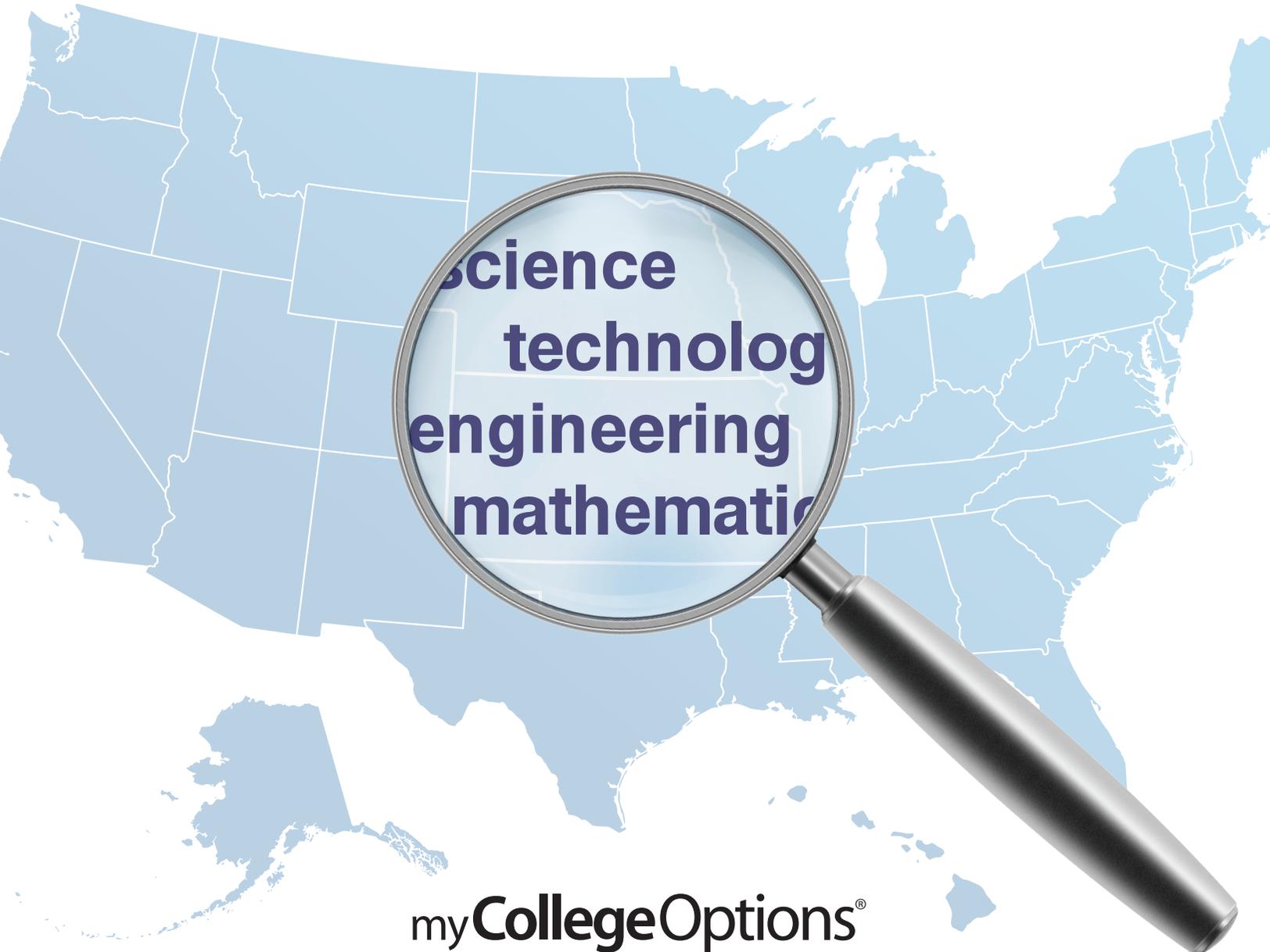


**Where are the STEM Students?**

*What are their Career Interests?*

**2012-2013**

**Where are the STEM Jobs?**



**science  
technology  
engineering  
mathematics**

my**CollegeOptions**<sup>®</sup>  
**STEMconnector**<sup>®</sup>

Funding by



**An historic national report that profiles the national high school student population including over 1 million students interested in STEM careers. The student data is combined with the current STEM job outlook and projections of STEM-related jobs by 2018. The report includes highlights of both national and state data for students and jobs!**

My College Options® and STEMconnector® take pride in releasing this timely report to the nation—to business and educational leaders, to policy makers and leaders in the STEM ecosystem—including foundations, nonprofits, elected officials and media. This report is the first to provide an in-depth profile of students interested in STEM majors and careers with full breakouts for all 50 states and the District of Columbia. The report links the **diverse supply of STEM students** to the **evolving demand for STEM jobs** in the US, with an equally compelling state-by-state analysis of STEM job projections. By understanding the complex profile of the **25% of students interested in STEM nationally** and the evolving demand for an **8.65 million<sup>1</sup> strong US STEM workforce by 2018**, we hope the private and public sectors will be better prepared to address the nation's future economic challenges.

**Where are the STEM Students?** Since the graduating class of 2004, **overall interest in STEM** majors and careers among high school seniors has **increased by over 20%**. Arguably the most concerning trend with students interested in STEM is the **increasing gender-gap**. Female students express STEM interest at 14.5% compared to 39.6% for their male counterparts. Since 2011, interest in STEM has grown and is projected to continue rising for Asian, Hispanic, American Indian and White students. The Southern region of the US has the highest concentration (36%) of students interested in STEM.

**What are their Career Interests?** In 2012, **Mechanical Engineering** (20.4%) was the most popular major or career choice among STEM-interested students, while Biology was second at 11.9%. American Indian students are the most likely to be interested in Engineering, compared to students of other ethnic groups. Female students are significantly more likely to be interested in the STEM majors/careers of Biology, Chemistry, Marine Biology and Science. **Engineering and Technology interest are on the rise**, while interest in Science and Mathematics has decreased over the past few years.

**Where are the STEM Jobs?** In 2012, the US STEM workforce surpassed 7.4 million workers and it is expected to grow significantly through 2018, to an **estimated 8.65 million workers**. In 2012, **accountants and auditors comprised the largest number of STEM-related jobs** in the US with over 1.66 million, a number that is projected to increase to 1.78 million by 2016. Currently the manufacturing sector faces a large shortage of employees with STEM skills. Alarming, **600,000 manufacturing jobs are going unfilled** in spite of current economic conditions. Between 2011 and 2015, an estimated **1.7 million jobs will be created in cloud computing** in North America. Another noteworthy increase in STEM jobs has come courtesy of mobile application (“apps”) technology, which has fostered 311,000 jobs in the “app economy.” **By 2018, the bulk of STEM jobs will be in Computing** (71%) followed by Traditional Engineering (16%), Physical Sciences (7%), Life Sciences (4%) and Mathematics (2%).

The student data used in this report is drawn primarily from My College Options' annual survey of 5.5 million high school students, which covers 95% of U.S. high schools. The data for the STEM employment outlook and projections comes from the Bureau of Labor Statistics (BLS) and the Economic Modeling Specialists International (EMSI). This report was made possible by the generous support of Cisco.

Ryan Munce  
My College Options

Edie Fraser  
STEMconnector

<sup>1</sup>This number (8.65 million) does not reflect people who are “self employed” in STEM fields. If “self employed” is included the number of people employed in STEM fields in 2012 is 14.9 million, and is projected to reach 15.68 million by 2018.

