

REPORT ON THE NATIONAL MATH AND SCIENCE INITIATIVE

STATUTORY AUTHORITY:

Section 161.092, RSMo

Consent
ItemAction
ItemReport
Item**DEPARTMENT GOAL NO. 1:**

All Missouri students will graduate college and career ready.

SUMMARY:

The National Math and Science Initiative (NMSI) is a nonprofit organization founded in 2007 to help improve education in science, technology, engineering, and mathematics. Deploying a combination of teacher training, student study sessions, and incentives, it has worked with 560 high schools in 22 states since 2008, and the results have been impressive.

Marcus Lingenfelter, Executive Director of State Relations for NMSI, will provide information about Science, Technology, Engineering and Math (STEM) education programs of the National Math + Science Initiative (NMSI) to be implemented in Missouri LEAs beginning in 2014. He will provide an overview of the College Readiness Program (CRP) and Laying the Foundation (LTF) teacher-training program, respectively, including their origins, effectiveness, and national impact.

PRESENTER(S):

Dr. Sharon Helwig, Assistant Commissioner of College and Career Readiness, and Marcus Lingenfelter, National Math and Science Initiative will participate in the presentation of this agenda item.



National Math + Science Initiative (NMSI)

Briefing for Missouri State Board of Education

Marcus S. Lingenfelter, Executive Director of State Relations



**NATIONAL
MATH + SCIENCE
INITIATIVE**

NMSI – Who We Are, What We Do and How We Do It

NMSI prepares students for success by building rigorous academic foundations in Science, Technology, Engineering and Math (STEM).

Produce and retain content-rich teachers

- *Produce 25,000 STEM teachers by 2025*
- *Keep NMSI teachers in the classroom at a rate 20% higher than the national average*

Note: Italics indicate future work.

Transform schools into centers of college readiness

- ***Increase the number of qualifying math/science AP exams from 440K in 2013 to 1.5M by 2025***
 - African-American: 13,000 to 150,000
 - Hispanic: 35,000 to 500,000
- ***Increase classroom rigor in math, science and English by training 100K teachers by 2025***

Prepare and engage students to develop strong interests in STEM fields

- *Increase annual STEM majors from 900,000 in 2012 to 2 million by 2025*
- *Increase STEM graduates from 375,000 annually in 2012 to 750,000 by 2025*

Note: Italics indicate future work.

NMSI identifies effective, efficient programs, creates replication protocols to ensure fidelity, and then takes them to scale.

NMSI is Transforming Schools

College Readiness Program (CRP)

