

U.S. Department of Education  
NCES 2010-468

# An Introduction to **NAEP**

National Assessment of  
Educational Progress





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“NAEP is an important part of schools across the country today. With NAEP, we can see how students in the United States are performing in various subject areas.”

Nicole B. Brown, Assistant Principal  
Montgomery County Public Schools, Silver Spring, MD

The National Assessment of Educational Progress (NAEP) is a continuing and nationally representative assessment of what our nation’s students know and can do. NAEP has often been called the “gold standard” of assessments because it is developed using the best thinking of assessment and content specialists, education experts, and teachers from around the nation.

NAEP provides a common measure of student achievement across the country. Because states have their own unique assessments, with different content and standards, it is impossible to use them as a means for comparing state achievement. Such comparisons are possible with NAEP, however, because the questions and administration of the assessment are the same across all states.

NAEP results are released for a variety of subjects as The Nation’s Report Card, and are available for the nation, and in some cases, states and urban districts. There are no results for individual students, classrooms, or schools. NAEP reports results for different demographic groups, including gender, socioeconomic status, and race/ethnicity. Assessments are given most frequently in mathematics and reading. Other subjects, such as writing, science, U.S. history, civics, geography, economics, and the arts, are assessed periodically.

NAEP is a congressionally mandated project administered by the National Center for Education Statistics (NCES), within the Institute of Education Sciences of the U.S. Department of Education. NCES is responsible for developing test questions, administering the assessment, scoring student responses, conducting analyses of the data, and reporting the results. The National Assessment Governing Board sets policy for NAEP.

Teachers, principals, parents, policymakers, and researchers all use NAEP results to assess progress and develop ways to improve education in the United States. NAEP is a trusted resource and has been providing valid and reliable data on student performance since 1969.

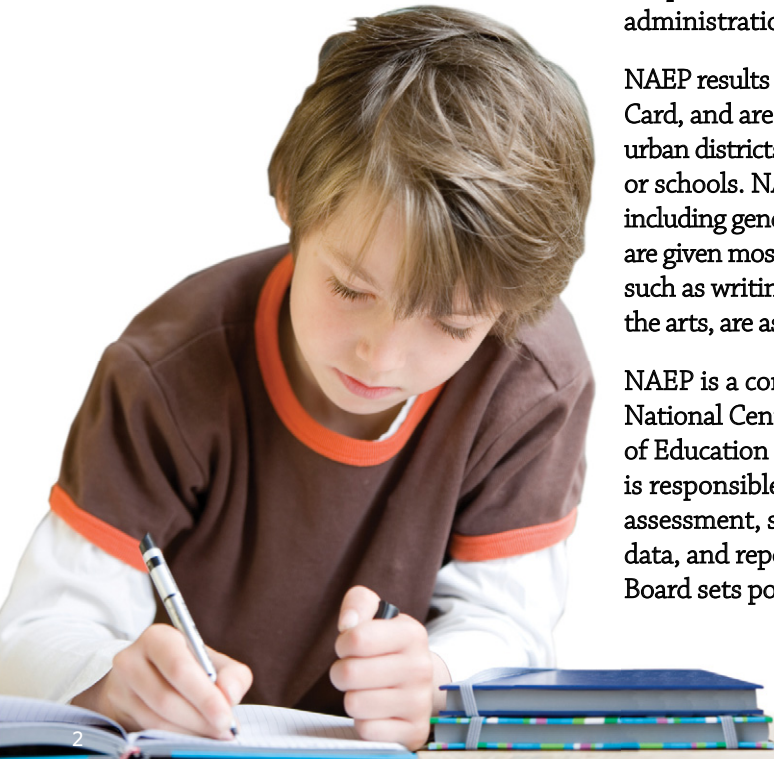
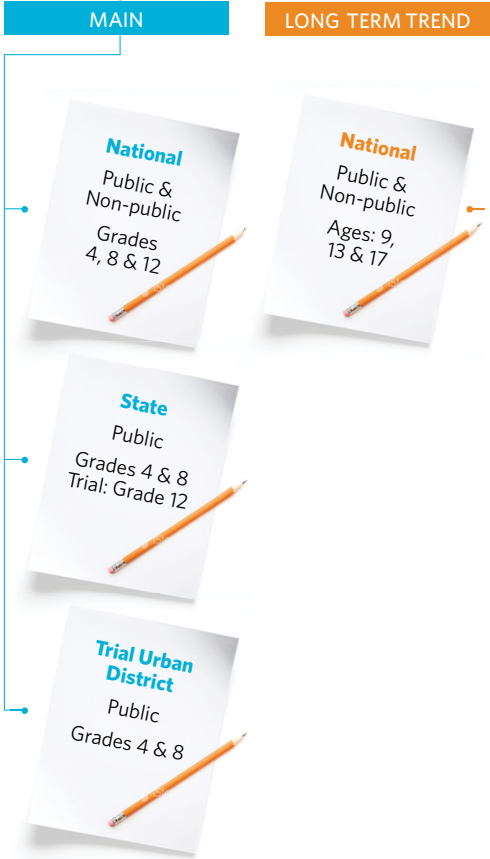
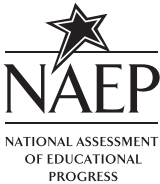
NAEP Components

There are two types of assessments, main NAEP and long-term trend NAEP.

