

## ACHIEVEMENT/PROFICIENCY

### EA 2.1 READING PROFICIENCY (Ages 9, 13, 17)

There are five levels of reading proficiency reported by the National Assessment of Educational Progress (NAEP), ranging from Level 150 (simple, discrete reading tasks) to Level 350 (learn from specialized reading materials).<sup>76</sup> The following tables (Tables EA 2.1.a, EA 2.1.b, and EA 2.1.c) report the percentage of students in three age groups who have scored at or above Level 200 (at age 9), Level 250 (at age 13), and Level 300 (at age 17). These categories were chosen to represent approximately median levels of reading proficiency at each age. The three different levels of reading proficiency reported in these tables include:

**Level 200:** Partially developed skills and understanding;

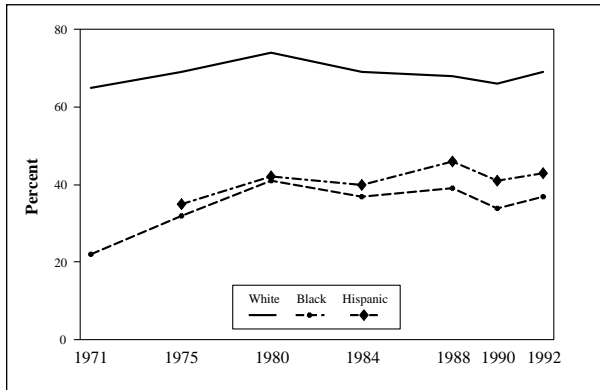
**Level 250:** Interrelate ideas and make generalizations; and

**Level 300:** Understand complicated information.

Tables EA 2.1.a, EA 2.1.b, and EA 2.1.c report that in 1992, 62 percent of 9-year-olds scored at or above Level 200, 62 percent of 13-year-olds scored at or above Level 250, and 43 percent of 17-year-olds scored at or above Level 300 on the NAEP reading proficiency scale. Nine-year-olds showed increases in reading proficiency between 1971 (59 percent at or above Level 200) and 1980 (68 percent), after which scores declined somewhat. Between 1971 and 1992, the percentage of 13- and 17-year-old students scoring above median proficiency levels showed small increases (4 percentage points each.)

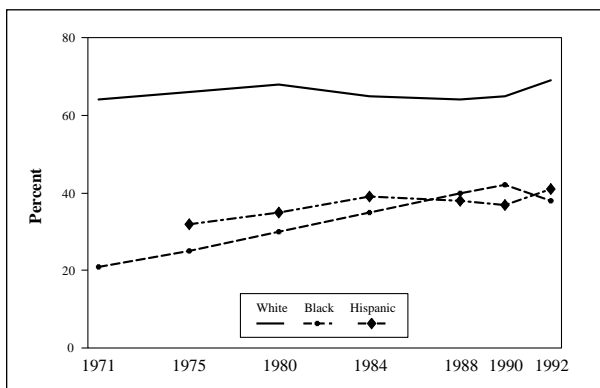
<sup>76</sup>NAEP has regularly been conducting assessments of U.S. students in public and private schools in order to monitor trends in academic achievement in core curriculum areas since the 1970s. NAEP uses proficiency scales that range from 0 to 500. To give meaning to the results, students' performance is characterized at five levels along the proficiency scales (150, 200, 250, 300, 350).

Figure EA 2.1.A AGE 9: PERCENTAGE OF STUDENTS AT OR ABOVE READING PROFICIENCY LEVEL 200, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

Figure EA 2.1.B AGE 13: PERCENTAGE OF STUDENTS AT OR ABOVE READING PROFICIENCY LEVEL 250, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

### EA 2.1 READING PROFICIENCY (Ages 9, 13, 17) (continued)

A higher percentage of females than males scored at or above median reading proficiency levels at all ages. In 1992, the gap between females and males was 10 percentage points for 9-year-olds, 12 percentage points for 13-year-olds, and 11 percentage points for 17-year olds. These differences are fairly stable over time.

There are large differences in reading proficiency by race/ethnicity for all age categories, in 1992 and over time. For instance, among 13-year-olds in 1992, the percentage of whites at or above proficiency level 250 (69 percent) was much higher than the percentage of Hispanics (41 percent) or blacks (38 percent). This gap in the proportion of black and white 13-year-olds achieving median proficiency scores decreased over time, due to a strong steady gain among blacks throughout the 1970s and 1980s, in comparison with smaller gains among whites. (See Figure EA 2.1.b) Hispanic 13-year-olds also showed fairly steady gains in proficiency rates, although their levels were more similar to blacks than to whites. Among 17-year-olds, blacks also showed steady gains, primarily through the 1980s, but after 1988, they lost ground in comparison with whites and Hispanics. (See Figure EA 2.1.c) Figure EA 2.1.a illustrates that the proportion of 9-year-old blacks achieving at or above the median almost doubled between 1971 and 1980 (from 22 percent to 41 percent at or above proficiency level 200), thus reducing the gap between white and black students. Since 1980, however, both black and white proficiency scores have stayed fairly stable, so that the gap between blacks and whites has not been further reduced.

