



2001-2002 End-of-Course Test Results

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Background

Currently, North Carolina administers ten End-of-Course (EOC) tests for high school students. The tests are aligned with the Standard Course of Study in each of the subjects tested, and use a multiple-choice test format. Courses tested are Algebra I, Algebra II, Geometry, English I, U.S. History, Economic/Legal/Political Systems [ELP], Biology, Chemistry, Physical Science, and Physics.

In 1995-96, under the ABCs plan, EOC testing was required statewide for all students enrolled in Algebra I, English I, Biology, ELP, and U.S. History, with testing in the remaining courses optional for local school districts. These five courses are graduation requirements, and tests in these courses were revised to place a stronger emphasis on higher-order thinking skills. Beginning in 1998-99, all students statewide enrolled in five elective courses (Geometry, Algebra II, Chemistry, Physics, and Physical Science) were also required to take EOC tests.

The multiple-choice tests must be given during the last two weeks of the course. Prior to 2002, a writing test was required for all students taking English II, but this test was not given in 2002.

Achievement Gains in 8 of 10 Subjects

End-of-Course (EOC) test scores in the Wake County Public School System (WCPSS) in 2001-2002 showed generally positive results when compared to prior years. Both mean scale scores and the percentage of students scoring at Level III or Level IV reached new highs in eight out of ten subject areas. The exceptions were U.S. History and Physical Science, where both performance measures showed declines.

More than 80% of students met or exceeded course-level standards in seven out of ten subject areas, including Physics (90.7), Algebra I (88.4), Algebra II (86.8), Chemistry (83.8), English I (81.3), Biology (80.8), and Geometry (80.1). The percentage of students demonstrating proficiency was the lowest in U.S. History (62.8) and Physical Science (65.6).

Disaggregated Results

Almost all major student sub-groups showed gains in most subject areas. However, the achievement gap between races showed little change as the overall pattern of improvement was fairly uniform. Among all racial groups, Asian students had the highest mean scale score on seven out of ten tests. Results disaggregated by special education program participation and limited English proficiency also are reported in this bulletin.

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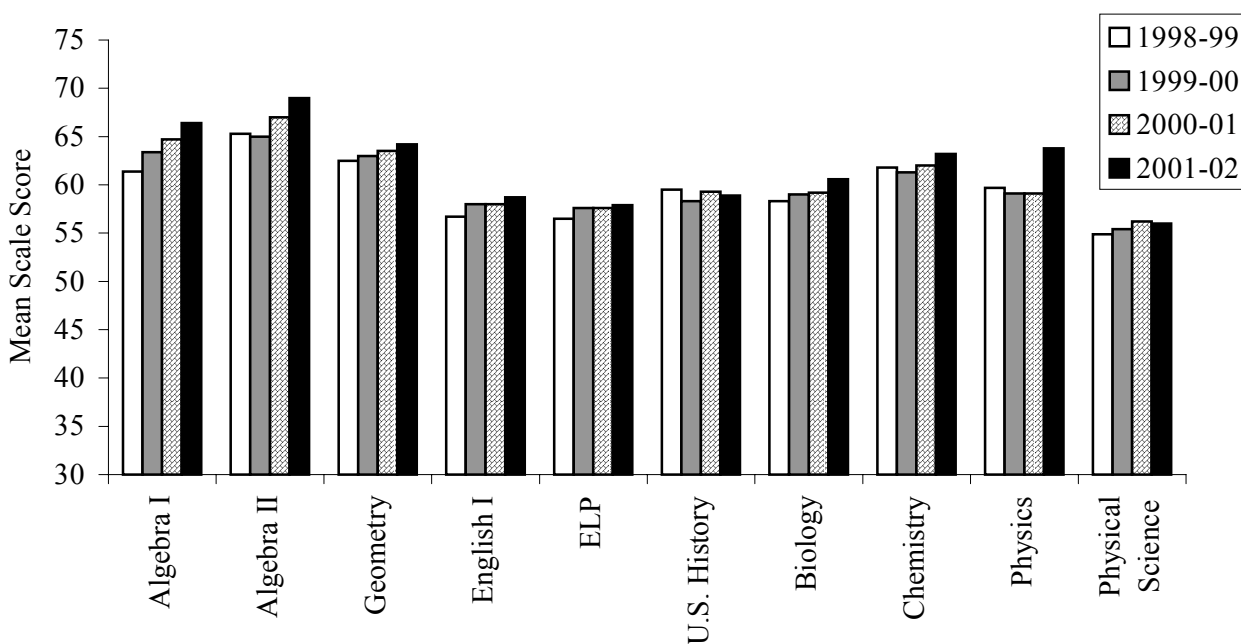
EOC Mean Scale Scores

Mean scale scores for WCPSS students reached new highs in 2001-2002 in eight of ten subject areas. When compared to 2000-2001 test results, average scale scores increased the most in Physics (4.7), followed by Algebra II (2.0), Algebra I (1.7), and Biology (1.4). Scores in two subjects showed declines: U.S. History (-.3) and Physical Science (-.2). Mean scale scores surpassed the 60-point mark in six out of ten subject areas, compared with only four last year. The highest mean scale scores were in Algebra II (69.0) and Algebra I (66.4); the lowest were in Physical Science (56.0) and Economic/Legal/Political Systems (57.9).

Figure 1
EOC Mean Scale Scores For WCPSS From 1999 To 2002

Course	1998-1999	1999-2000	2000-2001	2001-2002
Algebra I	61.4	63.4	64.7	66.4
Algebra II	65.3	65.0	67.0	69.0
Geometry	62.5	63.0	63.7	64.2
English I	56.7	58.0	58.0	58.7
Economic/Legal/Political Systems	56.5	57.6	57.6	57.9
U.S. History	59.5	58.3	59.2	58.9
Biology	58.3	59.0	59.2	60.6
Chemistry	61.8	61.3	62.0	63.2
Physics	59.7	59.1	59.1	63.8
Physical Science	54.9	55.4	56.2	56.0

Figure 2
EOC Multiple-Choice Mean Scale Scores for WCPSS From 1999 To 2002



Achievement Level Scores

The achievement level score categorizes student achievement according to four broad levels, defined by the North Carolina Department of Public Instruction (NCDPI) as follows:

Level I: Students performing at this level do not have sufficient mastery of knowledge and skills of the course to be successful at a more advanced level in the content area.