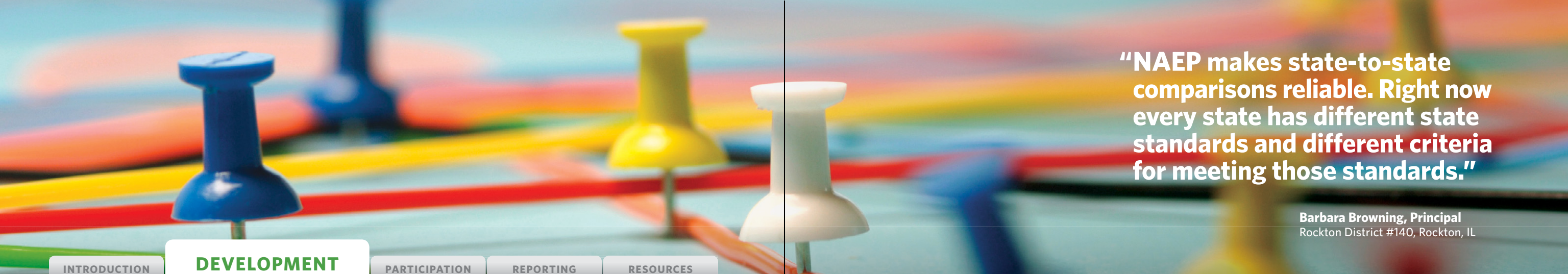
Main NAEP is administered to fourth-, eighth-, and twelfth-graders across the country in a variety of subjects. National results are available for all assessments and subjects. Results are available for states and select urban districts in some subjects for grades 4 and 8. The Trial Urban District Assessment (TUDA) is a special project developed to determine the feasibility of reporting district-level NAEP results for large urban districts. In 2009 a trial state assessment was administered at grade 12.

Long-term trend NAEP is administered to 9-, 13-, and 17-year-olds every four years nationally. Long-term trend assessments measure student performance in mathematics and reading, and allow the performance of today’s students to be compared with students since the early 1970s.

In addition to main and long-term trend assessments, there are a number of NAEP special studies that are conducted periodically. These include research and development efforts such as the High School Transcript Study and the National Indian Education Study. For more information on NAEP special studies, visit <http://nces.ed.gov/nationsreportcard/studies>.







**“NAEP makes state-to-state comparisons reliable. Right now every state has different state standards and different criteria for meeting those standards.”**

Barbara Browning, Principal  
Rockton District #140, Rockton, IL

INTRODUCTION

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The development of a NAEP assessment takes a substantial amount of time and incorporates feedback from a wide array of experts. The process for developing NAEP assessments is comprehensive, deliberate, and inclusive.

#### NAEP Frameworks

Each NAEP assessment is built from a content framework that specifies what students should know and be able to do in a given grade. The National Assessment Governing Board, which sets NAEP policy, oversees the creation of the NAEP frameworks. The Governing Board, appointed by the U.S. Secretary of Education, consists of 26 members, including governors, state legislators, local and state school officials, educators, business representatives, and members of the general public.

The frameworks reflect ideas and input from subject area experts, school administrators, policymakers, teachers, parents, and others. NAEP frameworks also describe the types of questions that should be included and how they should be designed and scored. Multiple-choice and open-ended questions test a wide range of students' knowledge and skills and are presented in a variety of formats. Most assessments are administered in a paper-and-pencil based format. However, NAEP is beginning to move in the direction of computer-based assessments, starting with the writing assessment at grades 8 and 12. The frameworks are periodically updated by the Governing Board to reflect a variety of factors, such as curriculum and assessment reform. They are available online at <http://www.nagb.org/>.

