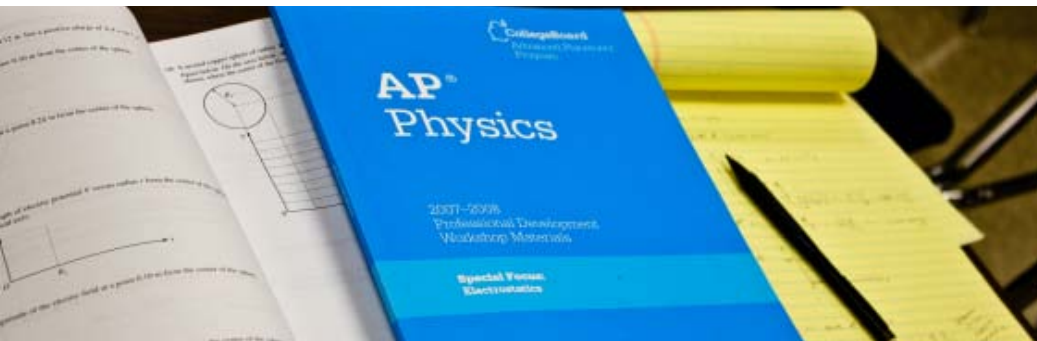


AMERICA'S ANSWER



WE MULTIPLY SUCCESS

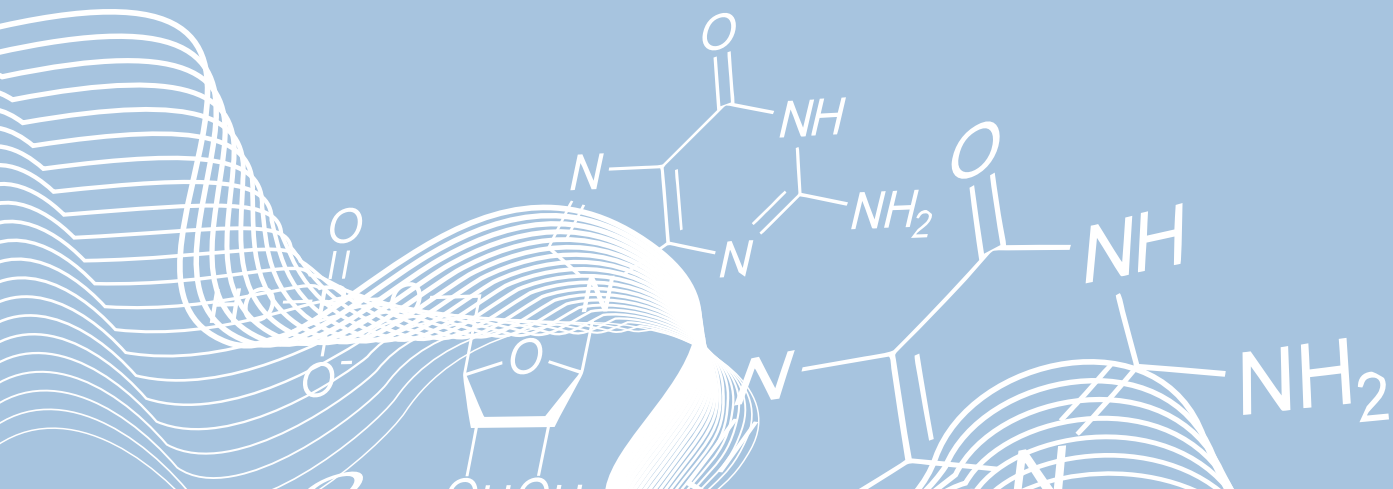
AMERICA'S CHALLENGE

Our country faces a critical issue: There are not enough workers with the education needed to fill jobs in today's increasingly global, competitive and digital world.

Can we revive America's economy if we don't have workers with cutting-edge skills? And how can we make sure that more students have those skills?

- + The U.S. arm of technology giant Siemens Corp. recently reported it has 3,000 jobs open because of the dearth of skilled workers. More than half of those open jobs require science, technology, engineering and math (STEM) skills.
- + A recent study by ManpowerGroup found that a record 52 percent of U.S. employers have difficulty filling critical positions within their companies — up from 14 percent in 2010. Many of these jobs require a strong background in STEM, but American colleges are producing fewer math and science graduates. This has led to a skills mismatch in our country.

The bottom line is that STEM workers are more likely to be employed and more likely to earn better pay. The unemployment rate for workers who only have a high school degree is twice that of college graduates. Graduates in STEM fields are in increasing demand — eight of the 10 fastest-growing job markets require knowledge of math and science.





THE NMSI SOLUTION

Since 2007, the **National Math and Science Initiative (NMSI)** has made educational excellence its primary mission. With the support of leaders in business, education and government, NMSI is raising the academic bar in our public schools. We are expanding opportunities for success in America, particularly for traditionally underrepresented students.

NMSI's goal is to get more American students college-ready and prepared for the jobs of the future. How?

- + By dramatically increasing their success in Advanced Placement math, science and English classes in high school.
- + By expanding the highly successful UTeach program to train STEM majors to become teachers in America's public schools, so they can inspire and equip more American students.

Our country faces an array of tough challenges — unemployment, healthcare, environment, energy, cyber security challenges — that can only be solved with new ideas that are rooted in STEM education.

Time is running out. We must answer our nation's need for more educated workers. We must increase our global competitiveness — and provide the opportunity for high-paying STEM jobs to more Americans. NMSI has made a commitment to turn the tide in American education.

We hope you will join us in this important mission.



A MESSAGE FROM THE CEO

Welcome to NMSI 2.0! The National Math and Science Initiative has made enormous, meaningful progress during the last four years and now we are moving into an exciting second phase of growth and opportunity.

It has been a special honor for me to assume my new duties as President and CEO of NMSI after 17 years as Dean of the College of Natural Sciences at the University of Texas at Austin. I am grateful that Tom Luce, who did such an outstanding job guiding NMSI since its creation in 2007, is continuing to provide wise counsel and leadership as Chairman of the NMSI Board of Directors.



Together, we have moved rapidly on many fronts this year, and I write to share some of this year's big news with you.

