3	5.8	5.2	5.0	5.2	3.7	3.6	3.8	3.8 ²	3.7	3.6	3.5	1.0	1.0	0.9	1.4 ²	1.1	1.1	1.2
Belgium (Flemish)	6.3	4.8	5.0	5.2	5.9	5.8	5.8	4.0	3.4	3.4	3.4 ³	4.0	4.0	3.9	1.0	0.8	0.9	1.3 ³	1.2	1.2	1.2
Canada	6.1	5.4	5.8	5.5	—	4.7	—	4.1	3.7	4.0	3.3 ⁴	—	3.2 ⁴	—	2.0	1.5	1.5	2.0 ⁴	—	1.4 ⁴	—
Czech Republic	(⁵)	(⁵)	4.8	4.4	4.3	4.2	4.1	(⁵)	(⁵)	3.4	3.0 ³	2.9	2.8	2.7	(⁵)	(⁵)	0.7	0.8 ³	0.9	0.9	0.8
Denmark	6.2	6.2	6.5	8.4	6.7	6.9	6.8	4.7	4.4	4.2	4.8 ^{2,6}	4.1 ⁶	4.2 ⁶	4.4 ⁶	1.2	1.3	1.3	2.5 ^{2,6}	1.7 ⁶	1.8 ⁶	1.6 ⁶
Finland	5.8	6.4	6.6	6.0	6.0	6.0	5.9	—	4.3	4.2	3.6	3.9	3.9	3.8	—	1.2	1.7	2.0	1.7	1.7	1.7
France	—	5.1	5.8	5.8	5.8	5.7	5.6	—	3.7	4.1	4.1	4.0	3.9	3.8	—	0.8	1.0	1.0	1.1	1.2	1.1
Germany ⁷	4.6	—	4.5	4.5	4.4	4.3	4.2	2.8	—	2.9	3.0	2.9	2.8	2.8	1.0	—	1.0	1.1	1.0	1.0	0.9
Greece	—	—	3.7	3.8	4.0	3.3	4.0	—	—	2.8	2.7 ²	2.6 ⁸	2.1 ⁸	2.5 ⁸	—	—	0.8	0.9 ²	1.2	1.1	1.4
Hungary	—	5.0	4.9	4.9	5.5	5.1	5.1	—	3.5	3.3	3.1	3.5	3.3	3.3	—	0.8	0.8	1.0	1.0	0.9	0.9
Iceland	—	4.3	4.5	6.0	7.5	7.2	7.2	—	3.3	3.4	4.7 ²	5.2 ⁶	5.2 ⁶	5.2 ⁶	—	0.6	0.7	1.1 ²	1.1 ⁶	1.1 ⁶	1.1 ⁶
Ireland	5.6	4.7	4.7	4.4	4.1	4.3	4.3	4.0	3.3	3.3	3.0 ³	3.1	3.3	3.3	0.9	0.9	0.9	1.3 ³	1.0	1.0	1.0
Italy	4.7	5.8	4.5	4.6	4.6	4.4	4.3	3.2	4.1	3.2	3.2	3.5	3.3	3.2	0.6	1.0	0.7	0.8	0.7	0.7	0.6
Japan	—	3.6	3.6	3.6	3.5	3.5	3.4	—	2.9	2.8	2.7 ⁶	2.7 ⁶	2.7 ⁶	2.6 ⁶	—	0.4	0.4	0.5 ⁶	0.5 ⁶	0.5 ⁶	0.5 ⁶
Korea, Republic of	—	—	3.6	4.3	4.6	4.4	4.3	—	—	3.0	3.3	3.5	3.5	3.4	—	—	0.3	0.7	0.6	0.5	0.6
Luxembourg	—	—	4.3	—	—	—	—	—	—	4.2	—	4.0 ⁸	3.8 ⁸	3.7 ⁸	—	—	0.1	—	—	—	—
Mexico	—	3.2	4.6	4.9	5.6	5.2	5.3	—	2.2	3.4	3.4	3.8	3.6	3.7	—	0.7	0.8	0.9	0.9	0.9	0.9