#### Question Development

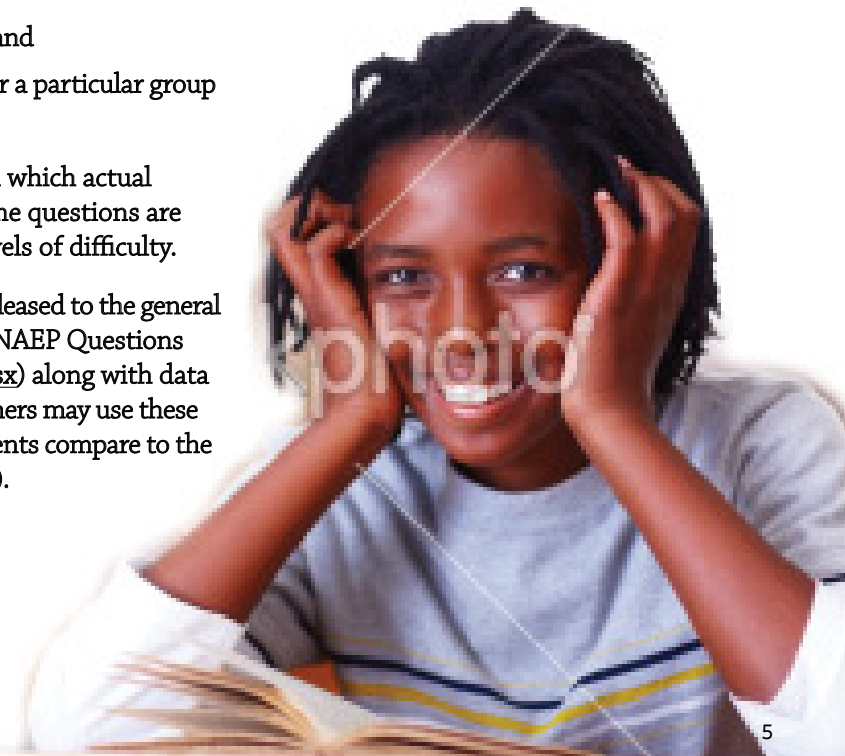
Once a framework is completed, NCES develops the questions that students will be asked on the assessment. More than 300 people are involved in developing and reviewing the questions for each assessment, including representatives from the framework committee, representatives from states and districts, curriculum specialists, university education faculty, state assessment directors, state content specialists, and experts in the assessment's subject area.

After the questions are written, a process of reviews and updates begins to ensure complexity, diversity of opinions and input, and attention to quality. Reviewers examine each question for:

- › consistency with the framework,
- › consideration for what students are being taught, and
- › bias that would make a question more difficult for a particular group of students to answer.

Questions also undergo extensive pilot testing, in which actual responses from students are gathered to ensure the questions are measuring skills with fairness and appropriate levels of difficulty.

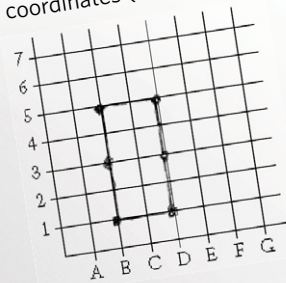
After each assessment, some NAEP questions are released to the general public. These questions are available online in the NAEP Questions Tool (<http://nces.ed.gov/nationsreportcard/itmrlsx>) along with data on how students performed on each question. Teachers may use these questions in their classrooms to see how their students compare to the nation, their state, or urban district (as results allow).





## 4th Grade Math Sample Question

On the grid below  
coordinates (B, 1)



Plot 3 more points  
connect all 6

List the coordinates of the 3 new points.

(B, 5) (D, 3) (D, 1)

Connect the 3 new points.

you  
gle.

angle.

Young girl's science fair project on  
gauging the accuracy of her city's parking meters  
ended up impacting the lives of many citizens  
throughout her state.

Choose two things Ellie Lammer did and explain  
what those things tell about her. Use examples  
from the article to support your answer.

Response rated as "Extensive"

Ellie Lammer got cheated out of her  
money, and then decided that she wasn't  
going to give up, she was going to do  
experiments and take this problem to  
the next level. This shows perseverance,  
because she chose to keep going with the  
problem even though it was time-consuming,  
to help people.  
She also chose to prove the meters wrong by  
timing them using a stop watch. This shows  
intelligence, because she knew what methods  
to use in order to prove the meters inaccurate.

Response rated as "Essential"

She did her science fair project  
on meters to see how many other  
people got cheated. Which means  
she cares about other people and  
not just her self. At the end of her  
article it said she enjoyed being a  
super star, but wanted something more  
in life. She wants to be someone  
important.

- Which is a function of a neuron?
- ☐ A It carries oxygen to other cells.
  - ☐ B It secretes digestive enzymes.
  - ☐ C It removes foreign particles from the bloodstream.
  - ☐ D It receives signals from the internal and external environments.

## Questionnaires for Students, Teachers and Schools

In addition to assessing student achievement in various subjects, NAEP collects information from students, teachers, and schools in order to provide a more complete understanding of the results and overall student performance. This information is collected through the following:

- > Student questionnaires collect information on students' demographic characteristics, classroom experiences and educational support.
- > Teacher questionnaires gather data on teacher training and instructional practices.
- > School questionnaires gather information on school policies and characteristics.

The results of these questionnaires help to provide contextual information for the assessments, as well as information about factors that may be related to students' learning. These results can be analyzed using the NAEP Data Explorer: <http://nces.ed.gov/nationsreportcard/naepdata>.

