National STEM Crisis

- U.S. behind in student indicators.
- Foreign nationals ahead in jobs and degrees.
- Urban students are falling behind.
- Many plans exist to address this.
- New national STEM Initiative addresses programs and teachers.

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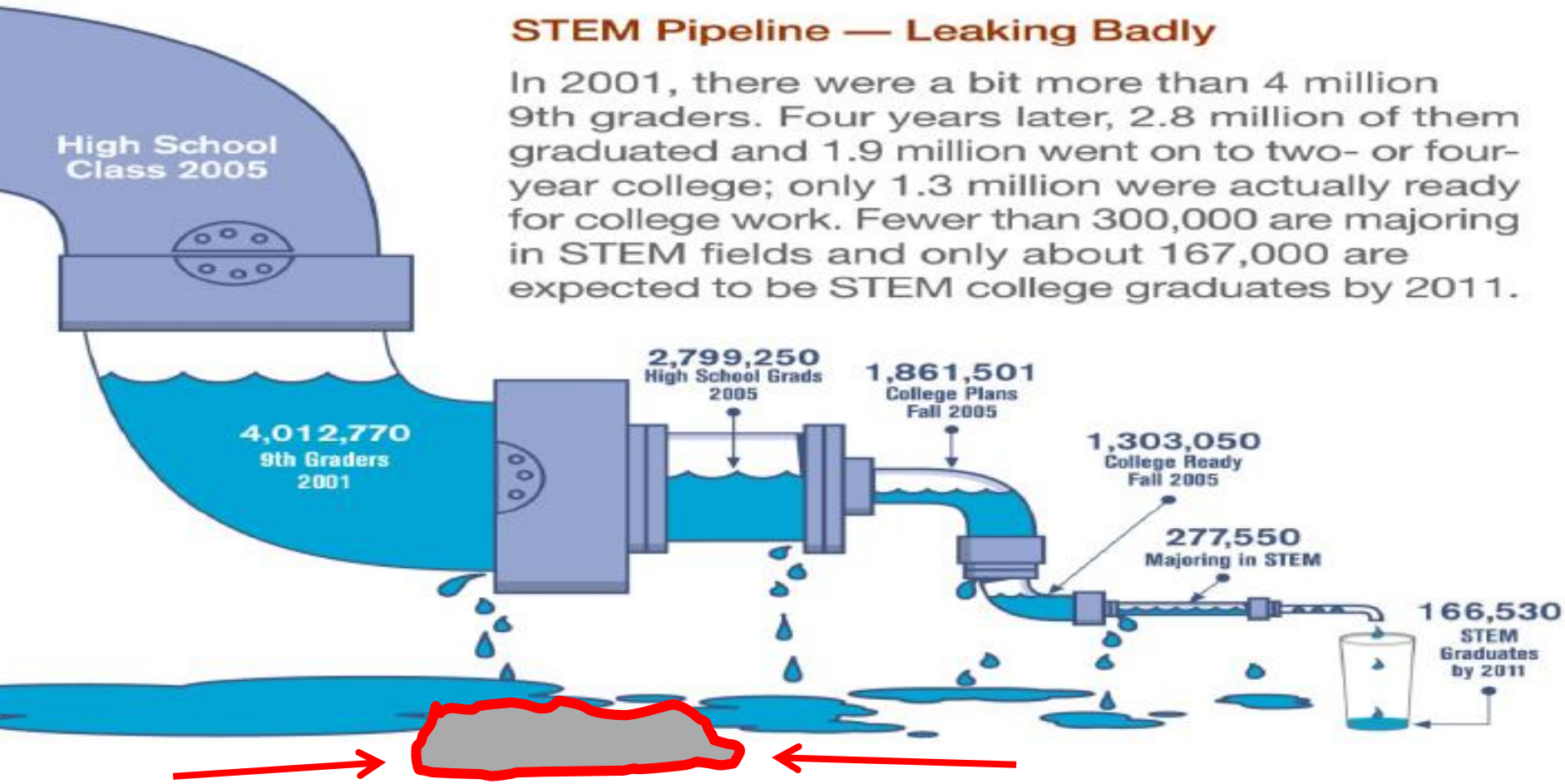
The Problem: A Leaky Pipeline

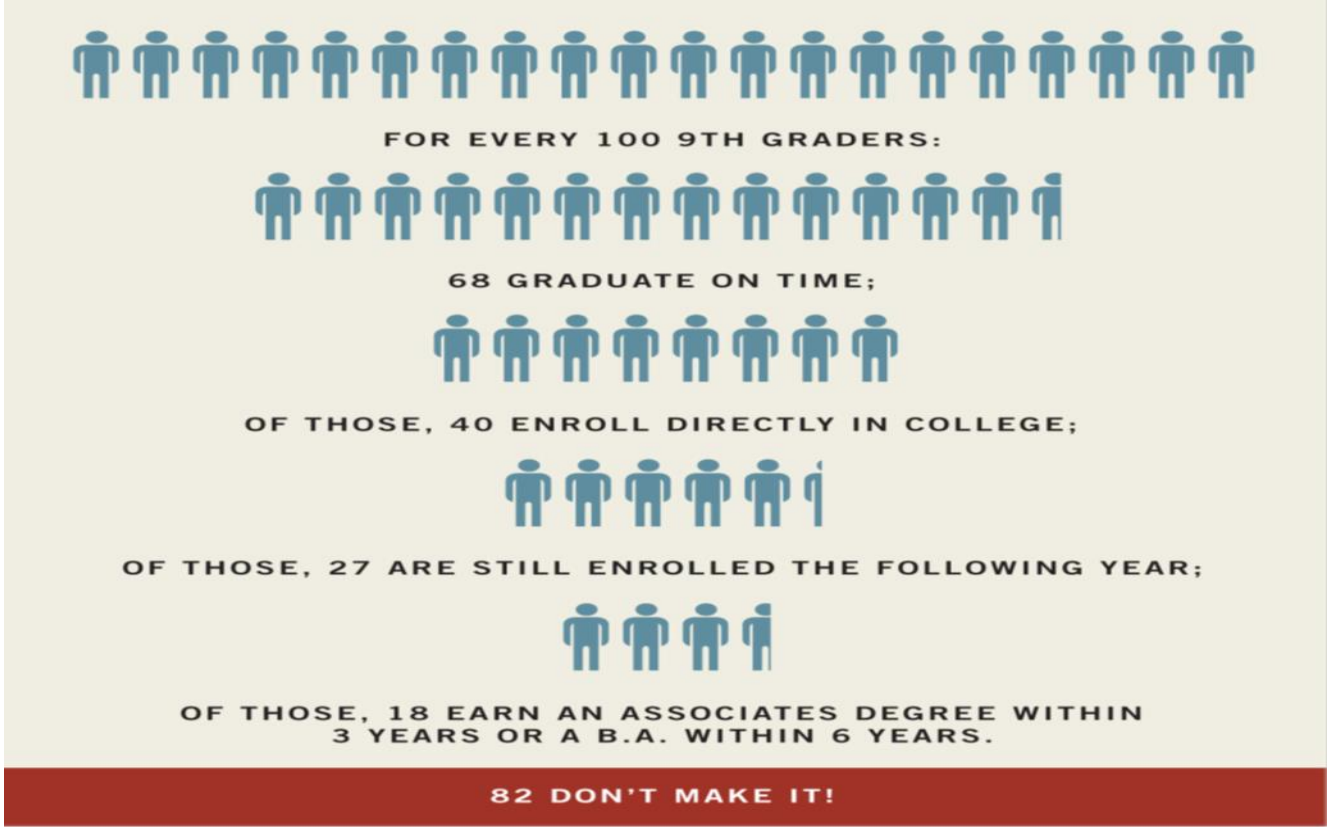
STEM Pipeline — Leaking Badly

In 2001, there were a bit more than 4 million 9th graders. Four years later, 2.8 million of them graduated and 1.9 million went on to two- or four-year college; only 1.3 million were actually ready for college work. Fewer than 300,000 are majoring in STEM fields and only about 167,000 are expected to be STEM college graduates by 2011.



Source: NCES Digest of Education Statistics; Science & Engineering Indicators 2008

A Shrinking Skilled Workforce Pipeline…



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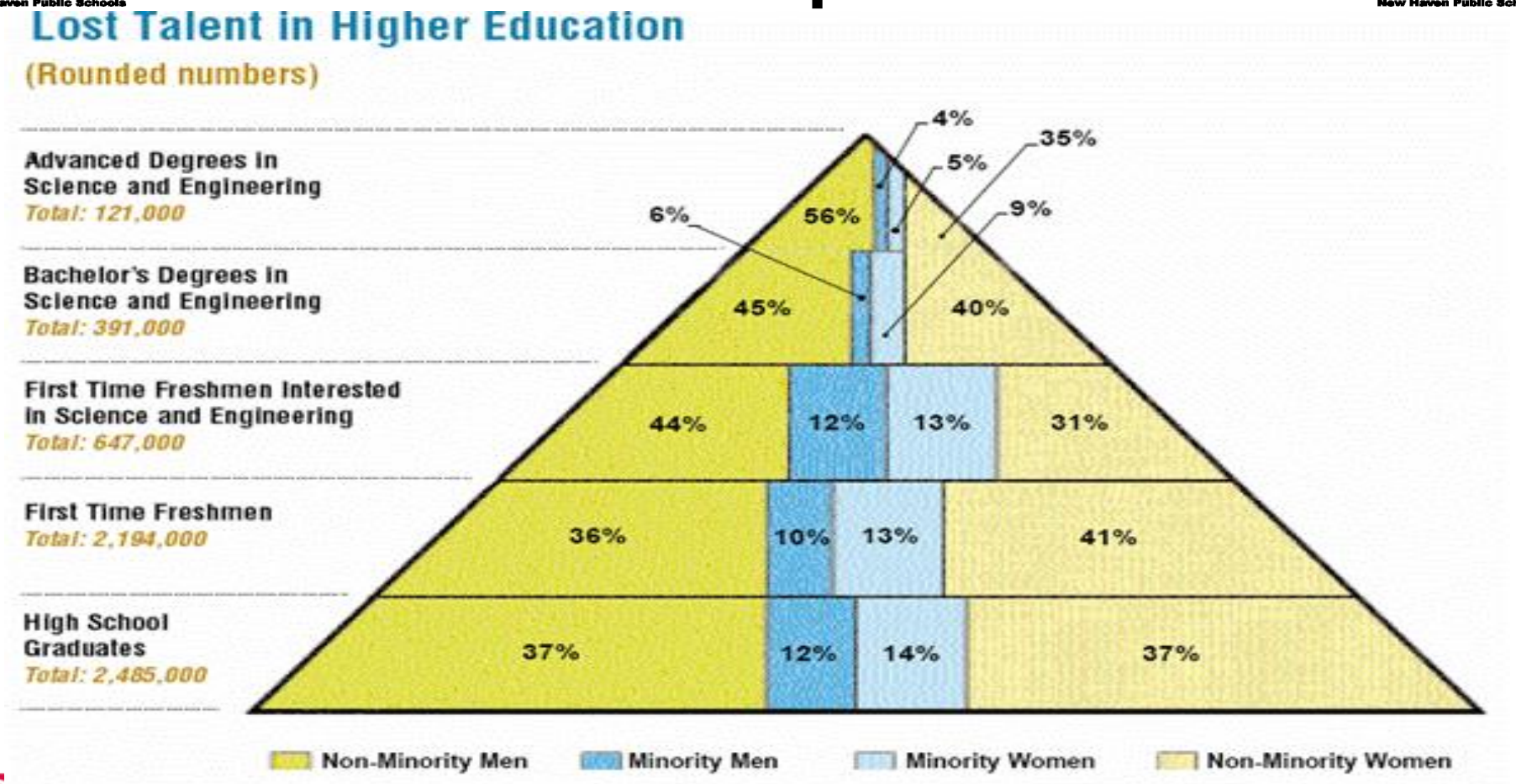
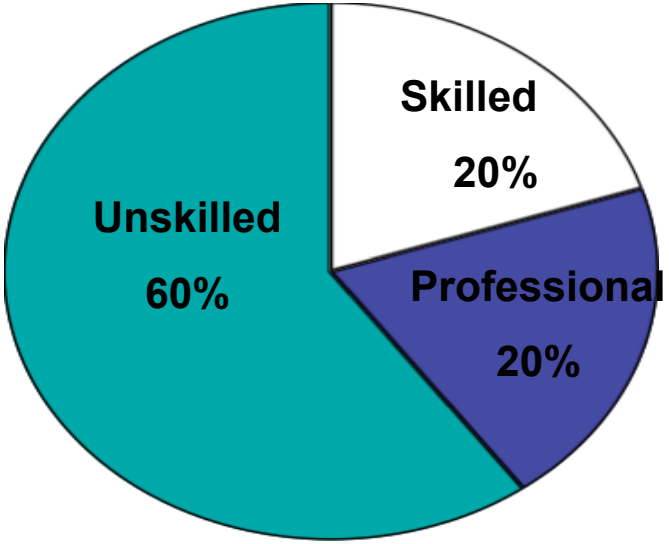
Stem Pipeline



