
STUDENT PERFORMANCE

KEY ISSUES

The collection of student performance data is the state's way of ensuring accountability in students, teachers, and the education system as a whole.

North Carolina has posted dramatic student performance gains in recent years on many national and international standardized tests. However, there is much room for growth.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP)

The National Assessment of Educational Progress (NAEP) is a congressionally mandated project led by the National Center for Education Statistics for more than twenty-five years. NAEP periodically measures student achievement in reading, mathematics, science, writing, U.S. history, civics, geography, and other subjects. Beginning in 1990, state-level NAEP comparison data became available for states that volunteered to participate. Since 1980, some type of assessment has been done every two years, though the subjects tested vary from year to year.

In the 1990s, the National Education Goals Panel recognized North Carolina and Texas for making more progress toward achieving the national education goals than any other states. North Carolina and Texas led all states in combined gains in math and reading on the National Assessment of Educational Progress from 1990-96. Both 4th and 8th grade math scores show that North Carolina made the most gains of any state in both grades throughout the 1990s. North Carolina has been recognized in the past for the progress that its students have made on NAEP.

As part of the No Child Left Behind (NCLB) legislation, Congress mandated that all states participate in NAEP reading and math assessments every two years as a way to validate state scores, but permits states to use their own assessments to measure student performance and progress. The 2015 Every Student Succeeds Act, which replaced NCLB as the newest version of the Elementary and Secondary Education Act Reauthorization, keeps the NAEP requirement in place.

RESULTS OF NAEP TESTING 2015: MATHEMATICS

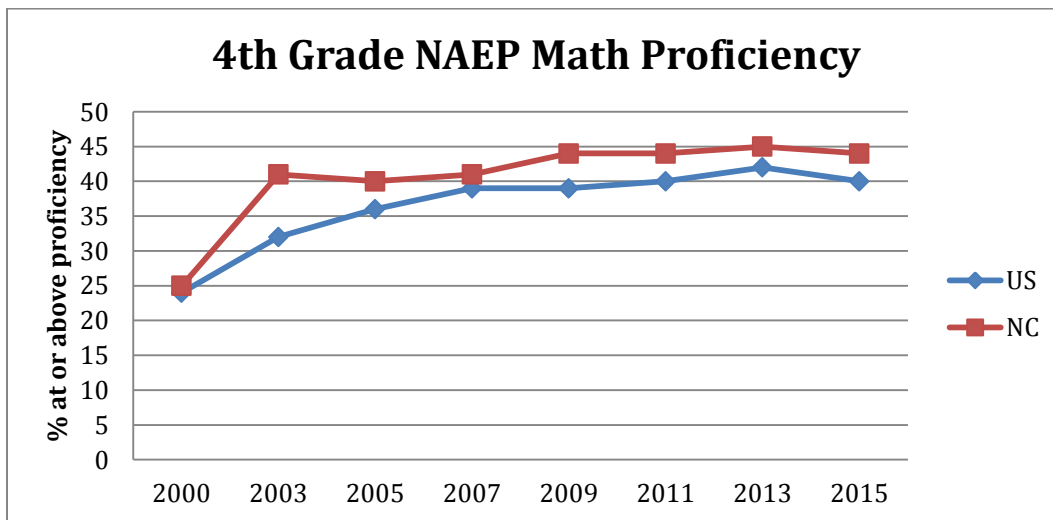
Nationally, NAEP results fell from 2013 to 2015, with no score increases in any student group on either the 4th or 8th grade math assessments.¹ North Carolina's 4th grade math average scale score remained above the national average, as it has since 2000. The average scale score for 8th grade math fell to the national average for the first time since 2000.

NAEP assesses mathematics in five content areas: number properties and operations; measurement; geometry; data analysis, statistics, and probability; and algebra. NAEP also tests students for literacy and reading abilities.

¹ The Nation's Report Card, 2015 Mathematics National Results Overview. Available at http://www.nationsreportcard.gov/reading_math_2015/#mathematics?grade=4.

FOURTH GRADE MATHEMATICS: 2015 RESULTS

- North Carolina's average mathematics score for 4th graders was 244, compared to the national average of 240.
- North Carolina's average 4th grade mathematics score was higher than 25 other states and the District of Columbia, lower than 5 other states, and not statistically different from 19 other states.
- 41 percent of North Carolina 4th graders scored at the Basic achievement level; 36 percent at the Proficient level; and 8 percent at the Advanced achievement level.
- Between 1992 and 2015, the percentage of 4th graders in NC scoring below Basic level in mathematics decreased from 50 percent to 15 percent. However, between 2013 and 2015, the percentage increased from 13 percent to 15 percent.²

