Statewide STEM Goals & Data Dashboard: Goal 1 (June 2014)

The Department of Higher Education, with approval from the Governor's STEM Advisory Council, contracted with the University of Massachusetts Donahue Institute (UMDI) to develop a statewide science, technology, engineering, and mathematics (STEM) indicators system to benchmark Massachusetts' progress in key educational and economic areas associated with the Pipeline Fund's goals. This document highlights the highest level indicators associated with the first of the Commonwealth's Statewide STEM Goals. More information related to each Goal, as well as information about data sources, can be found in the full 2014 STEM Data Dashboard.

Goal 1:

Increase student interest in STEM areas.

Increase interest in STEM college majors among college-going MA public school graduates from 35% in 2009 to 45% by 2016.

Chart 1A: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
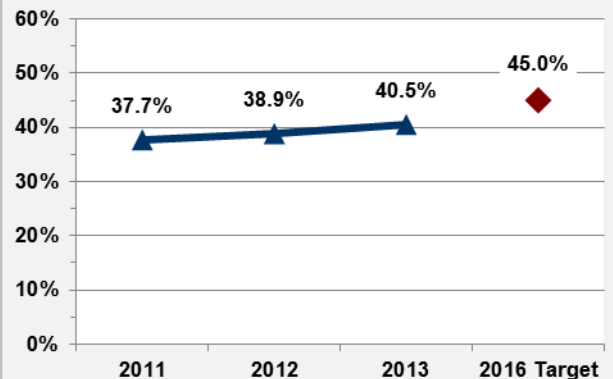**All Test-takers**
Public Schools Only

Year	Value
2011	37.7%
2012	38.9%
2013	40.5%
2016 Target	45.0%

Chart 1B: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
Female Test-takers
Public Schools Only

Year	Value
2011	35.2%
2012	37.0%
2013	38.6%
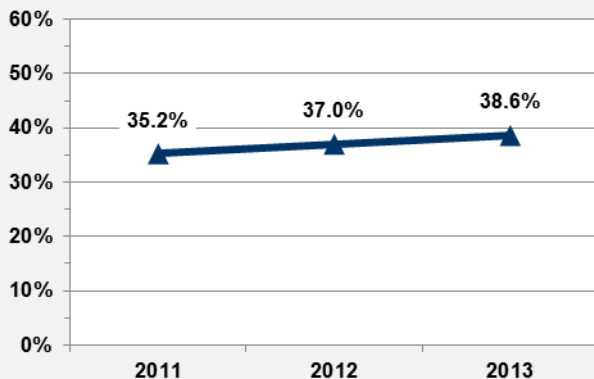
Chart 1C: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
Male Test-takers
Public Schools Only

Year	Value
2011	40.7%
2012	41.1%
2013	42.9%
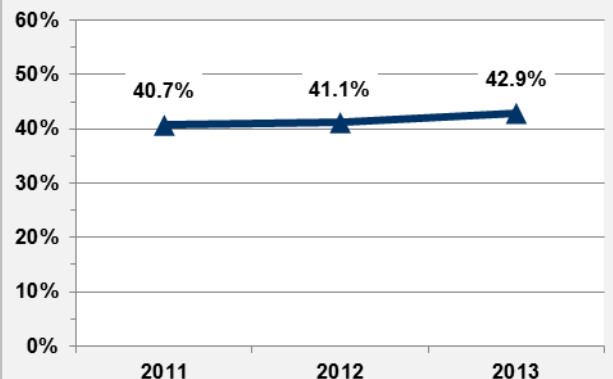
Chart 1D: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
Asian Test-takers
Public Schools Only

Year	Value
2011	53.8%
2012	53.0%
2013	55.4%
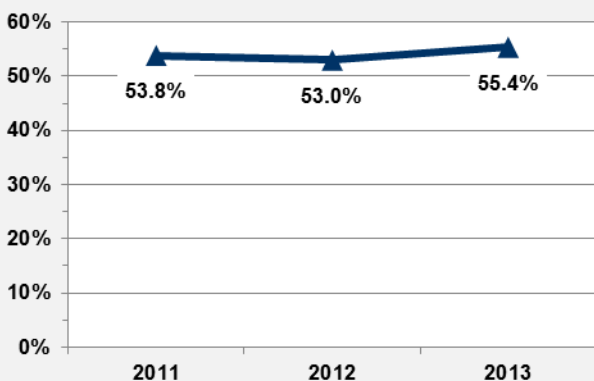
Chart 1E: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
Black Test-takers
Public Schools Only

