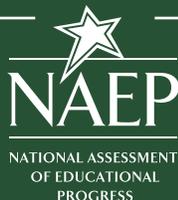


Measure Up

NAEP NEWS FOR THE SCHOOL COMMUNITY



IN THIS EDITION

WHAT'S HAPPENING IN THE WORLD OF NAEP?

FRAMEWORKS, ITEM DEVELOPMENT AND SCORING

NAEP AND INTERNATIONAL ASSESSMENT ADMINISTRATIONS

NATIONAL ASSESSMENT GOVERNING BOARD RESEARCH ON ACADEMIC PREPAREDNESS FOR COLLEGE

BEST PRACTICES GUIDE STRATEGIES FOR GRADE 12

WINTER 2015



WHAT'S HAPPENING IN THE WORLD OF NAEP?

THE NAEP 2015 PROGRAM

Between January 26 and March 6, 2015, the National Assessment of Educational Progress (NAEP) will be administered in mathematics, reading, and science at grades 4, 8, and 12. Each student will take NAEP in one format and one subject only, and NAEP representatives will bring all necessary materials and equipment to schools. Schools will only need to provide space for the assessment, desks or tables, and an adequate number of electrical outlets in the location (if necessary); schools will not need to provide Internet access.

Paper and Pencil Assessments

- Subjects: [mathematics](#), [reading](#), and [science](#)
- Grades: 4, 8, and 12
- Results of the 2015 assessment will be released in late 2015.

Pilot Technology-Based Assessments

- Subjects: mathematics, reading, and science
- Grades: 4, 8, 12
- Results: Information collected from the pilots will not be released but will be used to prepare for future assessments.

American Indian and Alaska Native students participating in the NAEP mathematics and reading assessments at grades 4 and 8 will also be included in the [National Indian Education Study \(NIES\)](#). NIES is administered as part of NAEP to allow more in-depth reporting on the achievement and experiences of American Indian/Alaska Native students in grades 4 and 8. Students will participate in NIES by completing the NAEP mathematics or reading assessment and a contextual questionnaire. Teachers and school administrators will also be asked to complete a questionnaire.

HOW NAEP WORKS: FRAMEWORKS, ITEM DEVELOPMENT AND SCORING

NAEP is based on content frameworks and test specifications developed by the [National Assessment Governing Board \(The Governing Board\)](#). [The National Center for Education Statistics \(NCES\)](#) oversees the development of the assessment items and scoring rubrics. The Governing Board and NCES play crucial roles in ensuring that NAEP assessments are carefully developed and of the highest quality.



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

Find us on:



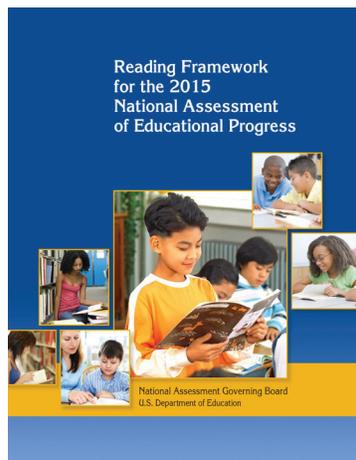
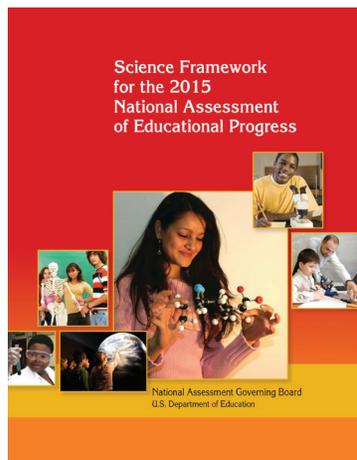
FRAMEWORK AND TEST SPECIFICATION DEVELOPMENT

The Governing Board is responsible for developing the framework and test specifications that serve as the blueprint for the assessment. The Governing Board utilizes panels of business representatives, the general public, local and state policymakers, curriculum specialists from state and local education agencies, practitioners, noted researchers in various disciplines, and educators. A steering committee for policy guidance, a planning committee for content expertise, and a technical advisory committee to deal with psychometric issues relevant to large-scale assessments produce the following documents:

- the content framework that defines the content and skills that should be covered; and,
- test specifications that describe how the assessment instrument should be constructed (i.e., percentage of items in each sub-domain, percentage of items by cognitive skill, test length, percentage of multiple choice and constructed response items).