Netherlands	6.2	5.7	4.6	4.8	4.6	4.6	4.6	4.1	3.6	3.0	3.2	3.2	3.3	3.3	1.5	1.6	1.1	1.3	1.1	1.0	1.0
New Zealand	—	5.5	5.3	7.0	5.7	5.6	5.2	—	3.9	3.8	4.9	4.5	4.4	4.0	—	1.2	1.1	1.7	0.9	0.9	0.9
Norway	5.1	6.2	6.8	6.7	6.5	6.2	5.7	4.0	4.1	4.1	3.9	4.6	4.2	3.8	0.7	1.1	1.5	1.7	1.5	1.4	1.3
Poland	—	—	5.2	5.2	5.8	5.4	5.4	—	—	3.3	3.8 ²	4.2	3.7	3.7	—	—	0.8	0.8 ²	1.0	1.1	1.2
Portugal	—	—	5.4	5.7	5.8	5.3	5.3	—	—	4.1	4.2 ²	4.2	3.8	3.8	—	—	1.0	1.0 ²	1.0	0.9	0.9
Slovak Republic	(⁵)	(⁵)	4.6	4.2	4.3	4.0	3.7	(⁵)	(⁵)	—	2.7 ^{2,3}	2.8 ⁹	2.6 ⁹	2.5 ⁹	(⁵)	(⁵)	—	0.7 ^{2,3}	0.8 ⁹	0.9 ⁹	0.7 ⁹
Spain	3.6	4.2	4.8	4.4	4.2	4.2	4.1	2.9	3.2	3.5	3.1	2.8	2.8	2.7	0.4	0.7	0.8	1.0	0.9	0.9	0.9
Sweden	—	5.3	6.6	7.4	6.5	6.5	6.2	—	4.4	4.4	4.9 ³	4.5	4.5	4.2	—	1.0	1.6	2.0 ³	1.6	1.6	1.5
Switzerland	4.9	5.0	5.5	5.4	6.0	5.9	5.6	4.0	3.7	4.1	3.9	4.0	3.9	3.9	0.9	1.0	1.1	1.2	1.6	1.6	1.4
Turkey	—	3.2	2.2	3.5	—	3.8	—	—	2.3	1.4	2.4 ²	—	2.9	—	—	0.9	0.8	1.1 ²	1.1	0.9	—
United Kingdom	4.9	4.3	4.6	4.8	5.1	5.0	5.0	3.1	3.5	3.8	3.4	4.0	3.8	3.8	1.0	0.7	0.7	1.0	0.8	0.8	0.9
United States	4.7	5.3	5.0	5.0	5.4	5.1	4.8	3.2	3.8	3.5	3.5 ⁴	3.9	3.7	3.5	1.3	1.4	1.1	1.1 ⁴	1.2	1.0	1.0
Reporting partner economies																					
Brazil	—	—	—	—	—	3.9	4.4	—	—	—	—	—	2.9 ⁹	3.3	—	—	—	—	—	0.7 ⁹	0.8
Chile	—	—	—	—	—	3.5	3.3	—	—	—	—	—	2.8	2.7	—	—	—	—	—	0.3	0.3
Estonia	(⁵)	(⁵)	—	—	—	4.9	4.7	(⁵)	(⁵)	—	—	—	3.7	3.5	(⁵)	(⁵)	—	—	—	0.9	0.9
Israel	—	—	—	—	7.0	6.6	6.2	—	—	—	—	4.6	4.4	4.2	—	—	—	—	1.3	1.1	1.0
Russian Federation	(⁵)	(⁵)	3.4	3.0	3.7	3.6	3.8	(⁵)	(⁵)	1.9	1.7	2.1	2.0	1.9	(⁵)	(⁵)	0.7	0.5	0.7	0.7	0.8
Slovenia	(⁵)	(⁵)	—	—	—	5.4	5.3	(⁵)	(⁵)	—	—	—	3.9	3.9	(⁵)	(⁵)	—	—	—	1.1	1.0