- + **We recently announced that NMSI and the teacher training organization Laying the Foundation (LTF) have merged.** This will put in place a seamless system for preparing many more students to succeed in Pre-AP and AP courses in the critical fields of math and science. This new partnership will provide a continuum of training that will dramatically extend our reach. We will be able to give teachers the training to teach students math and science on the middle school and high school levels. Under the agreement, LTF will function as a part of NMSI along with the Advanced Placement Training and Incentive Program (APTIP) and the UTeach program to train math and science teachers.
- + **The release this fall of Advanced Placement exam results for 2010-2011 demonstrated NMSI's APTIP is substantially improving student achievement in rigorous, college-level courses in math, science and English.** The College Board data, announced at the historic Massachusetts State House in Boston, showed that schools participating in our program the last three years have recorded triple-digit increases in the number of qualifying scores based on newly released College Board data. Overall, schools participating in APTIP increased their qualifying scores in AP math, science and English by an average 124 percent – nearly six times the national average. The increase in qualifying scores for African-American and Hispanic students was even more impressive – up 216 percent, while female student scores increased by 144 percent in math and science. Even the schools that have only been in the program one year returned remarkable results – qualifying scores in AP math, science and English were up nearly 90 percent, which is over 11 times the national average.
- + **We were all gratified and excited that NMSI was named a “Highest-Rated Applicant” in November by the U.S. Department of Education for an Investing in Innovation (i3) grant.** The \$15 million grant, which was contingent on NMSI raising \$1.5 million in matching funds, will allow the organization to expand the highly successful APTIP to two additional states, Colorado and Indiana. The expansion will allow us to reach 30 schools in each state, for a total of roughly 90,000 students. That will increase the national impact of the NMSI program to nearly 600,000 students in 13 states.

- + **Our Initiative for Military Families (IMF) – which launched APTIP last year in four schools thanks to funding from Lockheed Martin Corporation — has been expanded to 29 schools this fall and commitments are in hand to expand this much-needed assistance to over 50 high schools serving a high percentage of students from military families.** We are grateful for the continued strong support this program is receiving from the Army Education Outreach Program, BAE Systems, The Boeing Company, the Department of Defense Education Activity (DoDEA), ExxonMobil, the Jack Kent Cooke Foundation, Lockheed Martin, the Office of Naval Research, Northrop Grumman, and the O'Donnell Foundation. IMF is equipping our students from military families to better compete on the global stage, which is important to the future of our country.
- + **Our popular UTeach program to recruit and train more teachers for the critical fields of science, technology, engineering and math reached a major threshold this fall. We now have more than 5,000 college students enrolled in the teacher preparation program at 25 universities across the U.S.** Seven campuses are being added this fall and next spring, including the University of West Georgia, Southern Polytechnic University, Columbus State University, University of Massachusetts Lowell, Boise State University, University of Texas at Brownsville and University of Texas at Pan American. Encouraging work is underway to add UTeach sites in Maryland, Florida, Alabama and Arkansas in the near future.

Tom Luce was asked last summer to participate in the Clinton Global Initiative's first CGI America conference in Chicago, where NMSI was among 28 organizations making a commitment to help produce 100,000 excellent new STEM teachers in 10 years. I am confident we will contribute more than our share through our UTeach replication.

As this annual report will demonstrate in greater detail, we are making headway at the National Math and Science Initiative with great dedication to the challenge before us. My goal is to continue the work that Tom Luce began so well. I share his vision – that replication of proven programs on a national scale is the best way to make a real difference in STEM education in this country. I want to ensure that NMSI continues to set the pace in science and math education reform in the United States, and I hope to explore new ways to influence education policy and funding and to create partnerships for excellence in STEM education. I look forward to working with all of you to achieve these goals.

Dr. Mary Ann Rankin



President and CEO
National Math and Science Initiative



NMSI MERGES WITH LAYING THE FOUNDATION

Combined programs will strengthen Pre-AP and AP instruction in the U.S.

The National Math and Science Initiative (NMSI) and the teacher training organization **Laying the Foundation (LTF)** merged at the end of 2011, putting in place a seamless system for preparing middle school and high school students to succeed in Pre-AP and AP courses in the critical fields of math and science.

“ This new partnership will provide a continuum of training that will dramatically extend our reach with proven programs. We will be able to give teachers the tools and training to teach students math and science in middle school through high school so they can succeed in the workforce or college-level courses. ”

- Dr. Mary Ann Rankin, CEO, NMSI

Under the agreement, the LTF program will function as a part of the National Math and Science Initiative along with the Advanced Placement Training and Incentive Program.

LTF focuses primarily on teacher training for teachers in grades 6 through 12 (middle/junior high and high school). The organization has training contracts with organizations in the six states where NMSI's AP program is already in place, and also with school districts and individual schools in eight more states. In addition, LTF is providing teacher training services in South Dakota, where NMSI is implementing an online AP program in conjunction with the Learning Power organization.



Dr. Mary Ann Rankin, CEO, NMSI
David Saba, President, LTF

The merger of the two nonprofit organizations was approved by the boards of directors for both groups and took effect at the end of 2011. Carolyn B. Dickson, Executive Director of the O'Donnell Foundation, and a member of the LTF board, will join the NMSI board.

“ This is about the students. By joining forces and leveraging the talent and resources from both NMSI and LTF, we will reach more teachers who will challenge more students to succeed in STEM. The whole will become greater than the sum of its parts. ”

- David Saba, President, LTF

Laying the Foundation was created in 2003 to provide the best content-based, pedagogy-driven, teacher-to-teacher training in public schools. LTF Training is supported by rigorous classroom-ready lessons and web-based resources to improve the quality of math, science and English instruction. LTF has trained over 36,000 teachers to date and has demonstrated dramatic increases in Advanced Placement exam participation and success in STEM subjects. LTF believes that training, mentoring, and empowering the teacher corps will lead to high standards of academic excellence for all students.



Robert Dennison training AP Biology teachers

36,000

teachers
trained



ADVANCED PLACEMENT TRAINING AND INCENTIVE PROGRAM

NMSI is raising the academic bar in American public schools by funding and implementing the **Advanced Placement* Training and Incentive Program (APTIP)**. APTIP helps more students succeed in college-level Advanced Placement math, science and English courses.

WHY AP?

- + Mastering the rigorous coursework is transformative. Students who excel AP coursework are three times more likely to graduate from college.
- + According to a College Board study, a high school student who achieves a qualifying score in just one AP course is more likely to graduate from college in four years than comparable students. Even students who do not achieve a qualifying score on an AP exam tend to fare better in college, as a result of the exposure to challenge curriculum and rigorous study techniques.
- + AP students compare favorably in international rankings with top students from other countries. Expanding the number of American students who can excel in AP courses enhances U.S. competitiveness.
- + Students with a solid foundation in math and science gain an additional competitive edge: Eight of the 10 fastest-growing jobs require math and science skills.

NMSI begins by selecting state nonprofit organizations with strong leadership to implement APTIP statewide. Those state affiliates then build local support to ensure the long-term sustainability of the program.

In order to open the door to AP courses for many more American students, NMSI provides special training and on-going support for select high school teachers. NMSI has trained more than 8,000 Pre-AP and AP teachers from across the country in the last three years.

Core components of the NMSI program that add up to student success are:

- + Extra training for AP teachers
- + Ongoing support from master teachers
- + More time on task for students in after-school and Saturday study sessions
- + Incentives for teachers and students to excel



raising
the bar in U.S.
education



2011 APTIP RESULTS

Schools participating in NMSI's Advanced Placement Training and Incentive Program have produced record-setting results for the last three years. There is no other formal, national program in the country that has produced these types of sustained, significant results.