Level II: Students performing at this level demonstrate inconsistent mastery of knowledge and skills of the course, and are minimally prepared to be successful at a more advanced level in the content area.

Level III: Students performing at this level consistently demonstrate mastery of the course subject matter and skills and are well prepared for a more advanced level in the content area.

Level IV: Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient in the course subject matter and skills and are very well prepared for a more advanced level in the content area.

EOC Test Information Sources

Scale score ranges for levels for each multiple-choice EOC test can be found in *Understanding End-of-Course Testing: Achievement Levels*, Assessment Brief Volume 5 No. 5, published by the North Carolina Division of Accountability Services in the Department of Public Instruction and available at the DPI website at www.ncpublicschools.org.

Percentage of Students At Level III or Level IV

As shown in Figure 3 and Figure 4 on the following page, the percentage of students scoring at Levels III or IV on EOC tests reached new four-year highs in eight of the ten tested courses in 2001-2002. Only in U.S. History and Physical Science did the percentage of students scoring in the proficient range decline from the previous year.

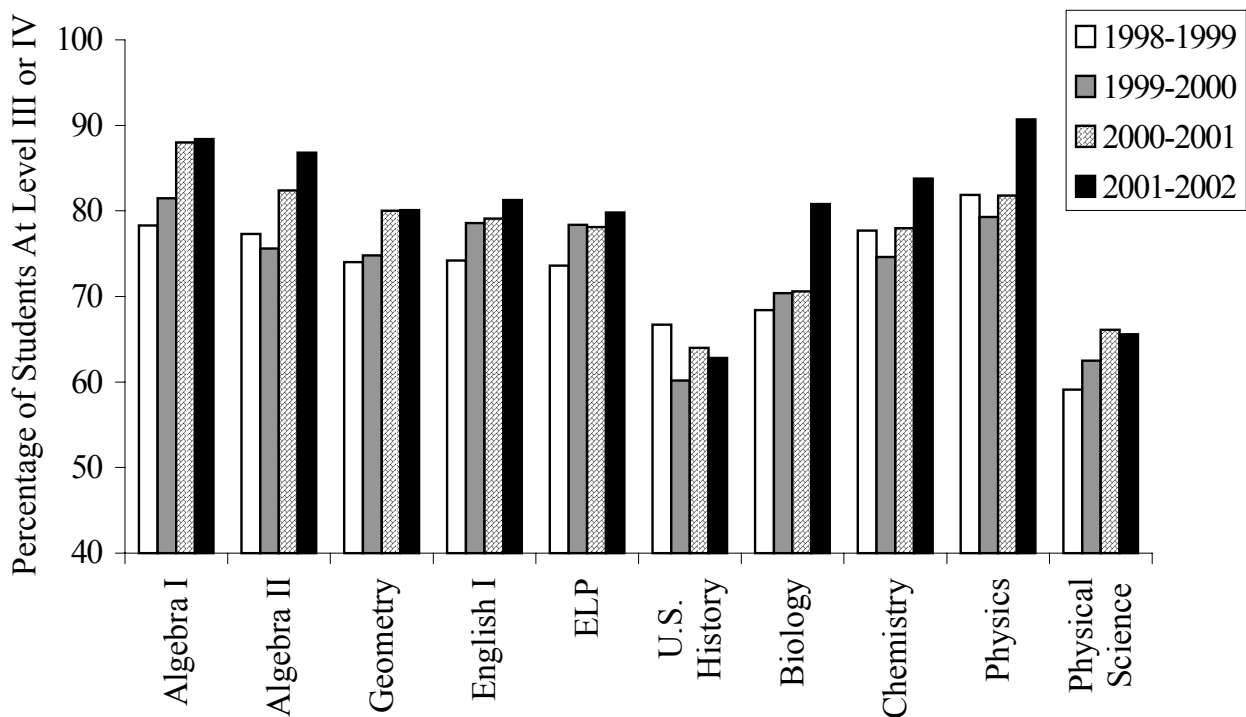
When compared to 2000-2001 test results, the percentage of WCPSS students scoring at Level III or IV increased the most in Biology (10.2 percentage points), followed by Physics (8.9), Chemistry (5.8), and Algebra II (4.4). The two subjects showing declines were U.S. History (-1.2 percentage points) and Physical Science (-.5).

The percentage of students meeting or exceeding course-level standards surpassed 80 percent in seven out of ten subject areas, compared with only four last year. The subject areas with the highest percentage of students achieving proficiency were Physics (90.7%), Algebra I (88.4%) and Algebra II (86.8%). The lowest proficiency percentages were in U.S. History (62.8%) and Physical Science (65.6%).

Figure 3
Percentage of Students Scoring At Level III or IV
On WCPSS EOC Tests From 1999-2002

Course	1998-1999	1999-2000	2000-2001	2001-2002
Algebra I	78.3	81.5	88.0	88.4
Algebra II	77.3	75.6	82.4	86.8
Geometry	74.0	74.8	80.0	80.1
English I	74.2	78.6	79.1	81.3
Economic/Legal/Political Systems	73.6	78.4	78.1	79.8
U.S. History	66.7	60.2	64.0	62.8
Biology	68.4	70.4	70.6	80.8
Chemistry	77.7	74.6	78.0	83.8
Physics	81.9	79.3	81.8	90.7
Physical Science	59.1	62.5	66.1	65.6

Figure 4
Percentage of Students Scoring At Level III or IV
On WCPSS EOC Tests From 1999-2002