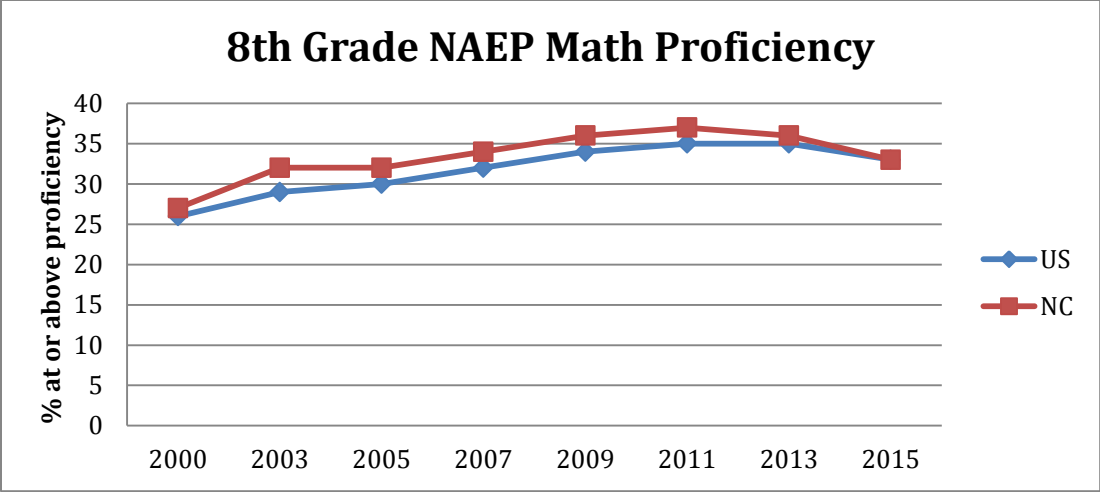


EIGHTH GRADE MATHEMATICS: 2015 RESULTS

- North Carolina's average mathematics score for 8th graders was 281, the same as the national average score.
- North Carolina's average 8th grade mathematics score was higher than 11 other states and the District of Columbia, lower than 15 other states, and not statistically different from 23 other states.
- 36 percent of North Carolina 8th graders scored at the Basic achievement level; 24 percent at the Proficient level; and 9 percent at the Advanced achievement level.
- Between 1990 and 2015, the percentage of 8th graders in NC scoring below Basic level in mathematics decreased from 62 percent to 31 percent. However, from 2013 to 2015, the percentage increased from 25 percent to 31 percent.³

² National Center for Education Statistics, 2015 Mathematics State Snapshot Report North Carolina. Available at <http://nces.ed.gov/nationsreportcard/states/Default.aspx>.

³ National Center for Education Statistics, 2015 Mathematics State Snapshot Report North Carolina.

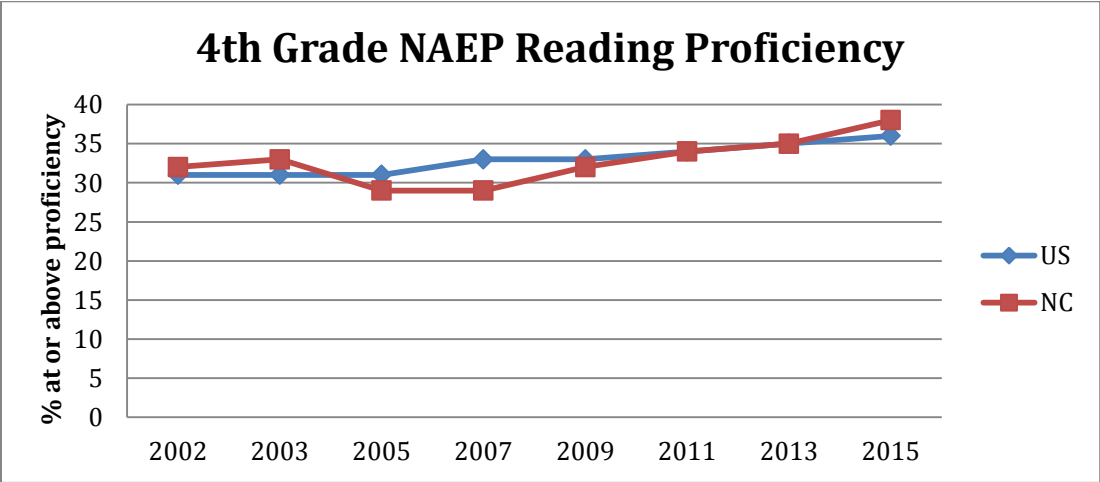


RESULTS OF NAEP TESTING 2015: READING

In 2015, the national average reading score for fourth-grade students was not significantly different in comparison to 2013; however, eighth-grade students scored lower than 2013 in reading scores.⁴

FOURTH GRADE READING: 2015 RESULTS

- In 2015, the average score of 4th grade students in North Carolina was 226. This was higher than the average score of 221 for public school students in the nation.
- The average score for students in North Carolina in 2015 (226) was higher than their average score in 2013 (222) and in 1998 (213).
- The percentage of students in North Carolina who performed at or above the NAEP Proficient level was 38 percent in 2015. This percentage was not significantly different from that in 2013 (35 percent) and was greater than that in 1998 (27 percent).⁵