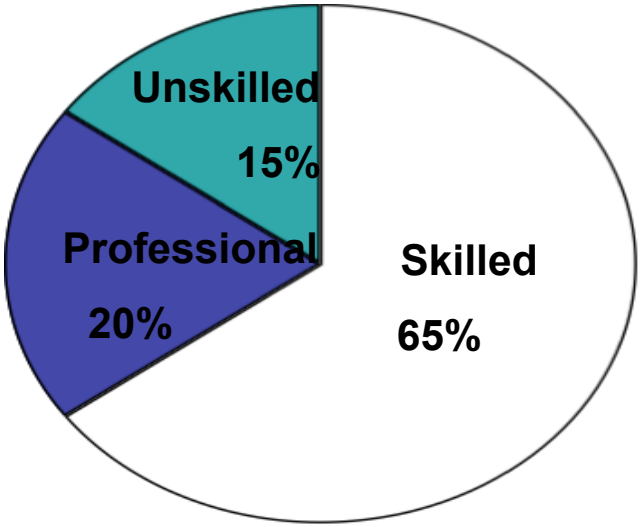
Minority = Black/African American, Hispanic, and American Indian

Source: Joan Burrelli, NSF, based on 1999 Common Core of Data, U.S. Department of Education, National Center for Education Statistics (NCES); NCES, 1998 IPEDS Fall Enrollment Survey; UCLA Higher Education Research Institute,1998 American Freshman Survey (estimate); and NCES, 1998 IPEDS Completions Survey

Skill Level Changes



1950



Today

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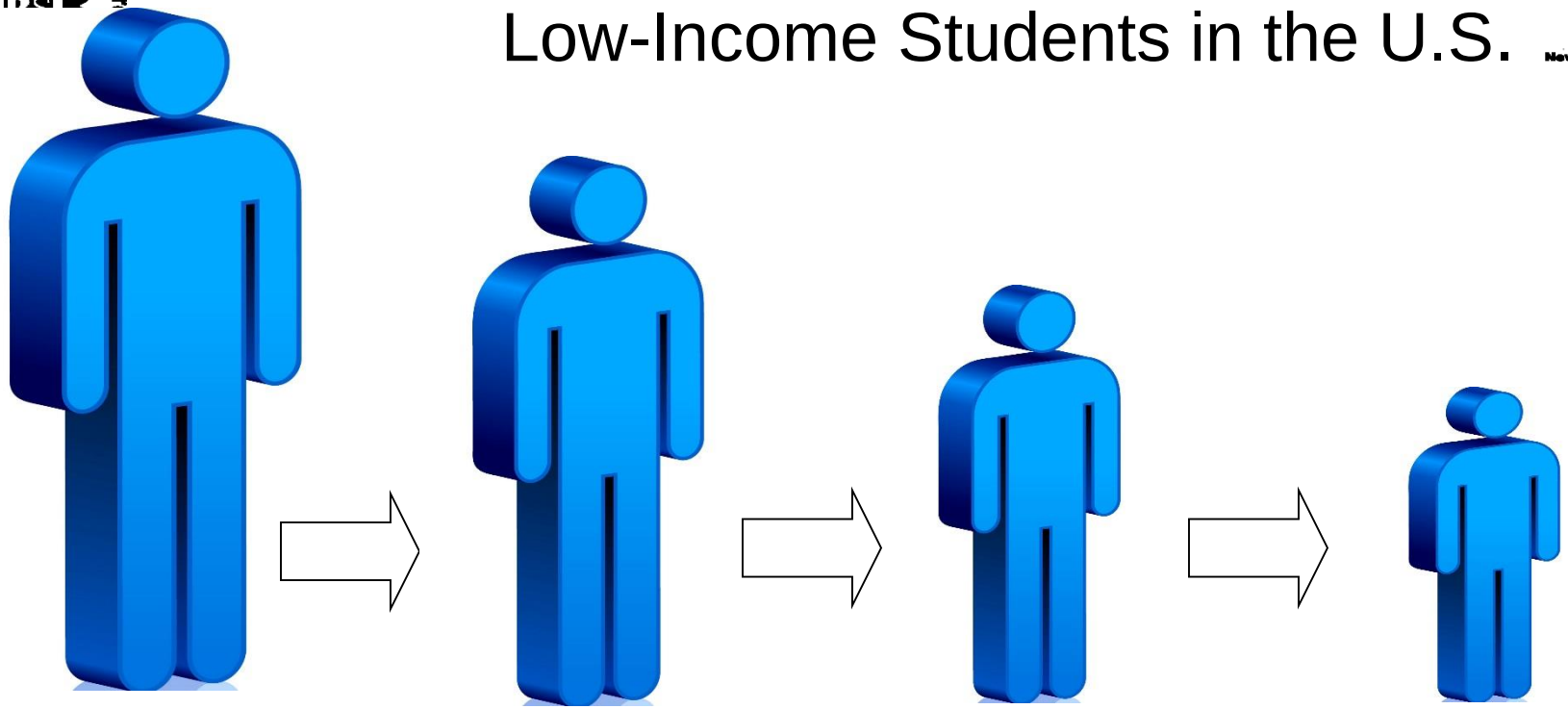
STEM Pipeline from 9th Grade to Bachelor's Degree for Low-Income Students in the U.S.



10,000 Students in the Bottom Income Quartile Start the 9th Grade

6,600 of 10,000 Students Earn a High School Diploma (8,200 total)

3,860 of 10,000 Students Go to College 76 are Declared STEM Majors vs 800 total

710 of 10,000 Students Earn a Bachelor's Degree 30 BA/BS in STEM Fields vs 400

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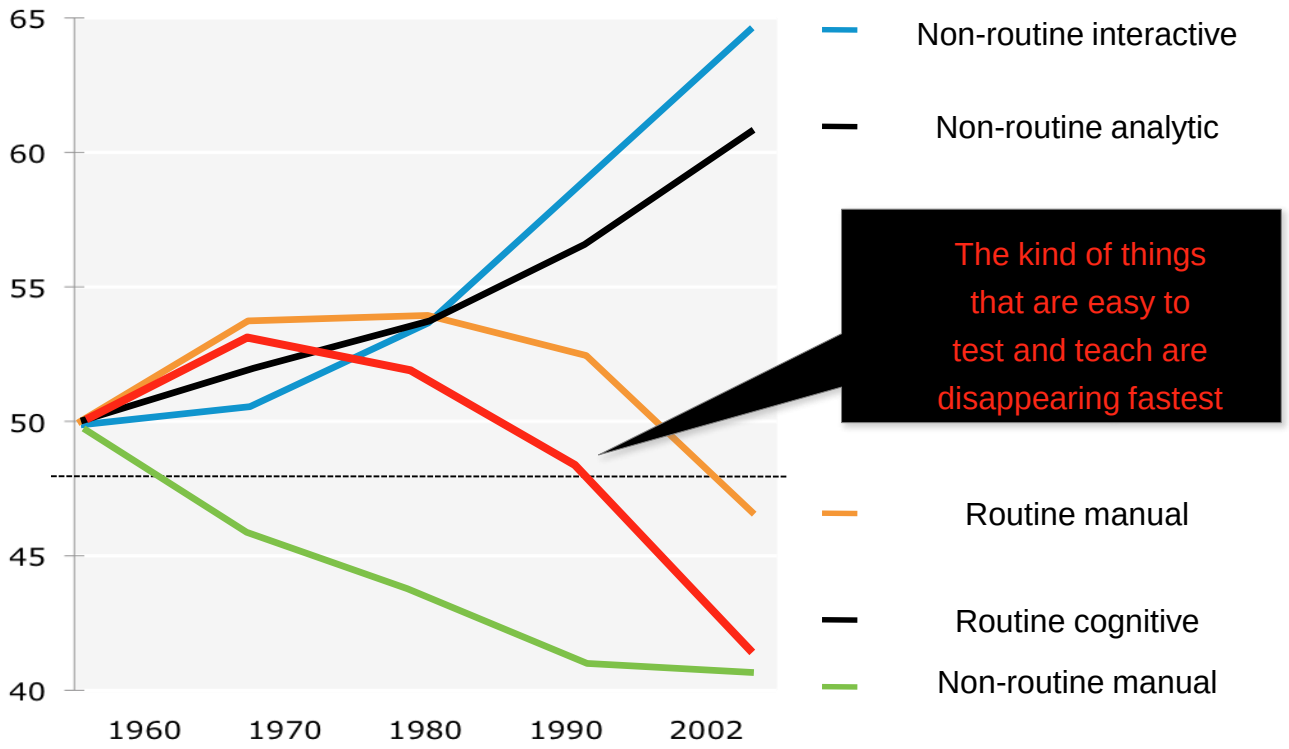
Prepare students for the requirements of the 21 century economy

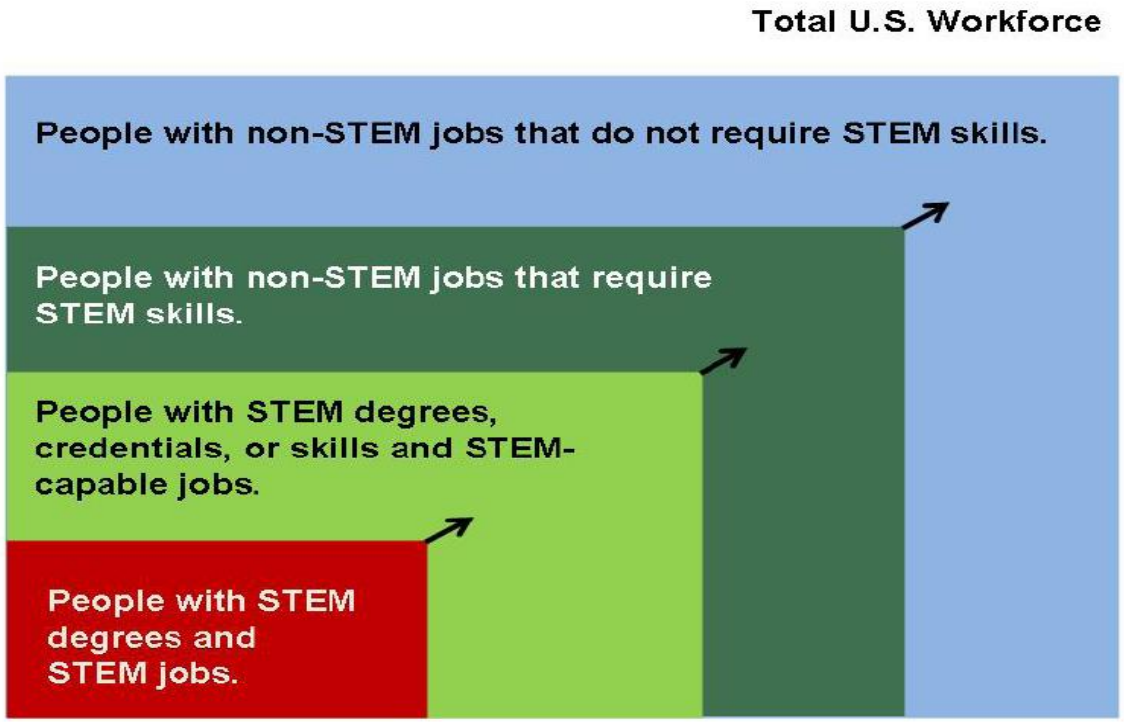
How the demand for skills has changed

Economy-wide measures of routine and non-routine task input (US)

Mean task input as percentiles of the 1960 task distribution

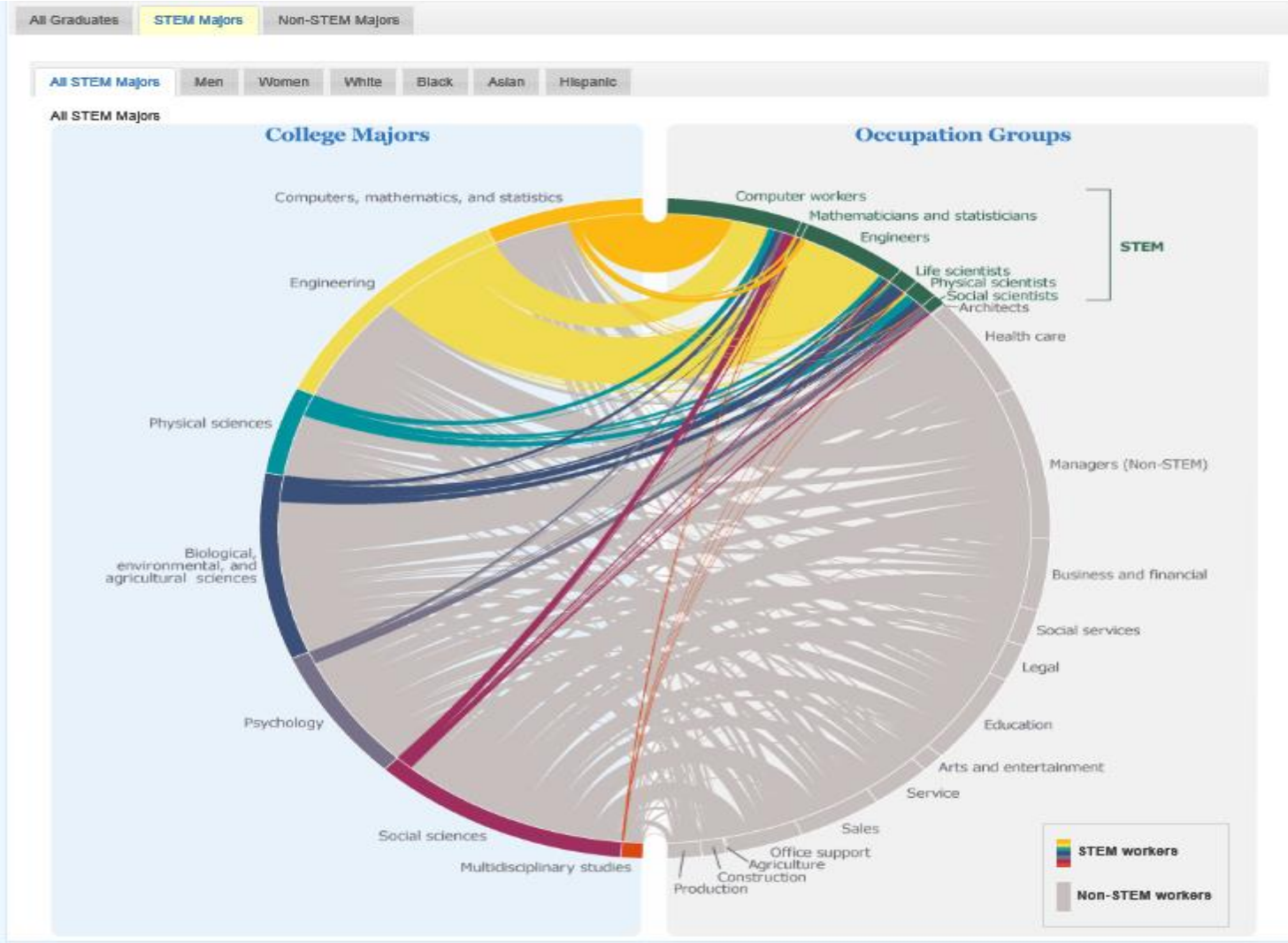


STEM Workforce Definition



Note: The categories of jobs that require STEM skills and understandings are expanding, generating additional demand for workers with STEM degrees.