—Not available.

¹Includes public subsidies to households attributable for educational institutions and direct expenditure on educational institutions from international sources, except where noted.

²Public subsidies to households not included in public expenditure.

³Direct expenditure on education institutions from international sources exceeds 1.5 percent of all public expenditure.

⁴Postsecondary non-higher-education included in higher education.

⁵Country did not exist in its current form in the given year.

⁶Postsecondary non-higher-education included in both secondary and higher education.

⁷Data for 1985 are for the former West Germany.

⁸Preprimary education (for children age 3 and older) is included in primary and secondary education.

⁹Occupation-specific education corresponding to that offered at the associate's degree level in the United States is included in primary and secondary education.

NOTE: Direct public expenditure on educational services includes both amounts spent directly by governments to hire educational personnel and to procure other resources, and amounts provided by governments to public or private institutions, or households. Figures for 1985 also include transfers and payments to private entities, and thus are not strictly comparable with later figures. Some data have been revised from previously published figures.

SOURCE: Organization for Economic Cooperation and Development (OECD), Education Online Database; *Annual National Accounts, Vol. 1, 1997*; and *Education at a Glance, 2006* through 2008. (This table was prepared August 2008.)

Table 420. Foreign students enrolled in institutions of higher education in the United States and other jurisdictions, by continent, region, and selected countries of origin: Selected years, 1980–81 through 2006–07