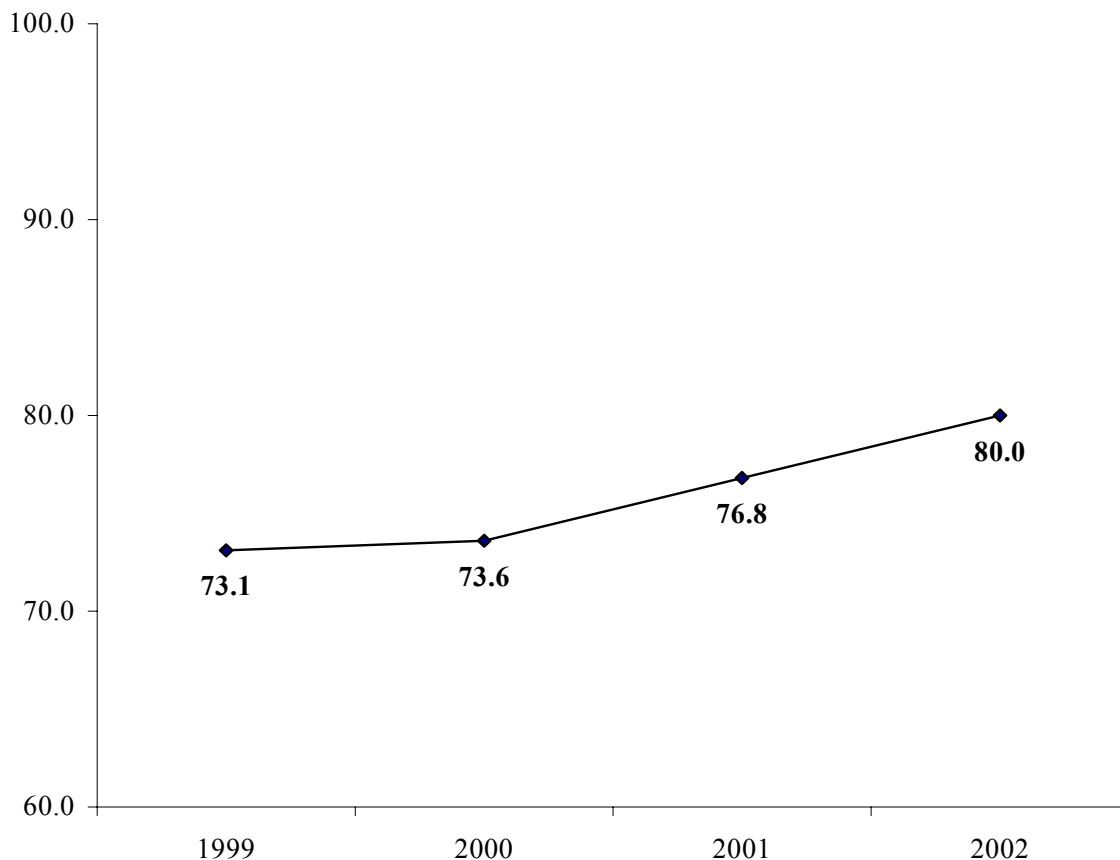


Composite Performance Over Time

Figure 5 below shows the trend over the past four years in a composite measure of student achievement. The composite represents the average percent proficient for all ten EOC tests each year. The composite average treats all tests equally for calculation purposes even though the number of students who took each test varied considerably. For example, in 2002, 7692 students took the Algebra I test, while only 1922 took the Physics test. Nonetheless, the composite accurately measures year-to-year differences in the overall performance of EOC test-takers as long as course enrollment patterns remain comparable across years.

In 2001-2002, the composite percent proficient reached 80% for the first time since EOC testing was established. In other words, the percentage of WCPSS students scoring at Level III or IV averaged 80% across all tests. The average for some tests was much higher than 80% (e.g. Physics at 91% and Algebra I at 88%), whereas for others, it was substantially lower (e.g. U.S. History at 63% and Physical Science at 66%). Since 1999, the composite has increased by 6.9 percentage points (from 73.1% to 80.0%) with almost all of the growth occurring over the past two years.

Figure 5
Composite Percent Proficient for 10 EOC Tests 1999-2002



Disaggregated Results for 2001-2002

EOC mean scale scores disaggregated by gender, race, special education program participation, and limited English proficiency for all ten multiple-choice tests for 2001-2002 are shown in Figure 6 on the following page. (Appendix A contains more limited disaggregated data for the prior two years.)

Gender Differences

Male students scored higher than female students on EOC tests in Algebra II, Geometry, ELP, U.S. History, Chemistry, Physics, and Physical Science. Females had higher mean scale scores than males on the EOC test in English I. Algebra I and Biology scores showed little difference by gender.

Differences By Race

Asian students had the highest mean scale scores of all racial groups in seven out of ten subject areas. The gap between their scores and those of other racial groups was largest in the three math subjects. Black students had the lowest mean scale scores on nine of the ten tested subjects. The performance gap between Black students and White students averaged 7.6 points across all subjects. Hispanic students, on average, scored 2.5 points higher than Black students. However, Black students showed the greatest gains from prior years, and the achievement gap has narrowed in several courses. (For longitudinal data on EOC achievement levels disaggregated by race, see Figures 7-11.)

Differences by Special Education Program Participation

In 2001-2002, the mean scale scores of students participating in special education programs (excluding AG) were, on average, 2.6 points lower across all subject areas than those of students who did not participate (57.3 vs. 59.9). Special education students scored lower on all tests except Chemistry, where their mean scale score surpassed that of non-special education students (61.2 vs. 60.5). The achievement gap between the two groups was largest in English I (6.2 points), followed by Biology (3.8), and ELP and U.S. History (both 3.7).

Students participating in academically gifted programs had the highest mean scale scores of all student sub-groups on all ten EOC tests. Their average score for all tests was 68.6, which was 8.7 points higher than the average score for students not participating in special education programs. Academically gifted students performed the best in math courses, with scores of 75.3 in Algebra I, 75.9 in Algebra II, and 71.7 in Geometry.

Students with Limited English Proficiency

Mean scale scores for students with limited English proficiency were, on average, 4.8 points lower than all other students (57.2 compared to 62.0). LEP students scored the highest in Algebra 2 (68.5) and Geometry (62.1), and the lowest in English I (48.6) and ELP (51.6). The gap between LEP students and non-LEP students was widest in English I (10.2 points) and narrowest in Algebra II (.5).

