

1.1.b Preparation for College

Increase the proportion of Nebraska high school graduates who are adequately prepared to enroll in postsecondary education and proceed through degree completion.

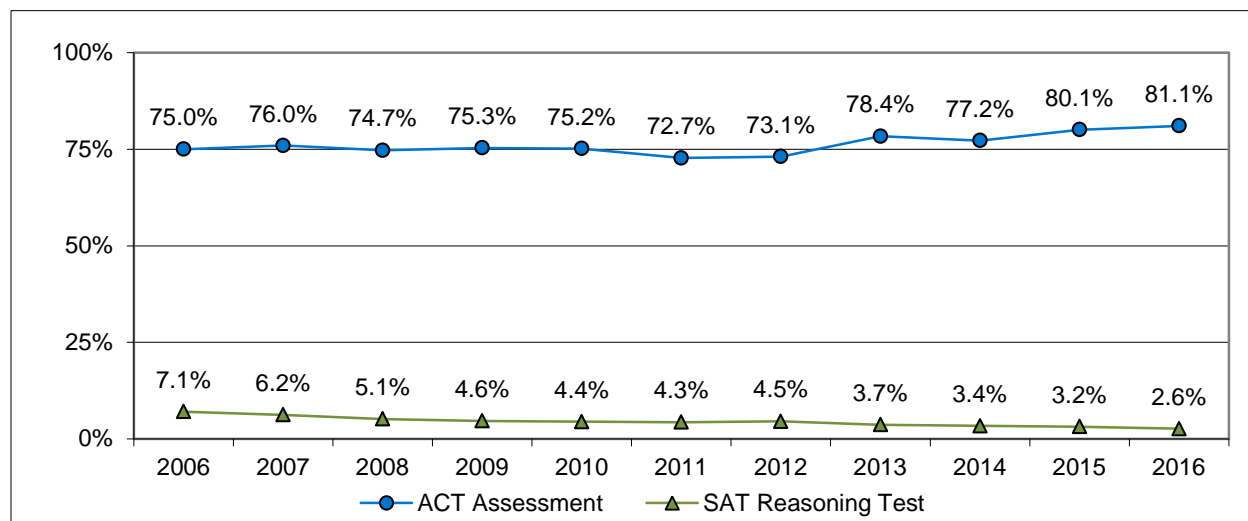
The results of the ACT Assessment and the SAT Reasoning Test™ are summarized in this section as indicators of the extent to which Nebraska high school graduates are prepared academically to enter and proceed through postsecondary education.⁹ Of particular interest are (1) the estimated percentages of Nebraska high school graduates who are prepared for college-level coursework and (2) the higher average ACT scores achieved by students who take the “core” high school courses recommended to prepare them for college.

Nebraska Participation Rates for the ACT Assessment and the SAT Reasoning Test

- The ACT Assessment is the predominant college entrance exam available to measure the extent to which Nebraska students are prepared for academic coursework beyond high school. As shown in [Figure 1.1.b.1](#), 81.1% of the Nebraska high school students in the graduating class of 2016 took the ACT Assessment (up from 75.0% in 2006). In comparison, 2.6% of the students took the SAT Reasoning Test in 2016 (down from 7.1% in 2006).
- The recent increase in participation rates for the ACT Assessment is at least partially due to the Nebraska ACT Pilot Project. Funded by the Nebraska Legislature, this project required all 11th graders in eight selected Nebraska public school districts to take the ACT during a school day in the spring of 2012, 2013, and 2014.

Figure 1.1.b.1

Percentages of Nebraska High School Graduates Who Took the ACT Assessment and/or the SAT Reasoning Test 2006 through 2016



Note. See [Table A4.1](#) in [Appendix 4](#) for supporting data. Data sources: ACT, Inc., College Board, and the Nebraska Department of Education, 2006 through 2016.

⁹ SAT cohort data for 2006 include students tested through March of their senior year. Cohort data for 2007 through 2015 include students tested through June. Cohort data for 2016 include students tested through January. The SAT was then redesigned, and the first administration of the new SAT took place in March 2016. Participation and performance data for students who took the new SAT between March 2016 and June 2016 are not included in the 2016 cohort data due to the redesign of the SAT test.

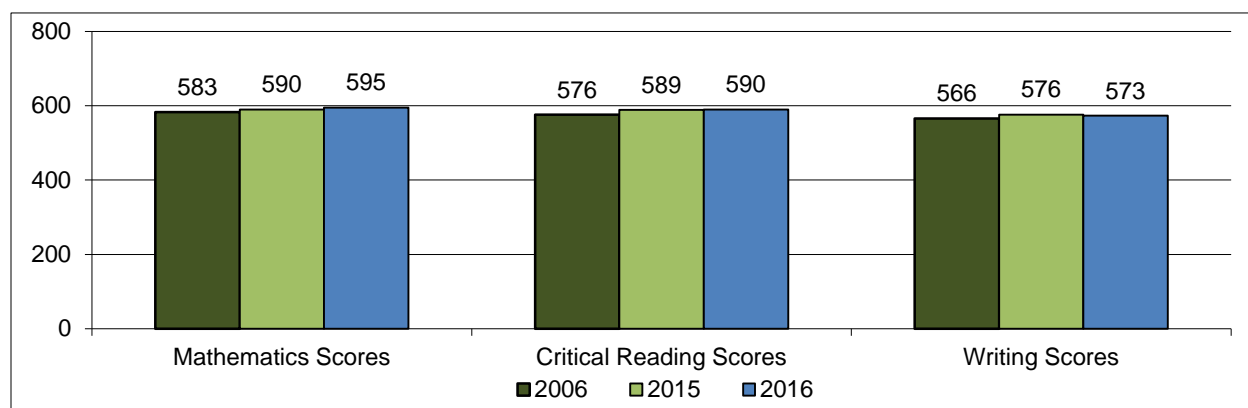
Nebraska SAT Reasoning Test Scores

The three components of the SAT Reasoning Test measure achievement in mathematics, critical reading, and writing.

- As shown in [Figure 1.1.b.2](#), the average mathematics scores of Nebraska high school students were five points higher in 2016 than in 2015 and 12 points higher than in 2006. The average critical reading scores increased one point from 2015 to 2016, up a total of 14 points since 2006. While the average writing scores decreased three points from 2015 to 2016, they were up a total of seven points since 2006.

