

AMTNJ News

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College Board Responds to President Bush's State of Union Address

Competitiveness Initiative Calls for Training 70,000 AP Math and Science Teachers

Legislation recently introduced in the U.S. Senate and U.S. House of Representatives, and included in the fiscal year 2007 U.S. Department of Education budget, calls for a renewed focus on Advanced Placement math and science courses. And President George W. Bush, while outlining his Competitiveness Initiative in his State of the Union, called for training 70,000 math and science teachers to teach AP math and science courses.

Increasing rigorous math and science education in the United States will significantly boost our high school graduates' math and science proficiency. It will open many career opportunities for young people and benefit the nation as a whole.

Today, only 32 percent of American undergraduates are earning degrees in science and engineering, compared to 66 percent of undergraduates in Japan, 59 percent in China, and 36 percent in Germany. In 2004, China graduated 600,000 engineers, India graduated 350,000, and the United States graduated 70,000. Research indicates that AP math and science courses allow American students to achieve a level of proficiency that exceeds that of students from all other nations.

AP math and science students are much more likely than other students to major in science, technology, engineering, or mathematics (STEM) disciplines than students whose first exposure to college-level math and science courses is in college.

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President's Message

by Deborah L. Ives

Mathematics and science education has been at the forefront of the news in the 2005-2006 school year. Momentum has been building for increased federal support since the release of the report, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," in October 2005. Published by the National Academies, a research group chartered by Congress, the report's recommendations focused on the "top ten actions that federal policymakers could take to enhance the science and technology enterprise so that the United States can successfully compete, prosper, and be secure in the global community of the 21st century?" (See www.nationalacademies.org/education; Executive Summary pg. ES-1). The report underscored the critical need for recruitment of new teachers, increased

support for professional development for all mathematics and science teachers, and an emphasis on encouraging students to take advanced placement courses in mathematics and science.

In this age of globalization, reevaluating how we can best improve the teaching and learning of all students is an important endeavor. This key focus was further elaborated on at the start of the year as the "American Competitiveness Agenda" was outlined in the 2006 State of the Union Address. The education initiative echoed the call for increasing our young citizens' ability to succeed in a competitive world. Towards this end, the U.S. Department of Education released a report titled, "Meeting the Challenge of a Changing World: Strengthening Education for the 21st Century 2006" (See www.ed.gov/teachers/how/prep/higher/competitiveness.html). Key recommendations, focusing primarily on mathematics and science,

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College Board Response

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In the nation overall:

- only 6.7 percent of bachelor's degrees are earned in mathematics and engineering
- only 1.4 percent of bachelor's degrees are earned in physical sciences
- only 3.7 percent of bachelor's degrees are earned in computer and information sciences
- only 4.7 percent of bachelor's degrees are earned in biological/life sciences

In addition, strong correlations exist between taking AP math and science (and all other AP subjects) and college completion. Sixty-one percent of students who've taken two AP courses in high school will graduate from college in four years or less. Forty-five percent of students who've taken one AP course will graduate from college in four years or less. Only 29 percent of students who haven't taken an AP course will graduate in four years or less.

But we can only make claims that AP is impacting college completion rates by comparing students with similar

academic and socioeconomic profiles. When we only compare students who are academically similar, it is clear that AP courses of sufficient quality to produce exam grades of 3 or higher have the power to impact a student's ability to persist in college and obtain a degree. For this reason, it is essential that the new AP courses offered nationwide are coupled with adequate preparation of students in the years prior to AP. A successful AP expansion initiative will focus as much attention on student and teacher preparation in grades 6–11 as it does on student and teacher support in the twelfth-grade AP course.

Davy Addresses AMTNJ in January

Lucille E. Davy, NJ Acting Commissioner of Education and former Mathematics teacher, delivered a keynote address at the January 26 AMTNJ Conference *Preparing for Assessments In Grades 5,6, & 7*. Davy was appointed Acting Commissioner of Education on September 12, 2005. As Commissioner, she oversees the 2,400 public schools in the state, as well as the many initiatives the department continues to create, foster, and maintain, including the pilot run of a new student-level database and the Abbott Secondary Initiative, an effort to strengthen the academic performance of Abbott district students in grades six through 12.

Davy is a lifelong New Jersey resident and a graduate of Livingston High School. She graduated cum laude from Seton Hall University with a bachelor degree in mathematics, and she received her law degree from the University of Notre Dame Law School. Commissioner Davy was admitted to the New Jersey Bar and Federal District Court in 1980. Davy, whose father was a longtime special education teacher in Livingston, received her teacher certification in mathematics in 1978, and has taught at both the local and collegiate levels.



