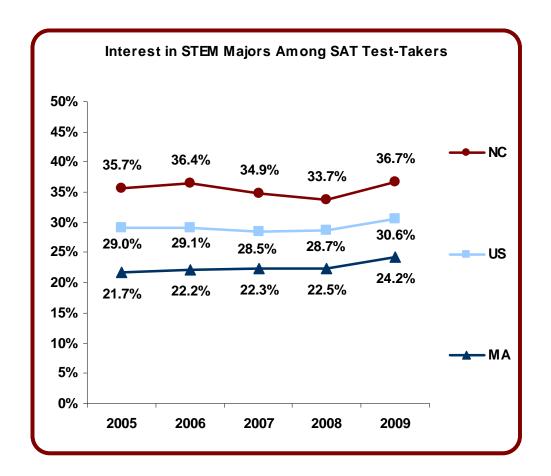
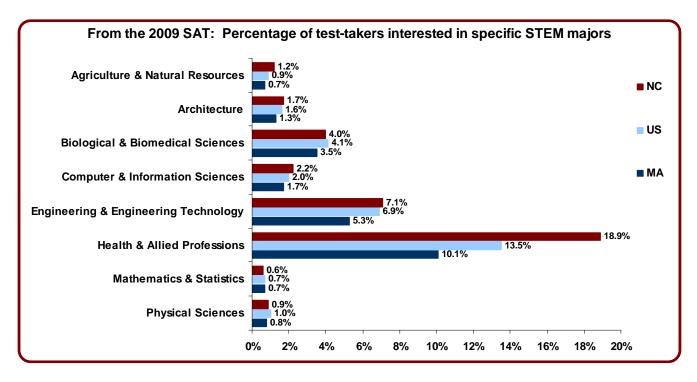
Selected K-12 Student STEM Interest Data





For more detailed data on Massachusetts students' interest in STEM majors see handouts for the SAT Student STEM Interest Project

Selected K-12 Teacher Data: 2008 - 2009 School Year All Subjects <u>Math</u> **Science** # Total FTE Teachers 70,395.9 6,604.6 5,329.5 96.6 % of Teachers Licensed in Teaching Assignment 95.5 95.4 # Classes in Core Academic Areas 279,742 29,812 25,240 % of Core Academic Classes Taught by Highly Qualified Teachers 96.5 94.9 94.0 **Multiple Grades** # Teachers PK-2 <u>3-5</u> <u>6-8</u> <u>9-12</u> All Grades **Total FTE** 12,457.2 11,148.3 14,834.8 17,290.4 9,527.7 9,527.7 All Subjects 70,395.9 Math 77.2 315.2 2,632.8 2,847.1 569.9 164.0 6,606.3 235.6 401.2 122.8 5,335.8 Science 46.1 2,022.9 2,507.2 Comp/Info Sci. & Info. Tech. 31.4 63.3 227.1 258.9 232.4 196.2 1,009.3 7.0 Manufac., Eng & Tech. 1.2 163.5 337.8 72.1 38.7 620.3 Other STEM 0.0 2.2 21.2 255.2 75.3 46.8 400.6

6,206.2

292,372

1,350.9

N/A

568.5

N/A

13,972.9

958,910

STEM Total

Student Enrollment

155.9

236,379

623.3

213,297

5,067.5

216,138

the 2009 National Assessment of Educational Progress Math Test/Survey:	MA	<u>us</u>	NC
Percentage of 8 th Graders who spent 5 or more hours in math class	36%	38%	 75%
Percentage of 4 th Graders who spent 3 or more hours in science class	31%	44%	35%
*Average 8 th Grade math composite score	299	282	284
Students eligible for National School Lunch Program	278	266	268
Students not eligible for NSLP	307	293	298
White students	305	292	297
Black students	272	260	262
Hispanic students	271	266	274
Asian students	314	300	311
*Average 4 th Grade math composite score	252	239	244
Students eligible for National School Lunch Program	237	228	232
Students not eligible for NSLP	260	250	255
White students	258	248	254
Black students	236	222	226
Hispanic students	232	227	236
Asian students	264	255	259
* A 10 point difference between scores roughly translates to a difference of one score of 280 would equal a 'C.' All NAEP tests are scored on a scale of 500.		f a score of 300 equals	an 'A' then a
Average SAT Math Scores:	<u>MA</u>	<u>us</u>	<u>NC</u>
**All Test-Takers	526	515	511
Male Test-Takers	543	534	528
Female Test-Takers	510	499	498
Test-Takers whose family income is below \$40,000	465	468	461
Test-Takers whose family income is above \$100,000	559	551	553
White Test-Takers	539	536	540
Black Test-Takers	430	426	433
Hispanic Test-Takers	445	461	488

