NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS:
TRIAL URBAN DISTRICT ASSESSMENT
2005

Introduction

In 2005, the Houston Independent School District (HISD) voluntarily participated in the National Assessment of Educational Progress (NAEP) Trial Urban District Assessment (TUDA). 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 2002 TUDA marked the initial benchmark administration of the reading and writing assessments. The following six urban districts participated: Atlanta Public Schools, Chicago Public Schools, Houston Independent School District, Los Angeles Unified School District, New York City Public Schools, and the District of Columbia Public Schools. In 2003, the second administration of the reading assessment and the initial benchmark administration of the mathematics assessment for the TUDA was given to 10 districts. The new districts included Boston Public Schools, Charlotte-Mecklenburg Schools, Cleveland Municipal School District, San Diego City Schools. In 2005, the third administration of the reading assessment, the second administration of the mathematics assessment, and the first administration of Science at grades four and eight for the TUDA was given to 11 districts. The new district was Austin Independent School District. In order to be consistent with NAEP reporting practices, districts will be referred to by their city name in this report.

Analysis of TUDA Results

The 2005 NAEP reading and math results for TUDA districts were released on December 1, 2005. However, the 2005 NAEP Science results were not released until November 15, 2006. These results were analyzed at the districtwide level for the reading, mathematics, and science assessments for fourth and eighth grades. Due to sampling methods used by NCES, results are only available at the district level and not at the school level. This report also includes results for the nation, Texas, and large central city for comparisons. Large central city includes nationally representative public schools located in large central cities within metropolitan statistical areas of 250,000 or more as defined by the Federal Office of Management and Budget. It is not synonymous with "inner city."

Student performance is reported by using scale scores, which represent equal units on a continuous scale. The scale scores range from 0 to 500. In addition, student performance is reported by using the percentage of students who attained the achievement levels of 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.

Through the utilization of scale scores and achievement levels, a comparative analysis of the 2005 TUDA performance of Houston students on the reading assessment with the results of the 2002 and 2003 TUDA is included in this report. Also, an analysis of Houston students' performance on the 2005 mathematics assessments compared with the results of the 2003 TUDA is included in this report. As this is the first TUDA administration of science, the 2005 data are reported as a baseline. Lastly, the results by ethnicity and eligibility for free/reduced lunch are presented for each assessment.

Participation

The process for selecting students to participate in the TUDA involved several procedures. First, NCES randomly selected schools from each of the participating districts, and then requested a roster of all the students from the selected schools. NCES randomly selected students from the school rosters and identified students with disabilities (SD) and English Language Learners (ELL). Each selected school was asked to complete a student questionnaire for students with disabilities and/or ELL status using NAEP guidelines. According to NAEP guidelines, students with disabilities should be included in the NAEP assessment unless:

- The IEP team or equivalent group has determined that the student cannot participate in assessments such as NAEP, or
- The student's cognitive functioning is so severely impaired that he or she cannot participate, or
- The student's IEP requires that the student be tested with an accommodation that NAEP does not permit, and the student cannot demonstrate his or her knowledge of reading or mathematics without that accommodation.

Also, ELL students should be included in the NAEP assessment unless:

- The student has received reading or mathematics instruction primarily in English for *less* than three school years including the current year, and
- The student cannot demonstrate his or her knowledge of reading or mathematics in English even with an accommodation permitted by NAEP.

A total of 132 schools in Houston participated in the 2005 TUDA for the reading, mathematics, and science assessments. **Table 1** presents the TUDA sample. The Houston sample included 1,700 students in grade four and in grade eight for the 2005 reading test. In addition, 2,000 students in grade four and 1,700 students in grade eight participated in the 2005 mathematics assessment, and 2,200 fourth-grade students and 1,900 eighth-grade students were tested on science. The sample also included students with disabilities and English Language Learners from Houston. Testing accommodations were made for eligible students under the NAEP guidelines.

Table 1 also presents the number of identified and excluded HISD special population students. The district's exclusion rate for fourth-grade SD and/or ELL students on the reading test decreased from 24% in 2003 to 23% in 2005. The ELL exclusion rate decreased from 20% in 2003 to 19% in 2005, and the SD exclusion rate decreased from 9% in 2003 to 7% in 2005. The reading exclusion rate for eighth-grade SD and/or ELL students was 7% in 2005 compared to 10% in 2003. The ELL exclusion rate decreased from 6% in 2003 to 4% in 2005, and the SD exclusion rate decreased from 7% in 2003 to 5% in 2005 for eighth-grade students. The SD and/or ELL exclusion rate on the 2005 mathematics test was 7% for fourth-grade students and 6% for students in eighth grade. The ELL exclusion rate for fourth-grade students remained the same at 4% from 2003 to 2005, and the SD exclusion rate decreased from 7% in 2003 to 5% in 2005. The ELL exclusion rate for eighth-grade students decreased from 5% in 2003 to 3% in 2005, and the SD exclusion rate decreased from 7% in 2003 to 4% in 2005. The SD and/or ELL exclusion rate on the 2005 science test was 7% for fourth-grade students and 6% for students in eighth grade.

Table 1: Percentage of Identified and Excluded Students with Disabilities and English Language Learners: 2002, 2003, and 2005 Reading, Mathematics, and Science Assessments

	Reading						Mathematics				Science	
	Grade 4			Grade 8			Grade 4		Grade 8		Grade 4	Grade 8
	2002	2003	2005	2002	2003	2005	2003	2005	2003	2005	2005	2005
TUDA Sample	1,326	1, 889	1,700	1,110	1,660	1,700	2,303	2,000	1,684	1,700	2,200	1,900
SD/ELL Identified	43%	42%	44%	27%	27%	24%	45%	46%	26%	24%	45%	24%
SD/ELL Excluded	17%	24%	23%	7%	10%	7%	8%	7%	8%	6%	7%	6%
SD Identified	12%	18%	12%	15%	18%	13%	18%	12%	16%	11%	12%	13%
SD Excluded	4%	9%	7%	5%	7%	5%	7%	5%	7%	4%	5%	4%
ELL Identified	36%	33%	36%	16%	16%	14%	35%	37%	16%	15%	36%	14%
ELL Excluded	16%	20%	19%	4%	6%	4%	4%	4%	5%	3%	4%	3%

Higher exclusion rates on the reading assessments are due to the fact that the reading test is administered in English and a Spanish version is not offered. However, ELL students are allowed to use mathematics and science test booklets that are written in Spanish. Therefore, the ELL exclusions dramatically decreased for the mathematics and science tests compared to reading.

2005 READING

NAEP Reading Framework

The NAEP reading section assessed "reading literacy," which was defined as "developing a general understanding of written text, thinking about text in different ways, and using a variety of text types for different purposes." The NAEP contexts for reading were:

- Reading for literary experience;
- Reading for information; and
- Reading to perform a task (grade 8).

Examples of "reading for literary experience" included students reading excerpts of novels, poems, essays, and plays. Examples of "reading for information" included students reading excerpts of magazine articles, newspapers, and textbook chapters. Eighth-grade students were asked to do "reading to perform a task," which included reading schedules, directions, repair manuals, and instruction manuals. The four aspects of reading included:

- Forming a general understanding;
- Developing interpretation;
- Making reader/text connections; and
- Examining content and structure.

Reading was assessed through multiple choice and constructed-response questions (students write their own response). Unique scoring guides were developed for each constructed-response question. Each student took either two 25-minute blocks of questions or one 50-minute block. Blocks included at least one reading passage and a related set of 10-12 comprehension questions which may have included multiple choice and constructed-response questions.

Reading Results: Grade 4

The NAEP Reading Assessment results of fourth-grade students for 2002, 2003, and 2005 are presented in **Table 2**. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 2. The category for Large Central City was added in 2005, and the city of Austin was a new participant in 2005, thus only one year of data is presented. Also, Boston, Cleveland and San Diego were added in 2003 and only reported two years of data.

As mentioned previously, the reading scale scores range from 0 to 500. The average scale score for Texas fourth-grade students on the reading assessment was 219, above the national average of 217 in 2005. The

average scale score for the nation slightly increased from 216 in 2003 to 217 in 2005. The average scale score for Texas increased from 215 in 2003 to 219 in 2005, while Houston's average scale score increased steadily from 206 in 2002 to 211 in 2005. This average reading scale score for Houston fourth-grade students was lower than the nation and Texas, but higher than the large central city average in 2005. Houston's fourth-grade students outperformed seven of the other districts with the exception of Charlotte, Austin, and New York City.

The percentage of Texas fourth-grade students who scored at or above the proficient level was 29%, slightly below the 30% nationally in 2005. The percentage of fourth-grade students who scored at or above the proficient level for large central city in 2005 was 20%. The percent of Houston fourth-grade students who scored at or above the proficient level increased from 18% in 2003 to 21% in 2005. The percentage of fourth- grade students who scored at or above the basic level in 2005 was 62% for the nation, 64% for Texas, and 49% for large central city . The percentage of Houston fourth-grade students who scored at or above the basic level was 52%, which was lower than both Texas and the nation, but higher than large central city in 2005.

Table 2 : NAEP Fourth-Grade Reading Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2002, 2003, and 2005

	Scale Scores (0-500)			At or Above Basic (Percentage of Students)			At or Above Proficient (Percentage of Students)		
	2002	**2003**	**2005**	**2002**	**2003**	**2005**	**2002**	**2003**	**2005**
Nation	217	216	217	62	62	62	30	30	30
Texas	217	215	219	62	59	64	28	27	29
Large Central City			206			49			20
Houston	**206**	**207**	**211**	**48**	**48**	**52**	**18**	**18**	**21**
Atlanta	195	197	201	35	37	41	12	14	17
Austin	+	+	217	+	+	61	+	+	28
Boston	+	206	207	+	48	51	+	16	16
Charlotte	+	219	221	+	64	65	+	31	33
Chicago	193	198	198	34	40	40	11	14	14
Cleveland	+	195	197	+	35	37	+	9	10
District of Columbia	191	188	191	31	31	33	10	10	11
Los Angeles	191	194	196	33	35	37	11	11	14
New York City	206	210	213	47	53	57	19	22	22
San Diego	+	208	208	+	51	51	+	22	22

+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. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Race/Ethnicity

Table 3 presents the average reading scale scores of African American, Hispanic, and White fourth-grade students. The average scale score of African American students in Texas increased from 202 in 2003 to 206 in 2005. The average scale score of African American students in Houston increased from 201 in 2003 to 207 in 2005. Hispanic students in Houston did not experience a change in their average scale score of 203 from 2002 to 2005. The average scale score of White students increased from 235 in 2003 to 245 in 2005.

Table 3: NAEP Average Reading Scale Scores by Race/Ethnicity in Grade 4: 2002, 2003 and 2005

	African American			Hispanic			White		
	2002	**2003**	**2005**	**2002**	**2003**	**2005**	**2002**	**2003**	**2005**
Nation	198	197	199	199	199	201	227	227	228
Texas	202	202	206	208	205	210	232	227	232
Large Central City			196			198			228
Houston	**200**	**201**	**207**	**203**	**203**	**203**	**233**	**235**	**245**
Atlanta	192	191	194	–	–	–	250	250	253
Austin	+	+	200	+	+	207	+	+	239
Boston	+	202	203	+	201	200	+	225	230
Charlotte	+	205	206	+	202	209	+	237	240
Chicago	185	193	190	193	196	201	221	224	225
Cleveland	+	191	193	+	201	201	+	208	209
District of Columbia	188	184	187	193	187	193	248	254	252
Los Angeles	186	187	187	185	189	190	223	217	229
New York	197	201	206	201	205	207	226	231	226
San Diego	+	196	198	+	195	196	+	231	226

–Not Available

+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. As the definition changed in 2005, no prior comparisons could be made.

Figure 1 presents the average reading scale scores of African American fourth-grade students in 2005. African American fourth-grade students in Houston achieved a higher average scale score than their counterparts in the nation, Texas, large central city, and all of the participating districts. The lowest performence was found among African American fourth-grade students in the District of Columbia and Los Angeles who each scored 20 points lower than their peers in Houston.

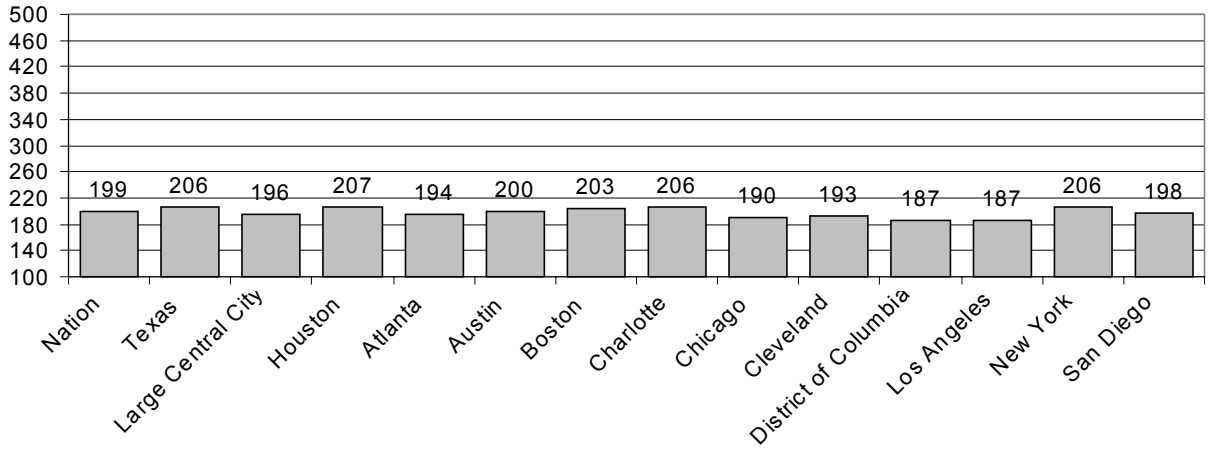

Figure 1: Average Reading Scale Scores for African American Students in Grade 4: 2005

Figure 2 presents the average reading scale scores of Hispanic fourth-grade students in 2005. The average scale score for Hispanic fourth-grade students in Houston was higher than the nation, large central city, and six of the participating districts. The lowest performence was found among Hispanic fourth-grade students in Los Angeles with a scale score of 190. The average scale score for Texas was seven points higher than Houston's average scale score. Austin, Charlotte, and New York City had higher average scale scores than Houston. Atlanta was not included in Figure 3 because there was not a sufficient number of Hispanic students tested.

