Results from the 2009 Programme for International Student Assessment (PISA):

How does the United States compare to other nations?
How has U.S. performance on PISA changed?
### Performance Among the 26 OECD Countries Continuously Participating in PISA Since 2000

U.S. Ranks Low but has Risen Since 2006

<table>
<thead>
<tr>
<th>Subject</th>
<th>2000 Rank (out of 26)</th>
<th>2003 Rank (out of 26)</th>
<th>2006 Rank (out of 26)</th>
<th>2009 Rank (out of 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>14&lt;sup&gt;th&lt;/sup&gt;</td>
<td>14&lt;sup&gt;th&lt;/sup&gt;</td>
<td>n/a</td>
<td>Tied 10&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mathematics</td>
<td>17&lt;sup&gt;th&lt;/sup&gt;</td>
<td>22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Tied 20&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Science</td>
<td>13&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Tied 17&lt;sup&gt;th&lt;/sup&gt;</td>
<td>19&lt;sup&gt;th&lt;/sup&gt;</td>
<td>13&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: Rankings are for the 26 countries that were members of the OECD and participated in PISA in 2000, 2003, 2006, and 2009. 2006 results for U.S. reading performance are not available.

Source: PISA 2009 Results, OECD
U.S. Performance Over Time

PISA – All Subjects

Average scale score

Reading
Science
Mathematics

Note: Possible scores range from 0 to 1,000. Trends are not available from 2000 for all subjects due to revised assessment frameworks. * indicates score is significantly different from 2009 score at the p<.05 level.
Source: “Highlights from PISA 2009,” NCES, 2010
Reading Performance on PISA

Note: Possible scores range from 0 to 1,000.
Source: “Highlights from PISA 2009,” NCES, 2010
Math Performance on PISA

Note: Possible scores range from 0 to 1,000. * indicates score is significantly different from the 2009 score at the p<.05 level
Source: “Highlights from PISA 2009,” NCES, 2010
Science Performance on PISA

Note: Possible scores range from 0 to 1,000. * indicates score is significantly different from the 2009 score at the p<.05 level
Source: “Highlights from PISA 2009,” NCES, 2010
How do these changes compare to those of other countries?
Reading Scores in Most Countries – Including the U.S. – Have Dropped

PISA 2000 and 2009 - Reading

Source: PISA 2009 Results, OECD, Table V.2.1
U.S. Math Scores Have Risen Slightly While Many Other Countries’ Scores Have Fallen

Source: PISA 2009 Results, OECD, Table V.3.1
U.S. Students’ Science Scores Have Risen Faster than in Most Other OECD Countries

PISA 2006 and 2009 – Science

Source: PISA 2009 Results, OECD, Table V.3.4
Improvements since 2000 have been concentrated among low-performing and average students.
Improvement Only Among the Lowest Performing Students

PISA – Reading

* Indicates score is significantly different from 2009 score at the p<.05 level

Source: PISA 2009 results, NCES, Table R6A
**Improvement Among Average and Lower Performing Students**

**PISA – Math**

*Indicates score is significantly different from 2009 score at the p<.05 level*

Source: PISA 2009 results, NCES, Table M3A
Improvement Among Average and Lower Performing Students

PISA – Science

* Indicates score is significantly different from 2009 score at the p<.05 level

Source: PISA 2009 results, NCES, Table S3A
A closer look at reading
Of 34 OECD Countries, U.S.A. Ranks 12\textsuperscript{th} in Reading Literacy

2009 PISA - Reading

Source: “Highlights from PISA 2009,” NCES, 2010
U.S.A. Ranks 12\textsuperscript{th} out of 34 OECD Countries on Students Scoring at the Highest Achievement Levels

PISA 2009 – Reading

Note: Highest achievement levels are Levels 4 and above.
Source: PISA 2009 Results, OECD, Table I.2.1
U.S.A. Ranks 8th out of 34 OECD Countries in the Reading Achievement of the Highest-Performing Students

2009 PISA – Reading

Note: Highest-performing students are those at the 95th Percentile
Source: PISA 2009 results, NCES, Table R6
U.S.A. Ranks 11th out of 34 OECD Countries in the Reading Achievement of the Lowest-Performing Students

2009 PISA – Reading

Note: Highest-performing students are those at the 5th Percentile
Source: PISA 2009 results, NCES, Table R6
U.S. students perform better on some reading skills than on others
U.S.A. Ranks 7\textsuperscript{th} Out of 34 OECD Countries in Reflecting on and Evaluating Information

2009 PISA – Reading

Source: PISA 2009 results, NCES, Table R1
U.S.A. Ranks 17th Out of 34 OECD Countries in Integrating and Interpreting Information

2009 PISA – Reading

Source: PISA 2009 results, NCES, Table R1
**U.S.A. Ranks 19th Out of 34 OECD Countries in Accessing and Retrieving Information**

**2009 PISA – Reading**

Source: PISA 2009 results, NCES, Table R1
The U.S. fares well compared to most non-OECD partner economies
Compared with the 31 Participating Non-OECD Economies, the U.S.A. Ranks 4th in Reading Literacy

PISA 2009 – Reading

U.S.A.

