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Women and Men in STEM Often at Odds Over Workplace Equity

Perceived inequities are especially common among women in science, technology, engineering and math jobs who work mostly with men

BY *Cary Funk and Kim Parker*

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Terminology

The data in this report come from two sources: 1) a Pew Research Center analysis of the U.S. Census Bureau's 1990 and 2000 decennial censuses as well as aggregated 2014-2016 American Community Survey data and 2) a nationally representative survey of 4,914 U.S. adults, ages 18 and older, conducted July 11-Aug. 10, 2017. The survey, which was conducted online in English and Spanish through GfK's Knowledge Panel, included an oversample of employed adults working in science, technology, engineering and math (STEM) jobs.

Analysis of the survey data compares those working in STEM jobs with those in non-STEM jobs based on self-identified occupation. STEM jobs include: computer and mathematical jobs, architecture and engineering, life sciences, physical sciences, healthcare practitioners and technicians, and teachers at the K-12 or postsecondary level with a specialty in teaching science, technology, engineering or math subjects.

A similar definition is used to identify the STEM workforce in the U.S. Census Bureau data based on the 2010 Standard Occupational Classification. However, no educators are included as having STEM jobs in that data because the dataset does not allow identification of educators with a subject matter expertise in STEM subjects.

References to the STEM workforce are based on those employed in a job classified as being in science, technology, engineering or math.

Some analysis of the U.S. Census Bureau data compares those with a college degree who majored in STEM and those who majored in other fields. A STEM major includes the following areas: computers, mathematics and statistics, biological, agricultural and environmental sciences, physical and earth sciences, engineering, architecture, health-related fields, such as nursing, and STEM education, like science or math teacher education. Some analysis of the survey data is based on those with a postgraduate degree in a STEM field, using the same definition as above.

References to whites, blacks and Asians include only those who are non-Hispanic and identify themselves as only one race. Hispanics are of any race.

Asians working in STEM jobs are based on those who self-identify as Asian or Asian American and work in occupations classified as STEM. There are too few Asians working in non-STEM jobs in the survey for separate analysis. Note that the survey was conducted in English and Spanish only; thus only Asians proficient in English/Spanish are likely to have completed the survey. For more

on the characteristics of the Asian population in the U.S. see the Center's fact sheets on Asian Americans.

References to college graduates or people with a college degree comprise those with a bachelor's degree or more, unless otherwise noted. "Some college" includes those with an associate degree and those who attended college but did not obtain a degree. "High school or less" refers to those who have a high school diploma or its equivalent, such as a General Education Development (GED) certificate, or less education. References to those with advanced degrees and postgraduate degrees are used interchangeably; these terms refer to people who have a master's degree or higher.

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Perceived inequities are especially common among women in science, technology, engineering and math jobs who work mostly with men

For women working in science, technology, engineering or math (STEM) jobs, the workplace is a different, sometimes more hostile environment than the one their male coworkers experience. Discrimination and sexual harassment are seen as more frequent, and gender is perceived as more of an impediment than an advantage to career success. Three groups of women in STEM jobs stand out as more likely to see workplace inequities: women employed in STEM settings where men outnumber women, women working in computer jobs (only some of whom work in the technology industry), and women in STEM who hold postgraduate degrees. Indeed, a majority of each of these groups of STEM women have experienced gender discrimination at work, according to a nationally representative Pew Research Center survey with an oversample of people working in STEM jobs.

These findings come amid heightened public debate about underrepresentation and treatment of women – as well as racial and ethnic minorities – in the fast-growing technology industry and decades of concern about how best to promote diversity and inclusion in the STEM workforce. Conducted in the summer of 2017, prior to the recent outcry about sexual harassment by men in

Most women in STEM jobs in majority-male workplaces, in computer jobs or with postgraduate degrees say they have experienced discrimination at work

% of those in science, technology, engineering and math jobs who say the following

	They have ever experienced gender discrimination at work	Their gender has made it harder to succeed at work	Sexual harassment is a problem in their workplace
Men in STEM	19%	7%	28%
Women in STEM	50	20	36
Among women in STEM jobs …			
With postgraduate degree	62	35	39
In computer jobs	74	31	42
In mostly male workplaces	78	48	48
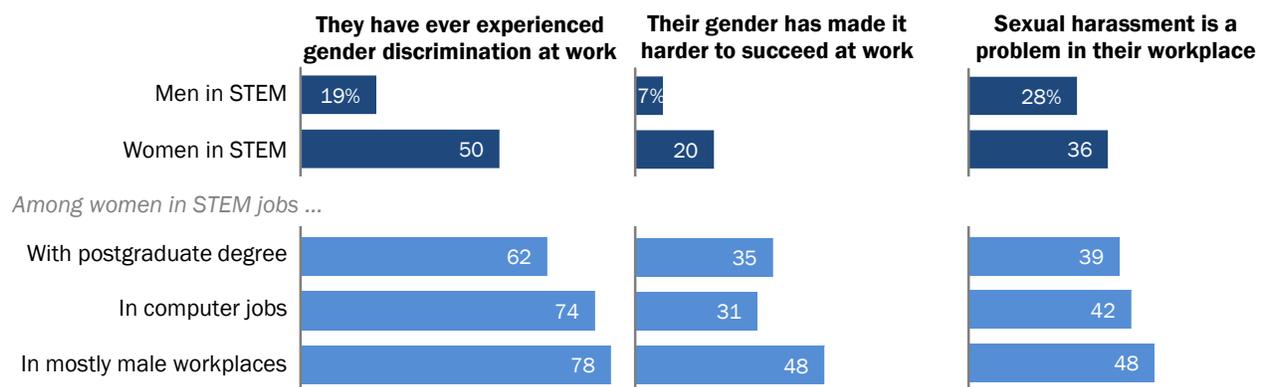
Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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positions of public prominence, the Center's new survey findings also speak to the broader issues facing women in the workplace across occupations and industries.[1]

Compared with those in non-STEM jobs, women in STEM are more likely to say they have experienced discrimination in the workplace (50% vs. 41%). But in other respects, the challenges women in STEM face in the workplace echo those of all working women. Women in STEM and non-STEM jobs are equally likely to say they have experienced sexual harassment at work, and both groups of women are less inclined than men to think that women are "usually treated fairly" when it comes to promotions where they work.

Pew Research Center analysis of U.S. Census Bureau data since 1990 shows that while jobs in STEM have grown substantially, particularly in computer occupations, the share of women working in STEM jobs has remained at about half over time. But the share of women varies widely across the 74 standard occupations classified as STEM in this study – from under one-in-ten for sales engineers (7%) and mechanical engineers (8%) to 96% of speech language pathologists and 95% of dental hygienists. Women are a majority of those working in health-related occupations but just 14%, on average, of those

Representation of women in STEM jobs varies widely

Share of women in each of the following job clusters
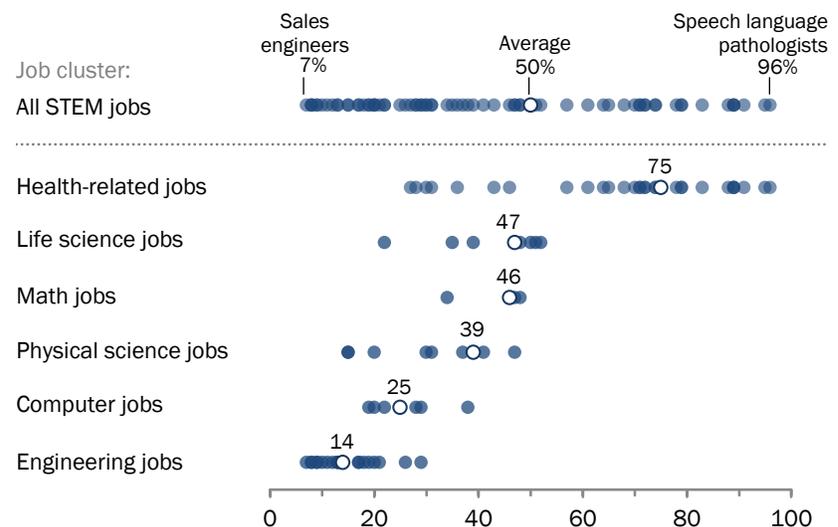
Note: Based on employed adults ages 25 and older. Each circle represents a single occupation (e.g., mechanical engineer, registered nurse). Engineering includes architects. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[1] These findings come on the heels of at least four decades of research about how to better foster diversity in the STEM workforce in the U.S. and globally. See Malcom, Shirley Mahaley, Paula Quick Hall, and Janet Welsh Brown. 1976. "The Double Bind: The Price of Being a Minority Woman in Science." American Association for the Advancement of Science.; Association for Women in Science. 2016. "Broadening Participation in Science, Technology, Engineering, and Mathematics." Open Science.; UNESCO. 2017. "Cracking the code: Girls and women's education in science, technology, engineering and mathematics (STEM)."; Organization for Economic Cooperation and Development (OECD). 2017. "Chapter 7: The under-representation of women in STEM fields." "The Pursuit of Gender Equality: An uphill battle." OECD Publishing.; National Science Foundation, National Center for Science and Engineering Statistics. 2017. "Women, Minorities, and Persons with Disabilities in Science and Engineering."

in engineering jobs. In computer occupations, a job cluster which includes computer scientists, systems analysts, software developers, information systems managers and programmers – the STEM job cluster that has seen the most growth in recent decades – women's representation has actually decreased from 32% in 1990 to 25% today.

Blacks and Hispanics are underrepresented in STEM occupations relative to their share in the U.S. workforce. The share of blacks working in STEM jobs has gone from 7% in 1990 to 9% today (blacks make up 11% of the total U.S. workforce today). And that for Hispanics has gone up from 4% to 7%, while their share of the U.S. workforce has grown from 7% in 1990 to 16% today.

The survey finds a higher share of blacks in STEM jobs report experiencing any of eight types of racial/ethnic discrimination (62%) than do others in STEM positions (44% of Asians, 42% of Hispanics and just 13% of whites in STEM jobs say this). They also tend to do so more than blacks in non-STEM jobs (50%), with many saying they have been treated as if they were not competent because of their race or ethnicity.[2] Blacks in STEM jobs are particularly likely to say there is too little attention to racial and ethnic diversity where they work (57%). And, when it comes to the way opportunities for advancement and promotion are handled in their own workplace, 37% of blacks in STEM jobs believe that blacks are usually treated fairly, while a similar share (36%) says this sometimes occurs and 24% believe that blacks are usually treated unfairly where they work. Among Hispanics, those in STEM and non-STEM jobs are equally likely to say they have experienced racial/ethnic workplace discrimination.

Majority of blacks in STEM jobs have experienced discrimination at work

% of those in science, technology, engineering and math jobs who say they have experienced discrimination at work due to their race or ethnicity

White	13%
Black	62
Hispanic	42
Asian	44
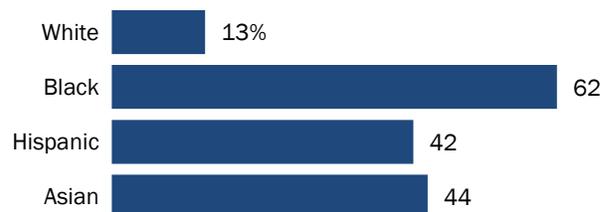
Note: Experience of racial/ethnic-related discrimination based on combined responses to eight items. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. Respondents who gave other responses or who did not give an answer are not shown. Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017. "Women and Men in STEM Often at Odds Over Workplace Equity"

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These are some of the findings from a Pew Research Center survey with a nationally representative sample of 4,914 adults (including 2,344 STEM workers), ages 18 and older, conducted July 11-Aug.

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[2] Differences in reported discrimination in the workplace due to race between blacks in STEM vs. non-STEM jobs should be interpreted with caution due to the smaller number of black respondents in the survey (320 in total). Taking into account the design effect for these subgroups, the difference of 62% of blacks in STEM vs. 50% of blacks in non-STEM jobs saying they have experienced racial discrimination at work – whether in their current or previous jobs – for a two-tailed test is p=.075.

10, 2017 and a Pew Research Center analysis of U.S. Census Bureau data. The survey, conducted online in English and in Spanish, included an oversample of employed adults working in science, technology, engineering and math fields. See Methodology for details.

Most women in STEM jobs who work in majority-male workplaces, in computer jobs or who have a postgraduate degree have experienced gender discrimination at work

On average, women working in STEM jobs are more likely than men to say they have experienced workplace discrimination due to their gender. Half (50%) of women in STEM jobs say they have experienced any of eight forms of discrimination in the workplace because of their gender – more than women in non-STEM jobs (41%) and far more than men in STEM occupations (19%). The most common forms of gender discrimination experienced by women in STEM jobs include earning less than a man doing the same job (29%), having someone treat them as if they were not competent (29%), experiencing repeated, small slights in their workplace (20%) and receiving less support from senior leaders than a man who was doing the same job (18%).