The documents are reviewed by educators and the general public in multiple public forums. State curriculum specialists and testing directors also provide reviews. The Governing Board and the Governing Board assessment development committee approve the framework and assessment specifications.

HOW TO USE NAEP FRAMEWORKS



[NAEP frameworks](#) present and explain what experts in a particular subject area consider important. Each framework contains a subject outline that describes what students at grades 4, 8, and 12 should know and be able to do in

that NAEP content area. The frameworks also provide specific examples of challenging objectives and sample test questions to illustrate the content standards.

Use the NAEP frameworks to evaluate how classroom instruction and assessment focus on each cognitive level. Frameworks frequently provide research-based information on important higher-order skills that students should master at each grade level. The NAEP framework may assist teachers in expanding their level of instruction to include more complex problem-solving exercises that are developmentally appropriate.

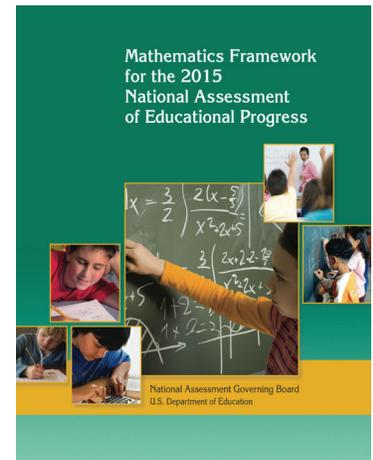
Use the frameworks, released NAEP constructed-response questions and their corresponding scoring guides as models of how to use innovative, challenging assessment practices that measure a given framework skill. The sample scoring guides may help teachers improve the way they score student responses.

The NAEP frameworks can also serve as a road map to help teachers and curriculum planners evaluate and revise current state or district standards. Read more about [NAEP frameworks](#) and [NAEP scoring](#).

ITEM DEVELOPMENT

NCES calls on many constituents to guide the preparation of NAEP test questions - that is, item development - and to review the assessment. This process begins by developing more than twice the number of needed test items. A standing committee of content experts, state and local education agency representatives, teachers, parents, and representatives of professional associations review the items. This is followed by a state item review where further feedback is provided. Items are then revised and submitted to the Governing Board assessment development committee for approval prior to field testing.

The field test is used to finalize the testing instrument. Items are revised based on student data, and the item set is subjected to another review following the same procedure previously described. A final set of test items is assembled for NCES and the Governing Board for review and approval.



ASSESSMENT

After the main assessment, the text questions are once again examined. In the rare cases where item results from a pilot assessment show a problem with a test item, that item is dropped from the assessment. The remaining items are secured for reuse in future assessments, with a subset of items publicly released.