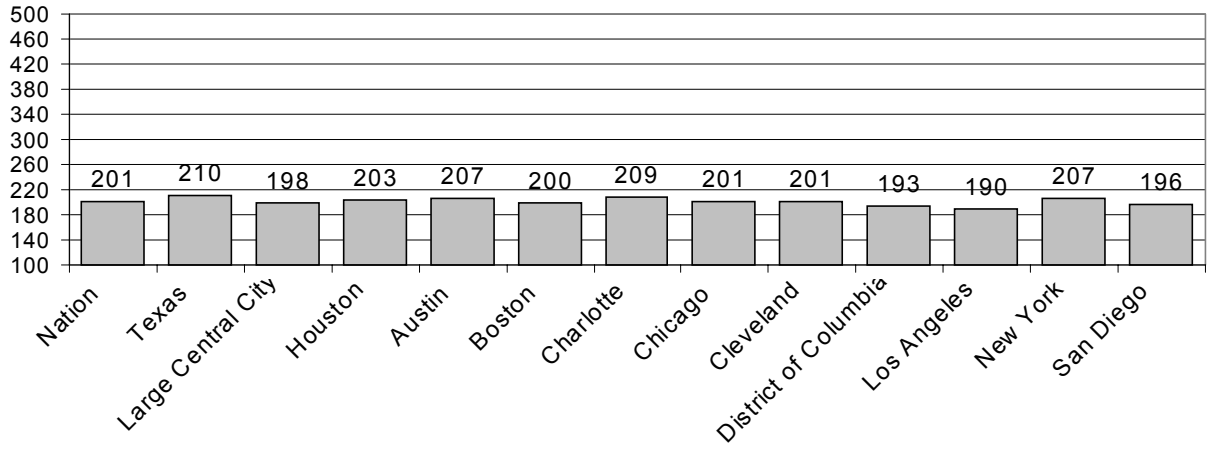

Figure 2: Average Reading Scale Scores for Hispanic Students in Grade 4: 2005

Figure 3 presents the average reading scale scores of White fourth-grade students in 2005. The average scale score for White fourth-grade students in Houston was 245, which was higher than the nation, Texas, large central city, and eight of the participating districts. The lowest average scale score was found among White students in Cleveland, who scored at 209. Atlanta and the District of Columbia had higher average scale scores than Houston, at 253 and 252, respectively.

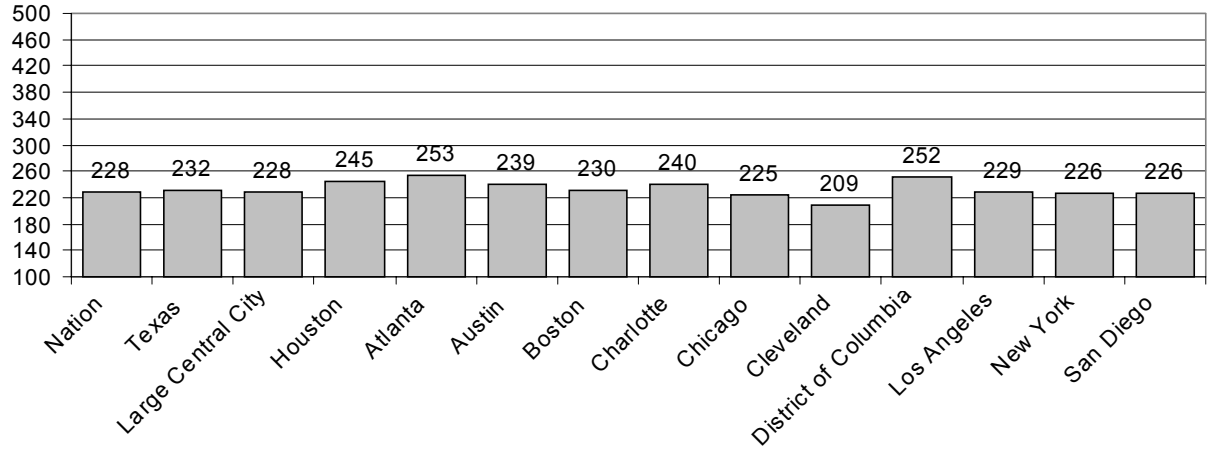

Figure 3: Average Reading Scale Scores for White Students in Grade 4: 2005

Table 4 presents the percentage of fourth-grade students at or above the basic level by race/ethnicity for 2002, 2003, and 2005. The percentage of African American students in Houston who were at or above the basic level steadly increased from 40% in 2002 to 49% in 2005. Also, African American students in Houston had a higher percent of students at or above the basic level than the percent for the nation and large central city and tied for the highest at 49% with Charlotte and New York City in 2005. The percentage of Hispanic students in Houston who were at or above the basic level remained the same at 44% from 2003 to 2005. Also, Hispanic students in Houston had a higher percent of students at or above the basic level than the percent for large central city and five of the participating districts. The percentage of White students in Houston who were at or above the basic level steadly increased from 79% in 2002 to 88% in 2005. Also, White students in Houston had a higher percent of students at or above the basic level in 2005 than the percent for the nation, Texas, large central city, and eight of the participating districts.

Table 4: Percentage of Students At or Above Basic Levels in Reading for Grade 4 by Race/Ethnicity: 2002, 2003, and 2005

	At or Above Basic								
	African American			Hispanic			White		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	39	39	41	43	43	44	74	74	75
Texas	43	44	49	52	48	54	80	74	79
Large Central City			38			40			74
Houston	**40**	**43**	**49**	**45**	**44**	**44**	**79**	**82**	**88**
Atlanta	32	31	33	–	–	–	86	91	95
Austin	+	+	43	+	+	51	+	+	86
Boston	+	43	45	+	42	42	+	69	79
Charlotte	+	48	49	+	46	54	+	83	86
Chicago	25	33	31	33	39	43	64	70	70
Cleveland	+	30	32	+	44	44	+	51	54
District of Columbia	28	27	29	34	29	37	91	90	92
Los Angeles	25	30	28	26	30	31	70	60	71
New York City	37	43	49	42	47	51	71	77	75
San Diego	+	38	43	+	37	38	+	79	69

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Table 5 presents the percentage of fourth-grade students at or above the proficient level by race/ethnicity for 2002, 2003, and 2005. The percentage of African American students in Houston who were at or above the proficient level increased from 12% in 2003 to 16% in 2005. Also, African American students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city and eight of the districts in 2005 tying for the highest with Charlotte and New York City. The percentage of Hispanic students in Houston who were at or above the proficient level decreased from 15% in 2003 to 13% in 2005. Also, Hispanic students in Houston had a higher percent of students at or above the proficient level than the percent for four of the districts. The percentage of White students in Houston who were at or above the proficient level steadly increased from 45% in 2002 to 61% in 2005. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and eight of the districts in 2005.

Table 5: Percentage of Students At or Above Proficient Levels in Reading for Grade 4 by Race/Ethnicity: 2002, 2003, and 2005

	At or Above Proficient								
	African American			Hispanic			White		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	12	12	12	14	14	15	39	39	39
Texas	14	16	15	18	17	19	44	39	44
Large Central City			11			13			40
Houston	**12**	**12**	**16**	**14**	**15**	**13**	**45**	**48**	**61**
Atlanta	8	8	10	–	–	–	67	68	74
Austin	+	+	12	+	+	17	+	+	54
Boston	+	11	11	+	12	10	+	37	40
Charlotte	+	14	16	+	15	19	+	52	55
Chicago	5	10	7	9	12	15	35	37	39
Cleveland	+	7	7	+	14	14	+	17	17
District of Columbia	7	7	8	8	8	12	66	70	70
Los Angeles	6	8	9	7	7	9	38	28	43
New York City	9	13	16	15	16	15	35	45	36
San Diego	+	9	13	+	12	11	+	43	39

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Eligibility for Free/Reduced Lunch

Table 6 presents NAEP average reading scale scores of fourth- grade students by eligibility for free/reduced lunch for 2002, 2003, and 2005. The average reading scale score for students in Houston who were eligible for free/reduced lunch steadly increased from 199 in 2002 to 202 in 2005. Houston students who were eligible for free/reduced lunch had higher average scale scores than their counterparts in six of the participating districts in 2005. Austin, Boston, Charlotte, and New York City had higher average scale scores than Houston. The average scale score for students who were eligible for free/reduced lunch in large central cities was lower than Houston by four points. The nation's average scale score of 203 was one point higher than Houston's. Texas had an average scale score of 208, which was six points higher than Houstons' average scale score. The average scale score of students in Houston who were not eligible for free/reduced lunch increased from 220 in 2003 to 235 in 2005. In addition, Houston fourth-grade students who were not eligible for free/reduced lunch outperformed those in the nation, Texas, large central city, and seven of the participating districts, just behind Austin and Charlotte.

Table 6 also presents the gap between students who were eligible and students who were not eligible for free/reduced lunch in 2002, 2003, and 2005. The gap for Houston widened from 19 to 33 points, since the average scale score for students who were not eligible for free/reduced lunch increased significantly. Also, the gap for Houston between students who were eligible and students who were not eligible for free/reduced lunch was wider than the gaps for the nation, Texas, large central city, and six of the participating districts in 2005. Atlanta had the widest gap at 42 points in 2005. Data for Cleveland were not available.

Table 6: NAEP Average Reading Scale Scores by Eligibility for Free/Reduced Lunch in Grade 4: 2002, 2003, and 2005

	Eligible			Not Eligible			Gap		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	202	201	203	229	229	230	27	28	27
Texas	215	205	208	228	226	232	13	28	24
Large Central City			198			226			28
Houston	**199**	**201**	**202**	**226**	**220**	**235**	**27**	**19**	**33**
Atlanta	189	189	191	214	230	233	25	41	42
Austin	+	+	203	+	+	236	+	+	33
Boston	+	204	205	+	221	223	+	17	18
Charlotte	+	200	206	+	234	237	+	34	31
Chicago	190	194	194	222	227	222	32	33	28
Cleveland	+	195	197	+	–	–	+	–	–
District of Columbia	185	182	183	210	206	215	25	24	32
Los Angeles	186	189	190	199	213	225	13	23	35
New York	201	206	210	219	241	230	18	34	20
San Diego	+	197	199	+	224	223	+	27	24

–Not Available
+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. As the definition changed in 2005, no prior comparisons could be made.

Table 7 presents the percentage of fourth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch for 2002, 2003, and 2005. The percentage of students eligible for free/reduced lunch in Houston who were at or above the basic level steadly increased from 40% in 2002 to 43% in 2005, and the percent at or above proficient remained the same at 12% from 2003 to 2005. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level in 2005 than Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles.

Table 7: Percentage of Students At or Above Basic and Proficient Levels in Reading for Grade 4 by Eligibility for Free/Reduced Lunch: 2002, 2003, and 2005

	Eligible						Not Eligible					
	At or Above Basic			At or Above Proficient			At or Above Basic			At or Above Proficient		
	2002	2003	2005	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	46	44	46	16	15	15	76	75	77	41	41	42
Texas	53	48	52	20	16	17	76	72	78	39	39	44
Large Central City			40			12			72			38
Houston	**40**	**42**	**43**	**11**	**12**	**12**	**72**	**66**	**79**	**39**	**31**	**48**
Atlanta	29	29	29	7	7	7	55	71	77	27	45	49
Austin	+	+	46	+	+	13	+	+	82	+	+	50
Boston	+	46	47	+	13	13	+	65	69	+	30	33
Charlotte	+	43	49	+	12	15	+	81	82	+	47	51
Chicago	30	36	35	8	11	9	65	71	68	33	38	35
Cleveland	+	35	38	+	9	10	+	–	–	+	–	–
District of Columbia	25	25	25	5	6	6	52	48	59	23	24	29
Los Angeles	27	31	31	7	8	9	42	57	68	14	23	40
New York City	42	49	53	15	18	20	62	86	80	30	54	40
San Diego	+	39	42	+	12	14	+	69	68	+	37	35

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Contexts

As mentioned previously, the NAEP reading framework included assessing fourth-grade students on reading for literary experience and reading for information. **Table 8** presents the average reading scale scores of Houston fourth-grade students by context. The average scale score for the context, "reading for literary experience," increased from 210 in 2003 to 214 in 2005. The average scale score for the context, "reading for information," steadly increased from 200 in 2002 to 207 in 2005. A comparison of the average scale scores between "reading for literary experience" and "reading for information" reveals that fourth-grade students achieved a higher scale score on "reading for literary experience." The composite average scale score in 2005 was 211.

Table 8: NAEP Average Reading Scale Scores by Context for Houston Fourth-Grade Students: 2002, 2003, and 2005

	Average Scale Score		
	2002	**2003**	**2005**
Reading for Literary Experience	211	210	214
Reading for Information	200	202	207
Reading Composite Score	**206**	**207**	**211**

Reading Results: Grade 8

The NAEP Reading Assessment results of eighth-grade students for 2002, 2003, and 2005 are presented in **Table 9**. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 9. Boston, Charlotte, Cleveland, and San Diego did not participate in the 2002 NAEP Reading Assessment; therefore, there are no 2002 reading results for these districts. In addition, data for eighth-grade students in New York City were not available in 2002 because the district did not meet the required 70% school participation rate. Austin did not participate in 2002 or 2003.

As mentioned previously, the reading scale scores range from 0 to 500. The average scale score for Texas eighth-grade students on the reading assessment was 258, lower than the national average of 260 in 2005. The average scale score for the nation slightly decreased from 261 in 2003 to 260 in 2005. Also, the average scale score for Texas decreased from 259 in 2003 to 258 in 2005, while Houston's average scale score increased from 246 in 2003 to 248 in 2005. The average reading scale score for Houston eighth-grade students was lower than the nation, Texas, and large central city average in 2005. Houston's average scale score in 2005 was higher than the average scale score for Atlanta, Cleveland, the District of Columbia, and Los Angeles.