Figure 6
End-of-Course Mean Scale Scores 2001-2002

	Algebra I	Algebra II	Geometry	English 1	ELP	U.S. History	Biology	Chemistry	Physics	Physical Science
All Students	66.4	69.0	64.2	58.7	57.9	58.9	60.6	63.2	63.8	56.0
Male	66.5	69.5	64.8	57.7	58.4	59.7	60.9	64.2	64.8	56.6
Female	66.2	68.5	63.7	60.0	57.5	58.1	60.4	62.4	62.5	55.3
White	68.8	70.1	65.9	61.1	60.2	60.9	62.8	63.9	64.5	58.3
Black	59.6	62.6	57.2	53.4	52.6	52.9	54.7	58.6	56.5	52.8
Asian	71.7	73.6	68.8	61.7	60.3	60.8	63.8	66.2	64.2	56.3
Hispanic	62.4	65.6	62.1	53.3	53.9	55.6	56.2	60.2	61.0	55.1
Am. Indian	70.5	67.3	62.1	56.5	57.5	56.0	60.8	59.5	64.7	41.0
Multi-Racial	65.5	66.8	64.3	58.8	56.9	57.1	60.3	62.6	63.1	54.7
Special Ed.	61.0	64.1	60.7	51.3	52.8	53.5	55.3	61.2	60.0	53.2
Not SE	64.0	66.0	61.4	57.5	56.5	57.2	59.1	60.5	60.4	56.0
Acad. Gifted	75.3	75.9	71.7	66.6	65.3	65.7	67.1	68.1	67.3	62.5
LEP	61.5	68.5	62.1	48.6	51.6	52.4	53.3	61.8	58.8	53.5
Not LEP	66.5	69.0	64.2	58.8	58.1	59.0	60.7	63.3	63.8	56.1

Notes:

- Figure 6 shows disaggregated scores for all students taking EOC tests. However, Algebra I and Geometry scores include middle school students.
- LEP shows average scores for students with Limited English Proficiency.
- Special Ed. shows average scores for all students receiving special education services (not including Academically Gifted).

Achievement Levels on Five EOC Tests by Race Over Time

Figures 7-11 show the percentage of students in each racial group who scored at Level III or IV on the five EOC courses required for graduation for the four-year period 1999-2002. The following patterns can be seen:

- The percentage of students scoring at Level 3 or 4 increased for all racial groups in 2001-2002 in Algebra I, English I, ELP, and Biology. The percentage in the proficient range dropped in U.S. History for all groups.
- Among all racial groups, Black students had the lowest percentage in the proficient range in four out of the five subject areas in 2001-2002; however, they had the highest cumulative growth in achievement over the past 4 years (an average increase of 10.7 percentage points across the five subject areas).
- *Algebra I* percentages show a steady pattern of improvement for all racial groups over the past four years. The overall growth in achievement was highest for Black students (a 19.8 percentage point increase from 1999 to 2002), followed by White students (16.9), Hispanic students (13.9), and Asian students (8.4).
- *English I* percentages have risen steadily for White students and Black students since 1999. The cumulative gain in the percentage of students scoring at Level III or IV over the past year was largest for Black students (12.4 percentage points), followed by Asian students (11.3), Hispanic students (10.9), and White students (6.7).
- *ELP* gains have been smaller and less consistent for most racial groups. The percentage scoring at Level III or IV increased for all groups in 2001-2002, but achievement growth since 1999 was less than 10 percentage points for all groups except Black students (10.8).
- *U.S. History* percentages declined for all groups except Asian students in 2001-2002. Since 1998-1999, the achievement level of all groups has declined, with Black students and Hispanic students experiencing the largest drop (-6.6 and -6.5 percentage points, respectively).
- *Biology* percentages rose substantially for all four groups in 2001-2002. Cumulative gains over the past four years were highest for Asian students (an increase of 18.6 percentage points), followed by Black students (17.2), White students (11.3), and Hispanic students (10.1).

Figure 7
Percent of Students At/Above Level III on Algebra I EOC Test
By Race Over Time

