



Department of
Early Education and Care

STEM Education and EEC's Educator Provider Support System



Brain Building in Progress - “A statewide, public-private partnership with the United Way to raise awareness of the importance of our youngest citizens’ early development to their future success”

EEC and STEM Education

Brain Building in Progress

EEC launched "Brain Building in Progress" in August 2011, a statewide public-private initiative with United Way of Massachusetts Bay and Merrimack Valley. The campaign's mission is to "raise awareness of the critical importance of fostering the cognitive, social and emotional development of young children by emphasizing its future impact on economic development and prosperity for everyone in Massachusetts" (www.BrainBuildingInProgress.org). The science of brain building demonstrates that the architecture of a child's brain grows continuously from birth through adulthood. Children's early experiences shape their brain development for years to come. EEC and the United Way along with the early education and care community are dedicated to supporting and providing strong foundations for children's early years which will inevitably lead to positive outcomes for individual children while creating a prosperous future for all.

ECE, OST, and STEM

Early exposure to STEM supports children's overall academic growth, develops early critical thinking and reasoning skills, and enhances later interest in STEM study and careers. Incorporating STEM in early childhood education (ECE) and out of school time (OST) settings taps into children's natural curiosity and sense of wonder. STEM education broadens children's experiences and understanding of the human made and natural world around them. ECE and OST settings are in a unique position to support STEM education; programs are also critical to preventing 'summer learning loss' across all content areas.

EEC Hosts First Pre-STEM Summit Workshop

In September 2010 EEC and the Aspire Institute at Wheelock College held the first-ever pre-STEM Summit Workshop, "STEM in Early Education and Out of School Time" which was attended by over 30 ECE and OST leaders from across Massachusetts. The goal of the Pre-STEM Summit was to prepare these leaders to be informed participants in regional and statewide STEM education planning, including the 2010 STEM Summit, by preparing them to make the case for the importance and benefits of STEM education in ECE and OST settings.

The advocacy by these ECE and OST leaders at the 2010 STEM Summit resulted in the addition of a dedicated ECE/OST strand to the 2011 STEM Summit. The 2011 early education strand reinforces the importance of STEM education and highlights ECE and OST programs in Massachusetts that are incorporating STEM activities and learning in everyday classroom experiences. For the new 2011 strand, EEC and Wheelock College organized two sessions to promote STEM in ECE and OST: "STEM in the World – Building the Foundation in the Early Years/ Peep in the Big Wide World" and "Preparing Adults to Support Brain Building in Progress – Programs in the Lead."

In October 2011, EEC and Aspire will host the second pre-STEM Summit Workshop in preparation for 2011 STEM Summit.

Connecting STEM Education to Core Competencies

Competencies are the knowledge and skills that are necessary to be effective in working with children and Youth. Core competencies not only include what is essential to work directly with children and youth but also the leadership skills that are required to ensure program quality and accountability as well as advancement of our field. In addition, the Core Competencies align with the five categories of indicators EEC has identified for the Quality Rating and Improvement System (QRIS).

Areas:

1. Understanding the Growth and Development of Children and Youth
2. Guiding and Interacting with Children and Youth
3. Partnering with Families and Communities
4. Health Safety and Nutrition
5. Learning Environments and Curriculum
6. Observation, Assessment and Documentation
7. Program Planning and Development
8. Professionalism and Leadership

Connecting STEM Education to QRIS Standards

The EEC's new Quality Rating and Improvement System (QRIS) is a key tool, among many, that Massachusetts is developing to help families, educators, communities, and policymakers understand what constitutes quality.