EDUCATION AND ACHIEVEMENT

**Table EA 2.1.A READING PROFICIENCY — AGE 9. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 200, BY GENDER, RACE/ETHNICITY, AND TYPE OF SCHOOL: 1971 - 1992**

	1971	1975	1980	1984	1988	1990	1992
Total	59	62	68	62	63	59	62
Gender							
Male	53	56	63	58	58	54	57
Female	65	68	73	65	67	64	67
Race/Ethnicity							
White	65	69	74	69	68	66	69
Black	22	32	41	37	39	34	37
Hispanic	—	35	42	40	46	41	43
Type of School							
Public	—	—	66	60	61	58	60
Non-Public	—	—	79	74	74	75	77

Source: Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Table EA 2.1.B READING PROFICIENCY — AGE 13. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 250, BY GENDER, RACE/ETHNICITY, AND TYPE OF SCHOOL: 1971 - 1992**

	1971	1975	1980	1984	1988	1990	1992
Total	58	59	61	59	59	59	62
Gender							
Male	52	52	56	54	52	52	56
Female	64	66	65	64	65	65	68
Race/Ethnicity							
White	64	66	68	65	64	65	69
Black	21	25	30	35	40	42	38
Hispanic	—	32	35	39	38	37	41
Parent's Education							
Less than high school	38	39	37	40	45	41	39
Graduated high school	59	57	55	56	55	53	55
Post high school	75	74	75	71	68	70	72
Type of School							
Public	—	—	59	57	57	57	59
Non-Public	—	—	75	74	72	73	78

Source: Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

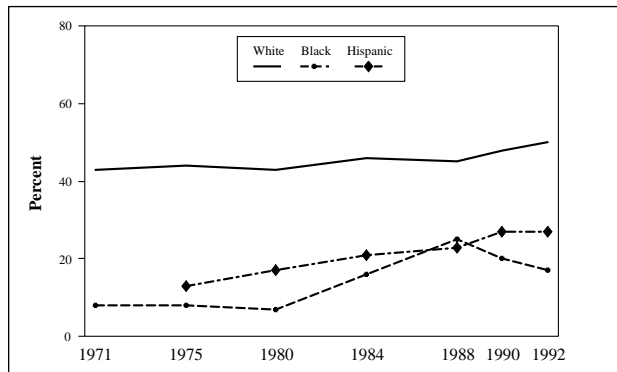
### EA 2.1 READING PROFICIENCY (Ages 9, 13, 17) (continued)

Reading proficiency levels vary dramatically by parent's education level.<sup>77</sup> For instance, in 1992, 72 percent of 13-year-old children of parents with some post- high school experience scored at or above a median level of proficiency, in comparison with 55 percent of children whose parents had a high school degree and only 39 percent whose parents had less than a high school degree. (See Table EA 2.1.b) The gaps between children whose parents had some post-high school experiences and the other two groups decreased slightly over time for 13-year-olds. Seventeen-year-old students show similar time trends. (See Table EA 2.1.c)

Students from non-public schools were more likely than students from public schools to score above median proficiency levels for all age groups. The gap between public and non-public school students in 1992 was highest among 17-year-olds (22 percentage points), in comparison with 13-year-olds (19 percentage points), and 9-year-olds (17 percentage points). The trend data indicate that the difference in proficiency levels between public and non-public school students have increased slightly over time.

<sup>77</sup>Parent's education is not reported at age 9 because approximately a third of these students did not know their parent's education level.

Figure EA 2.1.C AGE 17: PERCENTAGE OF STUDENTS AT OR ABOVE READING PROFICIENCY LEVEL 300, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

EDUCATION AND ACHIEVEMENT

**Table EA 2.1.C READING PROFICIENCY— AGE 17. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 300, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1971 - 1992**

	1971	1975	1980	1984	1988	1990	1992
Total	39	39	38	40	41	41	43
Gender							
Male	34	34	35	35	37	36	38
Female	44	44	41	45	44	47	49
Race/Ethnicity							
White	43	44	43	46	45	48	50
Black	8	8	7	16	25	20	17
Hispanic	—	13	17	21	23	27	27
Parent's Education							
Less than high school	20	19	17	21	18	20	26
Graduated high school	36	33	29	32	31	32	34
Post high school	53	52	50	53	51	51	52
Type of School							
Public	—	—	37	39	40	40	41
Non-Public	—	—	50	54	50	63	63

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

### EA 2.2 WRITING PROFICIENCY (Ages 9, 13, 17)

Writing assessments designed by the National Assessment of Educational Progress (NAEP) examine students' abilities to engage in three types of writing: informative, persuasive, and imaginative. Written papers were evaluated on the basis of: 1) their success in accomplishing the specific purpose of each writing task; 2) their relative writing fluency; and 3) their mastery of the conventions of written English.<sup>78</sup> The following tables (Tables EA 2.2.a, EA 2.2.b, and EA 2.2.c) report the percentage of students in three age groups who have scored at or above Level 200 (in grade 4), Level 250 (in grade 8), and Level 300 (in grade 11). These categories were chosen to represent approximately median levels of writing proficiency at each age. The three different levels of writing proficiency reported in these tables include:

