

Average Performance of U.S. Students Relative to International Peers on the Most Recent International Assessments in Reading, Mathematics, and Science: Results from PIRLS 2006, TIMSS 2007, and PISA 2009

The most recent U.S. results on international assessments of reading, mathematics, and science literacy are those from the the 2006 PIRLS (Progress in International Reading Literacy Study), the 2007 TIMSS (Trends in International Mathematics and Science Study), and the 2009 PISA (Program for International Student Assessment).

The following analysis used the International Data Explorer, a web-based data tool on the NCES website that allows users to produce their own statistical analyses online, to compare the average scores of U.S. students in each subject and at each grade level with their peers from around the world. The results below are based on comparisons of different countries' education systems' average scores with the international average on each assessment. For more information about the calculation of the international averages, see About This Analysis.

Results:

At grade 4, U.S. students performed above the international average in all three subjects and at grade 8, U.S. students performed above the international average in both mathematics and science (reading is not assessed internationally at grade 8). However, at age 15, U.S. students performed below the international average in mathematics literacy and not different from the international average in reading and science literacy.

>Other systems with average scores above the international average in at least one subject at grade 4 but below the international average at age 15 included Austria, Bulgaria, Israel, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, the Russian Federation, Slovenia, the Slovak Republic, Spain, and Sweden.

>U.S. states Massachusetts and Minnesota (the only states that reported separately in the last round of international assessments) each had average scores above the international average in: mathematics and science at both grades 4 and 8.

Education systems that scored above the international average in all subjects and age or grade levels they assessed included Hong Kong-China and Singapore, which participated in the most recent assessments in each subject offered at all three age levels, as well as Belgium, Canada, Estonia, Finland, Japan, Korea, Liechtenstein, the Netherlands, Shanghai-China, and Switzerland, which did not assess every age or grade level in all subjects offered.

>Australia, Chinese Taipei, Germany, and Poland scored above the international average in all subjects and age levels they assessed, except one in which they were not measurably different.

This report can be found online at:
<http://nces.ed.gov/surveys/international/reports/2011-mrs.asp>



About the NCES International Data Explorer

The NCES International Data Explorer, a web-based data tool, enables users to quickly and easily produce tables, charts, and maps comparing the performance and educational contexts of students in the United States and countries around the world.

The International Data Explorer is available at:

<http://nces.ed.gov/surveys/international/IDE>

About This Analysis

This analysis compares the mean scores of participating education systems (in most cases countries, but in some cases sub-national or non-national entities) with the international average score.

- For reading at grade 4, the international average is the PIRLS Scale Average, which is the mean score of the participating countries in the first round of PIRLS (2001). PIRLS anchored its scale average in its first round in order to facilitate comparisons over time.
- For mathematics and science at grades 4 and 8, the international average is the TIMSS Scale Average, the mean score of participating countries in the first round of TIMSS (1995). TIMSS anchored its scale average in its first round in order to facilitate comparisons over time.
- For mathematics, reading, and science at age 15, the international average is the PISA 2009 mean score of the OECD (Organization for Economic Cooperation and Development) countries, which is a group of 34 industrialized countries.

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About the Data Sources

PIRLS: The Progress in International Reading Literacy Study is an international comparative study of the reading literacy of fourth-grade students. The most recent PIRLS data are from 2006, when 45 education systems participated. For more information on PIRLS, please visit: <http://nces.ed.gov/surveys/PIRLS>.

TIMSS: The Trends in International Mathematics and Science Study is an international comparative study of the mathematics and science achievement of fourth- and eighth-grade students. The most recent TIMSS data are from 2007, when 36 education systems participated at grade 4 and 48 education systems participated at grade 8. For more information on TIMSS, please visit: <http://nces.ed.gov/TIMSS>.

PISA: The Program for International Student Assessment is an international comparative study of the capabilities of 15-year-old students in mathematics, reading, and science literacy. The most recent PISA data are from 2009, when 65 education systems participated. For more information on PISA, please visit: <http://nces.ed.gov/surveys/PISA>.

READING

**Scale
score**

Grade 4 (PIRLS 2006)

Age 15 (PISA 2009)