# Where are the STEM Students?

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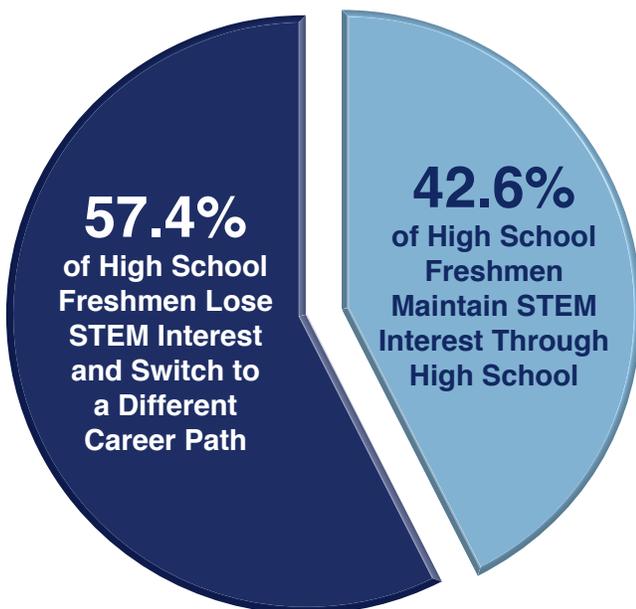
# The Focus on Secondary Students

Over the past decade, concern has been growing among government agencies, national organizations and private industry over the declining state of STEM education in the United States. As the United States seeks to fuel the future workforce in the crucial areas of Science, Technology, Engineering and Mathematics, it is critical to apply the necessary focus and resources to the population that can produce the greatest results. That population is early secondary students with an existing interest in STEM fields.

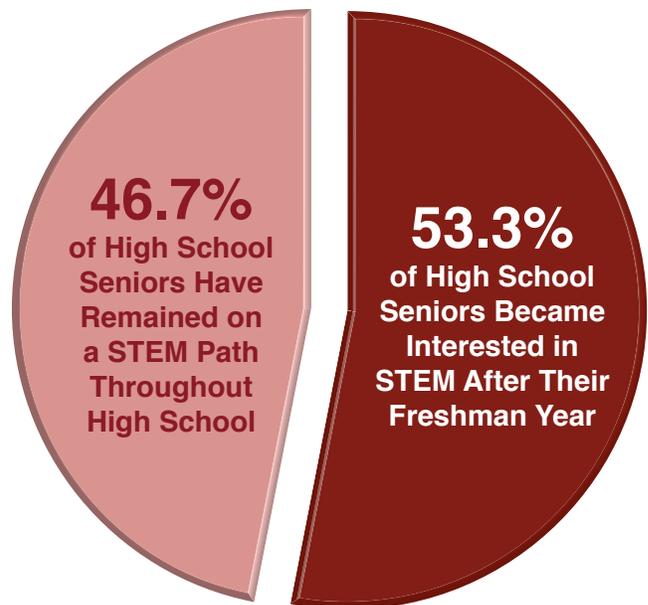
Nearly 28% of high school freshmen declare interest in a STEM-related field - around 1,000,000 students each year. Of these students, over 57% will lose interest in STEM by the time they graduate from high school.

It requires fewer resources to support and maintain interest than to create new interest where it is not present. Therefore, it is crucial to encourage the development of and investment in programs designed to maintain the existing interest of students throughout high school, college and into their future careers. The chart below represents nearly 600,000 high school freshmen whose interest in STEM could potentially be maintained.

**Around One Million High School Freshmen are Interested in STEM Majors & Careers**



**High School Seniors are About 10% Less Likely to Declare Interest in STEM**



High school seniors are about 10% less likely than high school freshmen to declare an interest in a STEM-related field - just over 21% of high school seniors indicate an interest in STEM. Over half of these students migrate to a STEM-related college major or career interest during high school. Particularly with rigorous STEM disciplines, high school is the time when many college and career decisions are being considered and paths are being set.

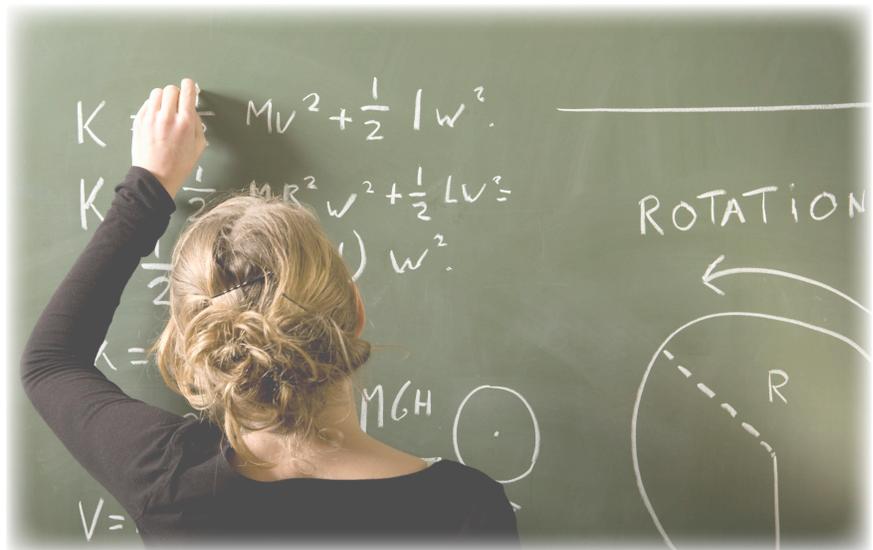
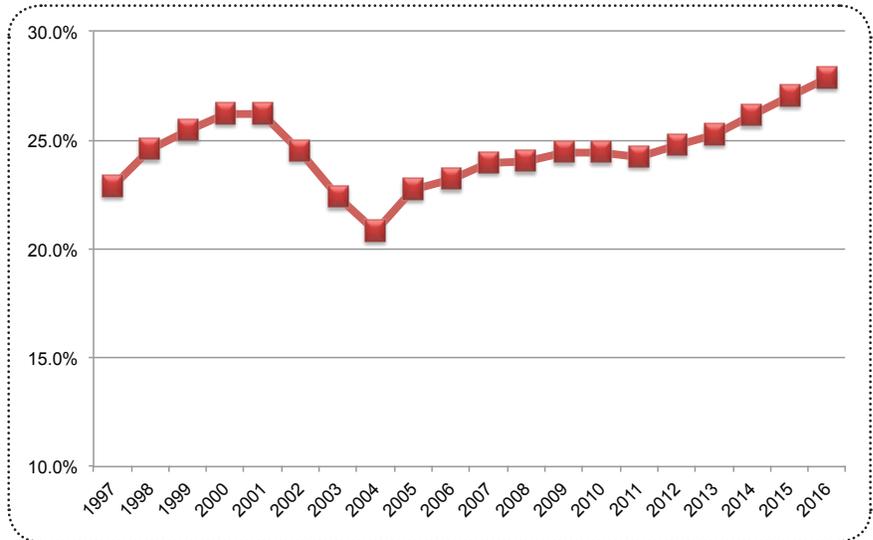
## National 20-Year Trend in Overall STEM Interest

High school student interest in STEM plunged dramatically in graduating classes subsequent to 2001, and, after a 20% decline, has just recently rebounded and continues to increase slowly.

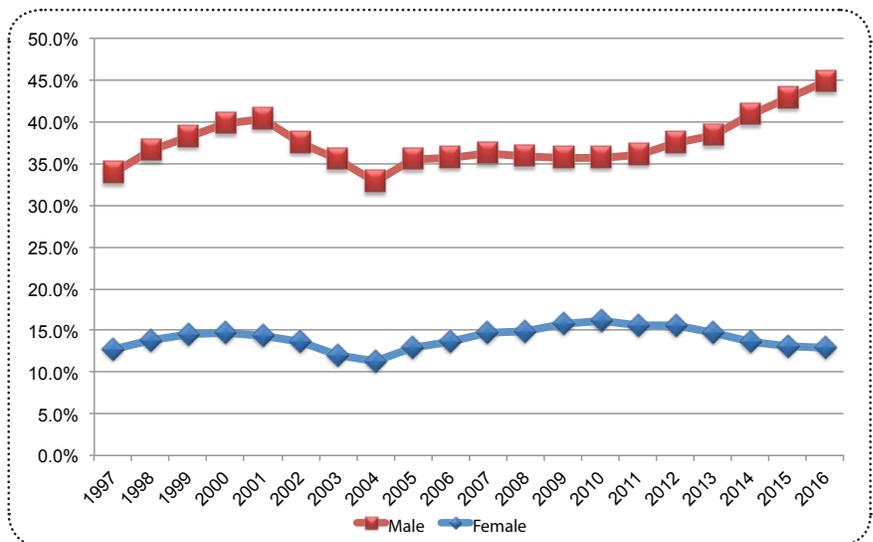
While the graduating classes of 2013 to 2016 show a marked increase in STEM interest, those interest levels may change between now and when these classes graduate from high school, and so should not be compared to classes that have already graduated for the purpose of trend analysis.