The percentage of Texas eighth-grade students who scored at or above the proficient level was 26%, compared to 29% nationally in 2005. The percent of eighth-grade students who scored at or above the proficient level for large central city was 20% in 2005. Eighth-grade students in Houston experienced an increase in the percent of students at or above the proficient level from 14% in 2003 to 17% in 2005. Houston's 17% was higher than the percent of eighth-grade students who scored at or above the proficient level in Atlanta, Cleveland, the District of Columbia, and Los Angeles. The percentage of eighth-grade students who scored at or above the basic level for the nation was 71% and 69% for Texas in 2005. In addition, the percentage of large central city eighth-grade students who scored at or above the basic level in 2005 was 60%. The percentage of Houston eighth-grade students who scored at or above the basic level was 59%, which was lower than the nation, Texas, and large central city.

Table 9 : NAEP Eighth-Grade Reading Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2002, 2003, and 2005

	Scale Scores (0-500)			At or Above Basic (Percentage of Students)			At or Above Proficient (Percentage of Students)		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	263	261	260	74	72	71	31	30	29
Texas	262	259	258	73	71	69	31	26	26
Large Central City			250			60			20
Houston	**248**	**246**	**248**	**59**	**55**	**59**	**17**	**14**	**17**
Atlanta	236	240	240	42	47	46	8	11	12
Austin	+	+	257	+	+	65	+	+	27
Boston	+	252	253	+	61	61	+	22	23
Charlotte	+	262	259	+	71	69	+	30	29
Chicago	249	248	249	62	59	60	15	15	17
Cleveland	+	240	240	+	48	49	+	10	10
District of Columbia	240	239	238	48	47	45	10	10	12
Los Angeles	237	234	239	44	43	47	10	11	13
New York	–	252	251	–	62	61	–	22	20
San Diego	+	250	253	+	60	63	+	20	23

+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. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Race/Ethnicity

Table 10 presents the average reading scale scores of African American, Hispanic, and White eighth-grade students. The average scale score of Houston African American students has steadly decreased from 247 in 2002 to 242 in 2005. Hispanic students in Houston experienced an increase in their average scale score from 242 in 2003 to 245 in 2005. White students' average scale score increased from 270 in 2003 to 280 in 2005.

Table 10: NAEP Average Reading Scale Scores by Race/Ethnicity in Reading for Grade 8: 2002, 2003, and 2005

	African American			Hispanic			White		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	244	244	242	245	244	245	271	270	269
Texas	247	247	246	250	247	248	276	272	270
Large Central City			240			243			270
Houston	**247**	**244**	**242**	**243**	**242**	**245**	**279**	**270**	**280**
Atlanta	233	237	237	–	–	–	275	–	–
Austin	+	+	242	+	+	243	+	+	279
Boston	+	245	244	+	245	248	+	273	274
Charlotte	+	247	244	+	244	248	+	278	278
Chicago	245	243	240	248	249	251	266	265	270
Cleveland	+	238	236	+	–	248	+	250	255
District of Columbia	238	236	235	240	240	247	–	–	301
Los Angeles	236	233	234	230	228	235	264	266	261
New York	–	245	241	–	247	247	–	270	269
San Diego	+	236	242	+	238	241	+	269	273

+Did not participate

–Not Available

"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Figure 4 presents the average reading scale scores of African American eighth-grade students in 2005. The average scale score for African American eighth-grade students in Houston was 242, which was the same as the nation. The average scale score for Houston was higher than the large central city and six of the participating districts. The average scale for Texas was 246, which was four points higher than Houston's average scale score. The lowest score was found among African American students in Los Angeles, who scored eight points lower than their counterparts in Houston. Boston and Charlotte achieved higher average scale scores than Houston.

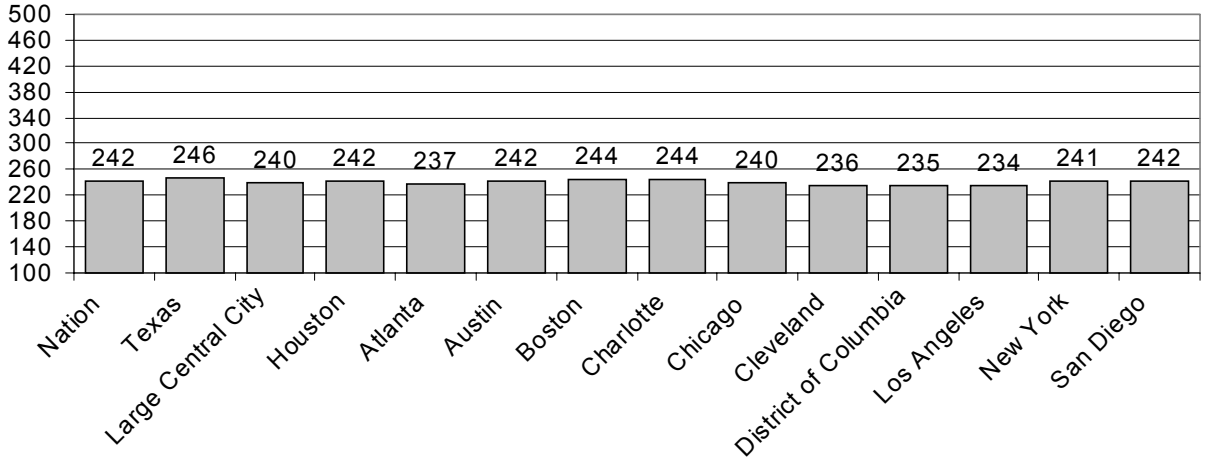

Figure 4: Average Reading Scale Scores for African American Students in Grade 8: 2005

Figure 5 presents the average reading scale scores of Hispanic eighth- grade students in 2005. The average scale score for Hispanic eighth- grade students in Houston was lower than the average scale score for Texas, and six of the participating districts. However, Hispanic eighth-grade students in Houston achieved higher average scale scores than the large central city, Austin, Los Angeles, and San Diego. Houston and the nation had the same average scale score at 245. The lowest score was found among Hispanic students in Los Angeles, who scored 10 points lower than their counterparts in Houston. Atlanta was not included in Figure 5 because there was not a sufficient number of Hispanic students tested.

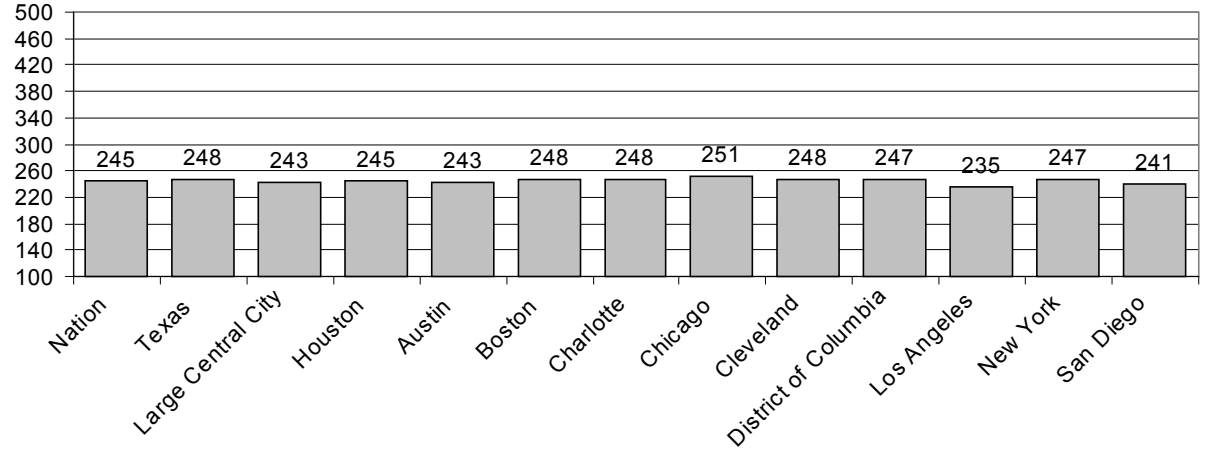

Figure 5: Average Reading Scale Scores for Hispanic Students in Grade 8: 2005

Figure 6 presents the average reading scale scores of White eighth-grade students in 2005. The average scale score for White eighth-grade students in Houston was 280, which was higher than the nation, Texas, and large central city average scale scores. White students in Houston also experienced higher average scale scores than all of the participating districts with the exception of the District of Columbia. The lowest score was found among White students in Cleveland, who scored 25 points lower than their counterparts in Houston. Atlanta was not included in Figure 6 because there was not a sufficient number of White students tested.

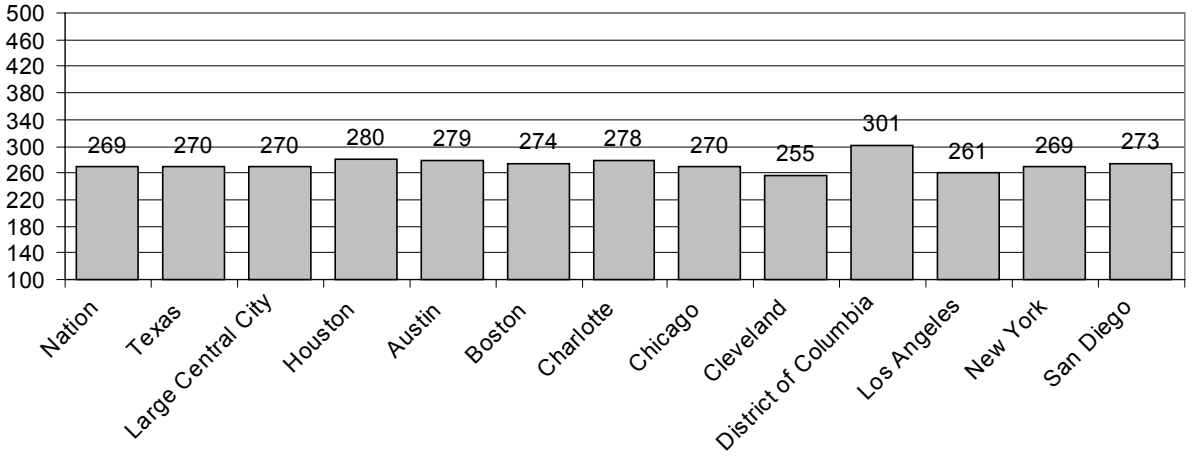

Figure 6: Average Reading Scale Scores for White Students in Grade 8: 2005

Table 11 presents the percentage of eighth-grade students at or above the basic level by race/ethnicity for 2002, 2003, and 2005. The percentage of African American students in Houston who were at or above the basic level remained the same at 53% from 2003 to 2005. Also, African American students in Houston had a higher percent of students at or above the basic level than the percent for the nation, large central city and eight of the districts in 2005. The percentage of Hispanic students in Houston who were at or above the basic level increased from 51% in 2003 to 56% in 2005. Hispanic students in Houston had a higher percent of students at or above the basic level than the percent for the nation, large central ciy, and three of the districts. The percentage of White students in Houston who were at or above the basic level increased from 80% in 2003 to 89% in 2005. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and eight of the participating districts.

Table 12 presents the percentage of eighth-grade students at or above the proficient level by race/ethnicity for 2002, 2003, and 2005. The percentage of African American students in Houston who were at or above the proficient level decreased from 12% in 2003 to 11% in 2005. Also, African American students in Houston had a higher percent of students at or above the proficient level than the percent for large central city and seven of the districts in 2005. The percentage of Hispanic students in Houston who were at or above the proficient level increased from 10% in 2003 to 12% in 2005. Hispanic students in Houston had a higher percent of students at or above the proficient level than the percent for Cleveland and Los Angeles. The percentage of White students in Houston who were at or above the proficient level increased from 40% in 2003 to 53% in 2005. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and eight of the participating districts.

Table 11: Percentage of Students At or Above Basic Levels in Reading for Grade 8 by Race/Ethnicity: 2002, 2003, and 2005

	At or Above Basic								
	African American			Hispanic			White		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	54	53	51	56	54	55	83	82	81
Texas	57	56	56	62	59	59	88	84	82
Large Central City	49	49	48	53	51	53	80	79	81
Houston	**60**	**53**	**53**	**52**	**51**	**56**	**87**	**80**	**89**
Atlanta	39	44	43	–	–	–	84	–	–
Austin	+	+	52	+	+	52	+	+	86
Boston	+	53	52	+	54	57	+	79	81
Charlotte	+	55	55	+	52	58	+	88	87
Chicago	57	52	50	61	61	62	75	79	81
Cleveland	+	45	44	+	–	57	+	62	66
District of Columbia	46	45	42	53	51	59	–	–	94
Los Angeles	43	41	40	36	37	43	73	76	69
New York City	–	56	49	–	57	57	–	79	80
San Diego	+	46	53	+	46	50	+	79	82

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Table 12: Percentage of Students At or Above Proficient Levels in Reading for Grade 8 by Race/Ethnicity: 2002, 2003, and 2005

	At or Above Proficient								
	African American			Hispanic			White		
	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	13	12	11	14	14	14	39	39	37
Texas	15	14	14	17	14	15	47	39	39
Large Central City	11	10	10	13	12	13	40	36	38
Houston	**15**	**12**	**11**	**13**	**10**	**12**	**47**	**40**	**53**
Atlanta	5	8	9	–	–	–	47	–	–
Austin	+	+	10	+	+	13	+	+	50
Boston	+	14	13	+	14	16	+	44	46
Charlotte	+	14	13	+	14	19	+	49	49
Chicago	10	10	10	12	15	16	31	30	41
Cleveland	+	8	8	+	–	10	+	14	20
District of Columbia	8	8	9	11	11	18	–	–	74
Los Angeles	8	7	8	5	6	9	33	36	31
New York City	–	13	10	–	17	14	–	42	38
San Diego	+	7	12	+	–	12	+	37	44

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Eligibility for Free/Reduced Lunch

Table 13 presents NAEP average reading scale scores of eighth-grade students by eligibility for free/reduced lunch for 2002, 2003, and 2005. The average reading scale score for students in Houston who were eligible for free/reduced lunch increased from 241 in 2003 to 243 in 2005. Houston students who were eligible for free/reduced lunch had higher average scale scores than students in six of the participating districts in 2005. The average scale score for students in Houston who were eligible for free/reduced lunch was the same as large centeral city and lower than the nations' and Texas' average scale score. The average scale score of students in Houston who were not eligible for free/reduced lunch increased from 256 in 2003 to 262 in 2005. In addition, eighth-grade students who were not eligible for free/reduced lunch in the nation, Texas, large central city, and all of the participating districts scored higher, on average, than students who were eligible for free/reduced lunch.