Picture left to right, are AMTNJ President Deborah L. Ives, Acting Commissioner Davy and Cresenda Jones, Workshop Chairperson for the day.

Volunteers needed for AMTNJ

Get involved and be part of an exciting mathematical community! Opportunities range from becoming a committee chair to volunteering for one hour at a conference. If you have already submitted a form, please resubmit due to the technical difficulties we were experiencing on our website. Please visit our website at www.amtnj.org to download a volunteer form or contact Pat Knutowicz, Volunteer Registry Chair, AMTNJ, PO Box 7, Glassboro, NJ 08028.

AMTNJ CALENDAR of EVENTS

May 12	Spring Regional Conference North Kean University, Union
May 17	Spring Regional Conference Central Stockton University, Pomona
May 19	Spring Regional Conference South The College of New Jersey, Ewing
Oct. 19-21	NCTM Eastern Regional Conference Atlantic City
Nov. 9-10	NJEA Convention Sessions and Booth Atlantic City

American Diploma Project and New Jersey Standards

Governor Jon Corzine and Acting Commissioner Lucille Davy are committed to New Jersey's participation in the American Diploma Project (ADP) Network. The ADP Network is comprised of approximately 22 states, supporting each other in the making of policy, legislative, and programmatic changes necessary to help all students graduate from high school ready for the workplace or further education.

Currently, of U.S. students who graduate from high school, studies have found that only half are prepared for college-level reading, and 40 percent are prepared for college-level mathematics. According to a poll undertaken by Achieve, Inc., as many as two in five recent high school graduates say that there are gaps between the education they received in high school and the overall skills, abilities, and work habits that are expected of them in today's in colleges and work force.

New Jersey's entire draft ADP Network

Action Plan is available electronically at <http://www.achieve.org/achieve.nsf/StateProfiles-NJ?OpenForm>

One of the policy and action steps included in New Jersey's plan is to align high school standards and assessments with the knowledge and skills required for success after high school.

- Work with higher education and business to endorse ADP benchmarks.
- Align New Jersey's core curriculum standards with ADP benchmarks.
- Convene councils of teachers and supervisors of mathematics, language arts and sciences to discuss ADP benchmarks and need for high school reform.

With ADP benchmarks being endorsed by the New Jersey higher education and business communities as we speak, the actual alignment of New Jersey's Core Curriculum Content Standards with

ADP benchmarks (available at [http://www.achieve.org/dstore.nsf/Lookup/ADPreport/\\$file/ADPreport.pdf](http://www.achieve.org/dstore.nsf/Lookup/ADPreport/$file/ADPreport.pdf)) is the next critical step. Achieve, Inc. has provided us with a side-by-side comparison of the ADP Benchmarks with the New Jersey Core Curriculum Content Standards in both Mathematics and Language Arts Literacy. With this side-by-side comparison as a starting point, the plan is to create a draft revision of the high school portion of the Core Curriculum Content Standards in both Mathematics and Language Arts Literacy on March 24, 2006. These drafts will be distributed to content-specific groups (e.g., Association of Mathematics Teachers of New Jersey). In May, the resulting draft will be reviewed by Achieve, Inc. We shall then have an opportunity to make refinements in the original drafts. In September or October of 2006, the resulting draft Mathematics and Language Arts Literacy Standards for grades 9-12 will be widely distributed for public review and comment.

AMTNJ Website Reconstruction

Due to recurring difficulties and hardware failures with our host, AMTNJ has contracted a new Internet Service Provider (ISP) and will soon be completely operational.

As a result of hardware failures, all information submitted to AMTNJ prior to February 2006 was lost. We appreciate your patience as the website is reconstructed. If you submitted a volunteer form, the data was lost. Please resubmit a volunteer request using the information now available at www.amtnj.org.

Montclair State University Announces Maletsky Retirement

Montclair State University has announced the retirement of Evan M. Maletsky after a career that spans fifty years of teaching, writing and speaking. Dr. Maletsky began his teaching in 1956 at Pascack Valley Regional School. He joined Montclair State University and has been teaching there since 1957. Through the years he has influenced countless mathematics teachers and their students throughout New Jersey, the United States and Canada. In 2002, the MAA-NJ awarded him the Distinguished Teaching Award.

The university will honor Dr. Maletsky with a dinner celebration on Saturday, June 3. For more information, contact Dr. Helen M. Roberts, chairperson, Department



Former AMTNJ Scholarship Winners: Where are They Now?

Former AMTNJ Scholarship recipient Nancy Jarger loves teaching Algebra and Geometry at Millburn High School and cannot imagine doing anything else!