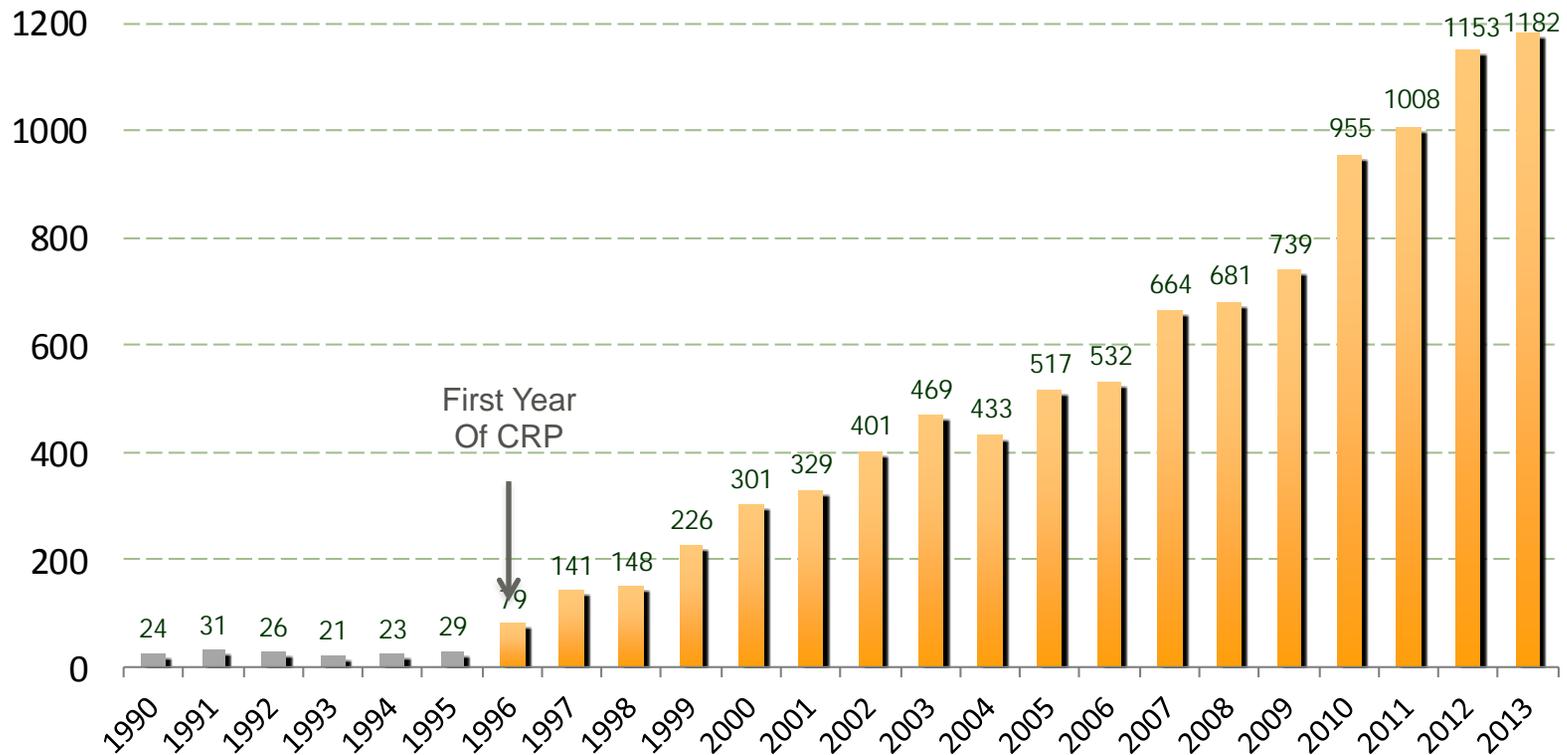
We transform schools with a comprehensive approach that increases teacher effectiveness and student achievement through training, teacher and student support, vertical teaming, open enrollment, and incentives.

The program dramatically increases the number of students taking and passing AP math, science, and English exams, and expands access to traditionally under-represented students.



Increases Minority Student Achievement

AP qualifying scores in math, science, and English have increased 40 times in 18 years in participating Dallas public schools.

