



**Raytheon**



The University of Massachusetts  
The NSF Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)  
The Christa McAuliffe/Challenger Center at Framingham State College  
Raytheon  
Mass Insight Education  
The Massachusetts Board of Higher Education  
The Massachusetts Department of Education  
Museum of Science  
The Millipore Foundation  
Genzyme Corporation  
Battelle Corporation  
Boston Area Advanced Technological Education Center (BATEC)  
Massachusetts High Technology Council  
and  
The Commonwealth Information Technology Initiative (CITI)

are pleased to sponsor

The Massachusetts Science, Technology,  
Engineering and Mathematics (STEM) Summit III

“Securing the Future: Closing the STEM Achievement Gap”

Wednesday, October 25, 2006  
Sturbridge Host Hotel and Conference Center  
Sturbridge, Massachusetts

<http://www.massachusetts.edu/stem/>



Massachusetts Board of Higher Education



National Center for  
Technological Literacy®  
Museum of Science, Boston



## AGENDA

### Overview of the Day

8:15 a.m.	Registration & Breakfast	Hawthorne Exhibit Hall
9:00 a.m.	Welcome (Exhibit Hall)	<p>Jack M. Wilson, President, University of Massachusetts</p> <p>David P. Driscoll, Commissioner, Massachusetts Department of Education</p> <p>Christopher R. Anderson, Massachusetts Board of Education, President, Massachusetts High Technology Council</p> <p>Patricia F. Plummer, Chancellor, Massachusetts Board of Higher Education</p>
9:30 a.m.	Keynote Address	Kerri L. Brigg, Assistant Secretary for Planning, Evaluation, and Policy Development, United States Department of Education
10:20 a.m.	Overview of the Day	Isa Zimmerman, University of Massachusetts Senior Fellow, STEM Initiative
10:30 a.m.	Breakout Sessions	See following pages for descriptions and locations.
12:00 p.m. 12:30 p.m.	Lunch Buffet	<p>Hawthorne Exhibit Hall</p> <p>Honoring Professor Krishna Vedula, University of Massachusetts Lowell</p>
12:45 p.m.	Luncheon Address	<p>Ellen Ferraro, Deputy Director, Systems Validation, Raytheon Integrated Defense Systems</p> <p>Introductions: David J. McLaughlin, Professor, Electrical and Computer Engineering and Director, CASA, UMA Amherst</p> <p>J. Lynn Griesemer, Associate Vice President for Economic Development and Executive Director, University of Massachusetts Donahue Institute</p>
1:30 p.m.	Breakout Sessions	See following pages for descriptions and locations.
2:45 p.m.	Break	
3:00 p.m.	Closing Session and Raffle	Hawthorne Exhibit Hall

## Sessions at a Glance

<b>MORNING</b>	<b>SESSION</b>	<b>TITLE</b>	<b>LOCATION</b>
10:30-11:45	Breakout One	Policy and Resources: A Response Panel	Seminar Theater 1 & 2
10:30-11:45	Breakout Two	Wingspread: Advances in Instructional Technology Learning and Teaching	Abington
10:30-11:45	Breakout Three	Moving Toward Alignment-Curriculum for Success	Sturbridge
10:30-11:45	Breakout Four	Our Next Design Task: Bringing “TE” Opportunities to “STEM”	Cheshire
10:30-11:45	Breakout Five	Vanguard Schools and Promising Practices (Science Education)	Danforth
10:30-11:45	Breakout Six	Effective Employer/School Partnerships (Session I)	Brimfield/Charlton
<b>AFTER-NOON</b>	<b>SESSION</b>	<b>TITLE</b>	<b>LOCATION</b>
1:30-2:45	Breakout One	Planning to Address the Stem Pipeline	Brookfield
1:30-2:45	Breakout Two	Wingspread: What Do We Know and What Does it Mean?	Abington
1:30-2:45	Breakout Three	P-16 Partnerships That Work	Brimfield/Charlton
1:30-2:45	Breakout Four	NASA’s Education Mission	Sturbridge
1:30-2:45	Breakout Five	Vanguard Schools and Promising Practices (Web-Based Technology in Education)	Danforth
1:30-2:45	Breakout Six	Effective Employer/School Partnerships (Session II)	Seminar Theater 1 & 2