**Level 200:** Incomplete, vague writing;

**Level 250:** Beginning focussed, clear writing; and

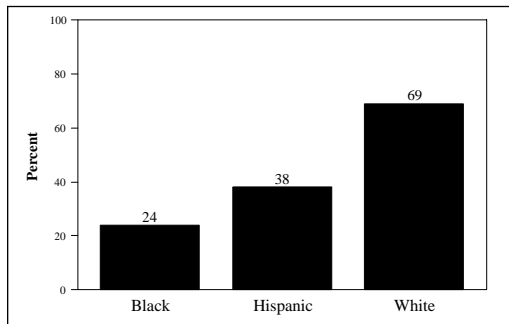
**Level 300:** Complete, sufficient writing.

Tables EA 2.2.a, EA 2.2.b, and EA 2.2.c report that in 1992, 58 percent of fourth graders scored at or above writing proficiency Level 200, 75 percent of eighth graders scored at or above Level 250, and 36 percent of eleventh graders scored at or above Level 300. The percentages for fourth and eleventh graders have remained fairly stable since 1984. For eighth graders, the percent declined from 72 percent in 1984 to 67 percent in 1988, and then to 57 percent in 1990. By 1992, however, the percent of eighth graders scoring at or above Level 250 rose substantially to 75 percent.<sup>79</sup>

<sup>78</sup>In order to analyze trends in students' writing performance, the results of their written evaluations were aggregated using Item Response Theory (IRT) scaling techniques, which account for the multiple levels of student responses to individual writing tasks. The tasks used in the trend writing assessment were mapped onto a five-level writing scale, which ranges from 150 (disjointed, unclear writing) to 350 (effective, coherent writing). These data reflect probabilities of success based on the performance observed in the assessment for students at various levels on the scale.

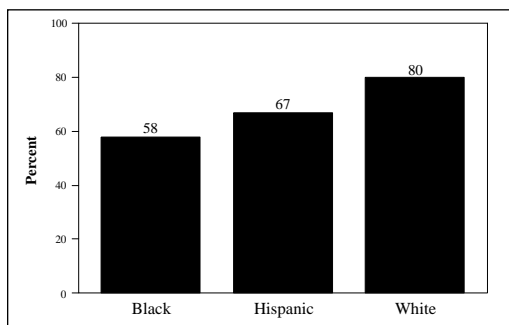
<sup>79</sup>An increase of this magnitude in a large national sample is unusual. After rigorous examination, however, the Educational Testing Service, which administers the examination, concluded that it reflected an actual change in student performance.

**Figure EA 2.2.A GRADE 4: PERCENTAGE OF STUDENTS AT OR ABOVE WRITING PROFICIENCY LEVEL 200, BY RACE/ETHNICITY: 1992**



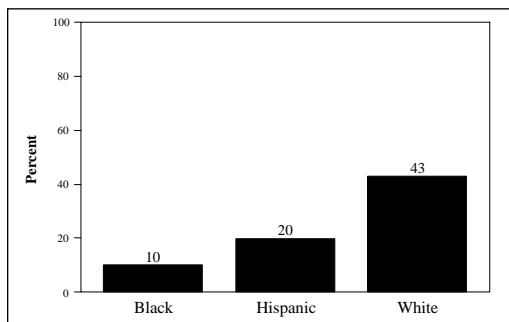
Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Figure EA 2.2.B GRADE 8: PERCENTAGE OF STUDENTS AT OR ABOVE WRITING PROFICIENCY LEVEL 250, BY RACE/ETHNICITY: 1992**



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Figure EA 2.2.C GRADE 11: PERCENTAGE OF STUDENTS AT OR ABOVE WRITING PROFICIENCY LEVEL 300, BY RACE/ETHNICITY: 1992**



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.



## ACHIEVEMENT/PROFICIENCY

### EA 2.2 WRITING PROFICIENCY (Ages 9, 13, 17) (continued)

Females have consistently scored higher on writing assessments than males over time. In 1992, the gap between females and males was greatest among eleventh graders (21 percentage points), followed by eighth graders (18 percentage points) and fourth graders (17 percentage points).

There are large differences in writing proficiency levels by race/ethnicity for all grade levels. (See Figure EA 2.2.a, EA 2.2.b, and EA 2.2.c) For instance, in 1992, 43 percent of white eleventh graders scored at or above proficiency Level 300. This percentage is over twice as high as that of Hispanics (20 percent) and over four times as large as that for blacks (10 percent). These differences have remained strong over time since proficiency levels among blacks, whites, and Hispanics have remained fairly similar to 1984 levels.<sup>80</sup> (See Tables EA 2.2.a, EA 2.2.b, and EA 2.2.c)

<sup>80</sup>Although Hispanic assessment scores increased among eighth graders from 47 percent at or above proficiency Level 250 in 1984 to 67 percent in 1992, because of the small sample sizes, this increase is not statistically significant (National Center for Education Statistics. 1994. NAEP 1992 Trends in Academic Progress. Washington DC: U.S. Department of Education).