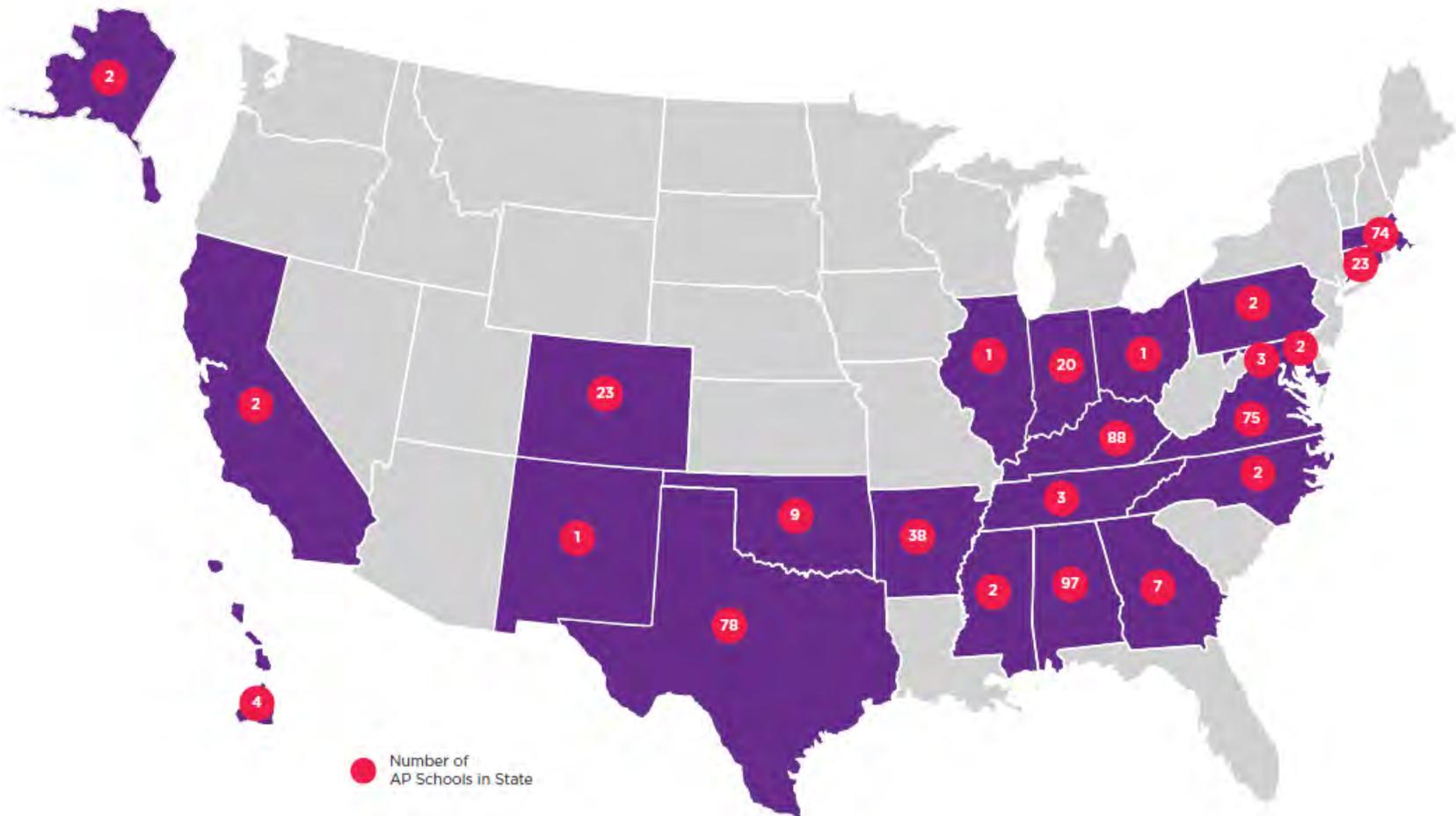


NATIONAL
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Chart shows qualifying scores for African-American and Hispanic students in math, science, and English in 10 DISD incentive schools.