## How are assessments scored?

To make sure the scoring is reliable and consistent, NCES:

- > develops detailed scoring guides,
- > recruits and trains qualified and experienced scorers, and
- > monitors and reviews the quality and consistency of each scorer's decisions.

Computers score multiple-choice questions. Open-ended questions require written answers and a different approach to scoring. Using the scoring guides, trained scorers evaluate open-ended responses. For example, the guidelines explain how to decide whether a student's response to the question is "extended," "satisfactory," "partial," "minimal," or "incorrect." Scoring guides for released questions available in the NAEP Questions Tool





“I was very impressed with NAEP’s implementation. All the parents, teachers, and the children at the school felt very comfortable.”

Linda Cobb, Principal  
Fair Lawn School Districts, Fair Lawn, NJ

NAEP is able to provide valuable information on student performance, thanks to the voluntary participation of selected schools and students. Their participation enables NAEP to provide the most accurate and representative picture of how students are performing across the country.

Who takes NAEP?

Since NAEP does not report data for individual schools or students, it is not necessary to assess every student in the United States. NCES uses a sampling procedure to ensure that those selected to participate in NAEP will be representative of the geographical, racial, ethnic, and socioeconomic diversity of schools and students across the nation.

First, schools are selected to be representative of schools across the states and nation, on the basis of characteristics such as school location, minority enrollment, level of school achievement, and average income of the geographic area. Then, within each school, students are randomly selected to participate.

How many students participate in NAEP?

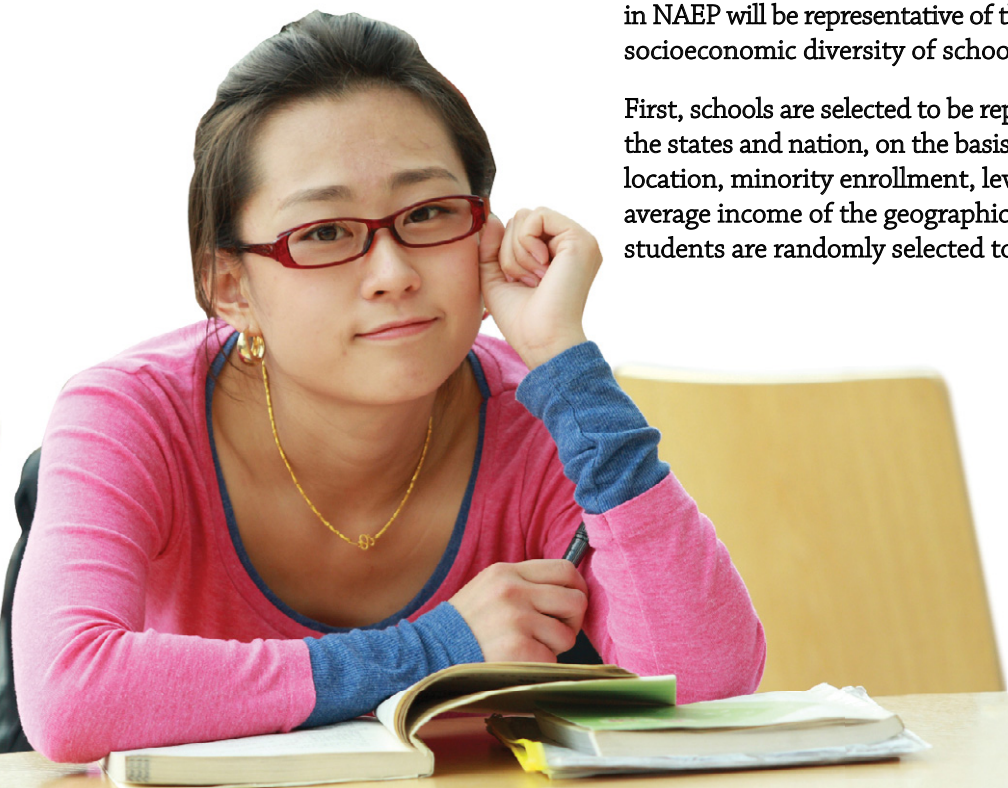
When assessing performance for the nation only, approximately 6,000 to 20,000 students per grade from across the country are assessed for each subject. The numbers of schools and students vary from year to year, depending on the number of subjects and questions to be assessed. For assessments that report state results, NAEP typically selects 3,000 students in approximately 100 schools in each state for each grade and subject.

Why is participation important?

NAEP is the only measure of how the students across the nation are performing in various subject areas. It informs us how student performance has changed over time, and allows states to compare their progress with that of other states and the nation as a whole. Without student participation, NAEP would not be as representative as it needs to be to provide fair, accurate, and useful information on student achievement.

Why are some schools selected more frequently than others?