Half of women in STEM jobs say they have been discriminated against at work

% of those in science, technology, engineering and math jobs who say they have ever experienced the following at work due to their gender
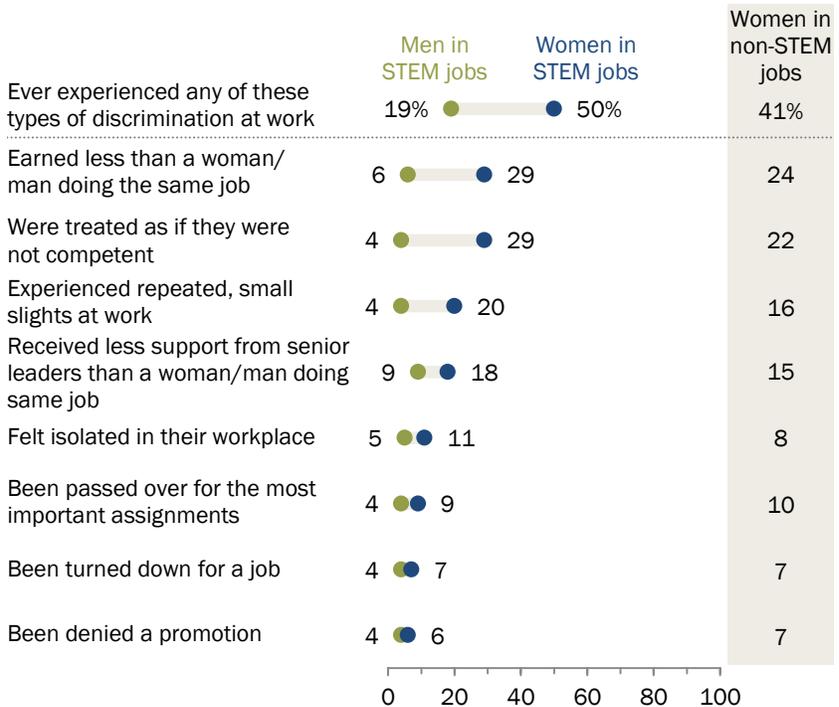
	Men in STEM jobs	Women in STEM jobs	Women in non-STEM jobs
Ever experienced any of these types of discrimination at work	19%	50%	41%
Earned less than a woman/man doing the same job	6	29	24
Were treated as if they were not competent	4	29	22
Experienced repeated, small slights at work	4	20	16
Received less support from senior leaders than a woman/man doing same job	9	18	15
Felt isolated in their workplace	5	11	8
Been passed over for the most important assignments	4	9	10
Been turned down for a job	4	7	7
Been denied a promotion	4	6	7

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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In workplaces where most employees are men, about half of women in STEM say their gender has been an impediment to success on the job

Pioneering work from business school professor [Rosabeth Moss Kanter](#) in the late 1970s drew attention to how the structure of organizations – particularly the balance of minority and majority groups – can influence experiences in the workplace.

The majority of women in STEM positions work in majority-female workplaces (55%) or work with an even mix of both genders (25%). But the 19% of women in STEM who work in settings with mostly men stand out from others. Fully 78% of these women say they have experienced gender discrimination in the workplace – compared with 44% of STEM women in other settings.[3]

About half (48%) of women in STEM jobs who work with mostly men say their gender has made it harder for them to succeed in their job, compared with just 14% of other women in STEM.

Women in STEM working in majority-male workplaces perceive more gender inequities

% of those in science, technology, engineering and math jobs in each type of workplace who say the following
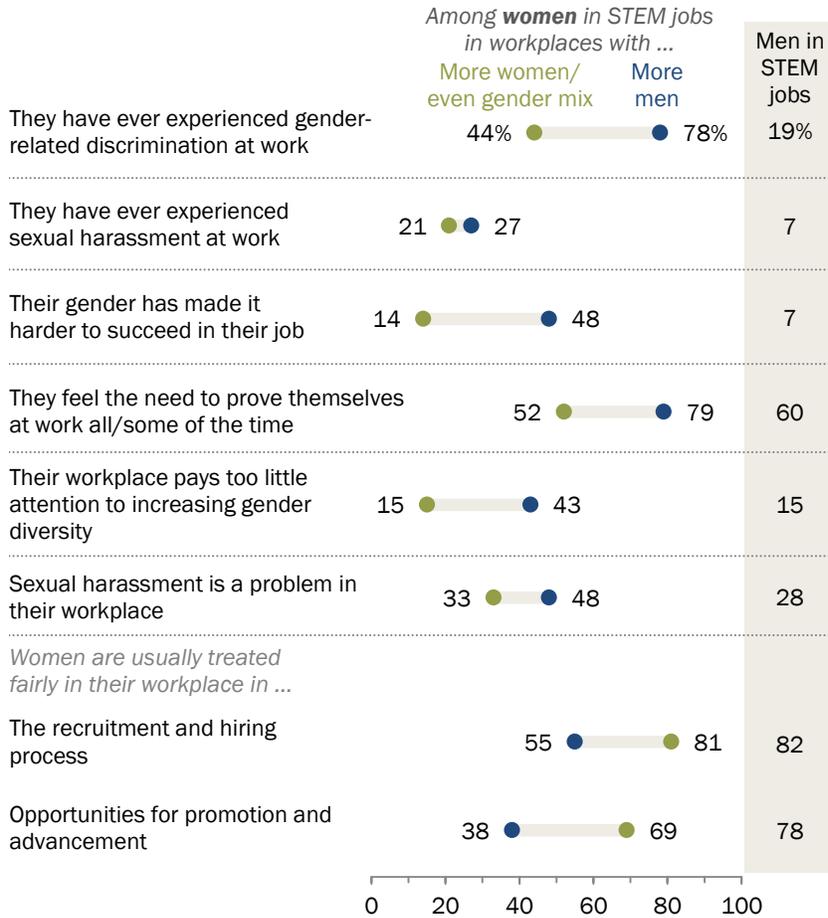
Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[3] Figures for women working with mostly women and women working with an even mix of genders are combined here but shown separately later in the report. Both of these groups of women in STEM work primarily in health-related jobs. For more on the characteristics of women working in these settings see [Appendix](#).

One respondent explained it this way:

> *"People automatically assume I am the secretary, or in a less technical role because I am female. This makes it difficult for me to build a technical network to get my work done. People will call on my male co-workers, but not call on me."* - White woman, technical consultant, 36

Gender balance in the workplace also tends to matter for women in non-STEM positions but those in STEM stand out especially when it comes to experiences with workplace discrimination, the feeling that they need to prove themselves in order to be respected by coworkers, and their belief that, overall, their gender has made it harder for them to succeed at work. By contrast, for male STEM workers, the gender balance in their workplace is largely unrelated to views about gender equity.[4]

There are similar differences, though less pronounced, among women in STEM jobs by their level of education. Women with a postgraduate degree who work in STEM jobs are more likely than other women in STEM to have experienced gender discrimination at work (62%, compared with 41% of women with some college or less education). Roughly a third (35%) of women in STEM with a postgraduate degree believe their gender has made it harder to succeed on the job, compared with just 10% of women in STEM with some college or less education. And, women in STEM with more education are more skeptical that women where they work are usually treated fairly when it comes to opportunities for promotion (52% of those with a postgraduate degree say women are usually treated fairly vs. 76% of women with some college or less working in a STEM job).

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[4] One exception: 32% of men working in STEM jobs with mostly women say they have experienced gender-related discrimination at work compared with 15% of men in mostly male workplaces and 16% of men in workplaces with an even gender distribution.

Roughly three-quarters of women in computer jobs say they have experienced gender-related workplace discrimination

Some 74% of women in computer jobs, such as software development or data science, say they have experienced discrimination because of their gender, compared with 16% of men in these jobs.[5] (This group includes some who work in the tech industry and some who work in other sectors.)[6]

Women in computer jobs are less likely than men in such jobs to believe that women are "usually" given a fair shake where they work when it comes to opportunities for promotion and advancement (43% of women in computer jobs say this usually occurs, compared with 77% of men).

Among those in computer jobs, women are much more likely than men to experience discrimination at work
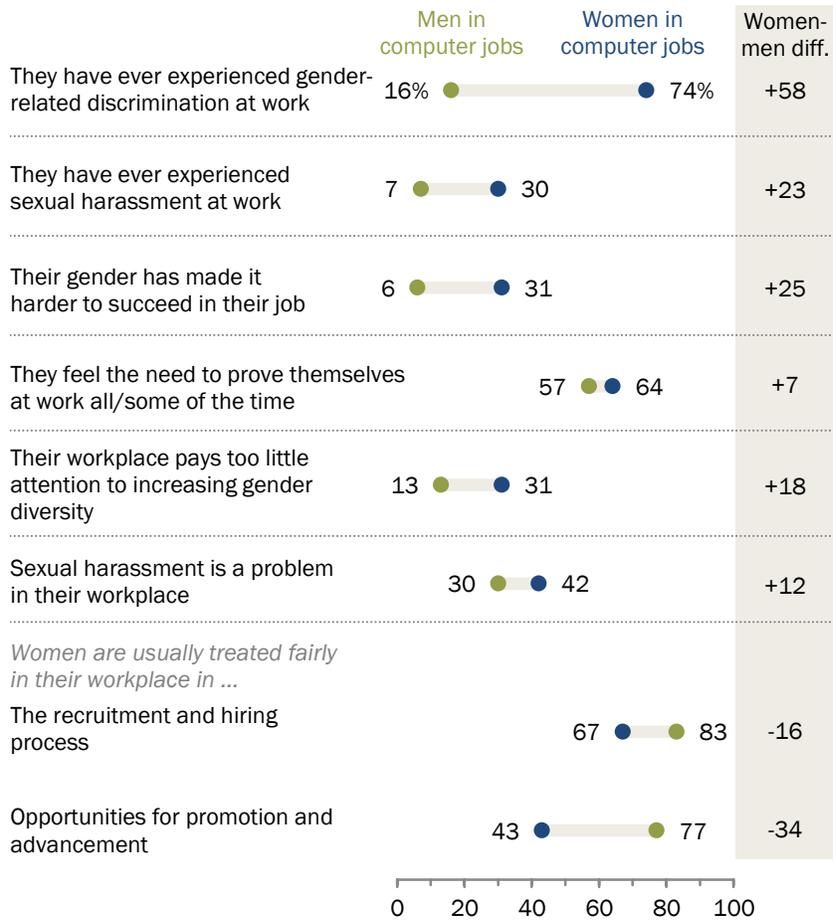
% of those in computer jobs who say the following

	Men in computer jobs	Women in computer jobs	Women-men diff.
They have ever experienced gender-related discrimination at work	16%	74%	+58
They have ever experienced sexual harassment at work	7	30	+23
Their gender has made it harder to succeed in their job	6	31	+25
They feel the need to prove themselves at work all/some of the time	57	64	+7
Their workplace pays too little attention to increasing gender diversity	13	31	+18
Sexual harassment is a problem in their workplace	30	42	+12
Women are usually treated fairly in their workplace in ...			
The recruitment and hiring process	83	67	-16
Opportunities for promotion and advancement	77	43	-34

0   20   40   60   80   100

Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[5] The survey includes 150 female computer workers. Taking into account the design effect of the survey, the margin of error is +/- 10.6 percentage points.
[6] A separate Pew Research Center analysis found female computer workers are more likely than their male counterparts to believe that gender discrimination is a major problem in the tech industry.

About one-in-five women in STEM and non-STEM jobs say they have experienced sexual harassment at work

In the Pew Research Center survey – conducted before the string of prominent sexual harassment allegations and [public discussion](#) of these issues on social media outlets and elsewhere – some 22% of working women in the U.S. say they have experienced sexual harassment at work, compared with 7% of working men. The share of women who say they have experienced sexual harassment at work is the same among those in STEM and non-STEM jobs.[7]

More women than men say they have experienced sexual harassment at work

% of employed adults who say ...

■ Men in STEM jobs ■ Women in STEM jobs

	Men in STEM jobs	Women in STEM jobs	Women in non-STEM jobs
They have ever experienced sexual harassment at work	7%	22%	22%

Sexual harassment is a problem ...