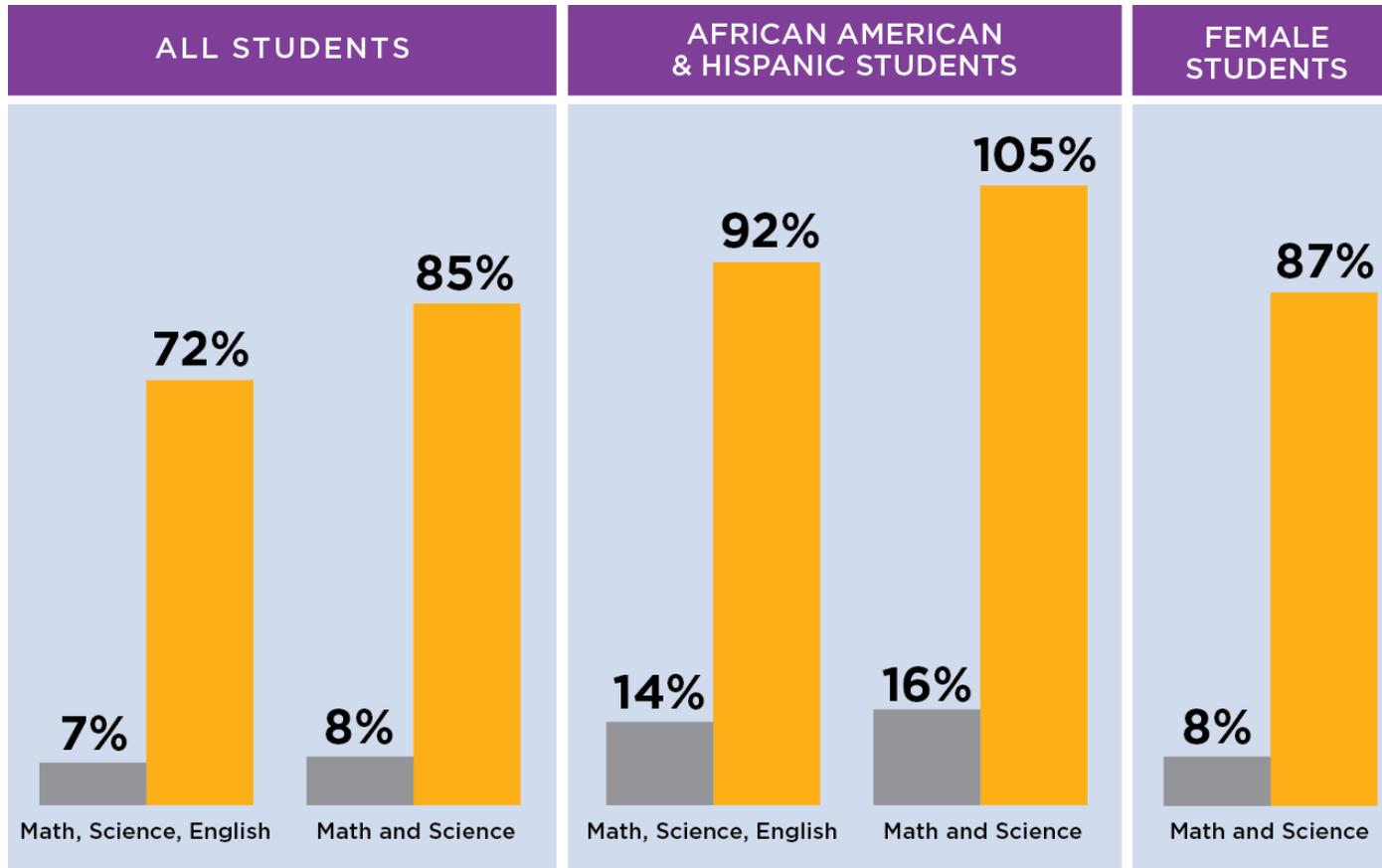
NMSI College Readiness Program Sites

575 Sites in 22 States & District of Columbia



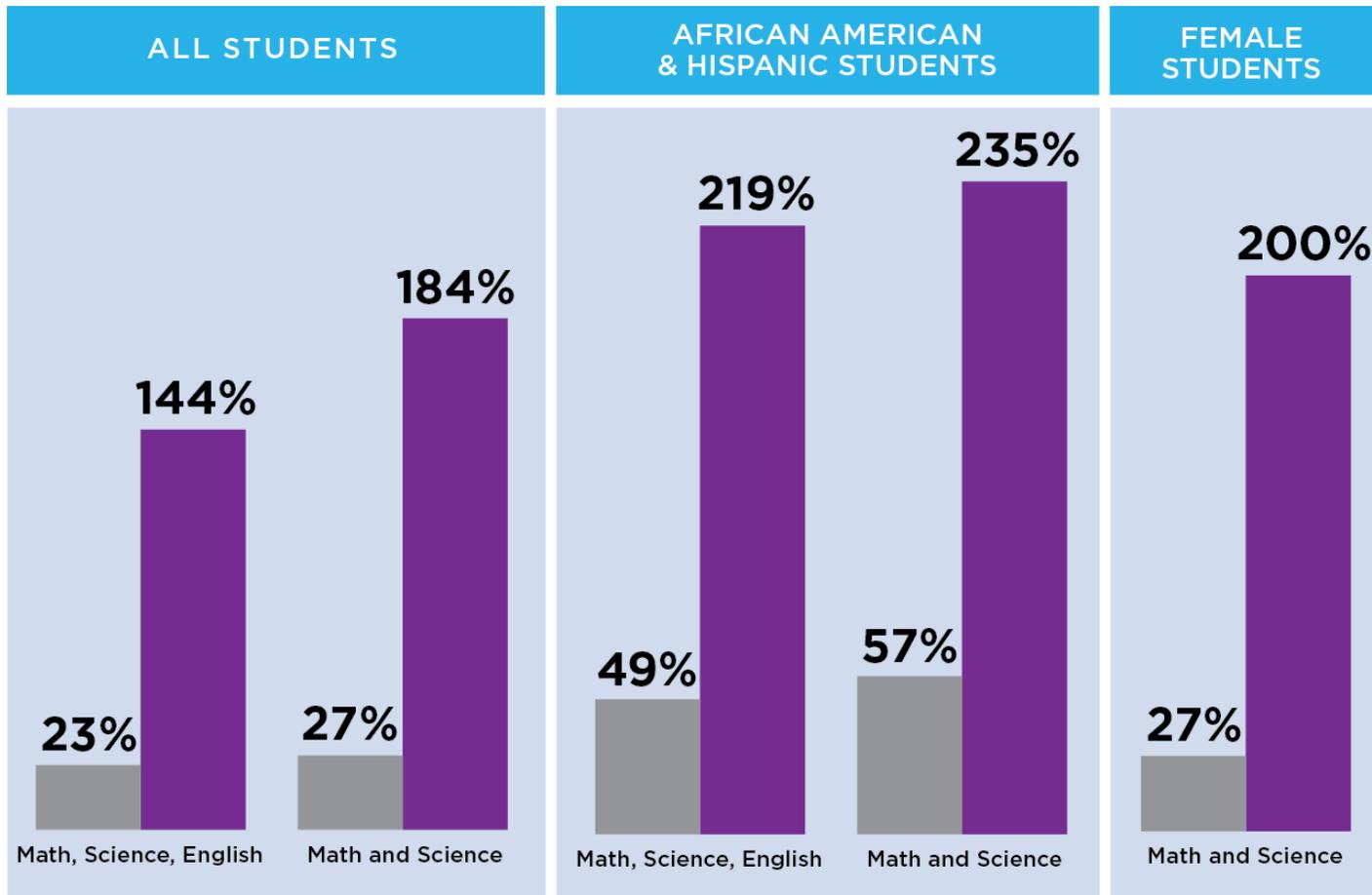
NMSI Makes a Dramatic Difference in One Year

