MIDDLE CLASS OR MIDDLE OF THE PACK?

What can we learn when benchmarking U.S. schools against the world's best?

AMERICA ACHIEVES

INTRODUCTION

A Wake-Up Call to America's Middle Class

In the United States, people generally view education through the lens of their own children and their own schools. Many Americans think a serious need for better educational performance is largely restricted to low-income children and families—and that middle class lifestyles equate to a world-class education. While this need for low-income students is very real and very important, this report suggests that the need for better education extends deeply into America's middle class.

This three-part report highlights achievement in middle class American schools based on new analyses of math and science data from the 2009 PISA results and the results of a pilot study involving 105 American high schools that took a new test known as the OECD Test for Schools (based on PISA). The test is a school-level internationally benchmarked tool that measures reading, math and science knowledge and skills of 15-year-olds. Importantly, the OECD Test for Schools also measures key competencies such as critical thinking and problem solving as students are expected to apply their mastery of rigorous reading, math, and science content.

In the first section, the inescapable conclusion from data from the 2009 PISA study is that a large percentage of American middle class high schools have not kept pace as countries like Singapore, Finland, Korea and Germany have raised standards, invested in teachers and lifted their overall performance. Findings include:

- U.S. students in the middle quarters of economic and social advantage lag behind dozens of other countries in math and science.

- In comparing scores across the second-to-top quarter of socio-economic advantage, U.S. students are significantly outperformed by 24 countries or regions[1] in math and 15 countries or regions in science.[2]

- In comparing scores across the third quarter of socio-economic advantage, U.S. students are significantly outperformed by their peers in 31 countries or regions in math and 25 in science.

THE SECOND-TO-TOP QUARTER OF U.S. STUDENTS ARE SIGNIFICANTLY OUTPERFORMED BY

15

COUNTRIES IN SCIENCE

24

COUNTRIES IN MATH

THE THIRD QUARTER OF U.S. STUDENTS ARE SIGNIFICANTLY OUTPERFORMED BY

25

COUNTRIES IN SCIENCE

31

COUNTRIES IN MATH

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1   The analyses in this report include all countries/cities/regions that participated in PISA 2009; after this point in this report we use "countries" to refer to all participating countries, regions and education systems.
2   These results take standard errors into account.

The second section offers some good news—highlighting individual U.S. schools that are global leaders. The results presented here are based on the schools' results from their participation in the pilot of the OECD Test for Schools (based on PISA). These schools have voluntarily made their results public and they include U.S. high schools that literally outperform—on average—every country in the world.

■ BASIS Tucson North, a non-selective high school serving an economically modest middle class student population in Arizona, outperformed the average of every country in the world in reading, math, and science.

■ Three non-selective high schools in Fairfax, Virginia outperformed the average of virtually every country in the world. One of those is Woodson High School—a middle class school that outperformed the average of every country in the world in reading. Another U.S. high school serving a similar student population to Woodson lagged behind the average of students in 31 countries in reading.

■ The study showed that low-income schools can be globally competitive too. North Star Academy—a non-selective, predominantly low-income school in Newark, New Jersey—cracked the world's top ten by outperforming all but the average of nine countries in reading.

The third section summarizes some important lessons learned and the opportunities for restoring America's leadership in public education and strengthening America's competitiveness in the global economy. The report concludes with a call for U.S. high schools across the economic spectrum to take advantage of this new international benchmarking opportunity and find out how they compare with—and can learn from—the world's top performing countries and schools.

Second-to-top quarter comparison Mean scores and standard errors (S.E.)

COUNT	NAME	MEAN SCORE	S.E.
1	SHANGHAI-CHINA	607	(3.5)
2	SINGAPORE	580	(3.1)
3	HONG KONG-CHINA	562	(3.4)
4	KOREA	556	(4.4)
5	CHINESE TAIPEI	554	(3.9)
6	FINLAND	550	(3.1)
7	SWITZERLAND	540	(3.6)
8	NETHERLANDS	537	(4.4)
9	CANADA	537	(1.9)
10	LIECHTENSTEIN	535	(9.2)
11	BELGIUM	535	(2.4)
12	NEW ZEALAND	534	(3.2)
13	AUSTRALIA	530	(3.0)
14	GERMANY	530	(3.3)
15	MACAO-CHINA	527	(2.5)
16	ICELAND	521	(3.2)
17	JAPAN	520	(4.4)
18	DENMARK	515	(3.5)
19	FRANCE	515	(3.6)
20	ESTONIA	514	(3.4)
21	NORWAY	512	(3.2)
22	SLOVENIA	510	(3.1)
23	LUXEMBOURG	510	(3.1)
24	SWEDEN	510	(3.0)
25	SLOVAK REPUBLIC	506	(3.3)
26	AUSTRIA	504	(3.3)
27	UNITED KINGDOM	501	(2.8)
28	CZECH REPUBLIC	501	(3.5)
29	IRELAND	501	(3.6)
30	HUNGARY	500	(4.0)
31	POLAND	489	(3.4)
32	UNITED STATES	487	(3.5)