	Men in STEM jobs	Women in STEM jobs	Women in non-STEM jobs
In their workplace	28	36	36
In their industry	50	55	47
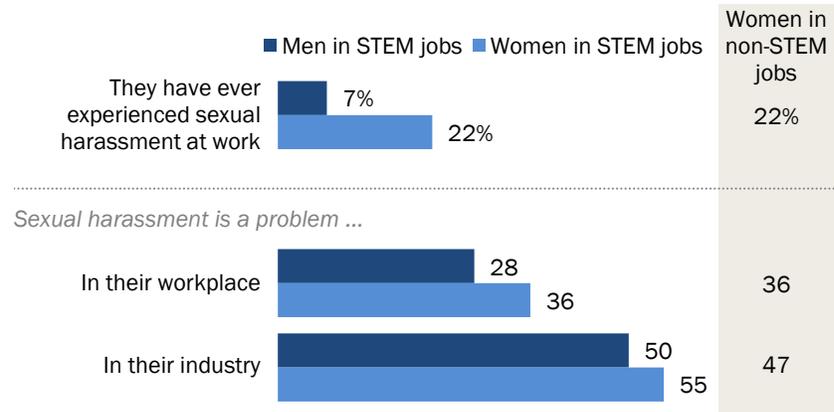
Note: Big/small problem responses are combined. Respondents who gave other responses or who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Women working in STEM are more likely than their male counterparts to regard sexual harassment as at least a small problem in their workplace (36% vs. 28%). As with experience with discrimination, women in STEM jobs who work in majority-male settings and women in computer jobs are particularly likely to say that sexual harassment is at least a small problem where they work. Nearly half (48%) of female STEM workers in majority-male workplaces say that sexual harassment is a problem where they work. About four-in-ten (42%) women in computer jobs consider workplace sexual harassment a problem where they work, compared with three-in-ten (30%) men in computer jobs.

Among those in non-STEM occupations, men and women are equally likely to consider sexual harassment a problem where they work.

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[7] A new [analysis of Equal Employment Opportunity Commission (EEOC) complaints](#) from the Center for American Progress show that claims of sexual harassment have been filed by women (and some men) in a wide range of industries and occupational groups with somewhat larger shares coming from employees in food service, retail trade and manufacturing as well as healthcare and social assistance.

About six-in-ten blacks working in STEM say they have experienced workplace discrimination because of their race

Concerns about the underrepresentation of blacks and other racial minorities – and particularly women of color – in the STEM workforce have been ongoing for at least four decades.[8] The Pew Research Center survey finds that, today, black STEM workers are especially likely to say they have experienced discrimination at work because of their race or ethnicity; 62% of blacks in STEM say this, compared with 44% of Asians, 42% of Hispanics and just 13% of whites in STEM jobs.

Blacks in STEM jobs tend to report experiences of workplace discrimination due to race more than blacks in non-STEM jobs (62% vs. 50%).[9] Hispanics in STEM and non-STEM jobs are equally likely to say they have experienced workplace discrimination because of their race or ethnicity (42% each).[10]

Most blacks in STEM have experienced discrimination; fewer blacks see fair treatment in hiring, promotions

% of those in science, technology, engineering and math jobs who say the following

Among those in STEM jobs who are ...
● White ● Hispanic ● Asian ● Black

They have ever experienced discrimination at work due to their race/ethnicity 13% ... 62%

Their race/ethnicity has made it harder to succeed in their job 5 ... 40

Their workplace pays too little attention to increasing racial/ethnic diversity 15 ... 57

Blacks are usually treated fairly in their workplace in ...

The recruitment and hiring process 43 ... 78

Opportunities for promotion and advancement 37 ... 75

0 20 40 60 80 100
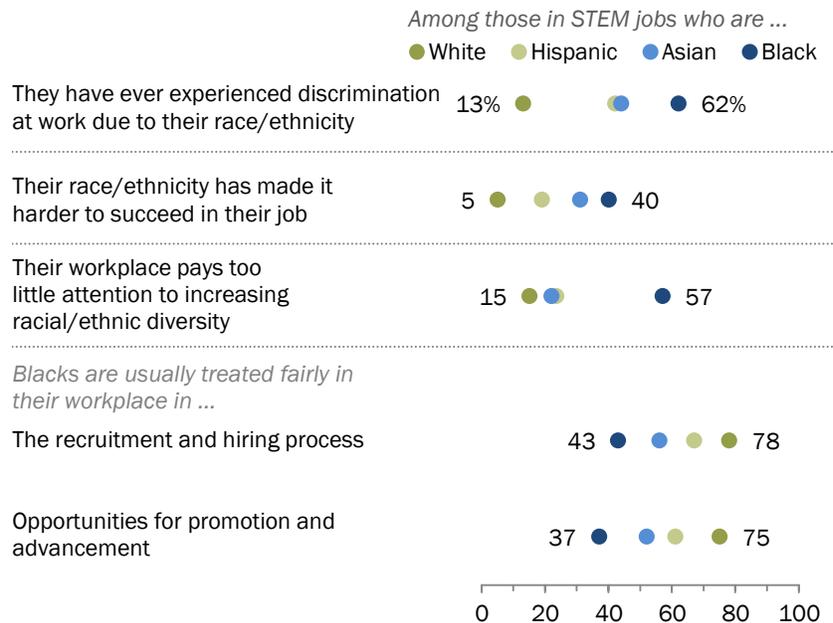
Note: Experience of racial/ethnic discrimination based on combined responses to eight items. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[8] See Malcom, Shirley Mahaley, Paula Quick Hall, and Janet Welsh Brown. 1976. "The Double Bind: The Price of Being a Minority Woman in Science." American Association for the Advancement of Science.

[9] Differences in reported discrimination in the workplace due to race between blacks in STEM vs. non-STEM jobs should be interpreted with caution due to the smaller number of black respondents in the survey (320 in total). Taking into account the design effect for these subgroups, the difference of 62% of blacks in STEM vs. 50% of blacks in non-STEM jobs saying they have experienced racial discrimination at work – whether in their current or previous jobs – for a two-tailed test is p=.075.

[10] There are not enough Asians working in non-STEM jobs in the survey sample for separate analysis.

And, blacks working in STEM jobs are less convinced than white STEM workers that black employees where they work are treated fairly when it comes to hiring and promotions. In all, 43% of blacks in STEM jobs believe that blacks where they work are usually treated fairly during recruitment; 37% say this is the case during promotion and advancement opportunities. By contrast most white STEM workers believe that blacks are usually treated fairly in these processes where they work (78% say this about hiring, 75% about advancement processes).

Other Pew Research Center analyses found that black Americans with at least some college experience are more likely to say they have experienced discrimination or been treated unfairly across a range of experiences because of their race or ethnicity, compared with those without any college experience. (There are not enough blacks in STEM jobs in this survey for analysis by levels of education.)

While the majority of STEM workers believe their race or ethnicity has made no difference in their ability to succeed in their job, blacks (40%) and Asians (31%) in STEM jobs, followed by Hispanics (19%), are more likely than white STEM workers (5%) to say it has been harder to find success in their job because of their race or ethnicity.

STEM workers who believe their race or ethnicity has made it harder to succeed provide a number of explanations, including concerns about the hiring process, promotions and pay equity, and stereotypical beliefs among their coworkers. Some respondents put it this way:

> *"People have preconceived ideas of what I am capable of doing."* - Black man, physical scientist, 39

> *"This 'other-ness' exists intentionally or unintentionally between those of a minority and those of a majority from lacking of common cultural background. Relationships at work appear polite on surface but reluctant tendency in willing to share limited opportunities the same way, which I felt in a previous job where whites and males were overwhelmingly a majority."* - Asian woman, engineer, 56

The STEM workforce has grown, especially among computer occupations

Analysis of the U.S. Census Bureau's American Community Survey shows that employment in STEM occupations has grown 79% since 1990 (from 9.7 million to 17.3 million) with the largest growth occurring in computer occupations (338% growth since 1990).

The share of women working in such jobs varies widely both within and across job types (or clusters). Women account for a majority of healthcare practitioners and technicians but are underrepresented in other jobs, particularly computer and engineering positions. While there has been significant progress for women in the life and physical sciences since 1990, the share of women has been roughly stable in other STEM occupational clusters and has gone down 7

The share of women in life and physical sciences has gone up but it has gone down for computer jobs since 1990

Share of women in each of the following science, technology, engineering and math occupations over time
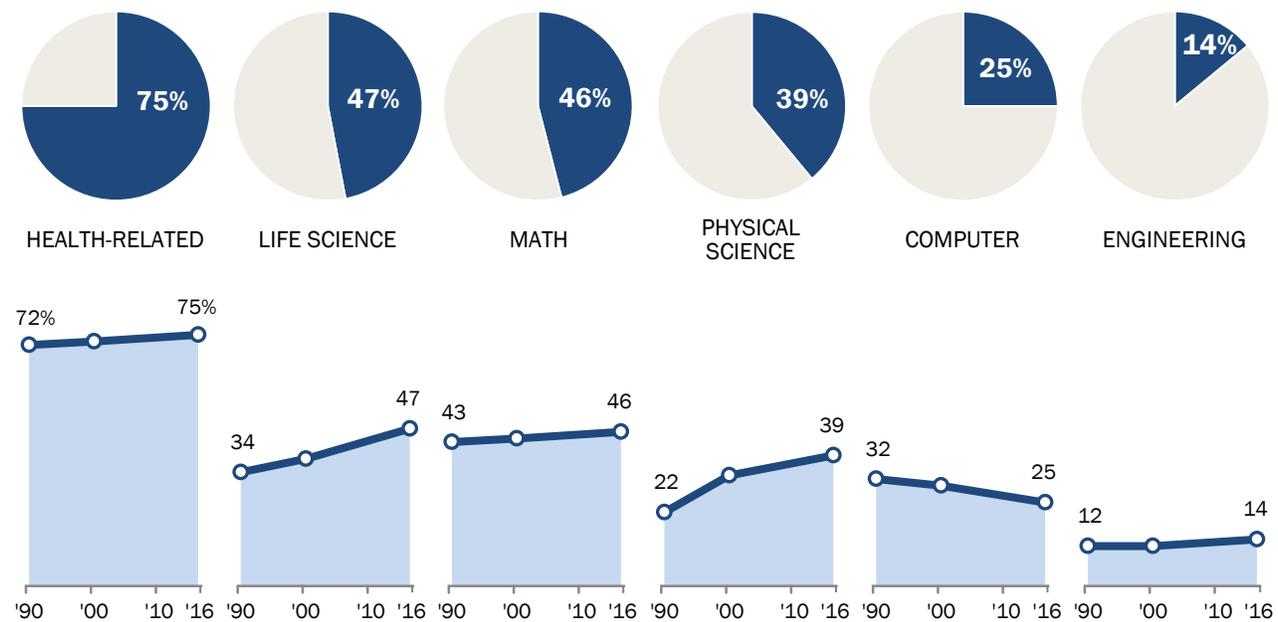
HEALTH-RELATED	LIFE SCIENCE	MATH	PHYSICAL SCIENCE	COMPUTER	ENGINEERING
75%	47%	46%	39%	25%	14%

Note: Based on employed adults ages 25 and older. Engineering includes architects.
Source: Pew Research Center analysis of 1990 and 2000 decennial censuses and 2014-2016 American Community Survey (IPUMS).
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percentage points in computer occupations.[11]

Gains in women's representation in STEM jobs have been concentrated among women holding advanced degrees, although women still tend to be underrepresented among such workers. Women are roughly four-in-ten (41%) of all STEM workers with a professional or doctoral degree such as an M.D., D.D.S., or Ph.D.

Black and Hispanic workers continue to be underrepresented in the STEM workforce. Blacks make up 11% of the U.S. workforce overall but represent 9% of STEM workers, while Hispanics comprise 16% of the U.S. workforce but only 7% of all STEM workers.

Asians are overrepresented in the STEM workforce, relative to their overall share of the workforce, especially among college-educated workers: 17% of college-educated STEM workers are Asian, while 10% of all workers with a college degree are Asian.

The representation of women, blacks and Hispanics in STEM has implications for the average earnings of workers in these groups. STEM workers earn more, on average, than workers in non-STEM jobs, even when controlling for educational attainment.

What's a STEM job?

This analysis relies on a broad-based definition of the science, technology, engineering and math (STEM) workforce. STEM jobs are defined solely based on occupation and include: life sciences, physical and Earth sciences, engineering and architecture, computer and math occupations as well as health-related occupations including healthcare providers and technicians.

Educators specializing in STEM subjects could not be identified in the analysis of the American Community Survey, though they are included as holding STEM jobs in the analysis of the Pew Research Center survey.

While there is often considerable overlap across definitions, there is no commonly agreed definition of the STEM workforce. Thus, caution is warranted in any direct comparisons with other studies.

One potential barrier for those wishing to enter the STEM workforce is the generally higher level of educational attainment required for many such positions. Among college-educated workers, one-in-three (33%) majored in a STEM field. But only about half (52%) of those with college

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[11] Estimates of women's representation in STEM jobs vary widely. A 2013 Census Bureau report estimated that 26% of the STEM workforce is female as of 2011 using a definition that omits healthcare practitioners and technicians. Including healthcare practitioners and technicians as part of the STEM workforce has a substantial effect on such estimates because healthcare practitioner and technician jobs make up a large share of the workforce and because such jobs are mostly held by women. Analysis of the "science- and engineering-related" workforce in the National Science Foundation's Science and Engineering Indicators 2016 include health-related professions but is limited to those holding at least a bachelor's degree.

training in a STEM field are currently employed in a STEM job.[12] The rest are working in other fields, with many benefiting from the financial bump in earnings that comes with a STEM degree.