Table 13 also presents the gap between students who were eligible and students who were not eligible for free/reduced lunch in 2002, 2003, and 2005. The gap for Houston increased from 15 to 19 points, since the average scale score increased more for students who were not eligible for free/reduced lunch than for students who were eligible. Also, the gap for Houston between students who were eligible and students who were not eligible for free/reduced lunch was narrower than the gaps for the nation, Texas, large central city, and four of the participating districts in 2005.

Table 13: NAEP Average Reading Scale Scores by Eligibility for Free/Reduced Lunch in Grade 8: 2002, 2003, and 2005

	Eligible			Not Eligible			Gap		
	2002	**2003**	**2005**	**2002**	**2003**	**2005**	**2002**	**2003**	**2005**
Nation	249	246	247	271	271	270	22	25	23
Texas	248	246	247	275	269	269	27	23	22
Large Central City			243			264			21
Houston	**243**	**241**	**243**	**261**	**256**	**262**	**18**	**15**	**19**
Atlanta	233	235	234	244	256	260	11	21	26
Austin	+	+	240	+	+	272	+	+	+
Boston	+	247	247	+	265	274	+	18	27
Charlotte	+	244	242	+	273	274	+	29	32
Chicago	246	246	246	267	267	264	21	20	18
Cleveland	+	240	240	+	–	–	+	–	–
District of Columbia	235	232	234	251	248	249	16	16	15
Los Angeles	–	230	236	–	247	254	–	17	18
New York	–	248	249	–	278	266	–	30	17
San Diego	+	240	243	+	262	266	+	22	23

–Not Available
+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. As the definition changed in 2005, no prior comparisons could be made.

Table 14 presents the percentage of eighth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch for 2002, 2003, and 2005. Eighth-grade students eligible for free/reduced lunch in the nation, large central city, and Houston experienced an increase in the percent at or above the basic from 2003 to 2005. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level in 2005 than Atlanta, Cleveland, the District of Columbia, and Los Angeles. The percent of students not eligible for free/reduced lunch at or above the proficient level for Houston increased from 23% in 2003 to 30% in 2005.

Table 14: Percentage of Students At or Above Basic and Proficient Levels in Reading for Grade 8 by Eligibility for Free/Reduced Lunch: 2002, 2003, and 2005

	Eligible						Not Eligible					
	At or Above Basic			At or Above Proficient			At or Above Basic			At or Above Proficient		
	2002	2003	2005	2002	2003	2005	2002	2003	2005	2002	2003	2005
Nation	60	56	57	17	15	15	83	82	81	40	39	38
Texas	60	57	57	16	12	14	86	81	80	44	37	37
Large Central City	51	50	52	11	12	13	78	74	74	37	31	33
Houston	**52**	**49**	**54**	**13**	**10**	**11**	**75**	**67**	**73**	**26**	**23**	**30**
Atlanta	38	42	40	6	7	7	53	68	67	12	26	31
Austin	+	+	49	+	+	12	+	+	81	+	+	43
Boston	+	56	55	+	16	17	+	74	81	+	34	46
Charlotte	+	51	53	+	13	12	+	83	83	+	41	44
Chicago	59	56	57	11	13	14	76	78	73	36	32	34
Cleveland	+	48	49	+	10	10	+	–	–	+	–	–
District of Columbia	43	39	41	6	6	8	61	56	56	18	17	20
Los Angeles	–	37	43	–	7	10	–	58	63	–	18	24
New York City	–	58	59	–	18	18	–	87	76	–	48	35
San Diego	+	48	53	+	11	14	+	74	75	+	30	34

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Reading Results by Contexts

As mentioned previously, the NAEP reading framework included assessing eighth-grade students on reading for literary experience, reading for information, and reading to perform a task. **Table 15** presents the average reading scale scores of Houston eighth-grade students by context. The average scale score for the context, "reading for literary experience," increased from 247 in 2003 to 250 in 2005. Also, the average scale score for the context, "reading for information," increased by one point from 247 in 2003 to 248 in 2005. The average scale score for the context, "reading to perform a task," increased from 242 in 2003 to 246 in 2005. A comparison of the average scale scores between the three contexts within the NAEP reading framework reveals that eighth-grade students achieved higher scale scores for "reading for literary experience." The composite average scale score in 2005 was 248.

Table 15: NAEP Average Reading Scale Scores by Context for Houston Eighth-Grade Students: 2002, 2003, and 2005

	Average Scale Score		
	2002	2003	2005
Reading for Literary Experience	249	247	250
Reading for Information	248	247	248
Reading to Perform a Task	245	242	246
Reading Composite Score	**248**	**246**	**248**

2005 MATHEMATICS

NAEP Mathematics Framework

The NAEP mathematics framework focuses on two dimensions. The first dimension was mathematical content. The NAEP mathematics section assessed five content strands. These content strands were:

- number properties and operations;
- measurement;
- geometry;
- data analysis and probability; and
- algebra.

The second dimension was mathematical complexity which attempted to focus on the cognitive demands of the asssessment question. Mathematical complexity is catogrized into three levels: low, moderate, or high. Each level includes aspects of knowing and doing mathematics such as reasoning, performing procedures, understanding concepts, or solving problems. The mathematics framework used for previous NAEP assessments focused on the dimensions of mathematical ability and mathematical power. Mathematical complexity builds on these dimensions.

Mathematics was assessed through multiple choice, short constructed-response and extended- constructed response questions. The short constructed-response questions required students to give either a numerical result or the correct name or classification for a group of mathematical objects, draw an example of a given concept, or write a brief explanation for a given result. Extended constructed-response questions required students to plan an approach, solve the problem, and interpret their solution. In addition, students were required to show evidence of their work and communicate their decision-making process in solving the problem. Unique scoring guides were developed for each constructed-response question. Each student took two 25-minute blocks of questions.

Mathematics Results: Grade 4

The NAEP Mathematics Assessment results of fourth-grade students for 2003 and 2005 are presented in **Table 16**. The administration of the 2003 mathematics assessment set the initial benchmark for the TUDA. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 16.

As mentioned previously, the mathematics scale scores range from 0 to 500. The average scale score for Texas fourth-grade students on the mathematics assessment increased from 237 in 2003 to 242 in 2005, while the average scale score for Houston increased from 227 in 2003 to 233 in 2005. This average mathematics scale score for Houston fourth-grade students was lower than the nation and Texas, but higher than the large central city average in 2005. Also, fourth-grade students in Houston outperformed their counterparts in eight of the participating districts. Austin and Charlotte had higher average scale scores than Houston.

The percentage of Texas fourth-grade students who scored at or above the basic level was 87% compared to 79% nationally. The percent of fourth-grade students in Houston who scored at or above the basic level increased from 70% in 2003 to 77% in 2005. The percent of fourth-grade students in Houston who scored at or above the basic level was higher than large central city and eight other districts. The percentage of Texas fourth-grade students who scored at or above the proficient level was 40% compared to 35% nationally in 2005. The percent of fourth-grade students in Houston who scored at or above the proficient level increased from 18% in 2003 to 26% in 2005. The percent of fourth-grade students in Houston who scored at or above the proficient level was higher than large central city and six other districts. Austin, Charlotte, and San Diego had a higher percent of students who scored at or above the proficient level than Houston.

Table 16: NAEP Fourth-Grade Mathematics Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2003 and 2005

	Scale Scores (0-500)		At or Above Basic (Percentage of Students)		At or Above Proficient (Percentage of Students)	
	2003	2005	2003	2005	2003	2005
Nation	234	237	76	79	31	35
Texas	237	242	82	87	33	40
Large Central City		228		68		24
Houston	**227**	**233**	**70**	**77**	**18**	**26**
Atlanta	216	221	50	57	13	17
Austin	+	242	+	85	+	40
Boston	220	229	59	72	12	22
Charlotte	242	244	84	86	41	44
Chicago	214	216	50	52	10	13
Cleveland	215	220	51	60	10	13
District of Columbia	205	211	36	45	7	10
Los Angeles	216	220	52	58	13	18
New York City	226	231	67	73	21	26
San Diego	226	232	66	74	20	29

+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. As the definition changed in 2005, no prior comparisons could be made.

Mathematics Results by Race/Ethnicity

Table 17 presents the average mathematics scale scores of African American, Hispanic, and White fourth-grade students in 2003 and 2005. The average scale score of African American students in Texas increased from 226 in 2003 to 228 in 2005, while Houston's average scale score increased from 221 in 2003 to 224 in 2005. The average scale score of African American students in Houston was higher than the nation and large central city. The average scale score of Houston's Hispanic students increased from 226 in 2003 to 232 in 2005. The average scale score of Hispanic students in Houston was higher than the nation and large central city. The average scale score of White students increased from 254 in 2003 to 262 in 2005. The average scale score of White students in Houston was higher than the nation, Texas, and large central city.

Table 17: NAEP Average Mathematics Scale Scores by Race/Ethnicity in Grade 4: 2003 and 2005

	African American		Hispanic		White	
	2003	2005	2003	2005	2003	2005
Nation	216	220	221	225	243	246
Texas	226	228	230	235	248	254
Large Central City	212	217	220	223	243	247
Houston	**221**	**224**	**226**	**232**	**254**	**262**
Atlanta	211	215	–	–	258	263
Austin	+	228	+	234	+	262
Boston	216	223	215	225	234	244
Charlotte	229	230	233	234	257	261
Chicago	207	208	217	217	235	243
Cleveland	210	215	220	–	233	233
District of Columbia	202	207	205	215	262	266
Los Angeles	208	209	211	216	241	247
New York City	219	222	220	226	244	245
San Diego	216	221	216	222	243	249

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Figure 7 presents the average mathematics scale scores of African American fourth-grade students in 2005. The average scale score for African American fourth-grade students in Houston was higher than the nation, large central city, and eight of the participating districts. Austin and Charlotte were the only districts that had higher average scale scores than Houston. The widest gap was found among African American students in the District of Columbia, who scored 17 points lower than their counterparts in Houston.

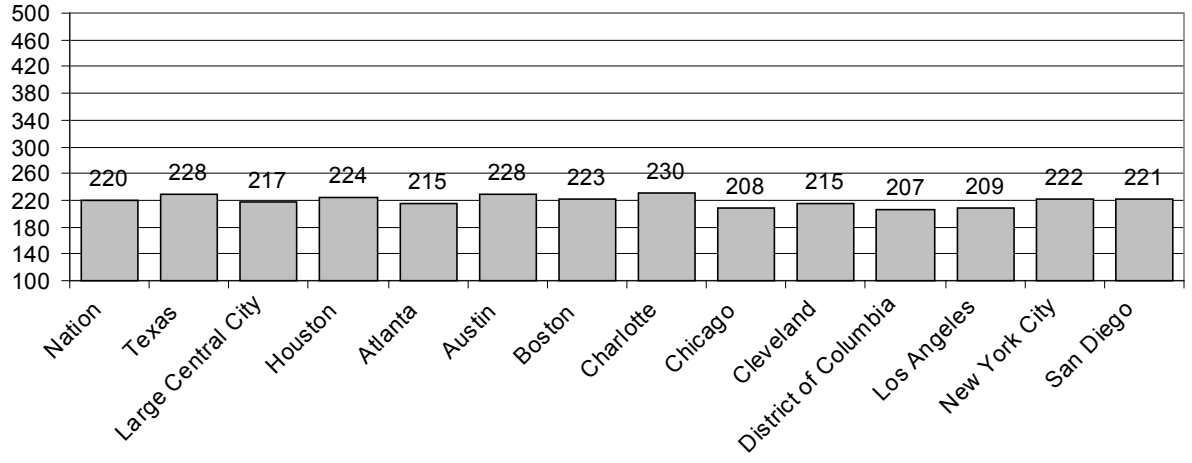

Figure 7: Average Mathematics Scale Scores for African American Students in Grade 4: 2005

Figure 8 presents the average mathematics scale scores of Hispanic fourth-grade students in 2005. The average scale score for Hispanic fourth-grade students in Houston was 232, higher than the nation, large central city, and six of the participating districts. The widest gap was found among Hispanic students in the District of Columbia, who scored 17 points lower than their counterparts in Houston. Austin and Charlotte were the only districts with a higher average scale score than Houston. Atlanta was not included in Figure 8 because there was not a sufficient number of Hispanic students tested.

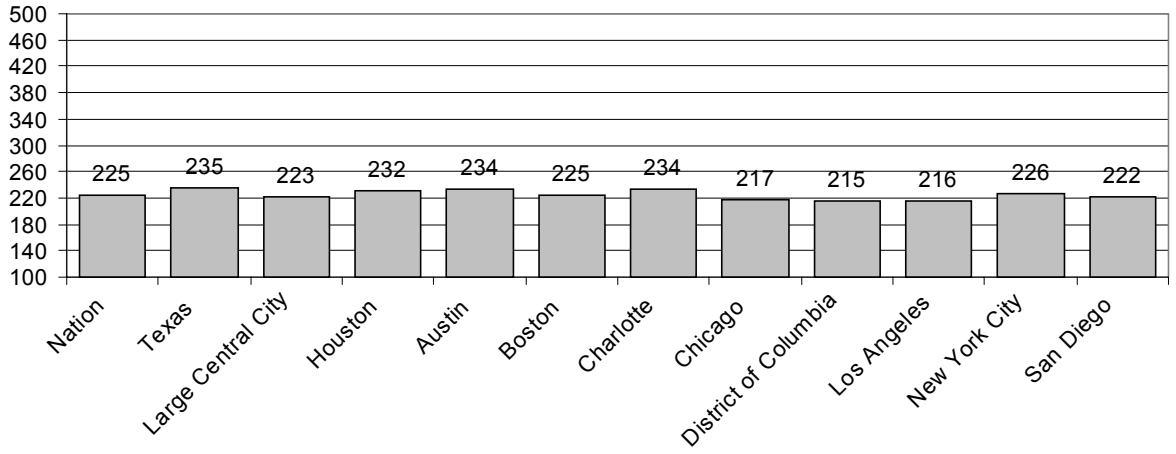

Figure 8: Average Mathematics Scale Scores for Hispanic Students in Grade 4: 2005

Figure 9 presents the average mathematics scale scores of White fourth-grade students in 2005. The average scale score for White fourth-grade students in Houston was 262, which was higher than the nation, Texas, and large central city averages. White students in Houston had a higher average scale score than seven of the participating districts. The widest gap was found among White students in Cleveland, who scored 29 points lower than their counterparts in Houston. Atlanta and the District of Columbia had higher average scale scores than Houston, while Austin had the same average scale score as Houston.