NAEP ITEM SCORING PROCESS

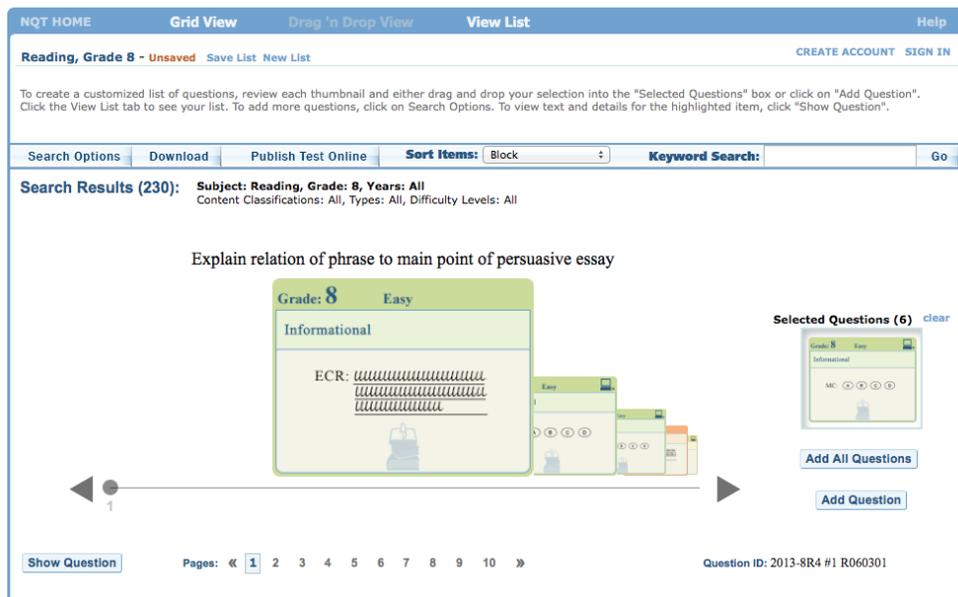
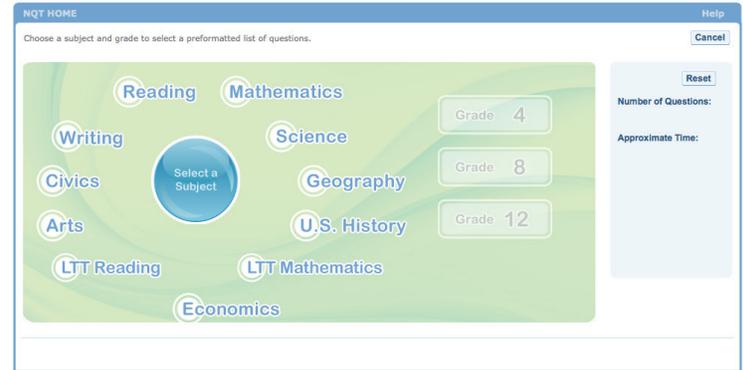
NAEP uses a combination of multiple-choice and constructed-response items (questions) in its assessment instruments. For multiple-choice items, students are required to select an answer from a list of options; responses are electronically scanned and scored. For constructed-response items, students are required to provide their own answers; responses are scanned and then scored by qualified and trained scorers using a scoring guide and an electronic image-processing and scoring system.

Scoring all NAEP items in an objective, consistent, and valid fashion is a key program goal. As outlined in the [summary of the NAEP item scoring process](#), there are a number of steps in the [NAEP scoring process](#), that occur during three general phases: scoring guide development and pilot, first scoring (or pre-calibration), and subsequent scoring on the final assessment. In all phases of scoring, quality control and validity checks are implemented in the scanning, processing, and scoring of multiple-choice items.

ENHANCED QUESTIONS TOOL

The [NAEP Questions Tool \(NQT\)](#), developed by NCES, is a database of more than 3,000 questions, in nine subject areas, from past assessments that have been released to the public.

The NQT can be used to supplement classroom instruction, provide additional insight into the content of the assessment, and show what students in your district, state and the nation know and can do. You can search NAEP questions, see actual student responses from NAEP assessments, test yourself with actual NAEP questions, or create your own customized assessment for your classroom.



NAEP AND INTERNATIONAL ASSESSMENT ADMINISTRATIONS

One of NCES' reporting objectives is to provide a comprehensive picture of how U.S. students perform in key subject areas. During the 2014-2015 school year, NCES will recruit for, administer, and release the results of [national and international assessments](#).

In the United States, nationally representative data on student achievement come primarily from two sources: NAEP, also known as The Nation's Report Card, and U.S. participation in international assessments such as the Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA).

PROGRAM FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) 2015



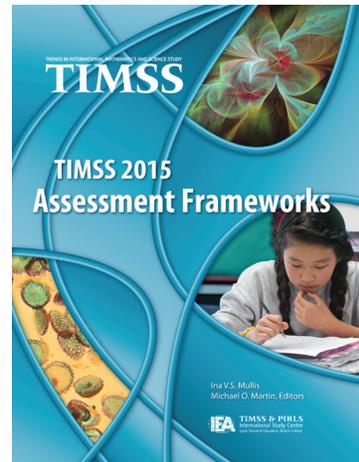
[PISA](#) is an international assessment that measures 15-year-old students' reading, mathematics, and science literacy every 3 years since 2000. PISA emphasizes functional skills that students have acquired as they near the end of compulsory schooling. PISA is coordinated by the [Organization for Economic Cooperation and Development \(OECD\)](#), an intergovernmental

organization of industrialized countries, and is conducted in the United States by NCES. PISA will be administered in fall 2015.