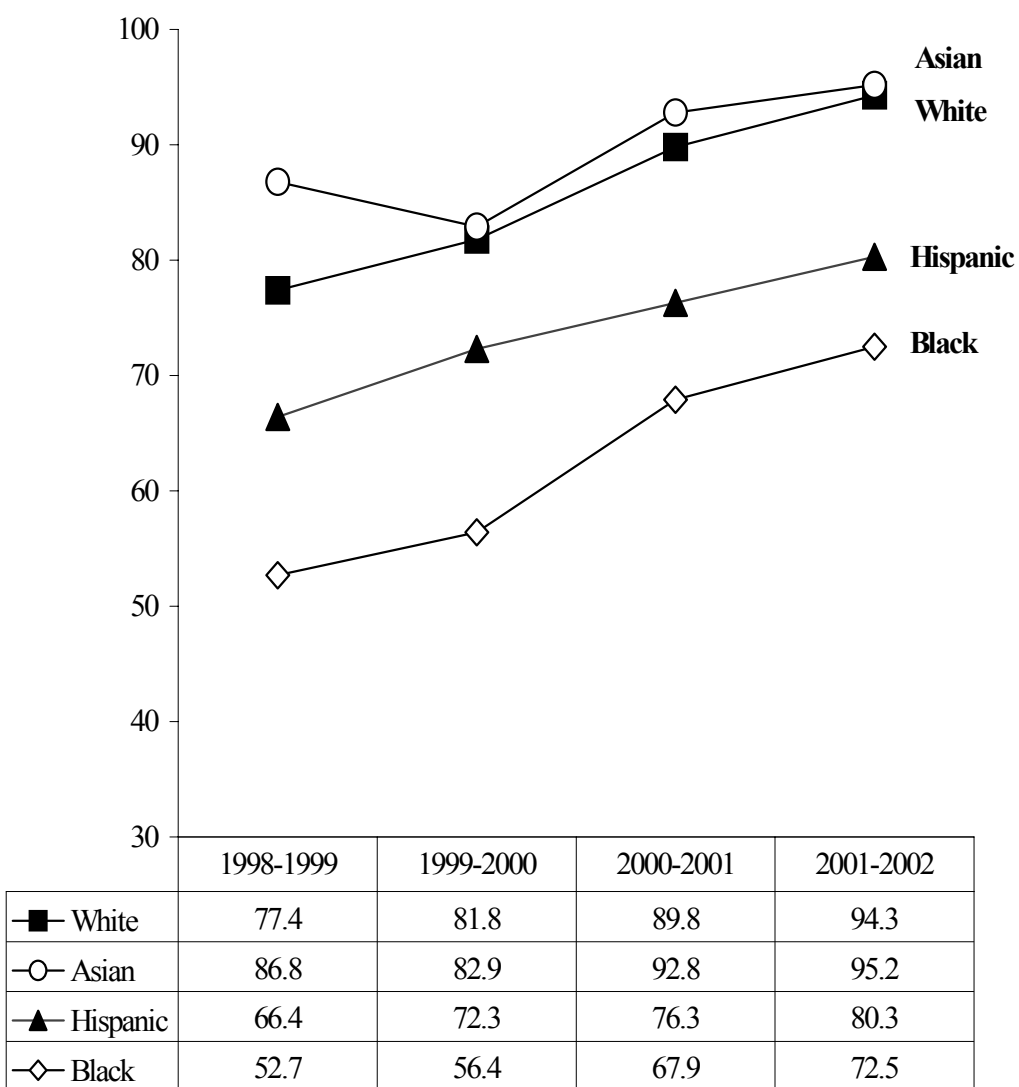
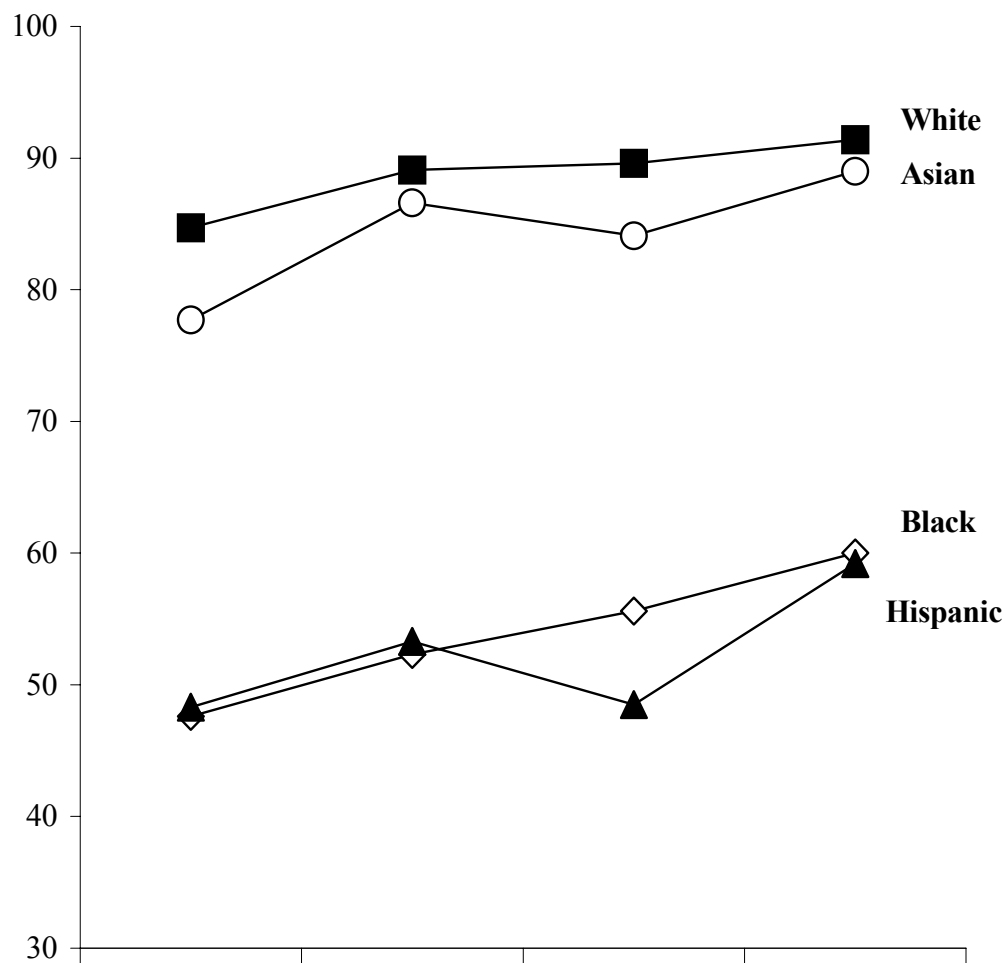


Figure 8
Percent of Students At/Above Level III on English I EOC Test
By Race Over Time



	1998-1999	1999-2000	2000-2001	2001-2002
■ White	84.7	89.1	89.6	91.4
○ Asian	77.7	86.6	84.1	89.0
◇ Black	47.6	52.3	55.6	60.0
▲ Hispanic	48.3	53.3	48.5	59.2

Figure 9
Percent of Students At/Above Level III on ELP EOC Test
By Race Over Time