Average First Year Increase in Qualifying AP scores for U.S. and NMSI Schools



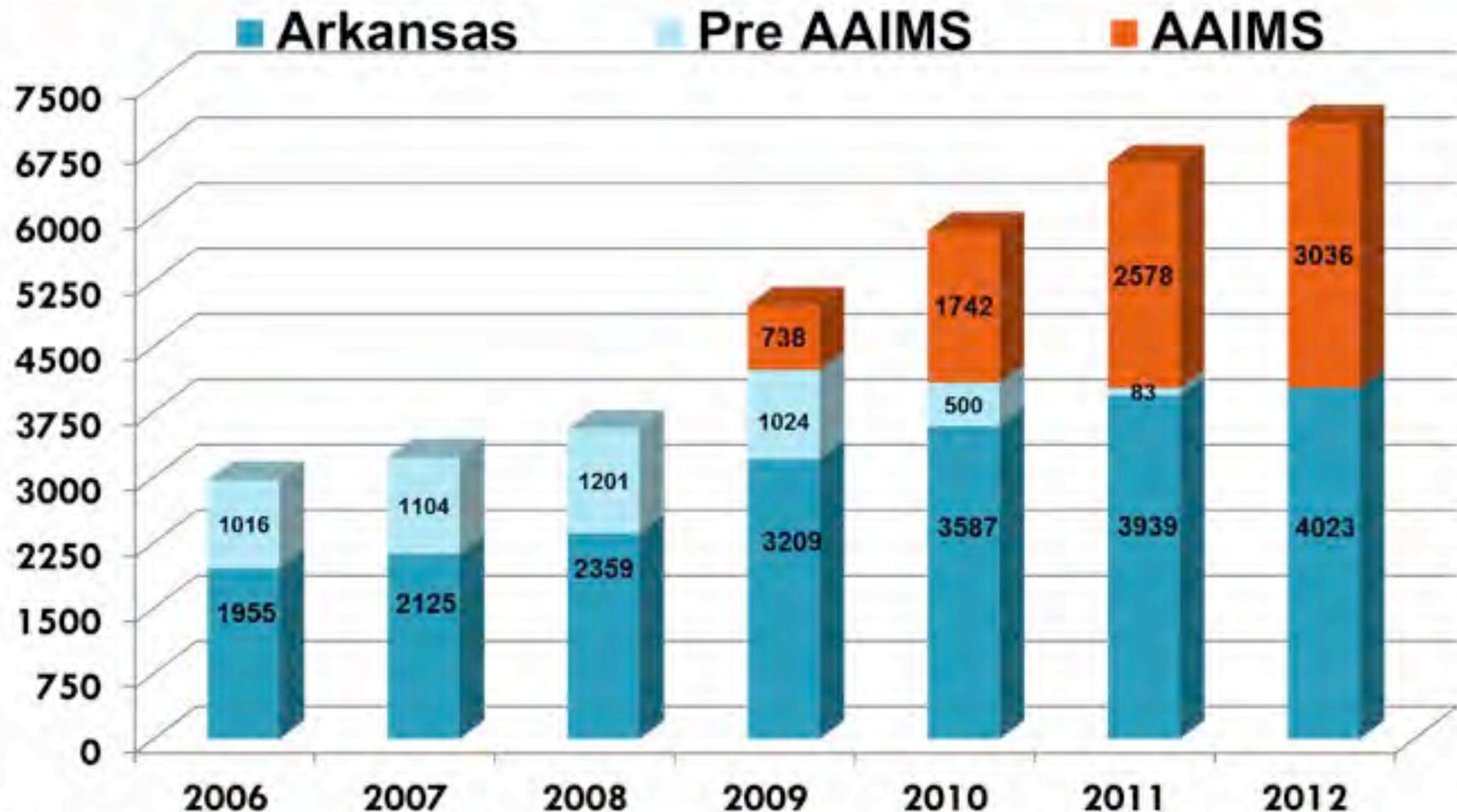
NMSI Continues to Sustain Results

Average Three Year Increase in Qualifying AP scores for U.S. and NMSI Schools





7 Years of AP Math, Science, and English Qualifying Scores All Students



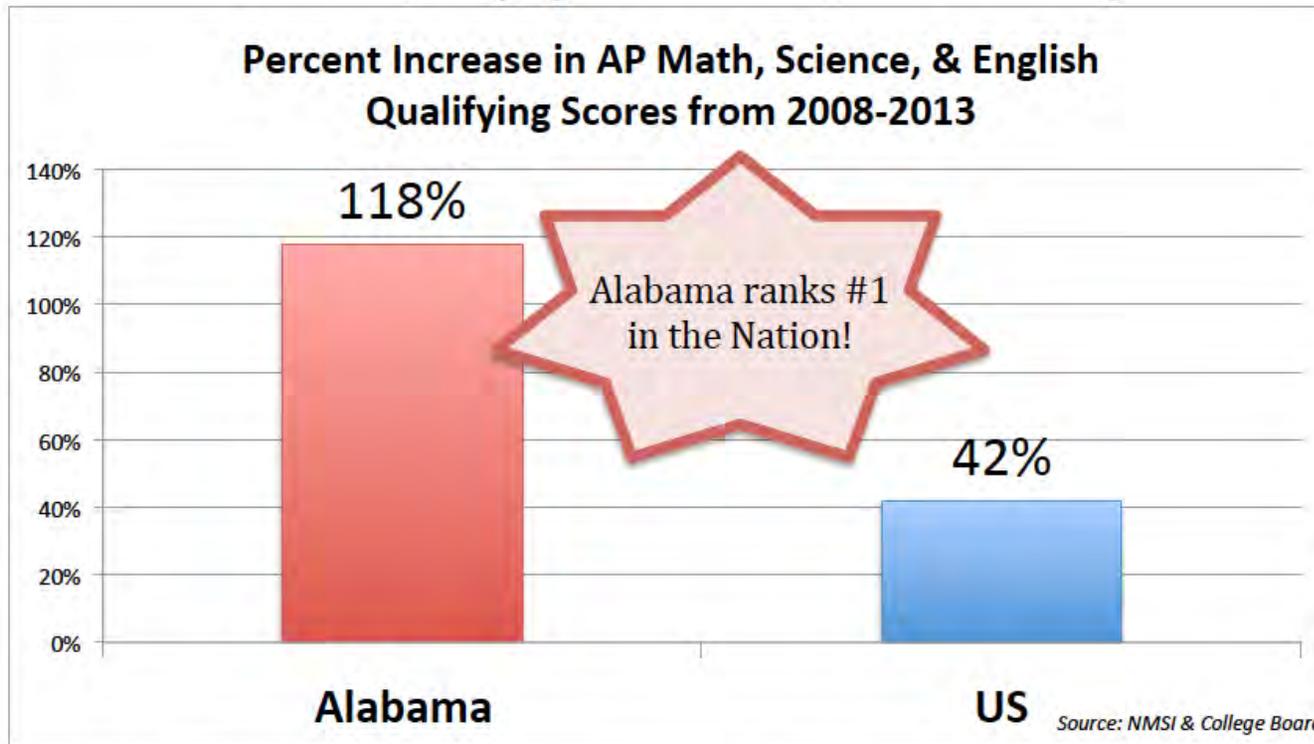