The reasons why half of college-educated workers with STEM-related training turn to jobs elsewhere are likely complicated. Among college-educated workers, those who majored in a health professions field are more likely than those who majored in other STEM fields to be working in a job directly related to their degree. About seven-in-ten (69%) women who majored in a health professions field (such as nursing or pharmacy) are working in a health-related occupation, as are 61% of men who majored in health professions.

But among those who majored in computers or computer science, women are less likely than men to be working in a computer occupation (38% vs 53%). Similarly, women who majored in engineering during their undergraduate studies are less likely than men to be working in engineering jobs (24% vs. 30%). Thus, in two occupational areas with particularly low shares of women, retention of those who meet a key barrier for job entry appears to be lower for women than for men.

Fewer women than men who majored in computers work in computer jobs

Among college-educated workers, % employed in job related to bachelor's degree field

	Men	Women
Health professions major working in health-related job	61%	69%
Computer major working in computers	53	38
Engineering major working in engineering	30	24
Math major working in math	5	5
Life sciences major working in life sciences	5	5
Physical sciences major working in physical sciences	10	8

Note: Based on employed adults ages 25 and older completing at least a bachelor's degree. Life sciences degree includes those with a degree in an agricultural science major.
Source: Pew Research Center analysis of 2014-2016 American Community Survey.
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[12] Estimates of how many STEM-trained workers are "retained" in a STEM occupation vary widely across studies. These estimates depend on the definition of STEM occupations as well as what constitutes a STEM major and whether the retention estimates are based on training in a specific field and having a directly related job, as discussed here, or is more broadly defined as working in any STEM job.

Other notable findings include the following:

The public image of STEM jobs includes higher pay and an advantage in attracting young talent compared with other industry sectors

In some ways, the public has a very positive view of STEM jobs, as they compare with jobs in other sectors. About seven-in-ten Americans (71%) see jobs in STEM as offering better compensation than jobs in other industries. And, a majority of Americans (58%) consider STEM jobs to attract more of the brightest, most qualified young people.

The public is closely divided over whether jobs in STEM make a more meaningful contribution to society or do so to about the same extent as other jobs (45% to 48%). But only a minority think of STEM jobs as being more focused on helping others (28%) than jobs in other industries.

Most Americans see STEM jobs as offering higher pay, attracting top talent compared with other industries

% of U.S. adults who say that, compared with jobs in other industries, jobs in science, technology, engineering and math …

Category	Percent
Offer higher pay	71%
Attract more of brightest and most qualified young people	58
Are more well-respected	53
Offer more advancement opportunities	50
Are more difficult to get into	49
Make a more meaningful contribution to society	45
Are more focused on helping others	28
Have more flexibility to balance work/family needs	18

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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About one-in-five Americans (18%) say STEM jobs have more flexibility to balance work and family needs than other jobs in other sectors, while about half (52%) say the flexibility in this regard is about the same as it is in other sectors and 28% say there is less flexibility in STEM jobs than there is elsewhere.
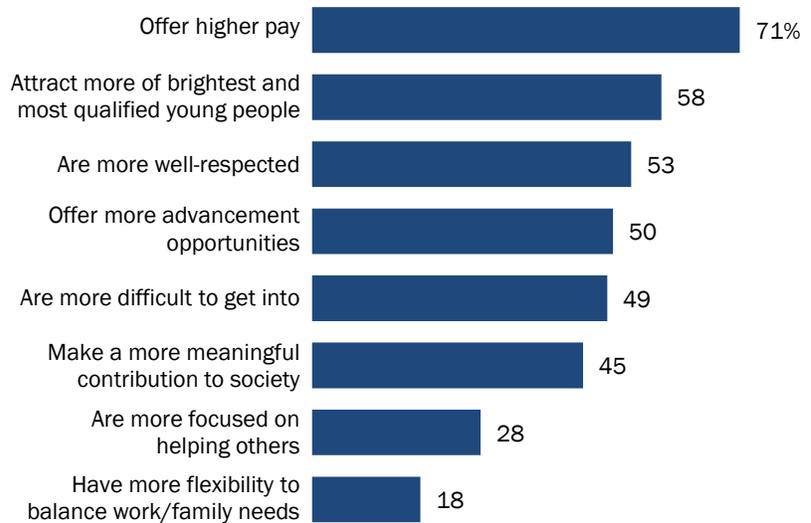
Men and women working in STEM say flexibility to balance work and family needs is important to them

Men and women in STEM jobs – and indeed those in non-STEM jobs as well – say that having the flexibility to balance their work and family obligations is an important factor to them in choosing a job. But men and women in STEM tend to diverge when it comes to other job characteristics. A somewhat higher share of men than women say that having higher pay and opportunities for promotion is important to them in choosing a job. Women in STEM jobs are more inclined to consider a job that focuses on helping others (59%) as important to them compared with men in STEM jobs (31%).[13]

Men and women in STEM consider job flexibility important, women are more likely to want a job that helps others

% of those in science, technology, engineering and math jobs who say when choosing a job, each of the following is personally important to them

■ Men in STEM jobs   ■ Women in STEM jobs

	Men-women diff.
Characteristics men and women in STEM value about the same	
Having flexibility to balance work/family — 71% / 76%	NS
Being in a workplace that is welcoming for people like them — 48 / 53	NS
Characteristics men in STEM value more than women in STEM	
Having opportunities for promotion — 57 / 46	+11
Having a high-paying job — 59 / 48	+9
Characteristics women in STEM value more than men in STEM	
Having a job that others respect and value — 43 / 50	-7
Making a meaningful contribution to society — 51 / 60	-9
Having a job focused on helping others — 31 / 59	-28

Note: Respondents who gave other responses or who did not give an answer are not shown. NS indicates difference is not statistically significant.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[13] About two-thirds (68%) of women in health-related jobs say that having a job that is focused on helping others is important to them. However, even excluding workers in health-related jobs, a higher share of women than men working in STEM say that this characteristic is important to them in choosing a job.

Americans see a range of explanations for the underrepresentation of women, blacks and Hispanics in STEM jobs

Many Americans attribute the limited diversity of the STEM workforce to a lack of encouragement for girls and blacks and Hispanics to pursue STEM from an early age; 39% of Americans consider this a major reason there are not more women in some STEM areas, and 41% say this is a major reason there are not more blacks and Hispanics in the STEM workforce.

In addition, 42% of Americans say limited access to quality education to prepare them for these fields is a major reason blacks and Hispanics are underrepresented in the STEM workforce; this view is held by a majority of those working in STEM who are black (73%) and about half of Hispanics (53%), Asians (52%) and whites (50%) in STEM jobs.

Perceived reasons more women, blacks and Hispanics are not working in STEM

% of U.S. adults who say each of the following is a major reason why there are not more women or blacks and Hispanics working in science, technology, engineering and math jobs in this country

Major reason more women are not in STEM jobs

Reason	%
Face discrimination in recruitment, hiring, promotion	39%
Not encouraged to pursue STEM from early age	39
More difficult to balance work/family in STEM jobs	33
More are being trained, but the process is slow	27
Lack of female role models in STEM	24
Less likely to believe they can succeed in STEM	23
Just less interested in STEM than men	18

Major reason more blacks and Hispanics are not in STEM jobs

Reason	%
Less likely to have access to quality education to prepare them for STEM fields	42%
Not encouraged to pursue STEM from early age	41
Less likely to believe they can succeed in STEM	33
Face discrimination in recruitment, hiring, promotion	31
Lack of black and Hispanic role models in STEM	27
More are being trained, but the process is slow	22
Just less interested in STEM than others	22

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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There are wide differences among STEM workers on the role of racial/ethnic discrimination in underrepresentation. Among blacks in STEM jobs, 72% say discrimination in recruitment, hiring and promotions is a major reason behind the underrepresentation of blacks and Hispanics in these jobs. By contrast, 27% of whites and 28% of Asians say this, while 43% of Hispanics think discrimination is a major reason behind the underrepresentation.

Similarly, there are wide differences between men and women working in STEM jobs on the role of gender discrimination. About half of women in STEM jobs (48%) say gender discrimination in recruitment, hiring and promotions is a major reason there are not more women in STEM jobs, compared with 29% of men in STEM jobs.

When women and those in racial and ethnic minority groups working in STEM were asked to say, in their own words, the best ways to attract more people like themselves to STEM, many emphasized the importance of quality schooling and an early start to encouraging people into the field with repeated support over time. A few examples:

> *"You must introduce those fields early in the elementary school years. Then continue to build on that by establishing STEM clubs and activities. Provide information to parents about local/community STEM events for continued interests. Most of all, make sure that any STEM student has the rigorous preparation that will be needed to get them accepted into college and able to handle the nature of the college level classes."* - Black woman, nurse, 49

> *"K-8 teaching needs to be designed to make these subjects more interesting and accessible to girls. Teachers need to be explicit about the need for more women in STEM jobs, and help girls feel that they have a reason to pursue these fields in spite of the somewhat intimidating gender breakdown of higher level classes."* - White woman, math teacher, 42

> *"Providing opportunities such as putting upgraded computers and/or science labs in inner-city schools, libraries and community centers. Black men currently in the STEM industries must be visible to the younger generation in order to show the value of those skills and the career implications."* - Black man, systems engineer, 30

Most Americans rate K-12 STEM education as average or worse compared with other developed nations, so, too, do those with an advanced degree in STEM

Americans are generally critical of the quality of STEM education in the nation's K-12 schools. A quarter of Americans (25%) consider K-12 STEM education in the U.S. to be at least above average compared with other developed countries, while 30% say the U.S. is below average in this regard, and 43% say it is average. Parents with children in public schools give similar ratings of the nation's K-12 STEM education.

Americans tend to see higher education in STEM more favorably, by comparison, but there too, fewer than half consider undergraduate education (35%) or graduate education (38%) in STEM as at least above average compared with other nations.

People who, themselves, have a postgraduate degree in a STEM field give positive ratings to the quality of postsecondary education in the U.S., but just 13% of this group considers K-12 STEM education to be at least above average.

Nonetheless, as Americans look back on their own K-12 experiences, three-quarters (75%) report that they generally liked science classes. Science labs and hands-on learning experiences stand out as a key appeal among those who liked science classes. Some 46% of those who disliked science classes in their youth say a reason for their view is that these classes were hard, while another 36% of this group found it hard to see how science classes would be useful to them in the future.

Most Americans see K-12 STEM education as average or below that of other developed nations

% of U.S. adults or science, technology, engineering and math postgraduate degree holders who rate the U.S. as ____ when it comes to STEM education at each level

■ Best in the world/above avg. ■ Average ■ Below average

U.S. adults
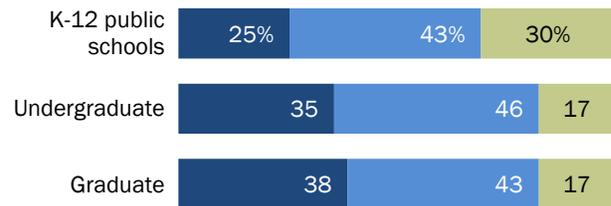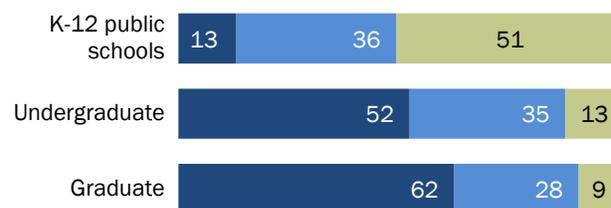
	Best in the world/above avg.	Average	Below average
K-12 public schools	25%	43%	30%
Undergraduate	35	46	17
Graduate	38	43	17

STEM postgraduate degree holders

	Best in the world/above avg.	Average	Below average
K-12 public schools	13	36	51
Undergraduate	52	35	13
Graduate	62	28	9

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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1. Diversity in the STEM workforce varies widely across jobs

As the U.S. has transformed rapidly to an information-based economy, employment in science, technology, engineering and math occupations has grown – outpacing overall job growth. Since 1990, STEM employment has grown 79% (9.7 million to 17.3 million) and computer jobs have seen a whopping 338% increase over the same period.

Using a broad definition of the STEM workforce, women make up half (50%) of all U.S. workers in STEM occupations, though their presence varies widely across occupational clusters and educational levels. Women account for the majority of healthcare practitioners and technicians but are underrepresented in several other STEM occupational clusters, particularly in computer jobs and engineering.

While there has been significant progress for women in the life and physical sciences since 1990, the share of women has been roughly stable in other STEM occupational clusters and has actually gone down 7 percentage points in the area with the largest job growth over this period: computer occupations, a job cluster that includes computer scientists, systems analysts, software developers, information systems managers and programmers.

Gains in women's representation in STEM jobs have been concentrated among women holding advanced degrees, although women still tend to be underrepresented among such workers.