Year	Value
2011	40.7%
2012	43.3%
2013	44.4%
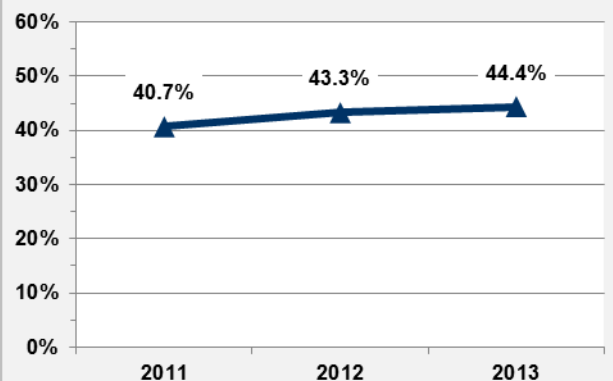
Chart 1F: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
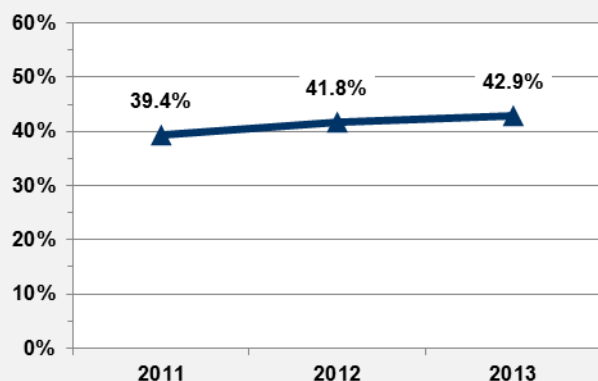**Hispanic Test-takers**
Public Schools Only

- 2011: 39.4%
- 2012: 41.8%
- 2013: 42.9%

Chart 1G: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
White Test-takers
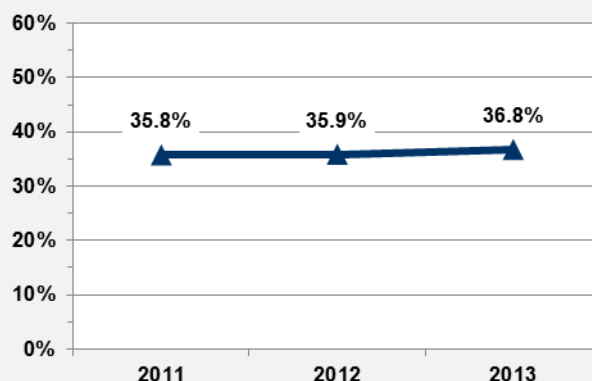*Public Schools Only*

- 2011: 35.8%
- 2012: 35.9%
- 2013: 36.8%

Chart 1H: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
Fee Waiver Test-takers
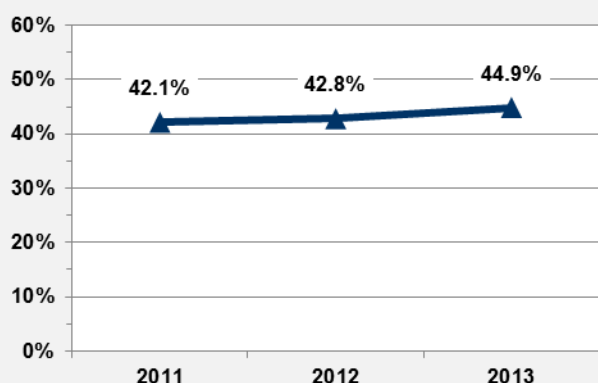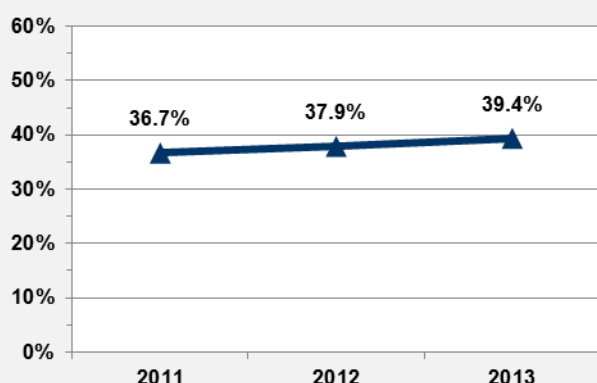*Public Schools Only*

- 2011: 42.1%
- 2012: 42.8%
- 2013: 44.9%

Chart 1I: % of MA SAT Question Respondents Whose 1st Choice of Major is STEM
No Fee Waiver Test-takers
Public Schools Only

- 2011: 36.7%
- 2012: 37.9%
- 2013: 39.4%

Definition of STEM

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MASSACHUSETTS Department of Higher Education

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Goal 2:

Increase student achievement among all PreK–12 students in order to prepare graduates to be civically and college and/or career ready.

Increase the percentage of all students who score proficient or advanced on the MCAS mathematics and science and technology/engineering assessments by 20 points by 2016.

Chart 2A: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
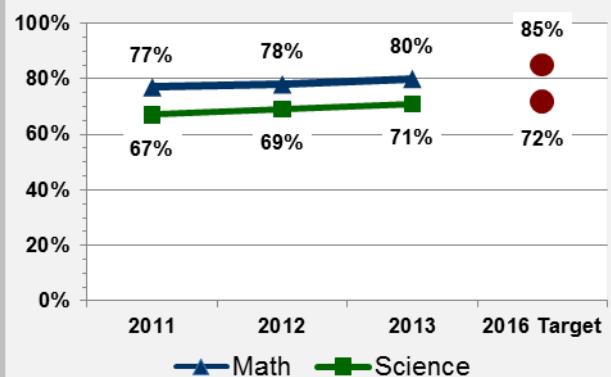All Test-takers
Public Schools Only