However, it is valuable to compare the students who are currently in high school to those who have recently graduated to measure potential attrition. High school freshmen are significantly more likely to declare interest in STEM, compared to students in the most recent graduating class.

Male students are significantly more likely than female students to be interested in pursuing a college major or career in STEM. While the gender gap in STEM interest had remained relatively steady over the past 20 years, it is now increasing at a significant—and alarming—rate.

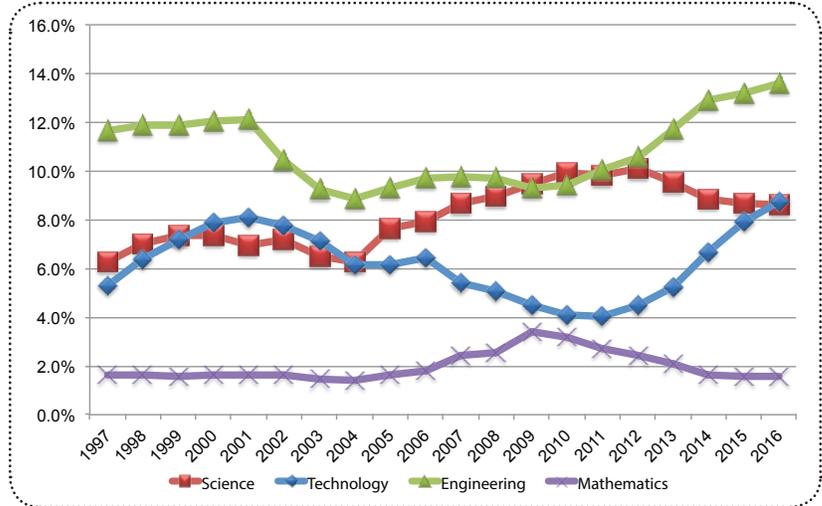


## National 20-Year Trends in STEM Interest by Gender



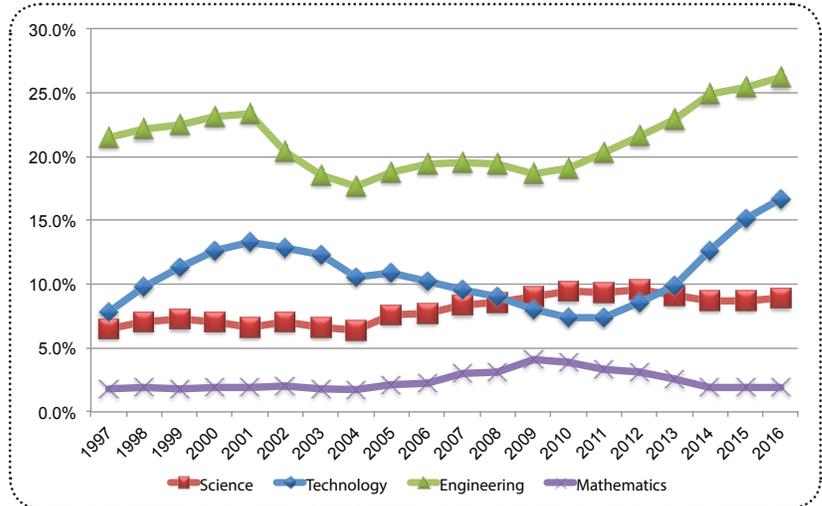


## National 20-Year Trends by STEM Discipline



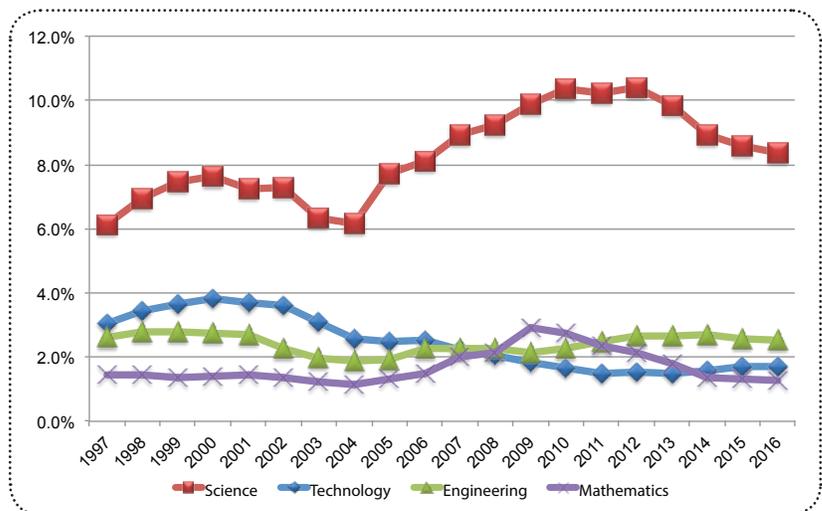
Interest in Engineering and Technology showed the largest decline following the class of 2001, and while both areas are now increasing slowly, they have not reached previous levels. Interest in Science has increased since 2004, but appears to now be declining. Math interest has been low but steady, peaking in 2009.

## National 20-Year Trends by STEM Discipline: Male Students



Interest in specific STEM disciplines varies among male and female high school students. Male students display an affinity for Engineering and Technology fields, while female students prefer Science fields far greater than other STEM areas.

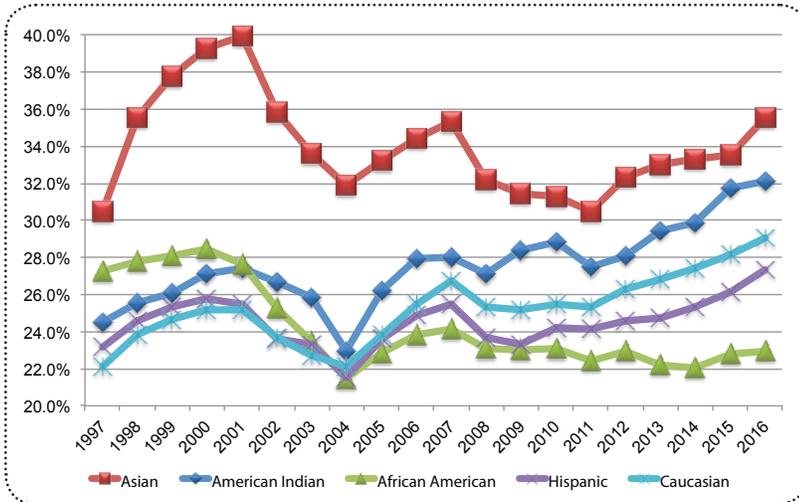
## National 20-Year Trends by STEM Discipline: Female Students



Male student interest in Engineering and Technology fields is increasing, while male student interest in Science and Mathematics remains steady.

Female student interest in Science was previously increasing at a rapid pace, but seems to have peaked. Female interest in Engineering and Technology is steady, while interest in Mathematics is slowly decreasing.