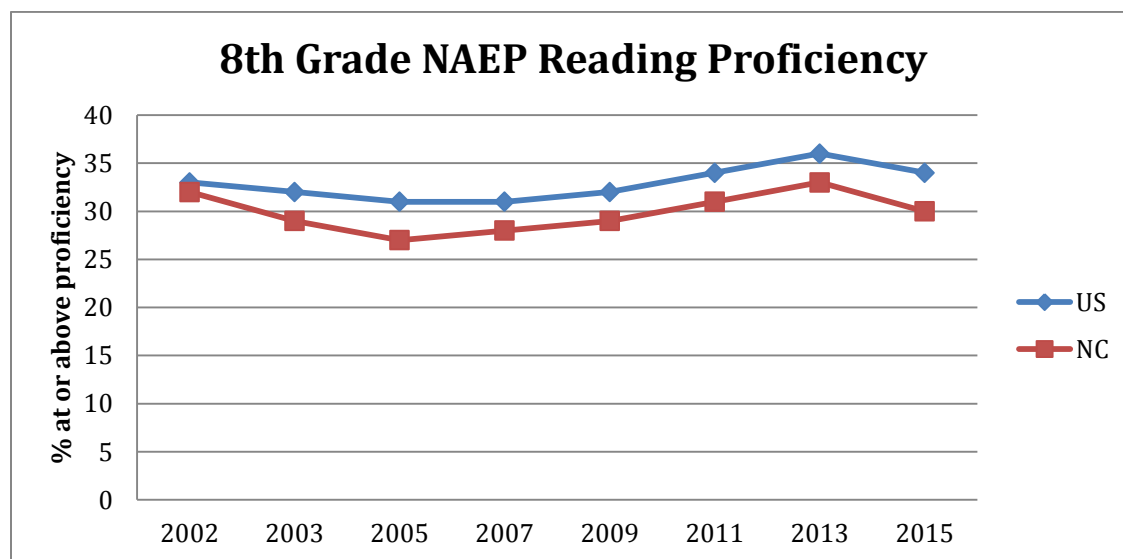


⁴ The Nation's Report Card, 2015 Reading National Results Overview. Available at http://www.nationsreportcard.gov/reading_math_2015/#reading?grade=4.

⁵ National Center for Education Statistics, 2015 Reading State Snapshot Report North Carolina. Available at <http://nces.ed.gov/nationsreportcard/states/Default.aspx>.

EIGHTH GRADE READING: 2015 RESULTS

- In 2015, the average score of 8th students in North Carolina was 261. This was lower than the average score of 264 for public school students in the nation.
- The average score for students in North Carolina in 2015 (261) was lower than their average score in 2013 (265) and was not significantly different from their average score in 1998 (262).
- The percentage of students in North Carolina who performed at or above the NAEP Proficient level was 30 percent in 2015. This percentage was not significantly different from that in 2013 (33 percent) and in 1998 (30 percent).⁶



SCHOLASTIC ASSESSMENT TEST (SAT)

One of the most often used comparisons of a high school student's performance is the Scholastic Assessment Test (SAT). Offered several times during the year, the test is designed to measure verbal and mathematical reasoning skills and is used to predict success during the first year of college. Only college-bound students - not all high school graduates - generally take this test. However, participation rates among (and within) states vary widely, ranging from a low of 3 percent to a high of 100 percent. In North Carolina, 59% of eligible students took the SAT in 2014-15 compared to the U.S. rate of 52.3%.⁷ If only the very highest performing students take the test, a state's overall scores are likely to be much higher than a state where the majority of high school graduates take the test. Because these variations create large biases in SAT score data, the scores can cause misperceptions about variations in state educational quality. Thus, the use of SAT scores for state-by-state comparisons is controversial. In fact, the College Board no longer publishes state rankings, in order to discourage drawing ill-fitting comparisons between states. The SAT has evolved greatly since its initial administration in the late 1920s. Prior to March 2016, the SAT was composed of three subsections (critical reading, mathematics, and writing), each worth 800 points for a total possible SAT score of 2400.

⁶ National Center for Education Statistics, 2015 Reading State Snapshot Report North Carolina.

⁷ NC DPI, 2015 SAT Performance by District and School.

Available at <http://www.ncpublicschools.org/accountability/reporting/sat/2015>.

2016 REDESIGNED SAT

In March 2016, the College Board issued a newly redesigned SAT. The new SAT consists of three sections: Evidence-Based Reading and Writing, Math, and an Optional Essay. The exam will be returned to its original grading scale of up to 1600 total points. The Reading and Writing section and the Math section will be graded on a scale of 200-800 with the Essay section graded completely separately. The redesigned SAT is focused on eight key changes to promote a higher level of career and college readiness:

1. Relevant Words in Context
2. Command of Evidence
3. Essay Analyzing a Source
4. Math Focused on Three Key Areas (Problem Solving and Data Analysis, the Heart of Algebra, and Passport to Advanced Math)
5. Problems Grounded in Real-World Contexts
6. Analysis in Science and Social Studies
7. Founding Documents and Great Global Conversation
8. No Penalty for Wrong Answers

SAT PERFORMANCE IN 2014-15

- 59 percent of North Carolina's students took the SAT, a decrease of 9 percentage points from 2012. This decrease may be due to the new requirement in 2012 that all high school juniors take the ACT.
- North Carolina's mean total SAT score in 2014-15 was 1478, compared to a national mean score of 1490.⁸ These numbers include public and nonpublic students.
- From 1989 to 2014, North Carolina's average yearly score gain has been about 2.52 points, compared with about 0.15 points for the nation.⁹

Past SAT scores show that race and gender are relevant variables to analyzing SAT performance. The data below suggests the influence of such factors on student performance in North Carolina and across the nation.