Source: PCAST (2012) *Engage to Excel, Fig. F-1, p.68*



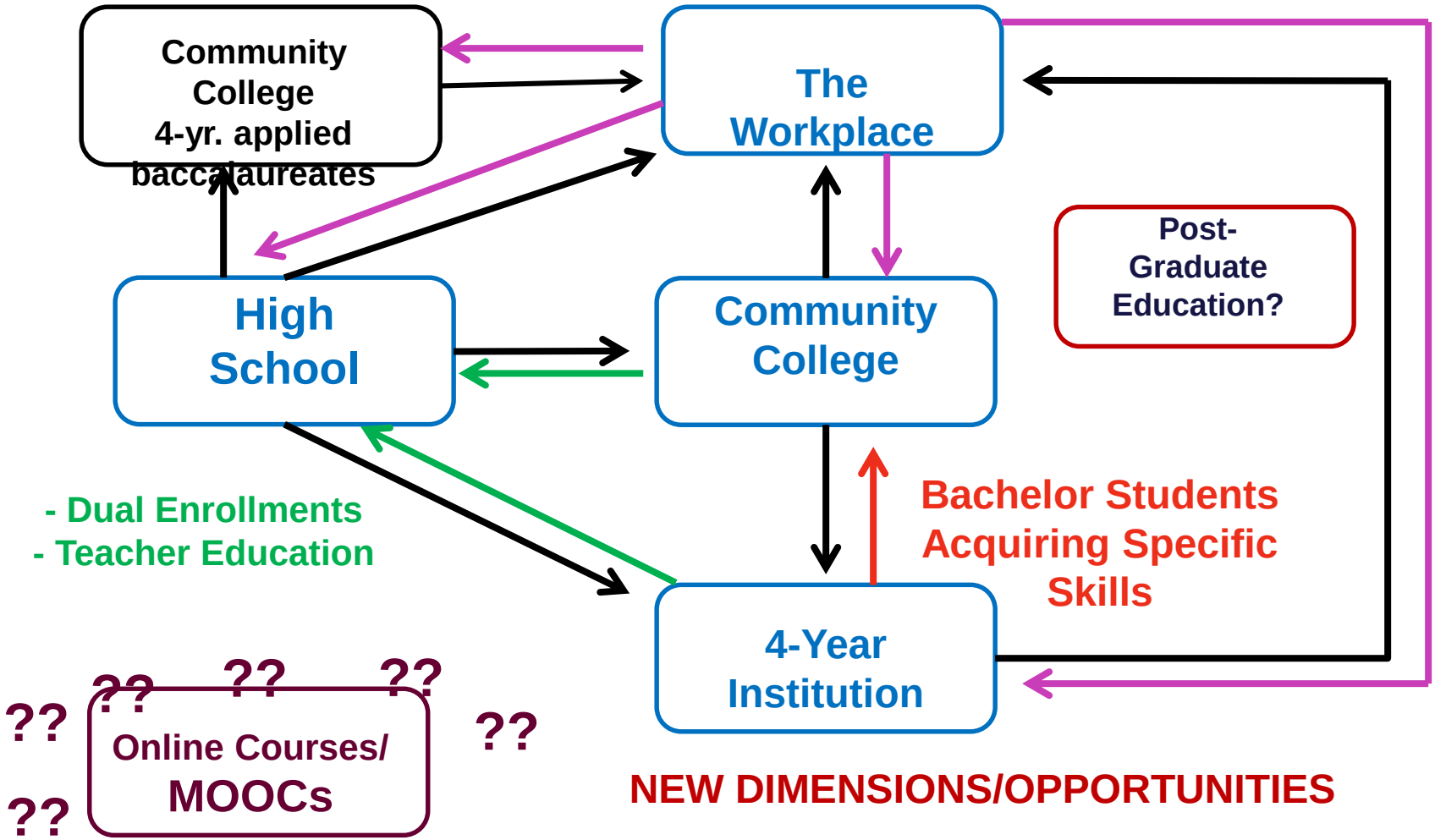
https://www.census.gov/dataviz/visualizations/stem/stem-html/

A Shifting Job Market

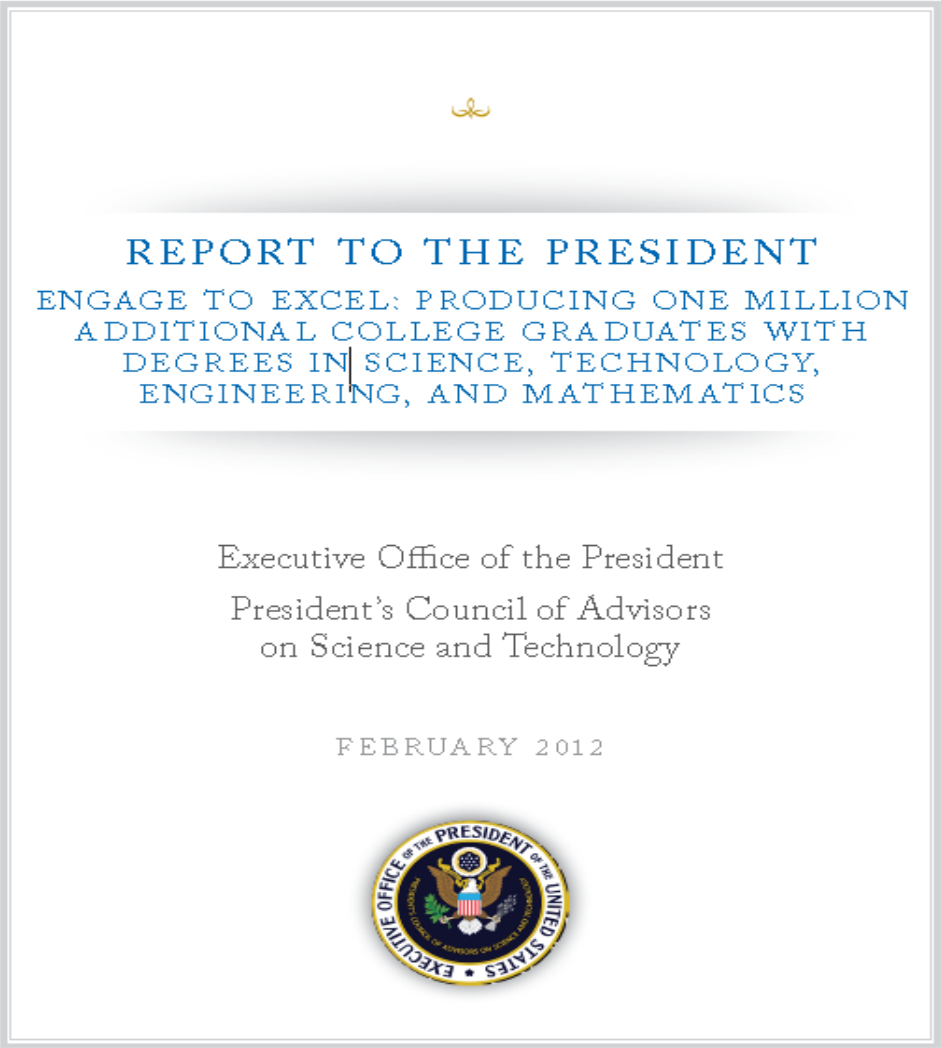
	20th Century	21st Century
Number of Jobs:	1 – 2 Jobs	10 – 15 Jobs
Job Requirement:	Mastery of One Field	Critical Thinking Across Disciplines
Teaching Model:	Subject Matter Mastery	Integration of 21st Century Skills into Subject Matter Mastery
Assessment Model:	Subject Matter Mastery	Integration of 21st Century Skills into Subject Matter Mastery

Courtesy of Linda Froschauer

THE EMERGING HIGHER EDUCATION ECOSYSTEM



NEW DIMENSIONS/OPPORTUNITIES



201 2

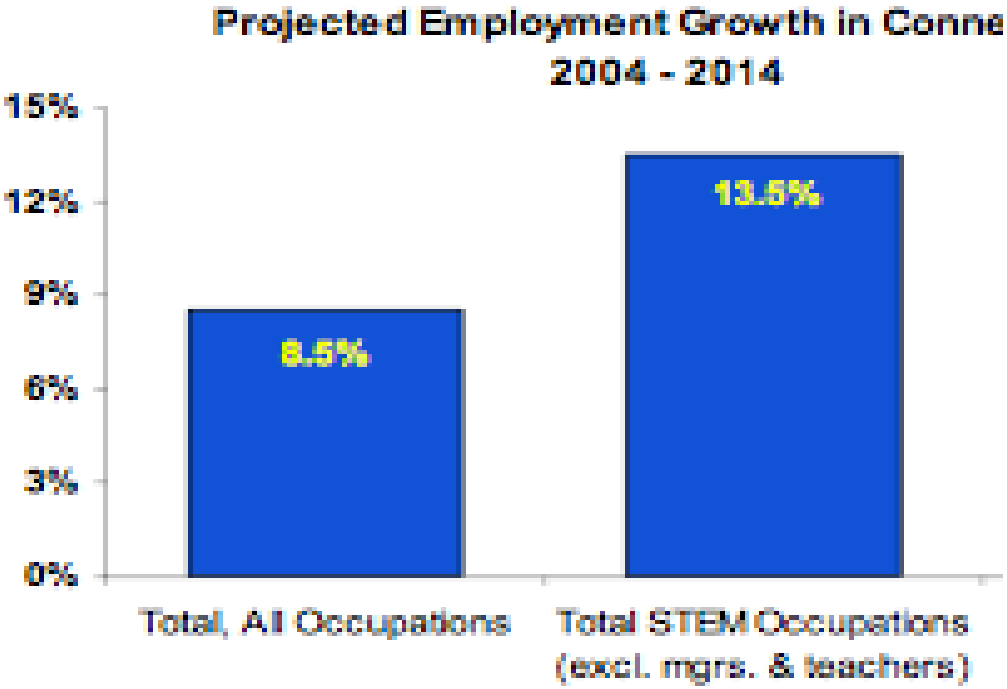
Fewer than 40% of students who enter college intending to major in a STEM field complete a STEM degree.

Increasing retention of STEM majors from 40% to 50% would generate three-quarters of the 1 million additional STEM degrees over the next decade.

Many students who abandon STEM majors perform well in their introductory courses and would make valuable additions to the STEM workforce.

CT Careers in STEM

- 75% of CT jobs require STEM
- Healthcare
- Aerospace,
- Computers
- BioScience,
- Financial,
- Maritime,
- Manufacturing



CT STEM

Middle skill jobs are STEM (between high school and 4 year college education)

- All top 10 2 year degrees are STEM
- Most are in healthcare/manufacturing.