Chart 2B: % of MA Students Scoring Proficient or Advanced on 8th Grade MCAS
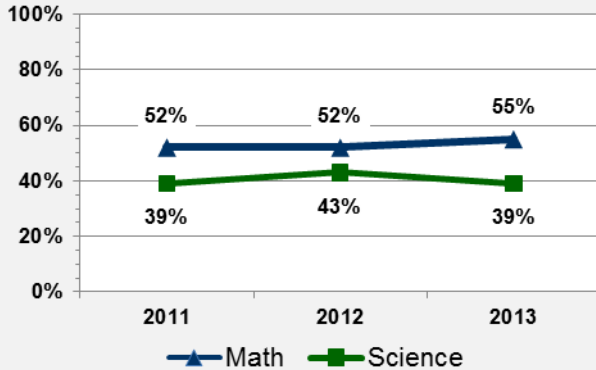All Test-takers
Public Schools Only

Chart 2C: % of MA Students Scoring Proficient or Advanced on 5th Grade MCAS
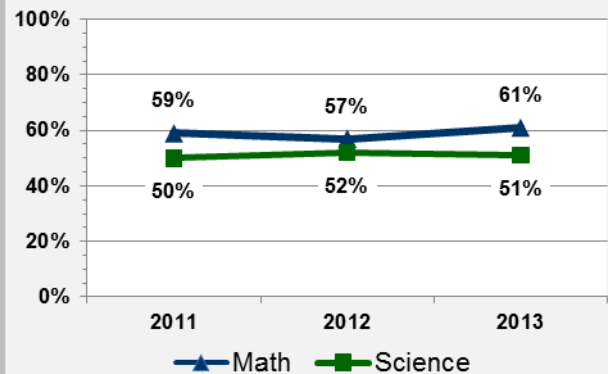All Test-takers
Public Schools Only

Chart 2D: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
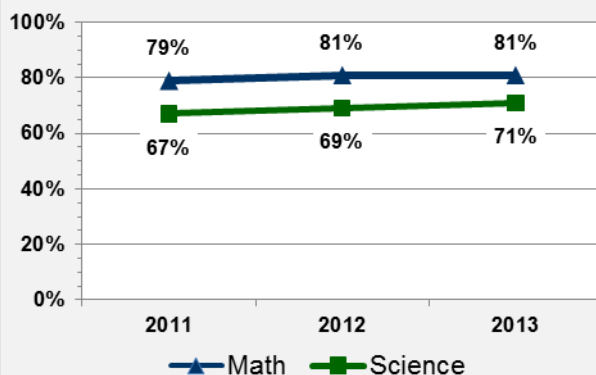Female Test-takers
Public Schools Only

Chart 2G: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
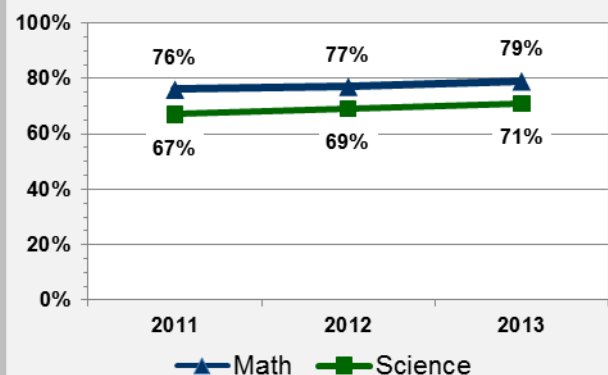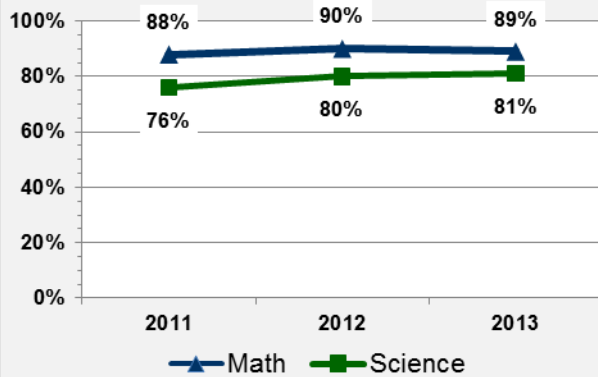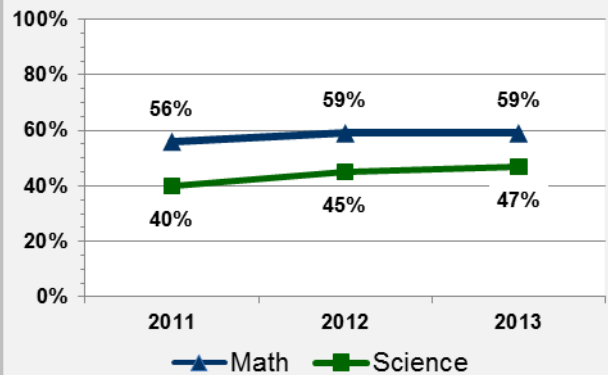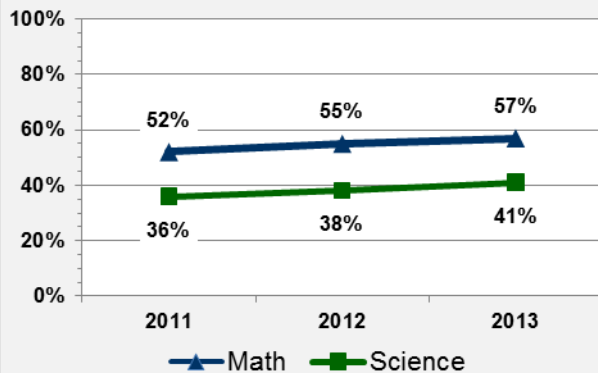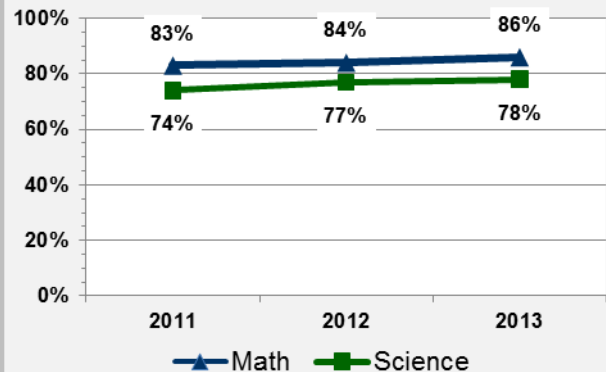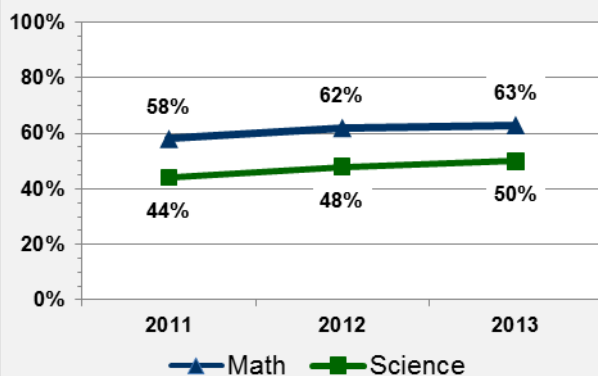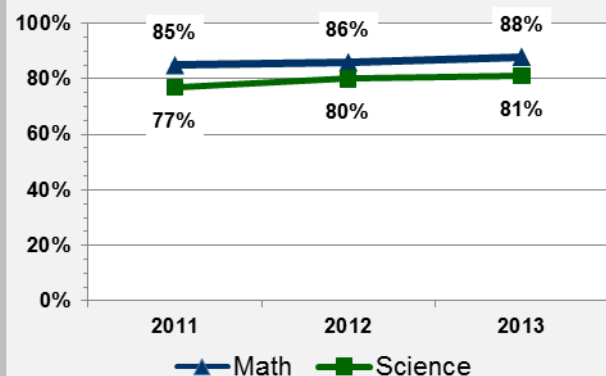Male Test-takers
Public Schools Only