When we asked Nancy Jarger to share some of her thoughts with AMTNJ membership, she gladly responded with a report of her first few months as a new teacher. "I have always wanted to be a teacher, and now I finally have the chance to do what I love." Nancy told us. "Of course, my first year of teaching has been overwhelming. Graduating from college alone has been a major change in my life, and now just a few months later, I am standing in front of a classroom of students only a couple of years younger than me. However, I have received such a warm welcome at Millburn from the administration, teachers, students, and parents. I absolutely love my job, and I honestly cannot imagine myself doing anything else."

Nancy graduated in May 2005 from The College of New Jersey. We asked her about her job search: "I attended many interviews through the education

on-campus recruitment program at TCNJ. I was mostly interested in school districts near my house, since I planned on living at home for a few years after graduation. I got called back for second interviews at several schools, and I just had a great feeling about Millburn. I was interviewed by the vice-principal and three other math teachers there. There was such a friendly, enthusiastic dynamic in the room, and I wanted to be part of that. The school had so much to offer, and the teachers in the math department could not have been more helpful during the whole job search process. The vice-principal offered me a job later that evening, and everything just fell into place after that."

Nancy received the AMTNJ Scholarship for the 2001-2002 school year, her first year at TCNJ. She is now an AMTNJ member and participates in activities. "I attended the AMTNJ conference in October, and I have already used some of the ideas that I picked up there. I also was able to establish some contacts with textbook companies at the time."

have committed to participation in the America Diploma Project Network. This comprehensive plan has an overarching goal of helping all students graduate from high school ready for the workplace or college. As such, the NJ Standards in Mathematics and Language Arts Literacy Grades 9-12 will be aligned with ADP and revised, with public distribution targeted for Fall 2006. For more information about the draft standards see the article in this issue.

This is certainly an exciting time to be a mathematics educator! As an organization of mathematics educators with a mission to provide a challenging mathematics education for all students, as well as to network and share current information to teachers through conferences and workshops throughout

Teachers like Nancy remind us of the bright future of mathematics in New Jersey and of the importance of AMTNJ in the careers of mathematics teachers.



Where are they Now?

AMTNJ members would like to know about the teachers we supported through our scholarship program. Each issue will include information about a former scholarship winner in our "Where Are They Now?" feature. If you know of a scholarship recipient and would like to tell his or her story in the AMTNJ Newsletter, please contact either of the co-editors.

the state, AMTNJ applauds efforts to evaluate and continuously support and improve mathematics education. Please share your thoughts with your colleagues and our AMTNJ Executive Council. I look forward to hearing from you on this and other topics at djives123@aol.com.

Letters to the Editor

Please limit letters to 200 words. Submissions must include a home address and an evening telephone number. Authors' email addresses are published only with their consent. Letters may be edited for clarity and length.

President's Message

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included the formation of a National Math Panel to initiate Math Now. A K-7 program, Math Now would address the goal of preparing every student to take and pass algebra. Also included was an objective of training 70,000 additional teachers to teach AP-IB mathematics and science courses, as well as encouraging 30,000 new teachers to join high schools from other mathematics and science professional ranks. Plans also included the establishment of Academic Competitiveness Grants and Mathematics/Science Partnerships.

In our own state of New Jersey, newly elected Governor Jon Corzine and Acting Commissioner Lucille Davy

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*AMTNJ wants its
newsletter to be fair and
correct in every way. If
you have a question
or comment about any
information in this
newsletter contact either of
the co-editors.*

AMTNJ STUDENT EXHIBITS

2005 Student Exhibits Winners

AMTNJ is pleased to announce the winners from the October 2005 Students Exhibits. In its 5th year, the event continues to grow. This year there were over 45 entries, a 10 % increase over entries received for the 2004 event.

Under the guidance of Ms. Nadia Makar, Union Hills High School students submitted 11 projects for the Math and Science Integration and Research category.

Overall, the quality of the exhibits is improving, a reflection of the continued movement of schools to integrate student performance-based projects into their mathematics and science school curricula.

Mary Mitchell and Corinne Kallman, the Chairpersons for the 2005 Student Exhibits express thanks to the individuals who judged the student projects: John Hammett, Lee Ann Gennett, Doug Smith, Dolly Nemergut, Elizabeth Morales and Joan Vas .

Additional thanks to Options Publishing and Scott Foresman-AddisonWesley who generously

supported the competitions by providing prizes for the winners. We thank Joan Vas for her support with the sponsorships.