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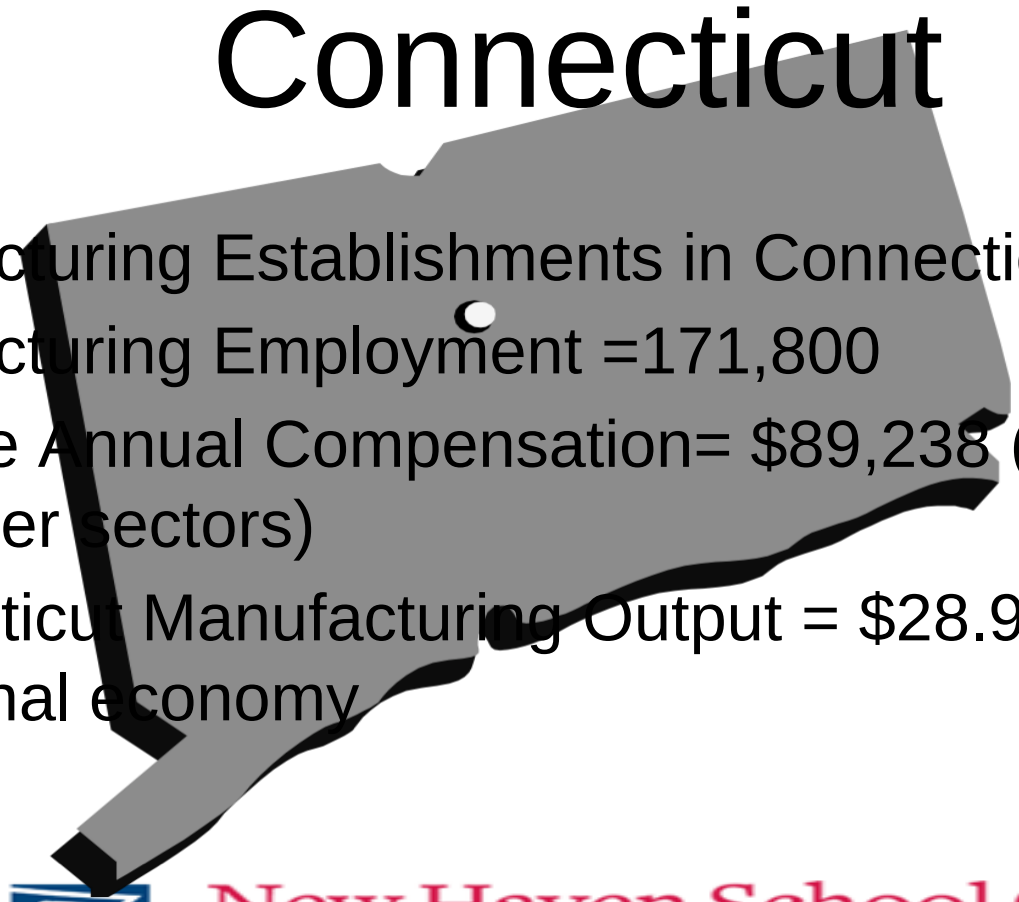
Manufacturing in Connecticut



- Manufacturing Establishments in Connecticut = 4,937
- Manufacturing Employment =171,800
- Average Annual Compensation= $89,238 (26% higher than other sectors)
- Connecticut Manufacturing Output = $28.9 billion, 13.4% of regional economy

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New Haven Area

- CT Dept of Labor stats for NH:
  - Health/BioScience Careers (all levels) (technicians, medical, research, labs, practioners, etc....)
  - Green Technologies & Manufacturing (all levels, high tech skills)
  - are where the jobs are!

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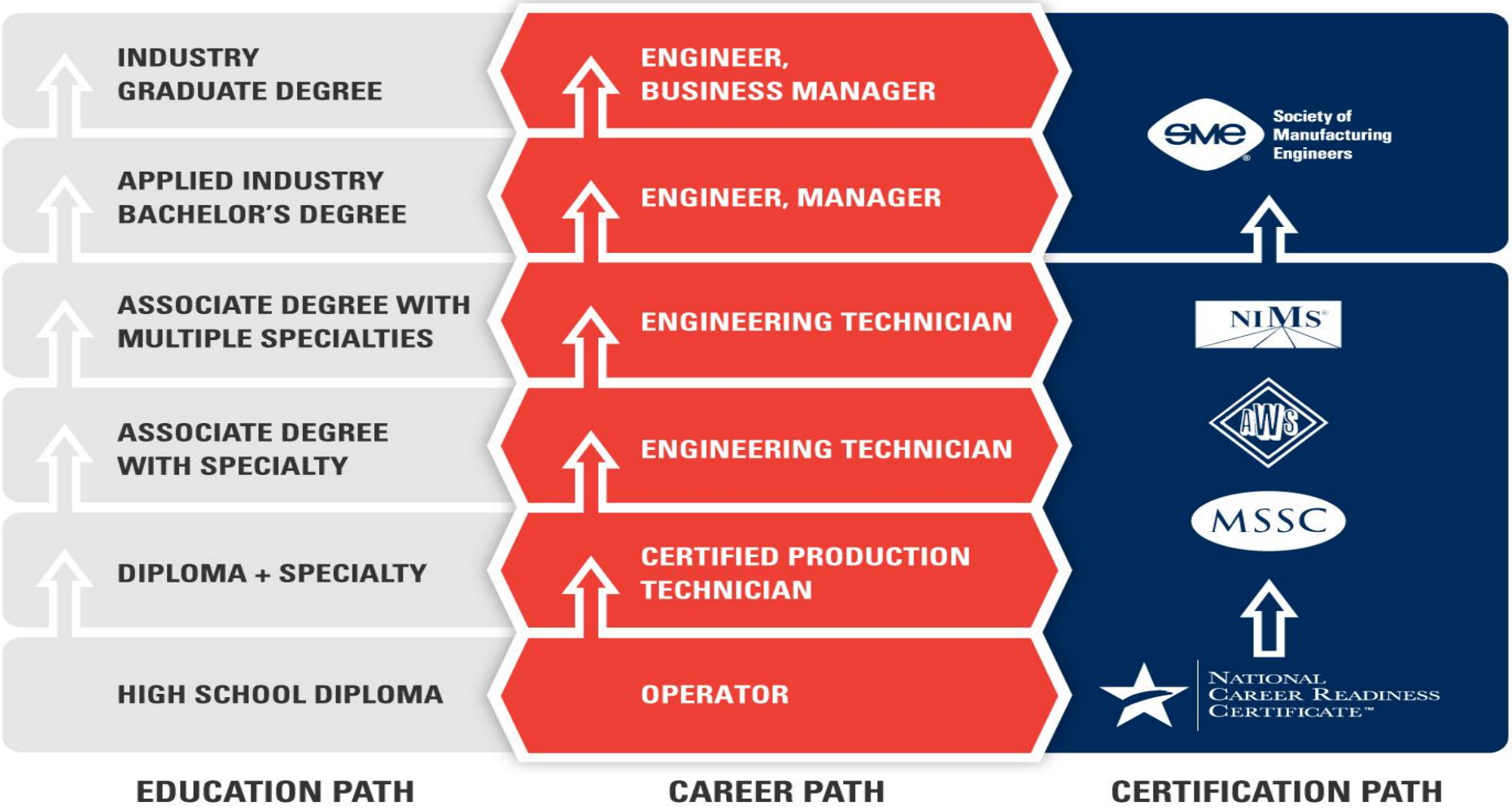
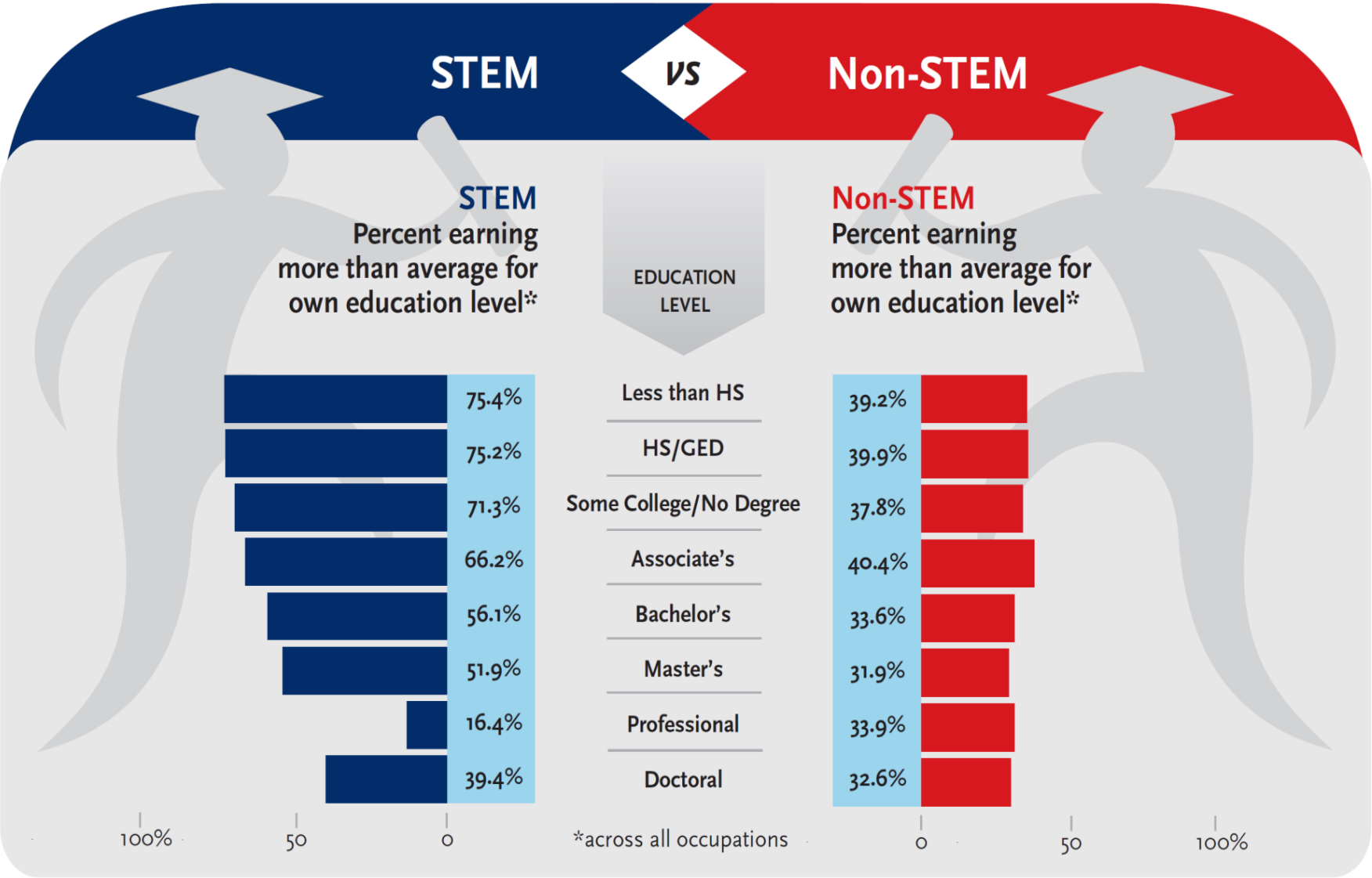
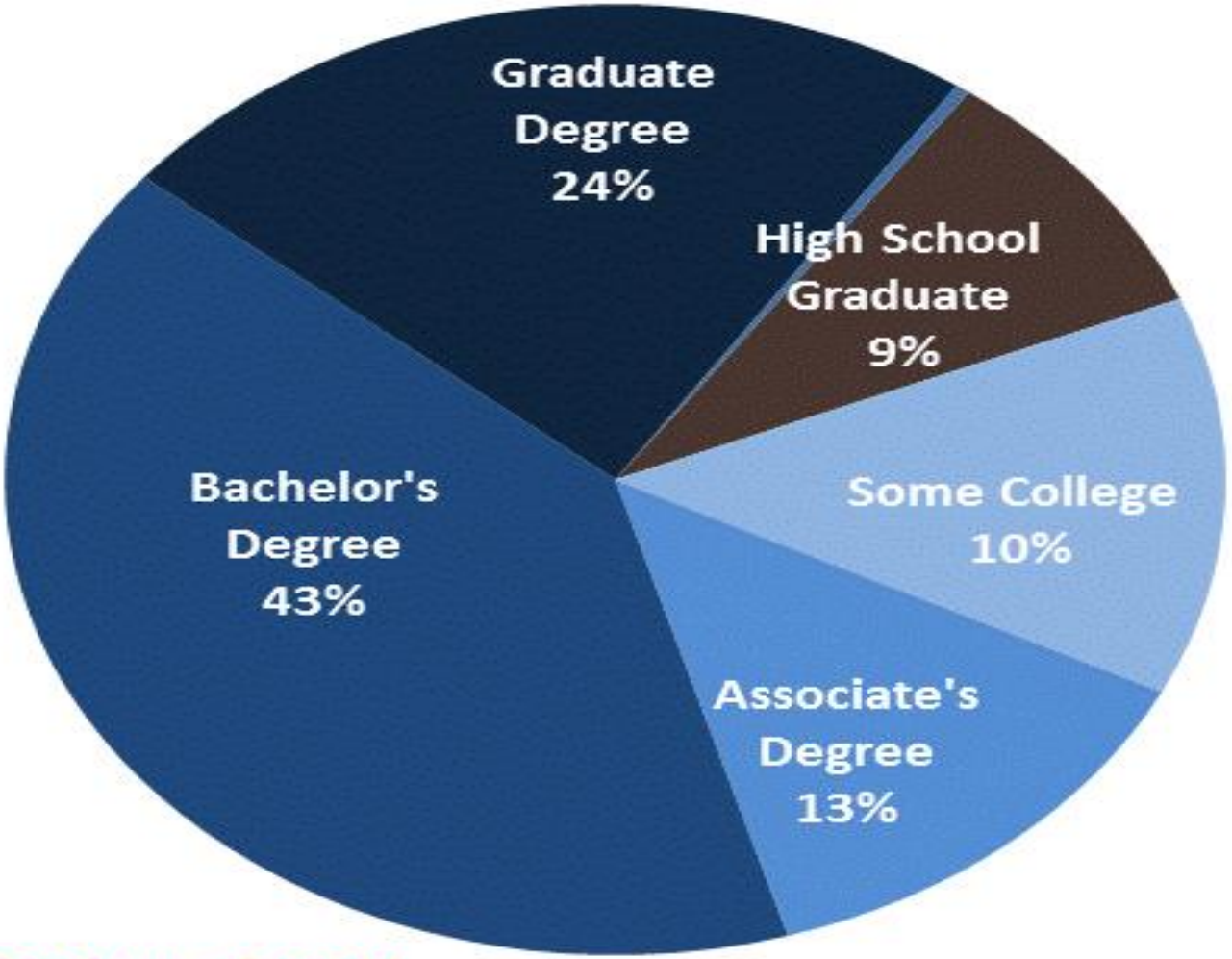
Example of choices/pathways!