600		
590		
580		
570	Russian Fed. (565), Hong Kong-Ch. (564)	
560	Alberta-Ca. (560), Singapore, Br. Columbia-Ca. (558) Luxembourg (557), Ontario-Ca. (555) Italy, Hungary (551)	Shanghai-Ch. (556)
550	Sweden (549), Germany (548) Netherlands, Belgium (Fl.), Bulgaria (547) Denmark (546), Nova Scotia-Ca. (542), Latvia (541)	
540	USA (540) , England-UK (539), Austria (538) Lithuania (537), Ch. Taipei (535) Quebec-Ca. (533), New Zealand (532), Slovak Rep. (531)	Rep. of Korea (539) Finland (536) Hong Kong-Ch. (533)
530	Scotland-UK (527) France, Slovenia (522)	Singapore (526), Canada (524) New Zealand (521)
520	Poland (519) Spain (513), Israel (512), Iceland (511)	Japan (520) Australia (515)
510		Netherlands (508) Belgium (506), Norway (503) Estonia, Sweden (501)
500	Rep. of Moldavia, PIRLS Scale Avg. (500) , Belgium (Fr.) (500) Norway (498)	Poland, Iceland, USA (500) , Liechtenstein (499) Sweden, Germany (497), Ireland, France (496), Ch. Taipei, Denmark (495) United Kingdom, Hungary (494), OECD Avg. (493)
490	Romania (489)	Portugal (489), Macao-Ch. (487) Italy (486), Latvia (484) Slovenia, Greece (483), Spain (481)
480	 Georgia (471)	Czech Rep. (478), Slovak Rep. (477) Croatia (476), Israel (474) Luxembourg (472)
470 and below	Rep. of Macedonia (442), Trinidad and Tobago (436), Islamic Rep. of Iran (421), Indonesia (405), Qatar (353), Kuwait (330), Morocco (323), South Africa (302)	Austria (470), Lithuania (468), Turkey (464), Dubai-UAE, Russian Fed. (459), Chile (449), Rep. of Serbia (442), Bulgaria (429), Uruguay (426), Mexico (425), Romania (424), Thailand (421), Trinidad and Tobago (416), Colombia (413), Brazil (412), Rep. of Montenegro (408), Jordan (405), Tunisia (404), Indonesia (402), Argentina (398), Kazakhstan (390), Albania (385), Qatar (372), Panama (371), Peru (370), Azerbaijan (362), Kyrgyz Rep. (314)

■ = Above the international average ■ = Not measurably different from the international average ■ = Below the international average

NOTE: Countries are listed by estimated average scores. Figure is not a scaled representation of countries' scores. International/OECD average scores and U.S. scores are presented in bold font. While the formulation and construction of assessment scales are the same across the TIMSS, PIRLS, and PISA, the content represented by the scale scores is not the same across different ages within a subject domain.

SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Progress in International Reading Literacy Study (PIRLS) 2006; Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA) 2009.

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MATHEMATICS

Scale score	Grade 4 (TIMSS 2007)	Grade 8 (TIMSS 2007)	Age 15 (PISA 2009)
610	Hong Kong-Ch. (607)		
600	Singapore (599)	Ch. Taipei (598), Rep. of Korea (597) Singapore (593)	Shanghai-Ch. (600)
590			
580	Ch. Taipei (576) MA-USA (572)	Hong Kong-Ch. (572)	
570	Japan (568)	Japan (570)	Singapore (562)
560	MN-USA (554)		Hong Kong-Ch. (555)
550	Kazakhstan (549) Russian Fed. (544) England-UK (541)	MA-USA (547)	Rep. of Korea (546) Ch. Taipei (543), Finland (541)
540	Latvia (537) Netherlands (535)	MN-USA (532)	Liechtenstein (536), Switzerland (534)
530	Lithuania (530), USA (529) Germany (525) Denmark (523)	Quebec-Ca. (528)	Japan (529), Canada (527) Netherlands (526), Macao-Ch. (525)
520	Quebec-Ca. (519) Australia (516) Ontario-Ca. (512)	Ontario-Ca., Hungary (517) England-UK (513), Russian Fed. (512)	New Zealand (519) Belgium (515), Australia (514) Germany (513), Estonia (512)
510	Hungary (510), Italy (507) Br. Columbia-Ca., Alberta-Ca., Austria (505) Sweden (503), Slovenia (502)	Br. Columbia-Ca. (509), USA (508) Lithuania (506), Czech Rep. (504) Slovenia (501)	Iceland (507) Denmark (503), Slovenia (501)
500	Armenia, TIMSS Scale Avg. (500) Slovak Rep. (496) Scotland-UK (494), New Zealand (492)	TIMSS Scale Avg. (500) , Armenia (499) Basque Country-Sp. (499), Australia (496) Sweden (491)	Norway (498), France, Slovak Rep. (497) Austria, OECD Avg. (496) , Poland (495) Sweden (494), Czech Rep. (493)
490	Czech Rep. (486)	Malta (488), Scotland-UK (487) Serbia (486)	United Kingdom (492), Hungary (490) Luxembourg (489), Ireland, Portugal (487) USA (487) , Spain, Italy (483), Latvia (482)
480	Norway (473)	Italy (480) Malaysia (474)	Lithuania (477)
470 and below	Ukraine (469), Dubai-UAE (444), Georgia (438), Islamic Rep. of Iran (402), Algeria (378), Colombia (355), Morocco (341), El Salvador (330), Tunisia (327), Kuwait (316), Qatar (296), Yemen (224)	Norway (469), Cyprus (465), Bulgaria (464), Israel (463), Ukraine (462), Romania, Dubai-UAE (461), Bosnia and Herzegovina (456), Lebanon (449), Thailand (441), Turkey (432), Jordan (427), Tunisia (420), Georgia (410), Islamic Rep. of Iran (403), Bahrain (398), Indonesia (397), Syrian Arab Rep. (395), Egypt (391), Algeria (387), Morocco (381), Colombia (380), Oman (372), Palestinian Nat'l Auth. (367), Botswana (364), Kuwait (354), El Salvador (340), Saudi Arabia (329), Ghana (309), Qatar (307)	Russian Fed. (468), Greece (466), Croatia (460), Dubai-UAE (453), Israel (447), Turkey (445), Rep. of Serbia (442), Azerbaijan (431), Bulgaria (428), Romania (427), Uruguay (427), Chile (421), Thailand, Mexico (419), Trinidad and Tobago (414), Kazakhstan (405), Rep. of Montenegro (403), Argentina (388), Jordan (387), Brazil (386), Colombia (381), Albania (377), Tunisia, Indonesia (371), Qatar (368), Peru (365), Panama (360), Kyrgyz Rep. (331)

