

	MA STATE STEM PLAN GOALS (see reverse for detail)	Measure	ACTIONS Current	ACTIONS Planned
1	INCREASE K-12 STUDENT INTEREST IN STEM MAJORS: <i>Agriculture & Natural Resources – Architecture - Biological & Biomedical Sciences - Computer & Information Science - Engineering& Engineering Technology/Technicians - Health Professions & Clinical Sciences - Mathematics & Statistics - Physical Sciences- Other STEM Majors – precision production, military technology, mechanic/repair technician.</i>	X	SWAT (computer related activities i.e. programming) & robotics as part of the enrichment program for Grades 4-6	Continue to offer SWAT (computer related activities i.e. programming) & robotics as part of the enrichment program for Grades 4-6
	<ul style="list-style-type: none"> • Close race, gender gaps 	X	SWAT & robotics – The number of girls have increased by 50% compared to the past years.	Continue to promote SWAT & robotics to all students in Grades 4-6 to generate interests in these fields.
	<ul style="list-style-type: none"> • Increase interest in fields where there are anticipated gaps in future employment 	X	Parent Volunteer shared his expertise on manufacturing with Grade 3 Students	Continue to partner with parents to share their expertise in STEM fields; Career Fair has been planned for Grade 6
	<ul style="list-style-type: none"> • Focus on preschool and elementary school 	X	Plainville Mini STEM Expo (Grades K-6); Partnered with Junior Achievement (JA) and Harbor One	Partner with Science for Scientist (Grades 4-6) and DIGITS (Grade 6) in late spring/early fall 2013
2	INCREASE STEM ACHIEVEMENT OF PRE-K-12 STUDENTS			
	<ul style="list-style-type: none"> • Increase 5th and 8th grade students scoring Proficient or Advanced 			
	<ul style="list-style-type: none"> • Increase high school students scoring Proficient or Advanced on math 			
	<ul style="list-style-type: none"> • Reduce achievement gaps 			
3	INCREASE %OF STUDENTS WHO DEMONSTRATE READINESS FOR COLLEGE-LEVEL STUDY IN STEM FIELDS			
	<ul style="list-style-type: none"> • Close race, gender gaps 			
4	INCREASE NUMBER OF STUDENTS WHO GRADUATE FROM A POST-SECONDARY INSTITUTION WITH DEGREE IN A STEM FIELD			
	<ul style="list-style-type: none"> • Increase number of Bachelor's degrees granted in all STEM majors to all students 			
	<ul style="list-style-type: none"> • Close race/gender gaps 			
5	INCREASE STEM CLASSES LED BY EFFECTIVE EDUCATORS (PREK-16)	X	PD Classes were offered in the area of technology & math	Designing a system to determine the level of effectiveness
6	ALIGN STEM EDUCATION PROGRAMS WITH WORKFORCE NEEDS			
	<ul style="list-style-type: none"> • Improve the competence of current and prospective workers for in-demand career tracks 			
	<ul style="list-style-type: none"> • Increase diversity 			
	<ul style="list-style-type: none"> • Increase total employment of the STEM 			

	workforce			
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RESOURCES TO ADVANCE GOALS: MA STEM PLAN QUANTITATIVE GOALS

1	INCREASE STUDENT INTEREST IN STEM - measured by SAT Registration Questionnaire
<i>standard</i>	Increase interest in STEM majors among college bound MA public school graduates to 48% by 2016 <i>Agriculture & Natural Resources – Architecture - Biological & Biomedical Sciences - Computer & Information Science - Engineering & Engineering Technology/Technicians - Health Professions & Clinical Sciences - Mathematics & Statistics - Physical Sciences</i> <i>Other STEM Majors – precision production, military technology, mechanic/repair technician.</i>
1a	<ul style="list-style-type: none"> • Increase interest among the underrepresented gender in fields with a gender-based gap in interest
1b	<ul style="list-style-type: none"> • Increase interest in fields where there are anticipate gaps in future employment (from industry growth and/or from retirement of current employees)
1c	<ul style="list-style-type: none"> • Increase interest in STEM fields at early ages (including preschool and elementary school) to assist in increasing student motivation to attain higher levels of STEM academic achievement/performance
2	INCREASE STEM ACHIEVEMENT OF PRE-K-12 STUDENTS - measured by MCAS scores
<i>standard</i>	Increase the percentage of all students scoring Proficient or Advanced on the MCAS mathematics and science & technology/engineering assessments
2a	<ul style="list-style-type: none"> • Increase the percentage of all 5th and 8th grade students scoring Proficient or Advanced on mathematics and science & technology by 20 percentage points by 2012
2b	<ul style="list-style-type: none"> • Increase the percentage of high school students scoring Proficient or Advanced on mathematics and science & technology by 10 percentage points by 2016
2c	<ul style="list-style-type: none"> • Reduce achievement gaps of fifth grade, eighth grade, and high school students by 25 percent between 2010 and 2014, and another 25 percent between 2014 and 2016
3	INCREASE PERCENTAGE OF STUDENTS WHO DEMONSTRATE READINESS FOR COLLEGE-LEVEL STUDY IN STEM FIELDS - measured by SAT Registration Questionnaire and SIMS
<i>standard</i>	Increase % of MA public high school students who report taking at least 4 years of math and 3 years of lab-based science (from 79% in 2009 (SAT) to 100% in 2016, consistent with MassCORE, as well as increase the percentage of MA public high school students who report taking advance mathematics (pre-calculus and above) to 55% (from 44% in 2009 (SAT) by 2016.
3a	<ul style="list-style-type: none"> • Increase STEM course-taking among the underrepresented gender in courses with a gender-based gap participation
3b	<ul style="list-style-type: none"> • Increase STEM course-taking among the underrepresented race/ethnicities in courses with a race/ethnicity-based gap in participation.
4	INCREASE NUMBER OF STUDENTS WHO GRADUATE FROM A POST-SECONDARY INSTITUTION WITH DEGREE IN A STEM FIELD—measured by IPEDS
<i>standard</i>	Increase the number of students who complete STEM post-secondary degrees at MA public and private institutions from 50% from 2008-2016
4a	<ul style="list-style-type: none"> • Increase the number of Bachelor's degrees granted in all STEM majors to all student by 50% by 2016.
4b	<ul style="list-style-type: none"> • Increase the number of Bachelor's degrees granted in all STEM majors to the underrepresented gender in majors with a gender-based gap in degrees.
4c	<ul style="list-style-type: none"> • Increase the number of Bachelor's degrees granted in all STEM majors to the underrepresented race/ethnicities in courses with a race/ethnicity-based gap in degrees.
5	INCREASE NUMBER/PERCENTAGE OF STEM CLASSES LED BY EFFECTIVE EDUCATORS (PREK-16) – measure tbd
5a	<ul style="list-style-type: none"> • Increase STEM qualifications of Pre-K16 educators (TBD)
5b	<ul style="list-style-type: none"> • Increase STEM effectiveness of Pre-K-16 educators (TBD)
6	ALIGN STEM EDUCATION PROGRAMS WITH THE WORKFORCE NEEDS OF KEY ECONOMIC SECTORS –measure tbd
6a	<ul style="list-style-type: none"> • Improve the competence (knowledge, skills and attitudes) of current and prospective workers for in-demand career tracks across relevant job levels
6b	<ul style="list-style-type: none"> • Increase the availability and diversity of STEM competent workers to support the replacement (retirement) and growth needs of employers
6c	<ul style="list-style-type: none"> • Increase total employment of the STEM workforce, regionally and statewide