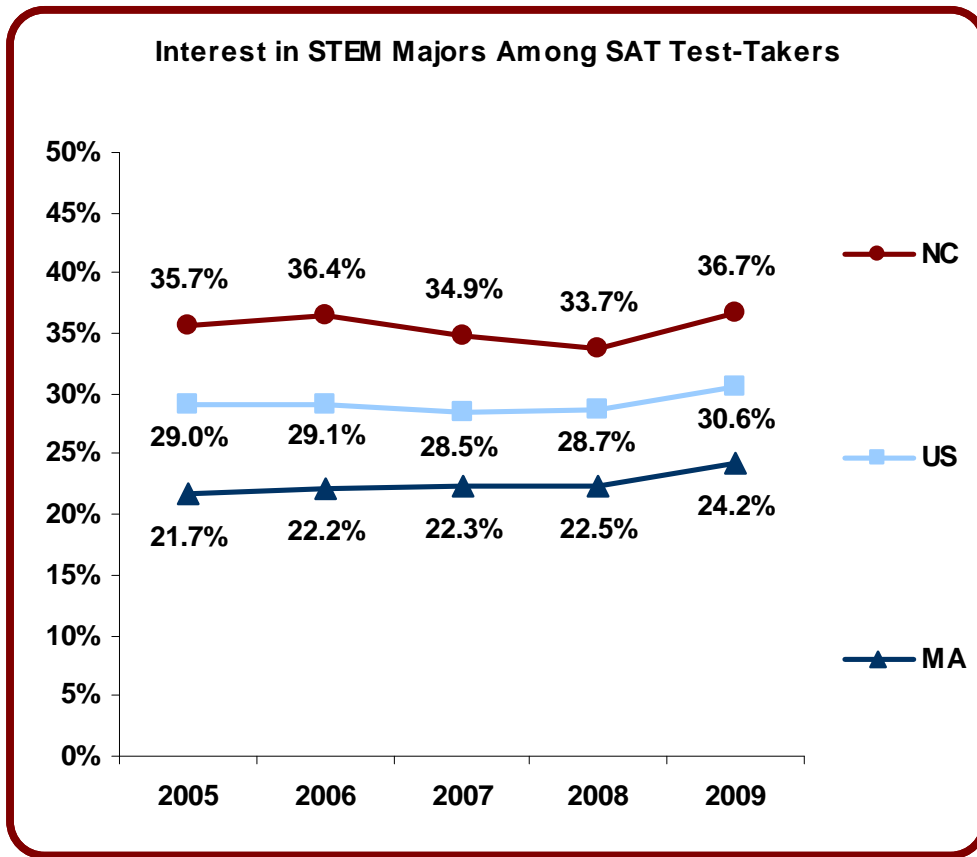
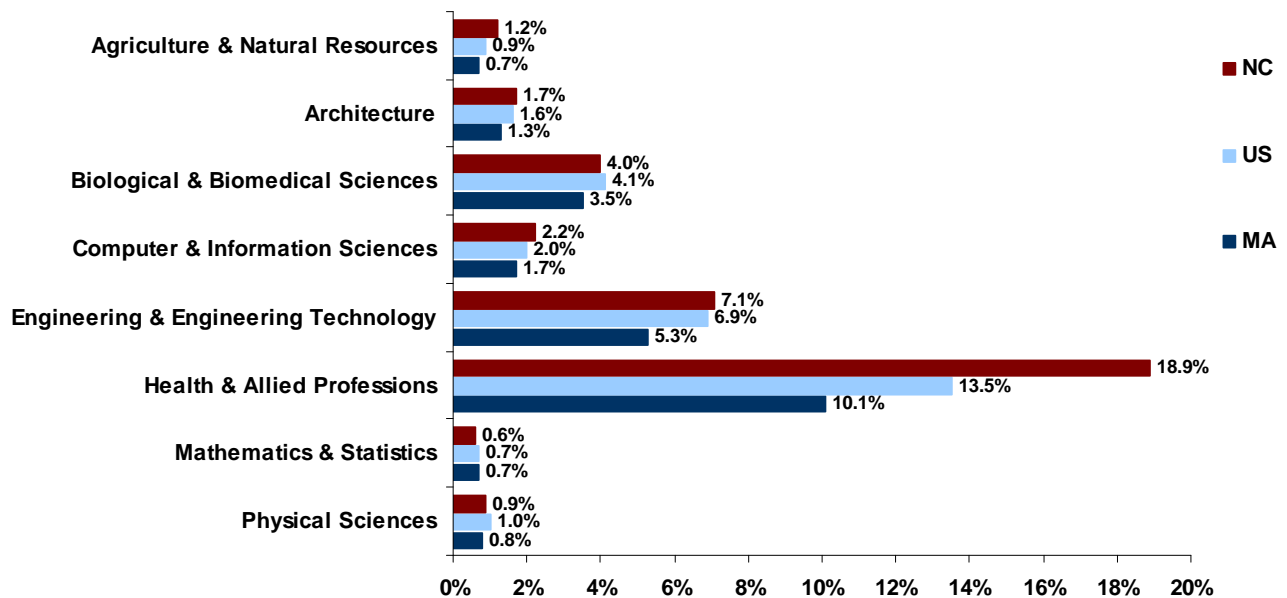