Each year, a new sample of schools is selected. A school’s participation in the past has no relation to whether it will be selected again in the future. To ensure that the student sample represents students from large and small schools in the appropriate proportions, large schools are more likely to be selected than small ones. If a school is chosen frequently, typically it is because the school’s enrollment in the grade is larger than other schools in the state.





### On Assessment Day

- > NAEP is administered during regular school hours.
- > NAEP staff will bring necessary materials to the schools on assessment day.
- > Each student is only assessed in one subject area.
- > Students spend approximately 90 - 120 minutes taking the assessment, including filling out the student questionnaire, which provides contextual information such as the amount of reading they do and what types of classes they take.

### Are there accommodations for students with disabilities and for English language learners?

The goal of offering accommodations is to include as many students as possible in an assessment. This increases the representativeness of the results for students in the United States.

Test accommodations are provided for students with disabilities and English language learners who cannot fairly and accurately demonstrate their abilities under normal administration procedures. Accommodations are changes in the way a test is given, such as responding to a question in a different format or having alterations in the test setting or timing.

The most frequent accommodations used in NAEP are:

- > extended time,
- > small group administration,
- > reading the question aloud,
- > having breaks during the test administration.

However, even with accommodations, there are still some students who cannot participate in NAEP. The percentage of students included, excluded, and accommodated varies by jurisdiction. These variations should be considered when comparing student performance among the nation, states, and select urban districts.

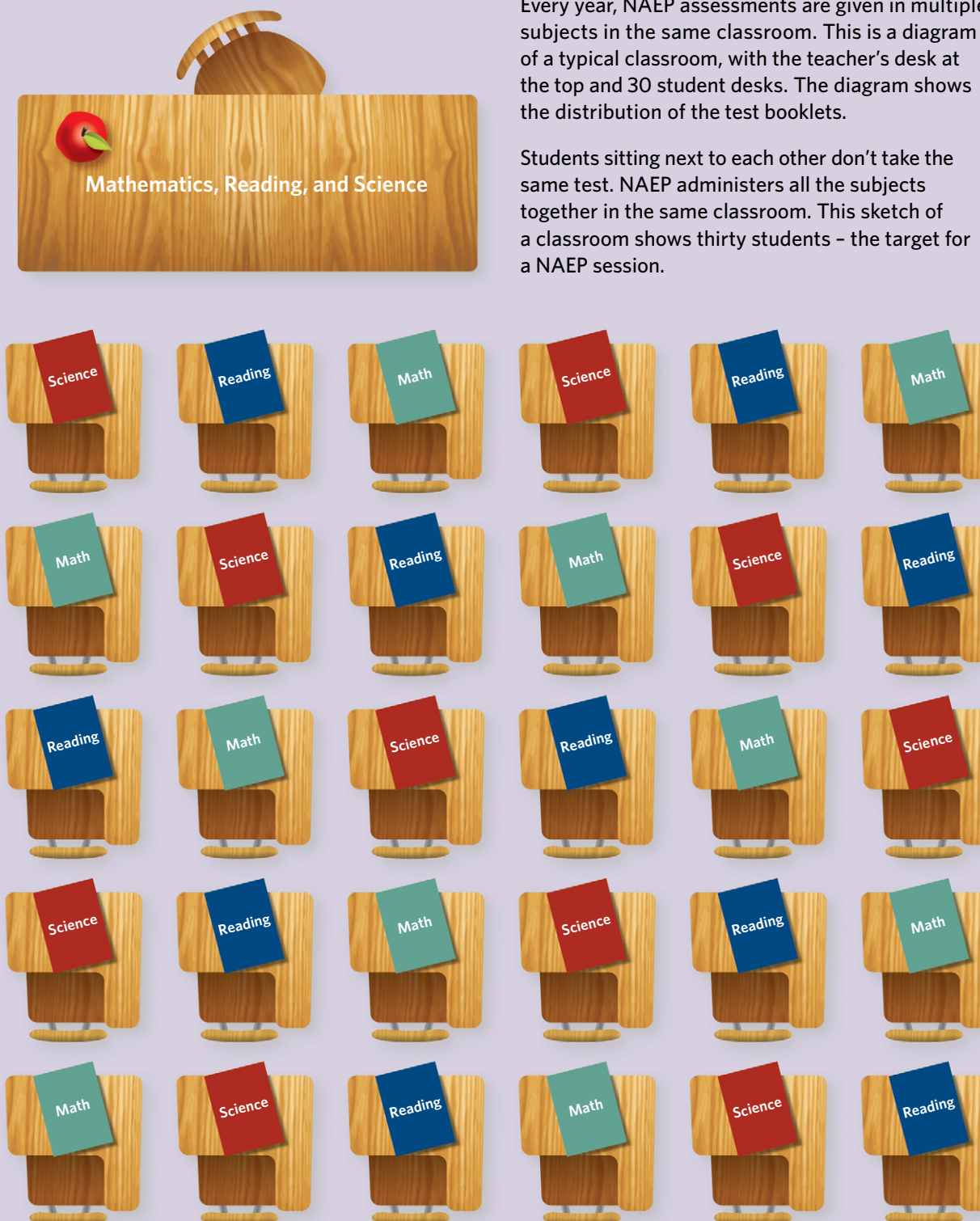
### When are the assessments given?

