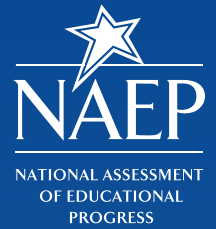


# National Indian Education Study 2007

## PART I

Performance of American Indian and  
Alaska Native Students at Grades 4 and 8 on  
NAEP 2007 Reading and Mathematics Assessments



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Student Artwork on the cover:  
*Untitled* by Samuel Dalgai;  
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The National Indian Education Study (NIES) is a two-part study designed to describe the condition of education for American Indian and Alaska Native students in the United States. The study is sponsored by the Office of Indian Education and conducted by the National Center for Education Statistics of the U.S. Department of Education. NIES is authorized under Executive Order 13336, *American Indian and Alaska Native Education*, which was enacted in 2004 to improve education efforts for American Indian and Alaska Native students nationwide. (See <http://www.whitehouse.gov/news/releases/2004/04/20040430-10.html> for details.)

Part I of the NIES is conducted through the National Assessment of Educational Progress (NAEP) and provides in-depth information on the academic performance of fourth- and eighth-grade American Indian and Alaska Native students in reading and mathematics. NAEP is a congressionally mandated project of the

U.S. Department of Education. By reporting student achievement data at the national, state, and local levels, NAEP plays an integral role in evaluating what our children know and can do in various subjects. NAEP is carried out by the Commissioner of the National Center for Education Statistics (within the Institute of Education Sciences). The National Assessment Governing Board oversees and sets policy for NAEP.

Part II of the NIES is a survey that describes the educational experiences of the fourth- and eighth-grade American Indian and Alaska Native students who participated in the NAEP assessments. The survey focuses on the integration of native language and culture into school and classroom activities.

Conducted in 2005 and 2007, NIES provides data on nationally representative samples of American Indian and Alaska Native students from public, private, Department of Defense, and Bureau of Indian Education funded schools. It is a reliable source of data on American Indian and Alaska Native students, especially for educators, administrators, and policymakers who address the educational needs of students. NIES is advised by a technical review panel; members of this panel include educators and researchers selected for their expertise in American Indian and Alaska Native education.

# Executive Summary

The 2007 National Indian Education Study (NIES) was conducted by the National Center for Education Statistics on behalf of the U.S. Department of Education, Office of Indian Education. This report presents the results for Part I of the study focusing on the performance of American Indian and Alaska Native (AI/AN) fourth- and eighth-graders on the 2007 National Assessment of Educational Progress in reading and mathematics.

A national sample of approximately 10,100 AI/AN students at grades 4 and 8 participated in the 2007 reading assessment and 10,300 in the mathematics assessment. Results from this study are compared to those from the first NIES conducted in 2005. The results for 11 states with relatively large populations of AI/AN students are presented in addition to the national results.

## READING RESULTS

Overall, the average reading scores for AI/AN fourth- and eighth-graders showed no significant change since 2005 and were lower than the scores for non-AI/AN students in 2007.

In 2007 at both grades, AI/AN students attending schools in which less than 25 percent of the students were AI/AN scored higher than their peers attending schools with higher concentrations of AI/AN students, and those attending public schools scored higher than their peers in Bureau of Indian Education schools.

### Patterns in reading results vary when AI/AN students are compared to other racial/ethnic groups

While the overall average reading scores for AI/AN students were lower than the scores for non-AI/AN students at both grades in 2007, they were not consistently lower than the scores for all racial/ethnic groups.

- Average scores for AI/AN students were not significantly different from the scores for Black or Hispanic students but were lower than the scores for White and Asian/Pacific Islander students.
- Scores for higher-performing AI/AN students—those at the 75th and 90th percentiles—were higher than those of their Black peers.

- AI/AN fourth-graders attending city schools scored higher than their Black and Hispanic peers, and AI/AN eighth-graders attending rural schools scored lower than their Hispanic peers.

### AI/AN students in some states score higher in reading than their peers in the nation

When compared to the scores for all AI/AN students in the nation, average reading scores for AI/AN fourth-graders in Oklahoma and eighth-graders in Oklahoma and Oregon were higher in 2007. Scores for AI/AN fourth- and eighth-graders in Alaska, Arizona, New Mexico, and South Dakota were lower than the average scores of all AI/AN students nationwide.