These tables show the comparative results for the second-to-top quarter of economic advantage of several countries participating in PISA 2009. Results are included in these tables for countries that had a score for their second-to-top quarter that was either above or not significantly different from, the result for the USA in the second-to-top quarter. The blue shaded results are considered to be not significantly different from that of the USA even though the raw score is higher.

The full list of countries and regions with lower scores than the U.S. can be found in the report's more detailed appendices and tables at www.americaachieves.org. The vast majority of these countries and regions are in the developing world.

PISA 2009: SCIENCE

Second-to-top quarter comparison Mean scores and standard errors (S.E.)

COUNT	NAME	MEAN SCORE	S.E.
1	SHANGHAI-CHINA	582	(2.5)
2	FINLAND	565	(3.1)
3	SINGAPORE	560	(2.8)
4	HONG KONG-CHINA	556	(3.1)
5	JAPAN	554	(4.4)
6	NEW ZEALAND	548	(3.3)
7	KOREA	547	(3.9)
8	AUSTRALIA	545	(3.1)
9	CANADA	539	(1.9)
10	GERMANY	539	(3.2)
11	NETHERLANDS	537	(4.5)
12	ESTONIA	532	(3.5)
13	CHINESE TAIPEI	531	(3.3)
14	UNITED KINGDOM	529	(2.9)
15	BELGIUM	527	(2.6)
16	SWITZERLAND	524	(3.3)
17	IRELAND	524	(4.4)
18	SLOVENIA	523	(3.0)
19	LIECHTENSTEIN	523	(9.8)
20	NORWAY	517	(3.4)
21	UNITED STATES	516	(3.8)

PISA 2009: READING

Second-to-top quarter comparison Mean scores and standard errors (S.E.)

COUNT	NAME	MEAN SCORE	S.E.
1	SHANGHAI-CHINA	564	(2.5)
2	FINLAND	548	(2.9)
3	KOREA	548	(3.9)
4	HONG KONG-CHINA	542	(2.9)
5	SINGAPORE	541	(2.4)
6	JAPAN	536	(4.0)
7	NEW ZEALAND	534	(3.3)
8	CANADA	533	(2.1)
9	AUSTRALIA	532	(3.0)
10	BELGIUM	525	(2.5)
11	NETHERLANDS	519	(4.7)
12	NORWAY	517	(2.9)
13	SWEDEN	515	(3.3)
14	GERMANY	515	(3.5)
15	ICELAND	513	(3.0)
16	FRANCE	513	(4.4)
17	UNITED STATES	512	(3.6)

THE PISA INDEX OF ECONOMIC, SOCIAL AND CULTURAL STATUS:
How U.S. Students Compare Overall to Their Peers Globally

We begin by looking at PISA 2009 and the connection between socio-economic advantage and student performance. The OECD has developed an internationally comparable system of measuring socio-economic background, taking into consideration several factors, including the education level of a student's parents, their occupations, and the possessions they have in their homes as a proxy for wealth.

According to the OECD index, American students are on average more advantaged than many of their counterparts in the OECD, yet they are consistently outperformed. In the 2009 PISA, 23 countries or regions had a significantly higher average score than the U.S. in math, 18 in science, and 9 in reading.

Many assume that poverty in America is pulling down the overall U.S. scores, but when you divide each nation into socio-economic quarters, you can see that even America's middle class students are falling behind not only students of comparable advantage but also more disadvantaged students in several other countries.

For example, based on new analyses of math and science data, U.S. students in the second-to-top quarter of advantage are significantly outperformed by students in that quarter in 15 countries in science and 24 countries in math. U.S. students in the third quarter are significantly outperformed by 31 countries in math and 25 countries in science.

Additionally, based on previously published data on reading, U.S. students in the second-to-top quarter are significantly outperformed by 10 countries, while students in the third quarter are significantly outperformed by 19 countries.

When you compare U.S. schools to Shanghai-China, the number one performing region in the world in 2009 across all three subjects (reading, math and science), the U.S. results look even more discouraging. The most disadvantaged students in Shanghai—in the bottom quarter as measured by the OECD—outperform the second-to-top quarter of American students in reading. Even America's advantaged kids are barely outperforming some of Shanghai's most disadvantaged.