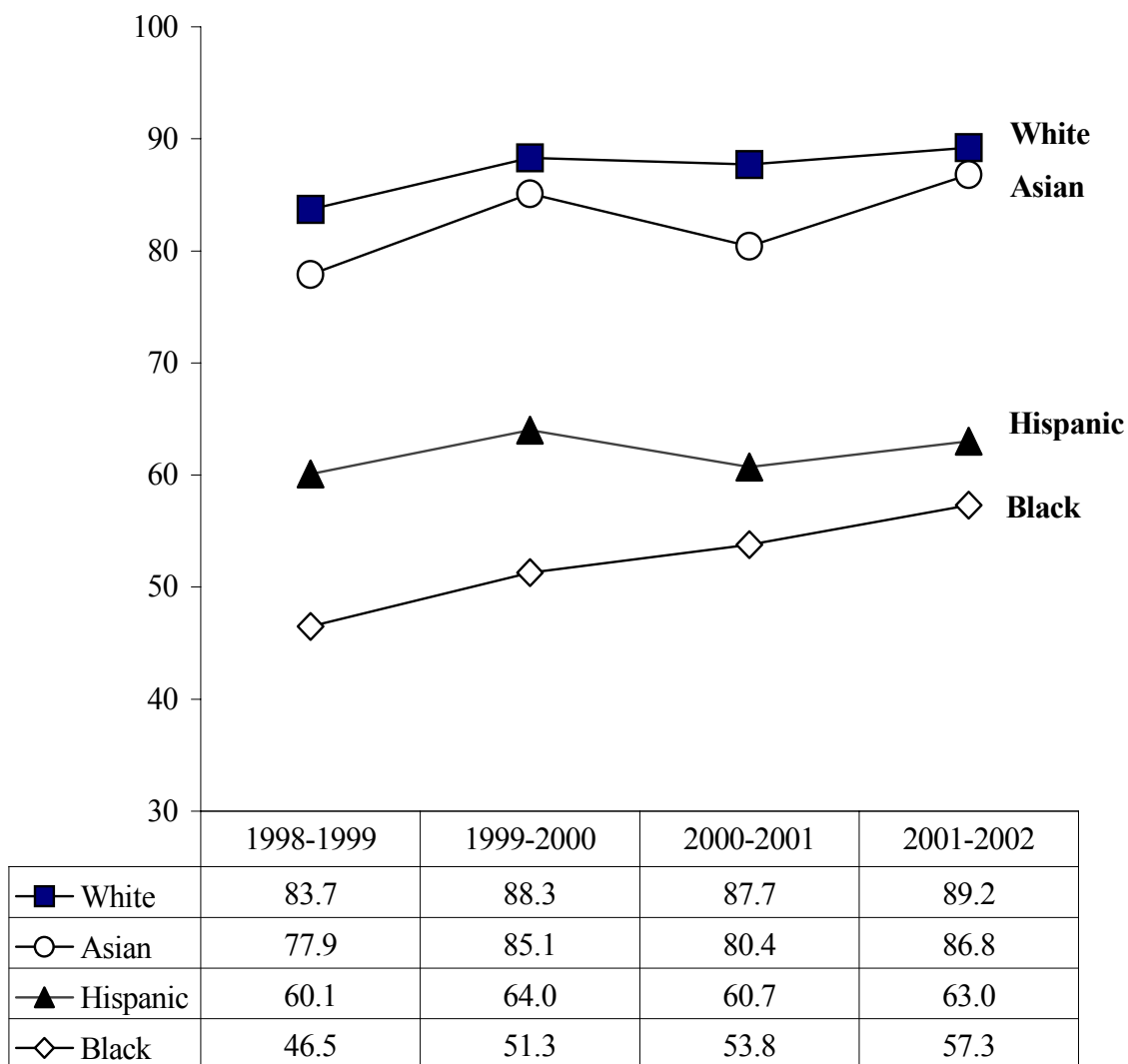


Figure 10
Percent of Students At/Above Level III on U.S. History EOC Test
By Race Over Time