Results from the College Board for 2008-2011 showed that participating schools recorded an average increase of **124 percent** in qualifying scores on math, science and English exams in NMSI grantee schools in six states. That's five and a half times the national average. The increase in math and science scores alone was even greater: 138 percent.

- + Gains for underrepresented groups were even more impressive. Qualifying scores for African-American and Hispanic students went up **216 percent** in math, science and English (MSE) with a 192 percent increase in math and science. This is a significant step toward reducing the minority achievement gap in critical STEM subjects.
- + In addition, the increase in qualifying scores in AP math and science for female students was **144 percent**, which will help reduce the gender gap in critical STEM fields.

Even schools that implemented APTIP for the first time in 2010-2011 produced stand-out results: an overall gain of **89 percent** in qualifying scores in AP math, science and English.

- + After just one year, our newest cohort of schools had a **135 percent** increase in MSE qualifying AP scores for African-American and Hispanic students, with a 128 percent increase in math and science.
- + Schools new to the program also achieved a **126 percent** increase in math and science qualifying AP scores for female students.

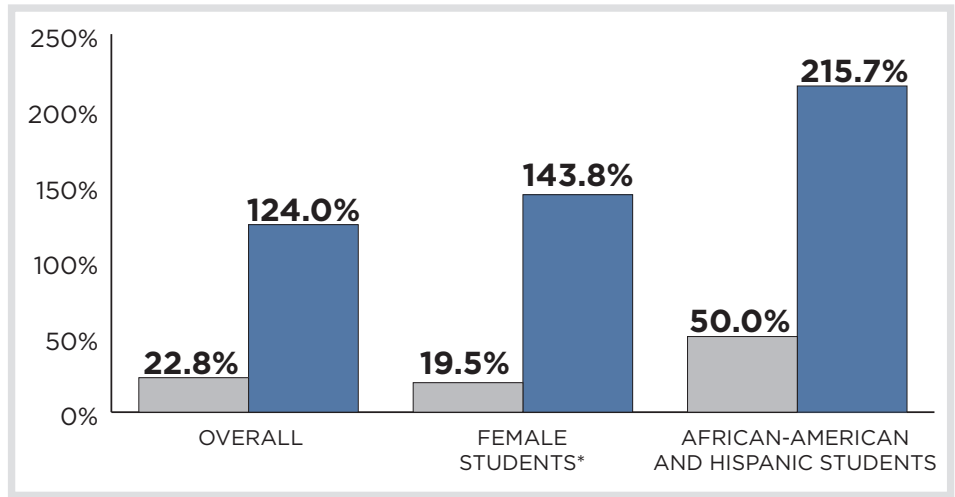
The 228 high schools implementing APTIP in six states account for 51.4 percent of the total increase in AP MSE passing scores in those states.

record-set

COHORT 1

Percentage increases in scores of 3 or greater in AP math, science and English (MSE) for the U.S. and **63 Cohort 1 schools** from **2008-2011**.

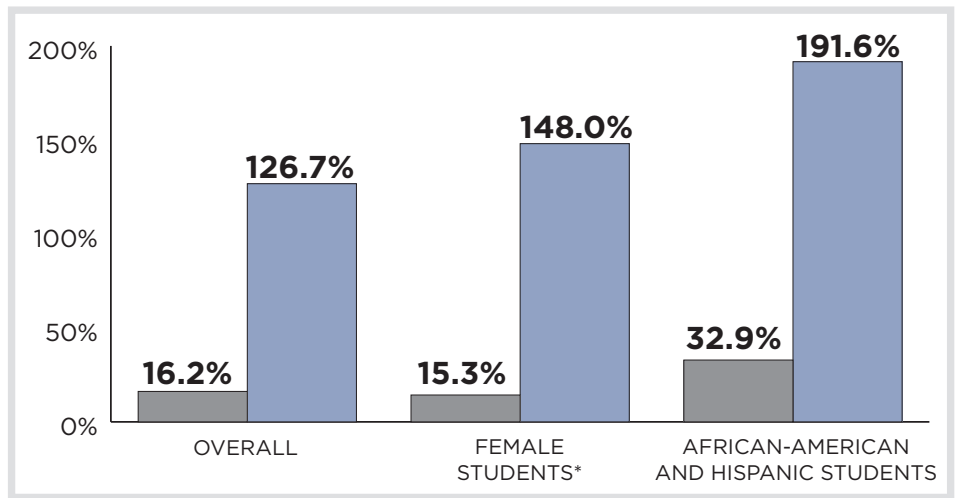
- U.S.
- NMSI



COHORT 2

Percentage increases in scores of 3 or greater in AP math, science and English (MSE) for the U.S. and **74 Cohort 2 schools** from **2009-2011**.

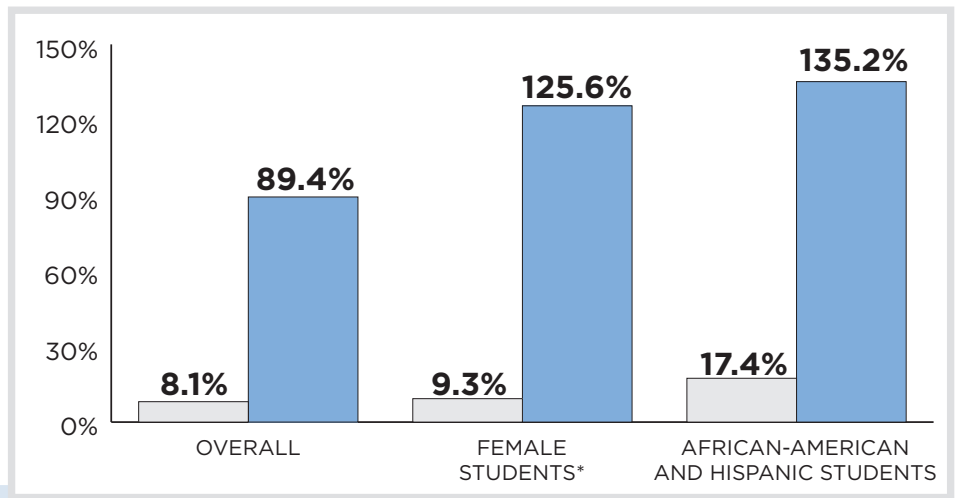
- U.S.
- NMSI



COHORT 3

Percentage increases in scores of 3 or greater in AP math, science and English (MSE) for the U.S. and **91 Cohort 3 schools** from **2010-2011**.

- U.S.
- NMSI



*Female percentages are for math and science only.



INITIATIVE FOR MILITARY FAMILIES EXPANDED TO 29 SCHOOLS

The Initiative for Military Families (IMF), which was launched in 2010 in four high schools, was expanded to 29 high schools serving military bases in the United States in fall 2011.