Selected K-12 Student STEM Preparation Data, Continued

From the 2009 SAT Registration Questionnaire:

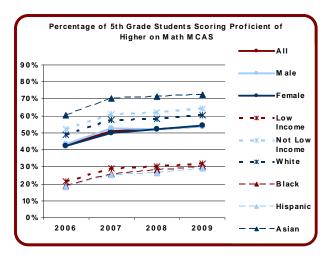
-	<u> </u>	<u>—</u>	
Percentage of SAT Test-Takers whose highest math was calculus	29%	28%	25%
Percentage of SAT Test-Takers whose highest math was pre-calculus	30%	28%	29%
Percentage of SAT Test-Takers whose highest math was algebra II	26%	27%	37%

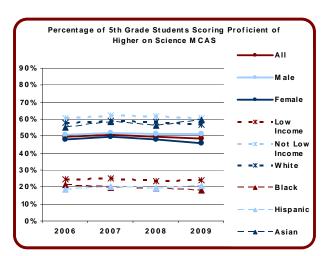
MA

67%

From the Massachusetts Comprehensive Assessment System (MCAS) Test Results:

Percentage of SAT Test-Takers who took four or more years of science



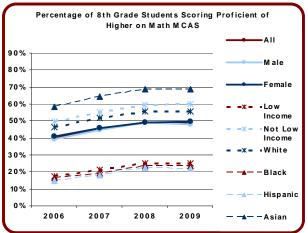


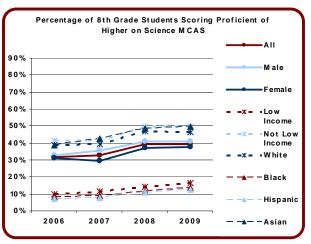
US

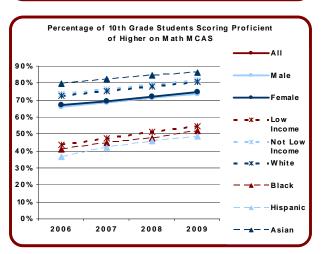
59%

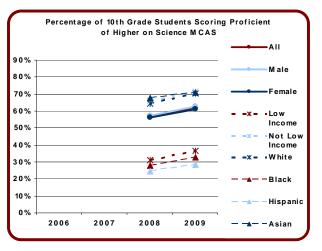
NC

54%









Selected Higher Education STEM Data

Number of STEM Degrees Earned in 2008 (and Percentage Change since 2004)

	Associate's Degrees & Certificates Below Bachelor's Degrees	Bachelor's <u>Degrees</u>	Master's Degrees & Certificates Above Bachelor's Degrees	Doctor's & First Professional <u>Degrees</u>		
MA Public Institutions MA Private Institutions	4,919 (+0.7%) 4.774 (+31.7%)	3,542 (+15.4%) 8,638 (+16.9%)	1,212 (+7.3%) 5,798 (+8.2%)	386 (+11.9%) 3,264 (+18.6%)		
MA Total	9,693 (+13.9%)	12,180 (+16.5%)	7,010 (+8.0%)	3,650 (+17.9%)		
US Public Institutions	343,100 (+12.6%)	262,389 (+13.1%)	86,249 (+6.7%)	44,496 (+27.5%)		
US Private Institutions	278,253 (+20.6%)	133,266 (+14.5%)	64,161 (+21.4%)	32,209 (+27.5%)		
US Total	621,353 (+16.0%)	395,655 (+13.5%)	150,410 (+12.5%)	76,705 (+27.5%)		
NC Public Institutions	11,760 (-1.4%)	9,084 (+5.9%)	2,941 (+5.8%)	1,222 (+18.5%)		
NC Private Institutions	1,602 (+62.8%)	2,186 (-11.3%)	836 (+29.6%)	648 (+33.3%)		
NC Total	13,362 (+3.5%)	11,270 (+2.1%)	3,777 (+10.3%)	1,870 (+23.3%)		