## Breakout Sessions:

Breakout One	
10:30-11:45 a.m.	<p><b><u>POLICY AND RESOURCES: A RESPONSE PANEL</u></b></p> <p>Session Moderator: Jack M. Wilson, President, University of Massachusetts</p> <p>Panelists:  Congressman John F. Tierney and Senator Karen Spilka  Representatives Daniel Bosley, Patricia Haddad, Kevin Murphy and Marie St. Fleur</p> <p>This open panel, moderated by University of Massachusetts President Jack M. Wilson, will feature state and federal legislative representatives. The topic for discussion will be government support for STEM education in P-16 programs. As we move from a manufacturing economy to an information economy, math and science proficiency are becoming increasingly important to the enduring strength of the United States. To bolster our prominence on the world stage, both state and federal resources must be targeted to STEM initiatives. Good first steps are Massachusetts' upcoming participation as a benchmarked entity in the 2007 TIMSS, the Massachusetts Advisory Committee on Education Policy, and the President's new National Mathematics Advisory Panel. While worthwhile, however, these programs just scratch the surface of the major STEM education proficiency problems and STEM achievement gap plaguing the Commonwealth and the nation, which will not be remedied without substantial infusions of resources (money, time and staff). The panelists will address these issues and take questions from the audience.</p> <p>LOCATION: <b>SEMINAR THEATER 1 and 2</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>PLANNING TO ADDRESS THE STEM PIPELINE</u></b></p> <p><b>How can the Pipeline Fund advance STEM learning?</b></p> <p>Session Moderator: Susan Green, Associate Director, STEM Pipeline Fund, Massachusetts Board of Higher Education</p> <p>Panelists:  Monica Joslin, Dean of Academic Affairs, Massachusetts College of Liberal Arts (Berkshire Network)  Sandy Mayrand, Director, Regional Science Resource Center, University of Massachusetts Medical School (Central Network)  Donald Pierson, Dean, University of Massachusetts Lowell School of Education (Northeast Network)</p> <p>The Pipeline Fund has three key objectives: 1. to increase the number of students preparing for and entering STEM fields; 2. to increase the number of qualified STEM teachers; and 3. to improve the performance of all students in mathematics and science. The goals and process for the next round of Pipeline Fund grants will be reviewed. Panelists from lead partners of three of the regional Pre-K to 16 Networks that participated in the previous round of Pipeline Fund grants will outline their experiences and suggestions for the next phase.</p> <p>LOCATION: <b>BROOKFIELD</b></p>

<b>Breakout Two</b>	
10:30-11:45 a.m.	<p><b><u>WINGSPREAD: ADVANCES IN INSTRUCTIONAL TECHNOLOGY LEARNING AND TEACHING</u></b></p> <p>Session Moderator: Isa Zimmerman, University of Massachusetts Senior Fellow, STEM Initiative</p> <p>Panelists:</p> <p>Chris Dede, Timothy E. Wirth Professor, Harvard Graduate School of Education</p> <p>Margaret Honey, VP, EDC and Director of Center for Children and Technology</p> <p>Patrick Schettini, Superintendent, Reading Public Schools</p> <p>Mark Schlesinger, Associate Vice President for Academic Technology, University of Massachusetts</p> <p>Debra Socia, Principal, Lilla G. Frederick Pilot Middle School, Boston</p> <p>In the “fishbowl” setting, the panelists will discuss questions ranging from: While tomorrow’s classrooms will be closer to today’s most “high tech” executive conference rooms, the most critical evolution will have to be teacher practices. What changes do you want to see? How do we get from talking about and using educational technology to IT fluency and ITAC? Can PreK-12 and 13+ work together systematically to contribute to the STEM preparation solution?</p> <p>LOCATION: <b>ABINGTON</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>WINGSPREAD: WHAT DO WE KNOW AND WHAT DOES IT MEAN?</u></b></p> <p>Session Moderator: Isa Zimmerman, University of Massachusetts Senior Fellow, STEM Initiative</p> <p>This session will engage participants in thinking about what we already know, what we learned in the morning session and how that knowledge can be applied in the school, school system, higher education and the Commonwealth. There will also be an opportunity to discuss a grant program. Group leaders include Matt Mervis from North Adams, Mark Weston from Dell Corporation, Alana Wiens from the Commonwealth Information Technology Initiative, Patrick Schettini from the Reading Public Schools and Debra Socia from the Frederick Pilot Middle School.</p> <p>LOCATION: <b>ABINGTON</b></p>