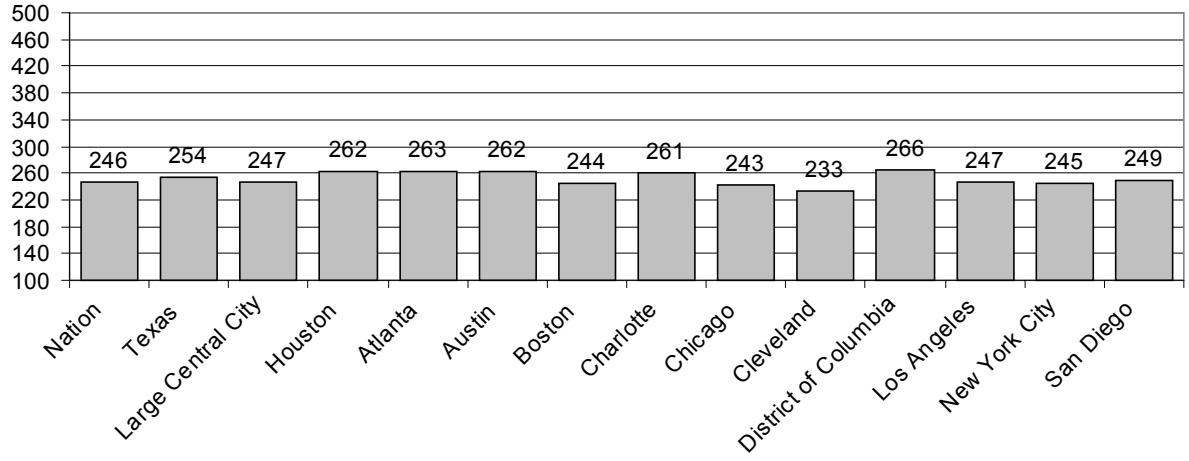

Figure 9: Average Mathematics Scale Scores for White Students in Grade 4: 2005

Table 18 presents the percentage of fourth-grade students at or above the basic and proficient level by race/ethnicity for the 2003 and 2005 mathematics assessments. The percentage of African American students in Houston who were at or above the basic level increased from 62% in 2003 to 67% in 2005, while the percent at or above proficient increased from 12% in 2003 to 14% in 2005. Also, African American students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, large central city, and six of the districts in 2005. The percentage of Hispanic students in Houston who were at or above the basic level increased from 70% in 2003 to 78% in 2005, while the percent at or above proficient increased from 15% in 2003 to 23% in 2005. Also, Hispanic students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, large central city, and six of the participating districts. The percentage of White students in Houston who were at or above the basic level slightly increased from 96% in 2003 to 97% in 2005, while the percent at or above the proficient level increased from 63% in 2003 to 73% in 2005. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and eight of the participating districts.

Table 18: Percentage of Students At or Above Basic and Proficient Levels in Grade 4 by Race/Ethnicity: 2003 and 2005

	African American				Hispanic				White			
	At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Nation	54	60	10	13	62	67	15	19	87	89	42	47
Texas	71	75	15	18	76	82	21	28	92	96	49	60
Large Central City		55		11		64		17		88		50
Houston	**62**	**67**	**12**	**14**	**70**	**78**	**15**	**23**	**96**	**97**	**63**	**73**
Atlanta	45	51	7	9	–	–	–	–	89	96	70	72
Austin	+	74	+	18	+	80	+	27	+	99	+	75
Boston	55	65	6	13	51	70	7	14	77	88	32	43
Charlotte	73	74	20	21	80	81	26	27	96	97	66	70
Chicago	39	41	4	6	55	55	10	13	82	88	31	43
Cleveland	44	52	5	8	58	–	14	–	80	81	27	25
District of Columbia	33	41	4	5	39	51	7	11	97	99	71	78
Los Angeles	42	42	6	9	46	53	7	13	83	87	44	49
New York City	58	63	12	14	60	70	13	18	88	87	42	46
San Diego	54	60	8	15	53	63	9	16	87	94	41	50

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made

Mathematics Results by Eligibility for Free/Reduced Lunch

Table 19 presents NAEP average mathematics scale scores of fourth-grade students by eligibility for free/reduced lunch in 2003 and 2005. The average mathematics scale score for students in Houston who were eligible for free/reduced lunch increased from 223 in 2003 to 228 in 2005. Houston students who were eligible for free/reduced lunch had higher average scale scores than students in seven of the participating districts in 2005. Also, Houston students had a higher average scale score than students who were eligible for free/reduced lunch in the nation and large central city. The average scale score of students in Houston who were not eligible for free/reduced lunch increased from 239 in 2003 to 251 in 2005. In addition, fourth-grade students who were not eligible for free/reduced lunch in the nation, Texas, large central city, and all participating districts scored higher, on average, than students who were eligible for free/reduced lunch. Data for Cleveland were not available.

Table 19 presents the gap between students who were eligible and students who were not eligible for free/reduced lunch in 2003 and 2005. The gap for Houston widen from 16 points in 2003 to 23 points in 2005. The

Table 19: NAEP Average Mathematics Scale Scores by Eligibility for Free/Reduced Lunch in Grade 4: 2003 and 2005

	Eligible		Not Eligible		Gap	
	2003	2005	2003	2005	2003	2005
Nation	222	225	244	248	22	23
Texas	229	233	247	253	18	20
Large Central City		221		246		25
Houston	**223**	**228**	**239**	**251**	**16**	**23**
Atlanta	209	213	244	247	35	34
Austin	+	232	+	260	+	28
Boston	218	227	233	244	15	17
Charlotte	229	230	252	256	23	26
Chicago	212	212	230	237	18	25
Cleveland	215	220	–	–	–	–
District of Columbia	200	206	221	229	21	23
Los Angeles	212	216	229	248	17	32
New York	224	228	248	243	24	15
San Diego	217	225	239	246	22	21

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

gap for Houston was narrower than the gap for five of the participating districts. Also, the gap for Houston between students who were eligible and students who were not eligible for free/reduced lunch was narrower than the gap for large central city and the same as the national gap.

Table 20 presents the percentage of fourth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch in 2003 and 2005. The percentage of students eligible for free/reduced lunch in Houston who were at or above the basic level increased from 66% in 2003 to 73% in 2005, and the percent at

Table 20: Percentage of Students At or Above Basic and Proficient Levels in Mathematics for Grade 4 by Eligibility for Free/Reduced Lunch: 2003 and 2005

	Eligible				Not Eligible			
	At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient	
	2003	2005	2003	2005	2003	2005	2003	2005
Nation	62	67	15	19	88	90	45	50
Texas	75	80	20	26	91	95	48	59
Large Central City		60		15		86		47
Houston	**66**	**73**	**13**	**18**	**82**	**91**	**37**	**55**
Atlanta	43	48	5	6	79	84	50	49
Austin	+	77	+	23	+	98	+	70
Boston	57	71	10	19	76	86	31	45
Charlotte	74	75	19	20	92	94	59	63
Chicago	47	48	8	9	72	78	24	40
Cleveland	51	61	10	13	–	–	–	–
District of Columbia	29	38	3	5	57	68	20	27
Los Angeles	47	53	8	13	70	88	25	51
New York City	64	70	18	22	89	87	49	42
San Diego	56	66	10	19	82	89	35	47

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

or above the proficient level increased from 13% in 2003 to 18% in 2005. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level than large central city and five districts. The percent of students not eligible for free/reduced lunch at or above the proficient level for Houston increased from 37% in 2003 to 55% in 2005, and exceeded the nation, large central city, and seven districts.

Mathematics Results by Content Strands

As mentioned previously, the NAEP mathematics framework included assessing fourth-grade students on five content strands: numbers and operations; measurement; geometry; data analysis, statistics, and probability; and algebra and functions. **Table 21** presents the average mathematics scale scores of Houston fourth-grade students by each of the mathematics content strands tested. The average scale score for the content strand, "numbers and operations," increased from 227 in 2003 to 231 in 2005. Also, the average scale score for the strand, "measurement," increased from 222 in 2003 to 230 in 2005. The average scale score for the strand, "data analysis, statistics, and probability," increased from 229 in 2003 to 237 in 2005. A comparison of the average scale scores between the five content strands within the NAEP mathematics framework reveals that fourth-grade students achieved the highest scale score for "algebra and functions" with a score of 242. The composite average scale score in 2005 was 233.

Table 21: NAEP Average Mathematics Scale Scores by Content Strands for Houston Fourth-Grade Students: 2003 and 2005

	Average Scale Score	
	2003	**2005**
Numbers Properties and Operations	227	231
Measurement	222	230
Geometry	227	230
Data Analysis and Probability	229	237
Algebra	231	242
Mathematics Composite Score	**227**	**233**

Mathematics Results: Grade 8

The NAEP Mathematics Assessment results of eighth-grade students for 2003 and 2005 are presented in **Table 22**. The administration of the 2003 mathematics assessment set the initial benchmark for the TUDA. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 22.

As mentioned previously, the mathematics scale scores range from 0 to 500. The average scale score for Texas eighth-grade students on the mathematics assessment increased from 277 in 2003 to 281 in 2005, The average scale score for Houston eighth-grade students increased from 264 in 2003 to 267 in 2005. Houston's average scale score was higher than the large central city average of 265. Also, eighth-grade students in Houston outperformed their counterparts in five of the participating districts. Austin, Boston, Charlotte and San Diego had higher average scale scores than Houston. New York City had the same average scale score as Houston.

The percentage of Texas eighth-grade students who scored at or above the basic level was 72% compared to 68% nationally in 2005. The percentage of large central city eighth-grade students who scored at or above the basic level was 53%, compared to 58% in Houston in 2005. The percentage of Texas eighth-grade students who scored at or above the proficient level was 31% compared to 28% nationally in 2005. Also, the percentage of eighth-grade students in large central city who scored at or above the proficient level was 19%, lower than

the nation and Texas. The percent of eighth-grade students in Houston who scored at or above the proficient level increased from 12% in 2003 to 16% in 2005. Houston had a higher percentage of students scoring at or above proficient than five other districts. Austin, Boston, Charlotte, New York City, and San Diego had a higher percent of students who scored at or above the proficient level than Houston.

Table 22: NAEP Eighth-Grade Mathematics Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2003 and 2005

	Scale Scores (0-500)		At or Above Basic (Percentage of Students)		At or Above Proficient (Percentage of Students)	
	2003	2005	2003	2005	2003	2005
Nation	276	278	67	68	27	28
Texas	277	281	69	72	25	31
Large Central City		265		53		19
Houston	**264**	**267**	**52**	**58**	**12**	**16**
Atlanta	244	245	30	31	6	7
Austin	+	281	+	68	+	33
Boston	262	270	48	58	17	23
Charlotte	279	281	67	69	32	33
Chicago	254	258	42	45	9	11
Cleveland	253	249	38	34	6	6
District of Columbia	243	245	29	31	6	7
Los Angeles	245	250	32	38	7	11
New York City	266	267	54	54	20	20
San Diego	264	270	53	61	18	22

+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. As the definition changed in 2005, no prior comparisons could be made.

Mathematics Results by Race/Ethnicity

Table 23 presents the average mathematics scale scores of African American, Hispanic, and White eighth-grade students. The average scale score of African American students in Houston decreased from 259 in 2003 to 257 in 2005. African American students in Houston had higher average scale scores than their counterparts in the nation and large central city. The average scale score of Hispanic students in Houston increased from 261 in 2003 to 265 in 2005. Hispanic students in Houston had higher average scale scores than their counterparts in the nation and large central city. The average scale score of White students in Houston slightly increased from 293 in 2003 to 294 in 2005. White students in Houston had higher average scale scores than their counterparts in the nation and large central city.

Table 23: NAEP Average Mathematics Scale Scores by Race/Ethnicity in Grade 8: 2003 and 2005

	African American		Hispanic		White	
	2003	2005	2003	2005	2003	2005
Nation	252	254	258	261	287	288
Texas	260	264	267	271	290	295
Large Central City	247	250	257	258	285	288
Houston	**259**	**257**	**261**	**265**	**293**	**294**
Atlanta	241	242	–	–	298	–
Austin	+	262	+	267	+	305
Boston	251	256	252	261	289	299
Charlotte	258	264	262	262	301	304
Chicago	245	245	259	263	276	281
Cleveland	249	244	249	251	269	265
District of Columbia	240	241	246	252	–	317
Los Angeles	234	239	240	245	277	280
New York City	253	257	260	259	289	286
San Diego	252	253	248	258	284	292

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Figure 10 presents the average mathematics scale scores of African American eighth-grade students in 2005. The average scale score for African American eighth-grade students in Houston was higher than the nation, large central city, and seven of the participating districts. The widest gap was found among African American students in Los Angeles, who scored 18 points lower than their counterparts in Houston. New York City had the same average scale score as Houston.