## MATHEMATICS RESULTS

Overall, the average mathematics scores for AI/AN fourth- and eighth-graders showed no significant change since 2005 and were lower than the scores for non-AI/AN students in 2007. There was, however, an increase in the percentage of AI/AN fourth-graders performing at or above the *Proficient* level from 21 percent in 2005 to 25 percent in 2007.

In 2007 at both grades, AI/AN students attending schools in which less than 25 percent of the students were AI/AN scored higher than their peers attending schools with higher concentrations of AI/AN students, and those attending public schools scored higher than their peers in Bureau of Indian Education schools.

### Patterns in mathematics results vary when AI/AN students are compared to other racial/ethnic groups

While the overall average mathematics scores for AI/AN students were lower than the scores for non-AI/AN students at both grades in 2007, they were not consistently lower than the scores for all racial/ethnic groups.

- AI/AN students at both grades scored higher on average than Black students, scored lower than White and Asian/Pacific Islander students, and had average scores that were not significantly different from Hispanic students.
- Scores for higher-performing AI/AN students—those at the 75th and 90th percentiles—were higher than scores for their Black peers.

# Introduction

The National Indian Education Study (NIES) was conducted by the National Center for Education Statistics on behalf of the U.S. Department of Education, Office of Indian Education. NIES is the only nationally representative assessment of American Indian/Alaska Native (AI/AN) students. It lays the foundation for gathering useful trend data for this student population.

## The NIES Project

This report, Part I of the study, focuses on the performance results of fourth- and eighth-grade AI/AN students on the 2007 National Assessment of Educational Progress (NAEP) in reading and mathematics. The first NIES study was conducted in 2005, and the results for 2007 are compared to results from that assessment in this report.

Presidential Executive Order 13336 called for a closer examination of the educational experiences and progress of AI/AN students, as well as the promotion of research opportunities and collaboration with tribal communities. The data presented in this report and the forthcoming Part II report provide additional information that will help inform policymakers, researchers, and educators.

NIES Part II will present the results gathered from questionnaires completed by AI/AN students, the teachers who teach them, and the administrators of schools that serve them, and will provide a snapshot of the cultural and educational experiences of AI/AN fourth- and eighth-graders.

## Sample Design

The NIES sample was designed as an augmentation of the 2007 NAEP reading and mathematics assessment samples of AI/AN students in the fourth and eighth grades. Race/ethnicity information from official school

records was used to identify AI/AN students during sampling. In 2007, about 10,100 AI/AN students participated in the reading assessment, and about 10,300 AI/AN students participated in the mathematics assessment (table 1). The national results reflect the performance of students enrolled in public, Bureau of Indian Education (BIE), Department of Defense, and private schools. The percentage of sampled AI/AN students enrolled in schools other than public and BIE schools nationally was approximately 5 percent.

Table 1. Number of participating schools with AI/AN students and number of participating AI/AN students in NAEP reading and mathematics at grades 4 and 8: 2007

Grade	Reading		Mathematics	
	Schools	Students	Schools	Students
Grade 4	1,470	5,300	1,450	5,700
Grade 8	1,260	4,800	1,270	4,600

NOTE: AI/AN = American Indian/Alaska Native. The numbers of schools are rounded to the nearest ten. The numbers of students are rounded to the nearest hundred.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 National Indian Education Study.

Results are reported for 11 states with relatively large populations of AI/AN students. Nationally, AI/AN students comprise about 1 percent of all students, but in the 11 selected states combined, they make up almost

6 percent of the overall student population (table 2). Over 50 percent of the nation's AI/AN students reside in the 11 states for which state-level results are provided in this report, with about 42 percent residing in the other 39 states and the District of Columbia.