STEM Degrees Earned in 2008 as a Percentage of All Degrees Earned in 2008

	Associate's Degrees & Certificates Below Bachelor's Degrees	Bachelor's <u>Degrees</u>	Master's Degrees & Certificates Above Bachelor's Degrees	Doctor's & First Professional <u>Degrees</u>
MA Public Institutions	41.8%	22.6%	20.3%	71.6%
MA Private Institutions	47.7%	22.7%	22.5%	47.2%
MA Total	44.5%	22.6%	22.1%	48.9%
US Public Institutions	34.3%	25.1%	26.8%	58.4%
US Private Institutions	50.0%	21.6%	17.9%	40.3%
US Total	39.9%	23.8%	22.1%	49.2%
NC Public Institutions	35.1%	28.1%	30.1%	58.5%
NC Private Institutions	33.0%	15.1%	21.2%	41.7%
NC Total	34.8%	24.1%	27.5%	51.3%

Distribution of STEM Degrees Earned in Massachusetts in 2008 Across Specific Majors - All Students

	Associate's Degrees & Certificates Below BA		Bachelor's Degrees			Master's Degrees & Certificates Above BA			Doctor's & First Professional Degrees			
	Public	Private	All	Public	Private	All	Public	Private	All	Public	Private	All
Agriculture/Natural Res.	132	20	152	298	105	403	26	28	54	22	0	22
Architecture	0	0	0	102	183	285	33	543	576	1	35	36
Biological/Biomedical Sci.	51	0	51	687	1,867	2,554	108	459	567	74	341	415
Computer/Information Sci.	398	475	873	321	779	1,100	152	745	897	23	77	100
Engineering/Eng. Tech.	587	422	1,009	604	2,355	2,959	305	1,268	1,573	68	380	448
Healthcare Pract./Tech.	3,687	3,857	7,544	1,165	1,963	3,128	478	2,426	2,904	147	2,096	2,243
Mathematics/Statistics	3	0	3	165	657	822	44	98	142	8	52	60
Physical Sciences	4	0	4	200	729	929	66	231	297	43	283	326
Science Technology	57	0	57	0	0	0	0	0	0	0	0	0

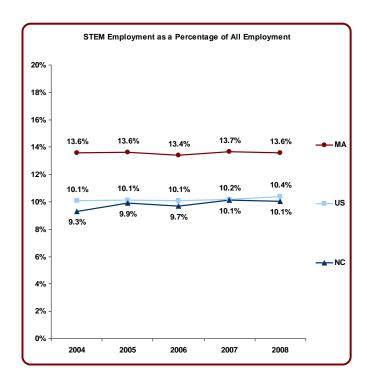
2008 Percentage of Degrees in STEM Majors Earned by Female Students in Massachusetts

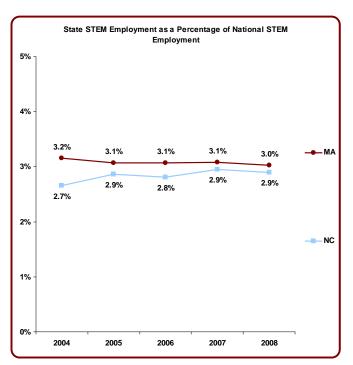
	Associate's Degrees & Certificates Below BA		Bachelor's Degrees			Master's Degrees & Certificates Above BA			Doctor's & First Professional Degrees			
	Public	Private	All	Public	Private	All	Public	Private	All	Public	Private	All
Agriculture/Natural Res.	40.9%	95.0%	48.0%	40.3%	76.2%	49.6%	53.8%	75.0%	64.8%	36.4%	N/A	36.4%
Architecture	N/A	N/A	N/A	38.2%	51.9%	47.0%	66.7%	48.6%	49.7%	0.0%	42.9%	41.7%
Biological/Biomedical Sci.	49.0%	N/A	49.0%	57.9%	64.9%	63.0%	51.9%	60.3%	58.7%	51.4%	49.3%	49.6%
Computer/Information Sci.	31.9%	42.1%	37.5%	15.3%	18.2%	17.4%	24.3%	23.6%	23.7%	26.1%	16.9%	19.0%
Engineering/Eng. Tech.	15.2%	4.5%	10.7%	13.1%	26.7%	23.9%	24.3%	26.4%	26.0%	14.7%	25.8%	24.1%
Healthcare Pract./Tech.	84.7%	91.3%	88.1%	88.5%	86.0%	87.0%	83.3%	75.6%	76.9%	61.2%	61.5%	61.5%
Mathematics/Statistics	0.0%	N/A	0.0%	40.0%	46.7%	45.4%	45.5%	41.8%	43.0%	37.5%	28.8%	30.0%
Physical Sciences	50.0%	N/A	50.0%	40.5%	47.3%	45.9%	36.4%	35.5%	35.7%	16.3%	27.2%	25.8%
Science Technology	56.1%	N/A	56.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Selected STEM Employment Data