Chart 2J: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
Asian Test-takers
Public Schools Only

Math: 2011: 88%, 2012: 90%, 2013: 89%
Science: 2011: 76%, 2012: 80%, 2013: 81%

Chart 2M: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
Black Test-takers
Public Schools Only

Math: 2011: 56%, 2012: 59%, 2013: 59%
Science: 2011: 40%, 2012: 45%, 2013: 47%

Chart 2P: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
Hispanic Test-takers
Public Schools Only

Math: 2011: 52%, 2012: 55%, 2013: 57%
Science: 2011: 36%, 2012: 38%, 2013: 41%

Chart 2S: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
White Test-takers
Public Schools Only

Math: 2011: 83%, 2012: 84%, 2013: 86%
Science: 2011: 74%, 2012: 77%, 2013: 78%

Chart 2V: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
Low-Income Test-takers
Public Schools Only

Math: 2011: 58%, 2012: 62%, 2013: 63%
Science: 2011: 44%, 2012: 48%, 2013: 50%

Chart 2Y: % of MA Students Scoring Proficient or Advanced on 10th Grade MCAS
Non-Low-Income Test-takers
Public Schools Only

Math: 2011: 85%, 2012: 86%, 2013: 88%
Science: 2011: 77%, 2012: 80%, 2013: 81%

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Goal 3:

Increase the percentage of skilled educators who teach PreK–16 STEM classes.

Increase the number/percentage of STEM classes led by skilled educators from PreK–16 by 2016.

Chart 3A: % of 1st-Time MTEL-Takers who Passed STEM Subject Tests: General Curriculum Mathematics
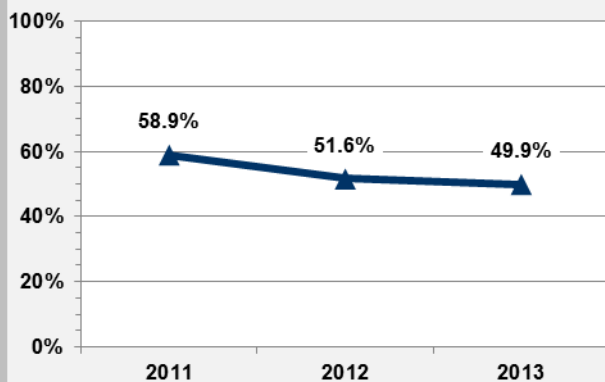
Year	% Passed
2011	58.9%
2012	51.6%
2013	49.9%

Chart 3B: # of 1st-Time MTEL-Takers who Passed STEM Subject Tests: General Curriculum Mathematics