**Table EA 2.2.A WRITING PROFICIENCY- -GRADE 4. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 200, BY GENDER, RACE/ETHNICITY, AND TYPE OF SCHOOL: 1984 - 1992**

	1984	1988	1990	1992
Total	54	56	53	58
Gender				
Male	50	50	46	50
Female	59	63	59	67
Race/Ethnicity				
White	62	65	62	69
Black	29	25	24	24
Hispanic	37	41	34	38
Type of School				
Public	52	55	51	56
Non-Public	66	66	67	74

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Table EA 2.2.B WRITING PROFICIENCY- -GRADE 8. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 250, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1984 - 1992**

	1984	1988	1990	1992
Total	72	67	57	75
Gender				
Male	61	56	45	66
Female	84	78	69	84
Race/Ethnicity				
White	79	74	63	80
Black	48	45	37	58
Hispanic	47	52	45	67
Parent's Education				
Less than high school	62	56	45	60
Graduated high school	66	60	53	70
Some education after high school	79	79	68	81
Graduated college	85	75	66	84
Type of School				
Public	70	65	54	73
Non-Public	87	80	77	86

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

### EA 2.2 WRITING PROFICIENCY (Ages 9, 13, 17) (continued)

There are also large differences among eighth and eleventh graders in writing proficiency by level of parental education.<sup>81</sup> A higher percentage of students whose parents graduated from college scored at or above median writing proficiency levels than students in the other categories. For instance, eleventh graders whose parents graduated from college were more than twice as likely as students whose parents had less than a high school education to score at or above a median proficiency level (46 percent vs 17 percent). (See Table EA 2.2.c) Students whose parents graduated from high school, or who had some education past high school, had proficiency levels (24 and 41 percent respectively) that lay in-between these other two groups of students. Eighth graders exhibit similar differences by parents' education levels. (See Table EA 2.2.b)

Writing proficiency levels are also related to the type of school attended. In 1992, non-public school students had higher proficiency levels than public school students in all three grades, with a gap of 18 percentage points for fourth graders, 13 percentage points for eighth graders, and 11 percentage points for eleventh graders. Tables EA 2.2.a, EA 2.2.b, and EA 2.2.c show that these differences have been maintained since 1984.

<sup>81</sup>Parent's education is not reported for fourth graders because approximately a third of these students did not know their parent's education level.

**Table EA 2.2.C WRITING PROFICIENCY — GRADE 11. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 300, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1984 - 1992**

	1984	1988	1990	1992
Total	39	39	37	36
Gender				
Male	28	26	26	26
Female	50	51	48	47
Race/Ethnicity				
White	46	46	43	43
Black	16	17	18	10
Hispanic	8	20	26	20
Parent's Education				
Less than high school	18	21	18	17
Graduated high school	31	29	28	24
Some education after high school	48	45	41	41
Graduated college	51	50	48	46
Type of School				
Public	36	37	35	35
Non-Public	59	51	56	46

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

### EA 2.3 MATHEMATICS PROFICIENCY (Ages 9, 13, and 17)

Five different levels of mathematics proficiency collected by the National Assessment of Educational Progress (NAEP) range from Level 150 (simple arithmetic facts) to Level 350 (multi-step problem solving and Algebra).<sup>82</sup> The following three tables (Tables EA 2.3.a, EA 2.3.b, and EA 2.3.c) report the percentage of students in three age groups who have scored at or above Level 200 (age 9), Level 250 (at age 13), and Level 300 (at age 17). These categories were chosen to represent median levels of mathematics proficiency at each age. The three different levels of mathematics proficiency reported in these tables include:

**Level 200:** Beginning skills and understandings;

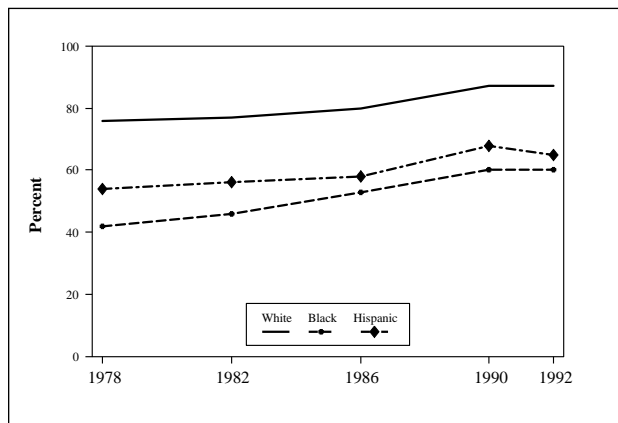
**Level 250:** Basic operations and beginning problem solving; and

**Level 300:** Moderately complex procedures and reasoning.

Tables EA 2.3.a, EA 2.3.b, and EA 2.3.c show that in 1992, 81 percent of 9-year-olds scored above Level 200, 78 percent of 13-year-olds scored above Level 250, and 59 percent of 17-year-olds scored above Level 300 on the NAEP mathematics proficiency scale. Between 1978 and 1992, the percentage of students scoring at or above each level increased for all ages (by 11 percentage points for 9-year-olds, 13 percentage points for 13-year-olds, and 7 percentage points for 17-year-olds), showing overall improvements in mathematics proficiency over time.