Table 2. Total enrollment, AI/AN enrollment, and AI/AN students as a percentage of total enrollment in public elementary and secondary schools, by selected states: 2005–06

State	Total enrollment (all students)	AI/AN enrollment	AI/AN as percent of total
<b>Nation</b>	49,894,627	646,287	1.3
<b>Total for selected states</b>	<b>6,394,808</b>	<b>374,960</b>	<b>5.9</b>
Alaska	133,288	35,393	26.6
Arizona	1,094,454	67,498	6.2
Minnesota	839,243	17,400	2.1
Montana	145,416	16,422	11.3
New Mexico	326,758	36,210	11.1
North Carolina	1,416,436	20,463	1.4
North Dakota	98,283	8,483	8.6
Oklahoma	634,739	120,122	18.9
Oregon	552,194	12,986	2.4
South Dakota	122,012	12,775	10.5
Washington	1,031,985	27,208	2.6

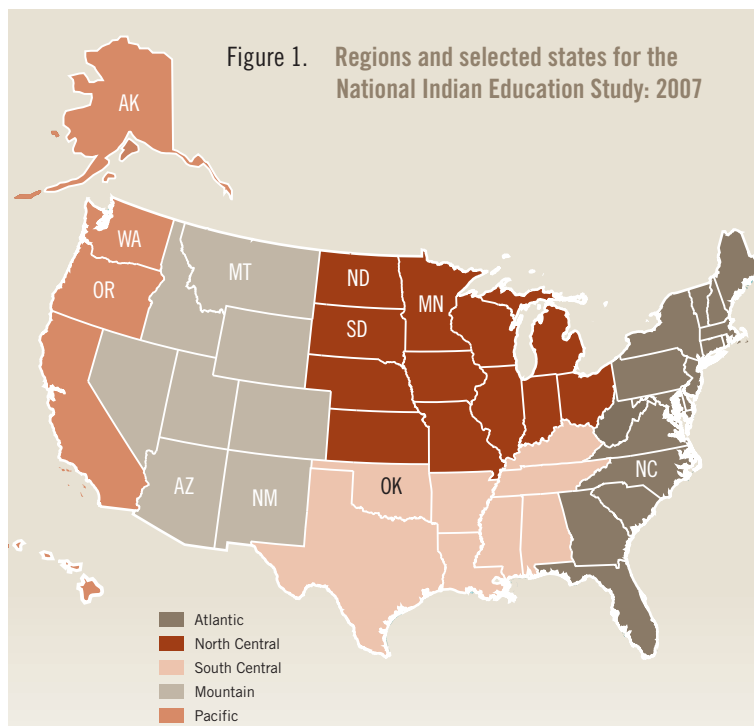
NOTE: AI/AN = American Indian/Alaska Native.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," unpublished data, 2005–06.

State-level results, drawn from public and BIE schools only, are compared to results from a national sample of AI/AN students from public and BIE schools.

High density schools were over-sampled for NIES 2007 to support the reporting of results based on "school density." (See Technical Notes for more details on the sampling design.) School density indicates the proportion of AI/AN students enrolled in a given school. Low density schools have less than 25 percent AI/AN students enrolled. High density schools have 25 percent or more AI/AN students enrolled.

Results are also reported in terms of five regions of the country: Atlantic, North Central, South Central, Mountain, and Pacific. The NIES regions are based on U.S. Census divisions and are defined to align with the distribution of the AI/AN student population. Like the national results, the regional data are based on the sample drawn from public, BIE, Department of Defense, and private schools. See figure 1 for a map of the regions.



NOTE: Selected states are identified using abbreviations. These states were identified by NAEP as having a relatively large proportion of American Indian/Alaska Native students as a percentage of the state's total population. Regions referenced in this figure were defined by NAEP exclusively for the National Indian Education Study.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 National Indian Education Study.

## About This Report

This report describes the reading and mathematics performance of AI/AN fourth- and eighth-grade students by examining 2007 NAEP results for the nation, for regions, for selected states, and for groups of students defined by race/ethnicity, eligibility for free/reduced-price school lunch, gender, type of school location, type of school, and school density. Results are also compared to those from the 2005 assessments.

AI/AN student performance is compared to the performance of all other students in the nation or region. In addition, the sections discussing state results compare the performance results of AI/AN students within each state to those of AI/AN students in each of the other selected states, and to the performance of the national sample of AI/AN students.

Information is also provided about the design of the reading and mathematics assessments, including the frameworks, item maps, and sample questions. The Technical Notes discuss the technical procedures used for sampling and data collection and define the reporting variables.