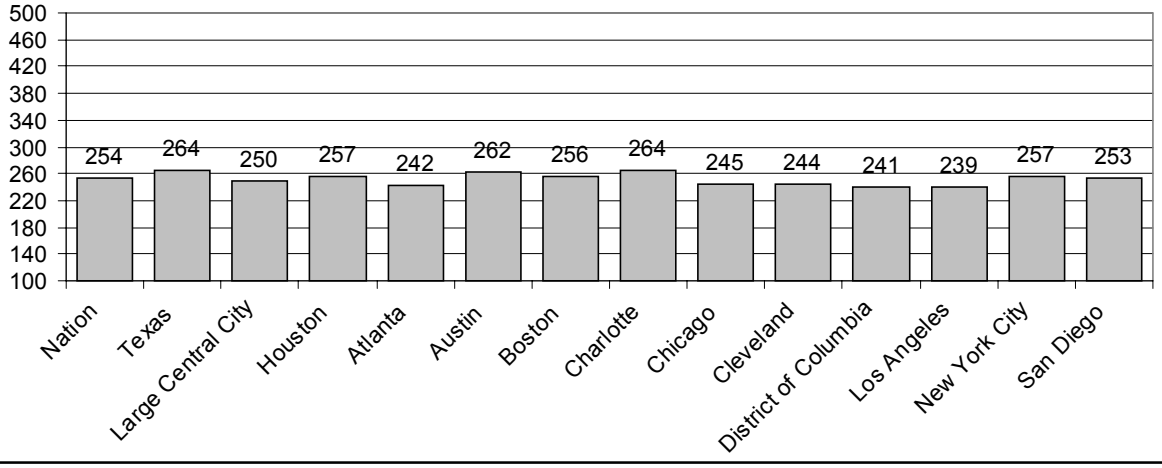

Figure 10: Average Mathematics Scale Scores for African American Students in Grade 8: 2005

Figure 11 presents the average mathematics scale scores of Hispanic eighth-grade students in 2005. The average scale score for Hispanic eighth-grade students in Houston was 265, which was higher than the nation, large central city, and eight of the participating districts. The widest gap was found among Hispanic eighth-grade students in Los Angeles, who scored 20 points lower than Houston. Hispanic eighth-grade students in Austin were the only ones who had a higher average scale score than their counterparts in Houston, by two points. Atlanta was not included in Figure 11 because there was not a sufficient number of Hispanic students tested.

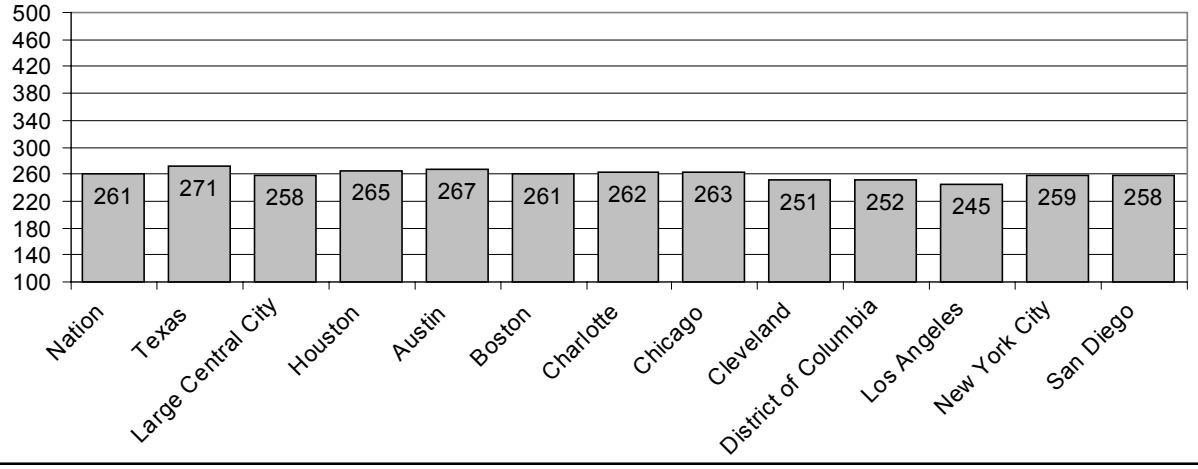

Figure 11: Average Mathematics Scale Scores for Hispanic Students in Grade 8: 2005

Figure 12 presents the average mathematics scale scores of White eighth-grade students in 2005. The average scale score for White eighth-grade students in Houston was 294, which was higher than the nation, large central city, and five of the participating districts. The widest gap was found among White eighth-grade students in Cleveland, who scored 29 points lower than Houston. Austin, Boston, Charlotte, and the District of Columbia had higher average scale scores than Houston. Atlanta was not included in Figure 12 because there was not a sufficient number of White students tested.

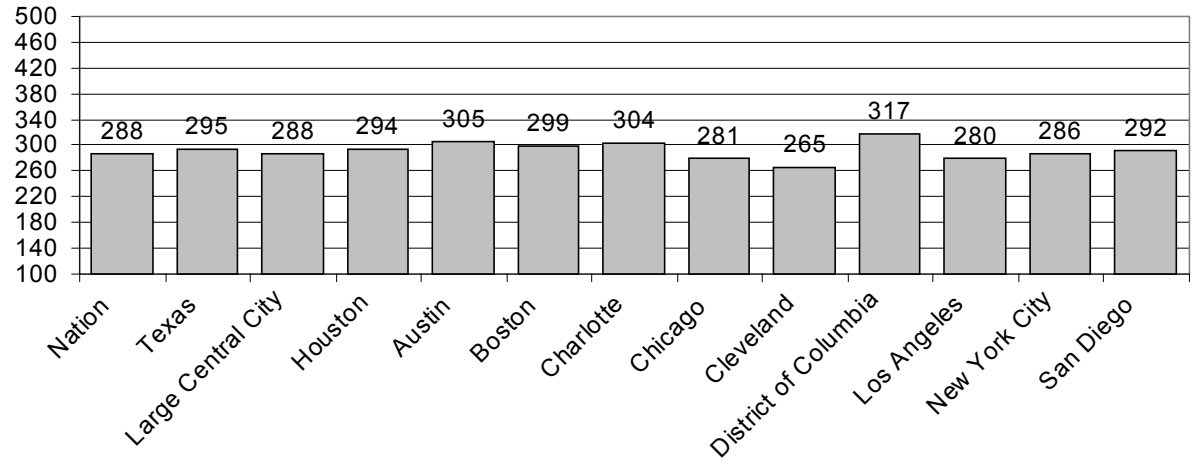

Figure 12: Average Mathematics Scale Scores for White Students in Grade 8: 2005

Table 24 presents the percentage of eighth-grade students at or above the basic and proficient level by race/ethnicity for the 2003 and 2005 mathematics assessments. The percentage of African American students in Houston who were at or above the basic level remained the same at 47% from 2003 to 2005,and the percent at or above proficient remained the same at 7% in 2003 to 2005. Also, African American students in Houston had a higher percent of students at or above the proficient level than four of the districts in 2005. The percentage of Hispanic students in Houston who were at or above the basic level increased from 49% in 2003 to 56% in 2005. The percent at or above proficient increased from 9% in 2003 to 12% in 2005. Also, Hispanic students

in Houston had a higher percent of students at or above the proficient level than the percent for large central city and five of the districts. The percentage of White students in Houston who were at or above the basic level increased from 80% in 2003 to 85% in 2005. The percent at or above the proficient level increased from 47% in 2003 to 50% in 2005. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and five of the districts in 2005.

Table 24: Percentage of Students At or Above Basic and Proficient Levels in Mathematics for Grade 8 by Race/ Ethnicity: 2003 and 2005

	African American				Hispanic				White			
	At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Nation	39	41	7	8	47	50	11	13	79	79	36	37
Texas	47	53	8	13	58	63	14	19	84	86	38	46
Large Central City	34	36	5	7	44	46	10	11	77	78	36	39
Houston	**47**	**47**	**7**	**7**	**49**	**56**	**9**	**12**	**80**	**85**	**47**	**50**
Atlanta	26	28	3	4	–	–	–	–	83	–	54	–
Austin	+	52	+	12	+	56	+	17	+	90	+	61
Boston	36	45	6	9	38	51	7	12	77	83	48	54
Charlotte	47	54	11	14	46	53	18	15	91	90	55	60
Chicago	29	28	4	3	48	52	8	11	68	71	25	33
Cleveland	32	29	5	3	35	33	2	7	63	54	14	17
District of Columbia	26	27	3	4	33	39	3	9	–	94	–	69
Los Angeles	21	29	2	7	26	32	3	6	67	68	29	32
New York City	40	44	9	10	48	47	15	12	79	77	40	38
San Diego	39	40	7	8	34	49	6	11	76	83	35	42

+Did not participate

–Not Available

"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Mathematics Results by Eligibility for Free/Reduced Lunch

Table 25 presents NAEP average mathematics scale scores of eighth-grade students by eligibility for free/ reduced lunch in 2003 and 2005. The average mathematics scale score for students in Houston who were eligible for free/reduced lunch increased from 259 in 2003 to 262 in 2005. Houston students who were eligible for free/ reduced lunch had higher average scale scores than students in eight of the participating districts in 2005. Also, Houston students had a higher average scale score than students who were eligible for free/reduced lunch in the nation and large central city. The average scale score of students in Houston who were not eligible for free/ reduced lunch increased from 276 in 2003 to 279 in 2005. In addition, eighth-grade students who were not eligible for free/reduced lunch in the nation, Texas, large central city, and participating districts scored higher, on average, than students who were eligible for free/reduced lunch.

Table 25 also presents the gap between students who were eligible and students who were not eligible for free/reduced lunch in 2003 and 2005. The gap for Houston was 17 points, which was narrower than the gaps for the nation, Texas, large central city, and all of the participating districts.

Table 25: NAEP Average Mathematics Scale Scores by Eligibility for Free/Reduced Lunch in Grade 8: 2003 and 2005

	Eligible		Not Eligible		Gap	
	2003	2005	2003	2005	2003	2005
Nation	258	261	287	288	29	27
Texas	264	268	288	293	24	25
Large Central City	253	256	279	282	26	26
Houston	**259**	**262**	**276**	**279**	17	17
Atlanta	239	240	265	266	26	26
Austin	+	261	+	301	+	40
Boston	256	264	282	288	26	24
Charlotte	256	261	292	297	36	36
Chicago	252	254	279	275	27	21
Cleveland	253	249	–	–	–	–
District of Columbia	235	241	254	261	19	20
Los Angeles	240	245	245	270	5	25
New York	261	264	295	286	34	22
San Diego	252	258	278	285	26	27

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Table 26 presents the percentage of eighth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch in 2003 and 2005. The percentage of students eligible for free/reduced lunch in Houston who were at or above the basic level increased from 46% in 2003 to 53% in 2005. The percent at or above the proficient level increased from 7% in 2003 to 10% in 2005. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level than five districts and the same as San Diego.

Table 26: Percentage of Students At or Above Basic and Proficient Levels in Mathematics for Grade 8 by Eligibility for Free/Reduced Lunch: 2003 and 2005

	Eligible				Not Eligible			
	At or Above Basic		At or Above Proficient		At or Above Basic		At or Above Proficient	
	2003	2005	2003	2005	2003	2005	2003	2005
Nation	47	51	11	13	78	79	37	39
Texas	54	59	12	17	81	83	36	43
Large Central City	40	43	9	11	69	71	31	34
Houston	**46**	**53**	**7**	**10**	**65**	**69**	**25**	**30**
Atlanta	24	26	2	3	52	52	19	22
Austin	+	49	+	13	+	88	+	54
Boston	43	53	11	17	68	73	35	41
Charlotte	44	51	10	12	81	84	44	51
Chicago	39	40	7	8	70	65	30	27
Cleveland	38	34	6	6	–	–	–	–
District of Columbia	21	26	2	4	40	46	12	16
Los Angeles	28	32	4	6	33	59	7	25
New York City	49	51	15	18	82	74	49	39
San Diego	39	49	9	10	69	76	29	36

+Did not participate
–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Mathematics Results by Content Strands

As mentioned previously, the NAEP mathematics framework included assessing eighth-grade students on five content strands: numbers and operations; measurement; geometry; data analysis, statistics, and probability; and algebra and functions. **Table 27** presents the average mathematics scale scores of Houston eighth-grade students by each of the mathematics content strands tested. The average scale score for the strand, "numbers and operations," slightly decreased from 268 in 2003 to 267 in 2005. Also, the average scale score for the strand, "measurement," increased from 258 in 2003 to 265 in 2005. The average scale score for the strand, "geometry," increased from 263 in 2003 to 266 in 2005. The average scale score for the strand, "data analysis, statistics, and probability," increased from 264 in 2003 to 265 in 2005. A comparison of the average scale scores between the five content strands within the NAEP mathematics framework reveals that eighth-grade students achieved the highest scale score for "algebra and functions" with a scale score of 270. The composite average scale score in 2005 was 267.

Table 27: NAEP Average Mathematics Scale Scores by Content Strands for Houston Eighth-Grade Students: 2003 and 2005

	Average Scale Score	
	2003	**2005**
Numbers Properties and Operations	268	267
Measurement	258	265
Geometry	263	266
Data Analysis and Probability	264	265
Algebra	265	270
Mathematics Composite Score	**264**	**267**

2005 SCIENCE

NAEP Science Framework

The NAEP Science Framework assessed students in the following areas:

- knowledge of facts;
- an ability to integrate this knowledge into larger constructs; and
- the capacity to use the tools, procedures, and reasoning processes of science to develop an increased understanding of the natural world.

The NAEP science section assessed three content strands. These content strands were:

- earth;
- physical; and
- life science.

The NAEP science framework also measures three characteristic elements of science knowledge and skills. These elements included:

- Conceptual understanding—"knowing that," "knowing about";
- Scientific investigation—"knowing how"; and
- Practical Reasoning—demonstrating and communicating the reasoning used in conducting experiments and solving problems.

Each excercise in the science assessment measured one of the elements of knowing within one of the content strands of science. Science was assessed through multiple choice and constructed-response questions. Multiple-choice questions require students to select an answer from four options, while constructed-response questions require students to write either short or extended answers. Unique scoring guides were developed for each constructed-response question. Each student took a two or three 25-minute block of questions.

Science Results: Grade 4

The NAEP Science Assessment results of fourth-grade students for 2005 are presented in **Table 28**. The administration of the 2005 science sets the initial benchmark for the TUDA. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 28.

The science scale scores range from 0 to 300, unlike the scale scores for reading and mathematics that ranged from 0 to 500. Please note that scales are created for each subject and grade independently, so even when another subject's scale has the same numerical range, average scores should not be compared across subjects or grades.