This year, PISA will assess students' mathematics, reading, and science literacy in more than 70 countries and educational jurisdictions. Science is the major subject area in 2015, as it was in 2006. PISA 2015 will also include a collaborative problem solving assessment and an optional financial literacy assessment. Fifteen-year-old students in the United States will also participate in the optional assessment.

PISA 2012 assessed students' mathematics, reading, and science literacy. [Results for PISA 2012 mathematics, reading, and science](#) were released in December 2013. [The PISA 2012 problem solving results](#) were released in April 2014. [The PISA 2012 financial literacy results](#) were released in July 2014.

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY (TIMSS) 2015



TIMSS is sponsored by the [International Association for the Evaluation of Educational Achievement \(IEA\)](#), an international organization of national research institutions and governmental research agencies, and managed in the United States by NCES.

TIMSS provides data on mathematics and science achievement of U.S. students compared to

students in other countries. TIMSS data have been collected every 4 years from students in grades 4 and 8 since 1995. [TIMSS 2015](#) will be its sixth administration, resulting in a 20-year trend measurement of 4th- and 8th-grade student achievement. Read a brief description of the study in the [TIMSS 2015 brochure](#).

In addition to the 4th- and 8th-grade assessments, TIMSS 2015 will include the third administration of TIMSS Advanced, data collected from students at grade 12, since 1995. [TIMSS Advanced 2015](#) assesses internationally final-year secondary students' achievement in advanced mathematics and physics. The study will also collect policy-relevant information about students, curriculum emphasis, technology use, and teacher preparation and training. Read a brief description of the study in the [TIMSS Advanced 2015](#).

[More information on TIMSS and related resources](#) are provided on the NCES website.

NATIONAL ASSESSMENT GOVERNING BOARD RESEARCH ON ACADEMIC PREPAREDNESS FOR COLLEGE

PREPAREDNESS RESEARCH

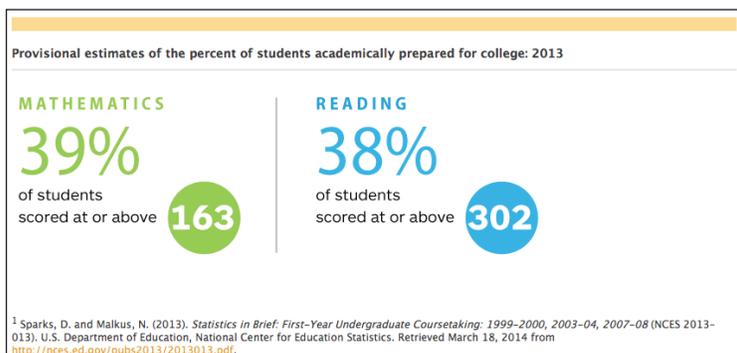
State and national leaders have recognized the importance of knowing whether our nation’s high school graduates are academically prepared for college or other types of education and training they need for their chosen career path. As the only source of nationally representative 12th-grade student achievement results, NAEP is in a unique position to provide this critical information. But can [NAEP reliably indicate seniors’ academic preparedness for college](#) and job training?

In 2004, the Governing Board began investigating the potential of the grade 12 NAEP tests in reading and mathematics to fulfill this need. In 2008, the Governing Board launched a preparedness research program.

12TH-GRADE PERFORMANCE

The results of the research studies indicate that students scoring at or above 163 on the NAEP mathematics scale and students scoring at or above 302 on the NAEP reading scale are likely to possess the knowledge, skills, and abilities in those subjects that would make them academically prepared for college. The figure below shows the estimated percentages of students scoring at or above these scores for mathematics and reading, respectively, in 2013.

