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# PRESIDENT OBAMA HIGHLIGHTS SUCCESS OF TECHNOLOGY-DRIVEN TECHBOSTON ACADEMY

**NSF support of Boston public school promotes teacher development and student learning in science, technology, engineering and math**


President Obama speaks at TechBoston Academy on March 8.
**Credit and Larger Version**

President Obama and Melinda Gates visit TechBoston.
**Credit and Larger Version**

James Louis (at right) hosted the president in his classroom.
**Credit and Larger Version**

**March 30, 2011**

On March 8, President Barak Obama paid a visit to TechBoston Academy in Dorchester, Mass., a technology-driven pilot school for grades six to 12 within the Boston Public School System (BPS), to promote the importance of education in today's society and to highlight TechBoston as a model school for student success.

The president toured classrooms, spoke with students and teachers, and gave a speech to the student body and faculty. Melinda Gates of the Bill and Melinda Gates Foundation and U.S Secretary of Education Arne Duncan joined the president during his visit. Joan Ferrini-Mundy, assistant director for the National Science Foundation's (NSF) Education and Human Resources Directorate, was also at the event.

"It was truly significant that President Obama chose to visit a school that is in a high-needs urban setting and that has had such extraordinary success," said Ferrini-Mundy. "This was obviously a special day for the students, teachers, administrators and families of TechBoston. It was moving to be able to be there to be a part of it and to see the hope and promise of these students."

TechBoston was founded in September 2002 with the support of the Bill and Melinda Gates Foundation and the Boston Foundation. The lower academy, for grades six through eight, was established in September 2009 to accommodate more students.

Drawing from populations where many students come from tough neighborhoods and low-income backgrounds, students at TechBoston have shown great improvement in their academic performance, thanks to a school environment that encourages student success. For example, technology is a key component integrated into all academic courses and laptops are provided for every student.

The performance levels at TechBoston all exceed state and local averages. The 83 percent graduation rate at TechBoston is 20 percentage points higher than the citywide average. Ninety-four percent of TechBoston graduates attend two- or four-year colleges and universities, and 85 percent of TechBoston students are the first in their family to attend college. The daily attendance rate at TechBoston is 94 percent.

In terms of state performance assessments, measured by the most recent Massachusetts Comprehensive Assessment System, some 55 percent of TechBoston students scored at the proficient or advanced level on the 10th grade English language arts test, and 65 percent scored at the proficient or advanced level on the mathematics test.

In his speech at TechBoston, President Obama observed, "What's happening here is working. We know what works. What's required, then, to get results from any school is no longer a mystery. And that means there can't be any more excuses--from anybody."

All of the science and math teachers at TechBoston are certified to teach the subjects they are teaching. With support from NSF, the school has active projects and initiatives that enhance teaching and learning in the areas of science, technology, engineering and math (STEM).

"NSF has been an essential partner with TechBoston every step of the way in building up our STEM initiatives," said Mary Skipper, the headmaster at TechBoston. "Our hope is that with partners like NSF, we will continue to produce the next generation of scientists, engineers, biochemists and mathematicians to help the United States regain its reputation as a country committed to the advancement of science and technology."

James Louis is a biology teacher whose class President Obama visited on March 8. Louis majored in biology in college and worked as a STEM professional before deciding to become a teacher. In his time at Tech Boston he has been involved in the **Boston Science Partnership**, an NSF-funded effort aimed at significantly enhancing student achievement and teacher quality in six to 12th grade science.

With BPS, Northeastern University and the University of Massachusetts Boston as core partners, and the Harvard Medical School and the College Board as supporting partners, the Boston Science Partnership's goals are to raise BPS student achievement in science,

significantly improve the quality of BPS science teachers, increase the number of students who succeed in higher-level courses in science and who are admitted to and retained in university science and engineering programs, improve science teaching both in BPS and at the universities and institutionalize these changes so that the Boston Science Partnership and its work will be sustained.

The preparation of new teachers is a key component in improving the quality of STEM teaching and learning. Following a one-year master's degree teacher-preparation program at UMass Boston for career changers called Teach Next Year, James Louis is now teaching science at TechBoston Academy. He is also mentoring an intern through the **Robert Noyce Teacher Scholarship Program**.