Main NAEP is conducted between the last week of January and the first week in March every year. Long-term trend assessments take place every four years; during the same academic year, 13-year-olds are assessed in the fall, 9-year-olds in the winter, and 17-year-olds in the spring.

### A Typical Testing Session

Every year, NAEP assessments are given in multiple subjects in the same classroom. This is a diagram of a typical classroom, with the teacher's desk at the top and 30 student desks. The diagram shows the distribution of the test booklets.

Students sitting next to each other don't take the same test. NAEP administers all the subjects together in the same classroom. This sketch of a classroom shows thirty students – the target for a NAEP session.







After an assessment is given, and the responses are scored and analyzed, work turns to making the complex statistical results useful to the general public. NAEP results are used by policymakers, principals, teachers, and parents to inform the discussion over education.

The results of NAEP are released as The Nation's Report Card. Report cards provide results for the nation, state, and urban districts (as they are available). Results are provided as scale scores and achievement levels. The results are reported in each jurisdiction by gender, socioeconomic status, race/ethnicity, and other demographic information.

Results for the nation reflect the performance of students attending public schools, private schools, Bureau of Indian Education schools, and Department of Defense schools. Results for states and other jurisdictions reflect the performance of students in public schools only.

#### Scale Scores

Scale scores report what students know and can do. The results are generally reported on 0-300 or 0-500 point scales. Because NAEP scales are developed independently for each subject, scores cannot be compared across subjects.

In addition to reporting an overall score for each grade assessed, scores are reported at five percentiles to show trends in results for students performing at lower (10th and 25th percentiles), middle (50th percentile), and higher (75th and 90th percentiles) levels.

#### Achievement Levels

Achievement levels are standards showing what students should know and be able to do along the continuum of performance. Based on recommendations from policymakers, educators, and members of the general public, the Governing Board sets specific achievement levels for each subject and grade. NAEP results are reported as percentages of students performing at or above the *Basic* and *Proficient* levels and at the *Advanced* level.

- > *Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- > *Proficient* represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.
- > *Advanced* represents superior performance.

#### Where can results be found?

NAEP results are available at <http://nationsreportcard.gov>. Here, users can browse or download the latest report cards, individual state and select district profiles, and access resources and online data tools that will enable them to view more extensive results, such as results by demographic groups.

#### Statistical Significance

Because NAEP results are based on samples, there is a margin of error surrounding each score or percentage. Differences that are larger than the margin of error are statistically significant. Significant increases or decreases from one assessment year to the next indicate that student performance has changed. Only differences that are statistically significant are discussed in NAEP reports. When interpreting NAEP results, it is important to consider whether apparent differences are statistically significant.



**"The Nation's Report Card describes student achievement in ways that inform policymakers and educators. It's a really valuable resource."**

**Jodi Chesman, Teacher**  
Montgomery County Public Schools, Rockville, MD

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A number of online tools are available to explore national, state, and select urban district NAEP data for various demographic groups.

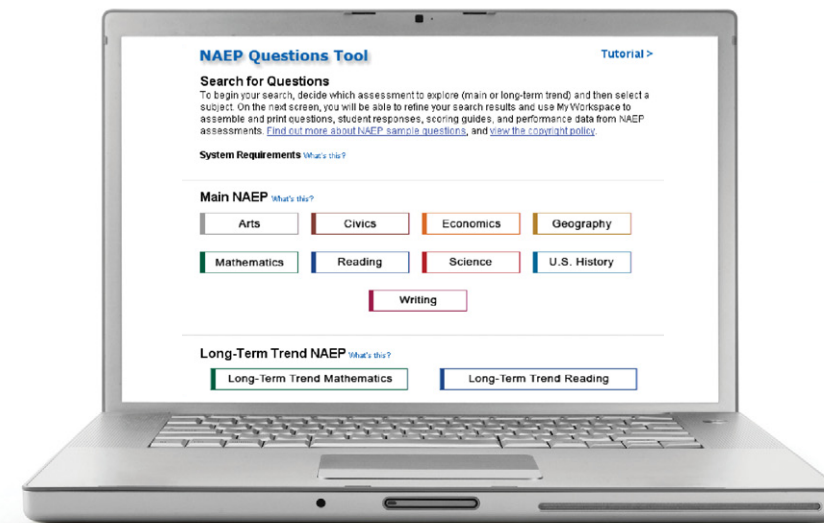
### NAEP Data Explorer

The NAEP Data Explorer (NDE) is a dynamic, interactive tool used to explore assessment results for a number of various subjects, grades, and jurisdictions. It allows users to create custom statistical tables, graphics, and maps using NAEP data. Student performance in the context of gender, race/ethnicity, public or private school, teacher experience, and many other factors can be examined using data gathered from students, teachers, and schools that have participated in NAEP.