John Hammett III, AMTNJ, 2nd Vice Presidents and a Judge for the Exhibits Congratulates Alexander Bick, a 12th Grade Student at Millburn High School in Millburn. His project, *Handheld Intelligent Tutor* won first place in the grades 9-12 category.

GRADES 3-5



1ST PLACE: *Improved Cartesian Diver* by **Jonathan Tang** of Sampson G. Smith Intermediate School, Somerset. Teacher: Ms. Kathleen Gorka

2ND PLACE: *Hopping Time (X) Game* by **De'Borah Mozell** of Sampson G. Smith Intermediate School, Somerset. Teacher: Mr. Allen Gilbert

3RD PLACE: **Jenica Edovard** of M.B. Garvin School, East Orange. Teacher: Mr. Capogrosso

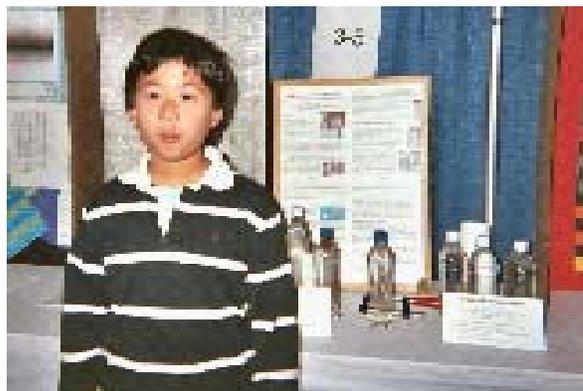
GRADES 6-8



1ST PLACE: *Infinite series and Residue* by **Akhil Mathew** of Madison Junior School, Teacher: Mrs. Boepple

2ND PLACE: *What is volume, and How Does It Affect a Student's Everyday Life?* by **Shanay Fegins & Dayzsane Marrero** of Soehl Middle School, Linden. Teacher: Mrs. Tuers *Sleeping Habits of Teenagers* by **Christina Pan** of Memorial Middle School, Little Ferry. Teacher: Mrs. Callahan

3RD PLACE: *Manipulative vs. Teacher Directed* by **Christian DeJesus & Jaclyn Liberti** of Soehl Middle School, Linden. Teacher: Mrs. Tuers



Jonathan Tang



De'Borah Mozell

AMTNJ TEACHER OUTREACH

MINI-GRANT APPLICATION

MATHEMATICS AND TECHNOLOGY/ NJ STANDARDS/

MAKING MATH ACCESSIBLE FOR ALL STUDENTS

In order to assist local groups in meeting to discuss mathematics education issues, AMTNJ has made available mini-grants in amounts up to \$200 to support such activities. This year's mini-grants will be awarded for multi-district coordination activities which focus on one of the above topics. Funds will be distributed as applications are received until a total of \$600 has been appropriated.

Please Type or Print Clearly

Name of Applicant _____ Date _____

Address _____

Home Phone (____) _____

Position _____ Organizing Group _____

School District _____ County _____

School Name _____

School Address _____

School Phone (____) _____

1. Title of Activity/Project _____

2. Need: Describe the need for the Activity/Project. Be specific.

3. Objective: Describe what you hope to accomplish. Use motivational and/or behavioral objectives.

4. Activities: Describe what you will do. Indicate who, what, when, where, and how.

Be sure the activities are related to the objective(s).

5. School Districts Involved _____

6. Approximate Date(s) of Meetings _____

7. Funds Required _____ Make Check Payable to _____
(Maximum of \$200)

Please give a brief explanation of anticipated expenditures.

If I am awarded the Grant for the Activity/Project described, I agree to submit a brief summary within 60 days of the completion of the Activity/Project. The summary should include: 1) Agendas, 2) Number of participants at meetings,

3) Allocation of funds, 4) Evaluation of your Activity/Project in relationship to the objectives,

5) Recommendations for improvements/extensions/future meetings, 6) Copies of materials developed.

Signature _____ Date _____

Please return this application to AMTNJ Mini-Grants c/o Robert Cunningham, PO Box 548, Bryn Athyn, PA 19009.

NCTM Exhibit of Student Work

Student Projects will be awarded Saving Bonds at the NCTM Regional Conference in Atlantic City

It's time to begin thinking about the 2006 NCTM Student Exhibits. The event will be held during the NCTM Regional Conference and Exposition in Atlantic City, NJ, October 19-21, 2006. Students should be identifying topics now and planning how to gather, represent, analyze, and draw conclusions from their data.