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SOURCE: International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science (TIMSS) 2007; Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA) 2009.

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SCIENCE

Scale score	Grade 4 (TIMSS 2007)	Grade 8 (TIMSS 2007)	Age 15 (PISA 2009)
600			
590	Singapore (587)		
580	MA-USA (571)		Shanghai-Ch. (575)
570		Singapore (567) Ch. Taipei (561)	
560	Ch. Taipei (557) Hong Kong-Ch. (554) MN-USA (551)	MA-USA (556) Japan (554), Rep. of Korea (553)	Finland (554)
550	Japan (548) Russian Fed. (546), Alberta-Ca. (543) Latvia, England-UK (542)	England-UK (542)	Hong Kong-Ch. (549) Singapore (542)
540	USA (539) , Br. Columbia-Ca. (537) Hungary, Ontario-Ca. (536), Italy (535) Kazakhstan (533)	Hungary, Czech Rep. (539) MN-USA (539) , Slovenia (538)	Japan (539), Rep. of Korea (538) New Zealand (532)
530	Germany (528), Australia (527) Slovak Rep., Austria (526), Sweden (525) Netherlands (523)	Hong Kong-Ch., Russian Fed. (530) Ontario-Ca., Br. Columbia-Ca. (526)	Canada (529), Estonia (528), Australia (527) Netherlands (522)
520	Slovenia (518), Denmark, Quebec-Ca. (517) Czech Rep. (515), Lithuania (514)	USA (520) , Lithuania (519) Australia (515) Sweden (511)	Ch. Taipei, Germany, Liechtenstein (520) Switzerland (517), United Kingdom (514) Slovenia (512), Macao-Ch. (511)
510	New Zealand (504)	Quebec-Ca. (507)	Poland, Ireland (508), Belgium (507) Hungary (503) USA (502), OECD Avg. (501)
500	Scotland-UK, TIMSS Scale Avg. (500)	TIMSS Scale Avg. (500) Basque Country-Sp. (498) Scotland-UK (496), Italy (495)	Czech Rep., Norway (500), Denmark (499) France (498), Iceland (496), Sweden (495) Austria, Latvia (494), Portugal (493)
490	Armenia (484)	Dubai-UAE (489), Armenia (488) Norway (487), Ukraine (485) Jordan (482)	Lithuania (491), Slovak Rep. (490) Italy (489), Spain (488) Croatia (486), Luxembourg (484)
480	Norway (477) Ukraine (474)	Malaysia, Thailand (471)	Russian Fed. (478)
470 and below	Dubai-UAE (460), Islamic Rep. of Iran (436), Georgia (418), Colombia (400), El Salvador (390), Algeria (354), Kuwait (348), Tunisia (318), Morocco (297), Qatar (294), Yemen (197)	Serbia, Bulgaria (470), Israel (468), Bahrain (467), Bosnia and Herz. (466), Romania (462), Islamic Rep. of Iran (459), Malta (457), Turkey (454), Syrian Arab Rep., Cyprus (452), Tunisia (445), Indonesia (427), Oman (423), Georgia (421), Kuwait (418), Colombia (417), Lebanon (414), Egypt, Algeria (408), Palestinian Nat'l Auth. (404), Saudia Arabia (403), Morocco (402), El Salvador (387), Botswana (355), Qatar (319), Ghana (303)	Greece (470), Dubai-UAE (466), Israel (455), Turkey (454), Chile (447), Rep. of Serbia (443), Bulgaria (439), Romania (428), Uruguay (427), Thailand (425), Mexico (416), Jordan (415), Trinidad and Tobago (410), Brazil (405), Colombia (402), Rep. of Montenegro, Argentina, Tunisia (401), Kazakhstan (400), Albania (391), Indonesia (383), Qatar (379), Panama (376), Azerbaijan (373), Peru (369), Kyrgyz Rep. (330)

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