THE MISSION

IMF is providing consistent, quality math and science education to public high schools with high concentrations of students from military families. The initiative brings college-level coursework to students through the highly regarded and highly effective Advanced Placement curriculum. Because the AP courses are standard across the country, IMF provides excellence and continuity for students whenever and wherever their families are transferred.

WHO

NMSI is leading this public-private effort in partnership with the Military Child Education Coalition, the Department of Defense Education Activity (DoDEA), the Military Impacted Schools Association (MISA), the Office of Naval Research, the Army Education Outreach Program, and the White House's Joining Forces initiative.

WHEN and WHERE

IMF was launched in the 2010-2011 school year in four public high schools: two serving Fort Hood in Texas, and two near Fort Campbell in Kentucky. By fall 2011, the program expanded to more than 25 additional high schools serving military students, for a total of 29 schools. Commitments have already been made to boost the number to over 50 high schools next year.

WHY

Almost two million young people in America have a parent serving in the military today. More than 220,000 of those young people have someone deployed overseas today. The separation, concerns about safety, and frequent transfers can be particularly hard on the children whose parents protect our country.

HOW

Generous inaugural funding to launch the program was provided by **Lockheed Martin Corporation**. Major funding to add over 30 additional high schools is being provided by **BAE Systems, The Boeing Company, the Department of Defense Education Activity, ExxonMobil, the Jack Kent Cooke Foundation, Northrop Grumman, the Office of Naval Research**, and the **Army Education Outreach Program**, with additional support from **Modern Technology Solutions Inc.** and the **O'Donnell Foundation**.

RESULTS

IMF is already producing results. College Board results for the 2010-2011 school year showed participating schools earned a **45 percent** increase in AP exams passed in math, science, and English, which is almost six times the national average. The increase in AP math and science exams was even greater – **57 percent**.

GOALS

With additional funding, we can expect to expand the Initiative for Military Families to 150 public high schools, ensuring that a high percentage of military families will be served.

ence

“ We're here today because these Americans in uniform have never served alone. Not at Lexington and Concord, not in Iraq and Afghanistan. Behind every American in uniform stands a wife or husband; a mother, a father; a son or daughter; a sister or brother. These families – these remarkable families – are the force behind the force. ”

- President Obama, White House Joining Forces announcement, January 2011



Leilehua High School AP student, Brianna Duff, and her father, SFC Eddie Duff

onsistency



challenging
students with
rigorous courses

ADVANCED PLACEMENT STRATEGIES

The prototype for NMSI's APTIP, **Advanced Placement Strategies (APS)**, is still going strong where it began, Texas.

APS was launched as a public-private partnership in the Dallas area in 1995 by a group of local businessmen committed to education reform. **Advanced Placement Strategies, Inc.** was formed in 2000 to continue this mission across the state.

RESULTS

For more than 16 years, the Texas APS Program has provided training and mentoring for hundreds of teachers, preparatory sessions and more time on task for thousands of students, and performance-based stipends for students, teachers, and campus leadership. APS improves college readiness and encourages STEM studies for underserved Texas public high school students by increasing participation and performance in AP math, science and English courses. Schools in their first year of a Texas APS Program increase qualifying scores and exam participation by **128 percent**.

During the 2010-11 school year, APS managed their program in 58 schools across 10 Texas school districts and celebrated the following results:

- + Math, science and English AP exam participation increased **24.5 percent** (13,996 to 17,426) versus the Texas average of 6.9 percent.
- + Qualifying scores earned by these students increased **12.5 percent** (3,707 to 4,170) versus Texas average of 8.5 percent.



R.L. Turner High School Celebrates AP Grant for 2011-2012

In Dallas ISD, African-American and Hispanic students in the district achieved the following results during the 2010-2011 school year:

- + Exam participation increased **33 percent** (5,364 to 7,155)
- + Qualifying scores increased **11 percent** (1,064 to 1,180)
- + Over two years (2009-2011) qualifying scores increased **43 percent** (827 to 1,180)

APS IS EXPANDING

Advanced Placement Strategies, Inc. continues to add more Texas high schools each year to the Program. During the 2011 - 2012 school year, APS is managing the Texas Program at **66 high schools across 14 school districts**. As a result, **more than 22,500 students (a 13% increase over 2010-2011) are enrolled** in AP math, science, and English courses at these schools.



LEARNING POWER

NMSI's commitment to expanding Advanced Placement opportunities for students all across America is reflected in the online delivery model being piloted in South Dakota. Known as **Learning Power**, the program enrolled students from **57 school districts across the state in 2010-2011 – one-third of the districts in the state.** The high schools in these districts are small and rural, many with total enrollments of fewer than 100 students. The fact that many Learning Power students live 100 miles from the nearest “golden arches” brings home the reality of the vast geography that separates these students from face-to-face Advanced Placement opportunities.



The Learning Power model is providing compelling evidence that students can succeed as readily in online AP courses as in face-to-face AP courses. That success is tied to a strong collaborative partnership and involvement of local e-mentors to support students.

In face-to-face AP courses, the teacher and the student are the two principal players. For Learning Power students, a third player referred to as a local e-mentor is added. This in-school e-mentor, typically a subject matter teacher, serves as liaison between the student and online teacher. The e-mentor offers encouragement, manages technology access, and monitors work on assignments.

Since its initiation in 2007, the South Dakota Virtual School of the South Dakota Department of Education, Northern State University's E-learning Center, and Technology and Innovation in Education (TIE) have collaborated to provide Learning Power AP courses. In addition, a statewide advisory group of government, education, and business officials chaired by the South Dakota Chamber of Commerce and Industry lends visibility and support to the program, which is vital to the state's future.

Learning Power's success in AP Chemistry, AP Biology, and AP Physics is particularly noteworthy since those courses necessitate an important lab component. For AP Chemistry, Learning power is implementing a “blended” learning approach whereby students participate in lab activities via three modes:

- + The best available virtual labs online
- + Hands-on experiments in local school science classrooms with the support of local educators
- + Video-recorded experiments that generate data for the students to analyze and report

This flexible approach is proving effective: In 2010-2011, an impressive 68 percent of the AP Chemistry students earned qualifying scores on College Board exams.

Clearly, Learning Power is having a dramatic impact in South Dakota. Participation in Learning Power continues to rise as **68 percent** more students completed AP courses in 2010-2011 over the prior year. With the support of NMSI, the model is solid and the momentum is building for online delivery of AP courses to more rural students across the heartland of America.

80%
of the increase
in qualifying AP
scores in South
Dakota (face-to-
face and online)
is attributable to
Learning Power
students.

WHY NMSI MATTERS



Science and engineering are the drivers of a modern economy. We will not be competitive in terms of our economy unless we are a leader in science...discoveries hatched there could lead to greater technologies in the private sector, improving the health and well-being of society. We would be very much poorer in terms of our ability to cure people, to feed people and do basic things if we didn't do basic science.

