
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 twenty-eight 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.

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 (ESSA), which replaced NCLB as the newest version of the Elementary and Secondary Education Act Reauthorization, keeps the NAEP requirement in place.

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.

RESULTS OF NAEP TESTING 2017: MATHEMATICS

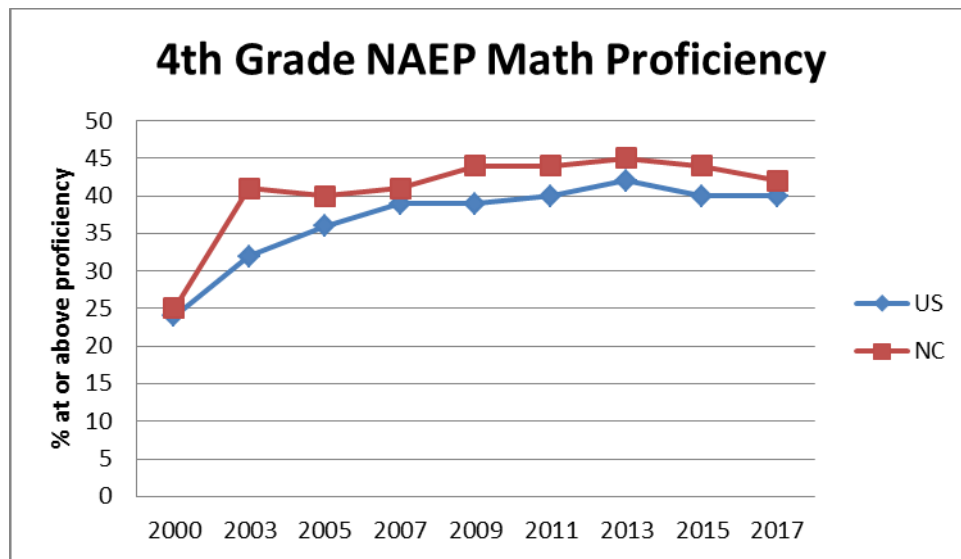
Nationally, NAEP results fell from 2013 to 2015, and again from 2015 to 2017 in 4th grade mathematics.¹ NAEP national results increased minimally for 8th grade mathematics from 2015 to 2017.² North Carolina's 4th grade math average score dropped from 2015 to 2017, but still remained above the national average, as it has since 2000. The average score for 8th grade math remained matched with the national average, as it has since 2015.

¹ The Nation's Report Card, 2017 Mathematics State Snapshot Report, Grade 4. Available at <http://www.ncpublicschools.org/docs/accountability/policyoperations/naep/2017/g4mathsnapshot.pdf>

² The Nation's Report Card, 2017 Mathematics State Snapshot Report, Grade 8. Available at <http://www.ncpublicschools.org/docs/accountability/policyoperations/naep/2017/g8mathsnapshot.pdf>

FOURTH GRADE MATHEMATICS: 2017 RESULTS

- North Carolina's average mathematics score for 4th graders was 241, compared to the national average of 239.
- North Carolina's average 4th grade mathematics score was higher than 22 other states and the District of Columbia, lower than 11 other states, and not statistically different from 19 other states.
- 81 percent of North Carolina 4th graders scored at the Basic achievement level or above; 42 percent at the Proficient level or above; and 8 percent at the Advanced achievement level.
- Between 1992 and 2017, the percentage of 4th graders in NC scoring below Basic level in mathematics decreased from 50 percent to 19 percent. However, between 2015 and 2017, the percentage increased from 15 percent to 19 percent.³