Categories

1. Curriculum and Learning
2. Safe, Healthy Indoor and Outdoor Environments
3. Workforce Development and Professional Qualifications
4. Family and Community Engagement
5. Leadership, Administration and Management

STEM Opportunities

The following are examples of STEM-related professional development opportunities from the FY2012 Educator and Provider Support (EPS) Course Catalogue developed by EEC's EPS grantees. For a complete list of professional development opportunities projected for 2011 – 2012 visit the [FY2012 Educator and Provider Support Grantees Professional Development Course Catalogue](#) and [EEC's Online Professional Development Calendar](#), both resources are accessible on EEC's Workforce and Professional Development webpage.

| COURSE TITLE | COURSE DESCRIPTION |
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| Basic Math: MA90 | <p>Basic Math Studies is the first of three classes in the developmental mathematics sequence. It provides for a preparation for Introductory Algebra and a solid mathematical background for subsequent classes in the sequence. The focus of the class is on the student's arithmetic background and its application to common mathematical tasks to include percentage, order of operation, fractions, decimals, average, geometric quantities, and graphical representations of numbers. The emphasis of the three semester sequence is fortification of mental calculation power with minimum reliance on digital calculation.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5</p> |
| Blocks & Block Play: Tools for Thinking and Learning  | <p>This course is designed for early childhood educators seeking to learn about and/or deepen their understanding about the value of blocks and block play as an essential early childhood curriculum component. An overview of the history about blocks in early childhood education settings and the developmental continuum is presented along with a review of NAEYC and MA DOE Early Childhood Standards and Guidelines. Other course topics include: analysis of Block Area space and materials, observation of children as they work with blocks and planning ways to advance block play as their skills and competencies develop, and learning about ways to analyze and use children's literature, props and activities to enhance block play. Particular emphasis will be placed on the adults' role within the context of block play to promote young children's language development and thinking as well as expanding knowledge and the use of blocks to represent their thinking and competencies.</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 1 2 5 6</p> <p><u>Areas of Alignment:</u> EEC Regulations, MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Curriculum for the Young Child: EDU231 | <p>A developmental approach to early childhood programming stressing the value of active learning and open-ended experiences in all areas of the curriculum. The interrelation of each area of the curriculum in the total learning experience is stressed, with particular emphasis on art, music, movement, mathematical thinking, literacy, dramatics, woodworking, and science.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5 6 7</p> <p><u>Areas of Alignment:</u> EEC Regulations, MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Designing Child-Centered Curriculum | <p>Quality early education and care includes learning experiences which reflect children's ages, developmental level, and interests. Participants will be guided through the design and use of developmentally appropriate curriculum. Topics include planning open ended activities, following children's interests, using knowledge about the children to plan curriculum, and working with multi-aged groups.</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Early Childhood Curriculum: ED203 | <p>This course develops skills for creating appropriate learning environments for young children. Students plan and prepare activities in specialized curriculum areas including science, social studies, math, health and nutrition, and language arts for individual children and groups. Additional curriculum planning topics include identifying and planning for individual needs and interests, assessment, providing for a range of abilities, incorporating multicultural and nonsexist elements, incorporating play in learning, and the role of family communication.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> |

[EEC Core Competency Areas:](#) 1 2 3 4 5 6 7 8

Areas of Alignment: EEC Regulations, MA Frameworks, Guidelines for Preschool Learning Experiences, Early Learning Guidelines for Infants and Toddlers

Early Childhood Education Science: ED 307 Teaching strategies that focus upon exploration, discovery, problem solving, experimentation, Piagetian theory. Address curriculum frameworks.

Language Taught: English College Course: 3 Credit(s)

[EEC Core Competency Areas:](#) 5 7

Areas of Alignment: Guidelines for Preschool Learning Experiences



Early Childhood Mathematics

Early Childhood Mathematics provides participants with a basic understanding of the learning paths for mathematics and how children develop an understanding of math concepts in all 5 areas of early mathematics as included in the MA Guidelines for Preschool Learning Experiences and the Pre-K Math Common Core Standards. Participants will learn to analyze the learning environment and develop high quality, engaging, and developmentally appropriate learning experiences that promote mathematical exploration and understanding.

Language Taught: English CEU Course: 1 Credit(s)

[EEC Core Competency Areas:](#) 5

Areas of Alignment: MA Frameworks, Guidelines for Preschool Learning Experiences

Extension Activities in Science Technology and Engineering

Participants will learn to link the science curriculum used in the public school system (ESE "Science and Technology/Engineering" Curriculum Frameworks) to the enrichment activities being offered in their afterschool and out of school time program.