Many assume that poverty in America is pulling down the overall U.S. scores, but when you divide each nation into socio-economic quarters, you can see that even America's middle class students are falling behind not only students of comparable advantage but also more disadvantaged students in several other countries.

105 U.S. High Schools Taking the Challenge

(The pilot trial of the OECD Test for Schools was conducted with a convenience sample of schools—the results from the pilot are not meant to be statistically representative of schools in the United States.

The names of the 105 U.S. high schools participating in the pilot program are confidential although a handful of them agreed to disclose their results publicly. For the purposes of this report, we refer to two middle class high schools as Sample High School A and Sample High School B.)

SAMPLE HIGH SCHOOL A

87%

OF THE SCHOOL IS WHITE

6%

OF KIDS QUALIFY FOR FREE AND REDUCED LUNCH

29

COUNTRIES DID BETTER IN MATH

21

COUNTRIES DID BETTER IN SCIENCE

> **SAMPLE HIGH SCHOOL A**
> ## Middle-class school… lagging behind.

Sample High School A is a traditional public high school in a western state with only 6% of its students qualifying for free and reduced lunch. The school is 87% White, 8% Black or Hispanic, and 4% Asian. The OECD socio-economic index ranks the school well above the U.S. mean. By any measure, Sample High School A serves solidly middle class students. Yet, using PISA results, students in schools in 35 countries outperformed Sample High School A in reading, students in schools in 29 countries did better in math and students in schools in 21 countries did better in science.

PISA reports on student performance across six proficiency levels. Within Sample High School A, just 8% of the students performed at the top two levels in reading, 8% in math and 6% in science. Meanwhile, 23% of the students at Sample High School A performed at the lowest levels in reading, 21% in math and 10% in science. To be clear, the lowest proficiency level is considered to be where students do not demonstrate the basic skills and competencies necessary for future success. Across America there are thousands of high schools in similar middle class communities. As it turns out, under its home state grading system based on the state assessment, Sample High School A earned an "A" in 2011–12, which may suggests that standards and expectations go hand-in-hand with performance.

SAMPLE HIGH SCHOOL B
Holding its own…

On the OECD Index, Sample High School B has an identical socio-economic profile as Sample High School A. The school is 93% White, 5% Black or Hispanic, and 2% Asian, with just 14% of the kids on free and reduced lunch. It's located in a semi-rural middle class community in a northeastern state. Overall, Sample High School B did better than students on average in all but six other countries in reading, 13 in math and nine in science.

WORLD CLASS MIDDLE CLASS SCHOOLS
Woodson High in Fairfax, Virginia and BASIS Charter in Tucson

There is also important good news from some of the schools that participated in the pilot trial. Remarkably, three non-selective high schools in Fairfax, Virginia are outperforming the averages of virtually every other country in the world and are right up there with Shanghai-China. While two of these high schools serve a more affluent student population, one of Fairfax's world-class performers—Woodson High School—is much more solidly middle class and has a nearly identical socio-economic rating to Sample High School A. In reading, Woodson's students outperform students in every country and region in the world except Shanghai-China. In other words, it's from the middle of the middle class but its performance is world class.

Another "world class" school, BASIS Tucson North stands out for its outstanding academic performance, its economic modesty, and its demographic diversity (the school is 52% Caucasian, 25% Black and Hispanic, and 19% Asian). Across all three subjects, reading, math and science, students at BASIS outperformed the averages of every other nation in the world as well as Shanghai-China. The percentage of high performers (top two performance levels) is 41% for reading, 59% for math, and 38% for science. BASIS Tucson North, a non-selective, open enrollment charter school, has virtually no low performing 15-year-olds.

OVERCOMING POVERTY
North Star Academy

Finally, the pilot study shows that hope and global competitiveness are also possible at low-income schools. North Star Academy, a charter school in Newark, New Jersey, serves largely low-income, minority students from fairly disadvantaged backgrounds as measured by OECD. Yet North Star outperformed all but nine other countries' averages in reading, and its math and science scores track closely to far wealthier middle class American schools, although still behind much of the world.

93%
OF THE SCHOOL IS WHITE

14%
OF KIDS QUALIFY FOR FREE AND REDUCED LUNCH

13
COUNTRIES DID BETTER IN MATH

9
COUNTRIES DID BETTER IN SCIENCE

LEARNING FROM OURSELVES AND FROM THE WORLD'S BEST
Case studies from the 2012 Pilot

High-performing schools work hard to choose strong teachers with good content knowledge and dedication to continuous improvement. At North Star, every teacher gets observed weekly and receives continuous feedback.