Continent, region, and country	1980–81		1985–86		1990–91		1995–96		2000–01		2003–04		2004–05		2005–06		2006–07	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Total	311,880	100.0	343,780	100.0	407,530	100.0	453,787	100.0	547,867	100.0	572,509	100.0	565,039	100.0	564,766	100.0	582,984	100.0
Africa	38,180	12.2	34,190	9.9	23,800	5.8	20,844	4.6	34,217	6.2	38,150	6.7	36,100	6.4	36,308	6.4	35,802	6.1
East Africa.....	6,280	2.0	6,730	2.0	7,590	1.9	7,596	1.7	13,516	2.5	14,831	2.6	13,675	2.4	13,635	2.4	13,374	2.3
Kenya.....	1,930	0.6	1,720	0.5	2,360	0.6	2,934	0.6	6,229	1.1	7,381	1.3	6,728	1.2	6,559	1.2	6,349	1.1
Central Africa.....	1,130	0.4	1,540	0.4	1,650	0.4	1,346	0.3	1,859	0.3	2,331	0.4	2,505	0.4	2,825	0.5	3,257	0.6
North Africa.....	7,310	2.3	5,980	1.7	4,540	1.1	3,422	0.8	5,184	0.9	4,487	0.8	3,898	0.7	3,770	0.7	3,700	0.6
Southern Africa.....	1,480	0.5	2,360	0.7	2,840	0.7	2,657	0.6	3,304	0.6	2,679	0.5	2,240	0.4	2,232	0.4	2,124	0.4
West Africa.....	22,000	7.1	17,580	5.1	7,180	1.8	5,818	1.3	10,346	1.9	13,821	2.4	13,782	2.4	13,846	2.5	13,344	2.3
Nigeria.....	17,350	5.6	13,710	4.0	3,710	0.9	2,093	0.5	3,820	0.7	6,140	1.1	6,395	1.1	6,192	1.1	5,943	1.0
Asia	94,640	30.3	156,830	45.6	229,830	56.4	259,893	57.3	302,058	55.1	324,006	56.6	325,112	57.5	327,785	58.0	344,495	59.1
East Asia.....	51,650	16.6	80,720	23.5	146,020	35.8	166,717	36.7	189,371	34.6	189,874	33.2	192,561	34.1	197,576	35.0	204,023	35.0
China.....	2,770	0.9	13,980	4.1	39,600	9.7	39,613	8.7	59,939	10.9	61,765	10.8	62,523	11.1	62,582	11.1	67,723	11.6
Hong Kong.....	9,660	3.1	10,710	3.1	12,630	3.1	12,018	2.6	7,627	1.4	7,353	1.3	7,180	1.3	7,849	1.4	7,722	1.3
Japan.....	13,500	4.3	13,360	3.9	36,610	9.0	45,531	10.0	46,497	8.5	40,835	7.1	42,215	7.5	39,712	6.9	35,282	6.1
Korea, Republic of.....	6,150	2.0	18,660	5.4	23,360	5.7	36,231	8.0	45,685	8.3	52,484	9.2	53,558	9.4	59,022	10.5	62,982	10.7
Taiwan.....	19,480	6.2	23,770	6.9	33,530	8.2	32,702	7.2	28,566	5.2	26,178	4.6	25,914	4.6	27,876	4.9	29,094	5.0
South and Central Asia.....	14,540	4.7	25,800	7.5	42,370	10.4	45,401	10.0	71,705	13.1	98,138	17.1	97,961	17.1	94,965	16.8	104,457	17.9
India.....	9,250	3.0	16,070	4.7	28,860	7.1	31,743	7.0	54,664	10.0	79,736	13.9	80,466	14.2	76,503	13.5	83,833	14.4
Nepal.....	250	0.1	390	0.1	670	0.2	1,219	0.3	2,618	0.5	4,384	0.8	4,861	0.9	6,061	1.1	7,754	1.3
Pakistan.....	2,990	1.0	5,440	1.6	7,730	1.9	6,427	1.4	6,948	1.3	7,325	1.3	6,296	1.1	5,759	1.0	5,401	0.9
Southeast Asia.....	28,450	9.1	50,310	14.6	41,440	10.2	47,774	10.5	40,916	7.5	35,994	6.3	34,590	6.1	35,244	6.2	36,015	6.2
Indonesia.....	3,250	1.0	8,210	2.4	9,520	2.3	12,820	2.8	11,625	2.1	8,880	1.6	7,760	1.4	7,575	1.3	7,338	1.3
Malaysia.....	6,010	1.9	23,020	6.7	13,610	3.3	14,015	3.1	7,795	1.4	6,483	1.1	6,142	1.1	5,515	1.0	5,281	0.9
Philippines.....	—	—	3,920	1.1	4,270	1.0	3,127	0.7	3,139	0.6	3,467	0.6	3,531	0.6	3,758	0.7	3,730	0.6
Singapore.....	—	—	3,930	1.1	4,500	1.1	4,098	0.9	4,166	0.8	3,955	0.7	3,769	0.7	3,909	0.7	3,705	0.6