During the 2005 NCTM Regional Conference in Somerset, NJ, approximately 200 projects were

judged in the Student Exhibits. Entries came from both private and public schools throughout the state of NJ. The projects ranged from an investigation of the number of fries in a small serving of McDonald's fries to the probability of getting a free pizza when delivery time is guaranteed. Many students were there to present their work to the judges and demonstrated their math knowledge of topics such as The Four Color Map Problem to the Fibonacci sequence.

Projects are judged in four grade level categories: K-2, 3-5, 6-8, and 9-12. For math projects, judges base their decisions on overall impact, clear demonstration

of important relationships and patterns, appropriateness of the graphics in relation to the data and creativity. Judges for the science research projects assess each entry for interest level, research design and data collection, analysis of data, conclusions, process of reflections and final presentation. Key to success in the competition is first identifying an interesting and appropriate topic to be explored. Savings Bonds are awarded to the first, second and third place winners in each grade level category. Entry deadline for the competitions is October 15, 2006.

AMTNJ members are urged to par-

Spring Regional Conferences

M³ – Making Mathematics Meaningful

AMTNJ presents its often Imitated but Never Equaled Spring Conference!

The Spring regional conferences offer dozens of workshops and sessions on teaching, learning, and assessment and current information on issues impacting math education in New Jersey. The following is a brief description of each of the three conferendes:

Kean University

Technology Mediated Curriculum Resources for Algebra I Instruction
Creating a Community of Mathematical Inquiry in a High School Classroom
Building Geometric Thinking in the Early Childhood Years
There Really is a Use for Why We Do That! Geometry Comes to Life.

The College of New Jersey

Using Students to Improve Teaching
Enough Problems of the Week for 1.50 Years
Mastering Measuring Skills and Other Concepts EASILY!
Teaching Discrete Mathematics in Grades 3 to 5.

Richard Stockton College of New Jersey

Coordinate Drawing Activity for the TI-83 Plus
Brain Based Activities for Algebra I and II
Improve Math Test Scores Through Interactive Software
Computational Skills vs Conceptual Understanding: Is There a Dichotomy?
Seeing is Believing. Developing Patterns With Cubes, Tables, and Graphs

For a full listings, descriptions, and schedules of these sessions visit our website: www.amtnj.org. Updated schedules will also be available on the day of your regional.

Join and chat with colleagues over lunch as you share suggestions and ideas with AMTNJ representatives. A continental breakfast and lunch will be provided. Participants will earn 4.5 hours of Professional Development. Registration fees for AMTNJ members is \$60 and for non-members the fee is \$90. All regionals conferences are from 8:30 am until 3:00pm (registration starts at 8:00 AM). Visit www.amtnj.org for details on session descriptions.

AMTNJ Help Hot Line Network

Do you have a creative lesson that you are willing to share with a fellow AMTNJ math teacher? We are developing a Help Hot Line – so that when you want a creative lesson – you can get one! Please join the AMTNJ Help Hot Line Network. Email amtnj1@optonline.net Include: Name, Subject area, Topic, Evening phone number, Email address. Let us know if a fellow AMTNJ teacher can call and discuss the idea with you.

AMTNJ Email Accounts Now Available! Visit amtnj.org

Back Page Problem Contest

A winner will be randomly selected from all AMTNJ members who submit a correct entry before July 1. The winner will receive free registration to the NCTM/AMTNJ Regional Conference in October. Send your name, school address, email, and the answers to: Carmen Archetto, Bergenfield HS, 80 S. Prospect Ave. Bergenfield, NJ 07024 or e-mail: carchetto@bergenfield.org

1. Using the set of symbols $\{1, \times, +\}$ and parentheses, how many 1's does it take to represent 23?
2. What is the largest currently known prime number and how many digits is it?
3. It is "common knowledge" that : $1^3 + 2^3 + \dots + n^3 = (1 + 2 + \dots + n)^2$. Hence the set of numbers $\{1, 2, \dots, n\}$ has the property that the sum of its cubes is the square of its sum. Are there any other collections of numbers with this property?

Solutions to the September Contest

- (1) The letter m is for the French verb "monter", which means to mount, to climb, or to rise.
 - (2) The word fraction is from the Latin "fractus", which, quite literally, means "broken". Our word fraction did not originally have a mathematical sense. It goes back ultimately to the Latin verb frangere, "to break", and is derived in Late Latin as "a breaking" or "a breaking in pieces," as in the breaking of the Eucharistic Host. In Medieval Latin the word developed its mathematical sense, which was taken into Middle English along with the word. The earliest recorded sense of our word is about 1400.
- (3) 153 a. $50 + 51 + 52$ b. $1! + 2! + 3! + 4! + 5!$ c. $1^3 + 5^3 + 3^3$

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