- Dr. Jerome , a retired Nobel Laureate from the Massachusetts Institute of Technology



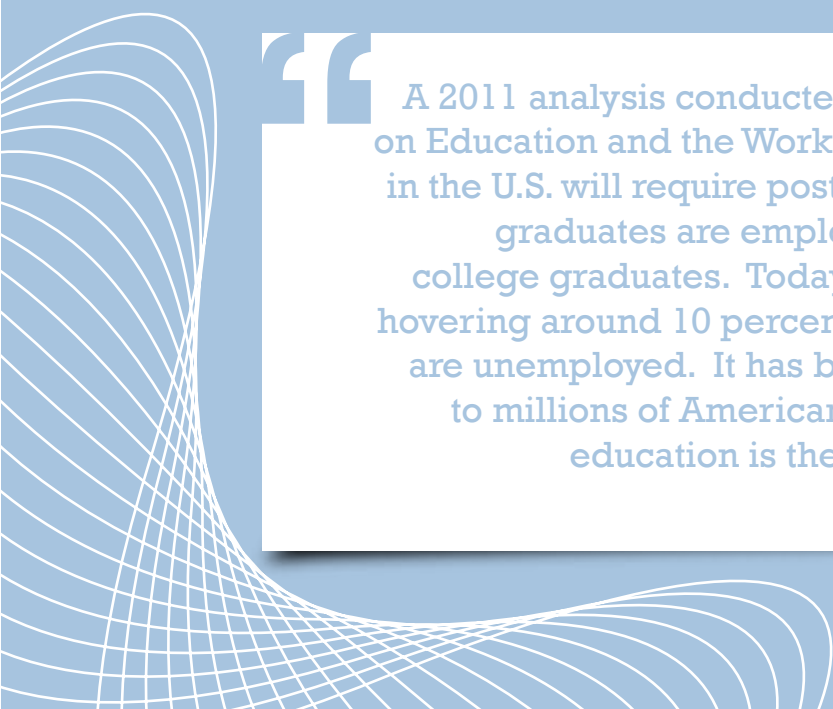
[Steve] Jobs went on to urge that a way be found to train more American engineers. Apple had 700,000 factory workers employed in China, he said, and that was because it needed 30,000 engineers on-site to support those workers. 'You can't find that many in America to hire,' he said. These factory engineers did not have to be PhDs or geniuses; they simply needed to have basic engineering skills for manufacturing. Tech schools, community colleges, or trade schools could train them. 'If you could educate those engineers,' he said, 'we could move more manufacturing plants here.'

- From Walter Isaacson's biography about Steve Jobs' meeting with President Obama



A 2011 analysis conducted by the Georgetown University Center on Education and the Workforce shows that fully 60 percent of jobs in the U.S. will require postsecondary education by 2018. College graduates are employed at much higher rates than are non-college graduates. Today, while overall unemployment rates are hovering around 10 percent, only 4.5 percent of college graduates are unemployed. It has become clear, not just to economists, but to millions of Americans, that completing some form of higher education is the best insurance against unemployment.

- Lumina Foundation



APTIP STUDENT PROFILES

Kia Watson says she couldn't name her favorite AP teacher: "ALL of my teachers are incredible. They've pushed me to learn extra material. My teachers would even stay back into the night. I've had AP English, History and Calculus teachers that would work just as hard as I did. A 6 p.m. session for biology after school and a 7 a.m. lab that Saturday sounds ridiculous, but it reinforced my belief that I could pass that exam. If they could stay back every day of the week, come in on a Saturday, and give us information that wasn't even required, then I could surely pass the exam."



By her senior year at Richmond County High School in Virginia, Watson had taken eight AP courses and had been named an AP Scholar with Distinction. She was a natural to testify about the benefits of the AP program at a special NMSI Congressional briefing in September. Watson currently is participating in the AP Training and Incentive Program being implemented by Virginia Advanced Study Strategies in conjunction with the National Math and Science Initiative.

Speaking to an audience of Congressional staff and national education leaders, Watson said that going into her freshman year of high school, "I wasn't really reaching my full potential. After taking an AP course, that changed. **My grades and GPA climbed every year.**"

She went on to score the highest grade point average in her AP U.S. History, AP Chemistry and AP English courses. She now is a straight-A student and a member of the National Honor Society. One of her AP teachers describes Watson as "By far the most brilliant AND hard-working student I have ever met."

Only 4 feet, 10 inches tall, **Watson says she often has been inspired to work extra hard to prove herself** to those who may not take her seriously at first. She has tutored younger students in chemistry to help pay expenses and has spent several summers working with the Physician Scientist Training Program. She is particularly interested in biomedical engineering and would like to pursue a career in medicine. Her inspiration is her older sister, who has diabetes. "Watching the paramedics revive her after she had entered a diabetic coma has always stuck with me. It is one of many reasons I am interested in medicine."

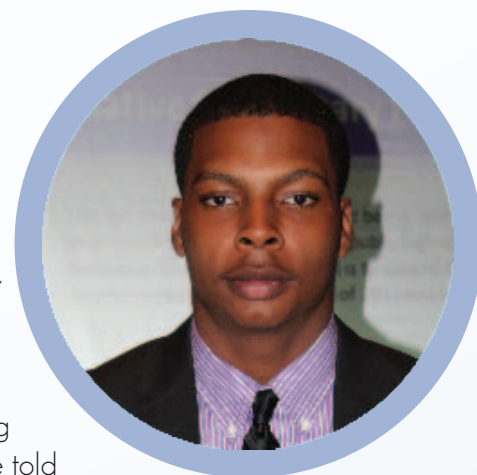
Though she is from a single-parent, low-income family, Watson is determined to attend an Ivy League university, and thanks to the AP program, she now has the academic record to do it.

NMSI's successful results were featured this fall in a special Congressional briefing on "Beating Expectations: Increasing Achievement in Math and Science for All Students." The briefing was held Thursday, Sept. 22, in the Dirksen Senate Office Building in Washington, D.C.

Panelists who discussed ways to increase math and science achievement in the United States included Gregg Fleisher, National Director of NMSI's Advanced Placement Training and Incentive Program; Lieutenant Colonel Rodney Lewis, "Joining Forces," Office of the First Lady; Tommie Sue Anthony, President of Arkansas Advanced Initiative for Math and Science; Rudy Davis, former APTIP student and current Auburn University sophomore; and Kia Watson, a senior AP student at Richmond County High School in Virginia.

The panel discussed gains in minority achievement and the need for public-private partnerships in education.

Rudy Davis is living proof that taking AP courses pays off. While a student at Minor High School in Alabama, he took 10 Advanced Placement courses, ranging from Physics to Calculus to English Composition. Thanks to his outstanding AP scores, he was offered more than \$2 million in college scholarships. Rudy currently is in his second year of study at Auburn University, but is classified as a junior because of the advance credits he earned with high qualifying scores on his AP exams.