Higher than U.S. average ■ Not measurably different from U.S. average □ Lower than U.S. average

Source: PISA 2009 Results, NCES, Table R1
Compared with the 31 Participating Non-OECD Economies, the U.S.A. Ranks 7th in Math

PISA 2009 – Math

Source: PISA 2009 Results, NCES, Table M1

Higher than U.S. average  Not measurably different from U.S. average  Lower than U.S. average
Compared with the 31 Participating Non-OECD Economies, the U.S.A. Ranks 7th in Science

Source: PISA 2009 Results, NCES, Table S1
Despite some improvements, the U.S. has a long way to go.
Math and science performance remains lower relative to other OECD countries . . .
Of 34 OECD Countries, U.S.A. Ranks 17th in Science
2009 PISA - Science

Higher than U.S. average  Not measurably different from U.S. average  Lower than U.S. average

Source: “Highlights from PISA 2009,” NCES, 2010
Of 34 OECD Countries, U.S.A. Ranks 25th in Math

2009 PISA - Math

- Higher than U.S. average
- Not measurably different from U.S. average
- Lower than U.S. average

Source: “Highlights from PISA 2009,” NCES, 2010
Low SES students in the U.S. do not compare as well to their international counterparts as high SES students do . . .
U.S.A. Ranks 7th out of 34 OECD Countries in the Math Achievement of High-SES Students

PISA 2009 – Reading

Note: High SES students are those in the top quartile on the ESCS. The ESCS (Index of Economic, Social, and Cultural Status) is comprised of information related to parents’ occupational status, parents’ educational attainment, family wealth, home educational resources, and possessions related to “classical” culture in the home.
Source: PISA 2009 Results, OECD, Table II.3.1
U.S.A. Ranks 17th out of 34 OECD Countries in the Math Achievement of Low-SES Students

PISA 2009 – Reading

Note: Low SES students are those in the bottom quartile on the ESCS. The ESCS (Index of Economic, Social, and Cultural Status) is comprised of information related to parents’ occupational status, parents’ educational attainment, family wealth, home educational resources, and possessions related to “classical” culture in the home.

Source: PISA 2009 Results, OECD, Table II.3.1
Gaps between low-SES and high-SES students are large . . .
Among OECD Countries, U.S.A. has the 5th Largest Gap Between High-SES and Low-SES Students

Source: PISA 2009 Results, OECD, Table II.3.1
SES alone does not explain performance . . .
Some students in countries with lower SES perform at higher levels

Source: PISA 2009 Results, OECD, Table II.1.1
The U.S. would rank lower on reading performance if all 34 OECD countries had the same average socioeconomic status.

<table>
<thead>
<tr>
<th>Country</th>
<th>Actual Rank</th>
<th>Rank if SES were equalized across countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Tied for 12th</td>
<td>Tied for 17th</td>
</tr>
<tr>
<td>France</td>
<td>Tied for 17th</td>
<td>7th</td>
</tr>
<tr>
<td>Hungary</td>
<td>Tied for 20th</td>
<td>8th</td>
</tr>
<tr>
<td>Portugal</td>
<td>22nd</td>
<td>Tied for 10th</td>
</tr>
<tr>
<td>Turkey</td>
<td>32nd</td>
<td>Tied for 10th</td>
</tr>
</tbody>
</table>

Source: PISA 2009 Results, OECD, Table II.3.2
Low-SES students in the U.S. are less likely to be high performing than low-SES students in many other countries . . .
The U.S. is tied for 17th among 34 OECD Countries on the Percentage of Low-SES Students who are High-Performing

PISA 2009 - Reading

Note: High-performing, low-SES students are those who are in the bottom quarter of the ESCS in their country but perform in the top quarter across students from all countries after accounting for socioeconomic background.

Source: PISA 2009 Results, OECD, Table II.3.3
The U.S. is tied for 7th among the 34 OECD Countries on the Percentage of Low-SES Students who are Low-Performing

PISA 2009 - Reading

Note: Low-performing, low-SES students are those who are in the bottom quarter of the ESCS in their country and perform in the bottom quarter across students from all countries after accounting for socioeconomic background.