Black and Hispanic workers continue to be underrepresented in the STEM workforce. Blacks make up 11% of the U.S. workforce overall but represent 9% of STEM workers, while Hispanics comprise 16% of the U.S. workforce but only 7% of all STEM workers. And among employed adults with a bachelor's degree or higher, blacks are just 7% and Hispanics are 6% of the STEM workforce.

Asians are overrepresented in the STEM workforce, relative to their overall share of the workforce, especially among college-educated workers: 17% of college-educated STEM workers are Asian, compared with 10% of all workers with a college degree.

The representation of women, blacks and Hispanics holds pocketbook implications for workers. STEM jobs have relatively high earnings compared with many non-STEM jobs, and the earnings gap persists even after controlling for educational attainment. Among workers with similar education, STEM workers earn significantly more, on average, than non-STEM workers.

In spite of the earnings advantage that STEM workers have over non-STEM workers, the gender wage gap is wider in STEM occupations than in non-STEM jobs. This is partially because women

are clustered in lower-paying STEM jobs in the health care industry and underrepresented in the more lucrative fields of engineering and computer science. The pattern is similar for blacks and Hispanics, who also tend to be concentrated in less lucrative STEM jobs, widening the measured earnings disparity.

One potential barrier for those wishing to enter the STEM workforce is the generally higher level of educational attainment required for such positions. Among college-educated workers, one-in-three (33%) majored in a STEM field. But only about half (52%) of those with college training in a STEM field are currently employed in a STEM job.

The reasons about half of college-educated workers with STEM-related training turn to jobs elsewhere are likely complicated. Some may have found their skills and training to be applicable to and rewarded in a non-STEM occupation (such as banking or finance). But for others, there may be barriers to entry into STEM jobs in addition to obtaining a bachelor's degree in a STEM field.

Even so, among college-educated workers, women who majored in computer science or related computer fields are less likely than men trained in those fields to be working in computer jobs. Similarly, women who majored in engineering are less likely than men to be working in engineering jobs. Thus, in two occupational clusters with particularly low shares of women, retention of those who appear to meet a key requirement for job entry appears to be lower for women than for men.

Defining STEM workers with a wide-angle lens

This analysis uses a broad definition of the STEM workforce and is based solely on occupation, as classified in the U.S. Census Bureau's American Community Survey. As defined, here, the STEM workforce includes 74 occupations including computer and mathematical occupations, engineers and architects, physical scientists, life scientists, and health-related jobs such as healthcare practitioners and technicians (but not health care support workers such as nursing aides and medical assistants). As such, it includes workers with associate degrees and other credentials as well as those with bachelor's and advanced degrees.

There is no standard definition of STEM workers. Other analyses of STEM workers include somewhat different occupations (see, for example, the Economics and Statistics Administration of the U.S. Department of Commerce). The National Center for Science and Engineering Statistics focuses on those with a college degree or more education in their surveys; UNESCO studies on global diversity issues in STEM focus even more narrowly on researchers with advanced degrees working in STEM.

Including healthcare practitioners and technicians as STEM occupations has broad ramifications for the key findings. There are 9.0 million health-related jobs, comprising 52% of the STEM workforce. Healthcare practitioners and technicians are largely women, thus their inclusion boosts the overall representation of women in the STEM workforce. These health-related occupations also have somewhat larger shares of black workers and smaller shares of Asian workers compared with other STEM occupations, which affects the racial and ethnic composition of the overall STEM workforce. Among college-educated workers who majored in a STEM field during their undergraduate education, those who majored in health professions are significantly more likely to work in a STEM occupation, so their inclusion increases figures on the retention of STEM-trained workers.

Social scientists are not included as a STEM occupation in this study, although other studies sometimes classify social sciences as a STEM job. As a practical matter, doing so makes little difference in the overall portrait of the STEM workforce because less than 1% of the workforce (about 280,000 workers in 2016) are classified as social scientists based on the Standard Occupational Classification system. See the sidebar on page 33 for more on the characteristics of social scientists in the workforce.

The Census data used do not identify the subject matter expertise for postsecondary teachers, therefore, these workers are not included in the STEM workforce. As a practical matter, this omission does not appear to change the overall portrait of STEM workers, as others estimate that only 1% of those who majored in a STEM field are in academic jobs in colleges and universities. See the Appendix for characteristics of those in postsecondary teaching occupations.

The STEM workforce is growing, particularly for computer jobs

As of 2016, 17.3 million workers ages 25 and older were employed in STEM occupations, comprising 13% of the 131.3 million total U.S. workforce. About half of STEM workers (52%, 9.0 million) are employed as health care practitioners and technicians, a group that includes nurses, physicians and surgeons, as well as medical and health services managers. The next largest STEM occupational clusters are computer workers (25%, 4.4 million employed) and engineers and architects (16%, 2.7 million employed).

Growth of employment in STEM has markedly outpaced the growth of overall employment. Since 1990 STEM employment has grown 79% (from 9.7 million to 17.3 million), whereas overall employment grew only 34%. Some STEM occupations have grown more than others. Driven by the proliferation of information technology industries and the growth of the health care sector, computer workers have more than quadrupled since 1990 (a 338% increase) and healthcare practitioners and technicians have nearly doubled (a 92% increase). Employment of engineers and architects has grown only 16%, while employment of physical scientists has fallen by 46% from the 1990 level (from 1.1 million in 1990 to 0.6 million today) and math jobs have fallen by 24%.[14]

Over 17 million workers are employed in STEM occupations

Employed adults ages 25 and older, in millions

All employed	131.3
STEM employed	17.3
Healthcare practitioners/technicians	9.0
Computer workers	4.4
Engineers/architects	2.7
Physical scientists	0.6
Life scientists	0.3
Mathematical workers	0.2
Non-STEM employed	114.0

Note: Figures do not add to totals indicated due to rounding. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Employment in computer jobs has more than quadrupled since 1990

% change in employment, 1990 to 2014-16
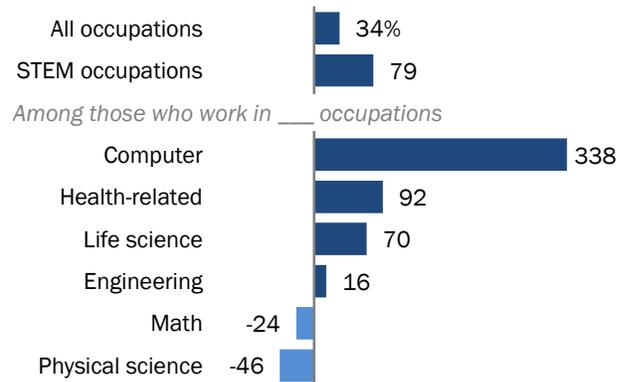
All occupations	34%
STEM occupations	79

Among those who work in ____ occupations

Computer	338
Health-related	92
Life science	70
Engineering	16
Math	-24
Physical science	-46

Note: Based on employed adults ages 25 and older. Engineering includes architects. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 1990 decennial census and 2014-2016 American Community Survey (IPUMS).
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[14] These figures are based on comparisons of the total number of employed adults holding these occupations over time. Some studies estimate job growth based on occupational requirements for STEM knowledge collected by the Occupation Information Network (O*NET) or estimate labor shortages based on job openings. The Bureau of Labor Statistics projects continued growth of jobs in almost all STEM occupations.

STEM workers tend to have relatively high levels of education compared with other workers. Overall, they are about twice as likely as those in non-STEM occupations to have earned at least a bachelor's degree (65% vs. 32%). Roughly three-in-ten STEM workers (29%) have earned a master's, doctorate or professional degree, far exceeding the share of non-STEM workers with advanced degrees (12%). Some 36% of STEM workers have a bachelor's degree (but no postgraduate degree) compared with 21% of non-STEM workers. Among STEM workers, life scientists are the most highly educated on average; 54% of these workers have an advanced degree.

About three-in-ten STEM workers report having completed an associate degree (15%) or some college with no degree (14%). These workers are more prevalent among healthcare practitioners and technicians, computer workers and engineers. See the sidebar on page 99 for survey findings on "middle-skills" workers with an associate degree or some college education.[15]

About three-in-ten STEM workers have a postgraduate degree

Educational attainment of employed adults ages 25 and older (%)

■ High school or less ■ Some college ■ Bachelor's degree ■ Postgrad degree

	High school or less	Some college	Bachelor's degree	Postgrad degree
STEM employed	7%	28%	36%	29%
Non-STEM employed	37	31	21	12
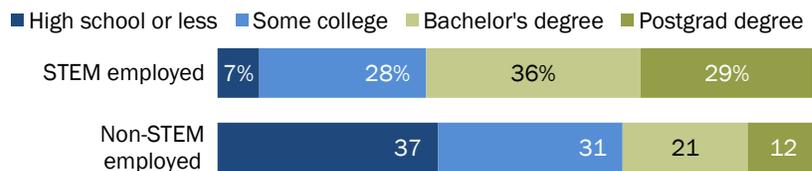
Note: Figures may not add to 100% due to rounding. Some college includes those with an associate degree and those who attended college but did not obtain a degree. Postgrad degree includes those who have completed a master's, professional or doctoral degree. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[15] Also see, National Academies of Sciences, Engineering and Medicine. 2017. "Building America's Skilled Technical Workforce."

Most STEM workers work for a private, for-profit employer. The share – 66% – is substantively identical to the share of all employed adults.[16] Engineers and architects (82%) and computer workers (77%) are among the most likely to work for a private employer. Fewer healthcare practitioners and technicians work in the private, for-profit sector (58%); almost a quarter of these workers (23%) work for a not-for-profit employer.

STEM workers are much less likely to be self-employed than other workers – 6% of STEM workers are self-employed compared with 11% of non-STEM workers. (Workers in social science occupations and postsecondary education jobs,

Like other workers, two-thirds of STEM workers are in a for-profit business

% of employed adults ages 25 and older by each type of workplace

■ Private, for-profit ■ Not-for-profit ■ Government ■ Self-employed/other

	Private, for-profit	Not-for-profit	Government	Self-employed/other
All employed	66%	8%	15%	11%
STEM jobs	66	15	13	6
Non-STEM jobs	66	7	15	11

Among those who work in _____ jobs

	Private, for-profit	Not-for-profit	Government	Self-employed/other
Engineering	82	2	11	5
Computer	77	7	12	5
Physical science	59	11	26	3
Health-related	58		23	11	7
Math	50	9	39	2
Life science	49	18	30	3
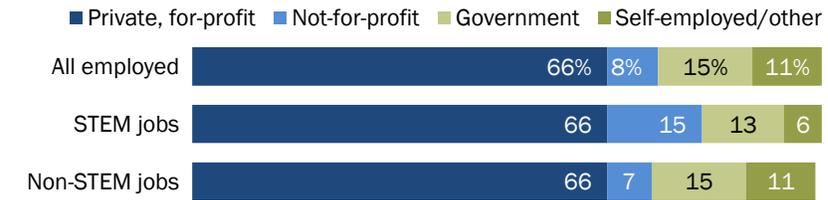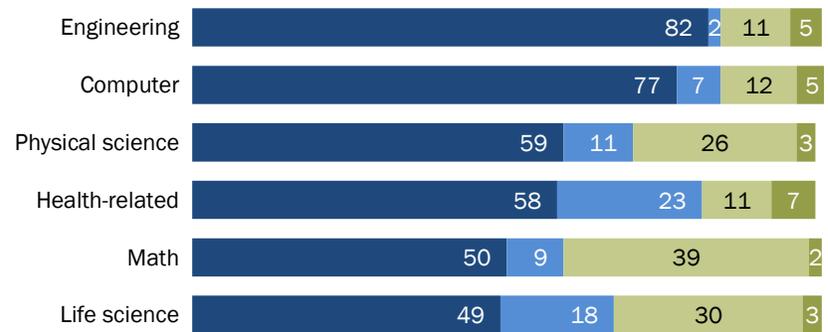
Note: Figures may not add to 100% due to rounding. Engineering includes architects. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS). "Women and Men in STEM Often at Odds Over Workplace Equity"

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by contrast, are more likely to work in government and non-profit organizations.)[17] See Appendix for details.

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[16] There is a small, statistically significant difference between these groups with 66.5% of those in STEM jobs working in private industry compared with 65.9% of those in non-STEM jobs.

[17] The National Science Foundation's Science and Engineering Indicators 2016 (chapter 3, appendix table 3-5) also finds that the private industry is by far the largest employer of the college-educated workforce of scientists and engineers. However, those with Ph.D.'s in a science and engineering field (including the social sciences) are most likely to be employed in four-year educational institutions (42%) and private industries (34%), followed by government (9%).

Diversity of the STEM workforce ranges widely within and across job clusters

Although women have made gains in representation in the STEM workforce over the past roughly 25 years, particularly in life and physical science jobs, they remain strongly underrepresented in some STEM job clusters, notably computer jobs and engineering.

