MEMORANDUM

December 8, 2009

TO: Board Members

FROM: Terry B. Grier, Ed.D
Superintendent of Schools

SUBJECT: NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP) TRIAL URBAN DISTRICT ASSESSMENT (TUDA): MATHEMATICS 2009 RESULTS

CONTACT: Carla Stevens, 713-556-6700

The 2009 NAEP mathematics assessment has been released for the districts that participated in the Trial Urban District Assessment program. NAEP, also known as the Nation’s Report Card, is the nation’s only federally authorized survey of student achievement in various subject areas. NAEP is administered by the National Center for Education Statistics (NCES), an agency within the U.S. Department of Education’s Institute of Education Sciences. The Houston Independent School District (HISD) is one of 18 large urban districts that voluntarily participated in the TUDA in 2009.

Student performance on the 2009 NAEP mathematics assessments at grades 4 and 8 is reported by using scale scores, which represent equal units on a continuous scale, using numbers that range from 0 to 500. Also, student performance is reported by using the percentage of students who attained the achievement levels, Basic, Proficient, and Advanced. The National Assessment Governing Board (NAGB) defines the achievement levels as follows:

- **Basic**: denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- **Proficient**: represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- **Advanced**: signifies superior performance.

The NAEP assesses mathematics in five content strands: number properties and operations, measurement, geometry, data analysis and probability, and algebra.

Results of the 2009 NAEP grade 4 and 8 mathematics assessment are presented in the following tables and graphs. Due to sampling methods used by NCES, results are only available at the district level and not at the school level. Comparisons were made between the eighteen participating districts—Atlanta, Austin, Baltimore, Boston, Charlotte, Chicago, Cleveland, Detroit, District of Columbia, Fresno, Houston, Jefferson County, Los Angeles, Miami-Dade County, Milwaukee, New York City, Philadelphia, and San Diego—as well as Texas, the nation, and large central cities (LCC). These results present the fourth administration of the mathematics assessment for the TUDA. Not all districts have had participants over that time but Houston is one of the original TUDA districts since its inception in 2003.
NAEP Results Overall Summary

- In 2009, HISD showed remarkable overall performance in the subject of mathematics at both grades 4 and 8 (Tables 1-2).
- It is important to note that while the 18 TUDAs represent some of the largest urban school districts in the country, there remains some drastic differences among them. Not only are the demographic characteristics different but there is a drastic difference in percentage of students that are eligible for free/reduced price lunch and the percentage of English Language Learners.
- Tables 4 and 5 show the key characteristics for each of the participating TUDAs at each of the grade levels, as well as the characteristics of the nation and the LCC.
- The most notable performance of HISD students at grade 4 and 8 is that overall and each student group had higher average scale scores than their peers in the large central cities.
- The only other TUDA districts to accomplish this achievement was Charlotte which has nearly half as many students qualifying for the free/reduced lunch program and very few English Language Learners (ELL) students.
- Another notable achievement for HISD is that each student group in grade 4 and 8 demonstrates higher average scores than similar student groups from the nation. This is to say, HISD White, Hispanic, and African American students outperformed their counterparts nationally.

NAEP Results for Mathematics

- Houston’s fourth-grade students’ average scale score in math increased from 227 in 2003 to 236 in 2009. This was higher than the average score of 231 for public school students in large central cities (LCC) (Graph 8).
- Houston’s fourth-grade students outperformed the Large Central Cities and had higher scores than 10 districts, was not significantly different than 5 districts, and was only behind Austin and Charlotte (Table 1).
- The districts that outperformed HISD fourth-graders had lower percentages of students receiving free/reduced price lunch (Tables 4 & 5).
- The percent of Houston fourth-grade students who scored at or above the basic level increased from 70 percent in 2003 to 82 percent in 2009, while the percent at or above proficient increased from 18 percent in 2003 to 30 percent in 2009. Houston ranked third highest among the 18 districts in the percent at or above basic level of performance (Table 1).
- The average math score for Houston’s Hispanic fourth-grade students increased from 226 in 2003 to 235 in 2009, exceeding the scores for the nation, Large Central Cities, and tied for the second highest score with Charlotte. Only Miami-Dade had a higher score than Houston’s Hispanic fourth-graders. African American fourth-grade students in Houston increased from 221 in 2003 to 227 in 2009 and outperformed their counterparts in the nation, Large Central Cities, and ranked third among the TUDA districts, tying with New York City (Graphs 4 & 5).
- Houston’s eighth-grade students’ average math scale score increased from 264 in 2003 to 277 in 2009. This was higher than the average score of 271 for public school students in large central cities in 2009 (Graph 20).
- Houston’s eighth-grade students outperformed the Large Central Cities and had higher scores than 12 districts, was not significantly different than 3 districts, and were only behind Austin and Charlotte. The districts, Austin and Charlotte, which outperformed
HISD eighth-graders, had lower percentages of students receiving free/reduced price lunch (Tables 2 & 5).