Selected K-12 Student STEM Interest Data



From the 2009 SAT: Percentage of test-takers interested in specific STEM majors



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

| | <u>All Subjects</u> | <u>Math</u> | <u>Science</u> |
|--|---------------------|-------------|----------------|
| # Total FTE Teachers | 70,395.9 | 6,604.6 | 5,329.5 |
| % of Teachers Licensed in Teaching Assignment | 96.6 | 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 |

| <u># Teachers</u> | <u>PK-2</u> | <u>3-5</u> | <u>6-8</u> | <u>9-12</u> | <u>Multiple Grades</u> | <u>All Grades</u> | <u>Total FTE</u> |
|------------------------------|--------------|--------------|----------------|----------------|------------------------|-------------------|------------------|
| All Subjects | 12,457.2 | 11,148.3 | 14,834.8 | 17,290.4 | 9,527.7 | 9,527.7 | 70,395.9 |
| Math | 77.2 | 315.2 | 2,632.8 | 2,847.1 | 569.9 | 164.0 | 6,606.3 |
| Science | 46.1 | 235.6 | 2,022.9 | 2,507.2 | 401.2 | 122.8 | 5,335.8 |
| Comp/Info Sci. & Info. Tech. | 31.4 | 63.3 | 227.1 | 258.9 | 232.4 | 196.2 | 1,009.3 |
| Manufac., Eng & Tech. | 1.2 | 7.0 | 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 |
| STEM Total | 155.9 | 623.3 | 5,067.5 | 6,206.2 | 1,350.9 | 568.5 | 13,972.9 |
| Student Enrollment | 236,379 | 213,297 | 216,138 | 292,372 | N/A | N/A | 958,910 |

Selected K-12 Student STEM Preparation Data

| <i>From the 2009 National Assessment of Educational Progress Math Test/Survey:</i> | <u>MA</u> | <u>US</u> | <u>NC</u> |
|--|------------|------------|------------|
| 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 |
| <i>Students not eligible for NSLP</i> | <i>307</i> | <i>293</i> | <i>298</i> |
| 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 |
| <i>Students not eligible for NSLP</i> | <i>260</i> | <i>250</i> | <i>255</i> |
| 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 letter grade: i.e., if a score of 300 equals an 'A' then a score of 280 would equal a 'C.' All NAEP tests are scored on a scale of 500.

| 2009 Average SAT Math Scores: | <u>MA</u> | <u>US</u> | <u>NC</u> |
|---|------------|------------|------------|
| **All Test-Takers | 526 | 515 | 511 |
| <i>Male Test-Takers</i> | <i>543</i> | <i>534</i> | <i>528</i> |
| <i>Female Test-Takers</i> | <i>510</i> | <i>499</i> | <i>498</i> |
| Test-Takers whose family income is below \$40,000 | 465 | 468 | 461 |
| <i>Test-Takers whose family income is above \$100,000</i> | <i>559</i> | <i>551</i> | <i>553</i> |
| White Test-Takers | 539 | 536 | 540 |
| Black Test-Takers | 430 | 426 | 433 |
| Hispanic Test-Takers | 445 | 461 | 488 |
| Asian Test-Takers | 593 | 587 | 567 |

