



Massachusetts Department of Higher Education

STEM Pipeline Fund: *an Economic Stimulus Initiative*

The economies of Massachusetts and the United States depend heavily on innovation and global competitiveness which require a strong educational foundation in science, technology, engineering and mathematics (STEM). The historic leadership of Massachusetts and the nation in these fields is eroding.

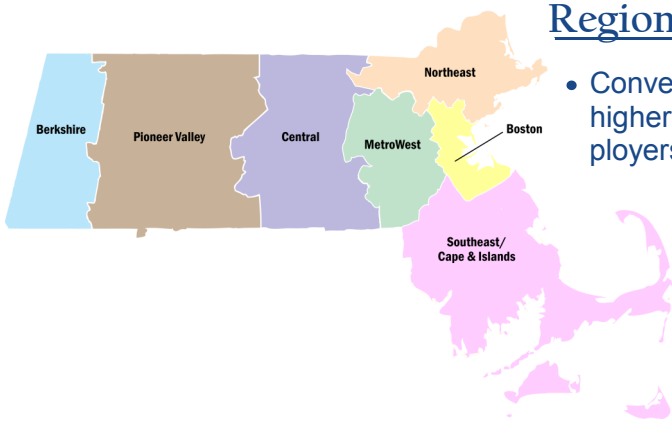
To address the need in Massachusetts for a workforce highly skilled in STEM, the Massachusetts Legislature established the STEM Pipeline Fund within the Dept. of Higher Education through the 2003 Economic Stimulus legislation.



STEM Pipeline Fund Goals

- Increase the number of students who prepare for and enter STEM careers.
- Increase the number of qualified STEM teachers.
- Improve STEM educational offerings.

The STEM Pipeline Fund emphasizes collaboration among K-12, higher education, industry, state government, and community organizations to address workforce needs and align programs. Many very good STEM activities currently exist throughout Massachusetts but they are often fragmented in a way that frustrates replication of successful programs and results in lost opportunities.



Regional PreK-16 Networks

- Convene regional PreK-12 districts, higher education institutions, employers, and community groups.
- Address topics of regional concern.
- Communicate information and opportunities.

To promote collaboration, the Department of Higher Education awarded one-year competitive planning grants, in 2004, of over \$2 million to establish Regional PreK-16 Networks. These planning grants were followed by the awarding of three-year funding grants, through a RFP process, which formalized the Networks into the following seven defined regions: **Berkshire**, **Pioneer Valley**, **Central**, **MetroWest**, **Northeast**, **Southeast/Cape & Islands**. (The Cape & Islands and Southeast have since combined into one region.) This year, the STEM Pipeline Fund formalized a regional STEM Network in **Boston**. The Boston STEM Network will eventually expand to include the surrounding communities so that every town and city in the Commonwealth is part of Regional STEM Network System.

Anyone can join a Regional STEM Network—businesses, educators, students, non-profits, etc.—to offer ideas and passion for improving STEM education and ensuring we have enough skilled workers to bridge the employment gap. To learn more or to join your local Network, see the programming and contact information listed on the back.

Why STEM?

- **80%** of jobs created in the next decade will require STEM skills.
 - STEM related jobs pay higher wages and have greater levels of job security.
- **30%** of all new jobs (over 79,000) in Massachusetts will be in STEM occupations by 2014, an increase of 18% over 2004.
 - Recent job vacancy data show that the state's STEM occupational groups were experiencing job vacancy rates at or above the statewide average of 3.2%.

(US Bureau of Labor, Mass Dept. of Labor and Workforce Development & UMass Donahue Institute.)



Regional STEM Networks

Berkshire STEM Network

Comprised of 33 towns in the western most part of the state, the Network's focus is on advancing the state STEM goals of increasing student interest, achievement and college readiness. The Network has partnered with @Scale projects, MassBioEd and MMSI, in this effort. Additionally, the Network facilitates a workgroup of higher education faculty and secondary school educators for the purpose of jointly developing curricula for high school courses to help ensure student college readiness.

Boston STEM Network

The newly constituted network is focused on STEM career awareness, out-of-school time opportunities, and measures of student interest, academic achievement and program scale to drive disparate and collaborative Network activities toward a common goal. In addition to the Boston Public Schools and the city's prominent institutions of higher learning, the Network features large employers in the medical, scientific and informational technology fields.

Central STEM Network

This Network works collaboratively to identify common STEM needs and leverage existing resources and expertise in the region to meet those needs. Three subcommittees composed of Network members and aligned to the Massachusetts STEM goals research, develop and implement programs to increase student interest, to support increased college readiness and retention in STEM majors and to improve teacher effectiveness. The Network continues to implement Innovation Month, the Women in Science Conference, the Men in STEM Conference and the STEM Expo.

MetroWest STEM Education Network

Comprised of 43 cities and towns west of Boston, the Network is located in a region richly populated with STEM companies. The current focus is on developing a virtual STEM academy composed of program templates and materials for use all levels and audiences. The purpose of this public-use repository is to encourage collaboration, reduce redundancy, and ensure consistency and quality of message all aligned with the State STEM goals. The Network also works with the Greater Boston Readiness Ctr. in delivering STEM professional development.

Northeast STEM Network

With a mission to increase the number of qualified young people who choose STEM careers, the Network is focused on enhancing student/teacher STEM experience with forums of higher education and high school faculty to discuss college expectations and with mini-conferences of educators and industry partners to bridge their gap and to highlight best instructional practices. Great attention is also paid to teacher professional development. The network also has an award winning webzine called "STEM Matters" to help students, educators and families learn about STEM in the real world.

Pioneer Valley STEM Network

The newly restructured network is focused on increasing student interest and achievement beginning with the creation of a searchable data base of regional resources and model programs to better assess needs and strengths in order to target programming. A forum will be held to introduce the K-12 audience to these regional resources. Support of science fairs, summer camps, college visits and teacher PD will continue.

Southeast STEM Network

The network is focused on increasing student interest and preparation through events such as the May 2012 SE MA STEM Expo which attracted participation from 25 school districts and 500 grade 5-8 students. The Expo featured hands-on exhibits and activities encouraging school districts to connect with local businesses and other area STEM resources, with a goal of expanding activities into more local communities in the coming years. The Network is also building its capacity to offer professional development to early childhood and K-12 educators.



STEM Pipeline Fund Website: www.mass.edu/pipeline

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