

U.S. Department of Education
NCES 2008-480

An Introduction to NAEP

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS



“NAEP is a necessary tool and way for my colleagues and me to make sure that the expectations that we have for teaching, learning, and ultimately student achievement, are where they belong.”

BRIAN DASSLER, PRINCIPAL DESIGNATE
NEW ORLEANS PUBLIC SCHOOLS, NEW ORLEANS, LA

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INTRODUCTION

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The National Assessment of Educational Progress (NAEP) is the largest nationally representative assessment of what America’s students know and can do.

NAEP provides a common yardstick for measuring the progress of students’ education across the country. While each state has its own unique assessment, NAEP asks the same questions in every state – making state comparisons possible.

NAEP has often been called the “gold standard” of assessments because of its high technical quality and because it represents the best thinking of assessment specialists, education experts, teachers, and content specialists from around the nation.

NAEP reports information on student performance for the nation, states, and in some cases, urban districts in a variety of subject areas. NAEP also presents results for different student groups (including data by gender, socioeconomic status, and race/ethnicity). The results of NAEP are released as The Nation’s Report Card. There are no results for individual students, classrooms, or schools.

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

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

NICOLE B. BROWN, TEACHER

MONTGOMERY COUNTY PUBLIC SCHOOLS, SILVER SPRING, MD

What subjects does NAEP cover?

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

Main NAEP assessments are conducted in a range of subjects with fourth-, eighth-, and twelfth-graders across the country. Assessments are given most frequently in mathematics, reading, science, and writing. Other subjects, such as the arts, civics, economics, geography, and U.S. history, are assessed periodically.

NATIONAL: all NAEP assessments provide national results.

STATE: at 4th and 8th grades mathematics, reading, science, and writing have state results. States are required to participate in reading and mathematics every other year. Some 12th grade state results will be available after a pilot study in 2009.

DISTRICT: under a trial program, NAEP assessments are conducted in selected large urban districts and results are available at the district level.

Long-term trend NAEP measures student performance in reading and mathematics, using some questions repeatedly to ensure comparability across the years. The long-term trend assessment allows the performance of today's students to be compared with those from more than 30 years ago. The assessment is administered to 9-, 13-, and 17-year-olds every four years.

Who determines the content of NAEP?

The National Center for Education Statistics (NCES), a division within the U.S. Department of Education's Institute of Education Sciences, administers the assessment. NCES is responsible for the development of the test questions, the administration of the assessment, scoring, conducting analyses, and reporting the results.

The content for the assessment is determined by the National Assessment Governing Board. The Governing Board also sets policy for NAEP. 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.

DEVELOPING THE ASSESSMENT

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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.

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 NAEP framework serves as the blueprint for the assessment, specifying what should be assessed. Developed under the direction of the Governing Board, the framework reflects the knowledge and experience of sources involved in education, including subject-area experts, school administrators, policymakers, teachers, parents, and others. The frameworks are available online at <http://www.nagb.org>.

Question development

Once a framework is developed, NCES creates questions that will be part of the assessment. The development of test questions is guided by the specifications in the framework. After the questions are written, a systematic process of reviews and updates begins. NCES seeks the input of reviewers



“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

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from the states and urban districts that participate in NAEP, a committee of individuals familiar with NAEP and the assessment framework, and academic experts and education practitioners. Questions also undergo extensive field and pilot testing, gathering actual responses from students.

In order for the public to be familiar with the types of questions in NAEP assessments, questions are made available to the public and not used again in NAEP. NAEP also releases questions so that new questions may be added that reflect content that is more current. Thus, the question development process is continuous; each time that a set of questions is made available to the public, more questions must be developed. All questions require the same in-depth process of writing, review, and testing to ensure that NAEP questions meet NAEP's high quality standards. The reviewers examine each question for consistency with the framework, consideration for what students are being taught, and bias that would make a question easier for a particular group of students to answer.

NAEP on the Cutting Edge

As a high quality assessment, NAEP must stay on the cutting edge. One of the ways this is done is through innovative question formats. For example, Hands-On Tasks and Interactive Computer Tasks deliver test questions using new ways to assess what students know and can do.

The development process for these types of questions takes even more time and expert input than regular NAEP questions. Not only must the question appropriately address the subject matter, but the technology for administering the question must be perfected as well.



