The National Science Foundation & Arizona

THE NATIONAL SCIENCE FOUNDATION (NSF)

is the only federal agency whose mission includes support for all fields of fundamental science, technology, engineering, and mathematics (STEM).

"STEM jobs will help Arizona grow its global competitiveness… We must continue to work collaboratively to ensure critical fields that drive Arizona's economy are given every opportunity to generate new ideas and innovation."
-Steven Zylstra, President and CEO, Arizona Technology Council

BY THE NUMBERS
Arizona IN FY 2011

11th: National ranking in NSF funds
$192 Million: NSF funds awarded
23: NSF-funded institutions
491: NSF grants awarded

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EXAMPLES OF NSF-FUNDED RESEARCH IN ARIZONA

- Cyberbullying is a problem of increasing concern among parents, educators, and policymakers. With NSF support, University of Arizona researchers convened a meeting to lay the groundwork for needed prevention and intervention programs by establishing common definitions, measurement practices, and methods for future cyberbullying research.

- Researchers at the University of Arizona are studying the types of inputs needed for infants to learn language, such as contributions from their environment and biology. This research explores the specific kinds of input that maximizes learning and has the potential to inform how linguistic information is presented to children.

- The Western Alliance to Expand Student Opportunities Louis Stokes Alliance for Minority Participation project, under the leadership of Arizona State University, has shown that the use of technology-based interventions—including an online catalog of problem sets and ways to connect with faculty—can improve the retention of students matriculating in STEM majors.

- Researchers at Arizona State University and the University of Texas at Austin have found that secondary science teachers who experience science-specific induction programs (as opposed to other types of induction programs) are more likely to develop knowledge and beliefs that support student-centered instruction.

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INVESTMENT IN NSF = INVESTMENT IN ARIZONA INNOVATION

- As of 2011, 10.4% of all jobs in Arizona fall within "high technology" establishments. [1]
- The University of Arizona ranks 26th in the country for R&D funding, including $288 million in federal funding. [2]
- There are over 100,000 scientists and engineers in Arizona's workforce. [4]
- In 2011, 19 patents were produced for every 1,000 scientists and engineers in the state of Arizona. [1]
- Arizona is ranked 6th in the nation as a top entrepreneurship and innovation state. [3]

[1] http://www.nsf.gov/statistics/seind12/c8/interactive/start.cf
[2] http://www.nsf.gov/statistics/seind12/append/c5/at05-10.pdf
[3] http://ncf.uschamber.com/library/2010/03/enterprising-states-2010
[4] NSF Science and Engineering Indicators (2010)

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THE NATIONAL SCIENCE FOUNDATION (NSF) not only funds cutting-edge research at institutions across the country; NSF's education initiatives help to ensure the U.S. will remain a global leader in innovation.

Arizona received **$19 million** in NSF educational funding in FY 2011.

EXAMPLES OF NSF-FUNDED EDUCATION PROGRAMS IN ARIZONA

- The Science and Math in Arizona Rural Teaching (SMART) Fellows Planning Program works with high-needs school districts, nonprofit organizations, and college faculty to educate and train rural science and math teachers who are seeking a master's degree.

- Promoting Excellence in Arizona Middle School Mathematics is a project supported through NSF's Math and Science Partnership program that supports teachers in advancing their knowledge about the teaching and learning of middle school mathematics, as well as developmental mathematics in community colleges.

- The Center for Mathematics Education of Latinos/as is an NSF-supported Center for Learning and Teaching based out of the University of Arizona. This center brings together experts in mathematics education, mathematics, language, and culture to work collaboratively on improving the mathematics education of low-income Latino students.

- At Arizona State University, the Information Technology Experiences for Students and Teachers program engages local junior high school students with a multiyear, extracurricular and technological problem-solving experience. Participants and their families also engage in career and educational exploration in the IT/STEM subjects.

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"If we are to be of service we must begin to perceive innovation as perpetual because perpetual innovation is what will be required, both in terms of the advancement of knowledge itself and the advancement of our institutions of higher education."

– Michael M. Crow, President, Arizona State University

"Arizona must develop a globally competitive educational system, and STEM disciplines will lead the way."

– Darcy Renfro, vice president of education and coordinator of the Arizona STEM Network at Science Foundation Arizona, a public-private partnership designed to strengthen and diversify Arizona's economy through strategic research and investment