SAT & GENDER

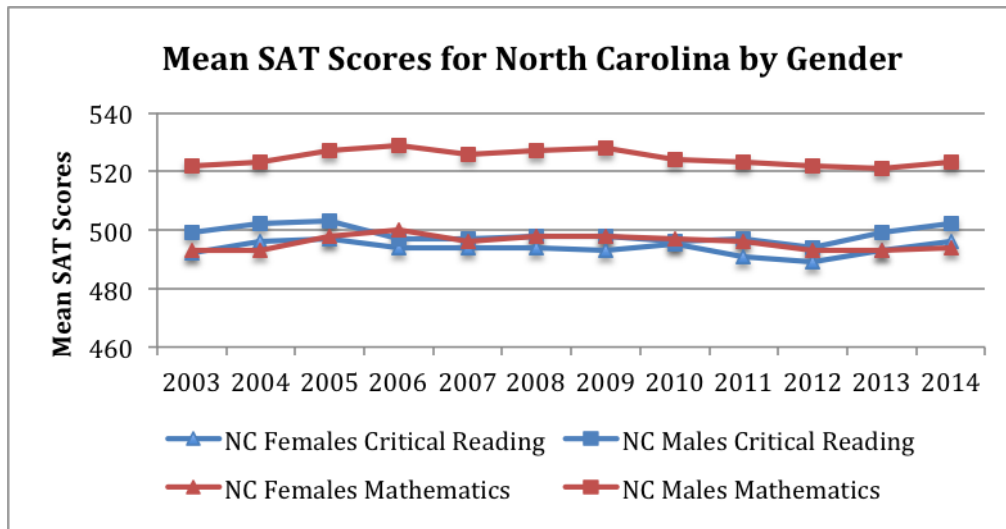
The figure below displays the ongoing gender gap in SAT scores. Males have scored higher than females on the mathematics subsection of the SAT since its first administration in the 1920s, and in recent decades males have begun to consistently score higher than females in critical reading as well.

- In 2014, the gap between total mean SAT scores for the nation's males and females (35 points) narrowed by 8 points from the gap (43 points) in 2003.
- The gap between NC's males and females (35 points) and the nation's males and females decreased by one point from 2003 to 2014.

⁸ NC DPI, 2015 SAT Performance by District and School.

⁹ NC DPI, North Carolina 2014 SAT Report.

Available at <http://www.ncpublicschools.org/docs/accountability/reporting/sat/2014/satreport14.pdf>.



Source: NC DPI, North Carolina 2014 SAT Report

SAT & RACE

White and Asian American students have historically attained higher SAT scores than other racial/ethnic groups in North Carolina, including Hispanic, American Indian and Black students. For the eighth consecutive year in North Carolina, Asian American students scored higher than other racial/ethnic groups, followed by White, Hispanic, American Indian, and Black students.

2014 Mean Reading & Math SAT Score by Race/Ethnicity

Asian American	1117
White	1066
Hispanic	954
American Indian	934
Black	856

Source: NC DPI, North Carolina 2014 SAT Report.

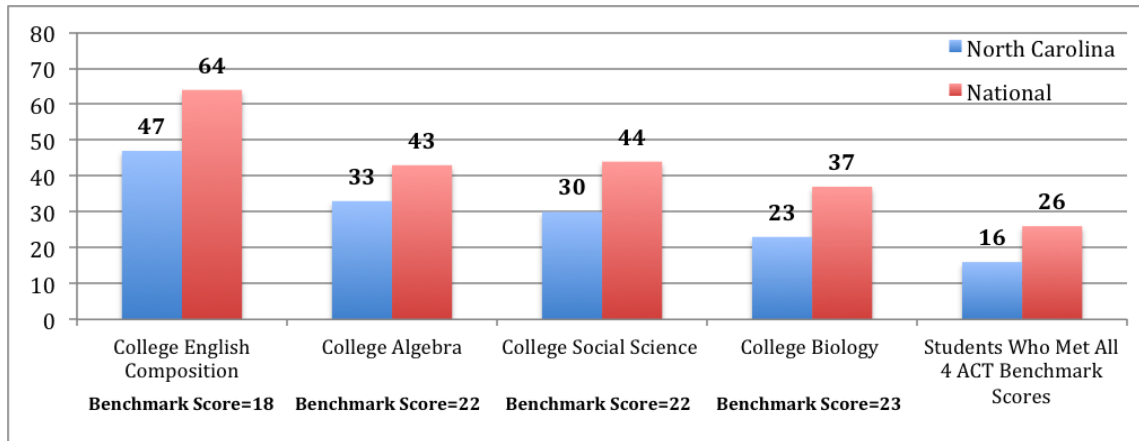
AMERICAN COLLEGE TESTING (ACT)

Beginning in 2012-13, the ACT College Admissions Assessment is given to all public school students in the 11th grade. The ACT test measures what students have learned in their courses and measures their skills in English, math, science and reading. The ACT also has an optional writing section, in which students formulate an essay in response to a written prompt.