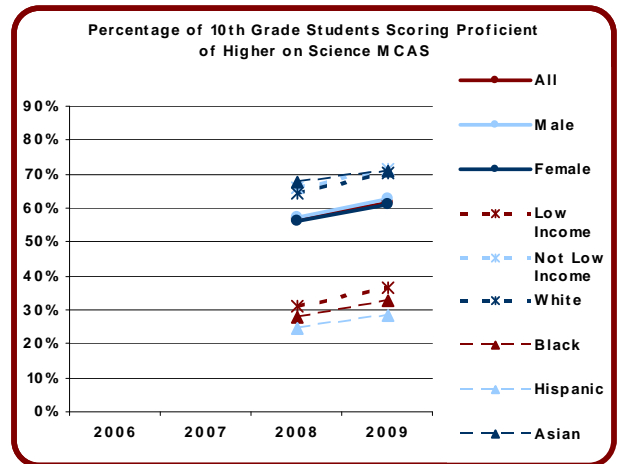
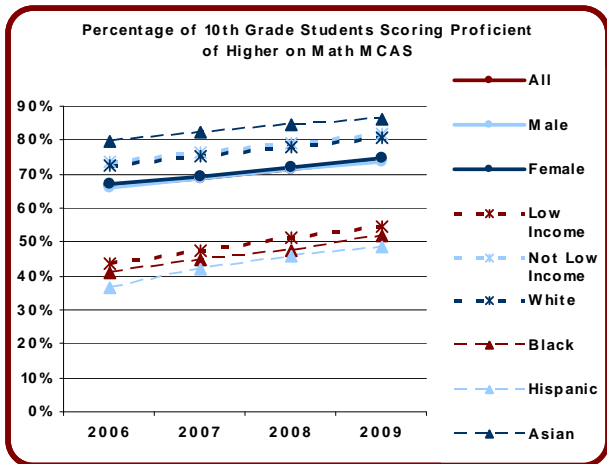
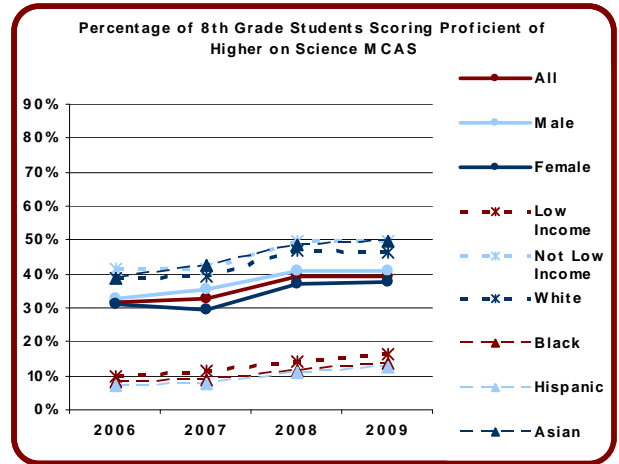
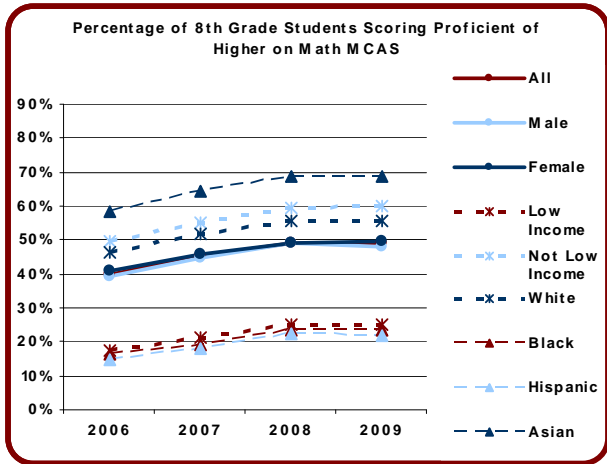
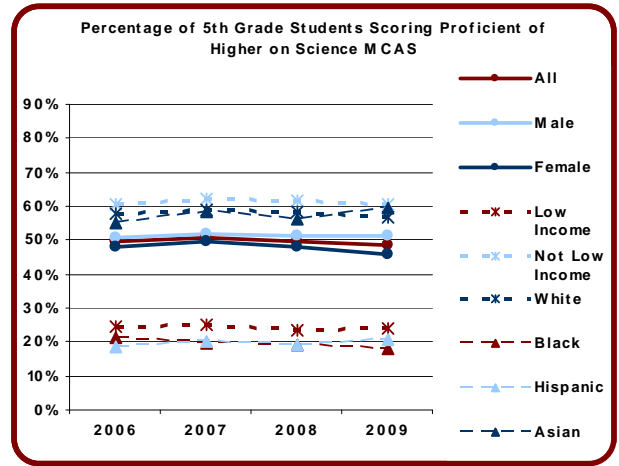
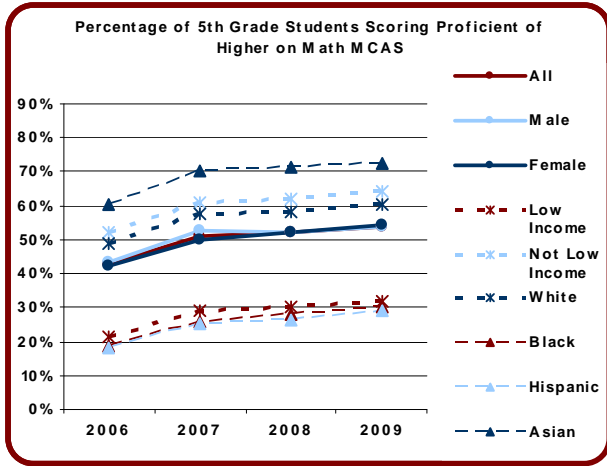
** The SAT is scored on a scale of 200 to 800.