Year	# Passed
2011	3165
2012	3239
2013	2107
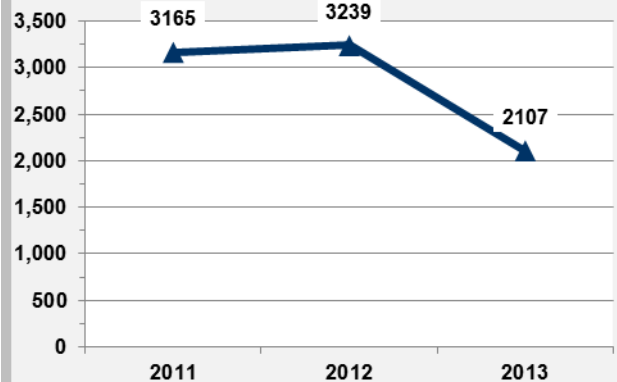
Chart 3C: % of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Mathematics

Year	% Passed
2011	72.3%
2012	68.4%
2013	66.6%
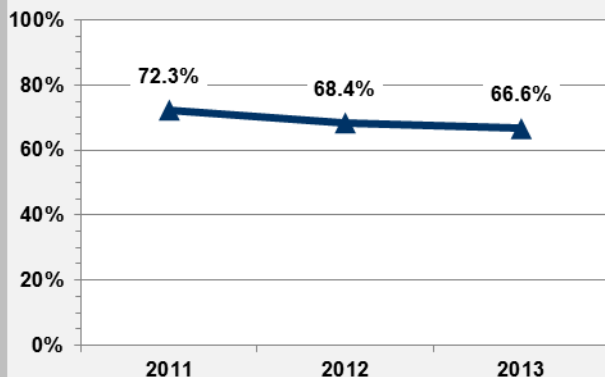
Chart 3D: # of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Mathematics

Year	# Passed
2011	653
2012	649
2013	531
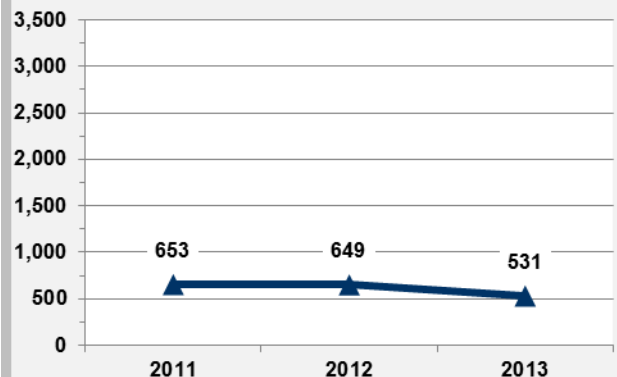
Chart 3E: % of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Middle School Mathematics

Year	%
2011	58.8%
2012	62.5%
2013	65.9%

Chart 3F: # of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Middle School Mathematics

Year	#
2011	673
2012	557
2013	464

Chart 3G: % of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Elementary Mathematics

Year	%
2011	44.5%
2012	35.5%
2013	38.9%

Chart 3H: # of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Elementary Mathematics

Year	#
2011	416
2012	532
2013	424

Chart 3I: % of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Biology

Year	%
2011	73.2%
2012	69.1%
2013	73.8%

Chart 3J: # of 1st-Time MTEL-Takers who Passed STEM Subject Tests: Biology

Year	#
2011	377
2012	398
2013	275

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Goal 4:

Increase the percentage of students completing post-secondary degrees or certificates in STEM subjects.

Increase the percentage of students who complete STEM-related post-secondary degrees and certificates at public and private institutions by 50% from 2008 to 2016.

Chart 4A: % of Certificates & Degrees Awarded in STEM Majors Across All Levels
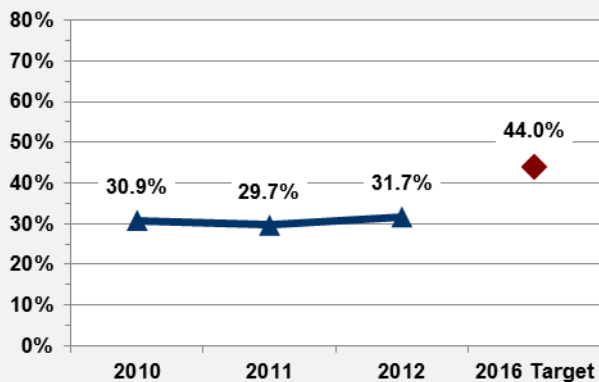**All Students**
Both Public & Private Schools

Chart 4B: # of Certificates & Degrees Awarded in STEM Majors Across All Levels
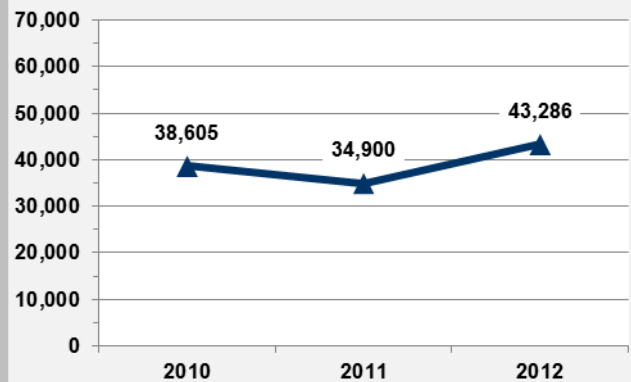**All Students**
Both Public & Private Schools