From the American Community Survey (2004 – 2008)

	<u>MA</u>	<u>US</u>	<u>NC</u>
2008 Total STEM Employment	460,183	15,217,752	440,071
Percentage from Computer & Mathematical Occupations	3.4%	2.4%	2.2%
Percentage from Architecture & Engineering Occupations	2.3%	1.9%	1.5%
Percentage from Life, Physical & Social Science Occupations	1.8%	0.9%	1.0%
Percentage from Healthcare Practitioner & Technical Occupations	6.0%	5.1%	5.4%





2008 MA STEM Employment by Subgroup (Percentage Employed in STEM Occupations)

	<u>Female</u>	<u>Male</u>	<u>Asian</u>	<u>Black</u>	<u>Hispanic</u>	<u>White</u>
Total STEM Employment	13.7%	13.5%	31.5%	10.0%	6.5%	13.4%
Percentage from Computer & Mathematical Occupations	1.9%	4.8%	12.6%	1.7%	1.5%	3.1%
Percentage from Architecture & Engineering Occupations	0.7%	3.9%	4.8%	1.0%	0.8%	2.4%
Percentage from Life, Physical & Social Science Occupations	1.8%	1.9%	6.7%	0.7%	1.1%	1.7%
Percentage from Healthcare Practitioner & Technical Occupations	9.3%	2.9%	7.4%	6.5%	3.2%	6.2%

Selected STEM Information Resources

Massachusetts Department of Elementary & Secondary Education's School & District Profiles: http://profiles.doe.mass.edu/

MA Department of Elementary & Secondary Education's Office of Strategic Planning, Research, & Evaluation: http://www.doe.mass.edu/research/reports/

National Center for Education Statistics: http://nces.ed.gov/

National Assessment of Educational Progress (NAEP): http://nces.ed.gov/nationsreportcard/

Integrated Postsecondary Education Data System (IPEDS): http://nces.ed.gov/ipeds/

College Board Data, Reports & Research: http://professionals.collegeboard.com/data-reports-research

American Community Survey:

http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=&_lang=en&_ts=

Trends in International Mathematics & Science Study (TIMSS): http://timss.bc.edu/TIMSS2007/intl_reports.html

ACT National and State Data Dashboard: http://www.act.org/news/data/09/dashboard.html

Tapping America's Potential: http://www.tap2015.org/

Tapping Massachusetts' Potential: http://www.maroundtable.com/

Achieve: http://www.achieve.org/

OECD Directorate for Education: http://www.oecd.org/department/0,3355,en 2649 33723 1 1 1 1 1,00.html

Wallace Foundation Knowledge Center: http://www.wallacefoundation.org/KnowledgeCenter/Pages/AllReports.aspx

Massachusetts Statewide STEM Indicators Project (MASSIP) 2009 Report: http://dl.dropbox.com/u/3561120/MASSIP%202009%20Full%20Report%2012-16-09.pdf

Bureau of Labor Statistics Occupational Employment Statistics: http://www.bls.gov/oes/

The Center for Public Education:

http://www.centerforpubliceducation.org/site/c.lvlXliN0JwE/b.5056861/k.F9C3/Welcome_to_the_Center_for_Public_Education.htm

National High School Center: http://www.betterhighschools.org/

Educational Policy Improvement Center: http://www.epiconline.org/

Congressional Research Service Public Reports: http://opencrs.com/

The Tomás Rivera Policy Institute: http://www.trpi.org/update/education.html

Southern Regional Education Board: http://www.sreb.org/

Consortium on Chicago School Research: http://ccsr.uchicago.edu/content/index.php

"Retention of Recent College Graduates in New England" (New England Public Policy Center at the Federal Reserve Back of Boston): http://www.bos.frb.org/economic/neppc/briefs/2009/briefs902.pdf

"Students Who Study Science, Technology, Engineering, and Mathematics (STEM) in Postsecondary Education" (Institute of Education Sciences at the National Center for Education Statistics): http://nces.ed.gov/pubs2009/2009161.pdf

Massachusetts' Race to the Top application: http://www.doe.mass.edu/arra/rttt/narrative.pdf

NSF Grants – Upcoming Sue Dates: http://www.nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date

Postings for federal grants (any/all departments): http://www.grants.gov/

For more information on data and materials included in these handouts you may contact:

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