- The percent of Houston eighth-grade students who scored at or above the basic level increased from 52 percent in 2003 to 69 percent in 2009. Houston ranked third highest among the 18 cities in the percent at or above basic level of performance (Table 2).
- Hispanic eighth-grade students in Houston increased from 261 in 2003 to 275 in 2009. Additionally, Houston’s Hispanic eighth-grade students outperformed their counterparts nationwide, in Large Central Cities, and all 18 TUDA districts. African American eighth-grade students in Houston increased from 259 in 2003 to 266 in 2009. African American eighth-grade students outperformed their counterparts nationwide, in Large Central Cities, and ranked fourth among the TUDA cities (Graphs 16 - 23).
- Overall, Houston’s fourth-grade and eighth-grade student groups had higher average scores than large central cities. The only other district to do this was Charlotte (Tables 1 & 2).

**NAEP GAP Results for Mathematics:** (See Appendices)

- Houston’s fourth-grade female students average scale score in math was not significantly different from that of male students.
- Hispanic forth-grade students in Houston had an average scale score that was lower than that of their white counterparts by 25 points. The average scale score has decreased from 2007 and 2009 by 4 points between Hispanic students and white students, while the gap at the state level has increased by 3 points (Graph 10).
- In 2009, African American fourth-grade students had an average scale score that was 32 points lower than their white counterparts. The average scale score has decreased from 2007 and 2009 by 6 points between African American students and white students, while the gap at the state level has remained the same during that time period (Graph 11).
- The fourth-grade students in HISD eligible for free/reduced lunch had an average scale score of 233, which was lower than those students not eligible for free/reduced lunch by 18 points. The gap at the state level between the two groups was 2 points higher than HISD (Graph 12).
- The eighth-grade Hispanic students had an average scale score that was lower than their white counterparts by 36 points and decreased by 2 points from 2007. During this same time period, the gap increased by 1 point (Graph 22).
- The African American eighth-grade students in HISD had an average score that was lower than their white peers by 45 points. The average scale score difference is not significantly different between 2007 and 2009 for African American students and white students (Graph 23).
- Although some of the gaps between demographic groups are not significant the direction and increments are leading in a positive direction.

**NAEP Sample/Exclusions:** (Table 3)

- For 2009, 2,200 fourth-grade students were tested in math and 1,900 eighth-grade students were tested in math.
- The district’s exclusion rate for fourth graders with disabilities (SD) or English language learners (ELL) on the mathematics test was 3 percent, lower than in 2007 (2 percent for ELL students).
• The math exclusion rate for eighth-grade students with disabilities or English language learners was 5 percent, lower than in 2007 (2 percent for LEP students).

Attachments

c: Superintendent’s Direct Reports
   Regional Superintendents
   Jolene Yoakum
### Table 1: NAEP Fourth-Grade Mathematics Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2003, 2005, 2007, and 2009

<table>
<thead>
<tr>
<th>Scale Scores (0-500)</th>
<th>At or Above Basic (Percentage of Students)</th>
<th>At or Above Proficient (Percentage of Students)</th>
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<td>+</td>
<td>242</td>
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+ Did not participate

“Large Central City” includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

**Table 2: NAEP Eighth-Grade Mathematics Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2003, 2005, 2007, and 2009**

<table>
<thead>
<tr>
<th>Scale Scores (0-500)</th>
<th>At or Above Basic (Percentage of Students)</th>
<th>At or Above Proficient (Percentage of Students)</th>
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</thead>
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<td></td>
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<tr>
<td>San Diego</td>
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*+ Did not participate

“Large Central City” includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.
### Table 3: Percentage of Identified and Excluded Students with Disabilities (SD) and English Language Learners (ELL) for HISD: 2003, 2005, 2007, 2009 Mathematics Assessments