The ACT is scored on a scale of 1-36 in each of the four sections. A student's composite score is calculated by averaging that student's scores on each individual section. The benchmark scores are 18 for English, 22 for Mathematics, 22 for Reading, and 23 for Science. To assess college readiness, the ACT tests English composition with the English section, algebra with the mathematics section, social sciences with the reading section, and biology with the science section. The graph below shows the percentage of students who met benchmark scores in each subject area on both a state and national level.

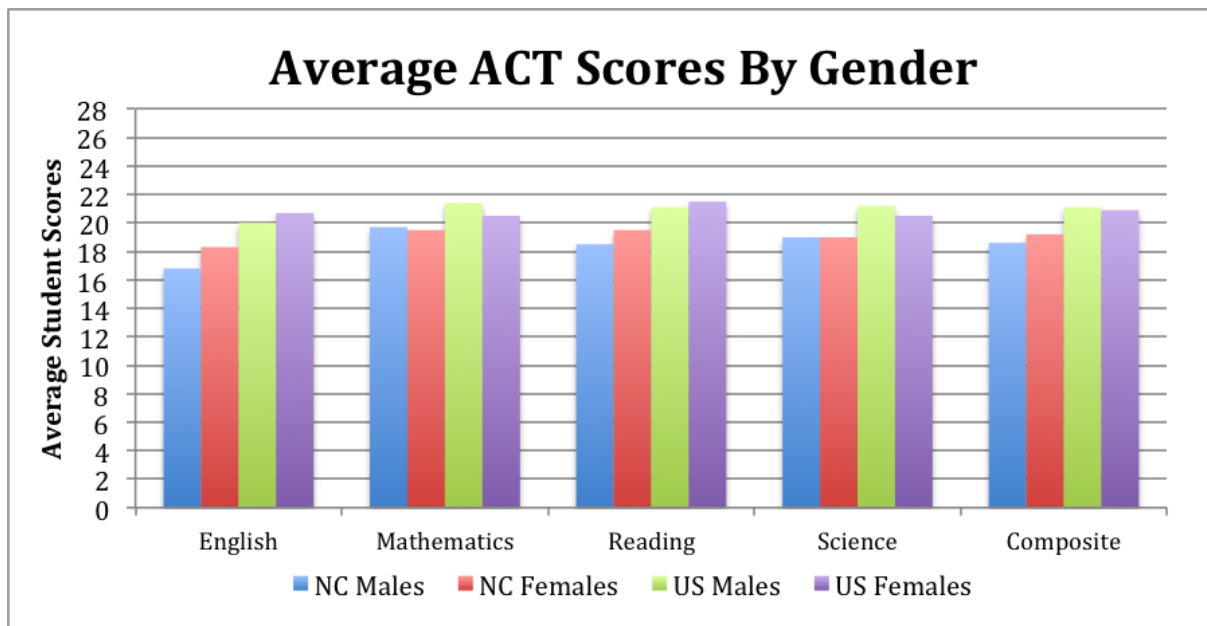
PERCENT OF STUDENTS READY FOR COLLEGE-LEVEL COURSEWORK¹⁰

Between 2012 and 2014, the percentage of students that met all four ACT benchmark scores in North Carolina dropped significantly from 30 percent in 2012 to 16 percent in 2014. However, this variance is due largely to the drastic increase in the number of students taking the test. In 2012, only 18,817 NC students took the ACT. However, with the new legislation requiring all 11th graders to take the ACT, 97,443 students took the ACT in 2014.



ACT & GENDER

The graph below shows the average ACT scores by gender for each individual section of the ACT on both a state and national level. On average, North Carolina females scored higher than North Carolina males. The only section in which NC males scored higher than NC females was in mathematics. On a national level, females and males held the same average composite score.



¹⁰ ACT, NC Profile. Available at <https://www.act.org/newsroom/data/2014/pdf/profile/NorthCarolina.pdf>.

AVERAGE ACT COMPOSITE SCORES BY RACE/ETHNICITY

The chart below shows the average ACT composite scores of NC students who took the ACT in terms of race.

Race/Ethnicity	Composite Score
Asian	21.4
White	20.5
Two or More Races	18.7
Prefer Not/No Response	18.3
Native Hawaiian/Pacific Islander	17.8
Hispanic/Latino	17.2
American Indian/Alaskan Native	16.5
Black/African American	15.8

ADVANCED PLACEMENT COURSES

An Advanced Placement (AP) course is a class which a student takes while still in high school that can potentially earn him/her college credit. Students scoring a 3 or higher out of a possible 5 on the AP exam typically earn credit towards college. Courses offer different levels of credit. For example, students enrolling in "AB" Calculus can earn 3 hours of college credit, while the "BC" course has the potential for 6 hours of credit. Below is an overview of AP exams taken by students in North Carolina and across the nation.