# Reporting NAEP Results

The students selected to take the NAEP assessment represent all fourth- and eighth-grade students across the United States. Students who participate in NAEP play an important role by demonstrating the achievement of our nation's students and representing the success of our schooling. NAEP data can only be obtained with the cooperation of schools, teachers, and students nationwide.

## Understanding NAEP Results

Results in this report are presented in two ways: in terms of scale scores and as the percentage of students scoring at or above the three NAEP achievement levels. The average scale scores represent how students performed on the assessment. The achievement levels represent how that performance measured up against achievement expectations. Thus, the average scale scores represent what students know and can do, while the achievement-level results indicate the degree to which student performance meets expectations of what they should know and be able to do.

## Scale Scores

NAEP average reading and mathematics scores are reported for grades 4 and 8 on separate 0–500 scales. Scale score results also are presented for students at various percentiles. An examination of scores at different percentiles on the 0–500 scale indicates whether or not average score results are reflected in the performance of lower-, middle-, and higher-performing students. Because NAEP scales are developed independently for each subject, average scores cannot be compared across subjects even when the scales have the same range.

## Achievement Levels

NAEP results are reported at three achievement levels: *Basic*, *Proficient*, and *Advanced*. Achievement levels are performance standards defining what students should know and be able to do. They are set by the National Assessment Governing Board, based on recommendations from panels of educators and members of the public, to provide a context for interpreting student performance on NAEP. Achievement-level results are reported as percentages of students performing at or above *Basic*, at or above *Proficient*, and at *Advanced*.

As provided by law, the National Center for Education Statistics (NCES), upon review of congressionally mandated evaluations of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted with caution. The NAEP achievement levels have been widely used by national and state officials.

### NAEP ACHIEVEMENT LEVELS

**Basic** denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at a given grade.

**Proficient** represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.

**Advanced** represents superior performance.

<http://nces.ed.gov/nationsreportcard/reading/achieve.asp>

<http://nces.ed.gov/nationsreportcard/mathematics/achieve.asp>

## Item Maps

Item maps provide another way to interpret the average scores and achievement-level results for each grade. The item maps displayed in this report show concrete examples of what students at various achievement levels are likely to know and be able to do on NAEP reading and mathematics questions at different points on the 0–500 scales.

## Interpreting Results

Comparisons over time or between groups are based on statistical tests that consider both the size of the differences and the standard errors of the statistics being compared. Standard errors represent the amount of uncertainty in estimates that are based on a sample instead of the entire population of interest. Estimates based on smaller groups are likely to have larger standard errors. The size of the standard errors may also be influenced by other factors such as how representative the students assessed are of the entire population.

When an estimate has a large standard error, a numerical difference that seems large may not be statistically significant. Differences of the same magnitude may or may not be statistically significant depending upon the size of the standard errors of the estimates. For example, a 2-point gain between 2005 and 2007 for non-AI/AN students may be statistically significant, while a 2-point gain for AI/AN students may not be (see figure 21 in the mathematics results section).

In the tables and figures in this report, the symbol (\*) indicates that scores or percentages are significantly different from each other. A footnote beneath each table or figure explains which groups were compared.

Significance test results are not shown for all possible comparisons within each table or figure. NAEP results adopt widely accepted statistical standards; findings are reported based on a statistical significance level set at .05 with appropriate adjustments for multiple comparisons. Score differences or gaps cited in this report are calculated based on differences between unrounded numbers. Therefore, the reader may find that the score difference cited in the text may not be identical to the difference obtained from subtracting the rounded values shown in the accompanying tables or figures. The reader is cautioned that only those differences that are discussed in the text (for instance, a percentage or average score that is higher or lower than another), or that are indicated by the symbol (\*) in the tables and figures, have been determined to be statistically significant using the criteria established for this report.

## Cautions in Interpretation

Changes in performance results over time may reflect not only changes in students' knowledge and skills but also other factors, such as changes in student demographics, education programs and policies (including policies on accommodations and exclusions), and teacher qualifications. In addition to the overall performance of students in the nation, regions, and selected states, results are presented by different demographic characteristics (for example, gender, race/ethnicity, or eligibility for the National School Lunch Program). These results should not be used to establish a cause-and-effect relationship between demographic characteristics and achievement. Educational and socioeconomic factors may affect student performance in many complex ways.