

Measure Up

Spring 2011

Assessment news for high school teachers



Did you know?

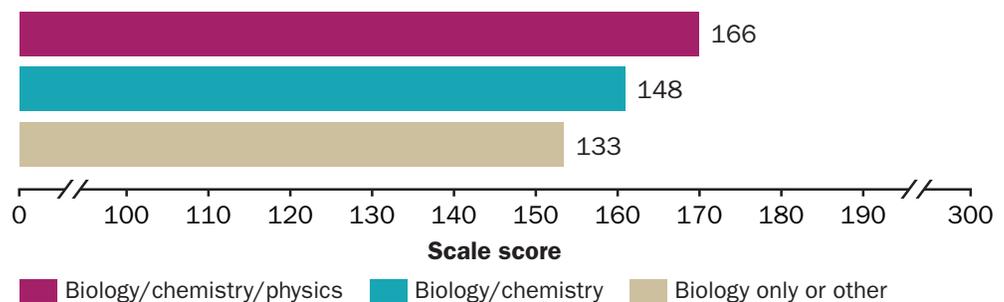
- The average reading scores in 2008 for 17-year-olds were higher than 2004 scores but not significantly different from scores in 1971.
- More than 12,000 12th-graders across the nation will participate in the NAEP 2012 economics assessment.
- More than 15,000 17-year-olds across the nation will participate in the NAEP long-term trend assessments in reading and mathematics.

NAEP Science Results Released

The results from the NAEP 2009 science assessments have been released. Nationally representative samples of more than 11,000 grade 12 public and private school students were assessed. For this first assessment based on the new science framework, the overall average student performance at grade 12 is represented by a score of 150 on the 0 to 300 scale, which falls at the *Basic* level. Performance at or above *Proficient* represents a score of 179 or higher on the NAEP science assessment. About one-fifth of twelfth-graders performed at or above the *Proficient* achievement level, and 60 percent of twelfth-graders performed at or above the *Basic* level.

As part of the 2009 science assessment, twelfth-grade students were asked what science courses they had completed or were taking currently. Their responses were collapsed into three categories to create the 2009 science coursetaking results presented in the graph below. Twelfth-grade students who had taken biology, chemistry, and physics scored higher (166) on average than students who had taken just biology and chemistry (148), and both groups scored higher than those who had taken just biology or other science courses (133).

Average scores in NAEP science at grade 12, by coursetaking category: 2009



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Mathematics Assessment.

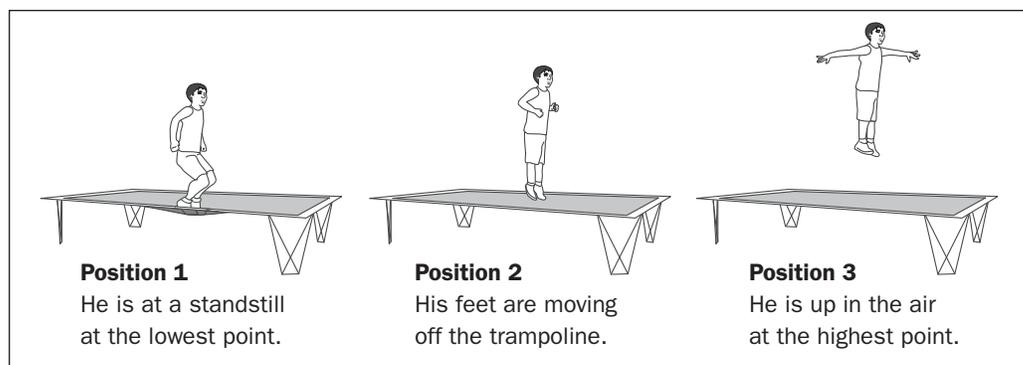


NAEP Science Items

Because NAEP assessments cover a breadth of content in each subject area and include more questions than any one student could answer, each student takes just a portion of the assessment. The 179 questions included in the twelfth-grade science assessment were divided into 11 sections, each containing between 16 and 18 questions depending on the balance between multiple-choice and constructed-response questions. Each student responded to two 25-minute sections.

Sample Question

The question below refers to the following diagram, which shows a boy jumping on a trampoline.



For more science questions, visit the NAEP Questions Tool at <http://nces.ed.gov/nationsreportcard/itmrlsx>.

NAEP item maps help illustrate the knowledge and skills demonstrated by students performing at different scale scores on the 2009 assessments.

To view the NAEP item map for the grade 12 science assessment, visit <http://nces.ed.gov/nationsreportcard/itemmaps/>.

Which statement best explains the energy transfer as the boy moves from Position 2 to Position 3?

- A. The boy's kinetic energy is transferred to the boy's gravitational potential energy.
- B. The boy's gravitational potential energy is transferred to the boy's kinetic energy.
- C. The boy's gravitational potential energy is transferred to the kinetic energy of the air molecules around him.
- D. The kinetic energy of the air molecules around the boy is transferred to the boy's kinetic energy.

Forty-four percent of twelfth-graders answered the question correctly (Choice A). The most common incorrect answer (Choice B), which was selected by 29 percent of the students, represents a conceptual misunderstanding of how energy is transferred between kinetic energy and gravitational potential energy.