To access the NDE, visit:  
<http://nces.ed.gov/nationsreportcard/naepdata/>

The NDE has four different databases:

- › Main NAEP provides national results for various subjects since 1990. State and select urban district results are provided in mathematics, reading, science, and writing.
- › Long-Term Trend provides national data on 9-, 13-, and 17-year-olds for mathematics and reading since the 1970s.
- › High School Transcript Study provides national results for graduating seniors on NAEP assessments in mathematics and science. Results relate transcript data, such as courses taken and grade point average, to NAEP results.
- › **National Indian Education Study** provides results that report on the condition of education for American Indian and Alaska Native students at grades 4 and 8 in the United States.



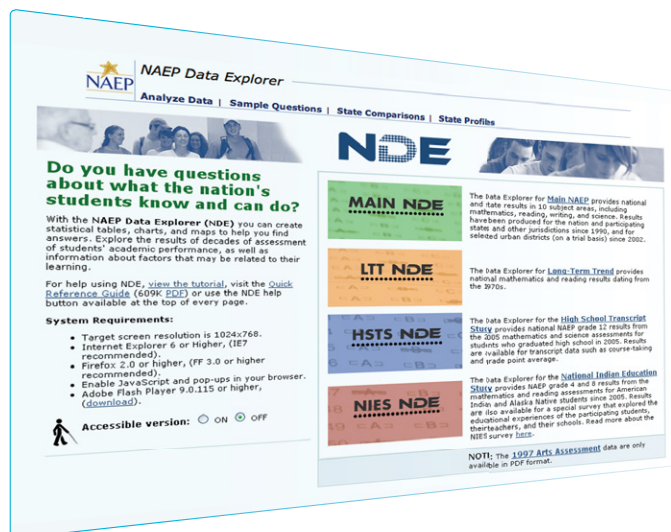
To access the NAEP Questions Tool (NQT), visit:  
<http://nces.ed.gov/nationsreportcard/itmrlsx>

### NAEP Questions Tool

The NAEP Questions Tool (NQT) is a database of more than 2,000 questions from past assessments, in nine subject areas, that have been released to the public and will not be used again on NAEP assessments. The NQT allows you to:

- › search for questions by subject, grade, difficulty, and other characteristics,
- › view student responses,
- › create customized reports, and more.

You can also view scoring guides and performance data, such as the percentage of students nationwide and in your state who answered the question correctly, for most questions.



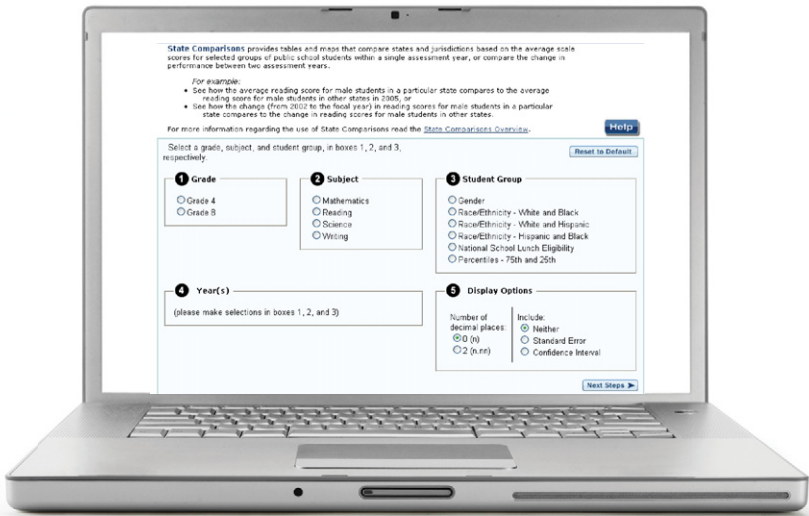


NAEP Item Maps

NAEP Item Maps display sample NAEP questions, or items, along with the scale score for students who would likely answer the question correctly. They help answer questions, such as, “What does it mean for a student to be *Basic*, *Proficient*, or *Advanced* in terms of what they know and can do?” or “What does a particular score indicate about what a student knows?”

The item maps illustrate the knowledge and skills demonstrated by students performing at different scale scores on a given assessment. They also help to provide a context for understanding NAEP results by showing concrete examples of what students at various achievement levels likely know and can do in a subject.