Figure 1.1.b.2

**Nebraska Average SAT Reasoning Test Scores
2015 and 2016 Compared to 2006**



Data source: College Board, *College-Bound Seniors State Profile Report Nebraska*, 2006, 2015, and 2016.

- As shown in [Table 1.1.b.1](#), the average math, critical reading, and writing scores of Nebraska high school students who took the SAT continued to be well above the national averages in 2016. However, it is important to note that only a relatively small number of students in Nebraska's graduating class of 2016 took the SAT (604).

**Table 1.1.b.1
National and Nebraska Average SAT Reasoning Test Scores
2006 through 2016**

Year of High School Graduation	Mathematics Scores		Critical Reading Scores		Writing Scores	
	National	Nebraska	National	Nebraska	National	Nebraska
2006	518	583	503	576	497	566
2007	514	583	501	577	493	561
2008	514	584	500	579	493	566
2009	514	592	499	585	492	570
2010	515	592	500	583	491	568
2011	514	591	497	585	489	569
2012	514	585	496	576	488	562
2013	514	583	496	584	488	567
2014	513	587	497	589	487	569
2015	511	590	495	589	484	576
2016	508	595	494	590	482	573

Data source: College Board, *College-Bound Seniors State Profile Report Nebraska*, 2006 through 2016.

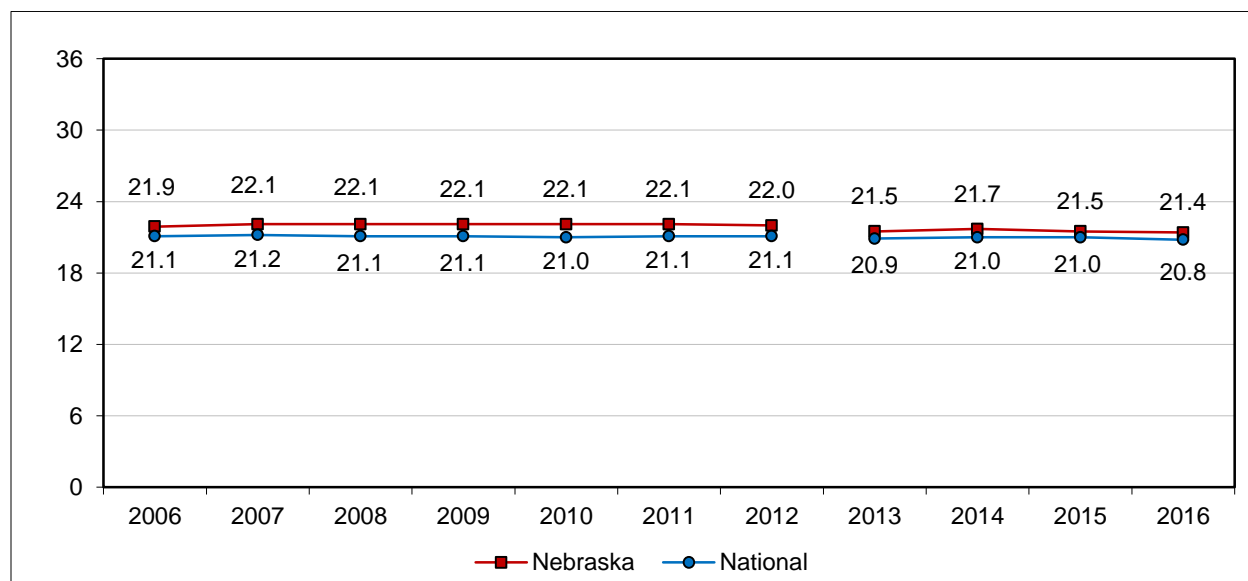
Nebraska ACT Assessment Scores

The ACT Assessment consists of four curriculum-based achievement tests in English, reading, mathematics, and science. A student's scores for each of these tests are reported on a 36-point scale. A composite score is reported on a 36-point scale to reflect the student's overall performance on the series of four tests.

- As shown in [Figure 1.1.b.3](#), the average ACT composite score for Nebraska high school students in the graduating class of 2016 was 21.4, down from 21.9 in 2006. Nebraska's 2016 average ACT composite score was 0.6 point higher than the national average of 20.8.
- There are two known reasons for the recent decline in the average ACT composite score.
 - First, starting in 2013, extended-time test takers are included in national and state composite scores. The average ACT composite score for extended-time test takers in 2016 was 16.9. Without extended-time students, Nebraska's average composite score would increase 0.2 point to 21.6.¹⁰
 - Second, the Nebraska ACT Pilot Project required all 11th graders in eight selected Nebraska public school districts to take the ACT during a school day in the spring of 2012, 2013, and 2014. The net effect of this project on ACT scores is unknown as the Commission does not know which students would have taken the ACT Assessment had it not been required.

Figure 1.1.b.3

Comparison of Nebraska and National Average ACT Composite Scores for the High School Graduating Classes of 2006 through 2016

