



NEWS RELEASE

Embargoed: Hold for release until Wednesday, Apr. 13, 2011, at 10 a.m. (EST)

CONTACT: Stephaan Harris, (202) 357-7504, Stephaan.Harris@ed.gov

National Study Links Challenging High School Curriculum and More Science to Higher Achievement *Trends Show More Rigorous Course-taking Among All Racial/Ethnic Groups Girls Lag in Taking Key Science Courses*

Washington, D.C. – A more rigorous curriculum, with higher-level math and science courses, is a key to greater achievement in high school, according to *America's High School Graduates*, the 2009 National Assessment of Educational Progress (NAEP) High School Transcript Study.

The study found an association between challenging coursework and higher math and science scores on the 12th Grade NAEP assessment. It also revealed that science, in particular, was the missing link for many students who fell short of a rigorous curriculum. In addition, science courses were missing more often for girls than for boys. The study showed more minority students taking higher-level courses, although racial/ethnic gaps in course-taking persist. Further, nearly two-thirds of graduates who attained a rigorous curriculum took algebra I before high school.

The study, which is administered by the National Center for Education Statistics, analyzed transcripts from a representative sample of 37,700 public and private high school graduates nationwide to show what courses they are taking, how many credits they earn and their grade point averages (GPA). The study examined the relationship between course-taking patterns and student achievement as measured by the NAEP assessments using a subsample of approximately 30,100 of the graduates who also took NAEP. The 2009 data can be compared to results from 1990, 1994, 1998, 2000 and 2005 transcript studies, and are collected from students' actual academic transcripts. The report classifies student course-taking by three curriculum levels:

- **Standard:** At least four credits of English and three credits each in social studies, math and science.
- **Midlevel:** Includes all of the standard requirements plus specifically requires students to complete geometry and algebra I or II; at least two courses from biology, chemistry and physics; and at least one credit of a foreign language.
- **Rigorous:** Includes all of the midlevel requirements plus an additional credit in math (pre-calculus or higher); courses in biology, chemistry and physics; and at least three credits in a foreign language.

The study found that graduates completing a rigorous curriculum had average NAEP scores at the *Proficient* level, whereas graduates who completed a midlevel or standard curriculum had average NAEP scores only at the *Basic* level. *Basic* denotes partial mastery of the knowledge and skills that are fundamental for proficient work at a given grade. *Proficient* represents solid academic performance and competency over challenging subject matter. *Advanced* signifies superior achievement.

Notably, graduates in the top math GPA quarter (3.23–4.00) earned an average NAEP math score at the *Proficient* level. Taking algebra I before high school seemed to have a positive impact because students whose first high school math course was geometry scored 31 points higher on the NAEP math assessment than graduates who started high school math in algebra I.

-more-

The study found that more than any other single subject, science was the key to reaching a higher curriculum level. Science was the requirement most often missing for students who completed less than a standard curriculum: Overall, 39 percent of these students lacked only the required three credits of science. In 2009, more than half of Black graduates—52 percent—and 50 percent of Hispanic graduates who did not complete a standard curriculum were missing only the science requirements needed to attain a standard curriculum.

However, progress is being made by minority students in regard to taking more rigorous courses. Black graduates showed a significant improvement, with the percentage of graduates completing a standard curriculum or better increasing dramatically, from 40 percent in 1990 to 79 percent in 2009. Improvements were also made by Asian, Hispanic and White students.

“These findings demonstrate a clear connection between course rigor and achievement, and they argue strongly for students to take a more challenging curriculum in our high schools,” said David P. Driscoll, chair of the National Assessment Governing Board, which sets policy for NAEP. “Rigor in high school is closely linked to success afterwards, and this study confirms that we need higher secondary standards across the board. In particular, we need stronger requirements in math and science.”

Other highlights of the High School Transcript Study:

- **More rigorous coursework.** More graduates are completing challenging curriculum levels. The percentage of graduates completing a midlevel curriculum increased from 26 percent in 1990 to 46 percent in 2009. The percentage completing a rigorous curriculum increased from 5 percent in 1990 to 13 percent in 2009.
- **Racial/ethnic gaps.** Students in all racial/ethnic groups completed more challenging curriculum levels in 2009 than in 1990. During this period, the percentage of Black and Hispanic graduates attaining a rigorous curriculum level increased 4 percentage points and 6 percentage points, respectively, with Asian/Pacific Islanders increasing 16 percentage points.
- **Gender differences.** In 2009, female graduates generally scored lower in math and science on NAEP than males completing the same curriculum. Nevertheless, a greater percentage of female graduates completed a midlevel or rigorous curriculum than in previous years—and female graduates continue to earn higher average GPAs than males (3.10 compared to 2.90).
- **Level GPAs.** Overall, GPAs appear to be leveling off after rising for more than a decade. GPAs increased from 2.68 in 1990 to 3.00 in 2009, but they have not increased significantly from 2005. GPAs were not adjusted for Advanced Placement, International Baccalaureate, and other honors classes.
- **More credits.** High school students are earning more credits. The average credits earned by high school graduates increased from 23.6 credits in 1990 to 26.8 credits in 2005 to 27.2 credits in 2009.

When reviewing the transcript study, readers should note that it is not intended to explain the reasons for the findings. An increase in credits, for instance, could be due to students taking more summer courses, online courses or secondary courses before high school.

America's High School Graduates, Results of the 2009 NAEP High School Transcript Study is available at www.nationsreportcard.gov. Additional information is available at www.nagb.org/high-school-transcript.

#####

The National Assessment Governing Board is an independent, bipartisan board whose members include governors, state legislators, local and state school officials, educators, business representatives, and members of the general public. Congress created the 26-member Governing Board in 1988 to oversee and set policy for NAEP.

The National Assessment of Educational Progress (NAEP) is the only nationally representative, continuing evaluation of the condition of education in the United States. It has served as a national yardstick of student achievement since 1969. Through The Nation's Report Card, NAEP informs the public about what America's students know and can do in various subject areas, and compares achievement between states, large urban districts, and various student demographic groups.