Davis had high praise at the Congressional hearing for the APTIP that is being implemented in Alabama by A+ College Ready in partnership with NMSI. He told the audience, “One of the first things students say once they meet difficulty in college is ‘my high school didn’t prepare me for college.’ I am proud to say that my high school and this program have prepared me pretty well for college. Attending a failing high school, few people had faith in students such as myself, but A+ College Ready believed in my high school and believed in me.”

“Through this program I was challenged as never before,” he said. “Many people often overlook students such as myself – students coming from a lower socioeconomic background and often from single-parent households. A+ has shown their commitment to these students by offering free weekend tutoring sessions and incentives for passing scores. These were very important to me as they helped me succeed in the exams – and that helped pay some of my first year college expenses.”

One of the best things about the program, he said, is the confidence it builds in students. “This program allowed me to believe in myself as they believed in me. This showed me that I had the talent to do great things, that I could bring something to the table.”

Davis excelled at athletics, but his teachers encouraged him to focus on academics. When he broke his leg in football practice, he insisted on taking his Pre-AP tests in a wheelchair.

He had always been a good student, Davis said, but after getting into APTIP, “My ACT score went from a 23 to a 31, which is an increase from the 68th to 97th percentile.”

Because of his outstanding academic record, Rudy was accepted by every university to which he applied. **“The AP program gave me options that I never thought were possible.** Most students from my background often go straight into the workforce or to a local community college, but with the opportunity offered to me through this program, I didn’t have to make that tough choice.”

When asked what he is most proud of, Davis said he is **“more thankful than proud,”** because most of the honors he has received were the result of the opportunities he has been given. Otherwise, he adds, “I’m not sure where I would be today.”

He is majoring in biomedical engineering at Auburn and has his sights set on becoming a physician. That means Davis will be in school for a long time, but the AP program has provided him with the skills to stay the course.

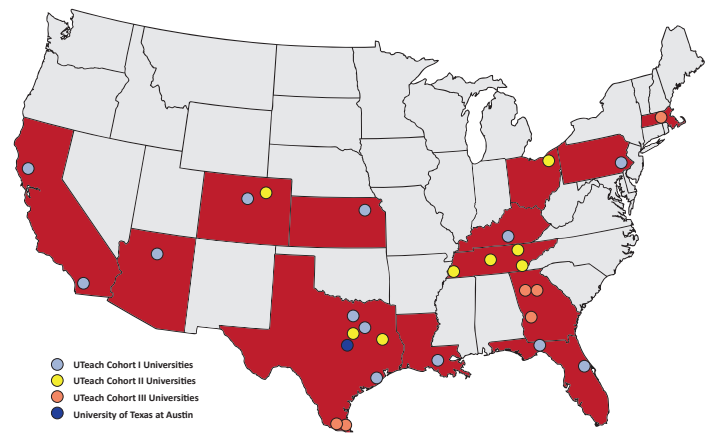


UTEACH PROGRAM

The popular UTeach program to recruit and train more teachers for the critical fields of science, technology, engineering and math reached a major threshold this fall: UTeach now has more than **5,000 college students** enrolled in the teacher preparation program at **25 universities** across the U.S.

Seven campuses are being added this fall and next spring, including the **University of West Georgia, Southern Polytechnic University, Columbus State University, University of Massachusetts Lowell, Boise State University, University of Texas at Brownsville** and **University of Texas at Pan American**.

Work is underway to add UTeach sites in Maryland, Florida, Alabama and Arkansas in the near future.



THE PROBLEM

The U.S. is failing to produce and retain sufficient numbers of qualified math and science teachers to keep America internationally competitive. It is estimated that the U.S. will need 200,000 more math and science teachers by 2015. Talented math and science teachers with strong content knowledge are urgently needed to help students reach their potential.

THE NMSI SOLUTION

The UTeach program to recruit and train math and science teachers is transforming the way universities prepare teachers. UTeach produces teachers that are confident and competent in their subject matters. This pace-setting program was developed at The University of Texas at Austin in 1997 and has proved such a success that the model is being replicated nationwide by NMSI in conjunction with the UTeach Institute.

UTeach has a track record of results:

- + UTeach has produced a steady increase in the number of highly trained teachers with a strong background in STEM subjects. The flagship UTeach program at The University of Texas graduates an average of 70 certified teaching candidates annually with degrees in STEM fields.
- + Approximately **90 percent** of UTeach graduates go directly into teaching, even though they have many other opportunities with their credentials in their major areas of study.
- + The retention rate among UTeach graduates is at **82 percent** after five years of teaching, compared to fewer than 65 percent nationally.

- + UTeach draws into teaching those academically talented students whose GPAs compare favorably to that of their peers in colleges of mathematics and natural science as well as students in traditional education degree programs.

UTeach has generated unprecedented support from the academic, corporate, philanthropic and policymaker communities :

- + The **Association of Public and Land Grant Universities (APLU)** has cited UTeach as an effective strategy for doubling production of highly trained STEM teacher graduates.
- + The landmark **National Academies Commission** report, “Rising Above the Gathering Storm,” recommended expansion of UTeach to meet the need for 10,000 new STEM teachers per year in the United States.
- + The **Presidential Council of Advisors on Science and Technology (PCAST)** in its 2010 report to President Obama recommended significant expansion of UTeach to meet the growing need for quality STEM teachers.
- + Congress included the UTeach model when it reauthorized the **America Competes Act** in 2010.
- + UTeach was one of seven “best practice” programs spotlighted by the **Change the Equation** campaign launched in fall 2010 by the White House and 100 corporate CEOs to improve STEM education.
- + In June 2011, the **Clinton Global Initiative** selected NMSI to be part of a commitment by 28 organizations to produce 100,000 math and science teachers in 10 years; UTeach programs will account for a significant portion of that goal.

The core elements of the UTeach formula for success include:

- + Active recruitment and financial incentives, such as offering the first two courses free or providing tuition stipends
- + A compact degree program that allows students to graduate in four years with a degree and a teaching certification
- + A strong focus on acquiring deep content knowledge in math and science, in addition to research based teaching strategies focusing on teaching and learning math and science
- + Early and intensive field teaching experience, beginning in the student’s first semester
- + Personal attention and guidance from highly experienced master teachers, faculty and successful public school teachers



The UTeach Institute estimates that approximately 7,500 UTeach graduates will have impacted nearly **four million students** by 2018. It is anticipated that with future funding, UTeach can be expanded to **50 universities** in the next decade, creating a new generation of math and science teachers for a highly competitive new era.

0 potential teachers

inspiring
tomorrow's
leaders



ADDRESSING THE GENDER GAP



The American economy relies on the productivity, entrepreneurship, and creativity of all its people. Of the 10 fastest-growing occupations, eight are related to science, math or technology. Yet, women, in particular, are being left behind in the critical fields of math and science. NMSI is taking steps to bridge that gap.