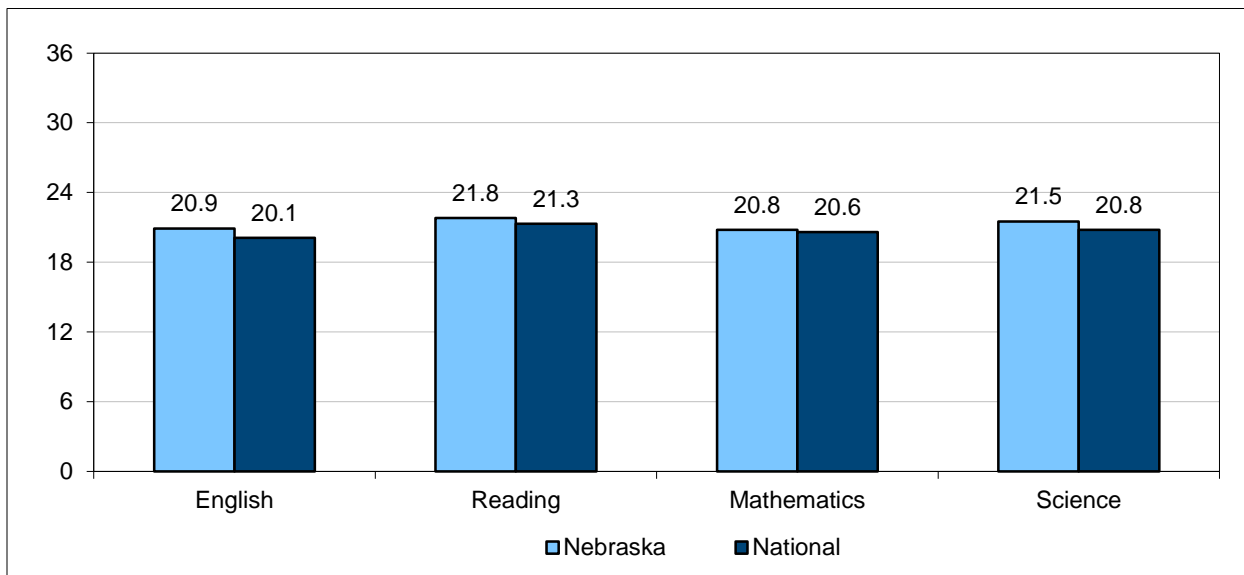


Note. Beginning with the graduating class of 2013, scores for extended-time test takers are included in reported ACT composite scores. Data source: ACT, *High School Profile Report - Nebraska*, 2006 through 2016.

¹⁰ Students with disabilities are provided reasonable accommodations appropriate to the student's disability. Approved students have up to five total hours (50% more time) to complete all four multiple-choice tests.

- Based on information from ACT, Inc., Nebraska had the highest average composite score among the 23 states where an estimated 80% to 100% of the 2016 high school graduates took the ACT Assessment. However, direct state-to-state comparisons are generally not advisable.¹¹
- Figure 1.1.b.4 shows that Nebraska students in the 2016 graduating class scored above the national average on each of the subject-area tests that constitute the ACT Assessment.

Figure 1.1.b.4
Comparison of National and Nebraska Average ACT Composite Scores
in English, Reading, Mathematics, and Science
for the High School Graduating Class of 2016



Data source: ACT, *High School Profile Report - Nebraska*, 2016.

¹¹ The ACT Assessment is administered in all 50 states, and it is the predominant college entrance exam taken in about half of the states. Nationally, 2,090,342 (an estimated 64%) of the students in the high school graduating class of 2016 took the ACT Assessment. Each year, average ACT scores are reported for every state, but state-to-state comparisons are not advisable for several reasons. Currently, there are 18 states where the ACT Assessment is administered to 100% of the students who will graduate from high school. In all other states, the students who take the ACT are generally self-selected and, as a result, do not necessarily represent the total student populations of their states. Furthermore, the percentages of students who take the ACT vary greatly from one state to another, as do other factors that affect student achievement, such as the quality of school systems and the demographic and socio-economic characteristics of students and their families. For these reasons, specific state-to-state comparisons are not included in this report.

ACT College Readiness Benchmark Scores

Based on research conducted by ACT, Inc., students are prepared to succeed in entry-level college courses if their scores on the ACT Assessment meet or exceed ACT College Readiness Benchmark Scores. A *benchmark score is the minimum score needed on an ACT subject-matter test to indicate that a student has a 50% chance of earning a B or higher or about a 75% chance of earning a C or higher in related entry-level, credit-bearing college courses.* Corresponding to the subject-matter tests that constitute the ACT Assessment, these courses include English composition, social sciences, algebra, and biology. For each college course or subject area, the 2016 ACT subject-area test and College Readiness Benchmark Scores are:

<u>College Course or Area</u>	<u>ACT Subject-Area Test</u>	<u>College Readiness Benchmark Score¹²</u>
English Composition	English	18
Social Science	Reading	22
Algebra	Mathematics	22
Biology	Science	23

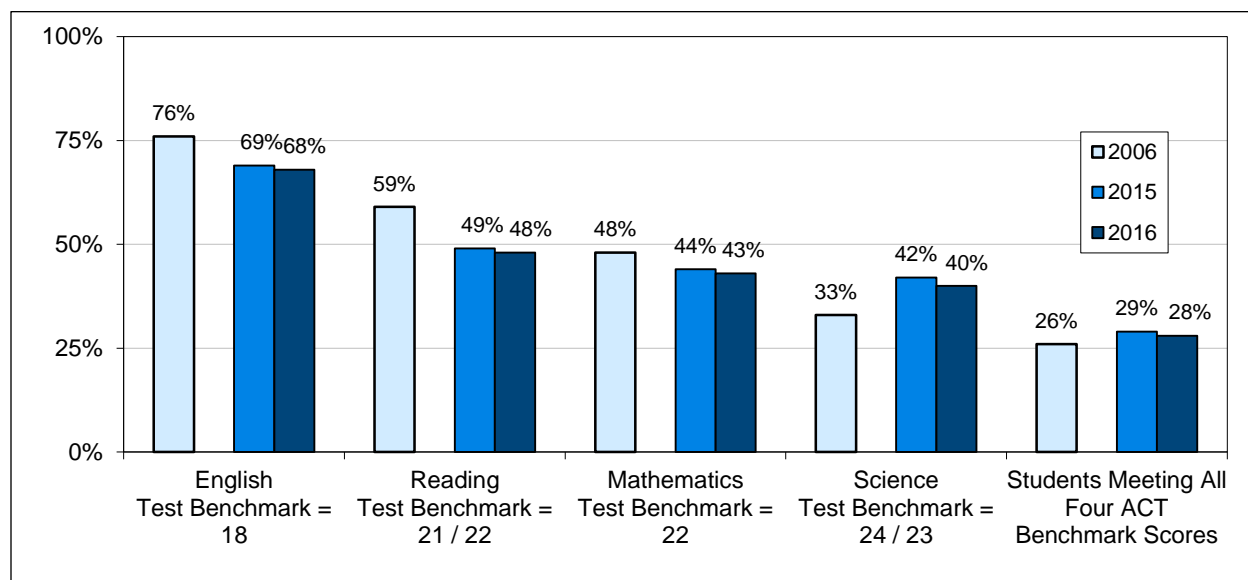
Percentages of Nebraska ACT-Tested Students Ready for College-Level Coursework

- Based on the data summarized in [Figure 1.1.b.5](#), 68% of the ACT-tested Nebraska high school graduating class of 2016 met or exceeded the College Readiness Benchmark Score of 18 on the ACT English test, indicating that there is a relatively high probability that these students will earn at least a C in college-level English composition courses.
- In comparison, 48% met or exceeded the College Readiness Benchmark Score of 22 on the reading test; 43% met or exceeded the mathematics benchmark score of 22 for college algebra; and only 40% met or exceeded the science benchmark score of 23 for biology.
- Between 2006 and 2016, the percentages of Nebraska students who met or exceeded ACT College Readiness Benchmarks on the English, reading, and mathematics tests decreased eight, eleven, and five percentage points, respectively. The only increase seen from 2006 to 2016 was for the science benchmark, which increased seven percentage points.
- Between 2015 and 2016, the percentage of Nebraska students who met or exceeded ACT College Readiness Benchmarks for English, reading, and mathematics all decreased one percentage point, and the percentage that met or exceeded the benchmark for science decreased two percentage points.
- **Only 28% of Nebraska’s high school graduates in the class of 2016 met or exceeded the ACT College Readiness Benchmarks in all four subject areas included in the ACT Assessment.** This percentage is two points higher than in 2006.