STEM
VS
Non-STEM
STEM
Percent earning more than average for own education level*
EDUCATION LEVEL
Non-STEM
Percent earning more than average for own education level*
75.4%
75.2%
71.3%
66.2%
56.1%
51.9%
16.4%
39.4%
Less than HS
HS/GED
Some College/No Degree
Associate's
Bachelor's
Master's
Professional
Doctoral
39.2%
39.9%
37.8%
40.4%
33.6%
31.9%
33.9%
32.6%
100%
50
0
*across all occupations
0
50
100%



Employment projections of STEM jobs in 2018: 8 million

People with lower levels of education in STEM make more than people with higher levels of education in non-STEM.

- 63 percent of Associate's degrees in STEM earn more than Bachelor's degrees in non-STEM occupations.
- 65 percent of Bachelor's degrees in STEM earn more than Master's degrees in non-STEM occupations.
- 47 percent of Bachelor's degrees in STEM occupations earn more than PhDs in non-STEM occupations.
- Certificate holders in engineering earn more than Associate's degree- holders in business and more than Bachelor's degree-holders in education.

STEM CAREERS

www.newhavenscience.org/STEM

Guide to STEM Careers/Education for New Haven
Link to STEM Programs In New Haven, Yale Community Science
Parent Guide to Preparation for STEM, (Espanol)
Link to CT STEM JOBS Website
Interatctive STEM Career Pathways Tool)

STEM at CT Community Colleges

STEM Programs at CT Community Colleges/State Universities
STEM Programs by College
STEM Career Descriptions!

Green Programs at CT Community Colleges
Get Into Energy, Career Pathways in Energy Careers!
Profiles of Different Types of Energy Careers:
Training Programs for Energy Careers:
Scholarships for Energy Careers
Women's Guide to Sustainable Careers
Architecture, Construction, Engineering Mentoring Program (ACE)

Science

Architectural Drafters (**Annual Salary: $56,297)** Atmospheric and Space Scientists **(Annual Salary: $76,234)**

Biofuels/Biodiesel Technology and Product Development Managers **(Annual Salary: $118,081)**

Biological Technicians **(Annual Salary: $47,075)**

Bioinformatics Technicians **(Annual Salary: $42,364)**

Brownfield Redevelopment Specialists and Site Managers **(Annual Salary: $94,605)**

Chemical Equipment Operators and Tenders **(Annual Salary: $42,691)**

Chemical Technicians **(Annual Salary: $45,384)**

Crop and Livestock Managers **(Annual Salary: $73,334)**

Environmental Restoration Planners **(Annual Salary: $66,817)**

Environmental Science and Protection Technicians, Including Health **(Annual Salary: $42,999)**

First-Line Supervisors/Managers of Agricultural Crop and Horticultural Workers **(Annual Salary: $44,499)**

First-Line Supervisors/Managers of Animal Husbandry and Animal Care Workers **(Annual Salary: $44,499)**

First-Line Supervisors/Managers of Aquacultural Workers **(Annual Salary: $44,499)**

Fish and Game Wardens **(Annual Salary: $48,817)**

Food Science Technicians **(Annual Salary: $48,839)**

Forest and Conservation Workers **(Annual Salary: $45,420)**

Geodetic Surveyors **(Annual Salary: $56,584)**

Natural Sciences Managers **(Annual Salary: $117,444)**

Physicists **(Annual Salary: $110,968)**

Soil and Water Conservationists **(Annual Salary: $71,760)**

Wind Turbine Service Technicians **(Annual Salary: $49,283)**

Zoologists and Wildlife Biologists **(Annual Salary: $69,202)** Technology

Computer and Information Scientists, Research **(Annual Salary: $118,989)**

Computer and Information Systems Managers **(Annual Salary: $117,757)**

Computer Science Teachers, Postsecondary (Salary Unavailable)

Database Administrators **(Annual Salary: $71,929)**

Graphic Designers **(Annual Salary: $54,526)**

Network Systems and Data Communications Analysts **(Annual Salary: $77,539)**

Security Management Specialists **(Annual Salary: $72,626)** Engineering

Aerospace Engineering and Operations Technicians **(Annual Salary: $58,939)** Aircraft Mechanics and Service Technicians **(Annual Salary: $55,910)**

Automotive Engineering Technicians **(Annual Salary: $49,368)**

Automotive Master Mechanics **(Annual Salary: $43,614)**

Avionics Technicians **(Annual Salary: $59,906)**

Civil Drafters **(Annual Salary: $54,678)**

Civil Engineering Technicians **(Annual Salary: $56,380)**

Electrical Engineering Technicians **(Annual Salary: $57,114)**

Electromechanical Equipment Assemblers **(Annual Salary: $31,617)**

Electronics Engineering Technologists **(Annual Salary: $63,280)**

Engineering Managers **(Annual Salary: $118,081)**

Engineering

Materials Engineers **(Annual Salary: $85,651)** Materials Scientists **(Annual Salary: $116,053)**

Marine Engineers **(Annual Salary: $85,794)**

Mechanical Engineering Technicians **(Annual Salary: $49,368)**

Mechatronics Engineers **(Annual Salary: $83,246)**

Nanosystems Engineers **(Annual Salary: $83,246)**

Nuclear Equipment Operation Technicians **(Annual Salary: $75,480)**

Numerical Tool and Process Control Programmers **(Annual Salary: $50,636)**

www.newhavenscience.org/STEM

STEM Career exploration

For each video… let's discuss:

What problems does this career solve?

What type of student would be interested?

What do they need to be ready for this career?

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INTERACTIVE STEM CAREER PATHWAYS TOOL

The following interactive matrix provides links to STEM programs offered at the 12 Connecticut Community Colleges, as well as careers associated with each program. Clicking on a dot will bring you to the program's web page. Clicking on a sample career will bring you to detailed information about the occupation. Go to the Community College System website to search by college campus, associate's degree, certificate programs, bachelor degrees, graduate degrees, or by non-credit certificates.

Programs	Type	ACC	CCC	GCC	HCC	MCC	MXCC	NVCC	NWCC	NCC	QVCC	TRCC	TXCC	CCSU	ECSU	SCSU	WCSU	Sample Careers
																		engineer
Civil Engineering Technology	Bach Deg													●				Civil engineer; Civil drafter
Clean Water Management	Cred Cert			●														Environmental compliance inspector; Water resource specialist; Soil and water conservationist
Computer Aided Design	Cred Cert							●										commercial and industrial designer; Civil drafter
Computer Aided Design/ Drafting	Assoc Deg					●		●			●	●	●					Architectural drafter; Civil drafter; Architect
Computer Aided Drafting (CAD)	Cred Cert	●		●		●		●				●	●					Commercial and industrial designer
Computer Aided Drafting: 3D	Cred Cert							●										Commercial and industrial designer; Civil drafter; Architectural drafter

Not all program details are available at each college website, nor is every course offered every semester. Please contact the college directly for course schedules.

#	SOC	JOB TITLE	EDUCATION	WAGES	OUTLOOK
1	19-2041	ENVIRONMENTAL SCIENTIST AND SPECIALIST	🏛🏛🏛🏛	$$$	👍👍
2	17-3027	MECHANICAL ENGINEERING TECHNICIAN	🏛🏛🏛	$$$	👍
3	19-4031	CHEMICAL TECHNICIAN	🏛🏛🏛	$$$	👍
4	15-1011	COMPUTER AND INFORMATION SCIENTIST (RESEARCH)	🏛🏛🏛🏛🏛🏛	$$$$$	👍👍👍
5	19-3091	ANTHROPOLOGIST AND ARCHEOLOGIST	🏛🏛🏛🏛	$$$	👍👍👍
6	19-2032	MATERIALS SCIENTIST	🏛🏛🏛🏛	$$$$	👍
7	17-2199.10	WIND ENERGY ENGINEER	🏛🏛🏛🏛	$$$$$	👍👍
8	19-4092	FORENSIC SCIENCE TECHNICIAN	🏛🏛🏛	$$$	👍👍
9	17-3031	SURVEYING AND MAPPING TECHNICIAN	🏛🏛🏛🏛	$$	👍👍
10	43-5111	WEIGHER, MEASURER, AND SAMPLER (RECORD-KEEPING)	🏛	$$	👍👍
11	19-4021	BIOLOGICAL TECHNICIAN	🏛🏛🏛	$$	👍👍
12	17-1022	SURVEYOR	🏛🏛🏛🏛	$$$	👍👍
13	17-2031	BIOMEDICAL ENGINEER	🏛🏛🏛🏛	$$$$	👍👍
14	19-2010	ASTRONOMER AND PHYSICIST	🏛🏛🏛🏛🏛🏛	$$$$$	👍👍
15	19-2021	ATMOSPHERE AND SPACE SCIENTIST	🏛🏛🏛🏛	$$$$	👍
16	17-3024	ELECTRO-MECHANICAL TECHNICIAN	🏛🏛🏛	$$$	👍
17	17-1022.01	GEODETIC SURVEYOR	🏛🏛🏛🏛	$$$	👍👍👍
18	17-2051	CIVIL ENGINEER	🏛🏛🏛🏛	$$$$	👍👍
19	17-3025	ENVIRONMENTAL ENGINEERING TECHNICIAN	🏛🏛	$$	👍👍👍
20	17-3011	ARCHITECTURAL AND CIVIL DRAFTER	🏛🏛	$$$	👍👍
21	17-2199.08	ROBOTICS ENGINEER	🏛🏛🏛🏛	$$$$$	👍👍👍
22	17-3029	ENGINEERING TECHNICIAN (EXCEPT DRAFTERS)	🏛🏛🏛	$$$	👍
23	15-1099.13	VIDEOGAME DESIGNER	🏛🏛	$$$$	👍👍👍
24	17-2121	MARINE ENGINEER AND NAVAL ARCHITECT	🏛🏛🏛🏛	$$$$	👍👍
25	17-2072	ELECTRONICS ENGINEER (EXCEPT COMPUTER)	🏛🏛🏛🏛	$$$$$	👍👍

HOW TO READ THIS CHART On the chart above, you will find 25 career ideas in STEM. Here are explanations of what abbreviations or symbols mean. For detailed information, please see the occupational descriptions on the following pages.

#
JOB NUMBER
This corresponds to the number of the description of the occupation found on the following pages.

SOC
STANDARD OCCUPATIONAL CODE
Use this number to look up more information about this occupation in career information databases.

SOURCE: The information on the chart and for the occupations on the following pages is excerpted from the *Occupational Outlook Handbook, 2010-11 Edition* (*www.bls.gov/oco*) and O*Net Online (*online.onetcenter.org*). Inexact or ambiguous information has been interpreted. These jobs are only ideas; always do additional research to make the right education and career decisions for you.

🏛
EDUCATION
The minimum level of education usually needed to enter the occupation.

🏛 **On-the-job training**

🏛🏛 **Postsecondary vocational training**

🏛🏛🏛 **Associate's degree**

🏛🏛🏛🏛 **Bachelor's degree**

🏛🏛🏛🏛🏛 **Master's degree**

🏛🏛🏛🏛🏛🏛 **Doctoral degree, first professional degree, or Ph.D.**

$
WAGES
The average pay for the occupation.

$ .01–10 dollars per hour

$$ 10.01–20 dollars per hour

$$$ 20.01–30 dollars per hour

$$$$ 30.01–40 dollars per hour

$$$$$ 40.01–50+ dollars per hour

👍
OUTLOOK
Opportunities for finding employment.

👍 **Keen competition. There may be fewer job openings than job seekers.**

👍👍 **Good or favorable. The number of job openings and the number of job seekers may be roughly equal.**

👍👍👍 **Very good or excellent. There may be more job openings than job seekers.**

OUR FUTURE DEMANDS STEM

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

The U.S. will have more than 1.2 million job openings in science, technology, engineering and math (STEM)-related occupations by 2018. These include scientists, doctors, software developers and engineers. Yet, there will be a significant shortage of qualified college graduates to fill these careers. For the U.S. to succeed and continue to play a leadership role in addressing tough global challenges, we must do a better job of engaging students in these subjects and encouraging them to pursue careers in STEM-related fields. Here is a look at how early education plays a part in inspiring students to seek a higher education in STEM and what motivates students to pursue STEM-related fields. [1]

80%

OF JOBS IN THE NEXT DECADE WILL REQUIRE TECHNOLOGY SKILLS.[2]

30 F — The U.S. ranks 25th out of 30 in an international assessment of high schoolers' performance in math.[3] — A+ **1**

The U.S. Department of Labor has projected that by 2018, the U.S. will have more than 1.2 million job openings in STEM fields.[1]

16%

ONLY 16% OF BACHELOR'S DEGREES IN 2020 WILL SPECIALIZE IN STEM.[5]

POSITIVE ASPECTS OF STEM LEARNING IN EARLY EDUCATION[6]

4 in 5 STEM college students made the decision to study STEM in high school or earlier.

1 in 5 STEM college students decided to study STEM in middle school or earlier.

49% OF WOMEN PURSUING STEM DEGREES CHOSE STEM TO MAKE A DIFFERENCE

61% of male STEM college students say that games or toys sparked their interest in STEM; the top factor for men.

68% of female STEM college students say a teacher or class sparked their interest in STEM; the top factor for women.

51% of STEM college students and parents of K-12 students do not feel that preparing students for careers in STEM is a top priority for K-12 schools in the U.S.

49% OF MEN

64% OF WOMEN

FEEL THEIR K-12 EDUCATION PREPARED THEM WELL FOR STEM.