The average scale score for Texas fourth-grade students on the science assessment was150, while the average scale score for the nation was 149. The average science scale score for Houston fourth-grade students was 138, which was lower than the nation and Texas, but higher than the large central city average of 135. Also, fourth-grade students in Houston outperformed their counterparts in six of the participating districts. Austin and Charlotte had higher average scale scores than Houston, and San Diego performed the same as Houston.

The percentage of fourth-grade students who scored at or above the basic level was 66% for both Texas and the nation. The percent of fourth-grade students in Houston who scored at or above the basic level was 47%, which was higher than six other districts. The percentage of Houston fourth-grade students who scored at or above the proficient level was 15% compared to 27% nationally and 25% for the state. Also, the percentage of fourth-grade students in large central city who scored at or above the proficient level was 15%, the same as

Houston. The percent of fourth-grade students in Houston who scored at or above the proficient level was higher than six other districts. Austin, Charlotte, and San Diego had a higher percent of students who scored at or above the proficient level than Houston.

Table 28: NAEP Fourth-Grade Science Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2005

	Scale Scores (0-300)	At or Above Basic (Percentage of Students)	At or Above Proficient (Percentage of Students)
Nation	149	66	27
Texas	150	66	25
Large Central City	135	48	15
Houston	**138**	**47**	**15**
Atlanta	133	42	13
Austin	147	60	25
Boston	133	43	10
Charlotte	145	60	23
Chicago	126	34	8
Cleveland	128	37	6
Los Angeles	126	35	9
New York City	134	46	13
San Diego	138	52	19

"Large Central City" includes nationally representative public schools located in large central cities (population 250,0 more) within metropolitan statistical areas. As the definition changed in 2005, no prior comparisons could be made.

Science Results by Race/Ethnicity

Table 29 presents the average science scale scores of African American, Hispanic, and White fourth- grade students in 2005. The average scale scores for African American, Hispanic, and White students in Houston were all higher than their counterparts in the nation and in large central cities. White students in Houston also had higher average scale scores than their counterparts in Texas. In Houston, Hispanic students scored 41 points lower than White students and African American students scored 45 points lower than White students.

Table 29: NAEP Average Science Scale Scores by Race/Ethnicity in Grade 4: 2005

	African American	Hispanic	White
Nation	128	132	161
Texas	133	141	165
Large Central City	124	128	161
Houston	**130**	**134**	**175**
Atlanta	126	–	183
Austin	133	136	176
Boston	126	129	153
Charlotte	129	135	164
Chicago	117	127	155
Cleveland	123	130	146
Los Angeles	111	122	156
New York City	128	126	154
San Diego	125	125	161

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Figure 13 presents the average science scale scores of African American fourth-grade students in 2005. The average scale score for African American fourth-grade students in Houston was 130, which was higher than the nation, large central city, and eight of the participating districts. Austin was the only district that had a higher average scale score than Houston. The widest gap was found among African American students in Los Angeles, who scored 19 points lower than their counterparts in Houston.

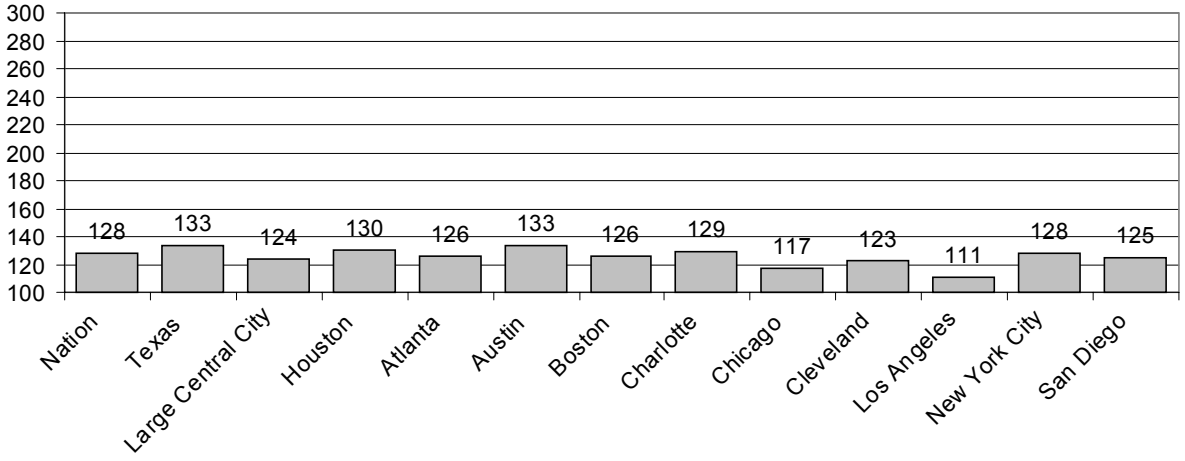

Figure 13: Average Science Scale Scores for African American Students in Grade 4: 2005

Figure 14 presents the average science scale scores of Hispanic fourth-grade students in 2005. The average scale score for Hispanic fourth-grade students in Houston was 134, which was higher than the nation, large central city, and six of the participating districts. The widest gap was found among Hispanic students in Los Angeles, who scored 12 points lower than their counterparts in Houston. Austin and Charlotte were the only districts with a higher average scale score than Houston. Atlanta was not included in Figure 14 because there was not a sufficient number of Hispanic students tested.

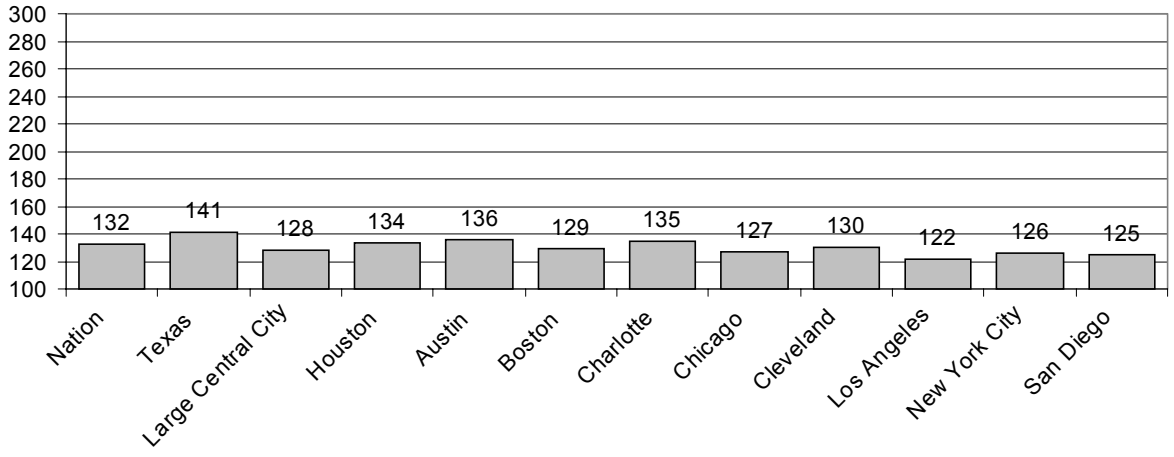

Figure 14: Average Science Scale Scores for Hispanic Students in Grade 4: 2005

Figure 15 presents the average science scale scores of White fourth-grade students in 2005. The average scale score for White fourth-grade students in Houston was 175, which was higher than the nation, Texas, and large central city averages. White students in Houston had a higher average scale score than seven of the participating districts. The widest gap was found among White students in Cleveland, who scored 29 points lower than their counterparts in Houston. Atlanta and Austin had higher average scale scores than Houston.

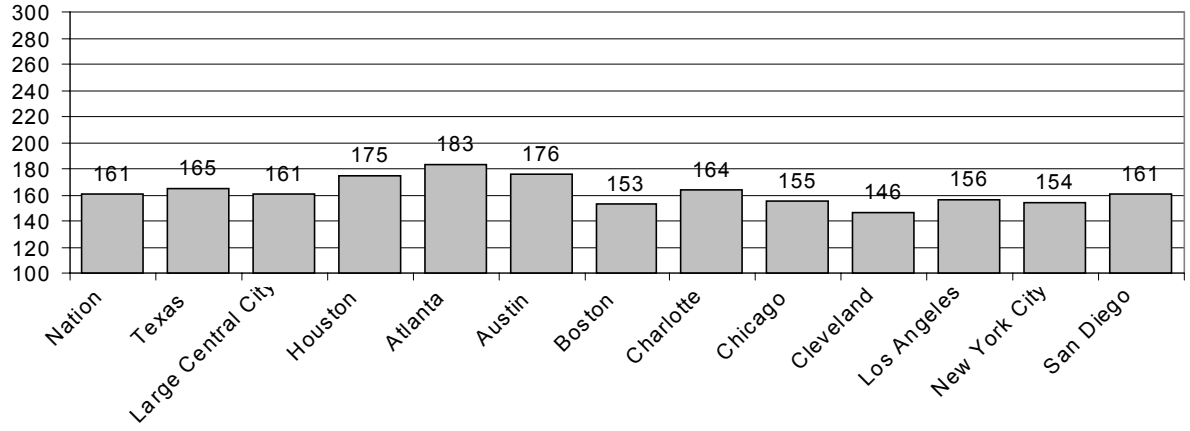

Figure 15: Average Science Scale Scores for White Students in Grade 4: 2005

Table 30 presents the percentage of fourth-grade students at or above the basic and proficient level by race/ethnicity for the 2005 science assessment. The percentage of African American students in Houston who were at or above the basic level was 37%, while the percent at or above proficient was 7%. Also, African American students in Houston had a higher percent of students at or above the proficient level than the percent for the large central city and seven of the districts. The percentage of Hispanic students in Houston who were at or above the basic level was 43%, while the percent at or above the proficient level was 8%. Also, Hispanic students in Houston had a higher percent of students at or above the proficient level than the percent for large central city and six of the participating districts. The percentage of White students in Houston who were at or above the basic level was 89%, while the percent at or above the proficient level was 65%. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and eight of the participating districts.

Table 30: Percentage of Students At or Above Basic and Proficient Levels in Grade 4 by Race/Ethnicity: 2005

	African American		Hispanic		White	
	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient
Nation	38	7	44	10	81	38
Texas	44	8	55	14	86	44
Large Central City	32	5	38	7	80	40
Houston	**37**	**7**	**43**	**8**	**89**	**65**
Atlanta	35	5	–	–	94	72
Austin	40	9	49	11	93	63
Boston	32	4	35	5	73	26
Charlotte	38	6	48	13	85	42
Chicago	24	4	38	7	72	33
Cleveland	28	3	41	3	64	16
Los Angeles	21	6	30	5	73	35
New York City	36	6	36	7	72	29
San Diego	34	8	33	7	83	42

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Science Results by Eligibility for Free/Reduced Lunch

Table 31 presents NAEP average science scale scores of fourth-grade students by eligibility for free/reduced lunch in 2005. The average science scale score for students in Houston who were eligible for free/reduced lunch was 131. Houston students who were eligible for free/reduced lunch had higher average scale scores than students in large central cities and eight of the participating districts. The average scale score of students in Houston who were not eligible for free/reduced lunch was 163. In addition, fourth-grade students who were not eligible for free/reduced lunch in the nation, Texas, large central city, and all participating districts scored higher, on average, than students who were eligible for free/reduced lunch. Data for Cleveland were not available.

Table 31 also presents the gap between students who were eligible and students who were not eligible for free/reduced lunch in 2005. The gap for Houston was 32 points, wider than the gap for the nation, Texas, and large central city. The gap for Houston was narrower than the gap for two of the participating districts and the same for Los Angeles. Atlanta had the widest gap between students who were eligible and students who were not eligible for free/reduced lunch.

Table 31: NAEP Average Science Scale Scores by Eligibility for Free/Reduced Lunch in Grade 4: 2005

	Eligible	Not Eligible	Gap
Nation	135	162	27
Texas	139	163	24
Large Central City	127	156	29
Houston	**131**	**163**	**32**
Atlanta	124	161	37
Austin	135	169	34
Boston	130	152	22
Charlotte	129	159	30
Chicago	122	144	22
Cleveland	128	–	
Los Angeles	121	153	32
New York	130	157	27
San Diego	127	154	27

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Table 32 presents the percentage of fourth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch in 2005. The percentage of students eligible for free/reduced lunch in Houston who were at or above the basic level was 38%, while the percent at or above the proficient level was 8%. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level than students in large central cities and six of the participating districts. The percent of students not eligible for free/reduced lunch at or above the basic level for Houston was 80%, and 46% were at or above the proficient level.

Table 32: Percentage of Students At or Above Basic and Proficient Levels in Science for Grade 4 by Eligibility for Free/Reduced Lunch: 2005

	Eligible		Not Eligible	
	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient
Nation	46	11	82	40
Texas	53	13	83	41
Large Central City	36	7	73	35
Houston	**38**	**8**	**80**	**46**
Atlanta	31	3	75	41
Austin	45	9	86	54
Boston	37	6	71	27
Charlotte	37	7	79	36
Chicago	31	6	58	24
Cleveland	37	6	–	–
Los Angeles	29	5	68	33
New York City	41	9	73	34
San Diego	37	8	73	34

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Science Results by Content Strands

As mentioned previously, the NAEP Science framework included assessing fourth-grade students on three content strands: physical, earth, and life sciences. **Table 33** presents the average science scale scores of Houston fourth-grade students by each of the science content strands tested in 2005. The content strands, "physcial science," and "life science" had the same average scale score of 137. A comparison of the average scale scores between the three content strands within the NAEP science framework reveals that fourth-grade students achieved the highest scale score for "earth science" with a score of 140. The science composite average scale score was 138.

Table 33: NAEP Average Science Scale Scores by Content Strands for Houston Fourth-Grade Students: 2005

	Average Scale Score
Physical Science	137
Earth Science	140
Life Science	137
Science Composite Score	138

Science Results: Grade 8

The NAEP Science Assessment results of eighth-grade students for 2005 are presented in **Table 34**. Results are presented by scale scores and the percentage of students at or above the basic and proficient achievement levels. In order to make comparisons, the results for the nation, Texas, large central city, and participating districts are also included in Table 34.