PARTICIPATING IN NAEP

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NAEP has been able to provide valuable information on the performance of American students, thanks to the voluntary participation of schools and students selected to be in the sample. The participation of all selected students enables NAEP to provide the most accurate and representative picture of student performance.

When are the assessments given?

Main NAEP assessments are conducted between the last week of January and the first week in March every year. Testing for the long-term trend assessment takes place with the 13-year-old sample assessed in the fall, the 9-year-old sample in the winter, and the 17-year old-sample in the spring.



“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

Who takes NAEP?

NAEP uses a carefully designed sampling procedure for the assessment to be representative of schools and students in the United States.

- First, schools are selected to be representative of schools nationally.
- Then, within each school, students are randomly selected to participate.

Each participating student represents hundreds of other similar students. These students represent the geographic, racial, ethnic, and socio-economic diversity that is America’s student body today.

How many students participate in NAEP?

When conducting only a national assessment, approximately 6,000 to 10,000 students per grade are assessed for each subject. When state data are being collected, NAEP typically selects 3,000 students in approximately 100 schools in each state for each grade and subject.

Why Some Schools are Frequently Selected

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 district or school is unique in its state, it may be selected for each assessment cycle. For example, a district may be asked to participate frequently if it is in the only major metropolitan area of a state or has more of the state’s minority population.

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

Testing accommodations are provided for students with disabilities and for English language learners who could not fairly and accurately demonstrate their abilities without modified test administration procedures. These accommodations include extra testing time, individual (rather than group) administration, and large-print booklets.

The goal is to include as many students as possible to obtain the broadest assessment of all students. Even with accommodations, there are still some students who cannot participate in the NAEP assessment. The percentage of students included, excluded, and accommodated will vary by jurisdiction. These variations should be considered when comparing student performance among states and the nation.

Accommodations

Some students may not be able to meaningfully participate in the assessment because of a disability or because they are an English language learner. Accommodations may be provided to these students. Accommodations are a change in how a test is presented, in how it is administered, or in how the test taker is allowed to respond. These changes do not alter what the test measures or its rigor.

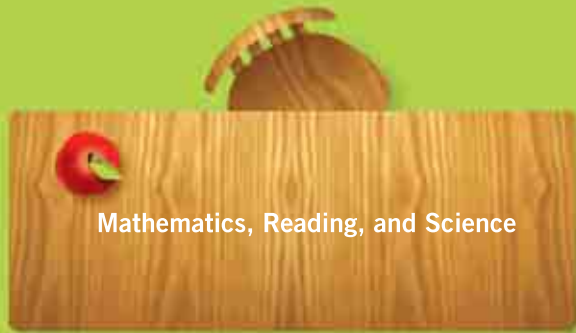
What happens when students take NAEP?

- NAEP is administered during regular school hours.
- All materials are provided at the time that the assessment is taken.
- Each student only takes a portion of the entire assessment.
- The questions are separated into groups and packaged into booklets, with the booklets being distributed so that only a small number of students in a given school receive the same assessment booklet.
- Students spend about 90 minutes taking the assessment, including answering a section on background information such as the amount of reading they do and what types of classes they take.

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.



What are NAEP questions like?

NAEP assessments include both multiple-choice and open-ended questions. After each assessment, some NAEP questions are published. These questions are available online at <http://nces.ed.gov/nationsreportcard/itmrls> and provide teachers and parents with samples of questions and data on how students performed on each question. Teachers may use released NAEP questions in their classrooms to see how their students compare to the nation.

4th Grade Reading

For the following question, students read a story about a young girl who asks her teacher for help in rescuing ducks that were affected by an oil spill in a creek.

Why is the gym teacher important in the story? Use examples of what he says or does in your answer.

The gym teacher is important because he gets every body to help the ducks.

8th Grade Mathematics

Which of the following types of graph would be best to show the change in temperature recorded in a city every 15 minutes over a 24-hour period?

- (A) Pictograph
- (B) Circle graph
- (C) Line graph
- (D) Box-and-whisker plot
- (E) Stem-and-leaf plot

Background Questions

Background questions provide additional context for understanding the results. For instance, on the reading assessment, teachers were asked how much time they spend on language arts and students were asked how often they read for fun. Students may also be asked about the types of classes they take. Background questions provide a more complete picture of student performance, but on their own do not explain why some students do better than others.