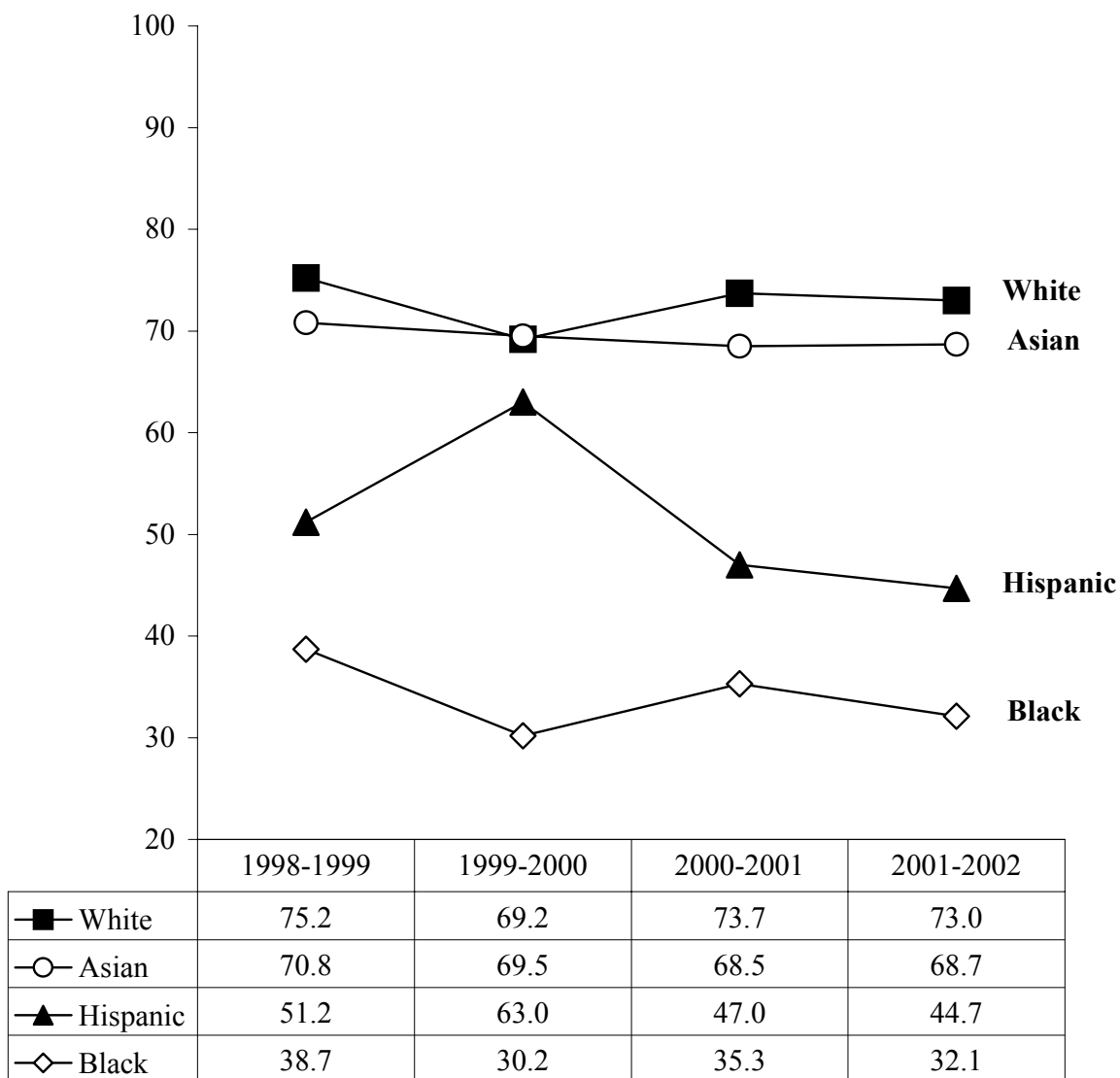
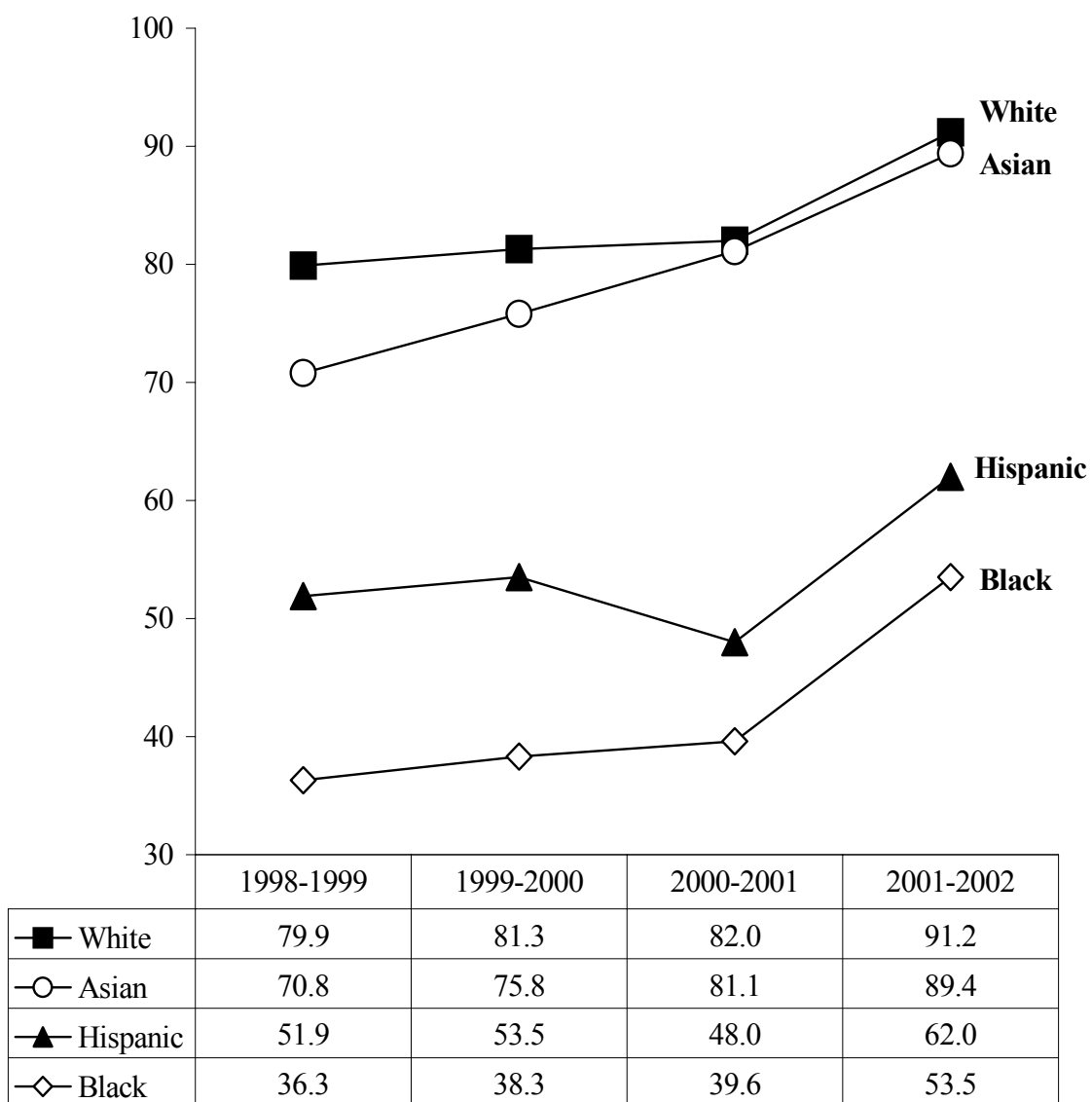


Figure 11
Percent of Students At/Above Level III on Biology EOC Test
By Race Over Time



Appendix A: Prior Year Scores

High School End-of-Course Mean Scale Scores 2000-2001

	Algebra I	Algebra II	Geometry	English 1	ELP	U.S. History	Biology	Chemistry	Physics	Physical Science
All Students	61.7	67.0	63.5	58.0	57.6	59.2	59.2	62.0	59.1	56.2
Male	62.1	67.8	63.9	57.4	58.1	60.1	59.5	62.7	60.3	57.1
Female	61.4	66.2	63.0	58.7	57.0	58.4	58.8	61.4	57.6	55.3
White	63.7	68.2	65.0	60.5	59.9	61.2	61.6	62.9	59.9	58.8
Black	57.3	59.9	56.8	52.3	51.7	53.5	52.7	56.4	51.9	51.8
Asian	63.6	72.3	65.8	60.4	58.4	60.3	61.2	65.1	61.6	58.7
Hispanic	59.5	64.6	58.8	51.5	53.1	55.5	53.9	58.9	57.7	50.7

High School End-of-Course Mean Scale Scores 1999-2000

	Algebra I	Algebra II	Geometry	English 1	ELP	U.S. History	Biology	Chemistry	Physics	Physical Science
All Students	60.1	65.0	62.6	58.0	57.7	58.3	59.0	61.3	59.1	55.4
Male	59.9	65.6	63.3	57.1	58.3	59.0	59.1	62.1	60.3	56.3
Female	60.3	64.5	62.0	59.0	57.0	57.7	58.8	60.6	57.5	54.3
White	61.9	66.4	64.2	60.4	59.8	60.1	61.2	62.1	59.8	58.3
Black	55.4	57.7	55.3	51.7	51.3	52.7	52.1	55.8	51.8	50.6
Asian	63.3	71.2	66.2	61.4	59.8	60.2	61.8	64.8	59.3	55.5
Hispanic	58.2	63.1	61.1	53.3	54.1	57.4	53.5	60.6	57.5	52.0