Language Taught: English CEU Course: 2 Credit(s)

[EEC Core Competency Areas:](#) 5

Areas of Alignment: EEC Regulations, MA Frameworks

Foundations of Creative Curriculum for Infants, Toddlers, and Twos

The Creative Curriculum for Infants, Toddlers and Twos is based upon child development theory and research. Build a fundamental vision which is aligned with the structure of Creative Curriculum and put it into action. Explore how you can provide a responsive environment in terms of your physical design, the materials you provide, and your interactions with the children.

Language Taught: English CEU Course: 0.5 Credit(s)

[EEC Core Competency Areas:](#) 5 6

Areas of Alignment: Guidelines for Preschool Learning Experiences, Early Learning Guidelines for Infants and Toddlers

Foundations of Creative Curriculum in Family Child Care

Participants will examine their underlying beliefs in early education and align those beliefs with the theory and research that supports the organization structure of the Creative Curriculum. Each component of the curriculum will be explored through reflection, discussion, and interactive opportunities. Components include knowing how children develop and learn, organizing your home and your day, what children are learning, caring and teaching, and building partnerships with families

Language Taught: English CEU Course: 0.5 Credit(s)

[EEC Core Competency Areas:](#) 5

Areas of Alignment: Guidelines for Preschool Learning Experiences



Foundations of Early Childhood Education

Field observation and research will augment classroom activities and enable students to: describe the role of teacher of young children and devise a plan for their own professional development; trace the historical traditions of early childhood education and describe their impact on current practice; identify issues and trends in the field and articulate a professional position; analyze and evaluate approaches to early childhood education using the principles of developmentally appropriate practice and construct a personal

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| | <p>philosophy of early childhood education based on this analysis.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 1 3 5 7</p> <p><u>Areas of Alignment:</u> EEC Regulations, Guidelines for Preschool Learning Experiences</p> |
| Fundamentals of Mathematics | <p>The aim of this course is to provide for the person with slight mathematical background an opportunity to acquire an understanding and appreciation of the basic structure of elementary operations on whole numbers, fractions, and decimals. In addition, percent, measurement, ratio and proportion, signed numbers, simple linear equations, and exponential notation will be covered. Problem solving will be integrated throughout the course. This course will be contextualized for the Early Childhood Educator.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5</p> |
| Hands-on Science | <p>Focus on providing classroom opportunities and environments for young children as active, self-motivated learners; to foster learning, experimentation, problem-solving, and social interaction in the context of meaningful activities.</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 1 2 3 5 7</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Infants and Toddlers: ED223 | <p>Examination of the specialized needs of infants and toddlers with regard to intelligence, language development, nutrition, motor and social abilities, and parent-child relations. Types of programs serving infants, toddlers and their families, focusing on the design of optimum environments and curricula, will be studied.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 1 2 3 4 5 6 7</p> <p><u>Areas of Alignment:</u> EEC Regulations, Early Learning Guidelines for Infants and Toddlers</p> |
| Integrated Science: SCI 105 | <p>Basic concepts of astronomy and earth science. Students apply fundamental physics and chemistry to the study of the physical world they live in, and, through the laboratory component, gain an understanding of the methods and applications of science.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 4 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Intentional Teaching: Mathematics | <p>Broaden your knowledge and experience the fun of early math learning in this training. By applying the important process skills and knowledge of math content areas, you will strengthen your ability to provide opportunities for children that will extend their math skills throughout the day. You will analyze your displays, routines, physical set-up, and materials to determine if you are providing a math rich environment. You will practice adding support strategies to engage and challenge children</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p><u>EEC Core Competency Areas:</u> 5</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Interactive Math Games in Afterschool | <p>This course is designed to advance children's mathematical understandings and problem solving skills. This training is aligned to Core Competencies and MA Curriculum Frameworks and we offer this course over 2 sessions. Participants will broaden their knowledge and experience the fun associated with math learning in this training. Students will identify that by applying the important process skills and knowledge of math content areas, they will strengthen their ability to provide opportunities for children that will extend their math skills throughout the day. We will analyze our displays, routines, physical set-up, and materials to determine if we are providing a math rich environment.</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> |