12th Grade Science

Household appliances convert electricity into one or more different forms of energy. An electric fan can best be described as converting electricity into

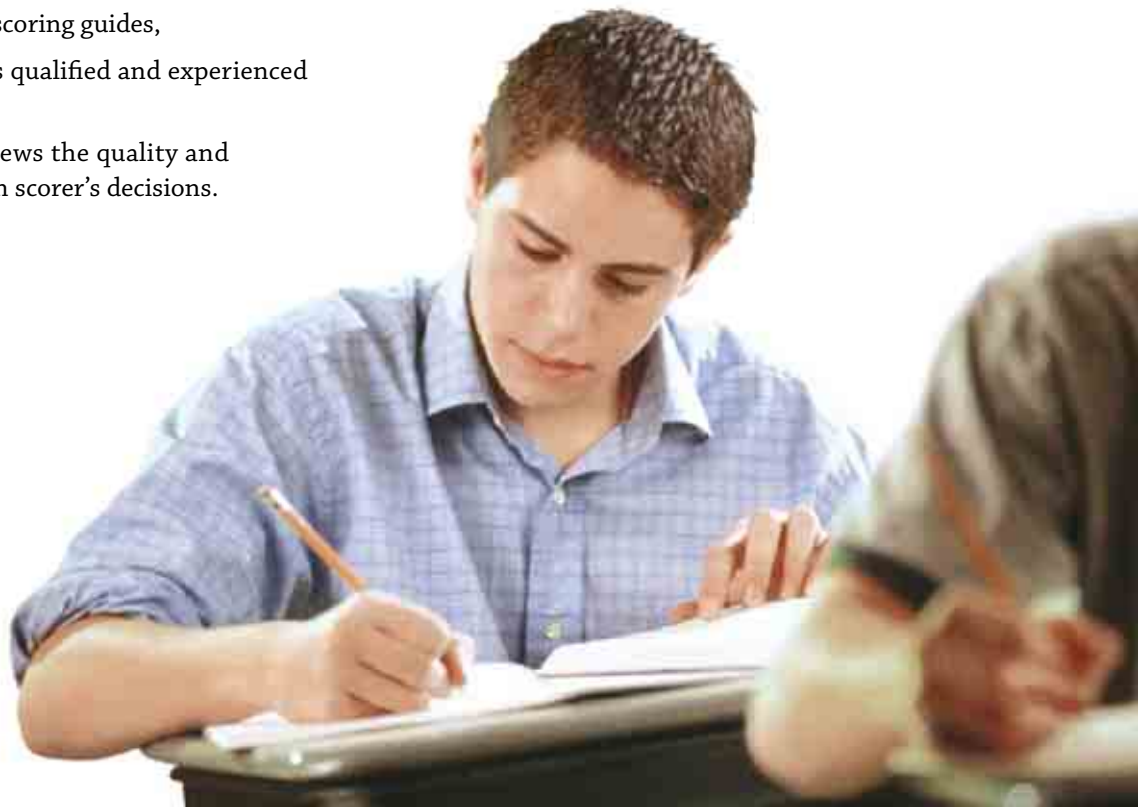
- A heat energy only
- B heat energy and sound energy only
- C heat energy, sound energy, and mechanical energy only
- D heat energy, sound energy, mechanical energy, and chemical energy

How are the assessments scored?

Computers score multiple-choice questions by scanning the assessment booklets. Open-ended questions require written answers and a different approach to scoring. NAEP was a pioneer in developing ways to score these questions. To make sure the scoring is reliable and consistent, NAEP:

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

Trained scorers evaluate student answers to open-ended questions using guides. For example, the guide explains how to decide whether a student's response to the question is "extended," "satisfactory," "partial," "minimal," or "incorrect."



REPORTING NAEP RESULTS

After a NAEP assessment is given and the responses are scored, work turns to making the complex statistics useful to the general public. The Nation's Report Card is used by policymakers, state and local educators, principals, teachers, and parents to inform the debate over education. The report cards provide national results, trends for different student groups, results on scale scores and achievement levels, and sample questions.

In reports with state or urban district results, there are sections that provide overview information on the performance of these jurisdictions. In addition to the report card, more information is available online and in one-page summary reports called snapshots for each participating state or urban district. The national results include performance of students in public schools, private schools, Bureau of Indian Education schools, and Department of Defense schools.