APTIP

NMSI's APTIP is producing remarkable results among females in the program. Qualifying scores on AP math and science exams in NMSI's six states achieved a **143.8 percent increase** from 2008-2011 for females – over **seven times** the national average. NMSI's newest cohort of schools gained a **125.6 percent increase** for female qualifying scores on math and science AP exams in just their first year in the program – **13.5 times** the national average. In fact, despite NMSI's 228 program schools accounting for just one percent of high schools in the U.S., they account for **6.1 percent** of the U.S. increase in AP math, science and English scores for female students as a whole.

Women currently constitute 48 percent of the U.S. workforce but hold just 24 percent of the U.S. jobs in science, technology and engineering. Fewer than 15 percent of American engineers are women.

YOUNG LEADERS PROGRAM

NMSI is also addressing the gender gap with the **National Math + Science Young Leaders Program**, a partnership between NMSI, ExxonMobil, and *Fortune*. The program was launched in 2009 to provide leadership examples for young women at key decision-making points in their academic careers – generally their junior year of college. The goal of the program is to encourage the participating young women to become leaders in STEM fields.

The program has matched young women majoring in STEM subjects with female executives working in these fields at leading American corporations. Nineteen students and 22 senior executives participated in the 2011 leadership program. Executive mentors provided leadership coaching and demonstrated the tangible impact of math and science in their work through a series of web-based seminars and company site visits.

The semester-long Young Leaders Program culminated in the “capstone” event in New York City where the students participated in three days of leadership and networking activities with executives from the program. Beyond their participation in this program, the young women are encouraged to “pay it forward” to the next generation of female students by helping them see the opportunities available to them if they have a background in STEM.

NMSI NAMED “HIGHEST-RATED APPLICANT” FOR i3 GRANT

The U.S. Department of Education announced November 10 that the National Math and Science Initiative was named a “Highest-Rated Applicant” for the Investing in Innovation (i3) grant program. The \$15 million grant, when paired with \$1.5 million in matching funds raised by NMSI, will allow NMSI to expand the highly successful APTIP to two additional states, Colorado and Indiana.

The expansion will provide for the implementation of APTIP in approximately 30 schools in each state, impacting a total of roughly 90,000 students. This expansion would increase the national scope of the NMSI program to reach nearly 600,000 students in 14 states.

“Investing in these vital innovations across the country has the potential to dramatically enhance learning and accelerate student performance and to do so cost-effectively. This round of i3 grantees is poised to have real impact in areas of critical need, including STEM education and rural communities, on projects ranging from early childhood interventions to school turnaround models that will prepare more students for college and career.”



- U.S. Secretary of Education Arne Duncan

The i3 program, which was created as part of the 2009 American Recovery and Reinvestment Act, was extended by Congress earlier this year as part of the federal fiscal 2011 budget agreement. The program is designed to encourage innovative and promising education strategies that also have a good record of success. The first round of grants in 2010 included \$650 million in federal stimulus funding to support education programs.

This year's \$150 million second round of grants drew 587 applicants, who requested a total of \$3 billion in funding for projects. NMSI was one of 23 applicants selected for “highest-rated” status as potential grantees for the 2011 grant fund. Awards in the new round of grants ranged from \$3 million for “Development” grants to as much as \$25 million for “Scale-Up” awards. The bigger the award, the more evidence of past success was required. Failure to raise required matching funds for the 2011 grants would have resulted in forfeiture of the funds, but NMSI was able to obtain matching funds from the AT&T Foundation, The Carnegie Corporation of New York, The College Board, the Communities Just for the Kids organization, HCM Strategists, and HCM Strategists Co-Founder Terrell Halaska, NMSI Chairman of the Board Tom Luce, the O'Donnell Foundation, and Texas Instruments, Inc..

“We are grateful to the matching support from our many partners, which will make it possible for us to expand into Colorado and Indiana. We'll be able to expand our reach and bring college-level math and science coursework to many more students,” said Gregg Fleisher, National Director of NMSI's APTIP. “We will help ensure that more students are better prepared for college and for success in today's intensely competitive, highly technical world.”



giving
tomorrow's
teachers the
tools they need

2011

THE YEAR THAT WAS

JANUARY

NMSI started off the year with APTIP in 228 schools in six states, and the UTeach program in 22 universities in 11 states.

President Barack Obama announced a broad-scale commitment to increased support services for our military personnel. He spotlighted NMSI's IMF in a speech at the White House and as a critical part of this effort, increasing access for children of military families to AP math, science and English coursework.

APRIL

First Lady Michelle Obama and Dr. Jill Biden launched a multi-city tour to promote Joining Forces, a comprehensive initiative to support military families, a component of which was NMSI's IMF program. Mrs. Obama and Dr. Biden helped announce the expansion of IMF at a special event at Fountain Fort Carson High School in Colorado, where they also presided over a playful science competition between students and parents (the parents won).

MAY

NMSI announced the winners of its annual Teacher of the Year competition, celebrating the accomplishments of the top math, science and English teachers in NMSI's six APTIP states.

The 5th annual UTeach Institute-NMSI conference was held, drawing a record-setting 445 educators and featuring Nobel Prize winner Carl Wieman and Change the Equation CEO Linda Rosen.

The Washington Post released its annual list of top-performing high schools in the country. Seventy-three of the schools named have implemented NMSI's APTIP.

FEBRUARY

The College Board released its 7th annual AP Report to the Nation, which highlighted the effectiveness of APTIP in driving student achievement. Gregg Fleisher, National APTIP Director, was interviewed by *U.S. News & World Report* about his analysis of the findings.

APRIL (CONT.)

NMSI announced the appointment of Dr. Mary Ann Rankin, former Dean of the College of Natural Sciences at the University of Texas, as the organization's new CEO. Dr. Rankin assumed her new role on August 1.

Students and teachers in NMSI's APTIP were featured in a national television advertising campaign that aired during the 2011 Masters Golf Tournament. Funded by founding sponsor ExxonMobil, the spots highlighted student success, the importance of AP math and science programs, and NMSI's role as a change agent in improving math and science education in the U.S.

JUNE

NMSI, *Fortune* and ExxonMobil hosted the annual Young Leaders Program capstone event in New York, bringing together Fortune 500 female executives and the young college women they mentored, for a leadership conference.

NMSI participated in the Growth Philanthropy Network's "Social Impact Exchange" conference in New York, focused on encouraging innovative methods to support scaling and replication of high-impact nonprofit programs.

CEO Tom Luce presented at the Clinton Global Initiative's first "CGI America" conference in Chicago. NMSI was among 28 organizations making a commitment to help produce 100,000 new STEM teachers in 10 years.



JULY

Dr. Mary Ann Rankin presented at the Atlantic CEO conference in Washington, D.C., "The New Work Era: Solutions for a Stronger Economy and Labor Market."

NMSI participated in the annual AP conference, "Sharing Knowledge. Motivating Students," in San Francisco. The conference is the largest professional development gathering that represents all types of AP programs, including APTIP.

