ITEST

“ . . . a new generation of innovations depends on a new generation of innovators.”
—President Barack Obama[1]

“For America to continue to lead the world in science and technology innovation, it must have the most knowledgeable and skilled workers in the world.” —National Economic Council[2]

“The most powerful computing systems in the world are in the United States, but America lacks sufficient numbers of computational scientists to fully realize its leadership position.” —Council on Competitiveness[3]

The Innovative* Technology Experiences for Students and Teachers (ITEST)

- *Established in 2003 by the National Science Foundation to address the looming shortage of technology workers in the United States*
- *Includes 193 projects across 42 states*
- *Helps students and teachers build the skills needed to succeed in a science- and technology-driven world*

ITEST impacts:

- *Students: 225,800 (K–12)*
- *Educators: 8,000*
- *Parents and caregivers: 3,000*

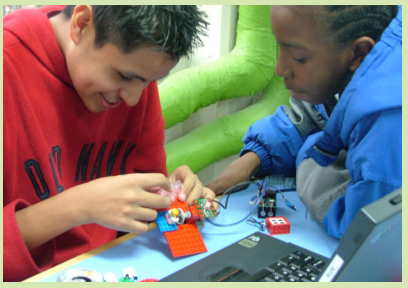
ITEST participants become scientists, engineers, and technologists.

They explore the frontiers of knowledge and make discoveries using the same innovative technology as STEM professionals:

- *Analyzing data from a giant radio telescope at the Pulsar Search Collaboratory, an ITEST student discovers a new astronomical object—a strange type of star called a rotating radio transient.*
- *In East San Francisco Bay Area, five sites located in underserved urban communities form a regional network. The result—300 students, ages 14–16, conduct clean energy research investigations to better understand energy impacts within their communities.*

Examples of ITEST project results:

- *ITEST Photonics Leaders II: 83% of students identified STEM-related careers to pursue after college.*
- *ITEST GreenFab: Students outperformed their non-participating counterparts on a statewide Regents exam.*
- *ITEST BuildIT: Girls using the WaterBotics underwater robotics curriculum demonstrated increased interest in and enjoyment of science.*

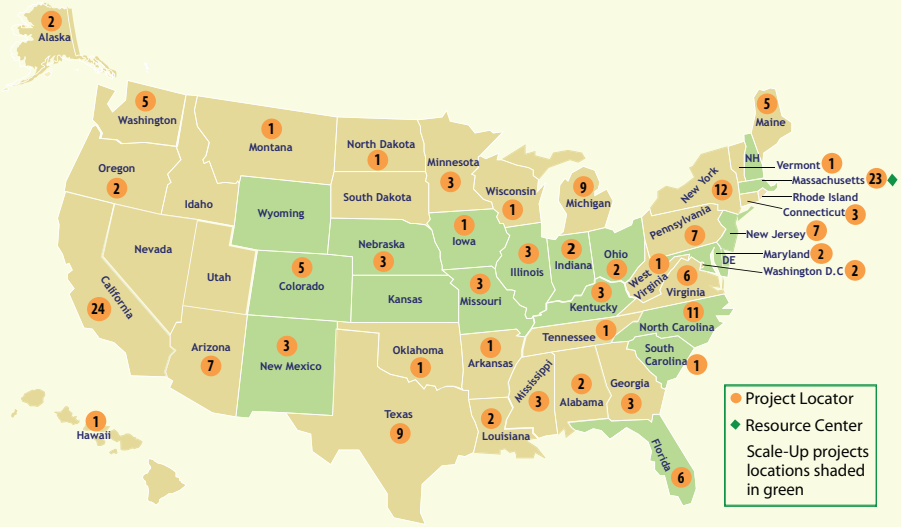


Untapped potential . . .

A diverse pipeline will increase our ability to discover, create, innovate, and adapt.

Women and minorities remain underrepresented in science, technology, engineering, and math (STEM) occupations.

Women constitute just 26% of the STEM workforce, compared to 47% of the overall workforce. African Americans make up only 6%, compared to 11% of the overall workforce, and Hispanics account for a little more than 5%, less than half their share of the overall workforce.[4]



Taking ITEST to Scale

ITEST Scale-Up projects are working with 19 states (green shaded) to roll out lessons learned in successful STEM learning, both in and out of school.

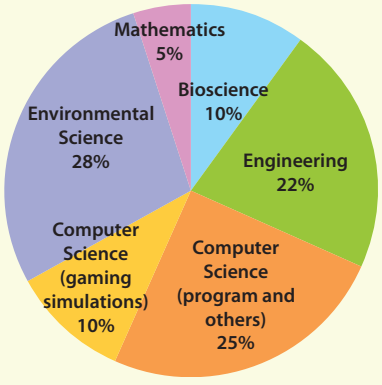
"I Am a Scientist"

Using the same technologies, tools, and methods that scientists use on the job, young people ages 5–18 explore their environment, conduct research, build programmable machines, and create media in community settings afterschool and during the summer.

Authentic Learning

Combining the best of formal and informal learning, teachers create authentic STEM learning experiences that integrate IT concepts, skills, and applications into their classrooms. Teachers work with students to pursue research questions and deepen their scientific and technological expertise.

Primary Focus of Projects



ITEST Projects Increase STEM Learning and Career Knowledge

The ITEST Learning Resource Center is an available resource for national, state, and local education departments seeking to strengthen STEM education. We offer the models, lessons learned, and expertise gained from nine years of STEM education work with:

- **Strategies** projects that have designed, implemented, and evaluated models that engage youth, educators, family, and other community members in STEM-rich, contextual learning experiences
- **Scale-Up** projects that are expanding proven STEM practices to engage larger populations of learners
- **Research** projects that have enriched our understanding of how to enlarge the country's STEM workforce
- **Conferences and workshops** that have contributed to the development of a research agenda on K–12 STEM career and workforce education issues

ITEST Learning Resource Center

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* formerly Information Technology Experiences for Students & Teachers

1) Obama, B. (2009). *Remarks by the president on innovation and sustainable growth.* Speech delivered at Hudson Valley Community College, Troy, NY. Retrieved September 27, 2009, from http://www.whitehouse.gov/the_press_office/Remarks-by-the-President-on-Innovation-and-Sustainable-Growth-at-Hudson-Valley-Community-College/
2) National Economic Council. (2009, September 20). *A strategy for American innovation: Driving towards sustainable growth and quality jobs.* [White paper]. Washington DC: Office of Science and Technology Policy. Retrieved from http://www.whitehouse.gov/assets/documents/SEPT_20__Innovation_Whitepaper_FINAL.pdf
3) Council on Competitiveness. (2008, April). *Thrive: The skills imperative.* Washington, DC.
4) National Science Foundation. (2010, January). *Science and engineering indicators 2010* (NSB 10-01). Arlington, VA: National Science Board.

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