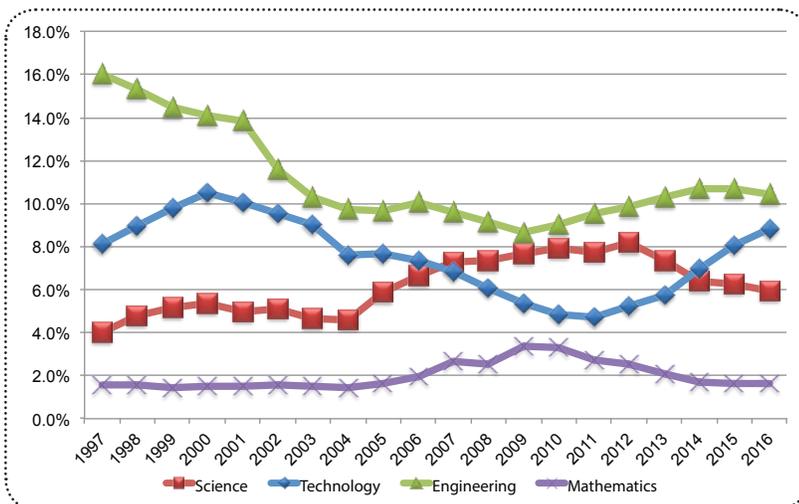
## National 20-Year Trends in STEM Interest by Ethnicity



Asian students continue to display the highest level of interest in STEM fields. Prior to 2001, African American students showed the highest level of interest in STEM, excluding Asian students. Since then, interest in STEM by African American students has plunged and is now lower than any other ethnicity.

Further examination of the decline in interest among African American students reveals a marked decrease in both Engineering and Technology interest, previously high compared to other ethnicities. Interest in Science and Mathematics fields is lower than other ethnicities, but shares similar overall trends.

## National 20-Year Trends by STEM Discipline: African American Students

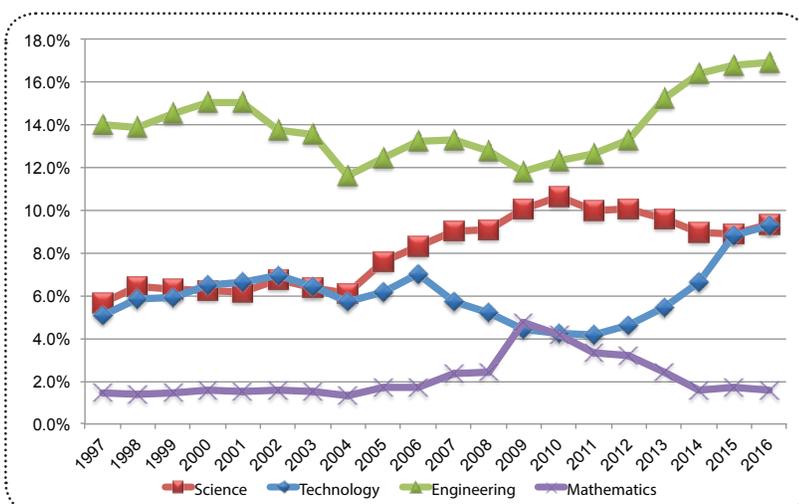


Since 2002, American Indian students have had a higher level of interest in STEM than any other ethnicity, excluding Asian students.

Interest in Engineering has remained higher among American Indian students, while interest in other STEM areas has been similar to the interest levels of other ethnicities.

**Note:** All of the trend data included in this publication is represented by high school graduation year.

## National 20-Year Trends by STEM Discipline: American Indian Students



# National Highlights

One out of four high school students indicates interest in pursuing a Science, Technology, Engineering or Mathematics major or career.

High school seniors are about 10% less likely than high school freshmen to indicate interest in STEM majors and careers.

Male students are over three times more likely to be interested in STEM majors and careers, compared to female students.

While the gender gap in STEM interest had remained relatively steady over the past two decades, it is now increasing at a significant rate.

Mechanical Engineering is the most popular major/career choice among STEM students, followed by Biology.

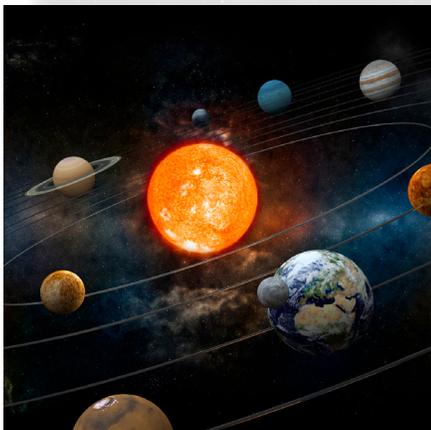
Nearly one-third of students with STEM major or career interest will be the first in their families to attend college.

Female students are significantly more likely to be interested in the STEM majors/careers of Biology, Chemistry, Marine Biology and Science.

Hispanic students with STEM interest are significantly more likely to be first generation college-bound, compared to other ethnic groups.

STEM major/career interest among high school seniors has increased by over 20% since the graduating class of 2004.

Engineering and Technology interest are on the rise, while interest in Science and Mathematics has decreased over the past few years.



# National Highlights

American Indian students are the most likely to be interested in Engineering, compared to students of other ethnic groups.

STEM students are 10% more likely than those without STEM interest to have an “A” grade point average.

One-quarter of students interested in STEM majors or careers are taking Advanced Placement courses in high school.

Since the graduating class of 2000, African American interest in STEM majors/careers has dropped by nearly 30%.

STEM students are more likely to prefer attending a small or medium-sized college that is close to home, compared to non-STEM students.

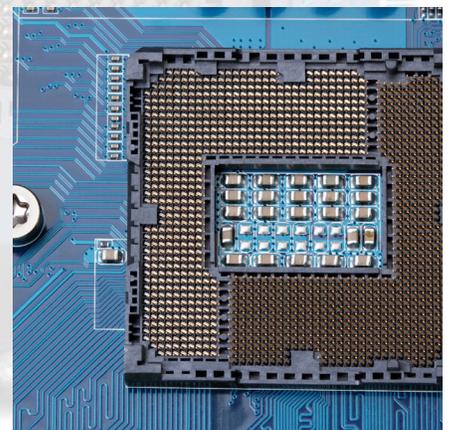
Interest in Electrical/Electronic Engineering is higher among underrepresented ethnic groups, compared to Asian and Caucasian students.

Students with STEM interest are nearly twice as likely to be interested in attending a vocational or technical college, compared to students without STEM interest.

Male students are significantly more likely to be interested in the STEM majors/careers of Mechanical Engineering, Game Design/Development, and Computer Science.

Four years ago, high school seniors were 50% more likely to report being interested in Mathematics majors and careers than seniors today.

Female students are over twice as likely to be interested in Environmental Science, compared to male students.



# State Highlights

African American students in **Alabama** are 40% more likely than African American students nationally to be interested in General Engineering.

American Indian male interest in STEM in **Alaska** has increased at a steady rate over the past 10 years, at a greater rate than American Indian male students nationally.

Hispanic students in **Arkansas** are about 3 times more likely than Hispanic students nationally to be interested in Energy Technology.

Male students in **California** are significantly less likely than students nationally to be interested in STEM, but this disparity is slowly decreasing.

Female students in **Delaware** are 40% more likely to be interested in Chemistry majors and careers than female students nationally.

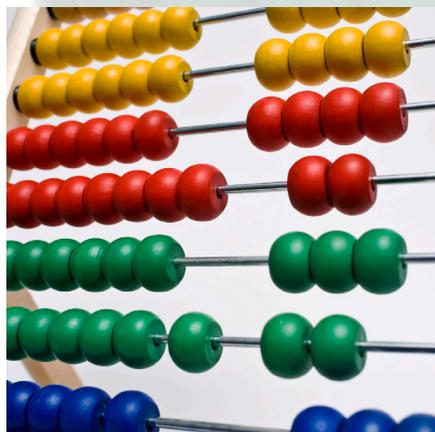
Female students in **Washington, D.C.** are almost twice as likely to show interest in a Mathematics/Statistics major or career than female students nationally.

High school students in **Florida** are 40% more likely to be interested in a Marine Biology major or career than students nationally.

Asian female interest in STEM majors and careers in **Hawaii** has been lower than the Asian female national average for the past ten years.