Chart 4O: % of Certificates & Degrees Awarded in STEM Majors at the Below Bachelor's Level
All Students
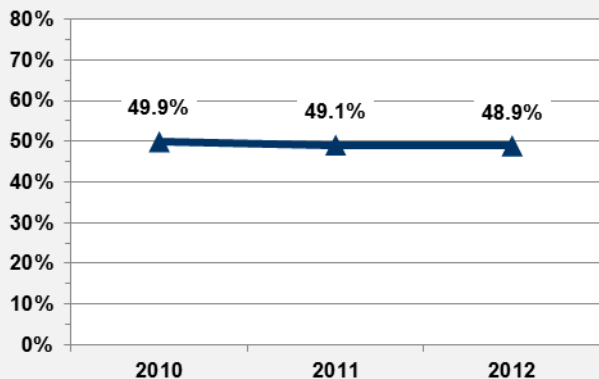*Both Public & Private Schools*

Chart 4P: # of Certificates & Degrees Awarded in STEM Majors at the Below Bachelor's Level
All Students
Both Public & Private Schools

Chart 4CC: % of Certificates & Degrees Awarded in STEM Majors at the Bachelor's Level
All Students
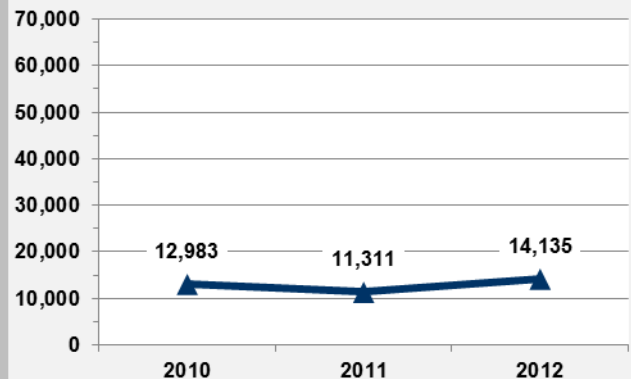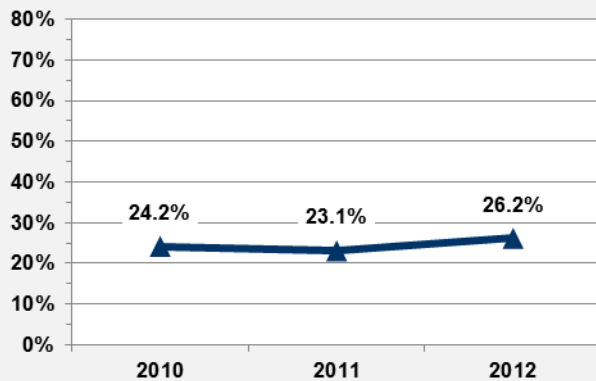*Both Public & Private Schools*

Year	%
2010	24.2%
2011	23.1%
2012	26.2%

Chart 4DD: # of Certificates & Degrees Awarded in STEM Majors at the Bachelor's Level
All Students
Both Public & Private Schools

Year	#
2010	13,740
2011	12,581
2012	15,982

Chart 4QQ: % of Certificates & Degrees Awarded in STEM Majors at the Above Bachelor's Level
All Students
Both Public & Private Schools

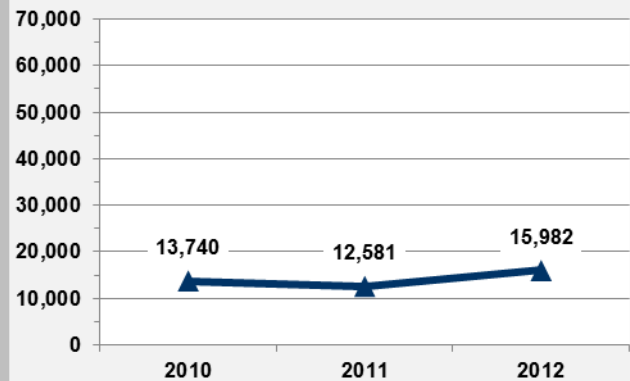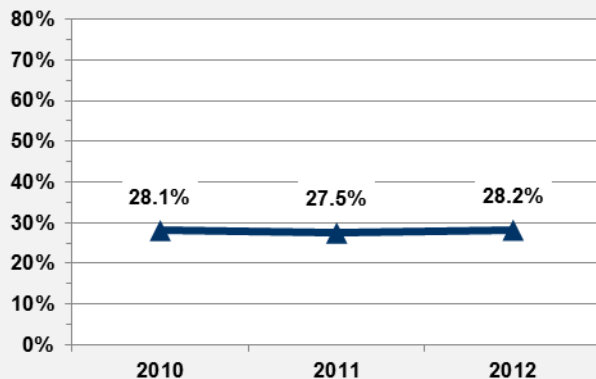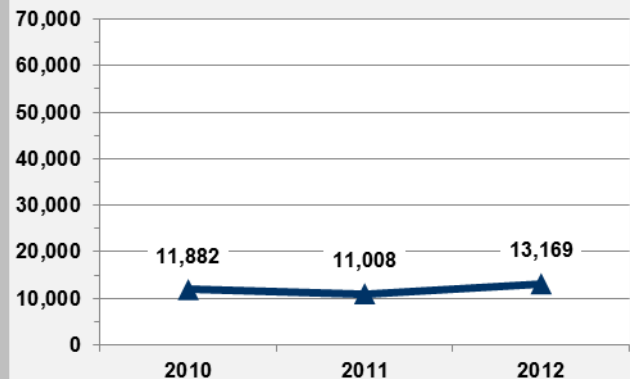| Year	%
2010	28.1%
2011	27.5%
2012	28.2%