Racial and ethnic diversity in STEM is also varied. Black and Hispanic workers remain underrepresented overall; these groups are also underrepresented among those in STEM jobs with professional or doctoral degrees. [18]

Asians are overrepresented across all STEM occupational clusters and have an especially large presence in the college-educated STEM workforce, particularly in computer occupations, relative to their share among employed college graduates overall.

Women overrepresented in healthcare professions, underrepresented in engineering and computer science

Women comprise 47% of all employed adults today, up modestly from 45% in 1990, and they make up half (50%) of all employed adults in STEM jobs in the U.S. The share of women in STEM overall is driven in large part by women's overrepresentation in health-related jobs, the largest STEM occupational cluster. Three-quarters (75%) of healthcare practitioners and technicians are women.

Women's representation in computer jobs has declined since 1990

Share of employed in each occupational group who are women (%)
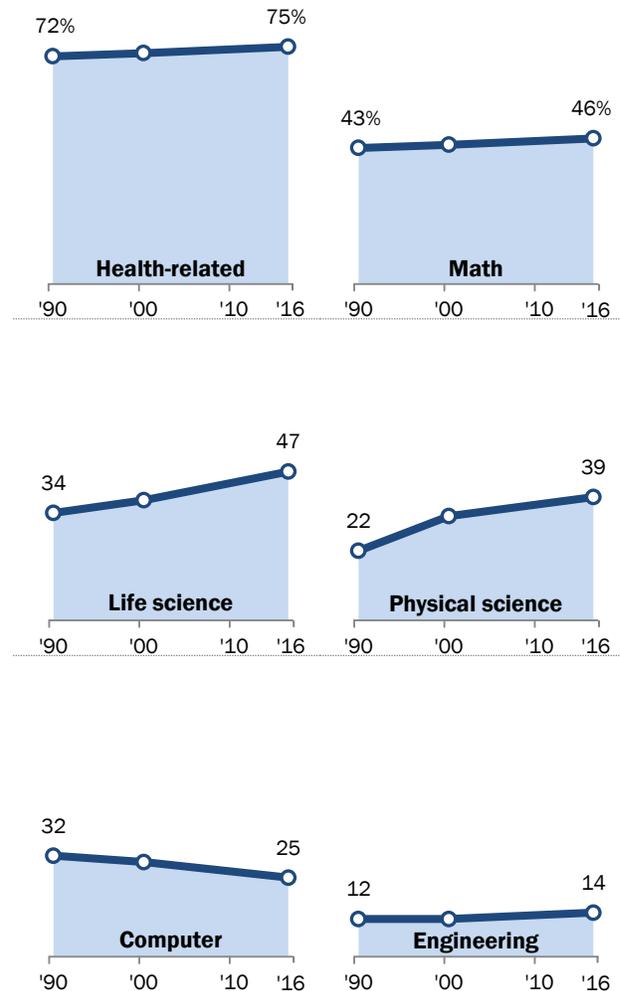
Note: Based on employed adults ages 25 and older. Engineering includes architects.
Source: Pew Research Center analysis of 1990 and 2000 decennial censuses and 2014-2016 American Community Survey (IPUMS). "Women and Men in STEM Often at Odds Over Workplace Equity"

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[18] Blacks and Hispanics are also underrepresented in non-STEM jobs with professional or doctoral degrees.

Women's representation in STEM occupations varies substantially by occupational subgroup. Engineering occupations have the lowest share of women at 14%. Computer occupations follow, with women comprising a quarter of workers (25%) in these fields. Women are underrepresented among physical scientists (39%), but their representation among life scientists (47%) and math workers (46%) roughly equals women's overall share in the workforce (47%).

Since 1990 women have made large gains in some STEM occupations, but in others growth has been far slower or has even reversed. In fact, the share of women has decreased in one of the highest-paying and fastest-growing STEM clusters – computer occupations. In 2016, 25% of workers in these occupations were women, down from 32% in 1990. At the same time, growth in women's representation in engineering has been incremental at best, increasing only slightly from 12% in 1990 and 2000 to 14% today. Women's shares among life and physical scientists, however, climbed markedly over this period (13 and 17 percentage points, respectively).

Women's representation among the college-educated STEM workforce depends, in part, on women completing college training in STEM fields. Among college-educated workers, the share of women earning a STEM degree varies widely and generally corresponds with the share of women in these occupational clusters. Among all college-educated workers who majored in a health professions field, 81% are female. But just 16% of college-educated workers who majored in engineering are women.

Within occupational subgroups, there is often broad variation among occupations in their share of women. The report's Appendix presents the share of women and total number of workers in specific STEM occupations. Mechanical engineering and electrical engineering have some of the lowest shares of women of any engineering occupation, or any STEM occupation (8% and 9%, respectively). By comparison,

Women's representation in STEM jobs varies by education

% of employed adults ages 25 and older who are women by highest level of education

	Among those employed in STEM jobs	All employed
High school or less	55%	41%
Some college	59	50
Bachelor's degree	47	49
Master's degree	47	54
Professional/ doctoral degree	41	42
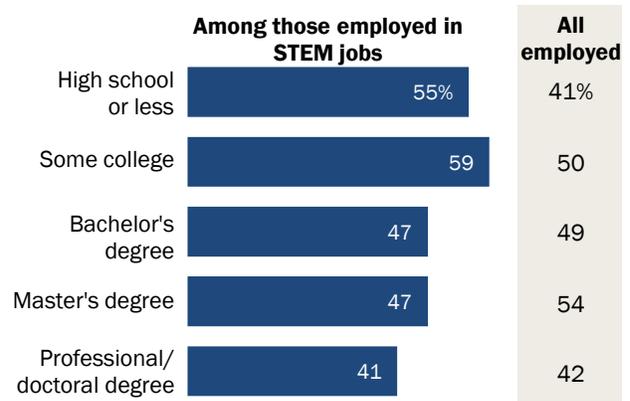
Note: Some college includes those with an associate degree and those who attended college but did not obtain a degree. Professional degree includes those with an M.D., D.D.S., D.V.M., LL.B. or J.D. Doctoral degree includes those with a Ph.D. or Ed.D. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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environmental engineering, architecture and industrial engineering have somewhat larger shares of women (29%, 26% and 21%, respectively).

Similarly, levels of women's representation vary enormously among health-related occupations. About nine-in-ten nurses (89%) and virtually all dental hygienists (95%) are women.[19] Women's representation among the ranks of physicians and surgeons is up from 20% in 1990 and 26% in 2000, coinciding with women's increases in medical school enrollment and graduation over this period. But, just 36% of physicians and surgeons today and 30% of dentists are women despite notable gains over time.

For their part, men who work in STEM occupations are concentrated in computer occupations followed by engineering and health-related occupations. Among male STEM workers, 38% work in computer jobs and 27% each work in engineering/architecture and health-related jobs. Women in STEM jobs are concentrated in health-related occupations; 77% of female STEM workers are employed as healthcare practitioners and technicians.

On average, women's representation in STEM jobs is lower among those employed with advanced degrees. For example, among all STEM workers holding a professional or doctoral degree, about four-in-ten are women (41%), compared with about six-in-ten (59%) STEM workers holding an

Biggest gains for women in STEM jobs among those with advanced degrees

% of those employed in science, technology, engineering and math jobs who are women by highest level of education
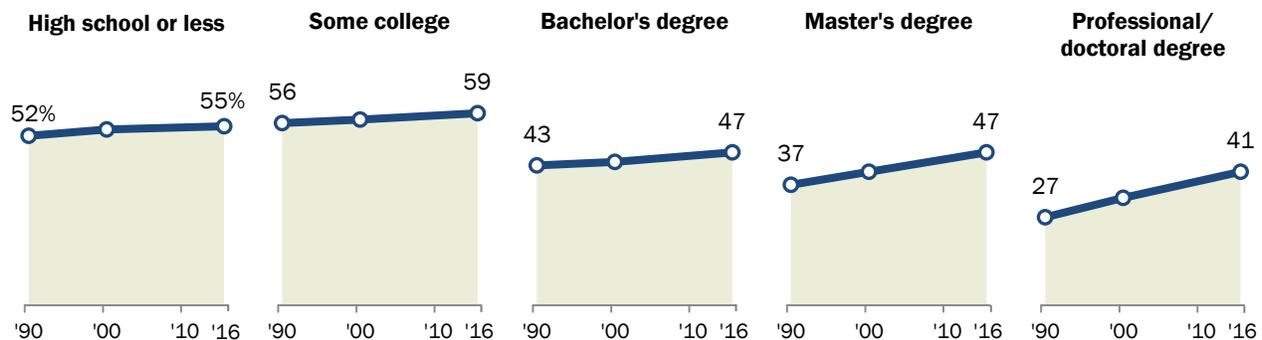
Note: Based on employed adults ages 25 and older. Some college includes those with an associate degree and those who attended college but did not obtain a degree. Professional degree includes those with an M.D., D.D.S., D.V.M., LL.B or J.D. Doctoral degree includes those with a Ph.D. or Ed.D.
Source: Pew Research Center analysis of 1990 and 2000 decennial censuses and 2014-2016 American Community Survey (IPUMS).
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[19] The figure for nurses combines registered, licensed practical and licensed vocational nurses.

associate degree or with some college experience but no degree.

This pattern generally holds within occupational clusters as well. Among healthcare practitioners and technicians with a master's degree or less, roughly eight-in-ten are women. By contrast, among health-related workers with a professional or doctoral degree, 45% are women. See Appendix for details by occupation.

At the same time, the biggest growth in women's representation since 1990 has been among STEM workers with advanced degrees, doctoral degrees in particular; this aligns with women's broader gains in educational attainment during this period. The share of women among doctoral or professional degree holders in the overall STEM workforce has climbed from 27% in 1990 to 41% today. The share of women among STEM workers with a bachelor's degree (but no advanced degree) has ticked up from 43% in 1990 to 47%, on par with the overall share of women in the workforce (47%).

Social sciences are a popular college major but comprise a small occupational group

About 5.8 million (or 12%) of today's college-educated workers majored in the social sciences. Psychology majors comprise the single largest group of those who majored in a social science field (35%). The next most popular social science majors are political science (19%) and economics (16%).

Very few workers (3%) who majored in the social sciences are employed as social scientists (based on the Standard Occupational Classification system). The majority work in the cluster of social services, legal and education (30%) or in management, business and finance occupations (26%). Another 12% of social science majors are employed in a STEM occupation.

Those in social science occupations are far more likely to be college-educated than workers in other occupational clusters: 97% of those in social science jobs have completed at least a bachelor's degree, and 82% have finished an advanced degree (a third hold a doctoral degree). Of the roughly 280,000 workers employed as social scientists in 2016, 80% were white, 8% were Hispanic, 5% were black and 5% were Asian. Women currently make up 63% of social scientists, up from 54% in 2000 and 50% in 1990. Among college-educated workers who majored in the social sciences, 54% are women.

Hispanics and blacks are underrepresented, Asians and whites are overrepresented in most STEM occupations

The majority of STEM workers in the U.S. are white (69%), followed by Asians (13%), blacks (9%) and Hispanics (7%). Compared with their shares in the overall workforce whites and Asians are overrepresented; blacks and Hispanics are underrepresented in the STEM workforce as a whole.

Over the past 25 years the STEM workforce has become more racially and ethnically diverse, echoing increasing diversity in the workforce during that period. In 1990, 83% of STEM workers were white, 6% were Asian, 7% were black and 4% were Hispanic.

Within occupational clusters, the share of workers who are black or Hispanic varies widely (see Appendix).[20] Health technician and nursing jobs have some of the largest shares of black or Hispanic workers. For example, 37% of licensed practical and licensed vocational nurses are either black or Hispanic, as are a quarter or more of health support technicians (27%), medical records and health information technicians (25%), and clinical laboratory technologists and technicians (25%). Among registered nurses, 17% are black or Hispanic. By comparison, other health-related jobs have smaller shares of workers who are black or Hispanic including physicians and surgeons (11%), pharmacists (10%), dentists (9%), and physical therapists (9%). Just 5% of optometrists, veterinarians and chiropractors are black or Hispanic.