The 39 AAIMS schools produced more qualifying scores in 2012 than the entire state did seven years ago in 2006!

A National Math and Science Initiative Program

A+ COLLEGE READY

A Division of the A+ Education Partnership

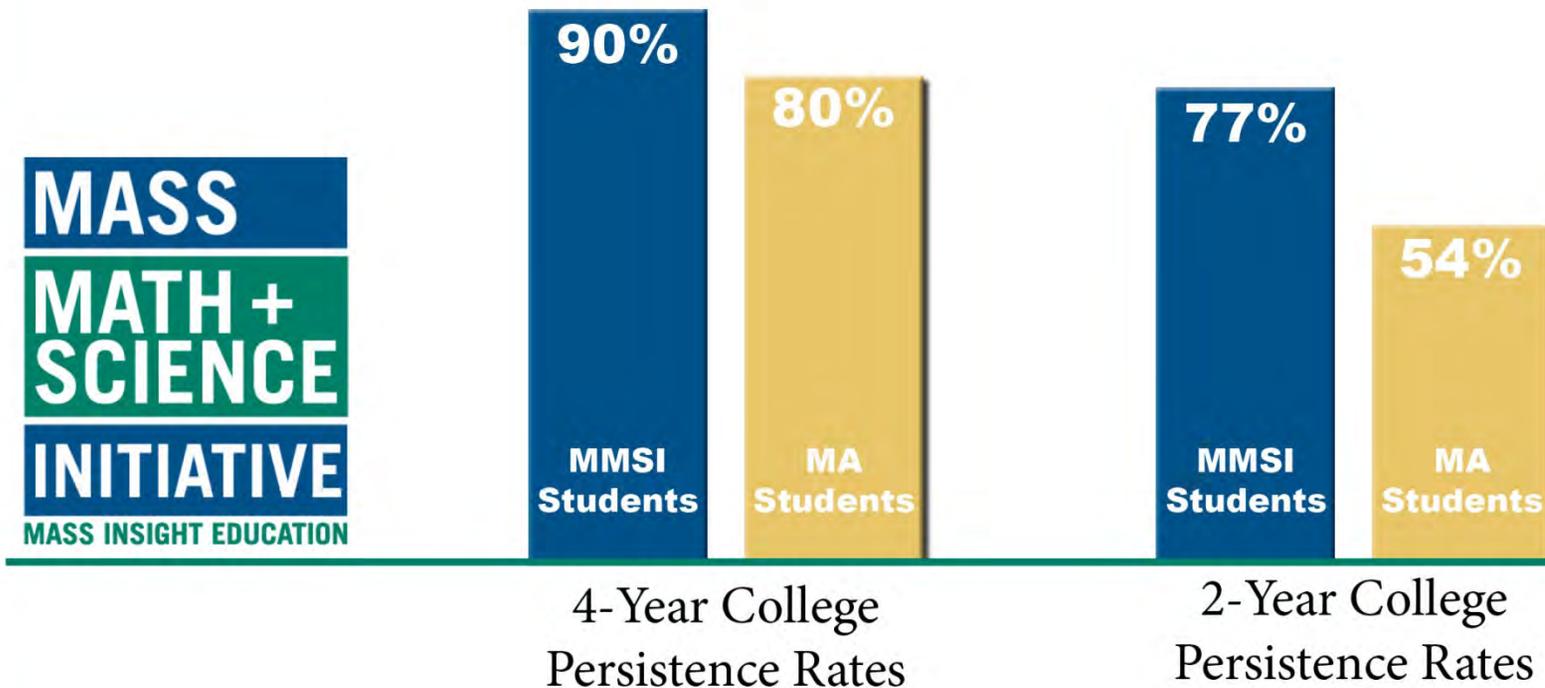
ALSDE/A+ College Ready Schools Soar Ahead of State and National Results in Advanced Placement Qualifying Scores in Math, Science and English (MSE)