The percentage of students that take AP exams differs widely across states, and the numbers also vary based on the type of AP exam taken. As with SAT scores, these variances make it difficult to meaningfully compare scores across states, or to compare state scores with regional or national averages. In states where only college-bound seniors take AP exams, for example, one would expect to see higher average score results. In other states, where larger percentages of students are encouraged to take AP exams, average scores will likely be lower. The following chart compares the numbers of students taking AP exams in 2015 and their mean scores, in North Carolina and across the nation. Scores varied widely depending on the test so it is difficult to offer blanket observations on whether North Carolina is preparing students as well as other states to perform well on AP exams.

Advanced Placement Course Examination Scores 2015

AP Course	NC	US	NC	US
	# of students taking exam	# of students taking exam	Mean Score	Mean Score
Art History	635	22,691	2.52	2.75
Biology	6,386	217,564	2.86	2.90
Calculus AB	8,012	289,507	2.51	2.83
Calculus BC	34,228	107,371	3.42	3.72
Chemistry	3,657	144,412	2.53	2.62
Chinese Language and Culture	113	9,366	4.21	4.28
Computer Science	1,198	46,344	2.56	3.07
Economics: Macro	987	117,563	2.97	2.73
Economics: Micro	1,012	67,387	3.00	3.10
English Language and Composition	15,896	519,338	2.72	2.79
English Literature and Composition	12,672	393,722	2.69	2.78

Environmental Science	12,261	136,975	2.59	2.58
European History	2,735	105,481	2.47	2.74
French Language and Culture	433	20,678	3.30	3.22
German Language and Culture	125	4,671	3.45	3.33
Government and Politics: Comparative	707	20,289	2.80	2.84
Government and Politics: U.S.	6,683	281,458	2.53	2.54
Human Geography	6,006	157,451	2.91	2.68
Italian Language and Culture	9	2,428	4.11	3.13
Japanese Language and Culture	34	2,139	3.00	3.58
Latin	240	6,540	2.73	2.98
Music History	725	18,374	2.91	3.02
Physics B	1550	17,758	2.53	2.69
Physics C: Elec. & Magnet	271	20,110	3.26	3.35
Physics C: Mechanics	616	48,207	3.70	3.50
Psychology	14,582	269,190	2.80	3.11
Spanish Language	1,600	142,723	3.83	3.78
Spanish Literature and Composition	173	20,815	3.64	3.07
Statistics	9,224	188,481	2.60	2.79
Studio Art: 2-D Design	690	27,134	3.24	3.36
Studio Art: 3-D Design	67	4,500	3.12	3.16
Studio Art: Drawing	390	17,404	3.40	3.27
U.S. History	18,690	465,989	2.52	2.64
World History	5,932	261,912	2.65	2.61

Source: College Board. Available at <http://apcentral.collegeboard.com/home>.

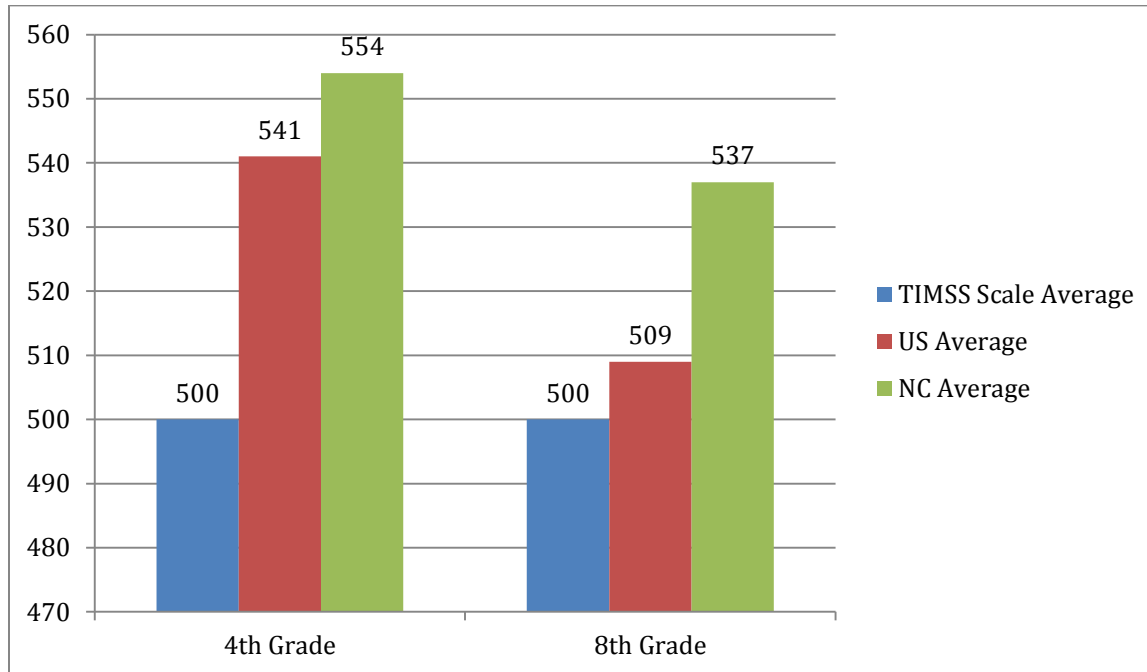
INTERNATIONAL COMPARISONS: TIMSS

The Trends in International Mathematics and Science Study (TIMSS), a mathematics and science achievement comparison test, has been conducted since 1995 by the International Association for the Evaluation of Educational Achievement (IEA), an international organization consisting of national research institutions and governmental research agencies. TIMSS can be used to track changes in achievement over time. Moreover, TIMSS results provide an indication of the degree to which students have learned key mathematics and science concepts. North Carolina is one of nine states that participate in TIMSS separately from the nation, which allows for comparison of the state's students directly to students internationally.