¹² Beginning in 2013, the reading benchmark score increased from 21 to 22 and the science benchmark score decreased from 24 to 23.

Figure 1.1.b.5

**Percentages of ACT-Tested Students Meeting ACT College Readiness Benchmarks that Indicate Sufficient Preparation for College-Level Courses
Nebraska High School Graduating Classes: 2015 and 2016 Compared to 2006**



Note. Beginning with the 2013 graduating class, ACT’s college readiness benchmark score for reading increased from 21 to 22 while their college readiness benchmark score for science decreased from 24 to 23. The benchmark scores for English (18) and mathematics (22) were unchanged during the reporting period. In addition, starting in 2013, extended-time test takers are included in national and state scores. See [Table A4.2](#) in [Appendix 4](#) for supporting data. Data source: ACT, *High School Profile Report - Nebraska*, 2006, 2015, and 2016.

Changes in the Number of Students Who Took the ACT Assessment

- The largest increase in the number of students who took the ACT Assessment in 2016 was the increase in the number of Hispanics: 2,324 in the class of 2016, up from 2,257 in the class of 2015, an increase of 67 students (3.0%) in one year.
- The largest decrease in the number of students who took the ACT Assessment in 2016 was the decrease in the number of white non-Hispanics: 13,274 in the class of 2016, down from 13,405 in the class of 2015, a decrease of 131 students (1.0%) in one year.
- See [Table A4.4](#) in [Appendix 4](#) for the number of students in each racial/ethnic group who took the ACT Assessment in 2006, 2015, and 2016.

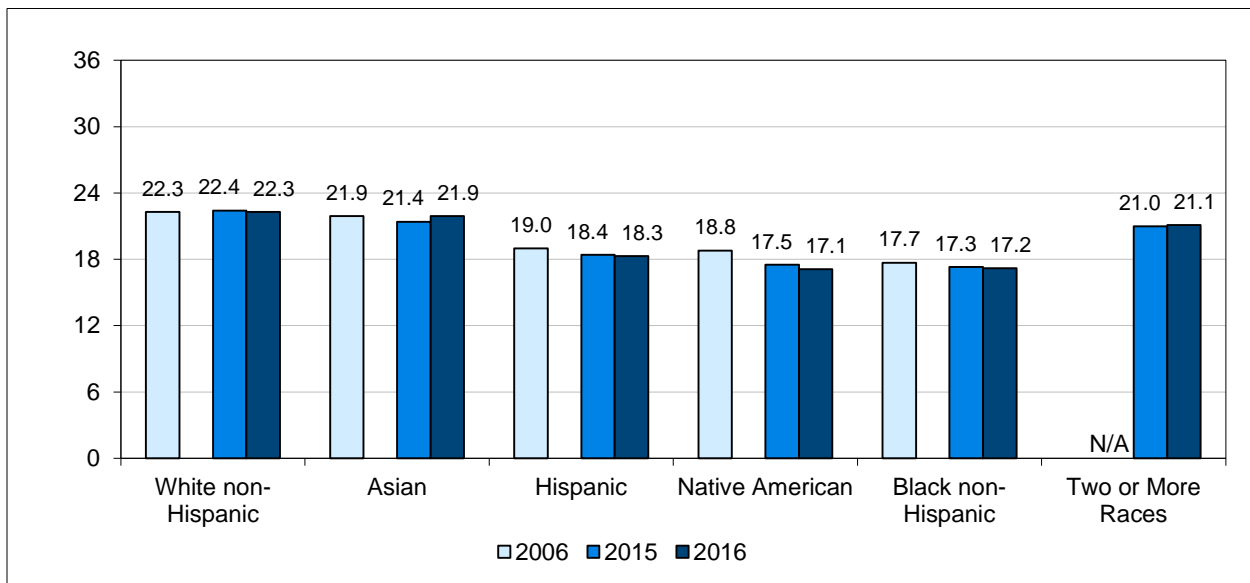
ACT Composite Scores and College Readiness Percentages by Race/Ethnicity

- As shown in [Figure 1.1.b.6](#), average ACT composite scores vary by race/ethnicity.
- The average composite scores for Asians, Hispanics, Native Americans, black non-Hispanics, and multiracial persons who graduated from Nebraska high schools in 2006, 2015, and 2016 were lower than the average composite scores of their white non-Hispanic classmates.
- Between 2015 and 2016, average composite scores increased 0.5 point for Asians and 0.1 point for multiracial students. Meanwhile, the average scores for white non-Hispanics, Hispanics, Native Americans, and black non-Hispanics decreased 0.1, 0.1, 0.4, and 0.1 point, respectively.

- The average composite scores of white non-Hispanics and Asians remained unchanged between 2006 and 2016. Meanwhile, the average scores of Hispanics, Native Americans, and black non-Hispanics decreased 0.7, 1.7, and 0.5 point respectively.
- It is unknown how much of the overall decline was attributable to the inclusion of extended-time test takers and students who took the ACT Assessment only because they were required to do so through the Nebraska ACT Pilot Project, and how much of the decline is attributable to other variables.