Scale scores

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

Results are also reported at five percentiles (10th, 25th, 50th, 75th, and 90th) to show trends in performance for lower-, middle-, and higher-performing students.

“Assessment is important so that we can find out how much of the information we’ve taught has actually been absorbed. Without assessment, there is no way to measure that.”

LETICIA VALDES-MCGUIRE, TEACHER
HENRICO COUNTY PUBLIC SCHOOLS, RICHMOND, VA

Achievement levels

Achievement levels reflect what students should know and be able to do. Based on recommendations from policymakers, educators, and members of the general public, the Governing Board sets specific achievement levels for each subject area and grade. To provide a context for interpreting student performance, NAEP results are reported as percentages of students performing below the *Basic* level, 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 a given grade.

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

Advanced represents superior performance.

Special Studies

In addition to the assessments administered each year, NAEP coordinates a number of related special studies. For example, the NAEP High School Transcript Study provides information on course offerings and course-taking patterns in the nation’s secondary schools, and examines the relationship with NAEP performance at grade 12.

The National Indian Education Study is a two-part study designed to describe the condition of education for American Indian/Alaska Native students by focusing on both their academic achievement (Part I) and educational experiences (Part II) in grades 4 and 8. The study was conducted by NCES at the request of the U.S. Department of Education, Office of Indian Education.

Results for groups of students

In addition to the overall performance of students in the nation and states, results are presented by different demographic characteristics. For example, NAEP results allow comparisons of the performance of various racial/ethnic groups over time and changes in the gap between White students and their minority peers. Performance by gender and by family income is also presented.

On the Web

More extensive NAEP results are available on the report release site at <http://nationsreportcard.gov>. In addition to providing information on the latest results and news regarding The Nation's Report Card, this website also includes results from NAEP background questions.

State/urban district snapshots

While the report cards provide a broad overview of the findings for the nation as well as individual states and urban districts, snapshots provide more details for each participating jurisdiction. Each state or urban district snapshot provides results on achievement levels and scale scores over time, student group performance, achievement gaps, and percentiles. These snapshots provide an in-depth look from a more local perspective and allow for comparisons to the nation.

Trial Urban District Assessment

The NAEP Trial Urban District Assessment (TUDA) is designed to explore the feasibility of using NAEP to report on the performance of fourth- and eighth-grade public school students at the district level. Students in the TUDA sample are also part of the state and national samples. For example, the data for students in the Chicago sample will be used to report results for Chicago, as well as Illinois and the nation. TUDA began in 2002 and since then results have been reported for 10 large urban districts in mathematics, reading, science, and writing. In 2009, the program expands to include additional districts.



The Nation's Report Card Reading 2007

State Snapshot Report
 National Assessment of Educational Progress (NAEP) assesses reading in two content areas in grade 4: reading
 Reading scale ranges from 0 to 600.

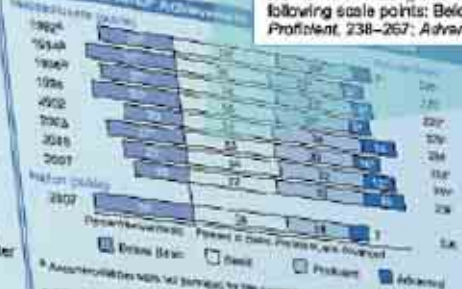
Scale score for fourth-grade students in Massachusetts in 2007 was 236, which was higher than their average score in 2005 (230) and higher than the average score in 1992 (226).^a

Other jurisdictions that participated in the 2007 NAEP assessment, students' average scale score in Massachusetts was 236, which was higher than the average score in 51 jurisdictions.^a

Students in Massachusetts who performed at or above the Proficient level was 49 percent in 2007. This percentage was greater than that in 2005 (44 percent) and was greater than that in 1992 (36 percent).

Students in Massachusetts who performed at or above the Advanced level was 81 percent in 2007. This percentage was greater than that in 2005 (76 percent) and was greater than that in 1992 (74 percent).

Percentages at NAEP Achievement Levels



Percentages at NAEP Achievement Levels and Average Score



^a Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 reading achievement levels correspond to the following scale points: Below Basic, 207 or lower; Basic, 208–237; Proficient, 238–267; Advanced, 268 or above.