To access the NAEP Item Maps, visit:  
<http://nces.ed.gov/nationsreportcard/itemmaps/>



NAEP State Comparisons

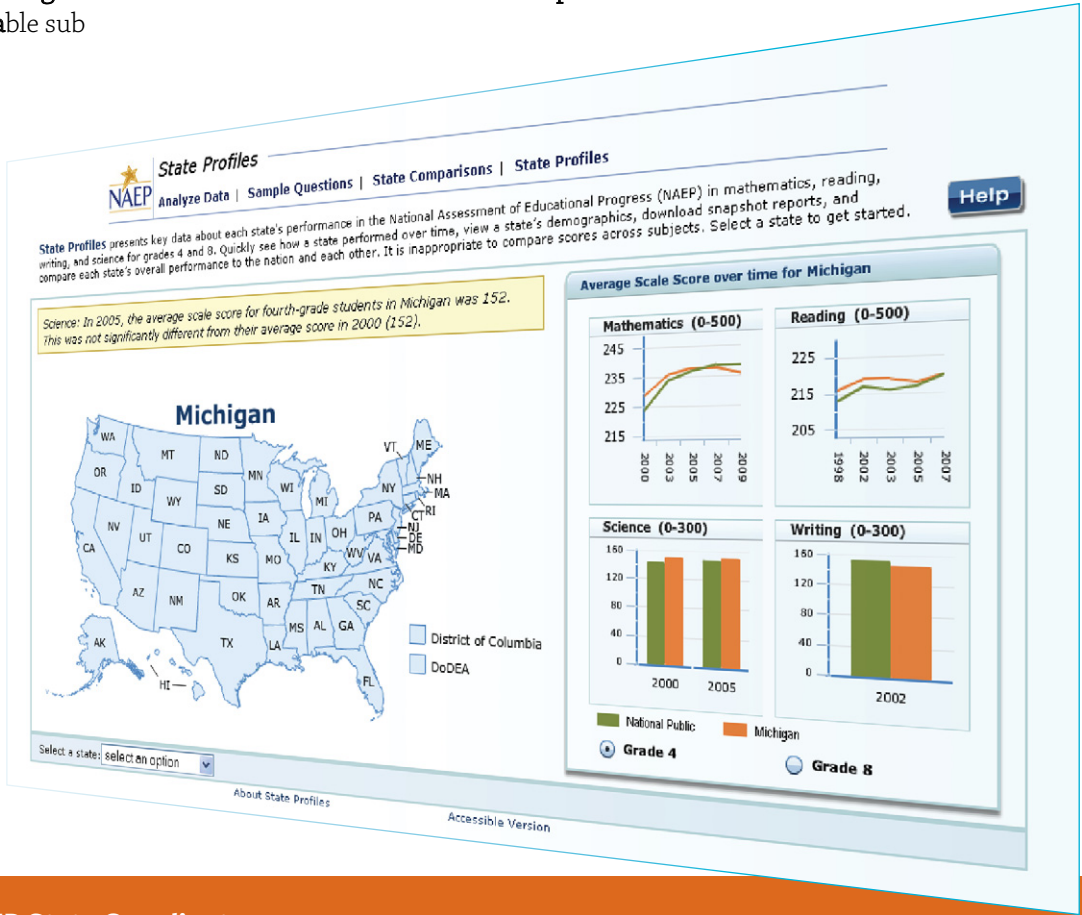
NAEP State Comparisons allows for sorting and comparing state results. This includes the ability to create tables and maps that compare states and jurisdictions based on the average scale scores for selected groups of public school students within a single assessment year, or compare the change in performance between two assessment years. The tool also displays whether the selected results are statistically different from one another.

To access the NAEP State Comparisons tool, visit:  
<http://nces.ed.gov/nationsreportcard/statecomparisons>

State Profiles

State Profiles allows users to explore key data about a state’s performance on NAEP. Users can view how a state performed over time and compare each state’s overall performance to the nation and other states. Snapshot reports can also be quickly generated and downloaded. The profiles provide easy access to all NAEP data for participating states and links to the most recent state snapshots for all available sub

To access the NAEP State Profiles, visit:  
<http://nces.ed.gov/nationsreportcard/states/>



NAEP State Coordinators

NAEP is conducted in partnership with states. The NAEP program provides funding for a full-time NAEP State Coordinator (NSC) in each state. He or she serves as the liaison between NAEP, the state education agency, and the schools selected to participate.

NSCs provide many important services for the NAEP program. NSCs:

- > coordinate the NAEP administration in the state,
- > assist with the analysis and reporting of NAEP data, and
- > promote public understanding of NAEP and its resources.

To find the name and email address of your NAEP State Coordinator, choose your state from the map at <http://nces.ed.gov/nationsreportcard/states>.



For more information about NAEP, visit:  
<http://nces.ed.gov/nationsreportcard>.

You can also contact the National Center for  
Education Statistics (NCES) at:

National Center for Education Statistics  
Assessment Division - 8th Floor  
1990 K Street NW  
Washington, DC 20006  
Phone: 202-502 7420  
<https://nces.ed.gov/nationsreportcard/contactus.asp>

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