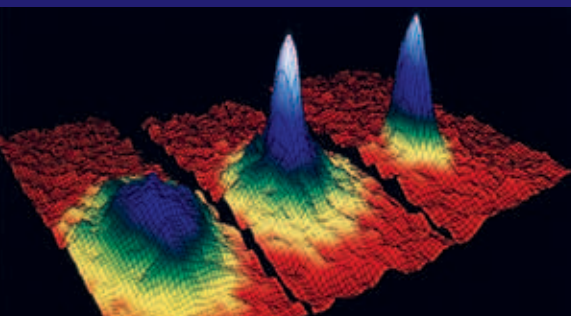


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# MSP Math and Science Partnership Program

Science, Technology, Engineering, and Mathematics  
(STEM) Faculty at Institutions of Higher Education

Strengthening America by  
advancing academic achievement  
in mathematics and science



**National Science Foundation**

Directorate for Education and Human Resources  
National Science Foundation  
<http://www.nsf.gov>

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## About the National Science Foundation

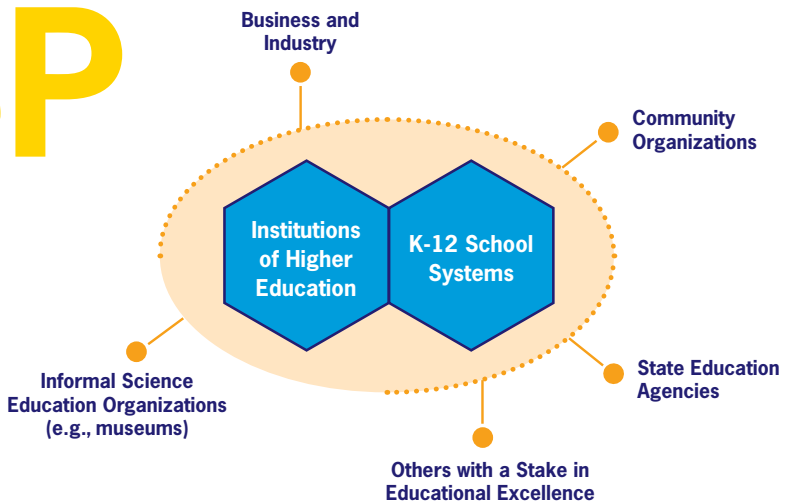
Created by Congress in 1950, the National Science Foundation (NSF) is the steward of America's science and engineering enterprise. The Foundation's role in discovery, learning, and innovation is that of a catalyst, seeking out and funding the best ideas and most capable people, and making it possible for them to pursue new knowledge, discoveries, and innovation.

## About the Math and Science Partnership Program

The Math and Science Partnership program at NSF (reauthorized in 2007 in the America COMPETES Act) responds to a growing national concern — the educational performance of U.S. children in mathematics and science.

Through MSP, NSF awards competitive, merit-based grants to teams that strive to improve K-12 student achievement in mathematics and science.

# MSP



These partnerships are composed of institutions of higher education, local K-12 school systems, and their supporting partners. Together, they bring innovation, inspiration, support, and resources to educators and students in local schools, colleges, and universities.

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# Institutions of Higher Education

## IHE:

### Institutions of Higher Education

The role of higher education faculty in science, technology, engineering, and mathematics (or “STEM faculty”) is the keystone of the MSP program, and is essential to its success. In large measure, it is the significant intellectual engagement of STEM faculty that distinguishes MSP from other K-12 education reform efforts.



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# MSP



*Together, more than **2,600** professors, graduate students, undergraduates, and others...*

*From more than **200** institutions of higher education...*

*Help to bring mathematics and science education to life for students in **nearly 4,200** schools nationwide...*

*With still more to come.*

# STEM Faculty:

## Bringing the Lessons of IHEs to Local Schools, and the Lessons of Local Schools to IHEs

STEM faculty contribute to MSP work in many ways:

- \* Using their own research and scholarship to help educators at all levels rethink K 12 education;
- \* Leading in service professional development in mathematics and the sciences for K 12 teachers;
- \* Mentoring new K 12 teachers;
- \* Reviewing K 12 course curricula;
- \* Working directly with K 12 students in classrooms and other venues;
- \* Motivating students to choose the most challenging mathematics and science courses they can;
- \* Redesigning undergraduate courses to better prepare the next generation of teachers;
- \* Capitalizing upon what they learn from K 12 teachers and students to enhance their own scholarship and teaching; and
- \* Serving on the important national MSP committees that guide and strengthen individual MSP projects and the overall MSP program.

Faculty express the value of their MSP work in their own words.

*When you teach students who really want to learn, as is true for all the teachers in our MSP, the feedback they give keeps you on your toes. They make you a better teacher. My mathematics colleagues and I consider teaching in the “Math in the Middle” MSP to be among the most rewarding experiences of our professional careers.*

– W.J. “Jim” Lewis, Professor of Mathematics, University of Nebraska – Lincoln

*Not only has my involvement in the MSP program helped to transform my approach to teaching, it has also introduced me to the complexities of the K-16 education system. Addressing the goals, needs, and views of different stakeholders is immensely challenging and lends itself, no, actually requires, a partnership approach.*

– Charles Kotal, Associate Dean of the Franklin College of Arts and Science, Professor of Chemistry, University of Georgia

*One of the most distinguishing characteristics of the MSP program has been the substantive engagement of STEM faculty in our PreK-16 initiatives. These faculty bring considerable credibility to this work. They provide examples from cutting-edge scientific and technological research, and they give our PreK-12 colleagues a chance to see how we use collaboration and technology in both teaching and research. But equally important, our faculty have the chance to learn more about the challenges faced by teachers and the special strengths teachers draw upon in helping students from all backgrounds.*

– Freeman A. Hrabowski, III, President, University of Maryland Baltimore County

*MSP has fully engaged our STEM faculty with their K-12 colleagues. Together, they are creating systemic, long term changes that are strengthening STEM teaching and learning in El Paso.*

– Diana S. Natalicio, President, University of Texas at El Paso

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# MSP Goals

MSP serves students and educators by emphasizing strong partnerships that tackle local needs and build grassroots support to:

- \* Enhance schools' capacity to provide challenging curricula for all students and encourage more students to succeed in advanced courses in mathematics and the sciences;
- \* Increase the number, quality, and diversity of mathematics and science teachers, especially in underserved areas;
- \* Engage and support scientists, mathematicians, and engineers at local universities and local industries to work with K-12 educators and students;
- \* Contribute to a greater understanding of how students effectively learn mathematics and science and how teacher preparation and professional development can be improved; and
- \* Promote institutional and organizational change in education systems—from kindergarten through graduate school—to sustain partnerships' promising practices and policies.



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*MSP partnerships make real differences for students and families across Appalachia. Through the Partnership Enhancement Project (PEP) our university and local school districts go beyond workshops and presentations — which are never enough to end the math and science achievement gap. Instead, PEP fosters true partnerships between our faculty and K-12 teachers and administrators that solve ‘real world’ STEM education problems of individual schools or districts.*

– Lee T. Todd, Jr., President, University of Kentucky

# MSP

*Interested in learning more about how Institutions of Higher Education participate in the MSP program? Online guests can view project showcases at [www.mspnet.org](http://www.mspnet.org), the MSP Partners’ electronic learning community.*

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