NAEP Reporting Groups in Massachusetts, 2007

Reporting Group	Percent of students	Average score	Percent below Basic	Percent at Basic, Proficient, and Advanced	Percent Advanced
All students	50	233	21	79	44
Female	50	238	17	83	52
Male	25	241	13	87	56
White	8	211	43	57	19
Black	10	209	45	55	16
Hispanic	5	241	13	87	56
Alaska Native	0	0	0	0	0
National School Lunch Program	25	214	40	60	22
International School Lunch Program	73	243	11	89	59

Gaps Between Selected Groups

Students in Massachusetts had an average score that was 23 points higher than the average score of students in the National School Lunch Program.

RESOURCES

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A number of tools are available online to explore NAEP data for various student groups at the national, state, and urban district levels.

To access the NAEP Data Explorer, visit:

<http://nces.ed.gov/nationsreportcard/naepdata>

NAEP Data Explorer

The NAEP Data Explorer (NDE) provides access to both performance and background data, allowing numerous comparisons that may not be available through either the printed report or the results available online. This easy-to-use tool gives anyone the opportunity to explore the data that they find the most interesting.

The NDE is a rich and dynamic database of NAEP data and has three different versions, each allowing users to perform sophisticated searches and comparisons of data:

- **Main NAEP** contains data for eight different subject areas since 1990, and selected urban districts since 2002.
- **Long-term trend** has data for national mathematics and reading results from the 1970s.
- **High School Transcript Study** provides data for grade 12 assessment results from the 2005 math and science assessments for high school students who graduated in 2005.



“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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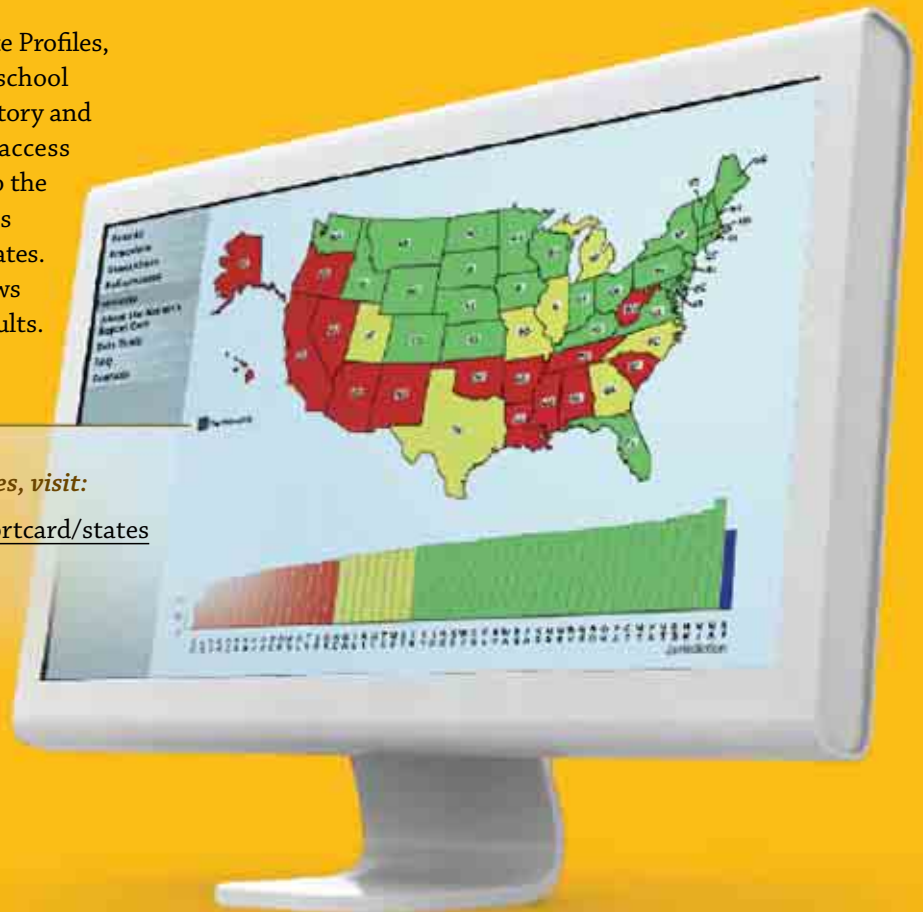
State Profiles