<b>Breakout Three</b>	
10:30-11:45 a.m.	<p><b><u>MOVING TOWARD ALIGNMENT-CURRICULUM FOR SUCCESS</u></b></p> <p>Session Moderator: Katherine Richard, State Mathematics Coordinator, Massachusetts Department of Education</p> <p>Panelists:  Kathleen Harrington, Associate Vice President for Academic and Student Affairs and International Relations, University of Massachusetts  Aundrea Kelley, Associate Vice Chancellor for Academic Policy, Massachusetts Board of Higher Education  Stafford Peat, Administrator of Secondary and School Support, Massachusetts Department of Education</p> <p>State graduation requirements are currently limited to US History, Health/PE and the MCAS competency determination, but what courses do students need most for college and career success? Why do so many new college freshmen need remediation before they can enroll in college level work? How can we bridge the gap between the skills students leave high school with and the skills they really need for college math and science or even for entry-level work?</p> <p>During this interactive session high school and college faculty will learn about and provide feedback on a proposed curriculum for success for the Commonwealth.</p> <p>LOCATION: <b>STURBRIDGE</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>P-16 PARTNERSHIPS THAT WORK</u></b></p> <p>Session moderator: Barbara Libby, Director, Office for Mathematics, Science, and Technology/Engineering, Massachusetts Department of Education</p> <p>Panelists:  Susan Berglund, Manager, Massachusetts General Hospital/Boston Public Schools- Timilty School Partnership  Jack Sheridan, Middle School Professional Development Specialist, Boston Public Schools  Christine Shaw, Project Director, PowerUp! Museum of Science  Reed Brockman, Senior Engineer, DJ Harris  Jim Stanton, Director, The Technology Initiative, Metro South/West Regional Employment Board  Mariluci Bladon, PhD. Program Coordinator Biotechnology Technician Program, Middlesex Community College  Carolyn Richards, Director of Guidance, Somerville Public Schools</p> <p>This session will highlight the stories of successful P-16 STEM partnerships involving school districts, higher education institutions and businesses. What are the practical steps in developing an effective partnership?</p> <p>Panelists will share lessons learned about the key elements of a successful partnership, including: helping to clarify each partner's role; articulating the benefits of becoming a partner; strategies for sustaining a partnership; and tools for assessing the impact of the partnership activities on student learning and careers.</p> <p>Learn how a P-16 partnership can enhance and enrich teachers' professional development and content knowledge and engage and excite students to pursue STEM learning.</p> <p>LOCATION: <b>BRIMFIELD/CHARLTON</b></p>

Breakout Four	
10:30-11:45 a.m.	<p><b><u>OUR NEXT DESIGN TASK: BRINGING “TE” OPPORTUNITIES TO “STEM” EDUCATION</u></b></p> <p>Session Moderator: Jake Foster, Director, Science, and Technology/Engineering, Massachusetts Department of Education</p> <p>Panelists:  Jeffrey Nellhaus, Deputy Commissioner, Massachusetts Department of Education  Yvonne Spicer, Associate Director, National Center for Technological Literacy, Museum of Science  Mweusi Willingham, Headmaster, The Engineering School, Boston  Isabel DePina, Director of Curriculum, Assessment, and Placement, The Engineering School  Charlie Corley, Department Leader, Winchester</p> <p>Massachusetts leads the nation with the state’s technology/engineering standards. Our standards are even referred to internationally as other countries look to promote technology and engineering education. Massachusetts now faces its next challenge: <i>finding effective ways to support school programs and course offerings to insure technological literacy for all students in the Commonwealth.</i></p> <p>This session will highlight existing models and strategies to support technology/engineering education and career preparation. Panelists will illustrate how they build from state policies, standards, and assessment practices to design technology/engineering curricula and programs. Panelists will address key challenges, such as: making time for hands-on and laboratory experiences; developing technology/engineering curricular themes; engaging administrators to communicate the value of technology/engineering; and gathering resources needed to implement programs.</p> <p>LOCATION: <b>CHESHIRE</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>NASA’S EDUCATION MISSION</u></b></p> <p>Session Moderator: Raymond J. Griffin, Jr., Director, McAuliffe/Challenger Center, Framingham State College</p> <p>Panelists:  John M. Hairston, Jr., Acting Assistant Administrator, Office of Education, NASA  James Stofan, Acting Deputy Assistant Administrator, Education Programs, NASA  Richard Varner, Educational Liaison, NASA Goddard Space Flight Center</p> <p>NASA is taking a leadership role to inspire interest in STEM disciplines in K to 16 classrooms through its unique mission, workforce, facilities, research and innovations. This session will provide attendees with an understanding of and access to NASA’s education portfolio of products and services. These products and services have been designed to impact America’s talent pool by improving K to 16 STEM education.</p> <p>To gain maximum benefit from this session, it is <u>strongly</u> recommended that attendees bring a laptop computer – configured, if possible, with wireless capabilities.</p> <p>LOCATION: <b>STURBRIDGE</b></p>