As mentioned previously, the science scale scores range from 0 to 300. The average scale score for Texas eighth-grade students on the science assessment was 143. The average scale score for Houston eighth-grade students was 130. Houston's average scale score was lower than the nation, Texas, and large central city. However, eighth-grade students in Houston outperformed their counterparts in five of the participating districts. Austin, Boston, Charlotte, and San Diego had higher average scale scores than Houston. The percentage of eighth-grade students in the nation who scored at or above the basic level was 57% compared to 52% in Texas, and 40% in large central city.

The percent of eighth-grade students in Houston who scored at or above the basic level was 35%, higher than four of the participating districts. The percentage of eighth-grade students in the nation who scored at or above the proficient level was 27% compared to 23% in Texas and 16% in large central cities. The percent of eighth-grade students in Houston who scored at or above the proficient level was 12%, which was higher than four of the participating districts. Austin, Boston, Charlotte, New York City, and San Diego had a higher percent of students who scored at or above the proficient level than Houston.

Table 34: NAEP Eighth-Grade Science Assessment Results by Scale Scores and Percentage of Students At or Above Basic and Proficient Levels: 2005

	Scale Scores (0-500)	At or Above Basic (Percentage of Students)	At or Above Proficient (Percentage of Students)
Nation	147	57	27
Texas	143	52	23
Large Central City	132	40	16
Houston	**130**	**35**	**12**
Atlanta	117	23	7
Austin	144	52	27
Boston	131	38	14
Charlotte	142	51	24
Chicago	124	28	9
Cleveland	122	26	5
Los Angeles	121	29	9
New York City	128	36	14
San Diego	136	43	18

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

Science Results by Race/Ethnicity

Table 35 presents the average science scale scores of African American, Hispanic, and White eighth- grade students. The average scale score of African American students in Houston was 121. African American students in Houston had higher average scale scores than their counterparts in large central city and five of the districts. The average scale score of Hispanic students in Houston was 127. Hispanic students in Houston had higher average scale scores than their counterparts in large central city and five of the districts. The average scale score of White students in Houston was 166. White students in Houston had higher average scale scores than their counterparts in the nation, Texas, large central city, and all of the districts with the exception of Austin.

Table 35: NAEP Average Science Scale Scores by Race/Ethnicity in Grade 8: 2005

	African American	Hispanic	White
Nation	123	127	159
Texas	125	131	160
Large Central City	119	123	158
Houston	**121**	**127**	**166**
Atlanta	114	–	–
Austin	123	129	172
Boston	123	124	157
Charlotte	122	128	165
Chicago	113	124	153
Cleveland	117	130	138
Los Angeles	116	116	154
New York City	118	122	148
San Diego	125	120	160

–Not Available

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

Figure 16 presents the average science scale scores of African American eighth-grade students in 2005. The average scale score for African American eighth-grade students in Houston of 121 was higher than large central city and five of the participating districts. The widest gap was found among African American students in Chicago, who scored 8 points lower than their counterparts in Houston.

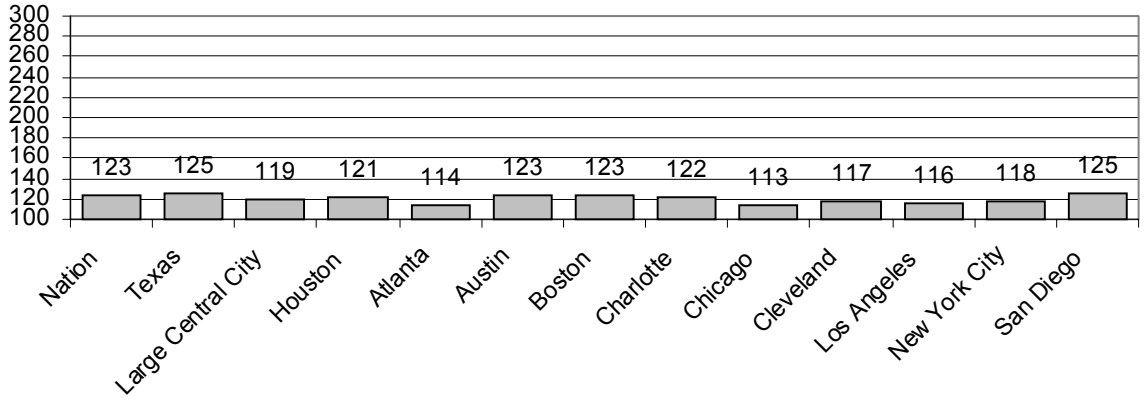

Figure 16: Average Science Scale Scores for African American Students in Grade 8: 2005

Figure 17 presents the average science scale scores of Hispanic eighth-grade students in 2005. The average scale score for Hispanic eighth-grade students in Houston was 127, which was higher than large central city, five of the participating districts, and the same as the nation. The widest gap was found among Hispanic eighth-grade students in Los Angeles, who scored 11 points lower than Houston. Hispanic eighth-grade students in Austin, Charlotte, and Cleveland had a higher average scale score than their counterparts in Houston. Atlanta was not included in Figure 17 because there was not a sufficient number of Hispanic students tested.

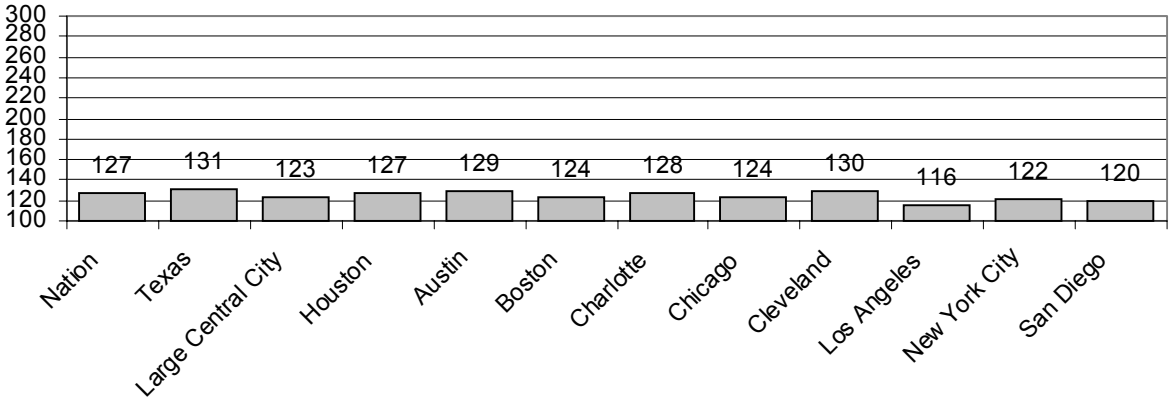

Figure 17: Average Science Scale Scores for Hispanic Students in Grade 8: 2005

Figure 18 presents the average science scale scores of White eighth-grade students in 2005. The average scale score for White eighth-grade students in Houston was 166, which was higher than the nation, Texas, large central city, and all of the participating districts with the exception of Austin. The widest gap was found among White eighth-grade students in Cleveland, who scored 28 points lower than Houston. Atlanta was not included in Figure 18 because there was not a sufficient number of White students tested.

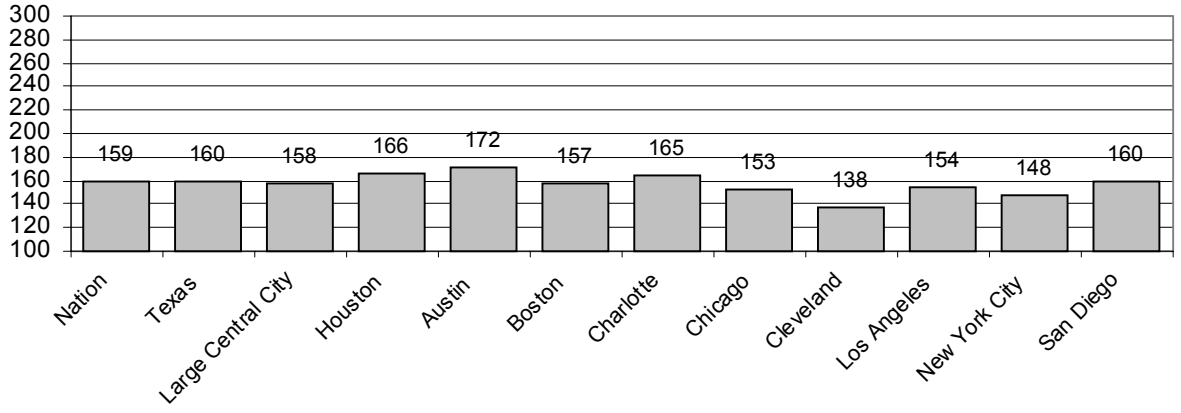

Figure 18: Average Science Scale Scores for White Students in Grade 8: 2005

Table 36 presents the percentage of eighth-grade students at or above the basic and proficient level by race/ethnicity for the 2005 science assessment. The percentage of African American students in Houston who were at or above the basic level was 25% and the percent at or above proficient was 6%. African American students in Houston had a higher percent of students at or above the proficient level than large central city and five of the districts. The percentage of Hispanic students in Houston who were at or above the basic level was 30%. The percent at or above proficient was 6%. Hispanic students in Houston had a higher percent of students at or above the proficient level than Los Angeles and the same as Chicago and San Diego. The percentage of White students in Houston who were at or above the basic level was 78%. The percent at or above the proficient level was 51%. Also, White students in Houston had a higher percent of students at or above the proficient level than the percent for the nation, Texas, large central city, and all of the participating disticts, with the exception of Austin.

Table 36: Percentage of Students At or Above Basic and Proficient Levels in Science for Grade 8 by Race/Ethnicity: 2005

	African American		Hispanic		White	
	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient
Nation	27	6	33	9	73	38
Texas	29	8	37	11	73	38
Large Central City	23	5	27	7	71	38
Houston	**25**	**6**	**30**	**6**	**78**	**51**
Atlanta	20	4	–	–	–	–
Austin	24	10	35	10	85	56
Boston	27	6	28	7	70	34
Charlotte	24	5	31	11	81	44
Chicago	16	3	27	6	64	30
Cleveland	19	3	31	8	47	11
Los Angeles	24	5	21	4	65	33
New York City	23	6	26	7	61	30
San Diego	26	8	24	6	73	41

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Science Results by Eligibility for Free/Reduced Lunch

Table 37 presents NAEP average science scale scores of eighth-grade students by eligibility for free/reduced lunch in 2005. The average science scale score for students in Houston who were eligible for free/reduced lunch was 123. Houston students who were eligible for free/reduced lunch had higher average scale scores than students in large central cities and six of the participating districts. The average scale score of students in Houston who were not eligible for free/reduced lunch was 147. In addition, eighth-grade students who were not eligible for free/reduced lunch in the nation, Texas, large central city, and participating districts scored higher, on average, than students who were eligible for free/reduced lunch.

Table 37 also presents the gap between students who were eligible and students who were not eligible for free/reduced lunch. The gap for Houston was 24 points, which was narrower than the gaps for the nation, Texas, large central city, and six of the participating districts. Austin had the widest gap between students who were eligible and students who were not eligible for free/reduced lunch.

Table 37: NAEP Average Science Scale Scores by Eligibility for Free/Reduced Lunch in Grade 8: 2005

	Eligible	Not Eligible	Gap
Nation	130	158	28
Texas	129	156	27
Large Central City	122	150	28
Houston	**123**	**147**	24
Atlanta	111	137	26
Austin	125	166	41
Boston	126	149	23
Charlotte	121	159	38
Chicago	119	144	25
Cleveland	122	–	
Los Angeles	117	139	22
New York	125	153	28
San Diego	122	150	28

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Table 38 presents the percentage of eighth-grade students at or above the basic and proficient levels by eligibility for free/reduced lunch in 2005. The percentage of students eligible for free/reduced lunch in Houston who were at or above the basic level was 27%. The percent at or above the proficient level was 6%. Students eligible for free/reduced lunch in Houston had a higher percent of students at or above the proficient level than five districts.

Table 38: Percentage of Students At or Above Basic and Proficient Levels in Science for Grade 8 by Eligibility for Free/Reduced Lunch: 2005

	Eligible		Not Eligible	
	At or Above Basic	At or Above Proficient	At or Above Basic	At or Above Proficient
Nation	37	12	70	37
Texas	36	10	67	34
Large Central City	27	7	59	29
Houston	**27**	**6**	**55**	**27**
Atlanta	16	3	43	18
Austin	30	8	78	48
Boston	31	9	63	30
Charlotte	24	5	71	38
Chicago	22	5	53	27
Cleveland	26	5	–	–
Los Angeles	23	5	48	20
New York City	31	11	65	31
San Diego	26	7	60	29

–Not Available
"Large Central City" includes nationally representative public schools located in large central cities (population 250,000 or more) within metropolitan statistical areas.

Science Results by Content Strands

As mentioned previously, the NAEP science framework included assessing eighth-grade students on three content strands: physical, earth, and life sciences. **Table 39** presents the average science scale scores of Houston eighth-grade students by each of the science content strands tested. The content strand, "physcial science" had an average scale score of 126 and "life science" had an average scale score of 131. A comparison of the average scale scores between the three content strands within the NAEP science framework reveals that eighth-grade students achieved the highest scale score for "earth science" with a score of 133. The science composite average scale score was 131.

Table 39: NAEP Average Science Scale Scores by Content Strands for Houston Eighth-Grade Students: 2005

	Average Scale Score
Physical Science	126
Earth Science	133
Life Science	131
Science Composite Score	130

CONCLUSION

Through discussions among the National Assessment Governing Board (NAGB), the National Center for Education Statistics, and the Council of the Great City Schools, NAGB passed a resolution approving the selection of large urban districts for participation in the Trial Urban District Assessement (TUDA), which is part of the National Assessment of Educational Progress (NAEP). Also, the TUDA was supported by federal appropriations authorized for the No Child Left Behind Act. Houston Independent School District's voluntary participation in TUDA has allowed the district to make district-level comparisons with other large urban districts in other states. Also, the 2005 TUDA marked the initial benchmark administration of the science assessment. The next administration of TUDA is Spring 2007 for grades four and eight in reading and mathematics and grade eight in writing.