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| | <p>EEC Core Competency Areas: 5 7</p> <p><u>Areas of Alignment:</u> EEC Regulations, MA Frameworks</p> |
| Introductory Algebra: Math 105 | <p>An introductory algebra course which assumes a working knowledge of basic arithmetic. Students study topics that include the concept of a variable, negative numbers, properties of real numbers, numeric and algebraic expressions, polynomials, linear equations in an early childhood content.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> |
| Math for Educators: MAT 111 | <p>EEC Core Competency Areas: 5</p> <p>Mathematical concepts necessary for students who are pursuing the Elementary Education Transfer Option in the General Studies-Associate in Arts degree program. Students construct and apply problem solving techniques to solve problems, apply arithmetical operations on integers, rational numbers and decimals, and develop an understanding of mathematical relationships using equations, draw conclusions based upon geometric pattern and interpret data. Students construct geometric patterns and graphical data into algebraic equations; construct a geometric or graphical model given an algebraic equation. Students use measurement instruments, units, and procedures for problems involving length, area, angles, volume, mass, and temperature.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 5</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Math-Rich Learning in Early Childhood (2 of 3 for ECPK321:Project-Based Math and Science Rich Learning in Early Childhood) | <p>This course focuses on implementing standards based infant-kindergarten math curriculum in a child centered, play based manner.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 1 Credit(s)</p> <p>EEC Core Competency Areas: 2 5 7</p> |
| Planting the Seeds of Science in Early Childhood Education | <p>Young children are natural scientists. They are inclined to be curious, explore, ask questions, and develop their own theories about how the world works. Discover how to build your curriculum to enhance inquiry and investigation skills as children experience earth and space sciences, life sciences, the physical sciences, and technology/engineering. You will analyze your materials and practice adding support strategies to engage and challenge the children in your care.</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p>EEC Core Competency Areas: 5</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Project-Based Learning in Early Childhood: Project-Based Math and Science Rich Learning in Early Childhood: ECPK321 | <p>This course will focus on the dynamics of implementing emergent, integrated curriculum in birth-kindergarten settings that is inclusive, interactive, child-centered, and incorporating all domains of development. This course is part 1 of 3 for Project-Based Math and Science Rich Learning in Early Childhood.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 1 Credit(s)</p> <p>EEC Core Competency Areas: 1 5 7</p> |
| Science and Math in Nursery, Kindergarten and Primary Grades: EDU823 | <p>Course uses the laboratory approach to developing selected topics in science and mathematics for children 3 - 8 yo. Current programs, research in children's thinking, inquiry, guided discovery, instructional materials for presentation of representative topics in science and math to young children. Includes coaching/mentoring activities.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 1 2 5 7</p> <p><u>Areas of Alignment:</u> MA Frameworks, Guidelines for Preschool Learning Experiences</p> |
| Science-Rich Learning in Early Childhood: Project-Based Math and Science Rich Learning in Early Childhood: ECPK321 | <p>This course focuses on implementing standards based infant-kindergarten science curriculum in a child centered, play based manner. This course is part 3 of 3 for Project-Based Math and Science Rich Learning in Early Childhood.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 1 Credit(s)</p> <p>EEC Core Competency Areas: 2 5 7</p> |