Breakout Five	
10:30-11:45 a.m.	<p><b><u>VANGUARD SCHOOLS AND PROMISING PRACTICES (SCIENCE EDUCATION)</u></b></p> <p>Session Moderators: Alison Fraser, Director, Great Schools Campaign, Mass Insight Education Danielle Stein, Project Director, Building Blocks &amp; Manager of Field Services, Mass Insight Education</p> <p>Through its Building Blocks Initiative, Mass Insight analyzes high-performing schools and districts that reflect the deepest levels of scalable, replicable reform, thereby promising to provide roadmaps of conscious decision making that could help lead other schools to similar results. This session will include presenters from schools and districts modeling innovations in science education, specifically West Middle School, Andover, Massachusetts. Assistant Superintendent Marcia Adams O'Neill and Principal Denise Holmes will describe their program. Included are Dan Miley, Engineering Teacher, and Nicole Pelletier, Alex Kramer, Caylen Bryant and Kishan Patel, all students. Also, Neighborhood House Charter School teachers Anne Olmsted and Lisa Bailey will discuss the Kidlab program at NHCS that uses the arts to teach science concepts.</p> <p>As the state prepares to add the passage of a science MCAS exam to the graduation requirement, it is becoming increasingly important to share best practices in science, technology, and engineering, especially as a means to close the achievement gap in these subjects. The presenters will be from schools or districts that are either producing superior achievement results in the sciences based on a chosen, replicable strategy (Vanguard Models), or are experimenting with promising practices in this arena.</p> <p>LOCATION: <b>DANFORTH</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>VANGUARD SCHOOLS AND PROMISING PRACTICES (WEB-BASED TECHNOLOGY IN EDUCATION)</u></b></p> <p>Session Moderators: Alison Fraser, Director, Great Schools Campaign, Mass Insight Education Danielle Stein, Project Director, Building Blocks &amp; Manager of Field Services, Mass Insight Education</p> <p>Technology has been integral to the educational process for over twenty years, but only recently have school leaders understood technology to play a critical role in improving teaching, learning and school operations. Now educators are focused on how to seamlessly integrate newer technologies in all facets of education, using web-based resources to run schools more efficiently and help students learn more effectively. This second Building Blocks presentation will focus on strategies from districts that are using technology to be more efficient and effective in both classroom instruction and school operations, and to deliver a superior education to members of all subgroups. Superintendent Sheldon Berman will describe the Hudson, Massachusetts Virtual High School Program and Superintendent David Hopson will explain the Gateway Regional School District, One-to-One Computing Program.</p> <p>LOCATION: <b>DANFORTH</b></p>