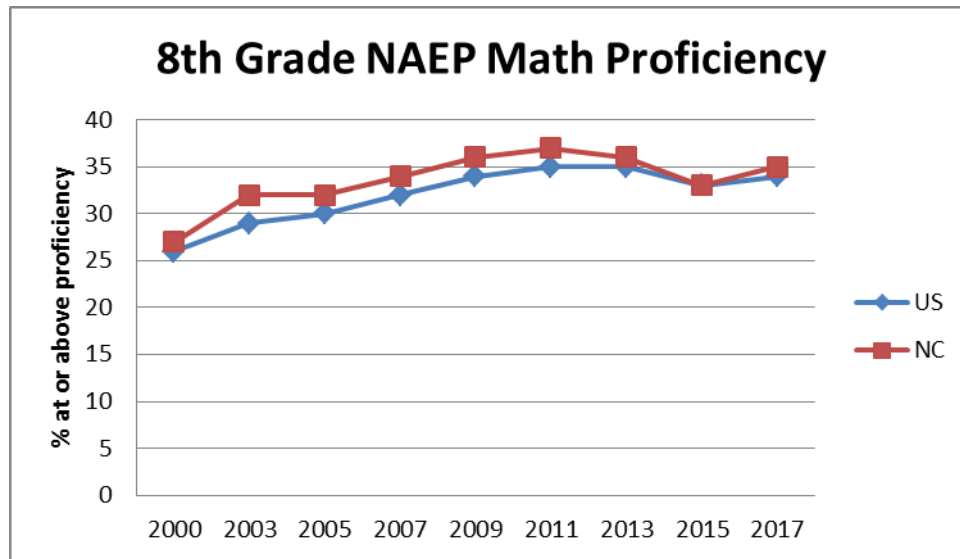


EIGHTH GRADE MATHEMATICS: 2017 RESULTS

- North Carolina's average mathematics score for 8th graders was 282, the same as the national average score.
- North Carolina's average 8th grade mathematics score was higher than 17 other states and the District of Columbia, lower than 21 other states, and not statistically different from 14 other states.
- 68 percent of North Carolina 8th graders scored at the Basic achievement level or above; 35 percent at the Proficient level or above; and 11 percent at the Advanced achievement level.
- Between 1990 and 2017, the percentage of 8th graders in NC scoring below Basic level in mathematics decreased from 62 percent to 32 percent. However, from 2015 to 2017, the percentage increased from 31 percent to 32 percent.⁴

³ The Nation's Report Card, 2017 Mathematics State Snapshot Report, Grade 4.

⁴The Nation's Report Card, 2017 Mathematics State Snapshot Report, Grade 8.



RESULTS OF NAEP TESTING 2017: READING

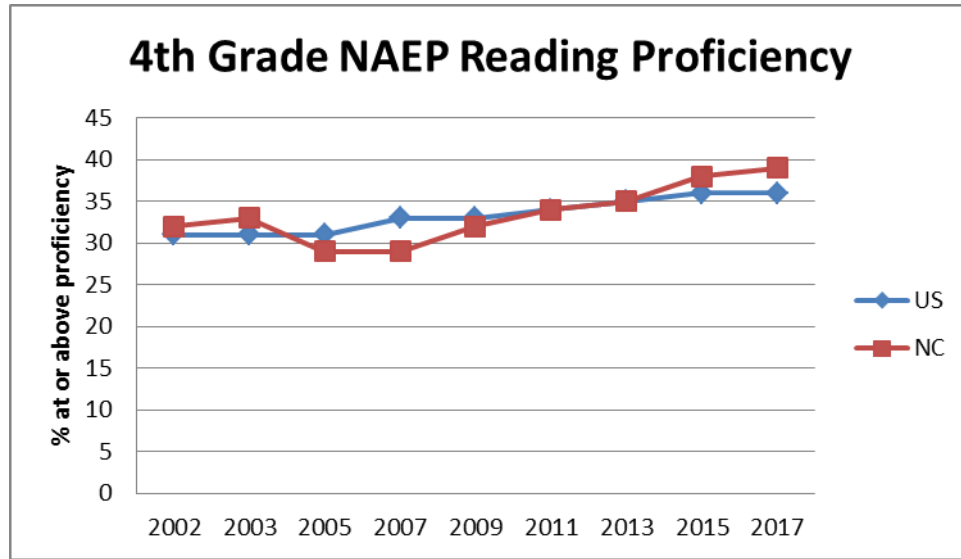
In 2017, the national average reading score for fourth-grade students was constant in comparison to 2013; however, eighth-grade students scored minimally higher than 2015 in reading scores.⁵ North Carolina's 4th grade reading average scale score remained above the average, as it has since 2011. The average scale score for 8th grade reading remains below the national average, as it has since 2005.

FOURTH GRADE READING: 2017 RESULTS

- In 2017, the average score of 4th grade students in North Carolina was 224. 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 2017 (224) was lower than their average score in 2015 (226) but higher than in 2013 (222).
- 69 percent of North Carolina 4th graders scored at the Basic achievement level or above; 39 percent at the Proficient level or above; and 10 percent at the Advanced achievement level.
- The percentage of students in North Carolina who performed at or above the NAEP Proficient level was 39 percent in 2017. This percentage was not significantly different from that in 2015 (38 percent) and is greater than that in 1998 (27 percent).⁶