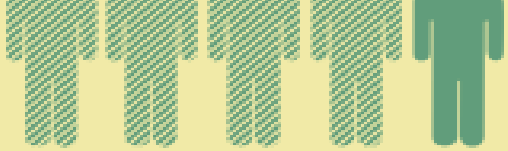
WHY ARE STUDENTS MAJORING IN STEM?[6]

68% THEY FIND IT STIMULATING AND/OR CHALLENGING

5.3%

4.8%

10%



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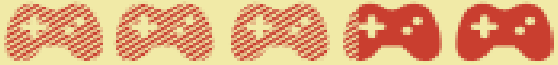

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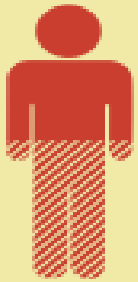
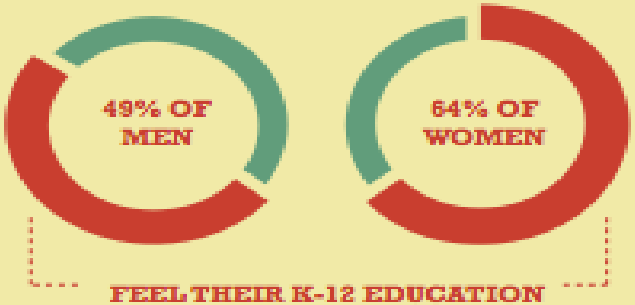
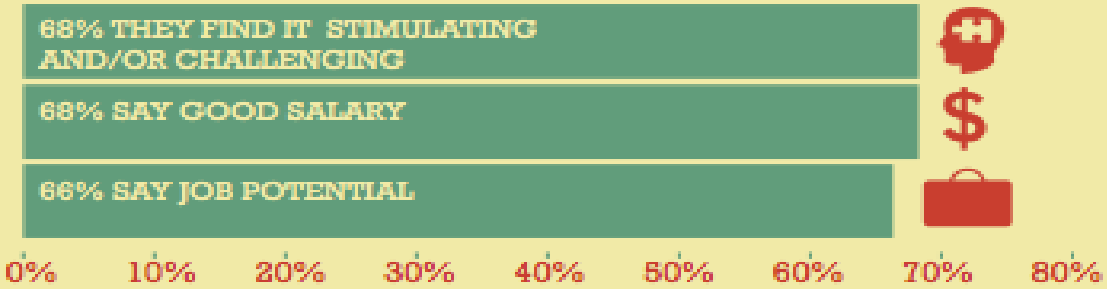


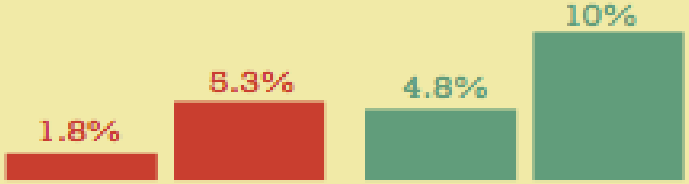
51% of STEM college students and parents of K-12 students do not feel that preparing students for careers in STEM is a top priority for K-12 schools in the U.S.



FEEL THEIR K-12 EDUCATION PREPARED THEM WELL FOR STEM.

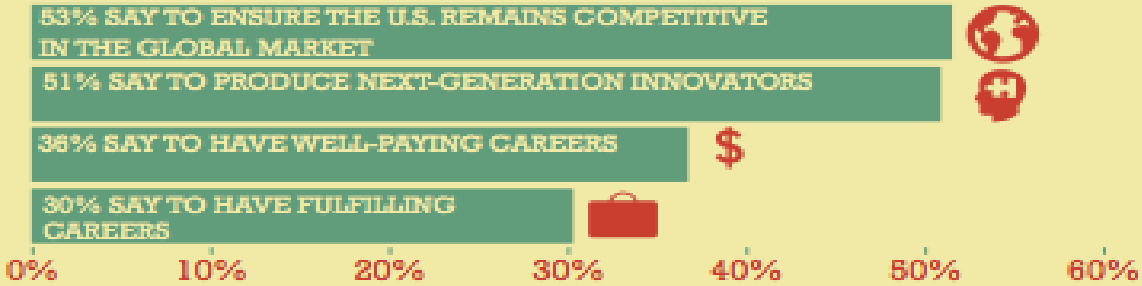
WHY ARE STUDENTS MAJORING IN STEM?[6]

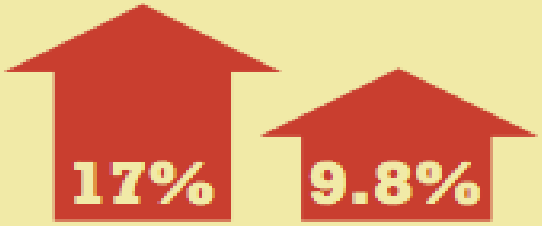




Unemployment rate for STEM workers went from 1.8% to 5.3%, while non-STEM workers went from 4.8% to almost 10%.[4]

WHY DO PARENTS THINK STEM SHOULD BE A PRIORITY?[6]





STEM occupations are growing by 17%, while others are growing at 9.8%.[4]

MICROSOFT UNDERSTANDS THE IMPORTANCE OF STEM AND IS WORKING TO MAKE TECHNOLOGY

STEM Students: What Can Parents and Schools Do to Help Kids and Teens Become Interested in STEM?

New Haven Public Schools

New Haven Public Schools

"Fun games — see how science, technology, engineering, and mathematics are actually applicable to real life."
—Engineering Student

"Expose them at an early age, show them it is fun and interesting."
—Biomedical Sciences Student

"Parents can be more hands on and supportive in teaching their children outside of school to help reinforce what is learned in school. Schools should also have a lot more hands on and visual learning rather than always reading from the textbook. For example, instead of reading about photosynthesis take the students outside and show them photosynthesis." *—Pre-Med Student*

Base: All College Students (n=500)

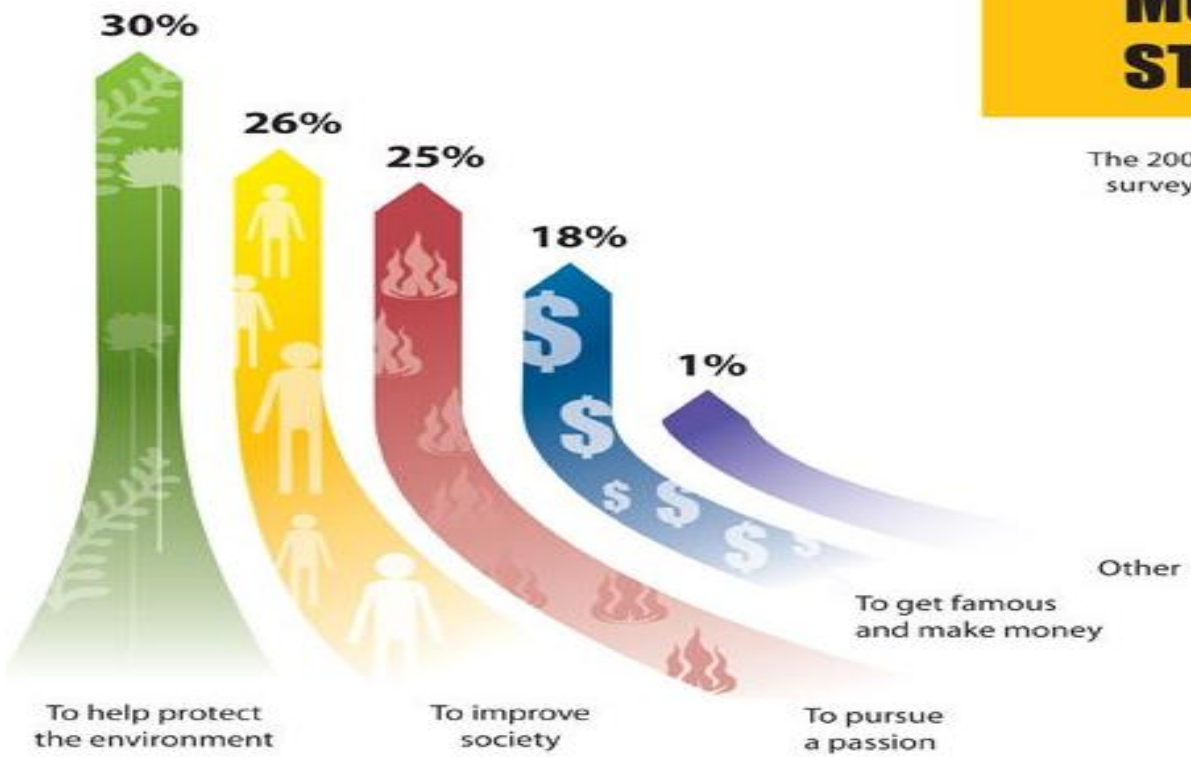
Q950: What can parents and schools do to help kids and teens become interested in science, technology, engineering and mathematics?

New Haven School Ch

NEW HAVEN PUBLIC SCHOOLS

Motivations for STEM Careers

The 2009 Lemelson-MIT Invention Index is a survey that gauged teens' inspirations for pursuing STEM careers.



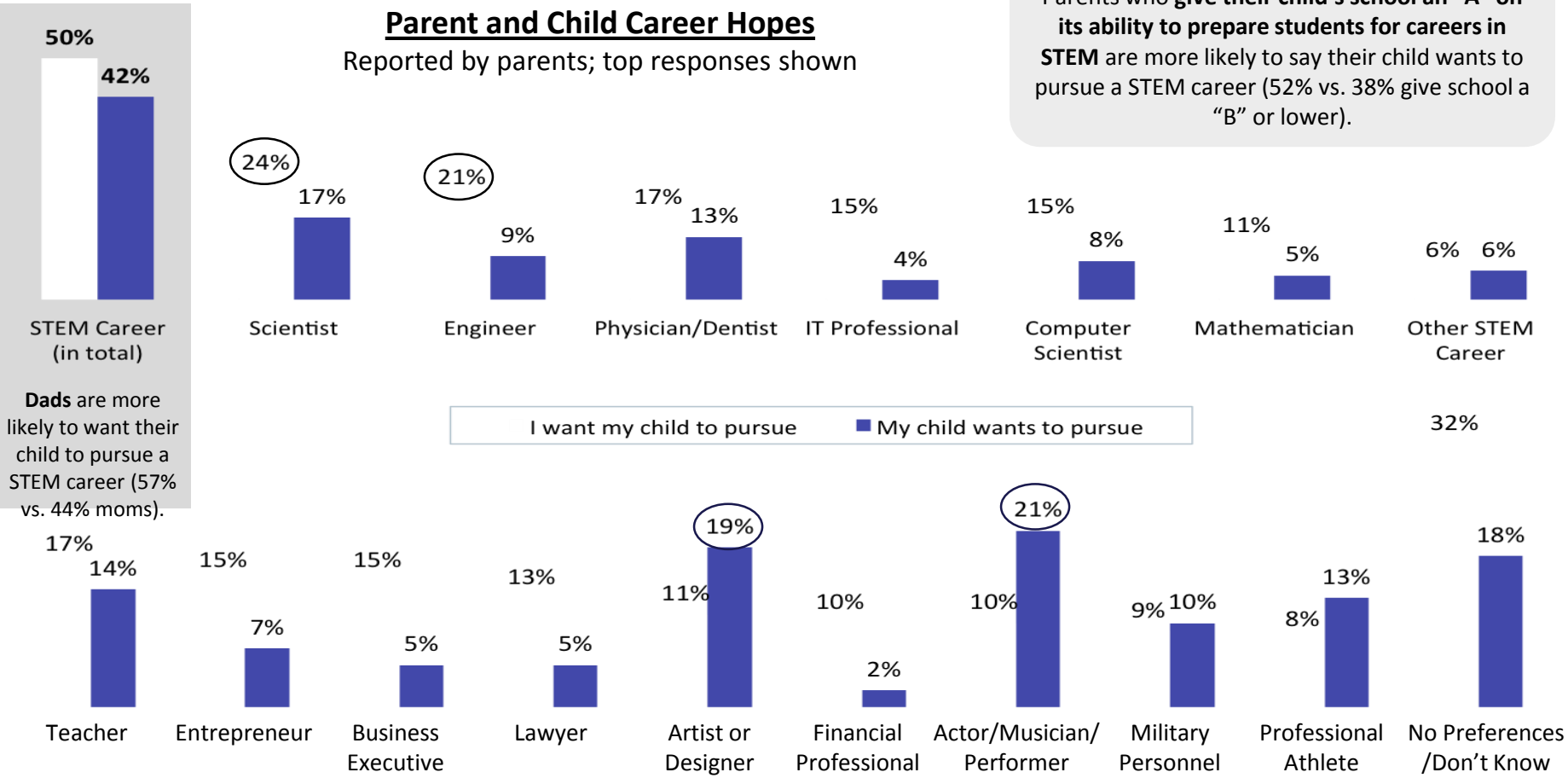
*2009 Lemelson-MIT Invention Index includes a nationally representative survey sample size of 500 teens.

Among careers tested, the two careers parents most want their child to pursue are scientist and engineer; overall, half of parents say they would like their child to pursue a STEM career. On the other hand, parents think their kids are more interested in becoming performers or artists.

Parent and Child Career Hopes

Reported by parents; top responses shown

Parents who **give their child's school an "A" on its ability to prepare students for careers in STEM** are more likely to say their child wants to pursue a STEM career (52% vs. 38% give school a "B" or lower).