Figure 1.1.b.6

**Nebraska Average ACT Composite Scores by Race/Ethnicity
2015 and 2016 Compared to 2006**



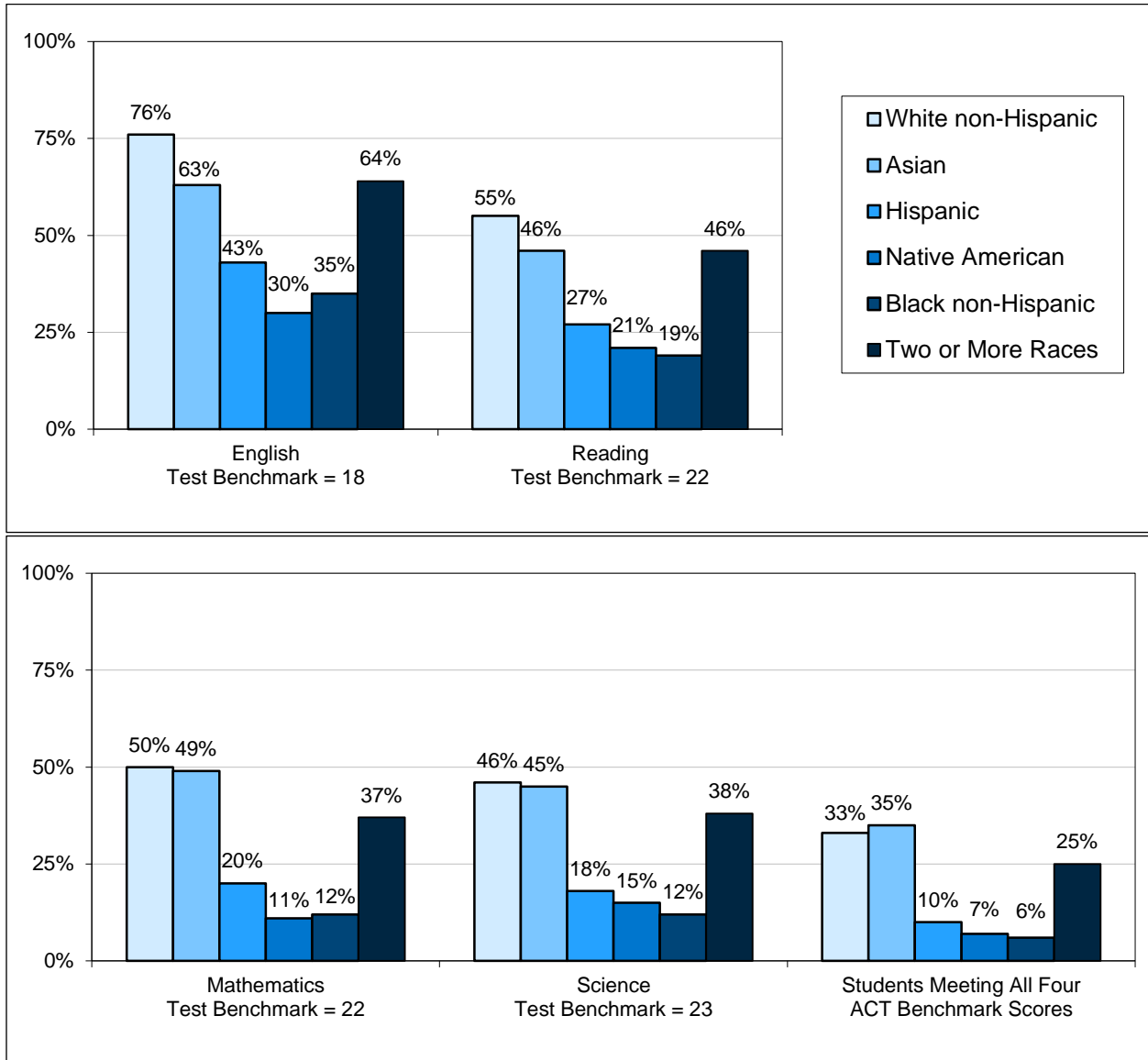
Note. Beginning with the graduating class of 2013, scores for extended-time test takers are included in reported ACT composite scores. Prior to 2011, the Asian category included Native Hawaiians and other Pacific Islanders. Average composite scores for Native Hawaiians and other Pacific Islanders are excluded from this figure due to the small number of individuals in this racial category who took the ACT Assessment. In 2015, 28 Native Hawaiians and other Pacific Islanders took the ACT Assessment with an average composite score of 19.5. In 2016, 23 Native Hawaiians and other Pacific Islanders took the ACT Assessment with an average composite score of 17.1. These students are not included in the calculation of the average composite score for Asians in 2015 or 2016. Prior to 2011, ACT did not have a racial/ethnic category for individuals who were more than one race. Data source: ACT, *High School Profile Report - Nebraska*, 2006, 2015, and 2016.

- Based on the data for the graduating class of 2016 summarized in [Figure 1.1.b.7](#), lower percentages of Hispanics, Native Americans, and black non-Hispanics are sufficiently prepared for college-level coursework compared to their white non-Hispanic, Asian, and multiracial classmates.
- For example, only 20% of the ACT-tested Hispanics in the class of 2016 met or exceeded the ACT College Readiness Benchmark Score in mathematics, compared to 50% of the white non-Hispanic students, 49% of the Asian students, and 37% of the multiracial students. More dramatically, only 11% of the ACT-tested Native Americans and 12% of the ACT-tested black non-Hispanics met or exceeded the benchmark score in mathematics. A similar pattern is evidenced for the other three ACT subject-matter tests as well as the percentage of students who met all four ACT benchmark scores.
- In fact, 33% of white non-Hispanics, 35% of Asians, and 25% of multiracial students met or exceeded the benchmarks for all four subject-matter tests in 2016, while only 10% of

Hispanics, 7% of Native Americans, and 6% of black non-Hispanics met or exceeded the benchmarks for all four subject-matter tests.

Figure 1.1.b.7

Percentages of ACT-Tested High School Students in the Graduating Class of 2016 Who Met or Exceeded ACT College Readiness Benchmark Scores that Indicate Sufficient Preparation for College-Level Courses by Race/Ethnicity



Note. Data for Native Hawaiians and other Pacific Islanders are excluded from this figure due to the small number of individuals in this racial category (23) who took the ACT Assessment. Data source: ACT, *High School Profile Report - Nebraska, 2016*.

The Importance of the ACT-Recommended High School Core Curriculum

ACT, Inc. defines the core, college-preparatory high school curriculum (i.e., the core) as consisting of four years of English and three or more years each of social studies, science, and mathematics (beginning with Algebra I). Specifically, the core is defined as consisting of the following courses:

- **4 years of English:** English 9, English 10, English 11, and English 12
- **3 years of Math:** Selected from Algebra I, Algebra II, Geometry, Trigonometry, and Calculus
- **3 years of Social Sciences:** Selected from American History, World History, American Government, Economics, Geography, and Psychology
- **3 years of Natural Sciences:** Selected from General/Physical/Earth Science, Biology, Chemistry, and Physics

When students register to take the ACT Assessment, they are asked to report the courses they have taken or plan to take before they graduate from high school. Based on the combinations of courses that students report they have taken or plan to take, ACT, Inc. conducts research to determine how taking the core—or more than the core—is related to scores on the ACT Assessment and academic achievement in college.