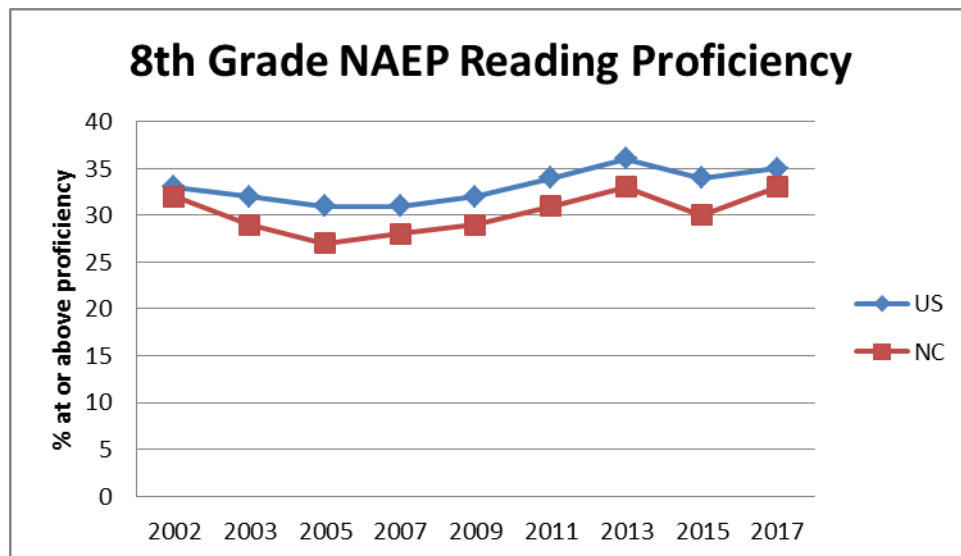
⁵ The Nation's Report Card, 2017 Reading State Snapshot Report, Grade 4. Available at <http://www.ncpublicschools.org/docs/accountability/policyoperations/naep/2017/g4readsnapshot.pdf>
 The Nation's Report Card, 2017 Reading State Snapshot Report, Grade 8. Available at <http://www.ncpublicschools.org/docs/accountability/policyoperations/naep/2017/g8readsnapshot.pdf>

⁶The Nation's Report Card, 2017 Reading State Snapshot Report, Grade 4.



EIGHTH GRADE READING: 2017 RESULTS

- In 2017, the average score of 8th students in North Carolina was 263. This was below the average score of 265 for public school students in the nation.
- The average score for students in North Carolina in 2017 (263) was not significantly different from their average score in 2015 (261) and in 1998 (262)
- 75 percent of North Carolina 8th graders scored at the Basic achievement level or above; 33 percent at the Proficient level or above; and 3 percent at the Advanced achievement level.
- The percentage of students in North Carolina who performed at or above the NAEP Proficient level was 33 percent in 2017. This percentage was not significantly different from that in 2015 (30 percent) and in 1998 (30 percent).⁷



⁷The Nation's Report Card, 2017 Mathematics State Snapshot Report, Grade 8.

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, 44 percent of eligible students took the SAT in 2016-17.⁸ 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.

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 2016-17

- 44 percent of North Carolina's students took the SAT, a decrease of 20 percentage points from 2015-16. 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 2016-17 was 1074, compared to a national mean score of 1044.⁹ These numbers only include public school students.

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.

⁸ NC DPI, 2017 SAT Performance by District and School.

Available at <http://www.ncpublicschools.org/docs/accountability/reporting/sat/2017/satpublicovrvw17.pdf>.

⁹ NC DPI, North Carolina - Public Schools Overview 2016-17.

Available at <http://www.ncpublicschools.org/accountability/reporting/sat/2017>.

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 tenth consecutive year in North Carolina, Asian American students scored higher than other racial/ethnic groups, followed by White students.

2017 Mean Reading & Math SAT Score by Race/Ethnicity	
Asian American	1160
White	1137
Two or More Races	1073
Hispanic	1042
American Indian	987
Black	952

Source: NC DPI, North Carolina - Public Schools Overview 2016-17

AMERICAN COLLEGE TESTING (ACT)