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| <p>Supporting STEM Learning: Hands-on Strategies to Spark Curiosity</p>  | <p>Find the fun in these traditionally boring and intimidating topics! Spark children's curiosity and sense of play with STEM activities. Learn about STEM for different learning types. Not a fan of Science and Math? Great! Neither are most kids! Connect to your sense of fun in STEM! Surprising, slightly messy, and great fun... guaranteed!</p> <p><u>Language Taught:</u> English <u>CEU Course:</u> 0.5 Credit(s)</p> <p>EEC Core Competency Areas: 2 5</p> <p><u>Areas of Alignment:</u> EEC Regulations, MA Frameworks</p> |
| <p>Teaching Science and Math to Young Children</p> | <p>Explore strategies, activities, and materials for teaching math and science to children in inclusive preschool and kindergarten settings. The course focuses on national standards and guidelines, as well as the constructivist approach to teaching science and math.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 5 6 7</p> |
| <p>Teaching, Learning, and Assessment: EDU208A</p> | <p>This course will focus on the skills and strategies of classroom teaching. Topics include learning and teaching styles; motivation; teacher-student relationships; classroom management; assessment; models of curriculum; and materials, resources, learning tools and technologies. Three lecture hours a week. Required of all Education majors with Early Childhood and Elementary concentrations.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 5 6</p> <p><u>Areas of Alignment:</u> MA Frameworks</p> |
| <p>The Inclusive Early Childhood Classroom: ED170</p> | <p>This course provides an overview of instructional and curricular strategies for supporting students with disabilities in inclusive school settings. A review of relevant legislation and state services will be addressed. The use of screening and assessment tools and the role of Individualized Education Plans and Family Service Plans in program planning will be explored. There will be a focus on classroom strategies for early childhood educators who will serve young children with varied developmental challenges in regular school programs. An understanding of the needs of families and strategies for collaboration with them will be included.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 1 2 3 5 6 7</p> <p><u>Areas of Alignment:</u> EEC Regulations, MA Frameworks, Guidelines for Preschool Learning Experiences, Early Learning Guidelines for Infants and Toddlers</p> |
| <p>Topics in New England Ecology: BI 199</p>  | <p>Basic ecological theory related to organism-environment interactions and ecosystems of New England.</p> <p><u>Language Taught:</u> English <u>College Course:</u> 3 Credit(s)</p> <p>EEC Core Competency Areas: 5</p> <p><u>Areas of Alignment:</u> Guidelines for Preschool Learning Experiences</p> |

EEC's Approach to Professional Development

The key points and recommendations generated from the first pre-STEM Workshop listed below form the basis for EEC's broad-based and intentional approach to expand the availability of professional development on STEM topics to educators across the mixed delivery system (family child care, center-based child care, school-age child care and OST programs, and public preschools) and to underscore the importance of STEM education in early learning guidelines, EEC's Core Competency Areas, and EEC's Quality Rating Improvement System (QRIS).

EEC's Educator and Provider Support (EPS) System:

In FY2011 EEC created a new system for delivering professional development to the early education and out of school time workforce to focus on 3 core areas of professional development: educator and provider planning, coaching and mentoring, and competency development.

EEC's EPS grants fund 6 regional partnerships across the state that offer many STEM education initiatives that align with the Governor's Readiness Project Report and MAS recommendations. EEC's current EPS Course Catalogue offers 47 different STEM-related professional development opportunities across the state; 26 of which are for Continuing Education Credits (CEUs) and 21 of which result in college credit. Many opportunities also align with the Massachusetts Curriculum Frameworks, the Guidelines for Preschool Learning Experiences and the Early Learning Guidelines for Infants and Toddlers.

STEM Recommendations from EEC's 2010 Pre-STEM Summit Workshop➤ **Standards/Frameworks, Curriculum and Assessment****Standards:**

- Improve access to existing early education STEM guidelines, through distribution materials and translation of standards into multiple languages
- Focus on guidelines and frameworks as a resource to guide decision-making about curriculum and instruction and learning environments, not as mandated content for ECE programs
- Develop a complementary guide in K-8 STEM standards to assist OST programs in aligning activities with K-12 standards

Curriculum:

- Provide guidelines and a clearinghouse for quality ECE/OST STEM curriculum that is supported by publishers and curriculum developers
- Emphasize curriculum that allows for exploration of key concepts over time
- Provide resources for the acquisition of high quality materials

Assessment:

- Invest in, develop and train ECE providers in appropriate assessment methods and technology for young children and using assessment to guide instruction

➤ **Data – effective collection and use of data for policy and program-level decision-making**

- Focus on data collection and assessment to improve program quality by assessing (1) professional development needs of staff, (2) the effectiveness of curriculum, and (3) quality of the STEM learning environment
- Encourage private funding and higher education research to support development of appropriate assessment of young children's learning and growth
- Use data to identify communities and/or ECE and OST programs that would benefit from targeted STEM professional development and resources.