<table>
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<th>Mathematics</th>
<th>Grade 4</th>
<th>Grade 8</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
<th>2003</th>
<th>2005</th>
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<th>2009</th>
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<td>1,684</td>
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<td>1,900</td>
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<tr>
<td>SD/ELL Identified</td>
<td>45%</td>
<td>46%</td>
<td>45%</td>
<td>43%</td>
<td>26%</td>
<td>24%</td>
<td>22%</td>
<td>22%</td>
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<td></td>
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<tr>
<td>SD/ELL Excluded</td>
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<td>7%</td>
<td>4%</td>
<td>3%</td>
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<tr>
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<td>12%</td>
<td>10%</td>
<td>7%</td>
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<td></td>
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<tr>
<td>SD Excluded</td>
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<td>5%</td>
<td>3%</td>
<td>2%</td>
<td>7%</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
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<tr>
<td>ELL Identified</td>
<td>35%</td>
<td>37%</td>
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<td>38%</td>
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<tr>
<td>Student Characteristics</td>
<td># of Students Assessed</td>
<td>% White</td>
<td>% Black</td>
<td>% Hispanic</td>
<td>% Asian / Pacific Islander</td>
<td>% Eligible for Lunch Program</td>
<td>% with Disabilities</td>
<td>% English Language Learners</td>
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# Rounds to Zero
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<th>Student Characteristics</th>
<th># of Students Assessed</th>
<th>% White</th>
<th>% Black</th>
<th>% Hispanic</th>
<th>% Asian / Pacific Islander</th>
<th>% Eligible for Lunch Program</th>
<th>% with Disabilities</th>
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<td>75</td>
<td>13</td>
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<td>Fresno</td>
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<td>14</td>
<td>11</td>
<td>58</td>
<td>16</td>
<td>86</td>
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<td>9</td>
<td>2</td>
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<tr>
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<td>2,000</td>
<td>8</td>
<td>10</td>
<td>75</td>
<td>7</td>
<td>82</td>
<td>10</td>
<td>23</td>
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<tr>
<td>Miami-Dade</td>
<td>2,000</td>
<td>10</td>
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<td>65</td>
<td>1</td>
<td>63</td>
<td>11</td>
<td>7</td>
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<td>78</td>
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<td>6</td>
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<td>32</td>
<td>39</td>
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<td>79</td>
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<td>9</td>
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<td>85</td>
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<tr>
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<td>1,000</td>
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<td>12</td>
<td>41</td>
<td>18</td>
<td>55</td>
<td>8</td>
<td>15</td>
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</tbody>
</table>

# Rounds to Zero
Appendix A
Grade 4 Mathematics

NAEP
HOUSTON INDEPENDENT SCHOOL DISTRICT
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

Trial Urban District Assessment
Graph 1

NAEP Mathematics Grade 4 — Overall

Average Scale Score: 2009

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

NAEP Mathematics Grade 4 — Overall

Average Scale Score: 2009

- Cleveland
- Fresno
- Milwaukee
- DCPS
- Philadelphia
- Los Angeles
- Chicago
- Baltimore City
- Atlanta
- Large City
- Jefferson County (KY)
- Houston
- Boston
- San Diego
- Miami-Dade
- New York City
- National Public
- Austin
- Charlotte

Average Scale Score

- Scale Scores range from 190 to 260.
Graph 3

NAEP Mathematics Grade 4 — Overall
Percent At or Above Basic: 2009

Percent
Graph 4

NAEP Mathematics Grade 4 — Hispanic

Average Scale Score: 2009

NOTE: Sample size insufficient to permit a reliable estimate for Hispanic students in for Baltimore City.
Graph 5

NAEP Mathematics Grade 4 — Black

Average Scale Score: 2009

Scale Score

Percent Black Students


16% Nation

29% Large City

84% Detroit

68% Cleveland

7% Los Angeles

56% Milwaukee

45% Chicago

77% DCPS

10% Fresno

61% Philadelphia

36% Jefferson County (KY)

79% Atlanta

87% Baltimore City

25% Miami-Dade

226

227

227

231

231
NAEP Mathematics Grade 4 — National School Lunch Program

Average Scale Score: 2009
Graph 7

NAEP Mathematics Grade 4 — Overall

Average Scale Score: 2003-2009

Scale Score

280
270
260
250
240
230
220
210
200
190
180

2003 2005 2007 2009

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


NOTE: Overall represents HISD.
Graph 8

NAEP Mathematics Grade 4 — Overall

Average Scale Score: 2003-2009

Scale Score

2003 2005 2007 2009

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


NOTE: Overall represents HISD.
NAEP Mathematics Grade 4 — Overall

Average Scale Score: 2003-2009

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


NOTE: Overall represents HISD.
NOTE: NP represents National Public.
Graph 10

NAEP Mathematics Grade 4 — White - Hispanic

Gap - Average Scale Score: 2003-2009

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

Graph 11

NAEP Mathematics Grade 4 — White - Black

Gap - Average Scale Score: 2003-2009

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

Graph 12

NAEP Mathematics Grade 4 — National School Lunch Program

Gap - Average Scale Score: 2003-2009

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

Appendix B
Grade 8 Mathematics

NAEP
HOUSTON INDEPENDENT SCHOOL DISTRICT
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS
Trial Urban District Assessment
Graph 13