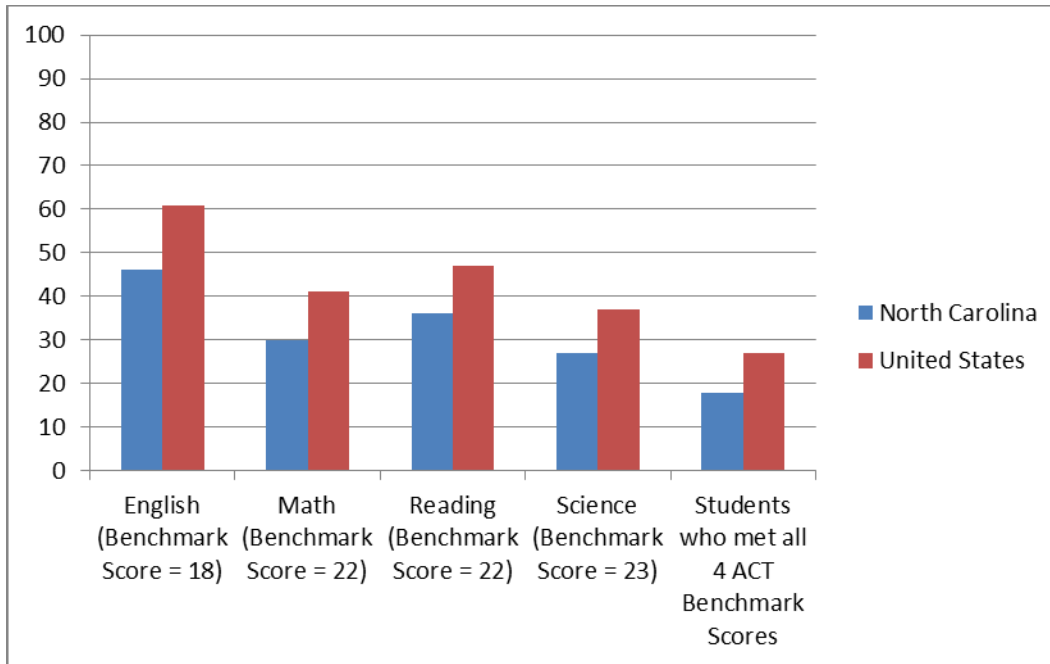
Beginning in 2012-13, the ACT College Admissions Assessment is given to all public school students in the 11th grade. The ACT test measures what students have learned in their courses and measures their skills in English, math, science and reading. The ACT also has an optional writing section, in which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

Between 2012 and 2017, the percentage of students that met all four ACT benchmark scores in North Carolina dropped substantially from 30 percent in 2012 to 18 percent in 2017. 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 recent legislation requiring all 11th graders to take the ACT, 102,224 NC students took the ACT in 2016-17.¹⁰

¹⁰ NC DPI, ACT Results. Available at <http://www.ncpublicschools.org/accountability/act/>.



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.¹¹

Race/Ethnicity	Composite Score
Asian	22.4
White	20.9
Two or More Races	19
Native Hawaiian/Other Pacific Islander	18.5
Prefer Not To Respond/No Response	18
Hispanic/Latino	17.5
American Indian/Alaska Native	16.7
Black/African American	16.2

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

¹¹ACT, Profile Report – State Graduating Class 2017 North Carolina. Available at https://www.act.org/content/dam/act/unsecured/documents/cccr2017/P_34_349999_S_S_N00_ACT-GCPR_North_Carolina.pdf.

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 2017 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 2017

AP Course	NC	US	NC	US
	# of students taking exam	# of students taking exam	Mean Score	Mean Score
Art History	813	24,525	2.64	2.94
Biology	7,119	247,456	2.95	2.89
Calculus AB	7,580	301,688	2.67	2.91
Calculus BC	4,757	119,590	3.42	3.78
Chemistry	3,716	149,595	2.60	2.63
Chinese Language and Culture	161	11,071	4.16	4.31
Computer Science A	1,435	56,088	2.57	3.13
Computer Science Principles	976	43,780	3.24	3.16
Economics: Macro	1,156	131,829	3.11	2.84
Economics: Micro	1,177	75,481	3.02	3.18
English Language and Composition	17,840	570,467	2.75	2.77
English Literature and Composition	13,773	396,508	2.55	2.68
Environmental Science	13,805	157,434	2.73	2.66
European History	2,461	103,710	2.63	2.80
French Language and Culture	395	20,557	3.22	3.21
German Language and Culture	125	4,696	3.29	3.30
Government and Politics: Comparative	718	21,174	3.27	3.24
Government and Politics: U.S.	7,309	318,352	2.64	2.58
Human Geography	7,917	196,689	2.64	2.53
Italian Language and Culture	2	2,430	N/A	3.15
Japanese Language and Culture	27	2,144	2.89	3.52
Latin	217	6,629	2.64	2.94
Music History	758	18,928	2.80	3.01
Physics 1	2,911	162,425	2.43	2.36
Physics 2	456	22,224	2.64	2.89
Physics C: Elec. & Magnet	246	20,951	3.18	3.42
Physics C: Mechanics	596	49,024	3.60	3.69
Psychology	15,722	293,538	2.70	3.05
Research	184	5,287	2.99	3.15
Seminar	698	18,661	2.91	3.12
Spanish Language	1,724	166,329	3.73	3.60
Spanish Literature and Composition	205	24,871	3.48	3.08