Each of the schools in the pilot program received a lengthy report from the OECD that showed results in terms of performance, students' average backgrounds and the learning environment at school. The reports also included international examples that underscored strategies for improvement that have yielded results in other education systems. The reports outline the importance of high levels of expectations, teacher quality, the importance of student engagement and the need to create a supportive learning environment at the school.

In addition to comparing individual schools with PISA results from the U.S. and from other countries, they analyze the relative socio-economic status of students in the school. Schools can find out how they compare to students in the top-performing region—Shanghai-China—and in the lowest performing country in the OECD—Mexico.

High-performing schools work hard to choose strong teachers with good content knowledge and dedication to continuous improvement. At North Star, every teacher gets observed weekly and receives continuous feedback.

Like their counterparts in many high-performing countries, high-performing schools in the U.S. are data-driven and transparent not only around learning outcomes but also around soft skills like completing work on time, resilience, perseverance and punctuality. The use of data to measure student improvement and teacher performance is often embedded in the school culture. The principal and instructional leaders offer concrete and specific direction around issues like student attentiveness and effective questioning.

In some cases, school-based teachers rather than district-level administrators design and deliver professional development. They also serve as mentors to younger teachers. BASIS Tucson North stresses accountability and rigor in a no excuses culture, where repeating a grade is one possible outcome for students who fall behind, but they are offered support well before this happens. Expectations are high for all students not just a select few: all students are expected to take at least six AP classes during their high school careers.

Previous OECD reports highlight characteristics in high-performing countries from high standards to finely-attuned systems for diagnosing and addressing learning challenges. High-performing education systems focus intensively on teaching quality. Top college graduates become teachers—while under-qualified applicants are discouraged from even entering the profession. New teachers receive mentoring from master teachers and continued formal instruction. And as they progress through their careers, they have opportunities to advance professionally. Simply put, high-performing school systems appraise, value and honor their teachers and treat them accordingly—and the results reflect this value.

Taking the Challenge

Information and learning are powerful tools for educators eager to make evidence-based decisions around school rigor, high expectations, and improving teaching and outcomes. Starting in the fall of 2013, individual schools that want to benchmark themselves against high performing countries can take the OECD Test for Schools. (In order to get a statistically sound sample, participating schools need to involve approximately 75 of their 15-year-old students.) Interested schools and districts should visit www.americaachieves.org to register for more information. Information about the OECD Test for Schools may also be found on the OECD's website at http://www.oecd.org/pisa/pisa-basedtestforschools/.

Generous support from major foundations including Bloomberg Philanthropies, the William and Flora Hewlett Foundation, and the Kern Family Foundation will make the next phase of the project possible. This phase includes improvement of the test and growth of the program.

Mounting evidence clearly shows that our educational performance is not just a challenge of poverty—it's an American challenge. Many middle class schools in the U.S. are not yet producing students ready to compete in the global economy.

There are promising strategies to act on this evidence. The voluntary adoption of Common Core standards in most states holds out great promise for students, especially if we integrate creativity and critical thinking skills into the curriculum. Access to great curriculum, sharing of truly effective practices, meaningful evaluation based on multiple measures including student achievement, a commitment to recruit our nation's most talented graduates to teach, along with high quality training and continuous feedback from peers and instructional leaders are important steps.

But to really move the needle we also need a deeper cultural shift based on a broader, deeper understanding that greater effort and better educational performance are needed for all kids in all schools, regardless of background. We must also adjust our expectations of student success to encompass the need for mastery of reading, math and science combined with the deeper learning skills such as critical thinking and complex problem solving to allow students to apply their knowledge, as 21st century jobs require.

The focus on improvement must come from many quarters, including educators and employers, but we also need the active engagement of our parents and families—low-income, upper-income and middle-income. We America's parents, families, and caregivers from all backgrounds should engage to support and ask for the very best education for our children and for all children. In an increasingly competitive global economy, educational excellence is both an economic imperative and a moral imperative to give our young people the meaningful life choices they deserve. We all stand to win... or lose.