NAEP Mathematics Grade 8 — Overall

Average Scale Score: 2009

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

Graph 14

NAEP Mathematics Grade 8 — Overall

Average Scale Score: 2009

Average Scale Score

Detroit
DCPS
Milwaukee
Cleveland
Baltimore City
Fresno
Los Angeles
Atlanta
Chicago
Philadelphia
Jefferson County (KY)
Large City
Miami-Dade
New York City
Houston
Boston
San Diego
National Public
Charlotte
Austin

230
235
240 245
250
255 260
265
270 275 280
285
290 295
300
NAEP Mathematics Grade 8 — Overall

Percent At or Above Basic: 2009

Graph 15

- Detroit
- Milwaukee
- District of Columbia (DCPS)
- Cleveland
- Baltimore City
- Fresno
- Los Angeles
- Atlanta
- Chicago
- Philadelphia
- Large City
- Jefferson County (KY)
- New York City
- Miami-Dade
- Boston
- San Diego
- Houston
- National Public
- Charlotte
- Austin

Percent
NAEP Mathematics Grade 8 — Hispanic

Average Scale Score: 2009

NOTE: Sample size insufficient to permit a reliable estimate for Hispanic students in Atlanta, Baltimore City and Jefferson.
Graph 17

NAEP Mathematics Grade 8 — Black

Average Scale Score: 2009
NAEP Mathematics Grade 8 — National School Lunch Program

Average Scale Score: 2009

<table>
<thead>
<tr>
<th>City</th>
<th>Average Scale Score</th>
<th>Percent Lunch Eligible Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nation</td>
<td>266</td>
<td>43%</td>
</tr>
<tr>
<td>Large City</td>
<td>262</td>
<td>66%</td>
</tr>
<tr>
<td>Detroit DCPS</td>
<td>253</td>
<td>70%</td>
</tr>
<tr>
<td>Fresno</td>
<td>253</td>
<td>75%</td>
</tr>
<tr>
<td>Atlanta</td>
<td>254</td>
<td>86%</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>254</td>
<td>82%</td>
</tr>
<tr>
<td>Baltimore City</td>
<td>256</td>
<td>82%</td>
</tr>
<tr>
<td>Cleveland</td>
<td>257</td>
<td>100%</td>
</tr>
<tr>
<td>Jefferson County (KY)</td>
<td>261</td>
<td>55%</td>
</tr>
<tr>
<td>Chicago</td>
<td>261</td>
<td>63%</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>266</td>
<td>46%</td>
</tr>
<tr>
<td>Miami-Dade</td>
<td>268</td>
<td>55%</td>
</tr>
<tr>
<td>San Diego</td>
<td>270</td>
<td>79%</td>
</tr>
<tr>
<td>New York City</td>
<td>271</td>
<td>55%</td>
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<td>Austin</td>
<td>271</td>
<td>78%</td>
</tr>
<tr>
<td>Houston</td>
<td>273</td>
<td>73%</td>
</tr>
</tbody>
</table>
NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.


NOTE: Overall represents HISD.
Graph 20

NAEP Mathematics Grade 8 — Overall

Average Scale Score: 2003-2009

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


NOTE: Overall represents HISD.
NAEP Mathematics Grade 8 — Overall

Average Scale Score: 2003-2009

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


NOTE: Overall represents HISD.
NOTE: NP Represents National Public
**Graph 22**

**NAEP Mathematics Grade 8 — White - Hispanic**

*Gap - Average Scale Score: 2003-2009*

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

NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
Graph 24

NAEP Mathematics Grade 8 — National School Lunch Program

Gap - Average Scale Score: 2003-2009

Houston

Texas

Scale Score

2003 2005 2007 2009 2003 2005 2007 2009

259 262 268 271 264 268 275 276

276 279 293 296 288 293 297 299

18 17 25 25 24 25 23 24

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