Hispanic students in **Idaho** are 70% more likely to be interested in Mechanical Engineering majors and careers than Hispanic students nationally.

American Indian students in **Illinois** are 50% more likely to say they are interested in Computer Science than American Indian students nationally.



# State Highlights

Male STEM interest in **Indiana** has been increasing for the past five years, and will continue to increase at a higher rate than the national male average.

Female student interest in STEM in **Louisiana** has been decreasing since 2008, at a higher rate than the national average for female students.

Asian students in **Maine** are significantly more likely to say they will pursue Game Design/Development than Asian students nationally.

Caucasian and American Indian male interest in STEM in **Missouri** has been higher than the national average for those groups for the past 10 years.

Male student interest in STEM in **North Dakota** has been significantly higher than the male national average for the past decade.

American Indian female STEM interest in **New Mexico** has been higher than the American Indian female national average for the past 10 years.

Hispanic male STEM interest in **Oklahoma** has been increasing since 2010, and is significantly higher than the Hispanic male national average.

African American student interest in STEM in **South Carolina** has been higher than the African American national average for the past ten years.

Hispanic high school students in **Texas** are more interested in a major or career in Mechanical Engineering than Hispanic students nationally.

Male students in **Wisconsin** are more likely to say they are interested in Science majors and careers than male students nationally.

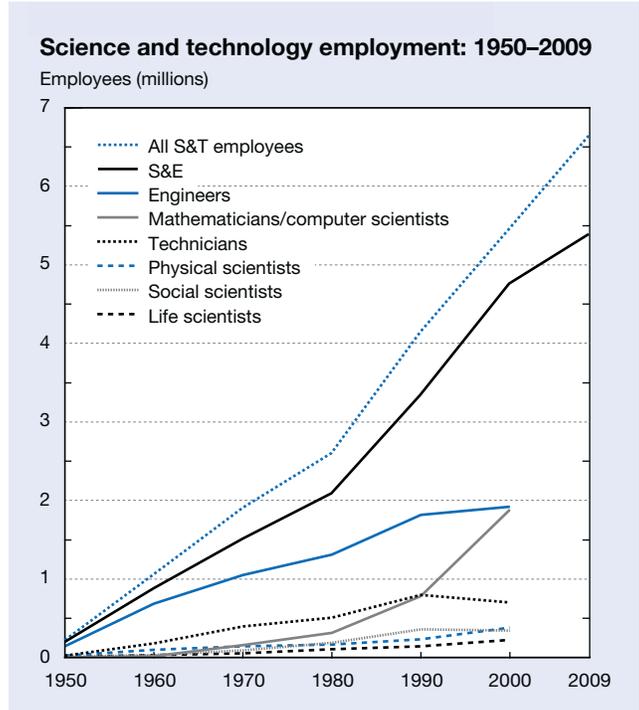


# STEM Jobs by Sector: Where Will the STEM Jobs be in 2018?

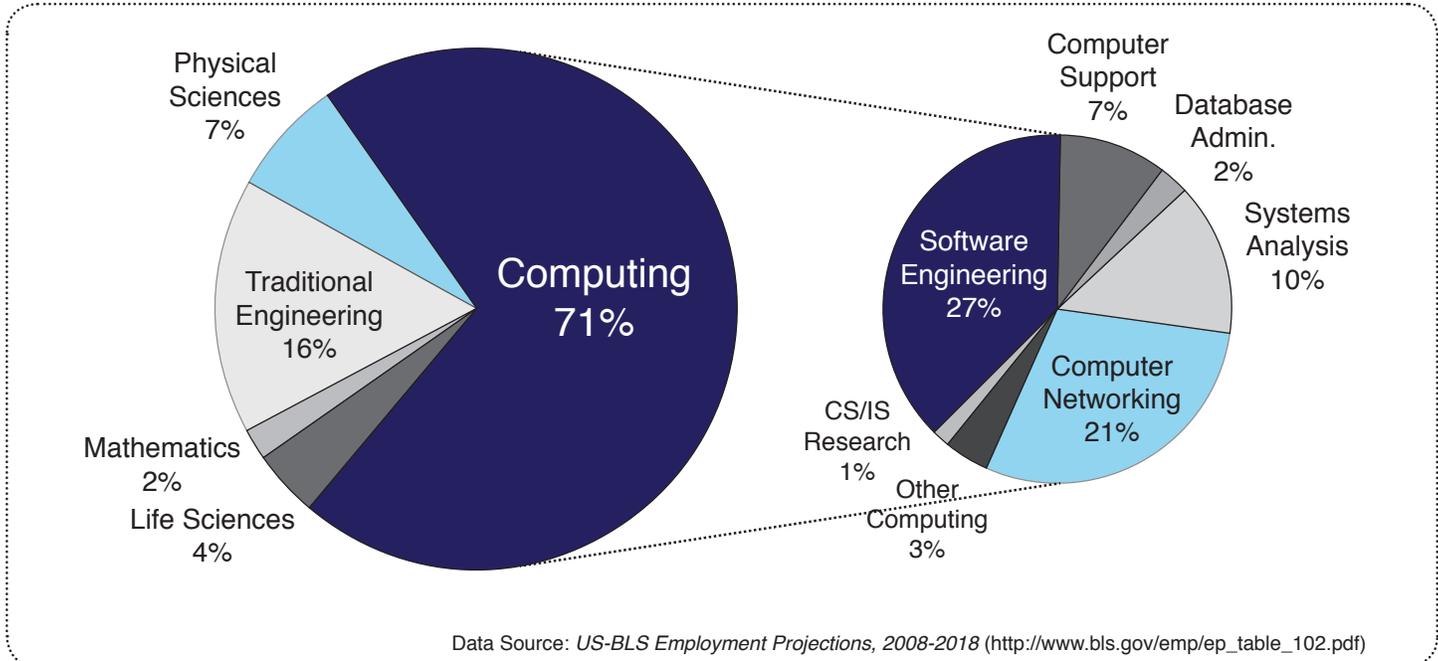
The overall U.S. Science & Technology (S&T) Workforce exceeded **7.4 million workers** in 2012 and it will continue to grow significantly through 2018, to an estimated **8,654,000<sup>1</sup>** STEM workers. <sup>1</sup>This number (8.65 million) does not reflect people who are “self-employed” in STEM fields. If “self-employed” is included, the number of people employed in STEM fields in 2012 is 14.9 million, and is projected to reach 15.68 million by 2018.

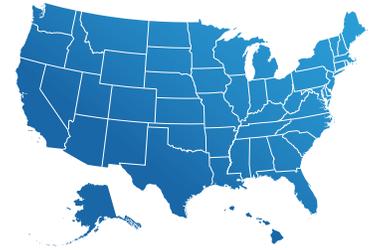
Science & Engineering occupations are projected to **grow at more than double the rate (20.6%)** of the overall U.S. labor force (10.1%) through 2018. These projections do not include occupations for which STEM degree holders use their STEM skills but are not considered by the Bureau of Labor Statistics to be “strictly defined” STEM occupations. The total also includes individuals with STEM degrees as well as **more than 1 million** individuals with technical expertise and skills-specific training who may not have formal STEM degrees.

By 2018, the bulk of STEM jobs will be in **Computing (71%)** followed by **Traditional Engineering (16%)**, **Physical Sciences (7%)**, **Life Sciences (4%)** and **Mathematics (2%)**. The breakdown of computing jobs is shown in the schematic below:



## Percentage of New STEM Jobs by Sector Through 2018





# Where Will the STEM Jobs be in 2018 by State?

STEM jobs will continue to expand as the U.S. economy recovers from the Great Recession. The U.S. Bureau of Labor Statistics estimates that at least **8,654,000 U.S. STEM jobs will exist in 2018**. It has projected the estimated number of STEM jobs by state. At issue is whether or not the U.S. educational system can produce sufficient new workers to fill such jobs, and if not, what employers can do to find suitable talent.