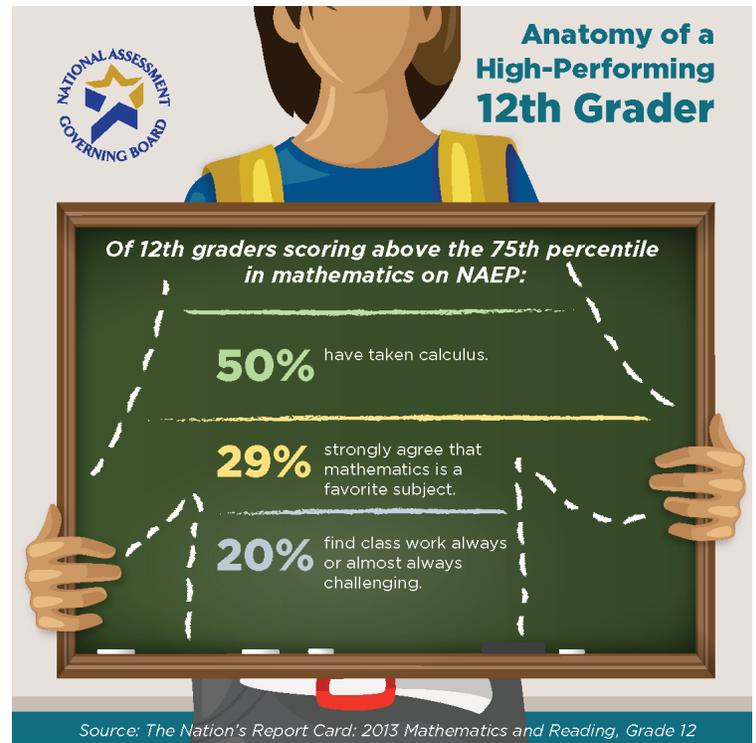
Research also shows that scoring above NAEP’s *Proficient* achievement level at grade 12 is an approximate measure for whether students are academically prepared for college reading and mathematics. See what kinds of [skills students at this level should have](#).



NOTE: At grade 12, the NAEP mathematics scale ranges from 0 to 300, and the NAEP reading scale ranges from 0 to 500.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2013 Mathematics and Reading Assessments.

ANATOMY OF A HIGH-PERFORMING STUDENT

Of the highest-performing 12th graders on NAEP mathematics, 50 percent have taken calculus. [NAEP infographics](#), including the one below on mathematics, show additional factors behind the achievement of the highest performing seniors in [mathematics](#) and [reading](#).



STUDENT AND EDUCATOR PERSPECTIVES

Watch this [video on student and educator perspectives](#) on what it means to be prepared for college and how our nation should address the issue of student preparedness.



BEST PRACTICES GUIDE STRATEGIES FOR GRADE 12

In October 2014, schools participating in grade 12 NAEP received customized versions of the *Best Practices Guide for Supporting Twelfth-Grade NAEP Participation* to help promote NAEP in their schools and selected sampled students. The *Best Practices Guide* provides resources and strategies to increase twelfth-grade student motivation and participation.

Public high schools used a variety of strategies to improve the participation and engagement of their seniors. Six strategies emerged (see graphic below) that were associated with a statistically significant difference in average student participation rates between schools that used the strategies and those that did not.

Six strategies emerged that were associated with a statistically significant difference in average student participation rates between schools that used the strategy and those that did not:

- 1 announce NAEP prior to assessment day to parents, students, and faculty;
- 2 recognize students that participated at a school awards assembly or other announcement;
- 3 hold a meeting with seniors to explain the importance of NAEP using the resources in the *Best Practices Guide*;
- 4 explain the importance of NAEP to teachers using the PowerPoint presentation and video in the *Best Practices Guide*;
- 5 invite teachers to attend assessment sessions; and
- 6 give students an item, such as tickets to a school event, yearbook, etc., for participating in NAEP.

SOURCE: National Assessment of Educational Progress (NAEP), 2015 Best Practices Guide for Supporting Twelfth-Grade NAEP Participation.

School leadership has the most influence on students and their participation, and perhaps even their motivation to try their best. In schools where leadership implemented strategies that demonstrated their commitment to NAEP, student participation was higher.