SEPTEMBER

Gregg Fleisher and former APTIP students participated in a Congressional briefing in Washington, D.C.. Speakers included White House Fellow Lt. Col. Rodney Lewis, representing Joining Forces.

Green Run High School in Virginia was the site of a back-to-school celebration announcing the expansion of IMF to 28 schools. Speakers included Dr. Michael Kassner of the Office of Naval Research and Larry Prior of BAE Systems.

Former CEO Tom Luce presented at the National Academies, "Rising Above the Gathering Storm: Development of Regional Innovation Environments" workshop. Mr. Luce also was a featured speaker at the *U.S. News & World Report* STEM summit, "Making Science Cool: Solving the Shortage of Math and Science Students."

NOVEMBER

The U.S. Department of Education named NMSI a "highest-rated applicant" for a \$15 million "Investing in Innovation" (i3) grant, which will fund the expansion of APTIP to Colorado and Indiana.

NMSI announced the expansion of IMF to four new schools in Hawaii at a special event at Leilehua High School in Wahiawa, Oahu. Speakers included Hawaii State Rep. Mark Takai (D-Aiea/Pearl City) and Colonel Matthew S. Kelley (Deputy Commander (Rear) of the 25th Infantry Division).

AUGUST

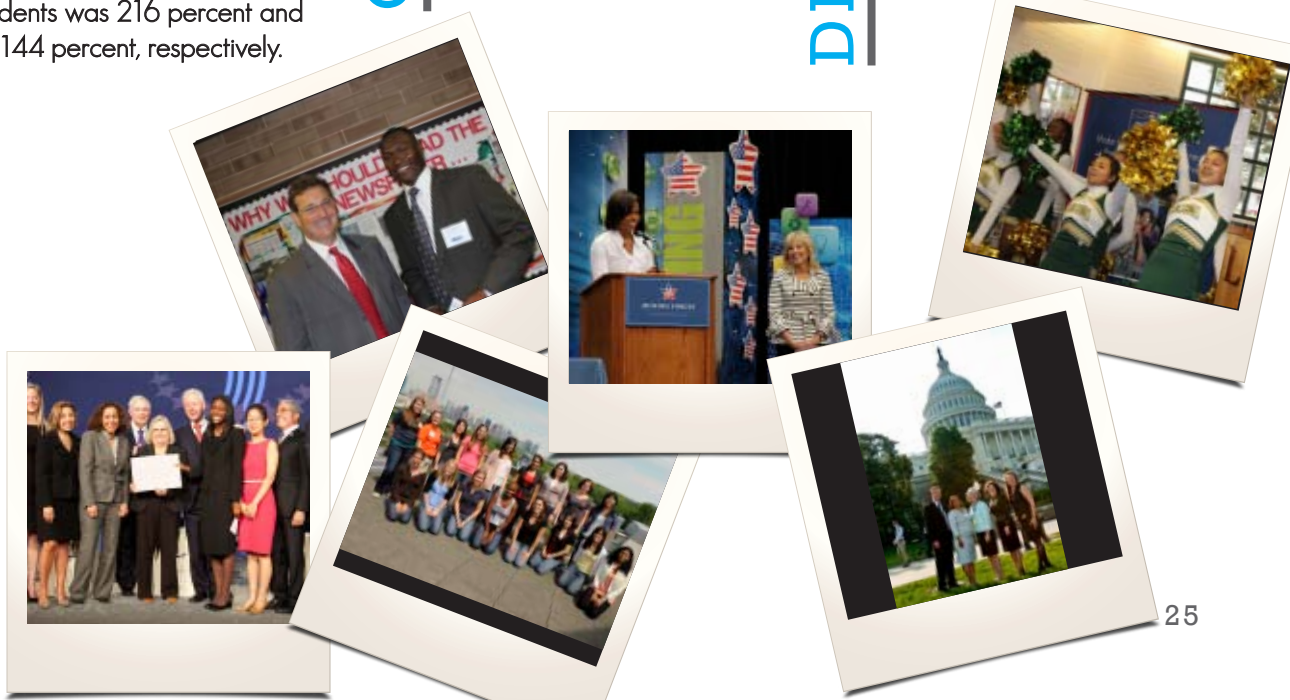
NMSI compiled its remarkable third-year results from APTIP, which reflected a 124 percent increase in AP math, science and English qualifying exams – nearly six times the national average. The increase in qualifying scores by minority and female students was 216 percent and 144 percent, respectively.

OCTOBER

Enrollment in NMSI's UTeach teacher training program reached an all-time high of 5,000 students who are majoring in STEM fields and have plans to pursue teaching as a career.

DECEMBER

NMSI announced a merger with Laying the Foundation, putting in place a seamless system for preparing middle school and high school students to succeed in Pre-AP and AP courses in the critical fields of math and science.





help us
make a change

YOU CAN MAKE A DIFFERENCE

Help us multiply success across our nation. We are off to a great start, but we need more allies for this crucial national mission. You can get involved by:

- + **Making a donation.** Help invest in America's future. Donations from corporations, foundations, and individuals are needed to move math and science education forward.
- + **Applying for a grant.** Encourage your state leaders or university leaders to apply for NMSI grants in the future.
- + **Supporting NMSI programs in your area.** Local donations, mentors and in-kind support will leverage the impact of NMSI grants close to home.
- + **Contacting government officials.** Call on your governors, state education commissioners and Members of Congress to support science, technology, engineering and math (STEM) as education priorities.

Giving Options

You can help fund the implementation in a public high school of the AP Training and Incentive Program, which has demonstrated proven success in increasing the number of students qualifying college-level work in AP math, science, and English.

APTIP or Initiative for Military Families (One school)

ANNUAL COST: \$120,000 per site per year over three years*

IMPACT: 1,400 students

TOTAL THREE-YEAR COST: \$360,000

UTEACH (One campus)

TOTAL COST: \$2.2 million over four years

IMPACT: Each new math and science teacher could inspire at least 150 students a year; over the course of a 25-year career, that teacher could equip more than 3,750 students for careers in science, technology, engineering and math. The first cohort of 13 universities alone will graduate more than 700 math and science teachers, who will reach 2.6 million students during their teaching careers.

Laying the Foundation (One school district middle and high schools)

ANNUAL COST: \$150,000

IMPACT: Over 21,000 students and 240 teachers

TOTAL COST: \$450,000

Contact us at
info@nationalmathandscience.org
for more information

*Average cost, depending on state and local variables and number of program schools in the area.

MULTIPLYING SUCCESS ACROSS AMERICA

NMSI would like to thank our generous supporters for making these results possible and for their commitment to improving math and science education in America.

A nonprofit organization, NMSI has received major funding support for its groundbreaking national initiatives from **Exxon Mobil Corporation, Bill & Melinda Gates Foundation,** and **Michael & Susan Dell Foundation,** with additional support from **Carnegie Corporation of New York, Texas Instruments, Lockheed Martin Corporation,** and the **O'Donnell Foundation.**



thank you

NMSI LEADERSHIP

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