Projected STEM Jobs Need by State in 2018 and Ranking by Total Number of Jobs		
STATE RANK 2018	STATE	PROJECTED 2018 STEM JOBS
23	Alabama	110,000
47	Alaska	20,000
18	Arizona	166,000
36	Arkansas	52,000
1	California	1,148,000
14	Colorado	232,000
22	Connecticut	116,000
41	Delaware	31,000
27	District of Columbia	94,000
4	Florida	411,000
16	Georgia	211,000
42	Hawaii	29,000
40	Idaho	41,000
6	Illinois	348,000
21	Indiana	123,000
32	Iowa	72,000
30	Kansas	80,000
31	Kentucky	74,000
33	Louisiana	69,000
44	Maine	25,000
13	Maryland	241,000
9	Massachusetts	300,000
10	Michigan	274,000
17	Minnesota	188,000
38	Mississippi	46,000
20	Missouri	143,000

Projected STEM Jobs Need by State in 2018 and Ranking by Total Number of Jobs		
STATE RANK 2018	STATE	PROJECTED 2018 STEM JOBS
44	Montana	25,000
37	Nebraska	48,000
34	Nevada	54,000
39	New Hampshire	43,000
12	New Jersey	269,000
35	New Mexico	53,000
3	New York	477,000
15	North Carolina	229,000
51	North Dakota	15,000
11	Ohio	274,000
29	Oklahoma	81,000
24	Oregon	109,000
7	Pennsylvania	314,000
43	Rhode Island	26,000
28	South Carolina	85,000
49	South Dakota	18,000
24	Tennessee	109,000
2	Texas	758,000
26	Utah	101,000
48	Vermont	19,000
5	Virginia	404,000
8	Washington	303,000
44	West Virginia	25,000
19	Wisconsin	155,000
50	Wyoming	16,000
<b>TOTAL STEM JOBS</b>		<b>8,654,000</b>

Source: U.S. Bureau of Labor Statistics, 2011



# About **STEM**connector®

STEMconnector® is “The One-Stop for STEM Information.”

With an innovative product-line, STEMconnector® works closely with stakeholders across the STEM community to provide a valuable set of tools and resources that support smart STEM investments.

The screenshot shows the top navigation bar of the STEMconnector website. The logo 'STEMconnector®' is prominently displayed in red and blue, with the tagline 'The One Stop Shop for STEM Information' below it. To the right are links for 'About' and 'Contact', and social media icons for Facebook, Twitter, LinkedIn, and Tumblr. A horizontal menu contains links for 'STEM Directory', 'State By State', 'Town Hall', 'STEMResults™', '100 Women', 'STEM Daily', 'EdTech', and 'Blog'. Below this is a search bar labeled 'Search STEM Directory' with a 'Search' button and a link to 'View all Directory Profiles'. The main content area features a promotional banner for 'STEMdaily™' and 'EdTech weekly™', encouraging users to sign up for a newsletter. Below the banner is a list of featured articles with titles like 'STEM Woman Leader of the Day - Dawne Hickton (RTI International Metals, Inc)' and 'My College Options® STEM Factoid of the Day (10/10)'. To the right of the banner is a video player for 'U.S. News STEM Solutions Summit Video' from the June 27-29 event in Dallas.

**STEM**connector® With more than 5,000 STEM stakeholders’ profiles, its purpose is to map the STEM Education activity of organizations and all states. Organizational profiles are under major categories: Business, government, associations, diversity and women and education. Major subject areas are available and cross-referenced. Research is intensive as the profiles are updated and the site includes a searchable database. The STEMconnector® database has given the STEM community a giant resource and a tool to establish partnerships with a broad cross section of organizations working in STEM Education to increase connectivity in regions through working relationships. The site is a growing resource with subject areas added and updated regularly. STEMdaily®, STEM Results™, STEM publications and a STEMconnector® Blog and social media are key features.

**STEMdaily®** STEMdaily®'s aim is to connect the STEM Education by providing hot relevant news to a broad audience of stakeholders involved in STEM Education. The electronic daily news provides summaries of 20 stories across 14 different categories with links to the original content in an easy-to-read format. STEMdaily® includes a variety of sources: major news outlets, business wires, blogs and affiliate submissions. After being released, all stories are archived in a searchable database available for research and reference. Sign up at [www.STEMconnector.org/STEMdaily](http://www.STEMconnector.org/STEMdaily).

**TownHall Conference Call**  
a project of STEMconnector®

The objective of these calls is to convene thought leaders; key voices from across the stakeholder community who will present perspectives from industry, government, education and non-profits working on these issues. The TownHall conference calls bring together high-level decision-makers within organizations across the public, private, academic and non-profit sectors with the aim of informing and connecting stakeholders by establishing common goals and patterns of excellence. Town Halls have been held on STEM Jobs, Workforce Planning, Diversity and Women and Girls. Contact [Ted.Wells@STEMconnector.org](mailto:Ted.Wells@STEMconnector.org).

**STEM RESULTS**  
a joint project of STEMconnector® and ASTRA  
sponsored by Cisco

Results Matter! The STEM Results™ Project applies best practices, measurement and data RESULTS to more than 5,000 organizations involved in STEM Education. STEM Results™' challenge is to inventory, document, and make available matching STEM organizational goals, targets, and achievements and comparing them to measurable Results. Focus is on data and impact with intent that programs with results can be scaled up and shared. Numbers count. STEMconnector®/ASTRA — with the support of Cisco Systems — seeks to share best practices information with the STEM community. STEM Results™ documents who is providing the best analysis of Results on their STEM programs. Targets are STEM education leaders—businesses, professional societies, non-profits, educational entities, states, federal government and others — identified to measure their own Results against Goals. STEMconnector® / ASTRA will recognize and honor those STEM organizations that are accomplishing Specific, Measurable, Achievable, Realistic and Time-bound (SMART) Results. 125 targets from all categories are included in our first Results assessments. To learn more or request your organization be part of STEM Results™, contact [Bob@STEMconnector.org](mailto:Bob@STEMconnector.org).

**STEM publications**  
a project of STEMconnector®

Available in hard copies and electronic versions, STEM publications seek to provide tools and resources to spread the message about the importance of STEM. Initially conceived to be used to promote STEM role models, this project of STEMconnector® includes “100 Women Leaders in STEM” which profiled more than one hundred women whose careers and passion have contributed to promoting women in STEM careers. Other publications include Newsletters, white papers and special reports. STEMconnector®'s next publication is set to be released in Summer 2013 and will be titled

“100 CEO Leaders in STEM” and will profile Global Fortune CEOs whose commitment to STEM best practices are making an impact in the way their companies demonstrate STEM leadership. To become a sponsor or nominate a CEO, contact [Lorena.Fimbres@STEMconnector.org](mailto:Lorena.Fimbres@STEMconnector.org).

## **STEM** council

a project of **STEMconnector®**

STEM Council™ is a formalized intra-company or organizational structure. The purpose of the STEM Council™ is to lay the foundation for companies to establish internal structures to develop holistic STEM Education/Work force strategies. The Council (name may vary) offers a framework for strategic planning with a coordinated STEM approach and leveraging of resources as well as best practices, and impact on STEM investment. All corporations and organizations are encouraged to form STEM Councils and share with STEMconnector® as we seek best practices, sharing of mission, plans, execution and success of integration for ROI on STEM. Much as diversity councils serve as organizing structures around the principle of diversity, STEM Councils help coordinate workforce needs, philanthropic spending and CSR and community involvement with education funding and with government relations/policy and communications. Leadership from an executive committee member is critical in order to ensure that STEM Councils have and use the resources effectively in order to affect organizational change. STEMconnector® is working on highlighting STEM Councils formed or in process and establishing sharing of results. Contact [Edie.Fraser@STEMconnector.org](mailto:Edie.Fraser@STEMconnector.org).