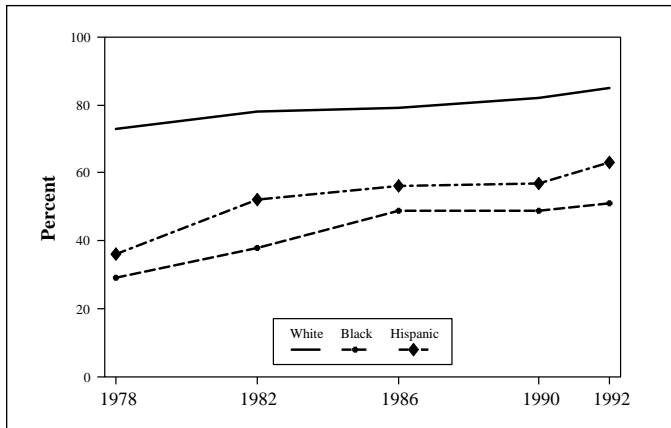
<sup>82</sup>NAEP has regularly been conducting assessments of U.S. students in public and private schools in order to monitor trends in academic achievement in core curriculum areas since the 1970s. NAEP uses proficiency scales that range from 0 to 500. To give meaning to the results, students' performance is characterized at five levels along the proficiency scales (150, 200, 250, 300, 350).

**Figure EA 2.3.A AGE 9: PERCENTAGE OF STUDENTS AT OR ABOVE MATHEMATICS PROFICIENCY LEVEL 200, BY RACE/ETHNICITY**



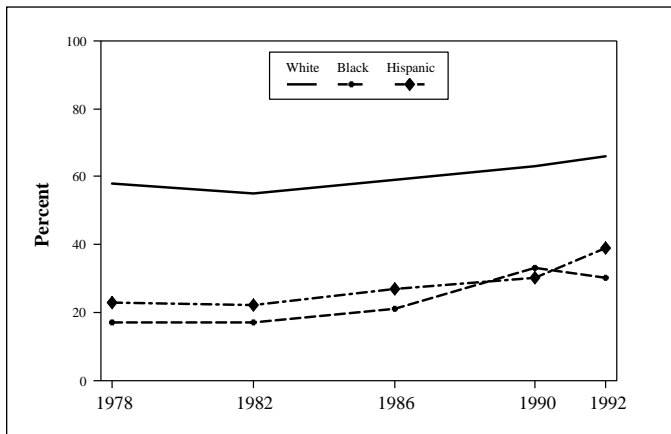
Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

Figure EA 2.3.B AGE 13: PERCENTAGE OF STUDENTS AT OR ABOVE MATHEMATICS PROFICIENCY LEVEL 250, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

Figure EA 2.3.C AGE 17: PERCENTAGE OF STUDENTS AT OR ABOVE MATHEMATICS PROFICIENCY LEVEL 300, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

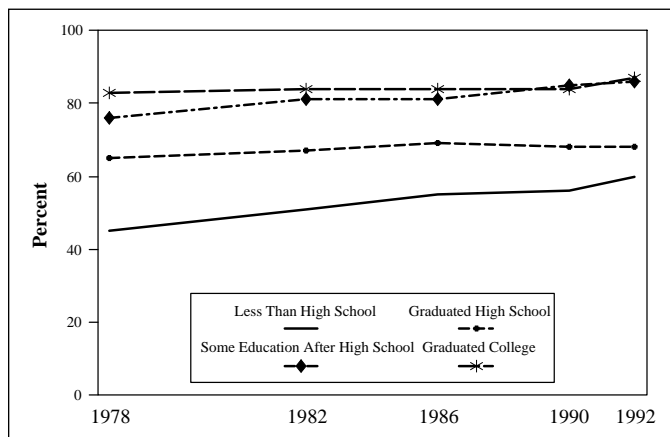
## ACHIEVEMENT/PROFICIENCY

### EA 2.3 MATHEMATICS PROFICIENCY (Ages 9, 13, and 17) (continued)

These tables indicate very little variation by gender. In 1992, a similar percentage of males and females scored at or above median proficiency levels for each age group. In 1978, a slightly higher percentage of females scored at or above the proficiency levels for 9-year-olds (a difference of three percentage points) and 13-year-olds (two percentage points), while in 1992, 9- and 13-year-old males and females had nearly equal percentages at or above median proficiency levels. The male-female difference for 17-year-olds was slightly higher in 1978 (males were 7 percentage points higher than females) than in 1990 or 1992 (males were 3 percentage points higher than females in both years).