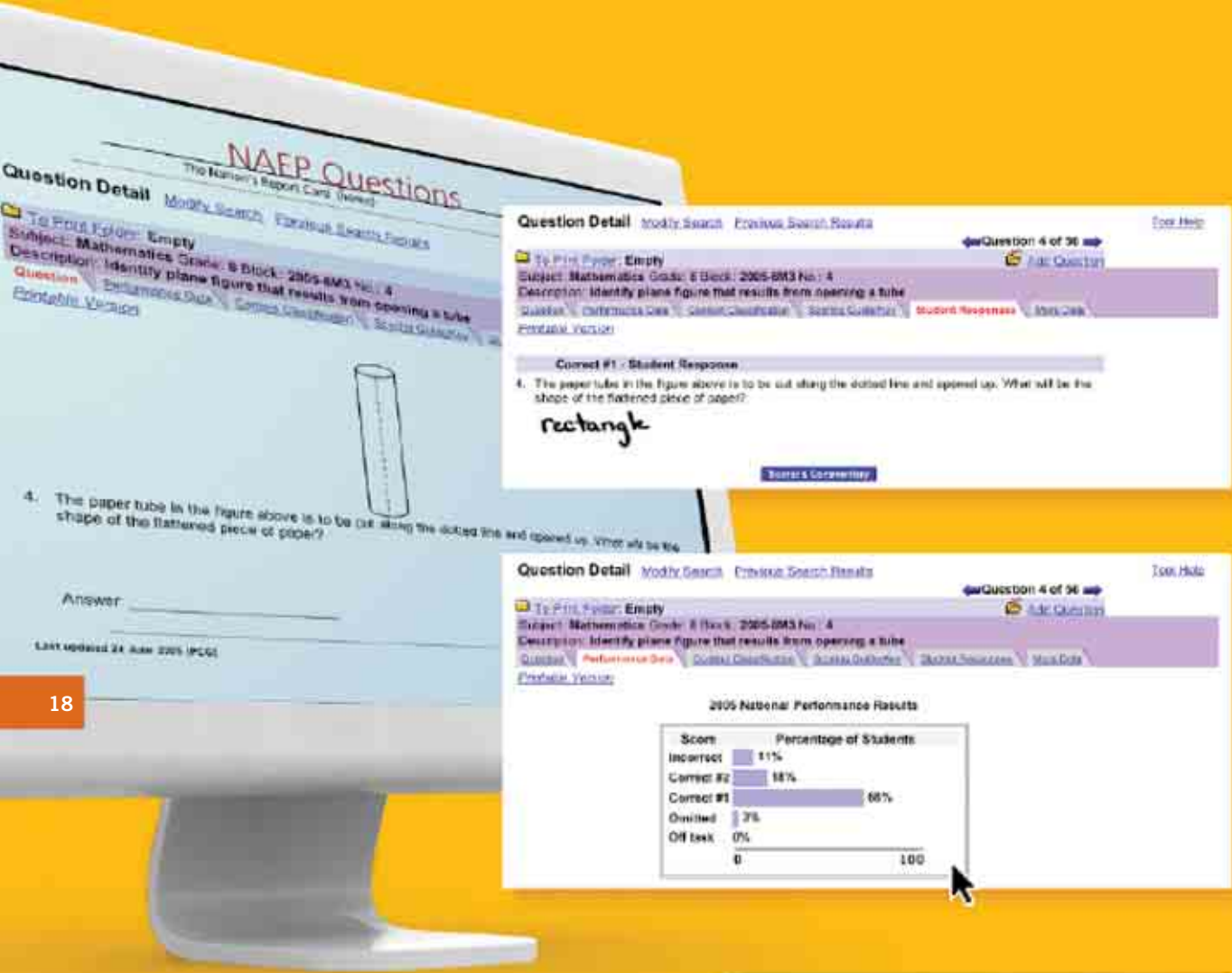
Key results are presented in the State Profiles, including each state’s student and school population and its NAEP testing history and results. The profiles provide easy access to all state NAEP results and links to the most recent report cards and maps comparing performance between states.

The State Comparisons Tool allows for sorting and comparing state results.

