

National Mathematics Advisory Panel: Strengthening Math Education Through Research

August 2007

"You've got to know math if you're going to compete in this 21st-century world."

– President George W. Bush

"It is more important than ever that our students receive solid math instruction in the early grades to prepare them to take and pass algebra and other challenging courses in middle and high school."

– U.S. Secretary of Education Margaret Spellings

On April 18, 2006, President Bush issued an Executive Order creating the National Mathematics Advisory Panel. The Panel will advise the President and the Secretary of Education on the best use of scientifically based research to advance the teaching and learning of mathematics.

- Modeled after the influential National Reading Panel, the National Math Panel will examine and summarize the scientific evidence related to the teaching and learning of mathematics, with a specific focus on preparation for and success in learning algebra.
- The National Math Panel will issue two reports containing policy recommendations on how to improve mathematics achievement for all students.

The National Math Panel is comprised of 19 expert panelists and five ex officio members.

- The National Math Panel is chaired by Larry Faulkner, President of the Houston Endowment and President Emeritus of the University of Texas at Austin. Other panelists:
 - Camilla Persson Benbow, National Math Panel Vice Chair, Dean of Education and Human Development, Peabody College, Vanderbilt University
 - Deborah Loewenberg Ball, Dean, School of Education and William H. Payne Professor, University of Michigan
 - A. Wade Boykin, Professor and Director of the Graduate Program, Department of Psychology, Howard University
 - Douglas Clements, Professor, Learning and Instruction, University at Buffalo, State University of New York
 - Susan Embretson, Professor of Psychology, Georgia Institute of Technology
 - Francis "Skip" Fennell, Professor of Education, McDaniel College; President, National Council of Teachers of Mathematics
 - Bert Fristedt, Professor, School of Mathematics, University of Minnesota
 - David Geary, Curators' Professor, Department of Psychological Sciences, University of Missouri at Columbia
 - Russell Gersten, Executive Director, Instructional Research Group; Professor Emeritus, College of Education, University of Oregon
 - Tom Loveless, The Herman and George R. Brown Chair, Senior Fellow, Governance Studies, The Brookings Institution
 - Liping Ma, Senior Scholar for the Advancement of Teaching, Carnegie Foundation
 - Valerie Reyna, Professor of Human Development and Professor of Psychology, Cornell University
 - Wilfried Schmid, Dwight Parker Robinson Professor of Mathematics, Harvard University
 - Robert Siegler, Teresa Heinz Professor of Cognitive Psychology, Carnegie Mellon University
 - James H. Simons, President of Renaissance Technologies Corporation; former Chairman, Mathematics Department, State University of New York at Stony Brook

- Sandra Stotsky, Professor of Education Reform, University of Arkansas; Member, Massachusetts State Board of Education; Former Senior Associate Commissioner, Massachusetts Department of Education
 - Vern Williams, Math Teacher, Longfellow Middle School, Fairfax, Virginia
 - Hung-Hsi Wu, Professor of Mathematics, University of California at Berkeley
- Ex officio members:
 - Irma Arispe, Assistant Director for Life Sciences and Acting Assistant Director for Social and Behavioral Sciences, White House Office on Science and Technology Policy
 - Dan Berch, Associate Chief, Child Development and Behavior Branch, Director, Mathematics and Science Cognition and Learning Program, National Institute of Child Health and Human Development, National Institutes of Health
 - Joan Ferrini-Mundy, Director, Division of Elementary, Secondary, and Informal Education, Directorate for Education and Human Resources, National Science Foundation
 - Raymond Simon, Deputy Secretary, U.S. Department of Education
 - Grover "Russ" Whitehurst, Director, Institute of Education Sciences, U.S. Department of Education
 - All meetings of the National Math Panel are open to the public and are announced in the Federal Register.

The National Math Panel issued the Preliminary Report to the President and Secretary Spellings on March 8, 2007. A final report will be issued no later than February 28, 2008. Topics to be addressed by the Panel include:

- The critical skills and skill progressions needed to learn algebra and prepare for more advanced courses;
- The proper role and design of standards and assessment in promoting student competence in math;
- The processes by which students of various abilities or backgrounds learn math;
- How the training, selection, placement and professional development of math teachers affect student achievement;
- Instructional practices, programs and materials that have proven effective in improving math learning; and
- Research needs in support of math education.

The need for action is clear. To gain an edge in the 21st century global economy, America's high school graduates need solid math skills, whether proceeding to college or going into the workforce. The rest of the world is "gathering strength" and forcing us to catch up.

- "Tomorrow's jobs will go to those with education in science, engineering, and mathematics and to high-skill technical workers."—*The Looming Workforce Crisis*, National Association of Manufacturers, 2005.
- "The scientific and technical building blocks of our economic leadership are eroding at a time when many other nations are gathering strength."—*Rising Above the Gathering Storm*, National Academies, 2005.
- Students who take advanced mathematics courses in high school are far more likely to earn a bachelor's degree in college (College Board).
- Students from low-income families who acquire strong math skills by the 8th grade are 10 times more likely to finish college than peers of the same background who do not (National Center on Education Statistics).
- America's 15-year-olds ranked 24th out of 29 developed nations in mathematics literacy and problem-solving, according to the 2003 Programme for International Student Assessment (PISA) test.
- Less than half of America's high school graduates are prepared for college-level math and science (ACT).

The National Math Panel is part of President Bush's agenda to strengthen math education in order to give our students the skills to succeed in the 21st century. In August 2007, Congress passed the America COMPETES Act, which includes \$95 million in FY 08 to help states implement the National Math Panel's recommendations. Key to this effort are two new programs:

- **Math Now for Elementary School Students**—Modeled after the innovative Reading First program, it would utilize the National Math Panel's recommendations to promote scientifically based practices in math instruction so students are prepared for success in algebra and more advanced math in middle and high school.
- **Math Now for Middle School Students**—Similar to the Striving Readers Initiative, it would diagnose older students' deficiencies and provide intensive, systematic instruction to enable them to take and pass algebra.