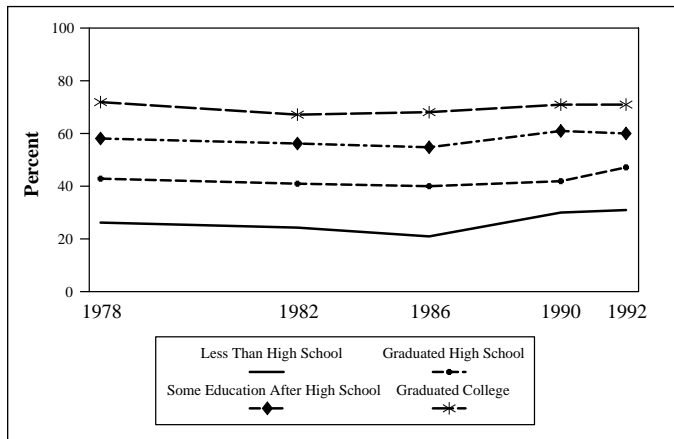
Figures EA 2.3.a, EA 2.3.b, and EA 2.3.c show large variations in the percentages of white, black, and Hispanic students performing at or above median proficiency levels for 9-, 13-, and 17-year-olds. For example, Figure EA 2.3.a shows that in 1992, 87 percent of white 9-year-olds scored at or above Level 200, in comparison with only 60 percent of blacks and 65 percent of Hispanics. The difference between blacks and whites is apparent for all three age groups, with the percentage of white 17-year-olds scoring above Level 300 (66 percent) over twice as high as the percentage of blacks scoring at this level (30 percent). The gap between blacks and whites decreased somewhat over time for all age groups. For instance, the gap between 9-year-old whites and blacks closed slightly between 1978 (34 percentage points) and 1992 (27 percentage points). The gap between Hispanics and whites also decreased for 13- and 17-year-olds, but not for 9-year olds.

Figure EA 2.3.D AGE 13: PERCENTAGE OF STUDENTS AT OR ABOVE MATHEMATICS PROFICIENCY LEVEL 250, BY PARENT'S EDUCATION



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

Figure EA 2.3.E AGE 17: PERCENTAGE OF STUDENTS AT OR ABOVE MATHEMATICS PROFICIENCY LEVEL 300, BY PARENT'S EDUCATION



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

Table EA 2.3.A MATHEMATICS PROFICIENCY — AGE 9. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 200, BY GENDER, RACE/ETHNICITY, AND TYPE OF SCHOOL: 1978-1992

	1978	1982	1986	1990	1992
Total	70	71	74	82	81
Gender					
Male	69	69	74	81	82
Female	72	74	74	82	81
Race/Ethnicity					
White	76	77	80	87	87
Black	42	46	53	60	60
Hispanic	54	56	58	68	65
Type of School					
Public	69	69	73	81	80
Non-Public	83	84	82	89	92

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.



## ACHIEVEMENT/PROFICIENCY

### EA 2.3 MATHEMATICS PROFICIENCY (Ages 9, 13, AND 17) (continued)

Figures EA 2.3.d and EA 2.3.e show large variations in proficiency levels by parental education levels for 13- and 17-year-olds.<sup>83</sup> For instance, in 1992, only 60 percent of 13-year-olds with parents who did not have a high school degree scored at or above proficiency Level 250, in comparison with 87 percent of students whose parents had graduated from college. As illustrated in Figure EA 2.3.d, the gap between 13-year-old children of parents with high school degrees and children of parents with no high school degree decreased between 1978 and 1992. This trend is due to gains in proficiency among children of parents without a high school degree, in comparison with fairly stable scores among children of high school graduates. Thirteen-year-old children of parents who had some education after high school also caught up with the percentage of children of parents who graduated from college in median proficiency levels. In contrast, 17-year-olds (Figure EA 2.3.e) show almost parallel trends in scores by parental education level over time, indicating consistent differences in scores.

Students attending public schools were less likely than students attending non-public schools to be at or above median proficiency levels, for each age. The difference between public and non-public school proficiency levels are the greatest for 17-year-olds (57 percent versus 80 percent in 1992).

<sup>83</sup>Parent's education is not reported at age 9 because approximately a third of these students did not know their parent's education level.

**Table EA 2.3.B MATHEMATICS PROFICIENCY — AGE 13. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 250, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1978 - 1992**

	1978	1982	1986	1990	1992
Total	65	71	73	75	78
Gender					
Male	64	71	74	75	78
Female	66	71	73	74	78
Race/Ethnicity					
White	73	78	79	82	85
Black	29	38	49	49	51
Hispanic	36	52	56	57	63
Parent's Education					
Less than high school	45	51	55	56	60
Graduated high school	65	67	69	68	68
Some education after high school	76	81	81	85	86
Graduated college	83	84	84	84	87
Type of School					
Public	63	70	73	73	76
Non-Public	81	85	82	87	90

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Table EA 2.3.C MATHEMATICS PROFICIENCY — AGE 17. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 300, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1978 - 1992**