## **STEM** events consulting

a project of **STEMconnector®**

STEMconnector® conceptualizes, develops and executes key events. One of the most important has been our partnership with US News and the STEM Solutions Summit. Some of the most recent events are Corporate Luncheons, STEM-Diversity Sessions and networking receptions. STEMconnector® supports and co-hosts at least 20 other events per year. Contact [Lorena.Fimbres@STEMconnector.org](mailto:Lorena.Fimbres@STEMconnector.org).

## **STEM**data visualization

a joint project of **STEMconnector®** and **ASTRA**

Through its partnership with ASTRA, STEMconnector® offers a variety of data visualization products that are customized to specific needs. Popular requests include state-by-state comparison, geospatial rendering of data down to county or school district level, and other creative ways to visualize complex data in its geospatial aspects. Contact [Bob@STEMconnector.org](mailto:Bob@STEMconnector.org).

## **STATE** **STEM**Ed reportcards

a joint project of **STEMconnector®** and **ASTRA**

State STEM Ed Report Cards series are issued yearly and were pioneered by ASTRA for use in meetings with public officials at all levels of government. They contain more than 60 state-specific metrics that compare, rank and otherwise inform the general public about important STEM education measurements. Demographics, student test scores,

STEM jobs information, STEM jobs information and salaries, innovation capacity and other measurements of the economic and social benefits of STEM education, ranked by State, make these a leading source of quick and accurate STEM information for policy makers, economic planners, parents, teachers and kids. Contact [Bob@STEMconnector.org](mailto:Bob@STEMconnector.org).

## **STEMconnector®** *entrepreneurship*

The STEM Entrepreneurship Initiative supports STEMconnector®'s recognition that entrepreneurs with STEM-related products and/or services are a major force for a competitive economy and strong nation with innovation and jobs. STEMconnector®'s Initiative seeks to inform, educate and engage the nation's leadership and ensure that students are not only trained for major companies and organizations but also for entrepreneurship within the enormous area called STEM Education. Some of the efforts include the establishment of Entrepreneurship Council and a campaign for benefiting STEM entrepreneurs. STEMconnector® is building a base with data and reports, including a section in *STEMdaily®*, and valuable information in *STEMconnector®/ASTRA* state report cards. Contact [Edie.Fraser@STEMconnector.org](mailto:Edie.Fraser@STEMconnector.org).

## **STEM** *briefs* a project of **STEMconnector®**

STEM Briefs are major reports or papers produced on core subjects chosen by the STEMconnector® team in partnership with its members and partners. STEMconnector® envisions five key STEM Briefs per year that will include an executive summary and a full report coupled with resources. Several of the areas selected include the following: 1. Digital Learning, Educational Technology: Changing the Face of Education; 2. Student Engagement to Ensure the Pipeline to STEM Careers. 3. STEM RESULTS -- Models and Metrics 4. STEM Councils: Models and Leveraging to Achieve Success. 5. Manufacturing and Technology and STEM Careers. These STEM Briefs will be broadly distributed by STEMconnector® and partners, placed on STEMconnector® Site, and communicated through strong channels and social media. Contact [Tim.Edwards@STEMconnector.org](mailto:Tim.Edwards@STEMconnector.org).

## **EdTech** *weekly* **report** A project of **STEMconnector®**

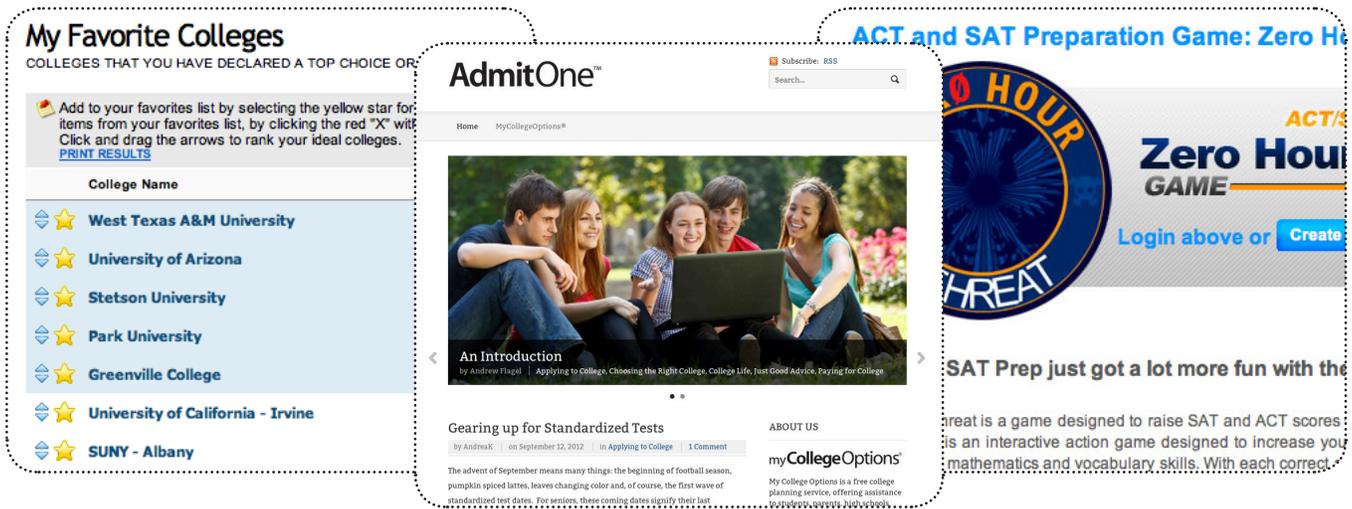
STEMconnector's EdTech Weekly Report is the one-stop source for everything happening in the EdTech and Digital & Distance Learning space. Curating stories from a variety of sources, EdTech Weekly Report™ focuses on the macro-trends in the policy, technology development, and media spheres that is making EdTech the change issue for education. Additionally, STEMconnector® will track and offer events, competitions, and STEM Briefs™ that will put it at the nexus of the changing face of education in the United States and in the world. Contact [Alexander.Williams@stemconnector.org](mailto:Alexander.Williams@stemconnector.org).

# About myCollegeOptions®

MyCollegeOptions®.org is the nation's largest college planning program, operated by the National Research Center for College & University Admissions™ (NRCCUA®), a non-profit education research organization founded in 1972. This free, online community offers assistance to students, parents, high schools, counselors and educators nationwide by exploring a wide range of post-secondary opportunities, with special emphasis on the college search process.

The screenshot shows the MyCollegeOptions.org website. At the top, there is a navigation bar with 'My Home', 'Search', 'Advice', and 'Tools' links, and a search box labeled 'Search The Site'. Below the navigation bar, there are three main sections: 'Student Sign In', 'My College Matches', and 'Educators'. The 'Student Sign In' section includes a login form with fields for 'Username:' and 'Password:', a 'Sign In' button, and links for 'Forgot Login?' and 'No account yet? Register'. The 'My College Matches' section features a large banner with a smiling student and the text 'My College Matches Get college suggestions based exclusively on your profile.' with a 'Start Now' button. The 'Educators' section has a 'Sign In' button and an icon of three people. Below these sections, there are three columns of content: 'My Home' (Your profile, schools, scholarships & more) with three bullet points: 'FIND COLLEGES INTERESTED IN YOU.', 'SEE YOUR COLLEGE PROFILE MATCHES', and 'SAVE YOUR FAVORITE COLLEGES'; 'Research Majors' (Today's most popular college majors.) with a list of majors: Psychology, Nursing, Criminal Justice, Business Administration, and Education; and 'Featured Colleges' with a photo of students and a list of colleges: Knox College (Galesburg, IL), University of Missouri - Kansas City (Kansas City, MO), and Saint Louis Community College (Saint Louis, MO). At the bottom left, there is a 'My College Options® Resource Center' section with an icon of a building and a dollar sign.