In the physical sciences, blacks and Hispanics together comprise 22% of chemical technicians but only 14% of chemists and materials scientists, 10% of atmospheric and space scientists, 7% of

Blacks and Hispanics underrepresented across most STEM job clusters

% of employed in each occupational group who are …
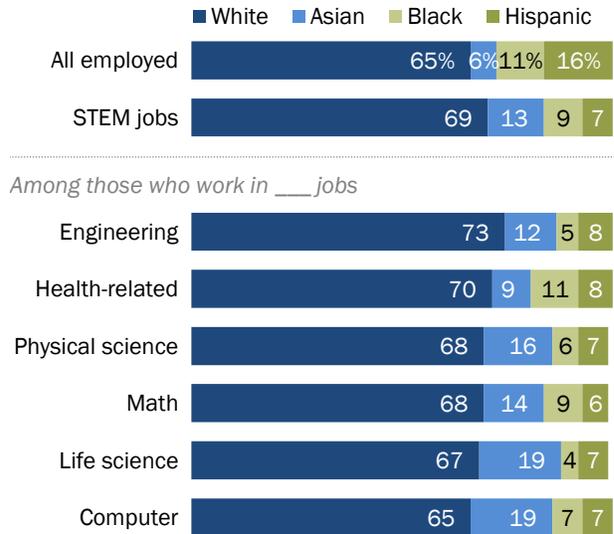
Among those who work in ____ jobs

Note: Based on employed adults ages 25 and older. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race. Other and mixed race non-Hispanics are not shown. Engineering includes architects. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[20] These figures combine those in each occupation who are black or Hispanic due to smaller numbers of respondents in these occupations.

environmental scientists and 6% of astronomers and physicists. Among mathematical workers, 19% of operations research analysts are black or Hispanic, compared with just 5% of actuaries.

Whites are overrepresented among STEM workers relative to their share in the total workforce. Asians (including both men and women) are also overrepresented among STEM workers compared with their share in the total workforce, particularly among STEM workers with a postgraduate degree. For details, see Appendix.

Asians are overrepresented across all STEM occupational groups with higher than average shares among computer workers and life scientists, accounting for 19% of workers in both of these fields, which is much higher than their share in the workforce overall (6%).

The share of Asians in STEM jobs varies substantially within occupational groups, however. For example, in engineering jobs the share of Asians ranges from 30% among computer hardware engineers to 2% among surveying and mapping technicians. Among healthcare practitioners and technicians, about one-in-five physicians and surgeons (21%) are Asian. But Asians comprise a far smaller share of veterinarians (3%) and emergency medical technicians and paramedics (2%).

About one-in-five (19%) STEM workers in the U.S. are foreign born, broadly similar to the share in the overall workforce (18%). The vast majority of the Asian STEM workforce is foreign born (82%) as is the Asian workforce overall in the U.S. (81%). Black STEM workers, however, are more likely to be foreign born than black workers overall (22% vs. 14%). Hispanics working in STEM jobs are far less likely than those in the workforce overall to be foreign born (32% of Hispanic STEM workers are foreign born, compared with 54% of all employed Hispanics ages 25 and older).

Earnings of STEM workers outpace those in other kinds of jobs

The typical STEM worker earns significantly more, on average, than the typical worker in a non-STEM occupation, and the earnings gap has been widening since 1990. The wage gap between STEM and non-STEM workers persists even when controlling for educational attainment.

Among full-time, year-round workers ages 25 and older, median earnings for STEM occupations were $71,000 in 2016.[21] Comparable earnings for non-STEM workers were $43,000. Thus, STEM workers typically earn about two-thirds more than those in non-STEM jobs.[22]

After adjusting for inflation, the typical earnings of STEM workers have increased since 1990, while earnings among non-STEM workers have been relatively flat.[23]

Earnings vary significantly among STEM workers. Computer workers, mathematical workers and engineers/architects have median earnings between $81,100 and $83,000. In contrast, full-time, year-round healthcare practitioners and technicians have the lowest median earnings at $61,000.

The typical STEM worker now earns two-thirds more than non-STEM workers

Median annual earnings of full-time, year-round workers ages 25 and older, in 2016 dollars
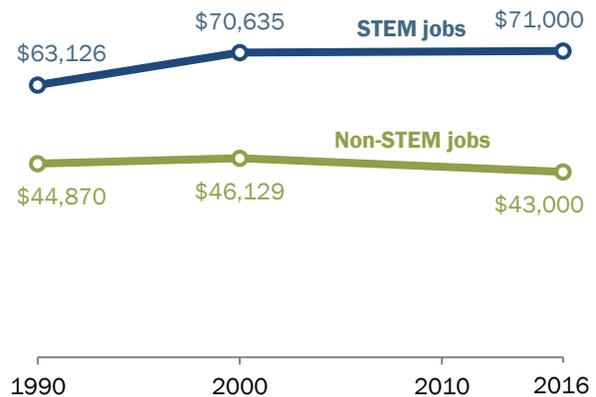
Note: Based on adults ages 25 and older employed full-time year-round with positive earnings. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 1990 and 2000 decennial censuses and 2014-2016 American Community Survey (IPUMS). "Women and Men in STEM Often at Odds Over Workplace Equity"

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[21] Following Census Bureau practice, the earnings of full-time, year-round workers with positive earnings are reported.
[22] Using a narrower definition of the STEM workforce, the U.S. Bureau of Labor Statistics found that the mean wages of STEM workers were nearly double those of non-STEM workers.
[23] The Economics and Statistics Administration of the U.S. Department of Commerce estimated the STEM earnings premium controlling for other factors influencing wages and finds that the premium has increased since the mid-1990s.

Even among workers with similar levels of education, STEM workers earn significantly more than non-STEM workers. For example, among those with some college education (including those with an associate but not a bachelor's degree), the typical full-time, year-round STEM worker earns $54,745. A similar non-STEM worker earns $40,505, 26% less.

Women in STEM occupations tend to be paid less than men working in STEM. Median earnings for full-time, year-round women working in a STEM job were $60,828 in 2016 – 72% as much as the median earnings of men working in STEM occupations ($84,000). The earnings gap between women and men is larger in the STEM workforce than it is among non-STEM occupations. Among non-STEM workers, women's median earnings are 79% of men's earnings.

In spite of the larger gender pay disparity among STEM workers, women working in STEM tend to be paid significantly more than women working in non-STEM occupations overall. The median earnings for women working full-time, year-round in non-STEM occupations are only $38,480.

STEM workers tend to earn more than similarly educated non-STEM workers

Median annual earnings of full-time, year-round workers ages 25 and older with positive earnings

Among those who work in …

■ STEM jobs ■ Non-STEM jobs

Education	STEM jobs	Non-STEM jobs
High school or less	$45,569	$33,000
Some college	$54,745	$40,505
Bachelor's degree	$75,948	$55,695
Master's degree	$91,137	$67,847
Professional/ doctoral degree	$120,000	$91,242
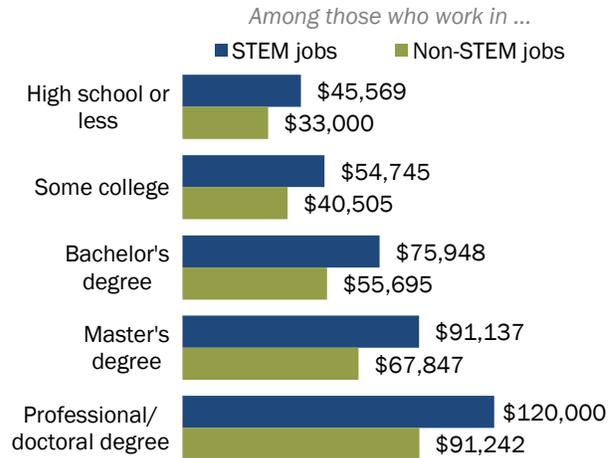
Note: Figures based on 2016 dollars. Some college includes those with an associate degree and those who attended college but did not obtain a degree. Professional degree includes those with an M.D., D.D.S., D.V.M., LL.B or J.D. Doctoral degree includes those with a Ph.D. or Ed.D. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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The 72% gender earnings gap overall partly reflects that men and women in the STEM workforce tend to work in different occupational subgroups. Compared with women, a higher share of men in STEM jobs are in higher-paying computer or engineering/architecture jobs. Women are more likely than men to be in lower-paying healthcare practitioner and technician positions.[24]

Among full-time, year-round workers, the gender earnings gap varies across specific STEM occupational subgroups. For example, among computer workers, the typical woman earns 87% as much as the typical man. Among engineers and architects the gender earnings gap is 83%. However, the gender earnings gap among healthcare practitioners and technicians is 74%.[25]

The overall gender earnings gap in the STEM workforce has not changed over the past 25 years. In 1990 the median earnings of women in STEM was 72% of the median earnings of men in STEM.

The gender pay gap is widest for STEM workers with professional or doctoral degrees (women's median annual pay is 73% of men's) and those with high school or less education (66%).

The gender earnings gap varies across STEM occupations and education

Median annual earnings of women as a percent of men's earnings
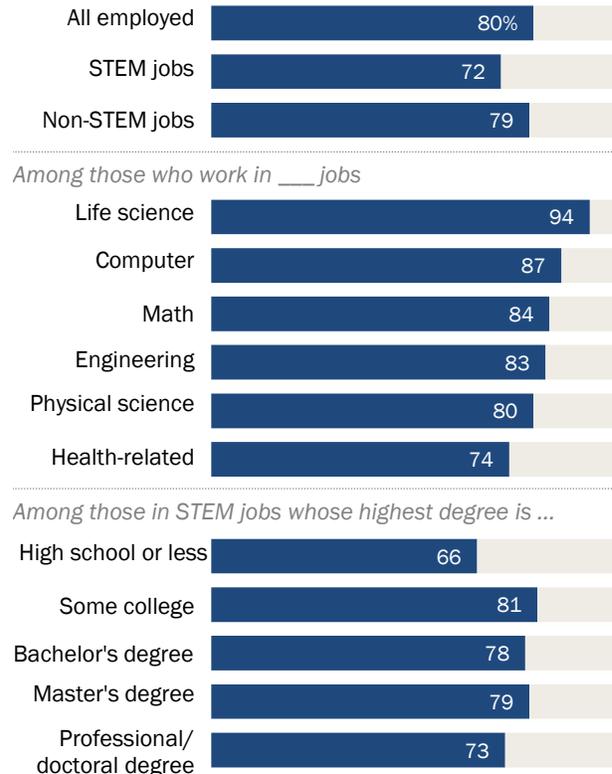
All employed	80%
STEM jobs	72
Non-STEM jobs	79

Among those who work in ___ jobs

Life science	94
Computer	87
Math	84
Engineering	83
Physical science	80
Health-related	74

Among those in STEM jobs whose highest degree is ...

High school or less	66
Some college	81
Bachelor's degree	78
Master's degree	79
Professional/ doctoral degree	73

Note: Based on adults ages 25 and older employed full-time, year-round with positive earnings. Some college includes those with an associate degree and those who attended college but did not obtain a degree. Professional degree includes those with an M.D., D.D.S., D.V.M., LL.B. or J.D. Doctoral degree includes those with a Ph.D. or Ed.D. Engineering includes architects. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[24] The overall 72% gender earnings gap includes workers of all education levels. Among college graduates in the STEM workforce who majored in STEM, the gender earnings gap is 75%. This is similar to the 72% gap reported in a 2017 study by Kahn and Ginther for the National Bureau of Economic Research.
[25] The larger gender wage gap among healthcare practitioners and technicians largely reflects the fact that men are overrepresented in the highest-paying occupations in this cluster of jobs. For example, men account for 64% of physicians and surgeons and 70% of dentists.

Racial earnings gaps are substantial but narrow among similarly educated and trained STEM workers

The median earnings of blacks ($58,000) and Hispanics ($60,758) working in STEM occupations are less than those of whites ($71,897) and Asians ($90,000) in the STEM workforce. The black to white earnings gap among STEM workers, while substantial, is smaller than the racial earnings gap among the non-STEM workforce. The typical black STEM worker earns 81% as much as the typical white STEM worker; blacks in non-STEM occupations earn 73% as much as their white counterparts.[26]

Similarly, the earnings disparity between Hispanic and white STEM workers (85%) is narrower than among non-STEM workers (67%).

In the STEM workforce, the typical Asian is paid substantially more than their white counterparts (125%) although Asians working in non-STEM occupations tend be paid less than whites (90%). As shown later in this chapter, this pay advantage narrows considerably once STEM-training is taken into account.

Across all of these racial and ethnic groups, women earn less than their male counterparts (see Appendix).

Racial earnings gaps narrower in the STEM workforce than non-STEM workforce

Median annual earnings of Asian, black and Hispanic workers as a percent of white's
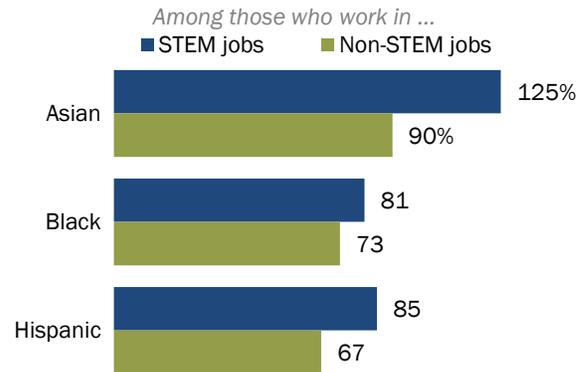
Among those who work in …
■ STEM jobs ■ Non-STEM jobs

Asian — STEM: 125% / Non-STEM: 90%
Black — STEM: 81 / Non-STEM: 73
Hispanic — STEM: 85 / Non-STEM: 67

Note: Based on adults ages 25 and older employed full-time year-round with positive earnings. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[26] The earnings gap between black and white workers has remained about the same in magnitude to the current gap. In 1990 and 2000, the typical black STEM worker earned 80% as much as the typical white STEM worker.