- The research conducted by ACT, Inc. has repeatedly confirmed that students who complete the high school core generally score higher on the ACT Assessment and are more likely to progress successfully through postsecondary education programs than students who do not complete the recommended core courses.
- Furthermore, research conducted by ACT, Inc. indicates that students who take rigorous courses beyond the recommended minimum number of core courses are even more likely to be ready for college than students who take the minimum core. This research indicates that students whose coursework beyond the core includes advanced courses in mathematics, such as trigonometry or calculus, as well as courses in biology, chemistry, and physics, are the likeliest of all high school students to be ready for college-level coursework.¹³

Consequently, it is important to monitor the average ACT composite scores of students who report that they completed the core—or more than the core—compared to the scores of students who report taking less than the minimum core courses.

Nebraska ACT Composite Scores of Students Who Take the ACT-Recommended Core and Students Who Take Less than the Core Curriculum

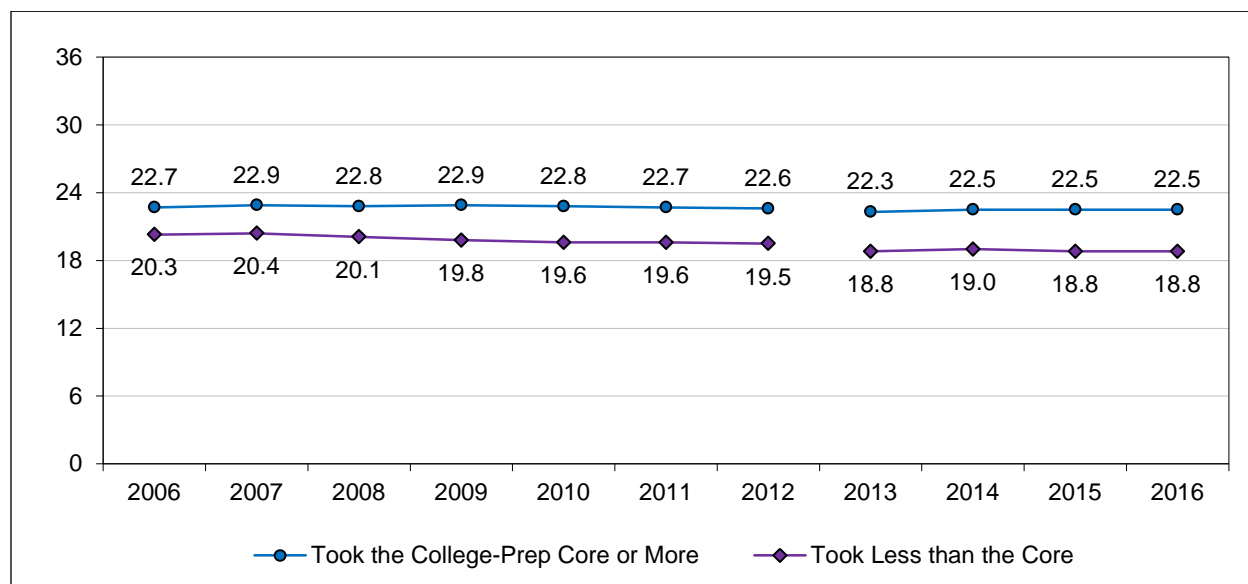
- As shown in Figure 1.1.b.8, Nebraska students who have taken or plan to take the core college preparatory courses—or more than the core—in high school have consistently scored higher on the ACT than the students who have completed or plan to complete less than the minimum core.
- Of the ACT-tested students in the class of 2016, those who took the core or more had an average composite score of 22.5 compared to an average score of 18.8 for the students who reported that they took courses that did not meet the minimum core requirements.

¹³ Executive Summary, *Crisis at the Core: Preparing All Students for College and Work*, ACT, Inc., 2004, page 3, available at act.org/research/policymakers/pdf/crisis_exec_summary.pdf.

- The average ACT composite score for the students who took the core or more was 0.2 point lower in 2016 than it was in 2006 while the average score for students who took less than the core was 1.5 points lower in 2016 than it was in 2006.
- Regardless of score variations, the data summarized in [Figure 1.1.b.8](#) provide strong evidence that taking the college-preparatory curriculum continues to have a positive effect on ACT composite scores and improves a student’s chances for achieving academic success in college-level courses.

Figure 1.1.b.8

Nebraska Average ACT Composite Scores of Students Who Took the College-Preparatory Core and Students Who Took Less than the Core 2006 through 2016



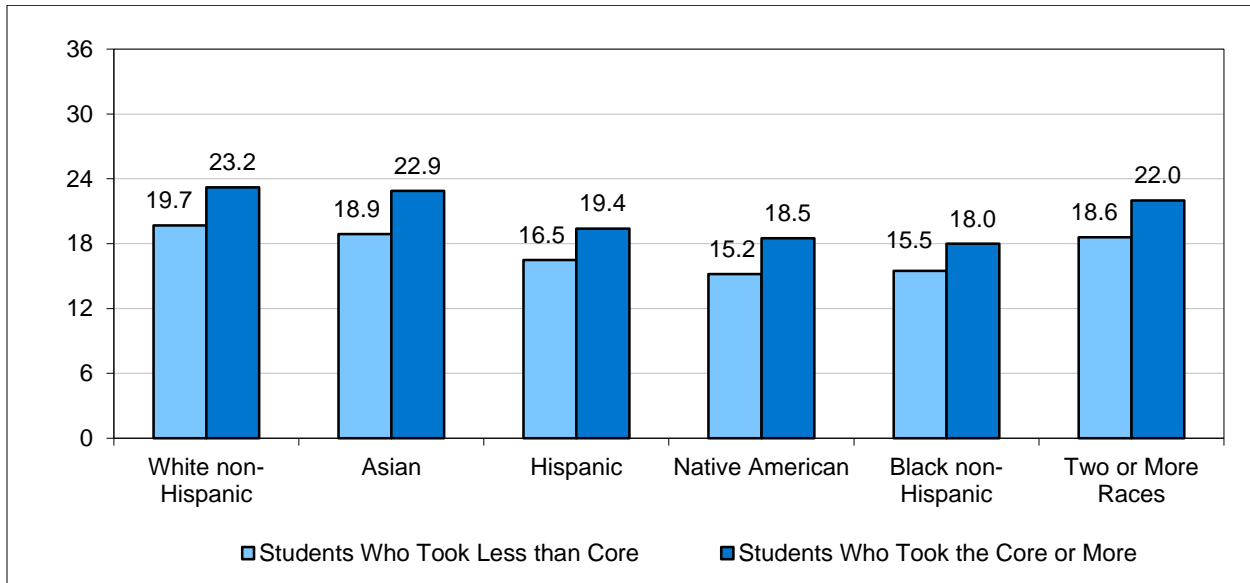
Note. Beginning with the graduating class of 2013, scores for extended-time test takers are now included in reported ACT composite scores. Data source: ACT, *High School Profile Report - Nebraska*, 2006 through 2016.