Chart 4RR: # of Certificates & Degrees Awarded in STEM Majors at the Above Bachelor's Level
All Students
Both Public & Private Schools

Year	#
2010	11,882
2011	11,008
2012	13,169

Definition of STEM

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Goal 5:

STEM degrees and certificate attainment will be aligned with corresponding opportunity in STEM-related fields to match the state's workforce needs for a STEM talent pipeline.

No less than 50% of degrees (associate's, bachelor's, and Ph.D.) and certificates earned will provide transferrable knowledge, skills, and work habits for entry into STEM-enabled occupations, ensuring the supply of talent will meet demands of the Massachusetts economy 2016.

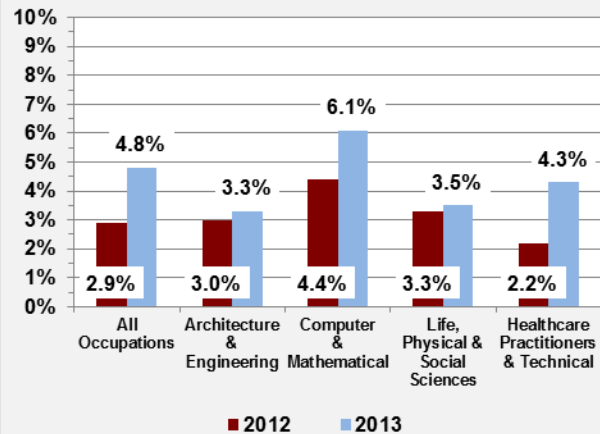**Chart 5A: MA Job Vacancy Rates by Major Occupational Group**

Occupational Group	2012	2013
All Occupations	2.9%	4.8%
Architecture & Engineering	3.0%	3.3%
Computer & Mathematical	4.4%	6.1%
Life, Physical & Social Sciences	3.3%	3.5%
Healthcare Practitioners & Technical	2.2%	4.3%

Chart 5J: % of Certificates & Degrees Awarded in Architecture & Engineering Across All Levels
All Students
Both Public & Private Schools

2010	2011	2012
6.1%	6.0%	6.2%

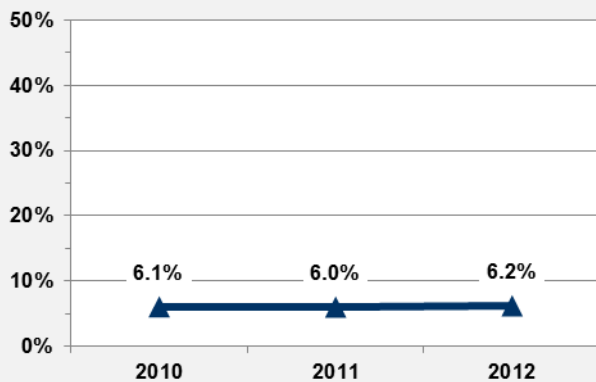**Chart 5K: # of Certificates & Degrees Awarded in Architecture & Engineering Across All Levels**
All Students
Both Public & Private Schools

2010	2011	2012
7,571	7,054	8,480

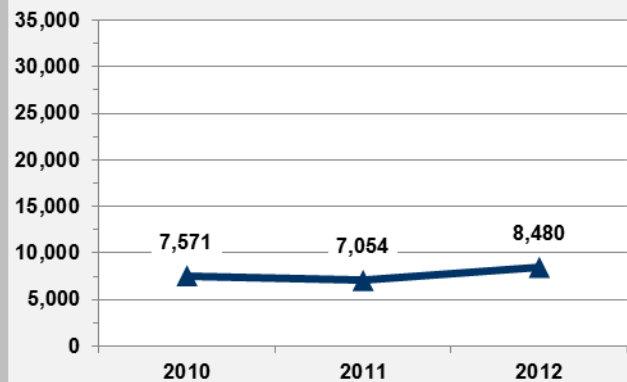**Chart 5L: % of Certificates & Degrees Awarded in Computer Science & Mathematics Across All Levels**
All Students
Both Public & Private Schools