Intern Crucita Tredwell is a career changer, with a bachelor's degree in biology and a minor in chemistry. She worked in business and as a lab technician at the Massachusetts Maritime Academy before deciding to become a science teacher.

The Noyce scholarship supports Tredwell as she pursues a master's degree through the Teach Next Year program. Through the program, Tredwell and other Noyce scholars and interns (in subjects other than science and mathematics) take courses in the summer and during the school year in the evenings while they do a year-long internship five days per week at a school in Boston. A large fraction of the teachers at the school (19) are graduates of the Teach Next Year program, including six math and science teachers.

TechBoston Academy has been very much involved in this project since it began.

Biology and chemistry teacher leader Lisa Henderson has been very involved in the Boston Science Partnership. She co-taught courses with science faculty at UMass Boston, and has taken several graduate level biology and chemistry courses for teachers. She has also been involved in the Urban Ecology Institute at Boston College, a project through NSF's **Discovery Research K-12** (DRK-12) program to develop, test, evaluate and disseminate a year-long set of urban ecology course materials for use in high-school-level capstone science courses.

Henderson also participated in the CapsULE capstone unique learning experience at Northeastern University through NSF's **Innovative Technology Experiences for Students and Teachers** (ITEST) program. With the CapsULE project, materials developed at the Museum of Science and real world problems solicited from local industry are formulated as projects to be used in a hands-on, capstone elective course or in after school activities. Students can relate STEM concepts covered in the classroom to real world applications and learn the engineering design process. As part of the course, students visit companies to learn first-hand about the day-to-day activities of the STEM/IT workforce. They also produce their own media content of their projects.

Several TechBoston teachers have been involved in **Probes and Models Across the Curriculum**, another ITEST project. This project was developed to prepare diverse middle- and high-school students for

careers in information technologies by engaging them in designing inquiry-based science activities that use computational models and real-time data acquisition and analysis. The project provided lab-based teacher development and support for classroom implementation.

Maria Vugrin, Jim Sherrod and Denise Traniello are among the TechBoston teachers who have benefited from the **Urban Systemic Program** in Boston Public Schools. Vugrin became a middle-school science teacher leader through the Urban Systemic project and continued with strong involvement in professional development through the Boston Science Partnership.

Among the results of this program are that the Boston Public School District implemented an inquiry-based science curriculum for grades K-12, developed a culture of professional development for all teachers of science, implemented an assessment system in grades six-12, and increased advanced science offerings for students.

TechBoston also hosted graduate student Cadence Ellington, who was awarded a fellowship through **Project Stamp**, a project of the **Graduate Research Fellows in K-12 Education** (GK-12) program. An aerospace and mechanical engineering graduate student from Boston University, Ellington brought her perspective to the high-school classroom in supporting the themes of investigation, experimentation and problem solving in science classes.

For more information, view the **video coverage of the president's visit** or visit the **Tech Boston's website**.

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**Locations**
Massachusetts

**Related Programs**
**Discovery Research K-12**
**Math and Science Partnership**
**Advanced Technological Education**
**Instructional Materials Development**
**Robert Noyce Teacher Scholarship Program**
**NSF GRADUATE TEACHING FELLOWS IN K-12 EDUCATION**
**Innovative Technology Experiences for Students and Teachers**

**Related Awards**
**#0412390 Boston Science Partnership**
**#0532038 UMB Noyce Scholars Program**
**#0833636 Strategies: CAPSULE: CAPStone Unique Learning Experience**
**#1035247 NOYCE Scholars Phase II: Teach Next Year in Boston and Randolph**
**#0703097 Boston Area Advanced Technological Education Connections (BATEC)**
**#0423059 Robotics: Fundamentals of Information Technology and**

**Engineering**
**#0231909 GK-12 Project STAMP -- Science Technology and Mathematics Partnerships**
**#0628143 Urban Ecology Course Materials Created with a Universal Design for Learning Framework**
**#0624718 Probes and Models Across the Curriculum: Information Technology in Science Instruction (IT-SI)**
**#0115606 Urban Systemic Program in Science, Mathematics, and Technology Education (USP): Boston's Math and Science Plan**

**Total Grants**
$30,358,919

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