Students have the opportunity to create a personal online college and career planning profile, where their individual needs, talents, abilities, goals and interests are matched with the offerings of over 5,000 accredited post-secondary institutions across the United States. Along with the college match, students have access to valuable information about paying for college, types of institutions, career exploration, how to apply to college, and much more. Parents can use My College Options® to find answers to their college planning questions. They are provided with newsletters, articles, and other resources that will inform and support their involvement in their child's college search process. High school counselors receive access to personalized college and scholarship match reports for their students, online reporting and updates on their students' profiles, classroom materials, and free online resources for guidance office websites.



My College Options® works with national educational organizations to engage students and families in the college planning process. These organizations are the nation’s leaders in student and educator advocacy and rely on the data and analysis provided by our cooperative programs to support their organizations and members. Through these partnerships, we seek to assist the educational community in every way possible. Our educational partners are able to reach millions of students and thousands of educators through our extensive reach and relationships with administrators, educators and students.

**62.6**  
million students  
have been served  
since 1972.

**100+**  
national education  
partners engaging  
students, educators  
and families.

**70%**  
of high school  
students participate  
by the time they  
graduate.

**55,000**  
teachers volunteer  
to administer  
the program.

**95%**  
of the nation’s public  
and private high schools  
participate.

**2,000**  
colleges & universities  
reach students through  
our unique process.

**“Creating a brighter future through a unique process that captures and shares educational and career aspirations, with integrity...one dream at a time!”**

My College Options® is a valuable resource for research on student achievement and growth trends. In addition, our extensive reach and the relationships we have built with students and educators uniquely positions us to offer virtually unlimited opportunities for outreach, engagement, and career encouragement. The rich data we have gathered allows us to target these programs toward students with specific interests and goals, with the primary objective of shaping the nation's future workforce.

College and career encouragement, or “pipeline” programs, seek to impact students moving along a similar educational path. A constant challenge is providing meaningful support and resources to keep participants involved in a sustainable manner, through the college process, workforce preparation, and into their future careers. MyCollegeOptions®.org provides a comprehensible, measurable, trackable and customized process, leveraging technology, social media, and traditional communication methods to deliver relevant and credible content tailored to meet students' needs.

## Identify

**Along with educational and career aspirations, the My College Options® profile contains over 300 data elements on demographics, college planning information, and more.**

**We know that there is large scale attrition within the population of students interested in STEM majors and careers.**

**Identifying students interested in STEM at an early age is crucial to producing real change and growth.**

## Connect

My College Options® has a pre-established relationship and direct access to these students to deliver education and career guidance.

My College Options® can provide access to student profile data OR facilitate direct communication.

This allows for connection to a “pipeline” designed to encourage, mentor and support students down the path to a STEM career.

## Engage

This connection allows My College Options® and its partners to engage students with “real-world” content and interaction with peers or experts, all providing relevant support.

Students are often under-informed about how their educational decisions impact their future career options. Actively feeding students with the knowledge they need to achieve their goals is desperately needed.

This engagement and direct student interaction allows My College Options® and its partners to track students through the process, to measure program impact, identify predictive patterns, or maximize confidence in investment returns.

### Call to Action:

If your organization has a need to identify, connect with or engage a wide or targeted population of students, we can help.

Connect with us at [shapingthefuture@mycollegeoptions.org](mailto:shapingthefuture@mycollegeoptions.org).

# My College Options® Research Methodology

Annual research on high school student interest in STEM college majors and careers is conducted by My College Options®, and is compiled using the results of paper surveys administered in high schools nationally and online registration forms completed at [www.mycollegeoptions.org](http://www.mycollegeoptions.org). My College Options® works with national educational organizations, such as STEMconnector®, to engage students and educators in annual cooperative programs. Each year, research packages are mailed to educators across the nation. These educators are asked to distribute the survey to their students, as well as complete an educator questionnaire. Surveys are reviewed and updated annually, and data analysis and presentation is conducted by My College Options® research staff.

## Definitions

For the purposes of this report, STEM interest is defined as interest in any of the college major/career paths listed beside the disciplines in the table below. Student respondents are asked to select two occupational areas that best fit their college major interests or future career interests.

Science.....	Biology Chemistry Environmental Studies Marine Biology Physics Science
Technology.....	Computer/Information Sciences Game Design and Developer Software Developer
Engineering.....	Energy Technology Engineering (Chemical) Engineering (Civil) Engineering (Computer) Engineering (Electrical/Electronic) Engineering (General) Engineering (Mechanical)
Mathematics.....	Mathematics/Statistics

Statistics referring to “penetration” represent the percentage of students within individual groups (gender, ethnicity, graduation year, etc.) that are interested in STEM. “Profile” statistics represent relevant breakouts within the STEM population.

The sample used to represent the national student population has a slight over-representation of female students. While findings from within each population are safely generalizable, some direct gender comparisons will skew in favor of female students. This bias is also present in the actual college-going population in the United States. Because of that consistency, the female bias in these findings has not been corrected.

The sample used to represent the national student population also has slight variations compared to the regional population distribution. Because this bias is not discernible in the college-going population, this bias has been corrected through demographic weighting, described below.

For the purposes of ethnicity, students are allowed to select as many as apply. Those who select more than one answer choice are classified as “multiracial”. Students who selected the answer choice “prefer not to respond” have been removed from the ethnicity sample for this research.

First generation college-bound students are defined by neither parent having attended college.

Students have been assigned to geographic regions based on their residency in nationally accepted census regions provided by the United States Census Bureau.

Household income is assigned using census and financial transaction data based on individual street address calculated to within a block radius. Income is the only data point in this research that is not self-reported by students, but is calculated independently by Experian and appended to our data. The income bands provided to us by Experian are condensed using the table below.

Less than \$39,999 (Low).....	Less than \$15,000
	\$15,000 - \$19,999
	\$20,000 - \$29,999
	\$30,000 - \$39,999
\$40,000 - \$69,999 (Mid).....	\$40,000 - \$49,999
	\$50,000 - \$59,999
	\$60,000 - \$69,999
Greater than \$69,999 (High).....	\$70,000 - \$79,999
	\$80,000 - \$89,999
	\$90,000 - \$99,999
	\$100,000 - \$124,999
	\$125,000 - \$149,999
	Greater than \$149,999

My College Options® records student interest in fields that are STEM-related, but not part of a generally accepted definition of STEM majors and careers. These students are represented under the heading “Other STEM-Related and Industry-Specific Fields”.

In the state section, when comparing the current class of 2016 (high school freshmen) to the class of 2012 (most recent graduating class), any variation of less than 10% was labeled “slightly” rather than the numeric value.

### Sampling Error

The margin of error and the confidence interval below are a measurement of how well the research results represent the entire national student community. For example, in theory, one could say that if we performed the survey 100 times, the results for each respondent would fall within the margin of error above or below the percentage reported 99 out of 100 times.

Respondent Group.....	All students
Sample.....	6,360,554
Estimated Population.....	16,000,000
Margin of Error (MOE-99%).....	+/- 0.03%

### Nonsampling Error

It is possible that question wording and logistical difficulties in conducting surveys can introduce error or bias into the findings, in addition to that caused by non-response and sampling error.

### Demographic Weights

When appropriate, demographic weights were created and applied to the data to reduce the effects of survey sampling and response bias. Weights were calculated using the high school graduate projections from the Western Interstate Commission for Higher Education (WICHE).

technology chemistry mechanical engineering environmental studies  
civil engineering marine biology mathematics statistics science  
computer information sciences physics game design and develop  
software developer energy technology chemical computer electrical  
electronic engineering biology chemistry mechanical engineering  
environmental studies civil engineering marine biology mathemat  
statistics science computer information sciences physics game  
design and developer software developer energy technology chemi  
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mechanical engineering environmental studies civil engineering  
marine biology mathematics statistics science computer informati  
sciences physics game design developer software developer energy  
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biology chemistry mechanical engineering environmental studies  
civil engineering marine biology mathematics statistics science  
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electronic engineering biology chemistry mechanical engineering  
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civil engineering marine biology mathematics statistics science  
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software developer energy technology chemical computer electrical  
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