Select Schools from 2012 Pilot Program Ranked with OECD Countries (2009): READING

COUNT	NAME	MEAN SCORE
	BASIS TUCSON	610
1	**SHANGHAI-CHINA**	556
	WOODSON HS, FAIRFAX	550
2	**KOREA**	539
3	**FINLAND**	536
4	**HONG KONG-CHINA**	553
5	**SINGAPORE**	526
6	**CANADA**	524
	SAMPLE HS B	522
7	**NEW ZEALAND**	521
8	**JAPAN**	520
9	**AUSTRALIA**	515
10	**NETHERLANDS**	508
11	**BELGIUM**	506
12	**NORWAY**	503
13	**ESTONIA**	501
14	**SWITZERLAND**	501
15	**POLAND**	500
16	**ICELAND**	500
17	**UNITED STATES**	500
18	**LIECHTENSTEIN**	499
19	**SWEDEN**	497
20	**GERMANY**	497
21	**IRELAND**	496
22	**FRANCE**	496
23	**CHINESE TAIPEI**	495
24	**DENMARK**	495
25	**UNITED KINGDOM**	494
26	**HUNGARY**	494
27	**PORTUGAL**	489
28	**MACAO-CHINA**	487
29	**ITALY**	486
30	**LATVIA**	484
31	**SLOVENIA**	483
32	**GREECE**	483
33	**SPAIN**	481
34	**CZECH REPUBLIC**	478
35	**SLOVAK REPUBLIC**	477
	SAMPLE HS A	476
36	**CROATIA**	476
37	**ISRAEL**	474
38	**LUXEMBOURG**	472
39	**AUSTRIA**	470
40	**LITHUANIA**	468

The following charts rank several U.S. high schools that participated in the 2012 pilot program with OECD countries from across the world that participated in PISA 2009.

Select Schools from 2012 Pilot Program Ranked with OECD Countries (2009): MATHEMATICS
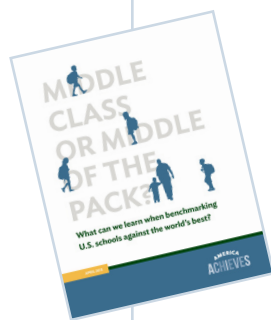
COUNT	NAME	MEAN SCORE
	BASIS TUCSON	618
1	SHANGHAI-CHINA	600
2	SINGAPORE	562
	WOODSON HS, FAIRFAX	558
3	HONG KONG-CHINA	555
4	KOREA	546
5	CHINESE TAIPEI	543
6	FINLAND	541
7	LIECHTENSTEIN	536
8	SWITZERLAND	534
9	JAPAN	529
10	CANADA	527
11	NETHERLANDS	526
12	MACAO-CHINA	525
13	NEW ZEALAND	519
	SAMPLE HS B	516
14	BELGIUM	515
15	AUSTRALIA	514
16	GERMANY	513
17	ESTONIA	512
18	ICELAND	507
19	DENMARK	503
20	SLOVENIA	501
21	NORWAY	498
22	FRANCE	497
23	SLOVAK REPUBLIC	497
24	AUSTRIA	496
25	POLAND	495
26	SWEDEN	494
27	CZECH REPUBLIC	493
28	UNITED KINGDOM	492
29	HUNGARY	490
	SAMPLE HS A	490
30	LUXEMBOURG	489
31	IRELAND	487
32	PORTUGAL	487
33	**UNITED STATES**	487
34	ITALY	483
35	SPAIN	483
36	LATVIA	482
37	LITHUANIA	477
38	RUSSIAN FEDERATION	468
39	GREECE	466
40	CROATIA	460

Select Schools from 2012 Pilot Program Ranked with OECD Countries (2009): SCIENCE

COUNT	NAME	MEAN SCORE
	BASIS TUCSON	609
1	SHANGHAI-CHINA	575
2	FINLAND	554
3	HONG KONG-CHINA	549
	WOODSON HS, FAIRFAX	545
4	SINGAPORE	542
5	JAPAN	539
6	KOREA	538
7	NEW ZEALAND	532
8	CANADA	529
9	ESTONIA	528
	SAMPLE HS B	527
10	AUSTRALIA	527
11	NETHERLANDS	522
12	CHINESE TAIPEI	520
13	GERMANY	520
14	LIECHTENSTEIN	520
15	SWITZERLAND	517
16	UNITED KINGDOM	514
17	SLOVENIA	512
18	MACAO-CHINA	511
19	POLAND	508
20	IRELAND	508
21	BELGIUM	507
	SAMPLE HS A	506
22	HUNGARY	503
23	UNITED STATES	502
24	CZECH REPUBLIC	500
25	NORWAY	500
26	DENMARK	499
27	FRANCE	498
28	ICELAND	496
29	SWEDEN	495
30	AUSTRIA	494
31	LATVIA	494
32	PORTUGAL	493
33	LITHUANIA	491
34	SLOVAK REPUBLIC	490
35	ITALY	489
36	SPAIN	488
37	CROATIA	486
38	LUXEMBOURG	484
39	RUSSIAN FEDERATION	478
40	GREECE	470

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