	1978	1982	1986	1990	1992
Total	52	49	52	56	59
Gender					
Male	55	52	55	58	61
Female	48	45	49	55	58
Race/Ethnicity					
White	58	55	59	63	66
Black	17	17	21	33	30
Hispanic	23	22	27	30	39
Parent's Education					
Less than high school	26	24	21	30	31
Graduated high school	43	41	40	42	47
Some education after high school	58	56	55	61	60
Graduated college	72	67	68	71	71
Type of School					
Public	51	47	51	55	57
Non-Public	68	66	75	71	80

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

### EA 2.4 SCIENCE PROFICIENCY (Ages 9, 13, 17)

In order to present time trends in science proficiency levels, the National Assessment of Educational Progress (NAEP) reports five different proficiency levels, ranging from Level 150 (knows everyday science facts) to Level 350 (integrates specialized scientific information).<sup>84</sup> The following three tables (Tables EA 2.4.a, EA 2.4.b, and EA 2.4.c) report the percentage of students in three age groups who have scored at or above Level 200 (at age 9), Level 250 (at age 13), and Level 300 (at age 17). These categories were chosen to approximate median levels of proficiency at each age. The three different levels of scientific proficiency reported in these tables include:

**Level 200:** Understands simple scientific principles;

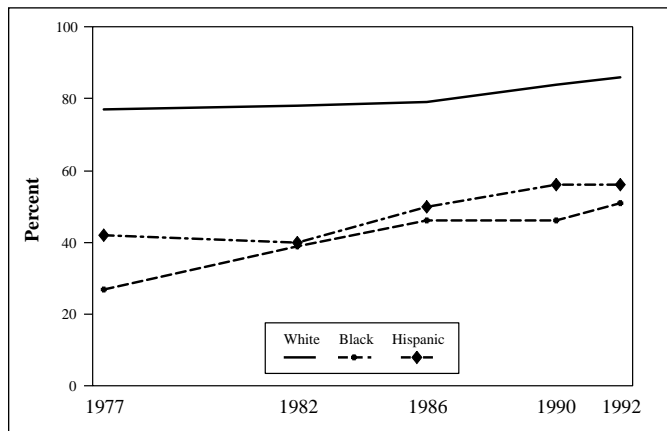
**Level 250:** Applies basic scientific information; and

**Level 300:** Analyzes scientific procedures and data..

Tables EA 2.4.a, EA 2.4.b, and EA 2.4.c show that in 1992, 78 percent of 9-year-olds scored above Level 200, 61 percent of 13-year-olds scored at or above Level 250, and 47 percent of 17-year-olds scored at or above Level 300 on the science proficiency scales. Increases in the percent scoring at or above the median occurred in each age group between 1977 and 1992 (an increase of 10 percentage points for 9-year-olds, 12 percentage points for 13-year-olds, and 5 percentage points for 17-year-olds).

<sup>84</sup>NAEP has regularly been conducting assessments of U.S. students in public and private schools in order to monitor trends in academic achievement in core curriculum areas since the 1970s. NAEP uses proficiency scales that range from 0 to 500. To give meaning to the results, students' performance is characterized at five levels along the proficiency scales (150, 200, 250, 300, 350).

Figure EA 2.4.A AGE 9: PERCENTAGE OF STUDENTS AT OR ABOVE SCIENCE PROFICIENCY LEVEL 200, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

**Table EA 2.4.A SCIENCE PROFICIENCY — AGE 9. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 200, BY GENDER, RACE/ETHNICITY, AND TYPE OF SCHOOL: 1977 - 1992**

	1977	1982	1986	1990	1992
Total	68	71	72	76	78
Gender					
Male	70	70	74	76	80
Female	67	72	70	76	76
Race/Ethnicity					
White	77	78	79	84	86
Black	27	39	46	46	51
Hispanic	42	40	50	56	56
Type of School					
Public	66	70	71	76	77
Non-Public	80	83	80	84	86

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

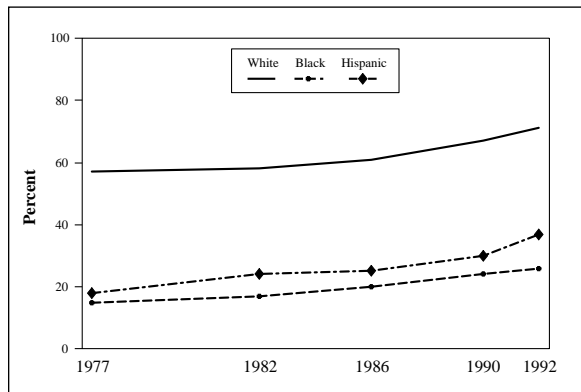
## ACHIEVEMENT/PROFICIENCY

### EA 2.4 SCIENCE PROFICIENCY (Ages 9, 13, 17) (continued)

Females scored slightly lower than males at all ages in 1992, with the largest gap between 17-year-old males and females (9 percentage points), in comparison with a difference of 4 or 3 percentage points at ages 9 and 13. These gender gaps in performance do not appear to have changed substantially over time.