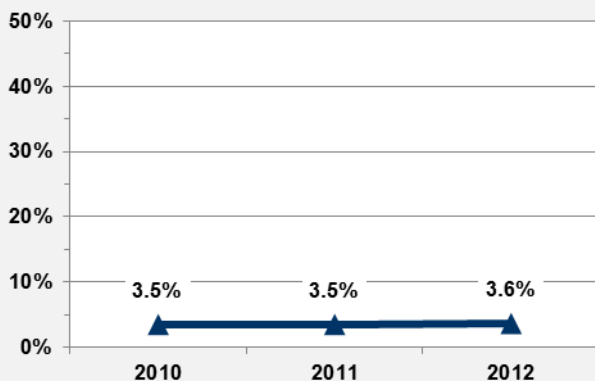| 2010	2011	2012
3.5%	3.5%	3.6%

Chart 5M: # of Certificates & Degrees Awarded in Computer Science Across All Levels
All Students
Both Public & Private Schools
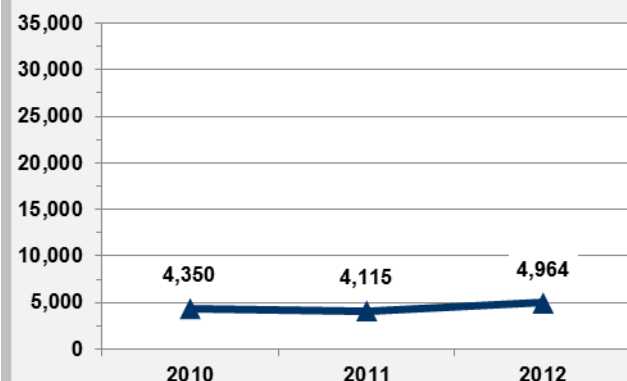
2010	2011	2012
4,350	4,115	4,964

Chart 5N: % of Certificates & Degrees Awarded in Health Professions Across All Levels
All Students
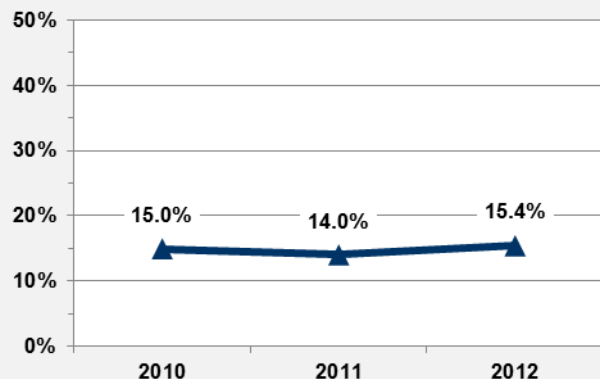*Both Public & Private Schools*

2010: 15.0%
2011: 14.0%
2012: 15.4%

Chart 5O: # of Certificates & Degrees Awarded in Health Professions Across All Levels
All Students
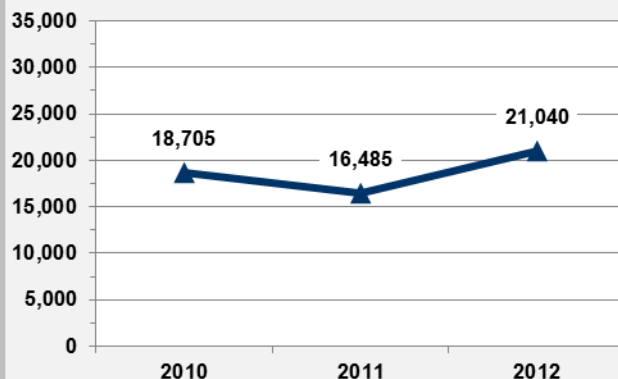*Both Public & Private Schools*

2010: 18,705
2011: 16,485
2012: 21,040

Chart 5P: % of Certificates & Degrees Awarded in Life & Physical Sciences Across All Levels
All Students
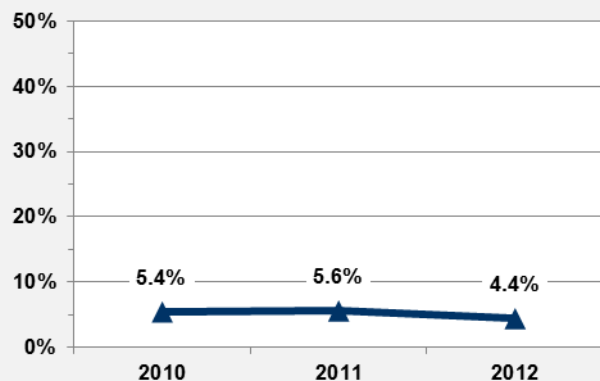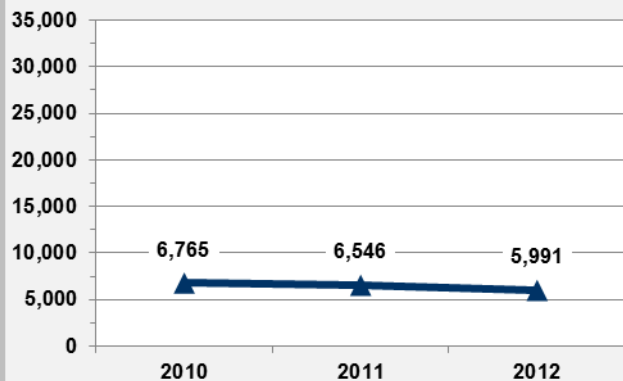*Both Public & Private Schools*

2010: 5.4%
2011: 5.6%
2012: 4.4%

Chart 5Q: # of Certificates & Degrees Awarded in Life & Physical Sciences Across All Levels
All Students
Both Public & Private Schools

2010: 6,765
2011: 6,546
2012: 5,991

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