In the following pages, the most recently released data from the 2011 TIMSS report is provided, allowing for a more thorough look into North Carolina's performance.

PERFORMANCE IN MATHEMATICS

AVERAGE MATHEMATICS SCORES OF U.S. 4TH AND 8TH GRADERS 2011



Other findings included:

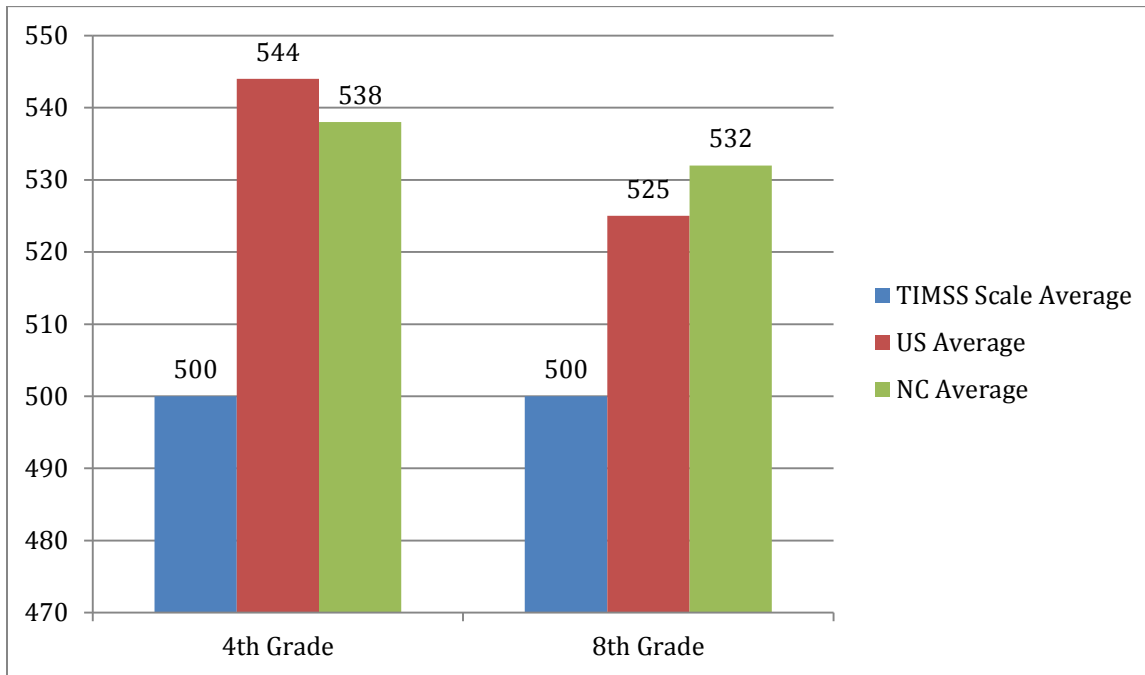
- The average mathematics scores for both U.S. fourth and eighth-grade students were higher in 2011 than they were in 2007 as compared to the TIMSS scale average.
- In 2011, 13 percent of U.S. fourth graders and 7 percent of U.S. eighth graders scored at or above the TIMSS benchmark in mathematics.
- U.S. eighth grade students in public schools containing at least 50 percent of students eligible for free and reduced-price lunch scored lower than the 2011 US national average and the TIMSS scale average in mathematics.¹¹

PERFORMANCE IN SCIENCE

- In 2011, the average science scores of both U.S. fourth graders (544) and eighth graders (525) were higher than the TIMSS scale average (500 at both grades).
- The average science scores for both U.S. fourth and eighth-grade students in 2011 were not measurably different from 2007 scores.

¹¹ 2011 TIMSS Results. Available at <http://nces.ed.gov/timss/results11.asp>.

AVERAGE SCIENCE SCORES OF U.S. 4TH AND 8TH GRADERS 2011



HIGH SCHOOL COMPLETION RATES

Another method for analyzing high school achievement is to examine the high school completion rate, or how many ninth graders that enter high school in a given year graduate four years later. The graduation rate is different from the dropout rate because the graduation rate tracks students by cohort. For example, a student with a disability entering ninth grade may not graduate with the cohort s/he entered high school with, but may graduate one or two years later. S/he would detract from the graduation rate of their cohort but s/he is not a dropout. Despite unique cases like these, the graduation rate is a useful metric for judging how well our school systems are serving children in North Carolina.