Breakout Six	
10:30-11:45 a.m.	<p><b><u>EFFECTIVE EMPLOYER/SCHOOL PARTNERSHIPS (SESSION I)</u></b></p> <p>Session Moderator: Barnas Monteith, Chairman of the Massachusetts Science and Engineering Fair (MSEF), and President of Advanced Diamond Solutions</p> <p>Panelists:          Connie Chow, Executive Director, Science Club for Girls          Maria Gorsuch-Kennedy, Manager of Community Involvement, EMC Corporation          BJ Laurer, Quinsigamond Community College          Sandy Mayrand, Director, Regional Science Resource Center, University of Massachusetts Medical Center          Judy Ozbun, Associate Director, Community Affairs, Genzyme Corporation          Rob Richardson, East Coast Education Manager, Intel Corporation          Fredericka Solomon, Science Department Chair, Worcester East Middle School</p> <p>Employers and schools have been engaging in diverse partnerships that help students and teachers better understand the application of STEM education and careers based upon these applications. The speakers will describe a sample of these partnerships and lessons they have learned. The programs they will highlight include: the Massachusetts Science and Engineering Fair, the Girls Science Club, BioTeach and FIRST Robotics Competition.</p> <p>LOCATION: <b>BRIMFIELD/CHARLTON</b></p>
Noon	<b>Lunch – Hawthorne Exhibit Hall</b>
1:30-2:45 p.m.	<p><b><u>EFFECTIVE EMPLOYER/SCHOOL PARTNERSHIPS (SESSION II)</u></b></p> <p>Session Moderator: Kathleen Rubin, Assistant Dean &amp; CASA Director of Education and Outreach Programs, University of Massachusetts Amherst College of Engineering</p> <p>Presenters:          Ronit Carter, Bose Corporation          Chuck Larrabee, Raytheon Company          Mike Nason, Raytheon Company</p> <p>This session offers an overview from two employers, Raytheon Company and Bose Corporation, that support programs that foster STEM achievement.</p> <p>Raytheon, through their MathMovesU.com website, provides information, a scholarship program, and curriculum resources for students, parents and teachers. In addition, Raytheon supports MATHCOUNTS®, a national enrichment, coaching and competition program that promotes middle school mathematics achievement. Bose Corporation, through the In Harmony With Education® program, provides curriculum (that addresses Massachusetts curriculum frameworks), professional development, and field trip experiences designed to make interdisciplinary connections between science, math, and music. Students gain a better appreciation for real-world applications of science through music and a deeper understanding of the science and math behind the music, using scientific tools and instruments from around the world.</p> <p>This session will focus on information for schools wishing to learn more about these programs and how to partner with Raytheon and/or Bose.</p> <p>LOCATION: <b>SEMINAR THEATER 1 AND 2</b></p>

Closing Session: Exhibit Hall	
3:00 p.m. Hawthorne Exhibit Hall	<p><b><u>CONVERGING</u></b></p> <p><b><u>CLOSING REMARKS</u></b> Isa Zimmerman, University of Massachusetts Senior Fellow, STEM Initiative</p> <p><b>Prize Drawing!</b> Thank you to our STEM Summit Sponsors who have made generous donations to provide support for this Summit as well as gifts for attendees and the following prizes to be used for classroom instruction:</p> <ul style="list-style-type: none"> <li>• <b>Grand Prize:</b> <ul style="list-style-type: none"> <li>○ <b>One \$2,000 PC for classroom use,</b> Courtesy of Raytheon Corporation;</li> </ul> </li> <li>• <b>Second Prizes:</b> <ul style="list-style-type: none"> <li>○ <b>Four \$1,000 Gift certificates for classroom technology,</b> Courtesy of STEM Summit sponsors;</li> </ul> </li> <li>• <b>Third Prize:</b> <ul style="list-style-type: none"> <li>○ <b>Bose Wave Radio II</b> courtesy of Bose, Inc.</li> </ul> </li> <li>• <b>Other prizes from the</b> <ul style="list-style-type: none"> <li>○ <b>The Christa McAuliffe/Challenger Center</b></li> <li>○ <b>Museum of Science</b></li> </ul> </li> </ul> <p><b>You must be present to win. All registered participants are eligible for this drawing and have been automatically entered. If you are not currently teaching in a school, you may contribute your prize to the Massachusetts classroom or school of your choice!</b></p> <p><b>Memory Sticks provided to ALL Participants Courtesy of Raytheon Corporation! Get yours when you return the Evaluation Form to the Registration Desk.</b></p>
3:45 p.m.	<b>Adjourn – Thank you for attending STEM Summit III</b>