Source: PISA 2009 Results, OECD, Table II.3.3
U.S. performance doesn’t improve if we consider only native-born students . . .
The U.S.A. has a larger percentage of immigrants and children of immigrants than most OECD countries

Source: PISA 200 Results, OECD, Table II.4.1
U.S. ranks 13th out of 34 OECD countries when only taking into account native student* scores

*Students born in the country of assessment with at least one parent born in the same country

Source: PISA 2009 results, OECD, Table II.4.1
Within the United States, performance varies widely across groups of students . . .
African American and Latino Students Score Far Below White and Asian Counterparts

PISA 2009 – Reading

<table>
<thead>
<tr>
<th>Average scale score</th>
<th>White</th>
<th>African American</th>
<th>Latino</th>
<th>Asian</th>
<th>OECD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>525</td>
<td>441</td>
<td>466</td>
<td>541</td>
<td>493</td>
</tr>
</tbody>
</table>

Source: International Data Explorer, NCES
Students in Low Income Schools Score Far Below Students in Higher Income Schools

PISA 2009 – Reading

Average scale score

Low Income: 446
High Income: 551
OECD Average: 493

Note: Low income schools are those in which 75% or more of students are eligible for free or reduced price lunch; high income schools are those in which less than 10% are eligible.
Source: International Data Explorer, NCES
PISA Reading Literacy Levels: Higher-Level Skills

• Level 6: Make multiple inferences, comparisons, and contrasts that are detailed, precise, and relating to unfamiliar topics

• Level 5: Locate and organize information on unfamiliar content, drawing on specialized knowledge

• Level 4: Locate and organize embedded information, interpret linguistic nuance, and draw on public knowledge

Source: PISA 2009 Results, NCES, Exhibit R1
PISA Reading Literacy Levels: Lower-Level Skills

- Level 3: Locate several pieces of information to identify a main idea, understand relationships, or draw connections between pieces of information

- Level 2: Locate at least one piece of information to recognize main ideas or compare and contrast the text with outside knowledge

- Level 1A: Locate at least one piece of explicitly-stated information, recognize a theme, or make connections with everyday knowledge

- Level 1B: Locate one piece of explicitly-stated, prominently-featured information in a simple text

Source: PISA 2009 Results, NCES, Exhibit R1
Students of Color Far Less Likely to Have Higher Order Reading Skills

2009 PISA – Reading

Source: PISA 2009 results, NCES, Table R11
Students in Low Income Schools Far Less Likely to Have Higher Order Reading Skills

2009 PISA – Reading

High Income
- Level 4 or Above: 50%
- Level 3: 30%
- Level 2: 15%
- Below Level 2: 4%

Low Income
- Level 4 or Above: 12%
- Level 3: 24%
- Level 2: 30%
- Below Level 2: 34%

Note: Low poverty schools are those with in which less than 10 percent of students are eligible for free or reduced price lunch; high poverty schools are those in which 75 percent or more are eligible for free or reduced price lunch.

Source: PISA 2009 results, NCES, Table R12
African American and Latino Students Score Far Below White and Asian Counterparts

PISA 2009 – Math

<table>
<thead>
<tr>
<th></th>
<th>Average Scale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>515</td>
</tr>
<tr>
<td>African American</td>
<td>423</td>
</tr>
<tr>
<td>Latino</td>
<td>453</td>
</tr>
<tr>
<td>Asian</td>
<td>524</td>
</tr>
<tr>
<td>OECD Average</td>
<td>496</td>
</tr>
</tbody>
</table>

Source: International Data Explorer, NCES
Students in Low Income Schools Score Far Below Students in Higher Income Schools

PISA 2009 – Math

Low Income: 434
High Income: 545
OECD Average: 496

Note: Low income schools are those in which 75% or more of students are eligible for free or reduced price lunch; high income schools are those in which less than 10% are eligible.
Source: International Data Explorer, NCES
African American and Latino Students Score Far Below White and Asian Counterparts

**PISA 2009 – Science**

<table>
<thead>
<tr>
<th>Average scale score</th>
<th>White</th>
<th>African American</th>
<th>Latino</th>
<th>Asian</th>
<th>OECD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>532</td>
<td>435</td>
<td>464</td>
<td>536</td>
<td>501</td>
</tr>
</tbody>
</table>

Source: International Data Explorer, NCES
Students in Low Income Schools Score Far Below Students in Higher Income Schools

PISA 2009 – Science

<table>
<thead>
<tr>
<th></th>
<th>Average scale score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Income</td>
<td>442</td>
</tr>
<tr>
<td>High Income</td>
<td>557</td>
</tr>
<tr>
<td>OECD Average</td>
<td>501</td>
</tr>
</tbody>
</table>

Note: Low income schools are those in which 75% or more of students are eligible for free or reduced price lunch; high income schools are those in which less than 10% are eligible.
Source: International Data Explorer, NCES
White and Asian students in the U.S. perform near the national averages of several high-performing economies, but African American and Latino students do not . . .
White Students in the U.S. Perform at about the Same Level as the National Average in Some of the Highest-Achieving Countries