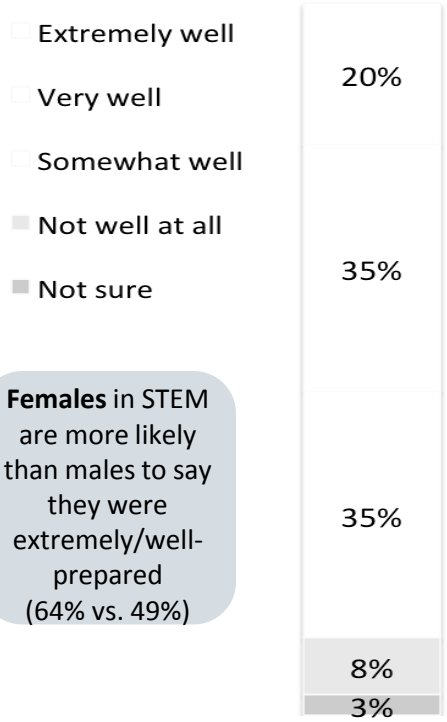
Dads are more likely to want their child to pursue a STEM career (57% vs. 44% moms).

Base: All Parents of Child in Grades K–12 (n=854)

Q1020: Which of the following careers, if any, would you like your child to pursue? Which of the following, if any, do you think your child will want to pursue?

Parents and STEM students agree that there is room for improvement in K–12 STEM education — only 1 in 5 STEM students feel they were extremely well-prepared for their college STEM courses.

STEM College Students: How Well Did Your K–12 Education Prepare You for College?



Females in STEM are more likely than males to say they were extremely/well-prepared (64% vs. 49%)

What did your school do to help prepare you?

"AP courses were offered at my high school so I was able to gain a good foundation in Calculus and Physics."

"My schools prepared me for college workloads by sometimes giving college entry level work. Also quite often we would be given opportunities to take a college course or something of that sort."

What could your school have done to better prepare you?

"More in-depth curriculum."

"Offer more AP courses and also more opportunities for hands-on experience and programs with each field."

"More application, less theory."

REPORT CARD

Parent Rating of K–12 STEM Prep

Grade	Total Parents
A	28%
B	41%
C	22%
D	7%
F	3%

Average Grade: B

Base: All Qualified Respondents (College Students: n=500, Parents of Child in Grades K–12: n=854)

Q910: How well did your K–12 education (elementary through high school) prepare you for your college courses in science, technology, engineering and/or math?

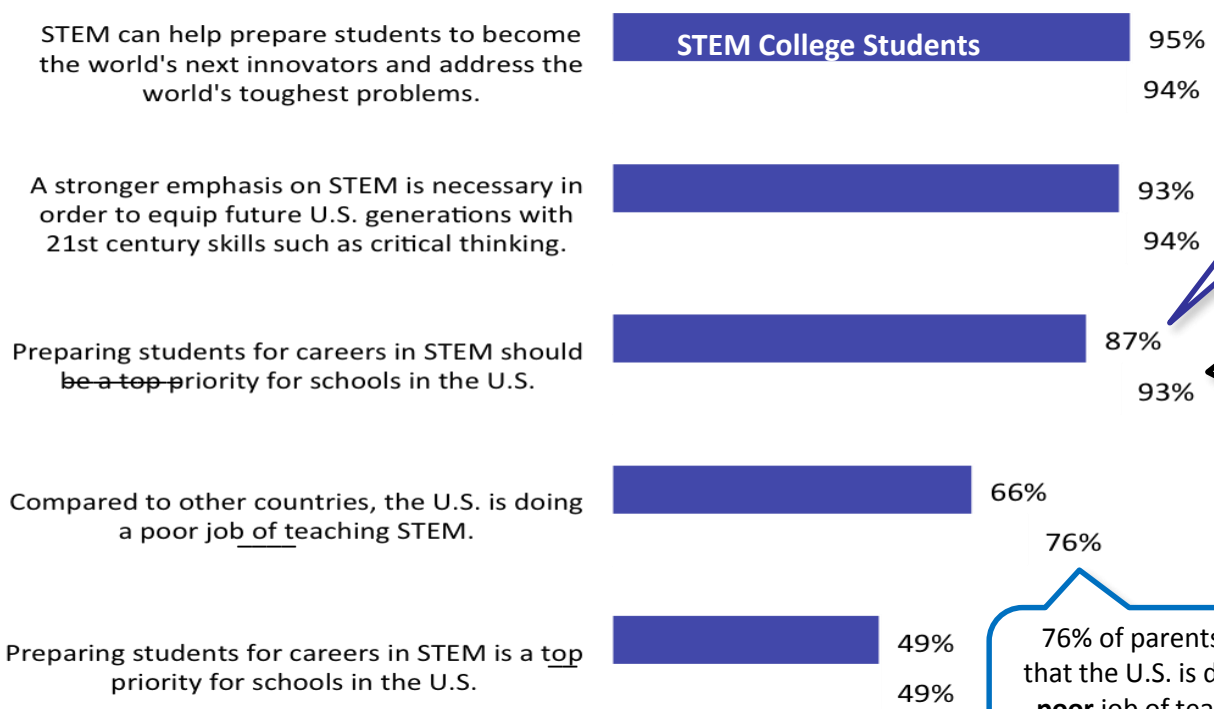
Q915: What could your school have done to better prepare you/What did your school do that helped prepare you for your college courses in STEM? (OPEN END)

Q1055: What grade would you give your child's school on its ability to prepare students for careers in science, technology, engineering and/or mathematics?

The majority of college students and parents believe that preparing students for careers in STEM should be a priority for K–12 schools in the U.S.; however, only half believe it actually is a top priority in schools.

The State of STEM Education in the U.S.

% agree among students and parents



Female students are more likely than their male counterparts to say that preparing students for STEM should be a top priority in K–12 schools (92% vs. 84%) — another indication of how important K–12 education is for girls.

While parents may feel that K–12 schools are not meeting expectations when it comes to STEM, many are not extremely willing to spend their own money helping their children be successful in their math and science classes (**24% extremely willing** vs. 37% very willing, 34% somewhat willing, and 5% not at all willing).

76% of parents feel that the U.S. is doing a **poor** job of teaching STEM compared to other countries.

Base: All Qualified Respondents (College Students: n=500, Parents of Child in Grades K-12: n=854)

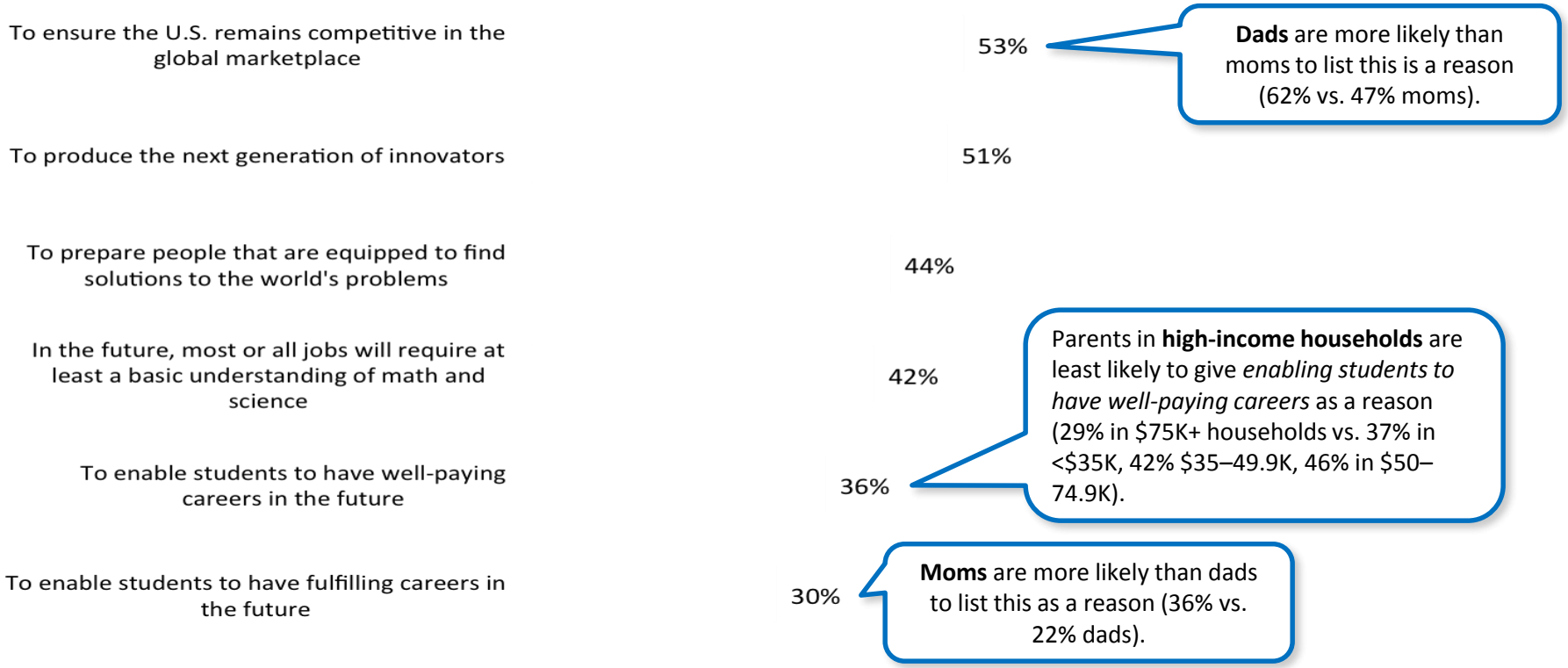
Q940/Q1060: How strongly do you agree or disagree with each of the following statements?

Q1050: How willing would you be to spend extra money to help your child(ren) be successful in their math and science classes?

So why do parents feel that STEM education should be a priority? About half say it's to ensure that the U.S. remains competitive in the global marketplace and also to produce the next generation of innovators. Preparing students to have well-paying and fulfilling careers are less important.

Parents: Why Should Preparing Students for STEM Careers Be a Top Priority for Schools in the U.S.?

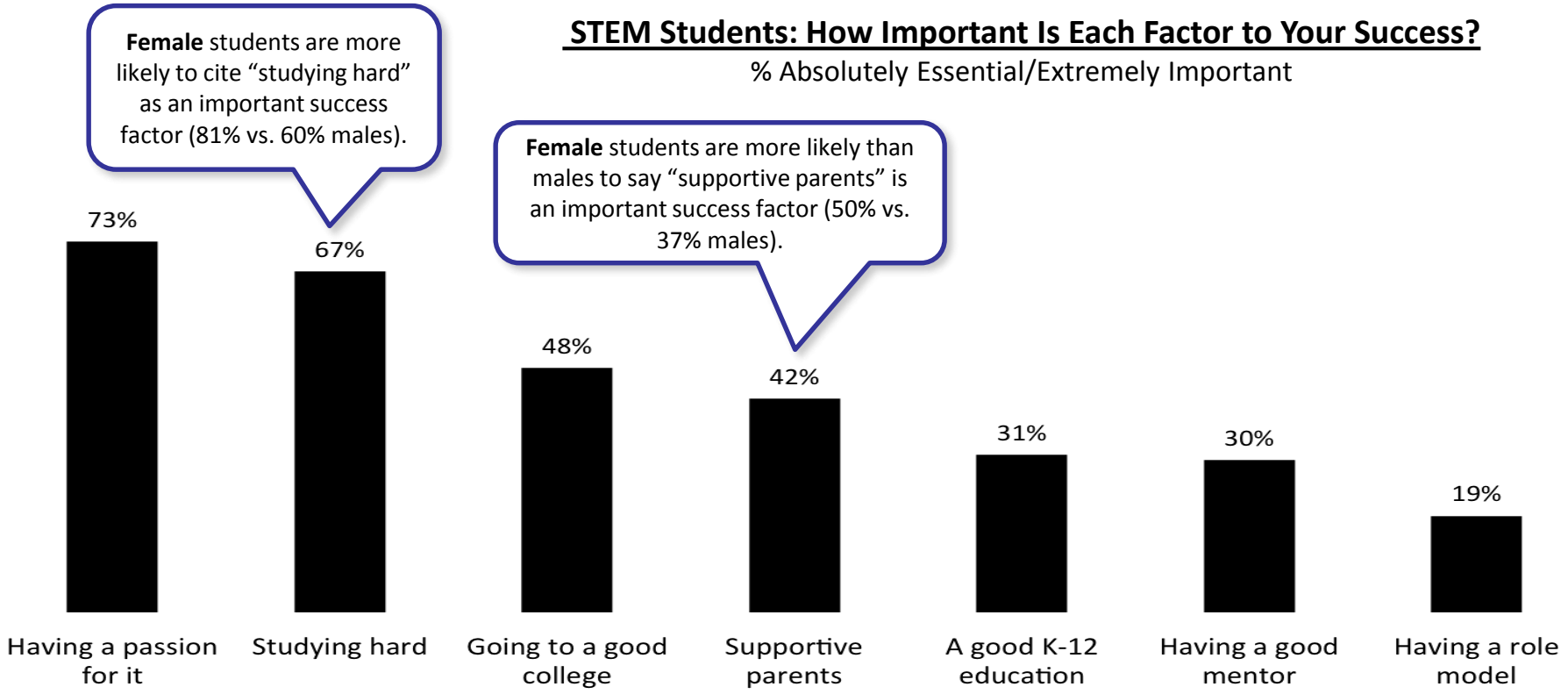
Up to 3 responses selected



Base: Parents who agree that STEM preparation should be a top priority for schools (n=774)

Q1065: Why do you think preparing students for careers in STEM should be a top priority for schools in the United States. Please select up to three responses.

