National Assessment of Educational Progress (NAEP)
Mathematics

General Information
What is NAEP?

- The **only** assessment that measures what U.S. students know and can do in various subjects across the nation, states, and 27 urban districts.
- NAEP results are released as “The Nation’s Report Card”
- [www.nationsreportcard.gov](http://www.nationsreportcard.gov)
What does NAEP measure?

- Overall student performance for key demographic groups
- Change over time
- Differences between the nation, states, and urban districts
1. Identify all eligible schools
2. Sample schools
3. Sample students
Sample Sizes (National Public)

- Based on representative samples

<table>
<thead>
<tr>
<th></th>
<th>Mathematics</th>
<th></th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schools</td>
<td>Students</td>
<td>Schools</td>
</tr>
<tr>
<td>Grade 4</td>
<td>7,440</td>
<td>144,000</td>
<td>7,440</td>
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<tr>
<td>Grade 8</td>
<td>6,150</td>
<td>140,200</td>
<td>6,150</td>
</tr>
</tbody>
</table>

NOTE: Student sample sizes rounded to the nearest hundred. School sample sizes rounded to the nearest ten.
NAEP Administration

- Six week period
- Each student assessed in one subject
- Students take a small portion of the assessment
- Accommodations provided as necessary for
  - students with disabilities
  - English language learners
How is Student Mathematics Performance Reported?

- **Scale Scores**: Student performance is reported as an average score based on the NAEP scale, which ranges **from 0 to 500**.

- **Achievement Levels**:
  - **Basic** – denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade
  - **Proficient** – represents solid academic performance
  - **Advanced** – represents superior performance
Change in Average Scale Score: 2015-2017

Darker shaded bars indicate significant change
Fresno Unified Trends in Mathematics

Grade 4
Grade 8
Mathematics Grade 4 – Overall
2017 Average Scale Score for TUDAs
Mathematics Grade 8 - Overall
2017 Average Scale Score for TUDAs
Mathematics Grade 4 – Overall Percent At or Above Basic: 2017

Percent

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Philadelphia
Cleveland
Milwaukee
Baltimore City
Fresno
Los Angeles
Shelby County (TN)
Denver
Atlanta
Albuquerque
New York City
Large city
Jefferson County (KY)
Clark County (NV)
Fort Worth (TX)
Chicago
Boston
San Diego
Houston
Dallas
National public
Guilford County (NC)
Austin
Charlotte
Hillsborough County (FL)
Duval County (FL)
Miami-Dade
Mathematics Grade 8 – Overall
Percent At or Above Basic: 2017

Percent

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Detroit
Baltimore City
Milwaukee
Fresno
Shelby County (TN)
Cleveland
Philadelphia
District of Columbia (DCF)
Atlanta
Los Angeles
Dallas
Fort Worth (TX)
Albuquerque
Jefferson County (KY)
Denver
Clark County (NV)
Houston
New York City
Large city
Guilford County (NC)
Miami-Dade
Chicago
Duval County (FL)
Boston
Hillsborough County (FL)
San Diego
Austin
National public
Charlotte
Mathematics Grade 8 – Overall Percent At or Above Proficient: 2017

Percent

Detroit
Fresno
Baltimore City
Cleveland
Milwaukee
Shelby County (TN)
Fort Worth (TX)
Philadelphia
Atlanta
Dallas
District of Columbia (DCPS)
Los Angeles
Albuquerque
Houston
Miami-Dade
Duval County (FL)
Jefferson County (KY)
Clark County (NV)
Denver
Chicago
Large city
New York City
Hillsborough County (FL)
Guilford County (NC)
Boston
National public
San Diego
Austin
Charlotte
Mathematics 2017 - Average Scale Scores by Student Group

**Grade 4**
- White: 238
- Black: 215
- Hispanic: 219
- Asian: 225
- ELL: 205
- SWD: 192

**Grade 8**
- White: 278
- Black: 242
- Hispanic: 251
- Asian: 268
- ELL: 219
- SWD: 219
Grade 4
Mathematics Grade 4 – Average Scale Score for California TUDAs

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno</td>
<td>218</td>
<td>220</td>
<td>221</td>
<td>222</td>
<td>222</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>222</td>
<td>223</td>
<td>228</td>
<td>224</td>
<td>223</td>
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<tr>
<td>San Diego</td>
<td>236</td>
<td>239</td>
<td>241</td>
<td>232</td>
<td>237</td>
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<td>National Public</td>
<td>239</td>
<td>240</td>
<td>241</td>
<td>238</td>
<td>239</td>
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Trends in Mathematics Nationwide – Grade 4

- Large City
- National
- Public
- Fresno
Mathematics Grade 4 – Percent At or Above Basic for California TUDAS

<table>
<thead>
<tr>
<th>City</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno</td>
<td>58</td>
<td>56</td>
<td>59</td>
<td>60</td>
<td>61</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>61</td>
<td>63</td>
<td>64</td>
<td>61</td>
<td>77</td>
</tr>
<tr>
<td>San Diego</td>
<td>77</td>
<td>80</td>
<td>81</td>
<td>73</td>
<td>76</td>
</tr>
<tr>
<td>National Public</td>
<td>81</td>
<td>82</td>
<td>81</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>Large Cities</td>
<td>72</td>
<td>74</td>
<td>75</td>
<td>75</td>
<td>71</td>
</tr>
</tbody>
</table>
NAEP Trend by Student Group in Mathematics - Grade 4

Bar chart showing the trend in mathematics scores for different student groups over the years 2009 to 2017.