To access the NAEP State Profiles, visit:

<http://nces.ed.gov/nationsreportcard/states>





To access the NAEP Questions Tool, visit:
<http://nces.ed.gov/nationsreportcard/itmrls>

NAEP Questions Tool

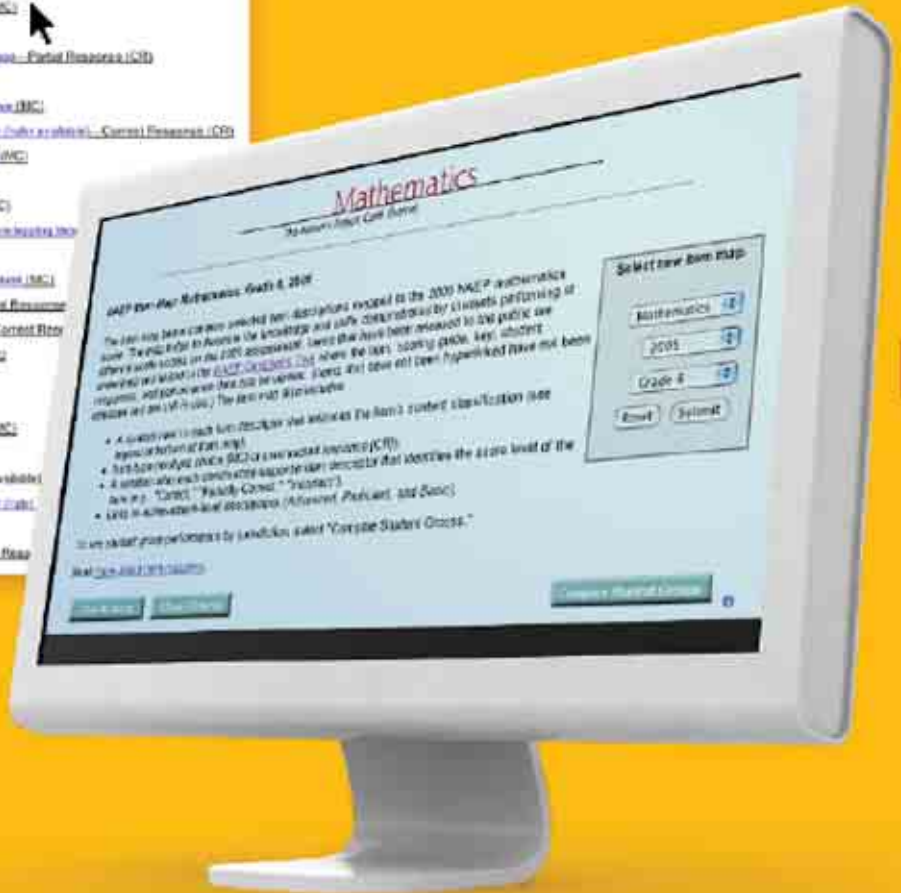
The NAEP Questions Tool provides access to more than 2,000 questions from NAEP assessments in nearly all subject areas, dating from 1990. Some teachers use the NAEP Questions Tool to create quizzes for their students. This tool allows them to see how their students compare to other students across the country.

The Questions Tool includes:

- examples of what students should know at grades 4, 8, and 12;
- examples of questions that probe students' knowledge of specific content areas;
- student responses showing scoring; and
- a way to examine student performance on a specific question by race/ethnicity, gender, and other student groupings.

To access the NAEP Item Maps, visit:

<http://nces.ed.gov/nationsreportcard/itemmaps/>



NAEP Item Maps

NAEP Item Maps help answer the question, “What does it mean for a student to be at *Basic*, *Proficient*, or *Advanced*, in terms of what they know and can do?” The NAEP Item Maps provide a context for understanding NAEP results by using questions from NAEP assessments to illustrate the knowledge and skills demonstrated by students performing at different achievement levels.

Interactive item maps are available for seven subjects: civics, economics, mathematics, reading, science, U.S. history, and writing. The printed reports also contain item maps in other subjects.



NAEP State Coordinators

NAEP is conducted in partnerships with states. Each state has the opportunity to have a full-time NAEP State Coordinator, the individual who serves as the connection between the state education agency and schools selected for the sample. The NAEP State Coordinator ensures the quality of the state's NAEP results, analyzes and reports the results, and coordinates state participation in review of NAEP assessment questions.

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
<http://nces.ed.gov/nationsreportcard/contactus.asp>

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