In the 2014-15 school year, 94,544 students graduated out of the cohort of 110,473 students that entered 9th grade together in 2011-12. The graduation rate, at 85.6 percent, is the highest in state history. In 2007-08, the graduation rate stood at 70.3 percent.

The following chart shows graduation numbers and percentages for four-year graduation rate by student subgroup. As is the case nationwide, North Carolina data shows that female students, Asian and white students, and English-speaking students are more likely to complete high school in four years than male, minority, disabled, and economically disadvantaged students, and those with limited English proficiency.

NORTH CAROLINA FOUR-YEAR GRADUATION RATE, 2014-15

Subgroup	Students entering 9 th grade in 2011-2012	Students graduating in 2014- 2015	Percentage of students graduating in four years
All Students	110,473	94,544	85.6
Gender			
Male	56,294	46,288	82.2
Female	54,179	48,256	89.1
Race/Ethnicity			
Asian	2,866	2,640	92.1
White	59,300	52,391	88.3
Black	30,202	24,815	82.2
American Indian	1577	1293	82.0
Hispanic	12,578	10,060	80.0
Two or More Races	3,824	3,233	84.5
Disability/Disadvantage			
Economically Disadvantaged	44,047	35,076	79.6
Limited English Proficient	2,572	1,486	57.8
Students With Disabilities	11,613	7,816	67.3

Source: NC DPI, Available at <http://www.ncpublicschools.org/accountability/reporting/cohortgraduate>.

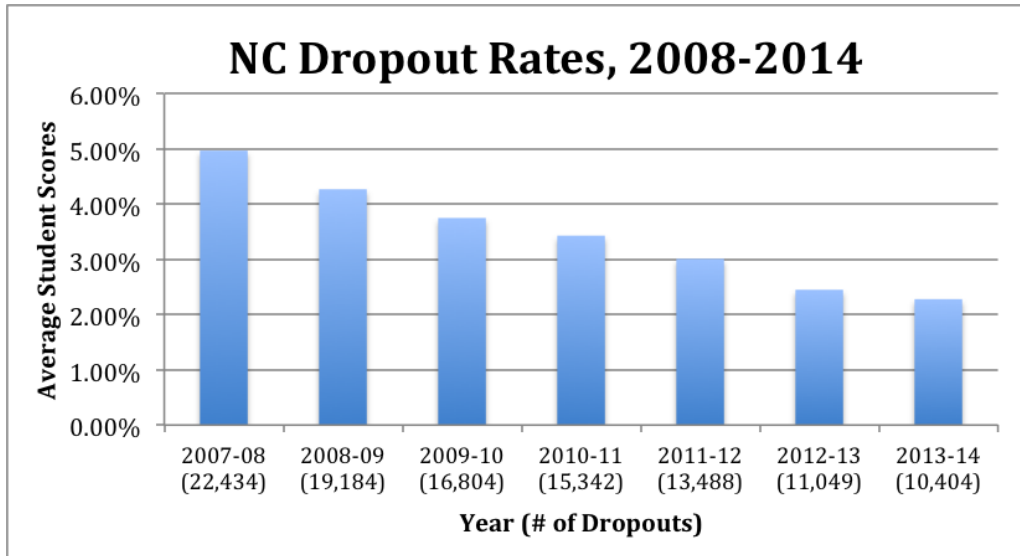
DROPOUT RATE

While student test scores are often the focus of discussions on student achievement, the high school completion and dropout rates tell a great deal about how students fare in an education system. The State Board of Education defines a dropout as “any student who leaves school for any reason before graduation or completion of a program of studies without transferring to another elementary or secondary school.” Students who leave high school for a community college or GED, adult high school, or other program are counted as dropouts. In 2013-14, a reported 14.8 percent of the recorded dropouts left high school in order to enroll in community college. Schools make an effort to record the reasons students drop out, but due to the nature of dropping out it is difficult to get an accurate picture of why many students leave. An estimated 42 percent of dropouts are due to attendance issues. Needing (or choosing) to get a job, health issues, pregnancy, failing to come back to school after a long suspension, and lack of engagement with school or peers are some of the additional reasons cited for dropping out.

- The state reported 10,404 dropouts in 2013-14, a decrease from the 11,049 total reported in 2012-13.
- High schools in North Carolina reported a dropout rate of 2.28 percent in 2013-14, the lowest dropout rate ever recorded in North Carolina.
- Males accounted for 62.7 percent of the dropouts in 2013-14, up from 61.5 percent in 2012-13.
- Holding steady with past trends, Hispanic (3.25%), American Indian (3.61%), and black (2.68%) students experienced the highest dropout rates of all ethnic groups.

- All ethnic groups contributed to the decrease in dropouts reported. Excluding the small Pacific Islander group (9 to 7 dropouts), the two groups with the largest percentage decrease were black students with a 37.2 percent decrease in rate, and Hispanic Students with a 30.3 percent decrease in rate.

The graph below tracks changes in the state’s dropout rate over the past 7 academic years.



Source: NC DPI Consolidated Data Report. Available at <http://www.ncpublicschools.org/docs/research/discipline/reports/consolidated/2013-14/consolidated-report.pdf>