Selected K-12 Student STEM Preparation Data, Continued

From the 2009 SAT Registration Questionnaire:

| | <u>MA</u> | <u>US</u> | <u>NC</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% |
| Percentage of SAT Test-Takers who took four or more years of science | 67% | 59% | 54% |

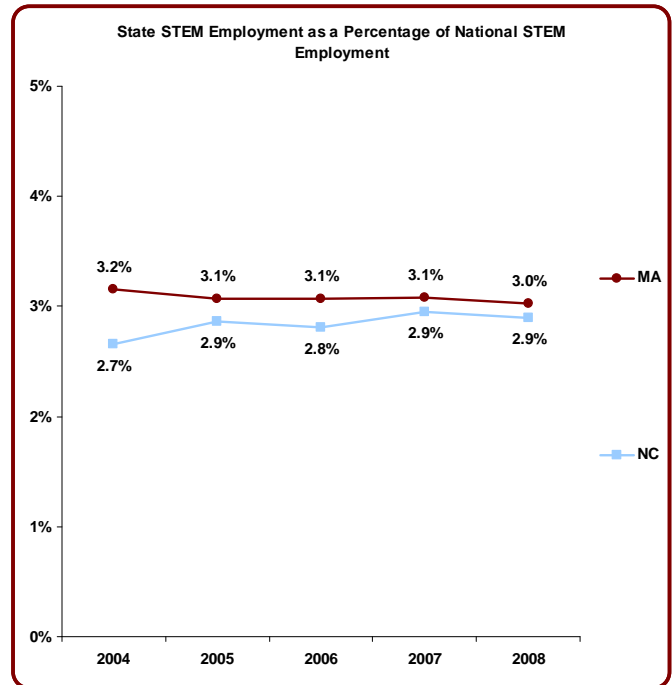
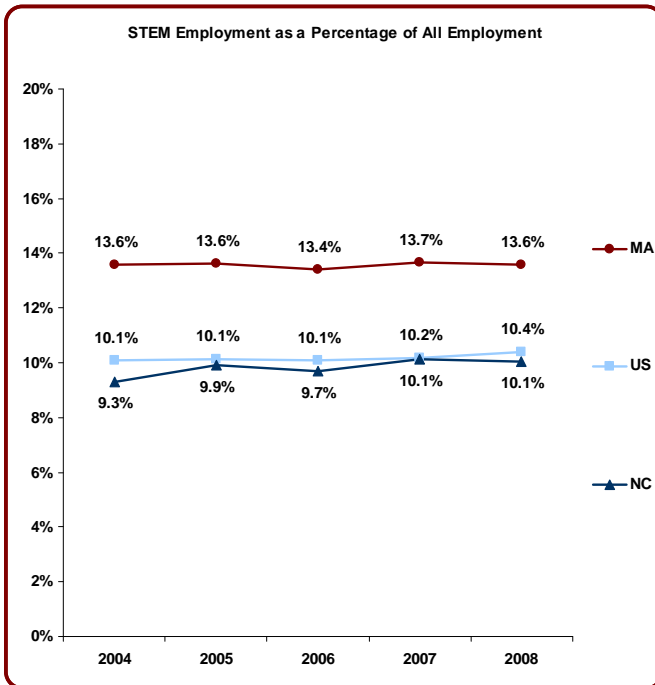
From the Massachusetts Comprehensive Assessment System (MCAS) Test Results:



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.lvIXliN0JwE/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 Bank 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 Due 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:
Jean Supel, Research Manager, UMass Donahue Institute, Phone: 774-455-7375, Email: jsupel@donahue.umassp.edu***