**Appendix B: End-of-Course Mean Scale Scores for Five Required Courses
2000-2002**

School	English I			Algebra I			Biology			ELP			U.S. History		
	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02
Apex	58.8	58.4	59.7	62.3	63.9	65.4	58.8	58.5	60.0	58.5	58.2	58.7	59.3	60.9	59.4
Athens Drive	58.0	56.9	58.3	63.0	62.0	63.6	59.8	60.2	62.1	57.2	57.4	58.4	57.8	58.9	59.2
Broughton	58.4	58.7	59.7	56.1	58.2	59.8	57.0	58.3	59.1	56.8	57.6	58.4	57.5	58.4	58.6
Cary	57.5	58.4	59.5	63.4	64.2	65.8	57.6	59.2	63.4	59.0	58.1	58.4	59.5	60.2	59.4
East Wake	55.7	55.4	56.0	60.7	61.9	65.6	55.5	56.8	56.8	52.9	57.5	57.3	55.1	55.8	56.5
Enloe	60.0	59.8	60.7	55.3	57.4	56.2	61.0	61.5	61.2	58.5	58.4	59.3	61.1	62.1	60.4
Fuquay-Varina	55.6	57.2	56.8	61.0	62.2	66.0	55.1	57.0	61.1	56.4	57.1	57.2	58.4	57.1	58.2
Garner	56.0	54.6	54.9	58.5	59.5	59.7	59.1	57.4	59.2	54.5	52.7	52.9	55.6	57.8	56.9
Green Hope	61.8	60.8	61.0	63.0	66.3	65.7	62.0	60.8	63.0	58.8	58.7	59.3		61.8	61.9
Leesville Rd.	59.3	59.4	59.9	63.4	64.7	66.8	62.4	62.5	63.1	58.9	59.8	59.7	60.6	61.8	60.6
Mary E. Phillips	52.4	52.1	49.4	47.4	54.2	55.4	50.0	51.3	51.6	55.3	52.6	54.7	49.8	48.6	48.2
Millbrook	57.6	56.6	57.6	57.2	59.0	60.2	59.9	60.3	61.3	57.5	55.5	55.9	58.0	58.3	59.2
Sanderson	58.5	58.5	58.1	60.5	60.2	63.8	60.2	59.0	59.2	57.4	57.7	56.9	58.2	59.8	58.2
Southeast Raleigh	56.8	58.2	58.4	58.3	61.8	62.0	58.0	56.8	58.7	60.0	58.3	59.2	57.8	58.2	57.8
Wake Forest-Rolesville	57.5	58.2	59.3	59.5	62.1	64.5	58.2	56.8	61.5	57.0	57.9	58.2	59.1	59.3	58.8
Wakefield		60.1	59.7		63.1	64.8		60.9	63.0		60.2	62.1		59.6	59.2
WCPSS	58.0	58.0	58.7	63.4	64.7	66.4	59.0	59.2	60.6	57.6	57.6	57.9	58.3	59.2	58.9

**Appendix C: End-of-Course Mean Scale Scores for Five Elective Courses
2000-2002**

School	Algebra II			Chemistry			Geometry			Physical Science			Physics		
	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02	1999-00	2000-01	2001-02
Apex	67.7	69.8	72.1	60.9	62.3	64.2	65.9	66.1	67.1	57.4	59.8	56.3	60.7	60.3	65.1
Athens Drive	68.5	68.1	70.1	64.1	64.6	63.5	63.6	63.5	64.2	53.8	53.5	52.9	58.3	60.2	64.3
Broughton	63.5	63.5	65.7	59.7	59.8	60.0	65.1	64.4	64.1	54.7	54.5	55.1	60.0	58.2	62.4
Cary	66.7	68.3	71.1	60.0	62.1	63.4	64.1	65.7	67.8	56.9	57.5	54.7	57.3	56.7	61.4
East Wake	61.7	60.9	64.0	58.4	55.4	60.2	62.3	62.6	62.0	49.2	51.6	54.8	54.8	51.6	56.5
Enloe	63.3	66.2	68.7	61.9	62.3	65.1	61.8	61.9	62.3	50.7	51.2	49.6	58.3	60.2	65.2
Fuquay-Varina	61.4	63.5	68.2	60.4	60.2	60.6	59.6	61.0	61.9	54.5	54.0	56.1	58.5	55.9	61.6
Garner	62.6	63.8	65.9	59.0	60.7	62.1	57.7	59.7	60.1	54.5	51.1	53.4	56.5	54.5	56.8
Green Hope	74.0	71.2	72.3	66.5	63.8	64.7	69.1	67.1	67.0	59.1	57.4	58.3		59.1	66.0
Leesville Rd.	67.3	70.2	71.7	63.2	64.3	64.7	63.2	64.7	65.1	58.8	58.6	58.3	62.1	61.4	66.9
Mary E. Phillips	51.7	54.2	56.0				53.2	58.5	57.1	54.2	51.3	50.5		46.5	
Millbrook	64.2	68.0	67.7	63.3	64.6	64.0	61.5	61.8	62.3	57.4	55.6	56.9	59.2	58.4	64.9
Sanderson	66.1	69.1	68.2	62.3	64.5	65.0	64.3	63.8	63.2	55.7	56.8	55.7	57.6	60.6	63.7
Southeast Raleigh	65.9	66.6	68.2	62.3	61.0	62.2	59.4	59.6	61.3	54.9	56.8	54.7	59.9	60.0	63.4
Wake Forest-Rolesville	60.8	62.9	66.9	57.2	58.4	61.7	60.2	61.4	63.9	52.3	53.2	56.2	57.5	57.8	56.7
Wakefield		71.8	70.9		60.0	64.5		66.5	64.2		59.7	59.0		59.6	65.7
WCPSS	65.0	67.0	69.0	61.3	62.0	63.2	63.0	63.7	64.2	55.4	56.2	56.0	59.1	59.1	63.8