Note: Beginning with the 2014–2015 school year, Nebraska school districts are required to adopt and implement graduation requirements that include meeting standards similar to those represented by the core, college-preparatory high school curriculum advocated by ACT, Inc. Prior to adoption of the new statewide standards, Nebraska high school graduation requirements were set by each school district individually and may or may not have included “the core” as defined by ACT, Inc. Data source: Nebraska Department of Education, *Rule 10, Regulations and Procedures for the Accreditation of Schools* (pages 5-6), August 1, 2015.

- **Taking “the core or more” helps students of every race/ethnicity.** Within each of the six racial/ethnic groups, the average ACT composite score was higher for the students in the graduating class of 2016 who took the college-preparatory core than the average score for students who took less than the core, as illustrated in [Figure 1.1.b.9](#).

Figure 1.1.b.9

Nebraska ACT Composite Scores for Students Who Took the College-Preparatory Core or More and Students Who Took Less than the Core by Race/Ethnicity for the High School Graduating Class of 2016



Note. Data for Native Hawaiians and other Pacific Islanders are excluded from this figure due to the small number of individuals in this racial category (23) who took the ACT Assessment. Data source: ACT, *High School Profile Report - Nebraska, 2016*.

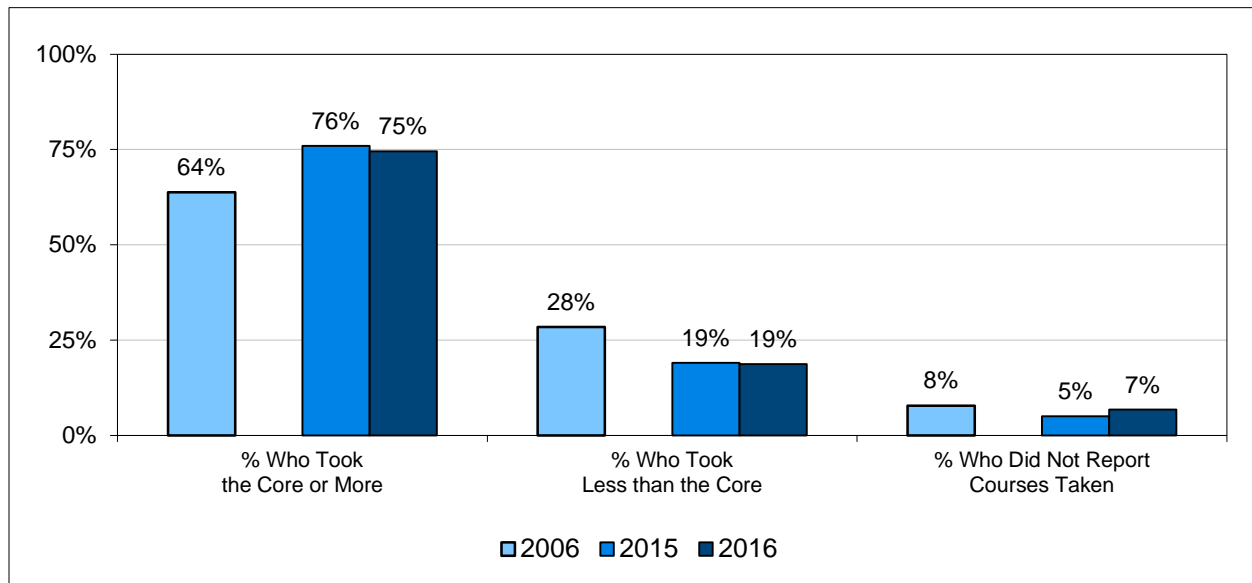
The Percentage of Nebraska ACT-Tested Students Who Take the Core or More

As mentioned earlier in this section, the students themselves report the courses they have taken and plan to take before they graduate from high school when they register for the ACT Assessment. Self-reporting may make the data less accurate and/or less reliable. However, the percentage of ACT-tested students who reported the courses they took or planned to take in high school was 96% in 2006, 95% in 2015, and 93% in 2016.

- A direct comparison of 2006, 2015, and 2016 percentages indicates that the percentage of high school students who took the core or more increased noticeably over the past 10 years. As shown in [Figure 1.1.b.10](#), the percentage of students who reported that they took the core or more was 11 percentage points higher in 2016 than in 2006.

Figure 1.1.b.10

Percentages of Nebraska's ACT-Tested Students Who Took the College-Preparatory Core or More and Students Who Took Less than the Core 2015 and 2016 Compared to 2006