Statistics	10,001	207,077	2.50	2.70
Studio Art: 2-D Design	819	31,639	3.39	3.52
Studio Art: 3-D Design	85	5,421	3.06	3.14
Studio Art: Drawing	369	19,122	3.64	3.55
U.S. History	19,467	501,470	2.54	2.64
World History	6,809	294,562	2.88	2.76

Source: College Board, North Carolina State Report. Available at <https://research.collegeboard.org/programs/ap/data/participation/ap-2017>

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 2016-17 school year, 100,164 students graduated out of the cohort of 115,730 students that entered 9th grade together in 2013-14. The graduation rate, at 86.5 percent, is the highest in state history. In 2007-08, the graduation rate stood at 70.3 percent.¹²

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 COHORT GRADUATION RATE, 2016-17

Subgroup	Students entering 9th grade in 2011-2012	Students graduating in 2014- 2015	Percentage of students graduating in four years
All Students	115,730	100,164	86.5
Gender			
Male	58,885	49,167	83.5
Female	56,844	50,997	89.7
Race/Ethnicity			
Asian	3,095	2,904	93.8
White	60,630	54,114	89.3
Black	30,855	25,893	83.9
American Indian	1633	1376	84.3
Hispanic	15,279	12,307	80.5
Two or More Races	4,110	3,464	84.3

¹² NC DPI, Cohort Graduation Rate. Available at <http://accrpt.ncpublicschools.org/app/2017/cgr/>.

Disability/Disadvantage			
Economically Disadvantaged	46,465	38,029	81.8
Limited English Proficient	2,884	1,674	58.0
Students With Disabilities	12,229	8,600	70.3

Source: NC DPI, Cohort Graduation Rate. Available at <http://accrpt.ncpublicschools.org/app/2017/cgr/>.

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. 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 46.5 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 11,097 dropouts in 2016-17, an increase from the 10,889 dropouts in 2015-16.
- High schools in North Carolina reported a dropout rate of 2.31% in 2016-17. The lowest dropout rate ever recorded in North Carolina was 2.28% in 2013-14.
- Males accounted for 61.7% of the dropouts in 2016-17.
- Holding steady with past trends, Hispanic (3.70%), American Indian (2.83%), and black (2.70%) students experienced the highest dropout rates of all ethnic groups.¹³

The graph below tracks changes in the state’s dropout rate over the past ten academic years.¹⁴

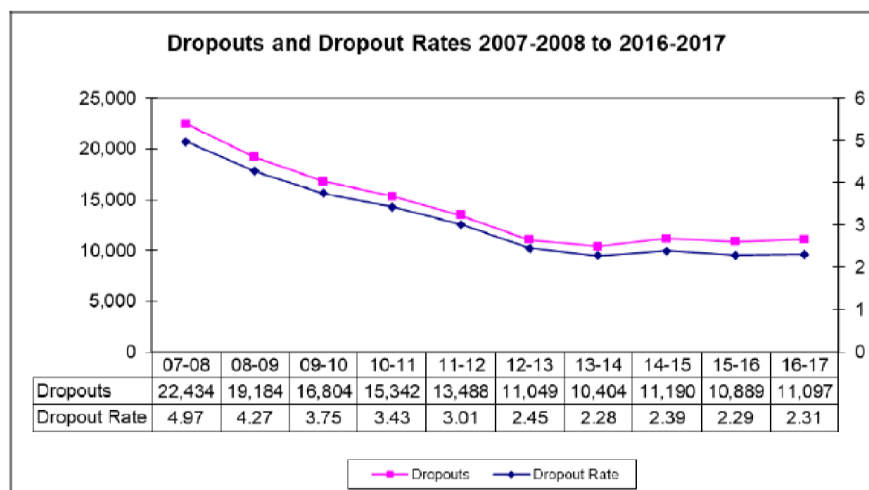


Figure D1. High school dropouts and dropout rates from 2007-08 to 2016-17.

¹³ NC DPI Consolidated Data Report, 2016-17. Available at <http://www.ncpublicschools.org/docs/research/discipline/reports/consolidated/2016-17/consolidated-report.pdf>

¹⁴ NC DPI, Consolidated Data Report, 2016-17. Figure D1.