Results confirm that the ALSDE/A+ College Ready Program is making an Impact!

MMSI College Persistence Rates Comparisons

MMSI 2010 High School Graduates Persist at a Higher Rate



Lead Sponsor:

ThermoFisher
SCIENTIFIC

Persistence indicates enrollment from first year to second year of college.

NMSI Military Families Program

Thanks to the partners listed below, NMSI's College Readiness Program is being implemented this year in 78 PUBLIC HIGH SCHOOLS serving a high percentage of military families across 18 STATES, with the goal of ultimately reaching a network of 200 MILITARY IMPACTED SCHOOLS.



O' Donnell Foundation



The Sarah &
Ross Perot Jr.
Foundation



NMSI College Readiness Program COST

For One high School with Feeder Pattern(s)

Approximate Average Annual Cost Per Site	Average Impact	Total Program Cost	Average Cost per student over three years
\$167,000 per site, per year, over three years	2000 students	\$500K	\$250

- **Week-long Summer Training for all AP math, science, and English Teachers**
- **Week-long Summer Training for AP math, science, and English Teachers, graded 3-11**
- **Two-Day training in the Fall for all AP math, science, and English Teachers**
- **Mock Exam grading and training for all AP math and science teachers**
- **Online resources for all math, science, and English teachers, grades 3-12**
- **Student Study Sessions for all AP math, science, and English students**
- **Awards for students, teachers, and administrators based on success**
- **AP Exam fees for all AP math, science, and English students**
- **PSAT Exam fees for all 10th graders**
- **Equipment and supplies in math and science courses**
- **Program Management**

SCIENCE

Spreading the A.P. Gospel to Nurture Scientists and Engineers

By KENNETH CHANG MAY 4, 2014

PITTSBURGH — Even before the first day of class in August, Maura Fritzley had second thoughts about taking advanced placement physics.

Although she got good grades in a mainstream physics class, the 18-year-old senior at Brashear High School here had no intention of becoming a physicist, and A.P. classes, after all, are hard.

She decided she wanted to drop it, then changed her mind and stayed. And she struggled, a lot.

A.P. physics proved far more difficult than the earlier class. “Turns out that I’m not that good,” she said in November.

But Maura is exactly the sort of student Brashear administrators want in A.P. math and science classes — not just the brainiest top achievers, but also the average and above average.

On May 12, Maura will take the advanced placement exam in physics, part of an annual two-week ritual for high school students around the country. The goal is to score 3 or higher on the 1 to 5 scale, which many colleges will reward with course credit.

Brashear’s goal is even higher.

The school is in the first year of a three-year push to greatly expand



NATIONAL MATH + SCIENCE INITIATIVE

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