- White
- Black
- Hispanic
- Asian
- EL
- SWD

Scores:
- 2009:
  - White: 237
  - Black: 213
  - Hispanic: 216
  - Asian: 220
  - EL: 207
  - SWD: 190

- 2011:
  - White: 238
  - Black: 214
  - Hispanic: 214
  - Asian: 224
  - EL: 202
  - SWD: 186

- 2013:
  - White: 238
  - Black: 215
  - Hispanic: 217
  - Asian: 221
  - EL: 205
  - SWD: 189

- 2015:
  - White: 241
  - Black: 211
  - Hispanic: 217
  - Asian: 226
  - EL: 202
  - SWD: 187

- 2017:
  - White: 242
  - Black: 215
  - Hispanic: 219
  - Asian: 225
  - EL: 205
  - SWD: 192
Mathematics Grade 4 – White-Black Gap
Average Scale Score: 2009-2017

Scale Score

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

Mathematics Grade - White-Hispanic Gap
Average Scale Score: 2009-2017

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Mathematics Grade 4 – SWD Gap
Average Scale Score: 2009-2017

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Mathematics Grade 4 – ELL Gap
Average Scale Score: 2009 - 2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Mathematics Grade 4 – Gender Gap
Average Scale Score: 2009 - 2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
# Mathematics Grade 8 – Average Scale Score for California TUDAs

<table>
<thead>
<tr>
<th></th>
<th>Fresno</th>
<th>Los Angeles</th>
<th>San Diego</th>
<th>National Public</th>
<th>Large Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>255</td>
<td>257</td>
<td>264</td>
<td>274</td>
<td>271</td>
</tr>
<tr>
<td>2011</td>
<td>256</td>
<td>261</td>
<td>264</td>
<td>274</td>
<td>274</td>
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<tr>
<td>2013</td>
<td>258</td>
<td>261</td>
<td>267</td>
<td>282</td>
<td>274</td>
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<tr>
<td>2015</td>
<td>258</td>
<td>264</td>
<td>281</td>
<td>283</td>
<td>276</td>
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<tr>
<td>2017</td>
<td>255</td>
<td>267</td>
<td>281</td>
<td>283</td>
<td>274</td>
</tr>
</tbody>
</table>
Trends in Mathematics Nationwide – Grade 8

National Public
Large City
Fresno

Mathematics Scores:
- National Public: 276, 278, 280, 282, 283, 284, 281, 282
- Large City: 262, 265, 269, 271, 276, 274, 274, 274
- Fresno: 258, 256, 260, 257, 255
Mathematics Grade 8 – Percent At or Above Basic for California TUDAS

Fresno Los Angeles San Diego National Public Large Cities

Percent

2009 2011 2013 2015 2017
NAEP Trend by Student Group in Mathematics - Grade 8

<table>
<thead>
<tr>
<th>Group</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>282</td>
<td>281</td>
<td>279</td>
</tr>
<tr>
<td>Black</td>
<td>246</td>
<td>243</td>
<td>247</td>
</tr>
<tr>
<td>Hispanic</td>
<td>253</td>
<td>251</td>
<td>256</td>
</tr>
<tr>
<td>Asian</td>
<td>266</td>
<td>264</td>
<td>271</td>
</tr>
<tr>
<td>EL</td>
<td>234</td>
<td>228</td>
<td>229</td>
</tr>
<tr>
<td>SWD</td>
<td>222</td>
<td>212</td>
<td>221</td>
</tr>
</tbody>
</table>
Mathematics Grade 8 – White-Black Gap Average Scale Score: 2009-2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Mathematics Grade 8 – White-Hispanic Gap
Average Scale Score: 2009-2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Mathematics Grade 8 – NSLP Gap
Average Scale Score: 2009-2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Mathematics Grade 8 – SWD Gap
Average Scale Score: 2009-2017

NAEP Mathematics Grade 8 – Students with Disabilities

Gap - Average Scale Score: 2003-2017

Scale Score

2003 2005 2007 2009 2011 2013 2015 2017
222 262 260 263 261 258

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NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Mathematics Grade 8 – Gender Gap
Average Scale Score: 2009-2017

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.