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>White U.S. Students</td>
<td>525</td>
<td>515</td>
<td>532</td>
</tr>
<tr>
<td>Canada</td>
<td>524</td>
<td>527</td>
<td>529</td>
</tr>
<tr>
<td>Estonia</td>
<td>501</td>
<td>512</td>
<td>528</td>
</tr>
<tr>
<td>Australia</td>
<td>515</td>
<td>514</td>
<td>527</td>
</tr>
<tr>
<td>New Zealand</td>
<td>521</td>
<td>519</td>
<td>532</td>
</tr>
<tr>
<td>Japan</td>
<td>520</td>
<td>529</td>
<td>539</td>
</tr>
</tbody>
</table>

Source: PISA 2009 Results, NCES
Asian Students in the U.S. Perform at About the Same Level as the National Average in Some of the Highest-Achieving Economies

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian U.S. Students</td>
<td>541</td>
<td>524</td>
<td>536</td>
</tr>
<tr>
<td>Korea</td>
<td>539</td>
<td>546</td>
<td>538</td>
</tr>
<tr>
<td>Finland</td>
<td>536</td>
<td>541</td>
<td>554</td>
</tr>
<tr>
<td>Singapore</td>
<td>526</td>
<td>562</td>
<td>542</td>
</tr>
</tbody>
</table>

Source: PISA 2009 Results, NCES
African American Students in the U.S. Perform at About the National Average of Several Lower-Performing Countries

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American U.S. Students</td>
<td>441</td>
<td>423</td>
<td>435</td>
</tr>
<tr>
<td>Serbia</td>
<td>442</td>
<td>442</td>
<td>443</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>429</td>
<td>428</td>
<td>439</td>
</tr>
</tbody>
</table>

Source: PISA 2009 Results, NCES
Latino students in the U.S. Perform at About the Same Level as the National Average of Several Lower-Performing Countries

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latino U.S. Students</td>
<td>466</td>
<td>453</td>
<td>464</td>
</tr>
<tr>
<td>Lithuania</td>
<td>468</td>
<td>477</td>
<td>491</td>
</tr>
<tr>
<td>Turkey</td>
<td>464</td>
<td>445</td>
<td>454</td>
</tr>
<tr>
<td>Dubai</td>
<td>459</td>
<td>453</td>
<td>466</td>
</tr>
</tbody>
</table>

Source: PISA 2009 Results, NCES
The U.S. is wealthier than and spends more money per pupil than most other countries, but this spending doesn’t translate into higher performance . . .
The U.S. has the third highest per capita GDP among OECD countries.

Source: PISA 2009 Results, OECD, Table IV.3.21
The U.S. is wealthier than other countries, but students perform at a lower level.

Note: GDP per capita was converted into US dollars using purchasing power parities.
Source: PISA 2009 Results, OECD, Table IV.3.21
The U.S. spends more money per student than all but one other OECD country.
The U.S. spends more money per student than other countries, but students perform at a lower level.

Source: PISA 2009 Results, OECD, Table IV.3.21
And only about a third of American students meet reading benchmarks that indicate readiness for higher-level work.
About one third of U.S. high school students meet cutoffs for higher-level work in reading.

Note: NAEP results reflect percentage of students at the proficient or advanced level; PISA results reflect the percentage of students scoring at Level 4 or above; and ACT results reflect the percentage of students meeting college and career ready benchmarks according to the Common Core.

Source: NAEP Data Explorer, NCES, 2010; PISA 2009 Results, NCES, Table R7A; College Board, 2010.
About one quarter of U.S. high school students meet cutoffs for higher-level work in math

Note: NAEP results reflect percentage of students at the proficient or advanced level; PISA results reflect the percentage of students scoring at Level 4 or above.

Source: NAEP Data Explorer, NCES, 2010; PISA 2009 Results, NCES, Table M4A.
Do educational policies differ across PISA economies?
In the U.S.A., schools with lower SES tend to have larger classes

Source: PISA 2009 Results, OECD, Table II.2.2
The only other OECD countries in which this is true?

Israel, Slovenia, and Turkey

Source: PISA 2009 Results, OECD, Table II.2.2
Countries with greater school responsibility over curriculum and assessment generally have higher performance

Note: School responsibility over the curriculum and assessment is measured by an index comprised of the principal’s report of who has responsibility over establishing student assessment policies, determining which textbooks are used, determining course content, and deciding which courses are offered.

Source: PISA 2009 Results, OECD, Table IV.3.6
Countries in which fewer students are tracked tend to have higher reading performance.

Source: PISA 2009 Results, OECD, Table IV.3.4