Percentage of twelfth-grade students in each response category: 2009

Choice A	Choice B	Choice C	Choice D	Omitted
44	29	17	10	1

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

NAEP Long-Term Trend Assessment

The existence of the two national assessment programs—long-term trend NAEP and main NAEP—makes it possible to

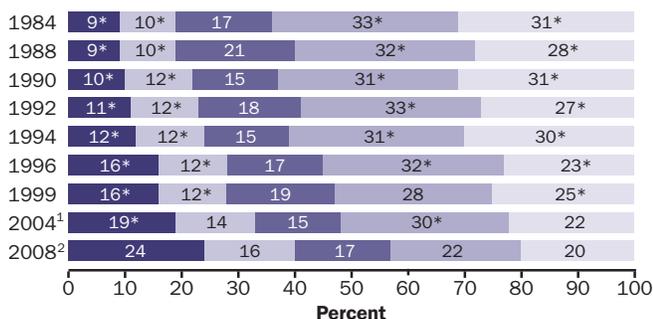
- measure student progress over time, and
- develop new assessment instruments that reflect current educational content and assessment methodology as educational priorities change.

The NAEP long-term trend assessments were first administered in reading in 1971 and in mathematics in 1973. During the 2007-2008 school year, samples of 9-, 13-, and 17-year-old students throughout the nation participated in long-term trend assessments in reading and mathematics.

The charts below show how 17-year-olds who took the 2008 long-term trend assessments responded to two questions on the student questionnaire.



How often do you read for fun on your own time?



Never or hardly ever

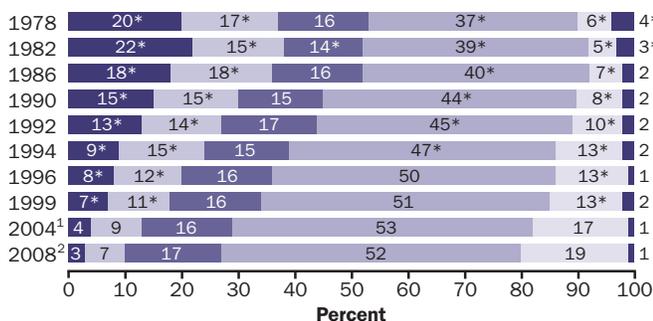
A few times a year

Once or twice a month

Once or twice a week

Almost every day

Counting what you are taking now, have you ever taken any of the following mathematics courses?



Pre-algebra or general mathematics

First-year algebra

Geometry

Second-year algebra or trigonometry

Pre-calculus or calculus

Other

* Significantly different ($p < .05$) from 2008.

¹ Original assessment format. Results prior to 2004 are also from the original assessment format.

² Revised assessment format.

NOTE: The "pre-algebra or general mathematics" response category includes "pre-algebra or introduction to algebra" and "general, business, or consumer mathematics" and students who did not take any of the listed courses. The "other" response category includes students for whom the highest-level mathematics course could not be determined. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1978-2008 Long-Term Trend Mathematics Assessments.

The NAEP long-term trend mathematics assessment was designed to measure students'

- knowledge of basic facts,
- ability to carry out numerical algorithms using paper and pencil,
- knowledge of basic measurement formulas as they are applied in geometric settings, and
- ability to apply mathematics to daily living skills (such as those related to time and money).

The percentage of 17-year-olds who reported that they read for fun "almost every day" decreased from 31 percent in 1984 to 20 percent in 2008. The percentage of 17-year-olds taking pre-calculus or calculus increased from 6 percent in 1978 to 19 percent in 2008.

What Is The Nation's Report Card?

The Nation's Report Card informs the public about the academic achievement of elementary and secondary students in the United States. Report cards communicate the findings of the National Assessment of Educational Progress (NAEP), a continuing and nationally representative measure of achievement in various subjects over time.

Since 1969, NAEP assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and other subjects. By collecting and reporting information on student performance at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement and relevant variables is collected. The privacy of individual students and their families is protected, and the identities of participating schools are not released.

This publication was prepared for the National Assessment of Educational Progress by Westat under contract (ED-07-CO-0083) to the National Center for Education Statistics, U.S. Department of Education.

32092.0311.8540540301

If you want to...

Visit...

Learn more about NAEP results	The Nation's Report Card at http://nationsreportcard.gov
Learn about the NAEP long-term trend assessment	The Nation's Report Card at http://nationsreportcard.gov/ltt_2008/ltt0016.asp
View NAEP data for a particular state or contact your NAEP State Coordinator	The National Center for Education Statistics at http://nces.ed.gov/nationsreportcard/states
Access specific results for a grade level, subject, jurisdiction, and/or demographic groups	The NAEP Data Explorer at http://nces.ed.gov/nationsreportcard/naepdata
Find information regarding the types of questions used on NAEP assessments or view subject-specific questions	The NAEP Questions Tool at http://nces.ed.gov/nationsreportcard/itmrlsx
Download a Sample Questions booklet that contains sample test questions for the upcoming and previous assessments	The National Center for Education Statistics at http://nces.ed.gov/nationsreportcard/about/booklets.asp
Learn more about NAEP frameworks and how policy is drafted for each NAEP assessment	The National Center for Education Statistics at http://nces.ed.gov/nationsreportcard/frameworks.asp
Offer a comment or suggestion on NAEP	The National Center for Education Statistics mailbox at http://nces.ed.gov/nationsreportcard/contactus.asp