It appears that leadership at all levels had an impact on participation, from NAEP to states, states to districts and schools, and school leadership to teachers and students.

In general, the relationship between use of these strategies and average student participation rates held for small, medium, and large schools. The majority of public high schools used more than one of these six strategies. Average participation rates tended to increase with the number of strategies that were used (see graphic below), especially among large high schools.

Use of Strategies by High Schools

More is More!



Strategies from the *Best Practices Guide* have improved the overall student participation rate to 84 percent in 2013, an increase of 18 percentage points from the low of 66 percent in 2005.

NAEP 2013

Average Student Participation Rates



Average student participation rates increased with the number of strategies used

Student Participation Rates Using vs. Not Using Strategies

Medium-sized Schools

Announce

NAEP prior to assessment day



Recognize

students who participate



Meet

with students



Explain

importance of NAEP to teachers



Invite

teachers to attend assessment



Give

students an item



SOURCE: National Assessment of Educational Progress (NAEP), 2015 Best Practices Guide for Supporting Twelfth-Grade NAEP Participation.

ONLINE RESOURCES

WHAT'S HAPPENING IN THE WORLD OF NAEP

Mathematics assessment	http://nces.ed.gov/nationsreportcard/mathematics
Reading assessment	http://nces.ed.gov/nationsreportcard/reading
Science assessment	http://nces.ed.gov/nationsreportcard/science

HOW NAEP WORKS: FRAMEWORKS, ITEM DEVELOPMENT, AND SCORING

NAEP frameworks	http://www.nagb.org/publications/frameworks.html
NAEP scoring	http://nces.ed.gov/nationsreportcard/contracts/item_score.aspx
Enhanced Questions Tool	http://nces.ed.gov/nationsreportcard/nqt/

NAEP AND INTERNATIONAL ASSESSMENT ADMINISTRATIONS

NCES international assessments	http://nces.ed.gov/surveys/international
TIMSS 2015	http://nces.ed.gov/timss/timss15.asp
NAEP and International Assessment Activities calendar: 2014-2015	http://nces.ed.gov/nationsreportcard/subject/about/pdf/2014_2015_assessment_activities_calendar.pdf
Organization for Economic Cooperation and Development (OECD)	http://www.oecd.org/pisa/aboutpisa/
Program for International Student Assessment (PISA) 2015	http://nces.ed.gov/surveys/pisa/
Results for PISA 2012	http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014024
PISA 2012 Problem Solving: Proficiency Levels	http://nces.ed.gov/surveys/pisa/pisa2012/pisa2012highlights_11.asp
PISA 2012 Financial Literacy: Proficiency Levels	http://nces.ed.gov/surveys/pisa/pisa2012/pisa2012highlights_12.asp
International Association for the Evaluation of Educational Achievement (IEA)	http://timssandpirls.bc.edu/

NATIONAL ASSESSMENT GOVERNING BOARD RESEARCH ON ACADEMIC PREPAREDNESS FOR COLLEGE

NAEP as an indicator of students' academic preparedness for college	http://www.nationsreportcard.gov/reading_math_g12_2013/#/research
Technical Report: NAEP 12th Grade Preparedness Research	http://www.nagb.org/what-we-do/preparedness-research.html
NAEP mathematics scale	http://nces.ed.gov/nationsreportcard/mathematics/scale.aspx
NAEP reading scale	http://nces.ed.gov/nationsreportcard/reading/scale.aspx
Anatomy of a High-Performing 12th Grader: Mathematics	http://www.nagb.org/content/nagb/assets/images/what-we-do/databackpack/nagb-grade12-mathematics-infographic.png
Anatomy of a High-Performing 12th Grader: Reading	http://www.nagb.org/content/nagb/assets/images/what-we-do/databackpack/nagb-grade12-reading-infographic.png
Video on student and educator perspectives	http://www.youtube.com/embed/Mzh5-Rb8HT0

This publication was prepared for the National Assessment of Educational Progress by Westat under contract (ED-IES-13-C-0020) to the National Center for Educational Statistics, U.S. Department of Education.



[Get NAEP on the go with the NAEP Results mobile app!](#)