EPS GRANTEES**Western MA**

Preschool Enrichment Team Inc.
Contact Vicki Van Zee: 413-736-3900
vvanee@preschoolenrichmentteam.org

Central MA

Family Services of Central Mass.
Contact Joanne Gravel: 508-757-1503
x211
jgravell@cccscm.org

Northeast MA

North Shore Community College
Contact Kathy Gallo: 781-593-6722
x6249
kgallo@northshore.edu

Metro MA

Child Care Resource Center, Inc
Contact Paula Bowie: 617-547-1063 x234
bowiep@ccrcinc.org

**Southeast MA, Cape Cod & Islands
Community Action Committee of
Cape & Islands, Inc.**

Contact Beth Gaffney: 508-778-9470
bethg@cacci.cc

Metro Boston

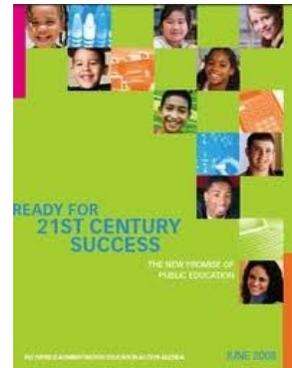
Action for Boston Community
Development, Inc
Contact: Carla Seymour: 617-348-6314
seymour@bostonabcd.org

- **Diversity— improving the diversity of STEM education pipeline and workforce**
 - ECE and OST have workforces that tend to be more culturally diverse than those of schools and who can serve as role models to young children, exciting them about STEM learning
 - Ensure that professional development and teacher training programs are accessible to ECE and OST providers from diverse communities, and cultural/ethnic and linguistic backgrounds
 - Ensure that professional development offers strategies for supporting children who are dual language learners
 - Ensure that the quality of STEM teaching and learning is consistent across communities and for all children

- **Teacher Development—Strategies for improving knowledge and skills of STEM educators at all levels**
 - Invest in/expand targeted professional development and college-level coursework for ECE and OST teachers in STEM education that address the needs of adult learners and strongly link research and practice
 - Develop professional development resources, such as STEM specialists and online training, to improve access and support across regions and programs

Contextual Background for Early Childhood Education (ECE) and ECC STEM Education Support

In June 2008, Governor Deval L. Patrick's "Readiness Project Report, Ready For 21st Century Success: *The New Promise of Public Education*" the Governor stated "We will prepare all students to be lifelong learners and successful, contributing citizens in a world economy and global society by creating a 21st century education system that is fully integrated, coherent and seamless—serving children from birth through higher education and beyond." The Readiness Project report made several key recommendations several aspects of Early Education and Care including the importance of teaching science, technology, and engineering and math disciplines by strengthening content knowledge and teaching strategies.



Massachusetts Academy of Sciences (MAS)

On the heels of the Governors Readiness Report, in April 2009, the Massachusetts Academy of Sciences (MAS) issued *The Next Steps to Improving STEM Education in Massachusetts*. MAS also held a public forum and identified a set of priorities for pre-K to 12 education; the forum also included a workgroup on early childhood education. The topics that discussed at the forum closely aligned with the focus of the Readiness Project and on STEM education.

EEC Hosts First Pre-STEM Summit Workshop

In September 2010 EEC and the Aspire Institute at Wheelock College held the first ever pre-STEM Summit Workshop, "STEM in Early Education and Out of School Time" which was attended by over 30 ECE and OST leaders from across Massachusetts. Their advocacy at the 2010 STEM Summit resulted in a dedicated ECE/OST strand at the 2011 Summit.

MA Early Learning Guidelines for Infants and Toddlers

The Learning Guidelines for Infant and Toddlers are a comprehensive view of infant and toddler development while documenting the learning experiences that support healthy development from birth. The document is designed for educators and program administrators in planning and evaluating curricula for infants and toddlers.

Categories:

1. Introduction to Age Group
2. Social Emotional Development
3. Language and Communication Development
4. Cognitive Development
5. Physical Health and Well Being Development
6. Approaches to Learning

MA Guidelines for Preschool Learning Experiences

The Preschool Guidelines are based on the Massachusetts Curriculum Frameworks and enable preschool educators to design foundational learning experiences for young children that ensure a solid foundation for learning and academic success. The Guidelines are designed for use by teachers and program administrators in planning and evaluating curricula.

Categories:

1. English Language Arts
2. Mathematics
3. Science and Technology/Engineering
4. History and Social Science
5. Health Education
6. Arts