There are large differences by race/ethnicity for each age group, with whites outscoring blacks and Hispanics at all ages. For instance, in 1992, 51 percent of black 9-year-olds scored above Level 200, in comparison with 56 percent of Hispanics and 86 percent of whites. However, the difference between blacks and whites at this age (35 percentage points) is lower in 1992 than it was in 1977 (50 percentage points), showing a reduction in the gap over time. (See Figure EA 2.4.a) Figure EA 2.4.a indicates that the percentage of black 9-year-olds performing at or above the median increased at a faster pace than white 9-year-olds. The gap between white and Hispanic 9-year-olds also decreased, but to a much smaller extent between 1977 and 1992. Figures EA 2.4.b and EA 2.4.c indicate that, while the gap between whites and blacks decreased for 9-year-olds, the gap between white and black 13- and 17-year-olds did not decrease over time.

**Figure EA 2.4.B AGE 13: PERCENTAGE OF STUDENTS AT OR ABOVE SCIENCE PROFICIENCY LEVEL 250, BY RACE/ETHNICITY**



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

EDUCATION AND ACHIEVEMENT

**Table EA 2.4.B SCIENCE PROFICIENCY — AGE 13. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 250, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1977 - 1992**

	1977	1982	1986	1990	1992
Total	49	51	53	57	61
Gender					
Male	52	56	57	60	63
Female	45	46	48	53	60
Race/Ethnicity					
White	57	58	61	67	71
Black	15	17	20	24	26
Hispanic	18	24	25	30	37
Parent's Education					
Less than high school	26	24	29	31	34
Graduated high school	46	43	44	47	49
Some education after high school	61	60	61	65	71
Graduated college	67	66	67	70	73
Type of School					
Public	47	49	52	55	60
Non-Public	69	66	67	72	69

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

## ACHIEVEMENT/PROFICIENCY

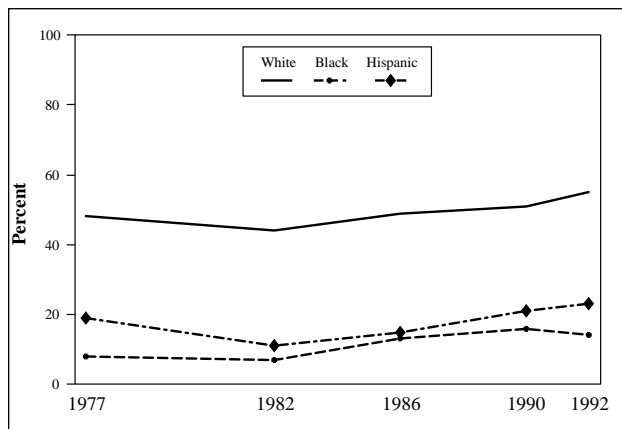
### EA 2.4 SCIENCE PROFICIENCY (Ages 9, 13, 17) (continued)

There are sizeable differences in the percentage of students passing median proficiency levels by parent's education.<sup>85</sup> The higher the level of parental education, the greater the likelihood that students would score at or above a median proficiency level. For instance, in 1992, 73 percent of 13-year-old children of college graduates were at or above proficiency Level 250, in comparison with only 34 percent of children whose parents did not have a high school degree.

For each age group, there are also strong differences in proficiency levels by type of school attended. In 1992, 86 percent of 9-year-olds who attended non-public schools scored at or above Level 200, compared with 77 percent of public school students. The gap between school types for 17-year-olds (18 percentage points) is greater than that of 9-year-olds or 13-year-olds (both 9 percentage points) in 1992. These data suggest that high school students may see a greater return in science scores from their non-public school education, in comparison with middle school or elementary school students. The difference in scores between public and non-public students has decreased slightly over time for all age groups.

<sup>85</sup>Parent's education is not reported at age 9 because approximately a third of these students did not know their parent's education level.

Figure EA 2.4.C AGE 17: PERCENTAGE OF STUDENTS AT OR ABOVE SCIENCE PROFICIENCY LEVEL 300, BY RACE/ETHNICITY



Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.

EDUCATION AND ACHIEVEMENT

**Table EA 2.4.C SCIENCE PROFICIENCY — AGE 17. PERCENTAGE OF STUDENTS AT OR ABOVE PROFICIENCY LEVEL 300, BY GENDER, RACE/ETHNICITY, PARENT'S EDUCATION, AND TYPE OF SCHOOL: 1977 - 1992**

	1977	1982	1986	1990	1992
Total	42	37	41	43	47
Gender					
Male	49	45	49	48	51
Female	35	30	34	39	42
Race/Ethnicity					
White	48	44	49	51	55
Black	8	7	13	16	14
Hispanic	19	11	15	21	23
Parent's Education					
Less than high school	22	17	15	18	17
Graduated high school	36	30	30	31	32
Some education after high school	46	42	47	47	49
Graduated college	60	53	55	57	60
Type of School					
Public	41	37	40	42	45
Non-Public	69	44	75	60	63

Source: U.S. Department of Education, National Center for Education Statistics, Assessment of Educational Progress (NAEP), *1992 Trends in Academic Progress*.