Although a good K–12 education is necessary for building a foundation and interest in STEM, students say that having a passion for STEM and studying hard are the two most important factors to their success. External factors, such as K–12 education, mentors and role models, are less important.

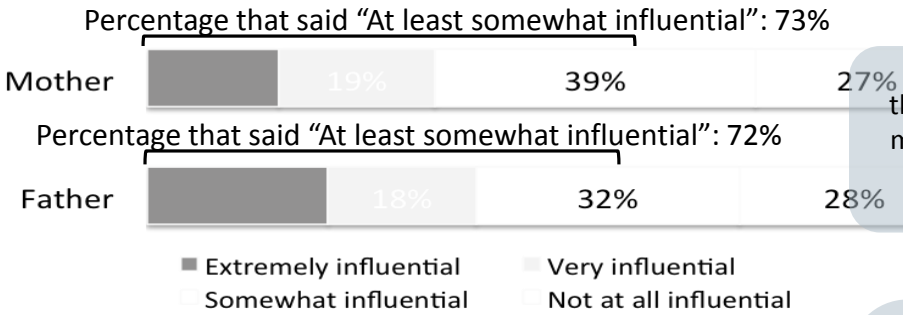


Base: All College Students (n=500)
Q920: How important are each of the following to your success as a student studying in your area or major?

Nearly three-quarters of STEM students report that their parents had at least some influence on their decision to study STEM; many parents *want* their child to pursue a STEM career and almost none discourage it.

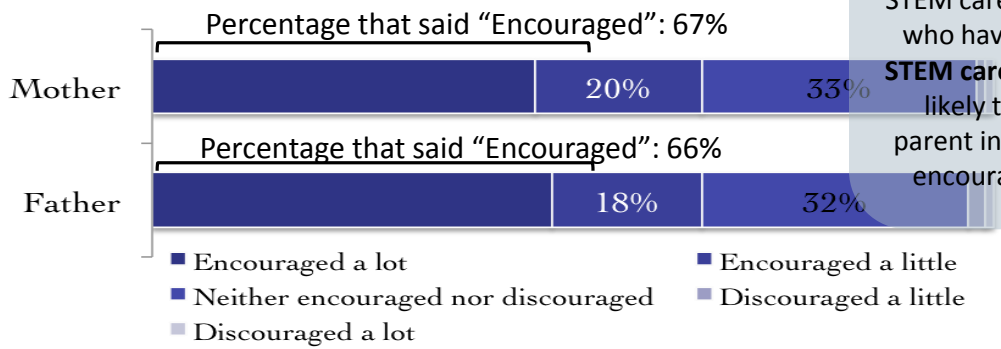
Students: Parent Influence and Encouragement

How influential were your parents on your decision to study STEM?



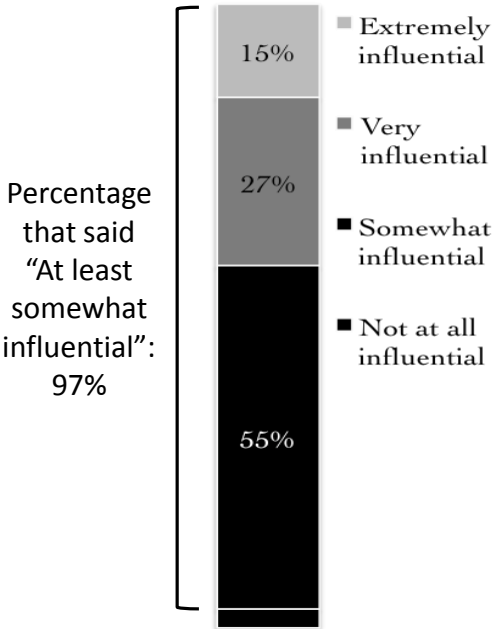
Females more likely than males to say their mother was extremely influential and encouraged a lot.

Growing up, to what extent did your parents encourage or discourage you from pursuing a career in STEM?



While few parents have discouraged STEM careers, students who have **parents in STEM careers** are more likely to say their parent influenced and encouraged them.

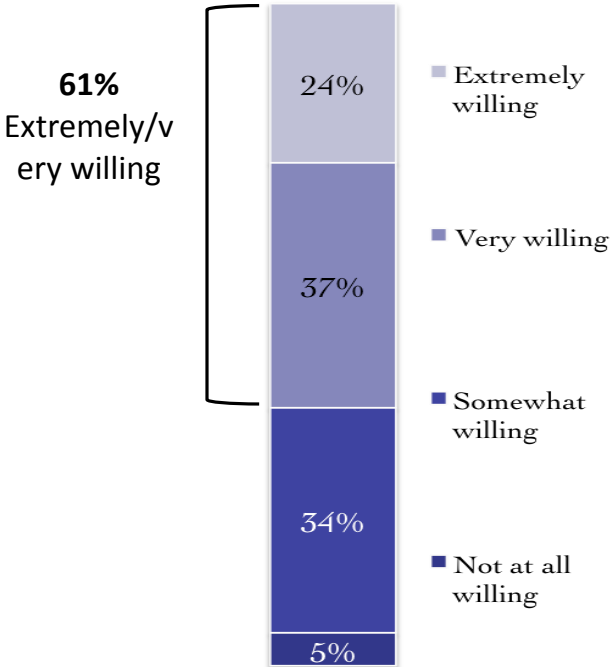
Parents: How influential do you think you will be on your child's future career path?



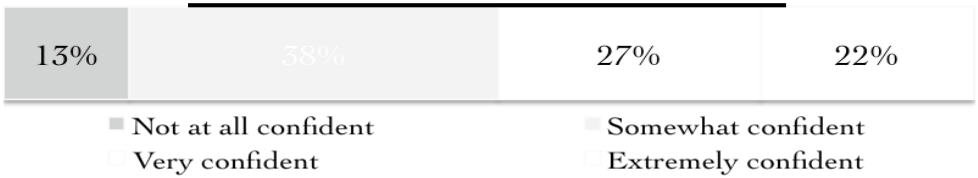
Base: College Students with mother/father in life (variable base) Q880: How influential were your mother and father on your decision to be pre-med/to study in your area or major? Q890: When you were growing up, to what extent did you mother and father encourage or discourage you from pursuing a career in science, technology, engineering or mathematics?
Base: All Parents of Child in Grades K–12 (n=854) Q1015: How influential do you think you will be on your child(ren)'s future, specifically the career path they may decide to pursue?

Parents have high, unmet expectations for schools when it comes to STEM education, but are they willing to help make up the difference themselves?

Parents: How Willing Would You Be to Spend Money to Help Your Child Be Successful in Math and Science?

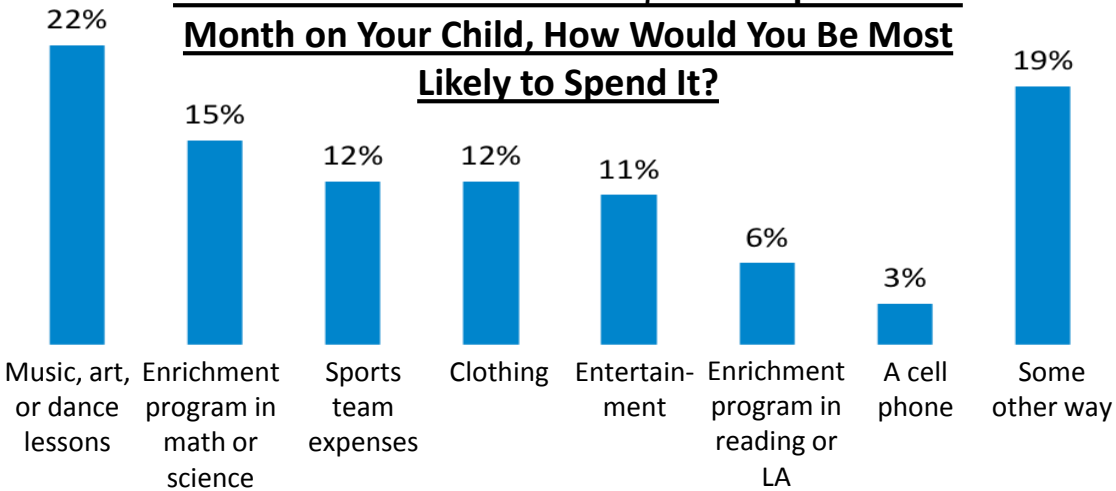


Parents: How Confident Are You Helping Your Child With Their Math and Science Homework?



Dads (58% vs. 42% moms) and **parents in STEM careers** (68% vs. 43% non-STEM careers) are more confident in their abilities to help.

Parents: If You Had an Extra $100 to Spend Each Month on Your Child, How Would You Be Most Likely to Spend It?



Base: All Parents of Child in Grades K–12 (n=854)

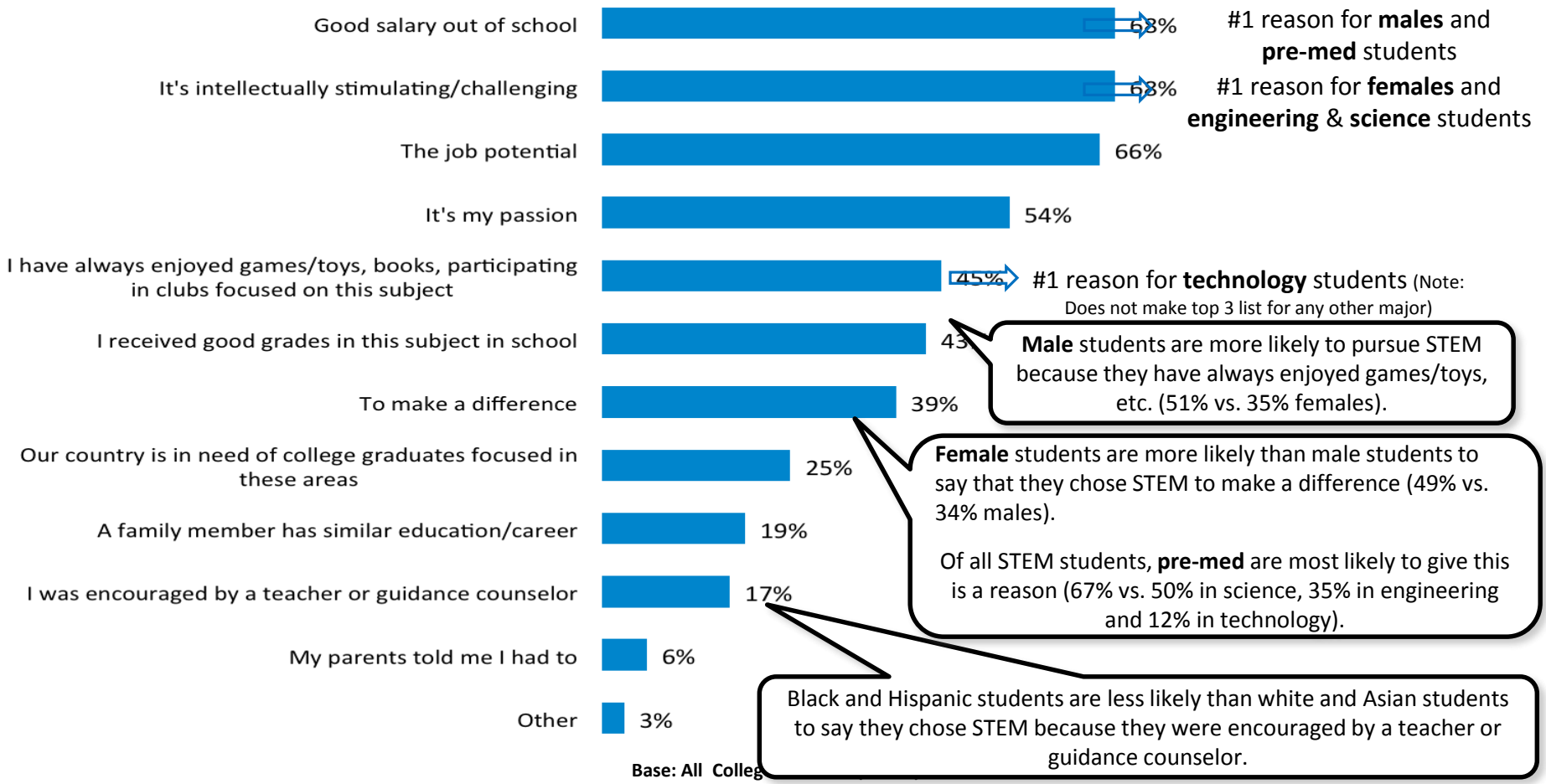
Q1045: How confident are you that you have the skills to help your child with their math and science homework if they asked for your assistance?

Q1050: How willing would you be to spend money to help your child(ren) be successful in their math and science classes?

Q1030: Assuming all of your child's basic needs are met, if you had an extra $100 to spend each month on your child, in which of the following ways would you be most likely to spend that money?

Students are choosing to pursue a STEM degree, not because someone encouraged or told them to or even because the U.S. is in need, but to secure their own futures and because they find it intellectually stimulating/challenging.

Reasons College Students Choose STEM Degrees



How can Parents HELP encourage STEM? (see brochure!)

- See brochure
- Create INTEREST, be POSITIVE!
- Guide them to STEM careers!
- Everyday science, encourage curiosity
- EXPERIENCES, informal and programs
- Perseverance, especially in **math**

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What do they need?

- MATH, 4 years in high school, problem solving
- SCIENCE, lab based (including chemistry, maybe physics)
- STEM SKILLS: same as 21st century skills
- Be involved: STEM programs and mentoring

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