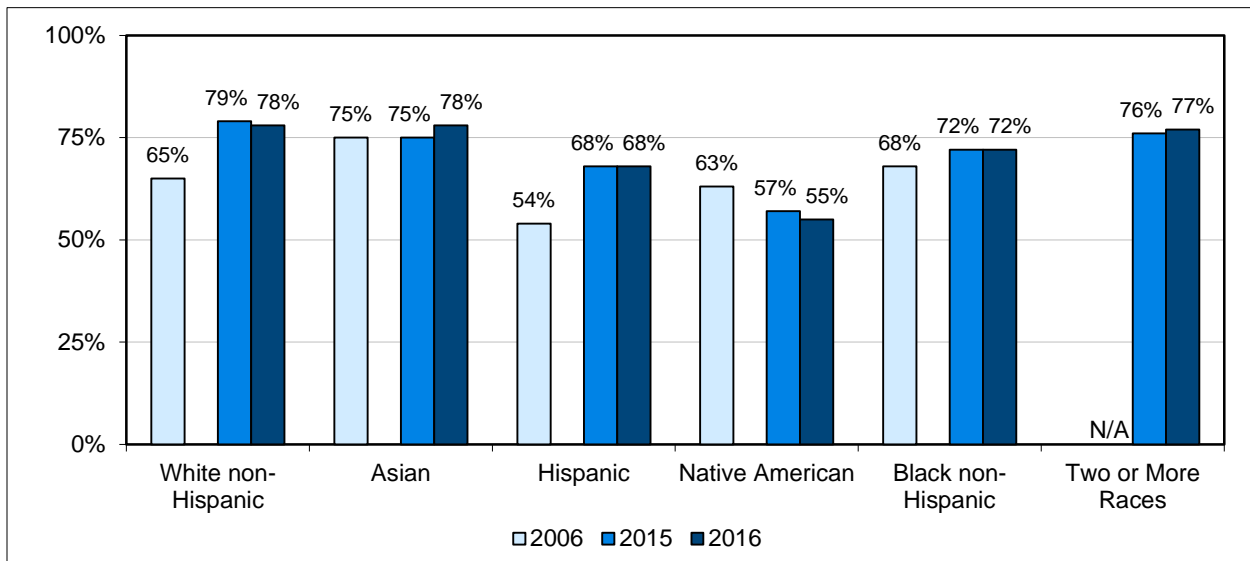


Note. Beginning with the graduating class of 2013, scores for extended-time test takers are included in reported ACT composite scores. See [Table A4.3](#) in [Appendix 4](#) for supporting data. Data source: ACT, *High School Profile Report - Nebraska*, 2006, 2015, and 2016.

- [Figure 1.1.b.11](#) shows that for all major racial/ethnic groups, except for Native Americans, there has been a general increase since 2006 in the percentage of the ACT-tested students who have reported taking the core or more in high school.
- Interestingly, for white non-Hispanics and for Native Americans, a lower percentage reported taking the core or more in the graduating class of 2016 than in the graduating class of 2015.
- As shown in [Figure 1.1.b.12](#), lower percentages of Native American and black non-Hispanic high school graduates in Nebraska have been taking the ACT Assessment than their white non-Hispanic, Asian/Pacific Islander, Hispanic, and multiracial classmates.
- Between 2015 and 2016, ACT participation rates decreased for white non-Hispanics, Asian/Pacific Islanders, and black non-Hispanics.
- Comparing the graduating class of 2016 to the number of students who took the ACT Assessment reveals a disconnect between the coding of multiracial students in NDE's records and the coding of multiracial students in ACT's records.
 - NDE's records indicate there were 598 multiracial students in the graduating class of 2016, and ACT's records indicate that 691 multiracial students in the graduating class of 2016 took the ACT.

Figure 1.1.b.11

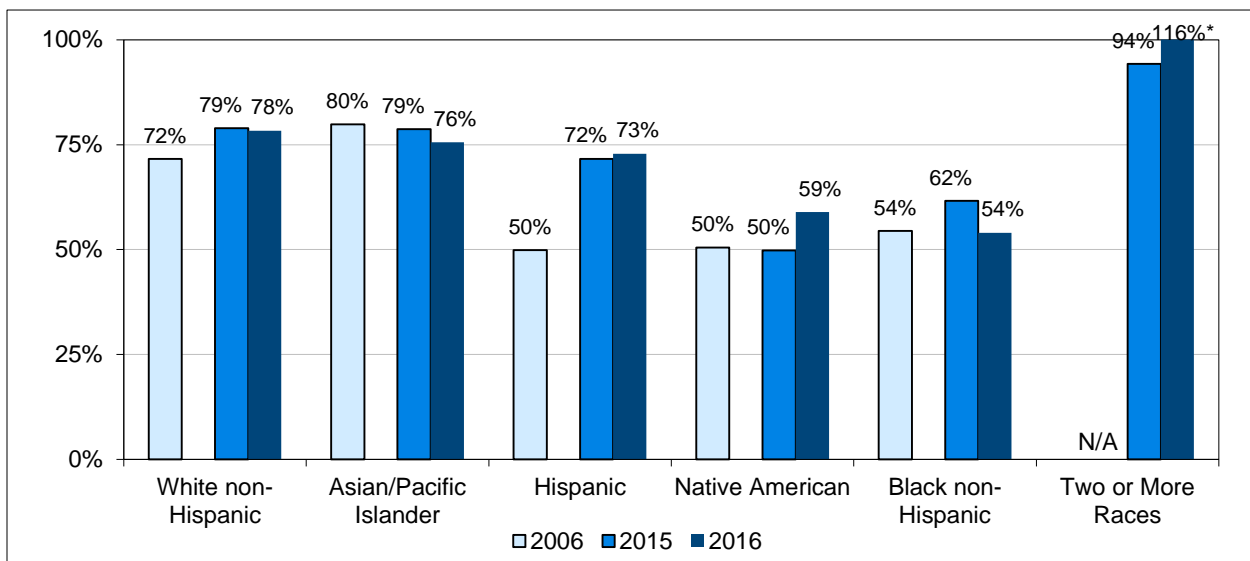
Percentage of Nebraska ACT-Tested Students Who Reported That They Took the College-Preparatory Core or More by Race/Ethnicity 2015 and 2016 Compared to 2006



Note. Beginning with the graduating class of 2013, scores for extended-time test takers are included in reported ACT composite scores. Prior to 2011, ACT did not have a racial/ethnic category for individuals who were more than one race. Data for Native Hawaiians and other Pacific Islanders are excluded from this figure due to the small number of individuals in this racial category who took the ACT Assessment. Data source: ACT, *High School Profile Report - Nebraska*, 2006, 2015, and 2016.

Figure 1.1.b.12

Percentage of Nebraska High School Graduates Who Took the ACT Assessment by Race/Ethnicity 2015 and 2016 Compared to 2006



Note. Beginning with the graduating class of 2013, scores for extended-time test takers are included in reported ACT composite scores. Asian graduates include Native Hawaiians and other Pacific Islanders, as well. Prior to 2011, ACT did not have a racial/ethnic category for individuals who were more than one race. See [Table A4.4](#) in [Appendix 4](#) for supporting data. Data sources: Nebraska Department of Education and ACT, *High School Profile Report - Nebraska*, 2006, 2015, and 2016.

*It appears that some students categorized as multiracial according to ACT data were not categorized as multiracial according to NDE data.

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