Thailand.....	6,550	2.1	6,940	2.0	7,090	1.7	12,165	2.7	11,187	2.0	8,937	1.6	8,637	1.5	8,765	1.6	8,886	1.5
Vietnam.....	6,490	2.1	3,270	1.0	1,400	0.3	922	0.2	2,022	0.4	3,165	0.6	3,670	0.6	4,597	0.8	6,036	1.0
Europe ¹	25,330	8.1	34,310	10.0	49,640	12.2	67,358	14.8	80,584	14.7	74,134	12.9	85,409	15.1	84,697	15.0	82,731	14.2
France.....	3,310	—	3,680	1.1	5,630	1.4	5,710	1.3	7,273	1.3	6,818	1.2	6,555	1.2	6,640	1.2	6,704	1.1
Germany ²	—	—	4,730	1.4	7,000	1.7	9,017	2.0	10,128	1.8	8,745	1.5	8,640	1.5	8,829	1.6	8,656	1.5
Greece.....	3,750	1.2	4,440	1.3	4,360	1.1	3,365	0.7	2,788	0.5	2,126	0.4	2,035	0.4	2,088	0.4	1,986	0.3
Spain.....	—	—	1,740	0.5	4,300	1.1	4,809	1.1	4,156	0.8	3,631	0.6	3,512	0.6	3,455	0.6	3,575	0.6
Turkey ¹	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
United Kingdom.....	4,440	1.4	5,940	1.7	7,300	1.8	7,799	1.7	8,139	1.5	8,439	1.5	8,236	1.5	8,274	1.5	8,438	1.4
Latin America	49,810	16.0	45,480	13.2	47,580	11.7	47,253	10.4	63,634	11.6	69,658	12.2	66,087	11.7	64,769	11.5	64,579	11.1
Caribbean.....	10,650	3.4	11,100	3.2	12,610	3.1	10,737	2.4	14,423	2.6	15,606	2.7	13,898	2.5	13,855	2.5	13,854	2.4
Central America.....	12,970	4.2	12,740	3.7	15,950	3.9	14,220	3.1	16,764	3.1	19,264	3.4	19,227	3.4	19,709	3.5	19,743	3.4
Mexico.....	6,730	2.2	5,460	1.6	6,740	1.7	8,687	1.9	10,670	1.9	13,329	2.3	13,063	2.3	13,931	2.5	13,826	2.4
South America.....	26,190	8.4	21,640	6.3	19,020	4.7	22,296	4.9	32,447	5.9	34,788	6.1	32,962	5.8	31,205	5.5	30,982	5.3
Brazil.....	—	—	2,840	0.8	3,900	1.0	5,497	1.2	8,846	1.6	7,799	1.4	7,244	1.3	7,009	1.2	7,126	1.2
Colombia.....	—	—	4,010	1.2	3,180	0.8	3,462	0.8	6,765	1.2	7,533	1.3	7,334	1.3	6,835	1.2	6,750	1.2
Venezuela.....	11,750	3.8	7,040	2.0	2,890	0.7	4,456	1.0	5,217	1.0	5,575	1.0	5,279	0.9	4,792	0.8	4,523	0.8
Middle East ¹	84,710	27.2	52,720	15.3	33,420	8.2	30,563	6.7	36,858	6.7	31,852	5.6	17,448	3.1	17,806	3.2	22,321	3.8
Iran.....	47,550	15.2	14,210	4.1	6,260	1.5	2,628	0.6	1,844	0.3	2,321	0.4	2,251	0.4	2,420	0.4	2,795	0.5
Israel.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jordan.....	6,140	2.0	6,590	1.9	4,320	1.1	2,222	0.5	2,187	0.4	1,853	0.3	1,754	0.3	1,733	0.3	1,726	0.3
Kuwait.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lebanon.....	6,770	2.2	7,090	2.1	3,900	1.0	1,554	0.3	2,005	0.4	2,179	0.4	2,040	0.4	1,950	0.3	1,852	0.3
Saudi Arabia.....	10,440	3.3	6,900	2.0	3,590	0.9	4,191	0.9	5,273	1.0	3,521	0.6	3,035	0.5	3,448	0.6	7,886	1.4
Turkey ¹	—	—	2,460	0.7	4,080	1.0	7,678	1.7	10,983	2.0	11,398	2.0	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
North America ³	14,790	4.7	16,030	4.7	18,950	4.6	23,644	5.2	25,888	4.7	27,650	4.8	28,634	5.1	28,699	5.1	28,756	4.9
Canada.....	14,320	4.6	15,410	4.5	18,350	4.5	23,005	5.1	25,279	4.6	27,017	4.7	28,140	5.0	28,202	5.0	28,280	4.9
Oceania	4,180	1.3	4,030	1.2	4,230	1.0	4,202	0.9	4,624	0.8	4,534	0.8	4,481	0.8	4,702	0.8	4,300	0.7
Australia.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified ⁴	240	0.1	190	0.1	80	#	30	#	10	#	19	#	37	#	#	#	#	#

—Not available.

#Rounds to