Among college-educated workers in STEM occupations, Asians are the most likely to have a STEM bachelor's degree (83% do).[27] Smaller shares of college-educated Hispanics (72%), whites (72%) or blacks (69%) in STEM occupations majored in a STEM field.

STEM training narrows the earnings gap for blacks and Hispanics working in STEM occupations. Among college-educated workers who majored in and are in the STEM workforce, blacks earn 87% of whites and Hispanics earn 92% of whites. College-educated Asians in STEM occupations who have been trained in STEM earn about 110% of similarly educated whites in STEM. These gaps are narrower than the simple earnings gaps presented earlier without regard to the education or training of the STEM workers.

Roughly three-in-four college-educated STEM workers have a STEM degree

% of those employed in science, technology, engineering and math jobs with a STEM college degree by race/ethnicity

STEM jobs	74%
White	72
Asian	83
Black	69
Hispanic	72

Note: Based on employed adults ages 25 and older completing a bachelor's degree in a STEM field of study. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Black and Hispanic college-educated workers with a STEM degree earn less than whites; Asians earn more

Median annual earnings of Asian, black and Hispanic science, technology, engineering and math workers with a STEM college degree as a percent of whites'

Asian	110%
Black	87
Hispanic	92

Note: Based on adults ages 25 and older employed full-time year-round with positive earnings completing a bachelor's degree in a STEM major field of study. Whites and blacks and Asians include only non-Hispanics. Hispanics are of any race.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[27] This analysis looks broadly at all those earning a bachelor's degree in a STEM major field of study, regardless of whether the field is specifically linked with their current occupation.

Value of STEM training among college-educated workers

Among workers ages 25 and older with at least a bachelor's degree, one-in-three (33%) has an undergraduate degree in a STEM major field of study.[28] The largest STEM-educated group is those who majored in engineering at 4.7 million workers. Some 3.9 million college-educated workers have health professions degrees, while 3.1 million have degrees in life or biological sciences. Fewer majored in computer science or related fields (1.8 million) or physical or earth sciences (1.7 million).

Not all of these STEM-trained workers are employed in a STEM occupation, however. In fact, only about half of them are (52%). The rest are working in other fields with many still benefitting from the financial bump that comes with a STEM degree.[29]

52% of STEM-trained college graduates are employed in the STEM workforce

Among workers who majored in science, technology, engineering or math, % currently employed in each type of job
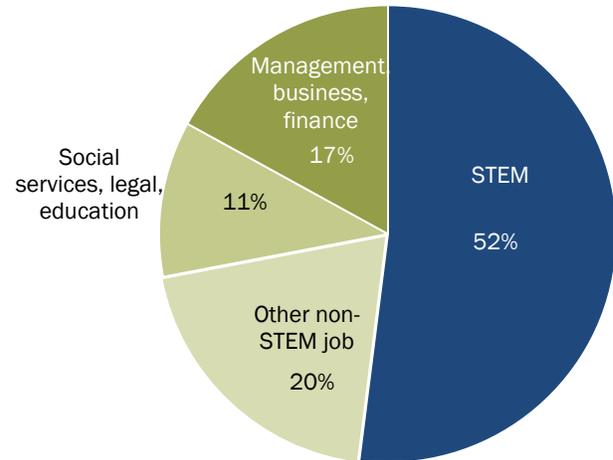
Note: Based on employed adults ages 25 and older completing a bachelor's degree in STEM major field of study.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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[28] Findings concerning field of degree presented in this chapter focus only on the college-educated workforce or workers who have completed at least a bachelor's degree. The Census Bureau only collects information on the major field of study for those who completed at least a bachelor's degree. The major field of study refers to the undergraduate degree. The field of study for master's, professional and doctorate degrees is not collected. For respondents who hold a bachelor's degree in more than one field, the Census Bureau data include both the first and second fields listed. We classify college majors as STEM if either the first or second field of study is computers, mathematics and statistics; engineering; biological, agricultural and environmental sciences; physical and earth sciences; or health-related. The National Science Foundation's Science and Engineering Indicators 2016, chapter 3, reports that about 75% of adults with at least one degree in a science and engineering field also have their highest degree in a science and engineering field. Also see the Scientists and Engineers Statistical Data System, which combines data from the Survey of Doctorate Recipients with the National Survey of College Graduates.
[29] Estimates of how many of the STEM-trained workers are "retained" in a STEM job vary across studies because of different definitions of what constitutes STEM training and a STEM occupation as well as whether such calculations are looking for a specific match between training fields and jobs or a more general link between training and employment in a STEM field. See *Science and Engineering Indicators 2016*, chapter 3, Figure 3-7. Also see Landivar, Liana Christin. 2013. "Disparities in STEM Employment by Sex, Race, and Hispanic Origin: American Community Survey reports." U.S. Census Bureau, Table 7.

Retention rates vary among the STEM college majors. Workers who majored in a health professions field (for example, nursing or pharmacy) are the most likely to work in STEM jobs (70% do). In contrast, workers with degrees in mathematics and statistics are the least likely (31%) to be employed in a STEM occupation.

Across occupational categories – STEM and non-STEM alike – STEM-trained workers earn more, on average, than those with a degree in a non-STEM field of study. Among college-educated workers employed full-time and year-round, the median earnings for those who have a STEM college degree are $81,011, compared with $60,828 for other college degrees.

STEM college majors tend to earn more than non-STEM college majors

Median annual earnings of full-time, year-round workers ages 25 and older with at least a bachelor's degree

Among those with a …

■ STEM college degree ■ Non-STEM college degree

All employed	$81,011
	$60,828
STEM jobs	$87,187
	$75,948
Non-STEM jobs	$70,885
	$60,000
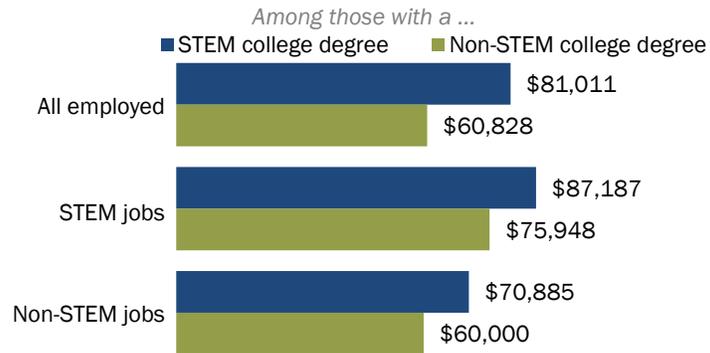
Note: Based on adults ages 25 and older employed full-time year-round with positive earnings who have completed a bachelor's degree. College degree refers to the major field of study of the bachelor's degree. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS). "Women and Men in STEM Often at Odds Over Workplace Equity"

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The earnings advantage for STEM training is apparent across all STEM job clusters, except for those in life science jobs.

The earnings advantage for those who majored in a STEM field extends to workers outside of STEM occupations. Among all non-STEM workers, those who have a STEM college degree earn, on average, about $71,000; workers with a non-STEM degree working outside of STEM earn roughly $11,000 less annually. The reasons behind this pay advantage are not wholly clear; in addition to the knowledge base and skills learned in a STEM degree, some have argued that the persistence and aptitudes needed to complete a STEM degree may be valued by employers outside the STEM workforce.

Among college graduates trained in STEM but employed in a non-STEM occupation, the most prevalent occupation is the management, business and finance cluster (17% of those with STEM training are employed in these fields). These jobs are particularly attractive to college graduates

with engineering majors. Roughly a quarter (24%) of those who majored in engineering are in a management, business and finance occupation.

One factor that may be attracting STEM college majors to work outside of the STEM workforce is the high earnings potential of jobs in management, business and finance occupations. STEM-trained workers in computer occupations or working as engineers and architects are among the nation's highest paid workers. The typical earnings are about $96,000. But the median earnings of a STEM-educated college graduate working in management, business and finance occupations are on par with that, about $97,000.[30]

On the flip side, roughly a quarter of college-educated workers in STEM jobs (26%) do not have a degree in a STEM field. Among college-educated engineers and architects, only 15% do not have a bachelor's degree in STEM. Conversely, 52% of college-educated math workers do not have a college degree in a STEM field.[31]

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[30] The Georgetown University Center on Education and the Workforce observes that the occupations that attract top STEM talent are also among the fastest-growing and highest paid in the economy.
[31] The U.S. Census Bureau found 22% of college graduates employed in STEM occupations did not major in science or engineering.

Gender differences in college-level STEM training and retention in STEM occupations

Overall, among adults who majored in STEM, women are more likely than men to work in a STEM occupation (56% vs. 49%).[32] This difference is driven mainly by college graduates with a health professions degree, most of whom are women. About seven-in-ten (69%) women who majored in a health professions field are working in a health-related occupation, as are 61% of men who majored in a health professions field. (Of those who majored in a life sciences field, 30% of men and 33% of women work in a health-related occupation.)

Among college-educated workers with training in other STEM fields, however, men are often more likely than women to be working in jobs directly related to their major field of study. For example, 38% of women and

Women with college degrees in computers and engineering are less likely than men to be working in those jobs

Among those who received a college degree in each of the following science, technology, engineering or math fields, % who are currently employed in …

Legend:
- Job in field of their degree
- Other STEM field
- Management, business, finance
- Social services, legal, education
- Other non-STEM field

Degree	Gender	Job in field of degree	Other STEM	Management, business, finance	Social services, legal, education	Other non-STEM
Health professions degree	Men	61%	5%	10	7	18
	Women	69	2	7	9	14
Computer degree	Men	53	7	16	6	18
	Women	38	7	21	11	23
Engineering degree	Men	30	17	24	8	21
	Women	24	19	23	14	20
Math degree	Men	5	30	23	22	20
	Women	5	20	25	32	19
Life sciences degree	Men	5	40	20	12	24
	Women	5	42	15	18	21
Physical sciences degree	Men	10	32	21	15	22
	Women	8	29	18	22	22

Note: Based on employed adults ages 25 and older completing a bachelor's degree in a STEM major field of study. Life sciences degree includes those with a degree in an agricultural science major. Figures may not add to 100% due to rounding.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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53% of men who majored in computers or computer science are employed in a computer occupation. Women with a college degree in engineering are less likely than men who majored in these fields to be working in an engineering job (24% vs. 30%). The differential retention rates of

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women in computer and engineering occupations is in keeping with other studies showing a "leaky pipeline" for women in STEM. See Appendix for details.

2. Most Americans believe STEM jobs pay better, but few see them as offering more flexibility for family time

Americans have mixed views of how careers in science, technology, engineering and math compare to jobs in other industries. About half or more of the general public – whether they are employed in STEM or non-STEM jobs – believe that STEM jobs pay better, attract more of the brightest young people and are more well-respected. But roughly half of Americans say these jobs are difficult to get into, while only 18% believe careers in STEM have more flexibility for balancing work and family than jobs in other industries.

That flexibility is an important factor in choosing a job for both men and women in STEM, as well as those working in other areas. For the most part, men and women in STEM look for similar job qualities; one notable exception is that 59% of women tend to value jobs that help others, compared with 31% of men.

Interviews with people working in STEM fields highlight the sometimes subtle ways that women feel they are treated differently at work.[33] The Pew Research Center survey finds overall, men and women in STEM see behaviors that help or hurt them to get ahead in the workplace somewhat differently. Men in STEM jobs see more advantage in working harder than others, being assertive, and being vocal about their accomplishments at work. Among women, those who work in majority-male settings are more likely than other women in STEM occupations to think these behaviors help them get ahead in their job. And, women in majority-male work settings are particularly likely to say they need to prove themselves at least some of the time at work in order to be respected by their coworkers.

Majorities of Americans see jobs in STEM as better compensated or better at attracting young talent compared with other industry sectors

About seven-in-ten Americans (71%) believe that jobs in STEM have higher salaries than those in other fields. More broadly, though, Americans have mixed views of how careers in STEM stand up against other sectors. Some 58% of U.S. adults say that jobs in STEM attract more of "the brightest and most qualified young people." And half of Americans (50%) say that careers in STEM "offer more opportunities for advancement," a similar share (49%) believe that STEM jobs are more difficult to get into.

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[33] Williams, Joan C., Katherine W. Phillips and Erika V. Hall, 2014. "Double jeopardy? Gender bias against women of color in science." University of California, Hastings College of the Law. Also see Leggon, Cheryl B., Troy Eller, and Lisa M. Frehill, 2011. "Women in Engineering: the Illusion of Inclusion." Journal of the Society of Women Engineers, 60th anniversary edition, *5: 83-92.*

While 45% of respondents say that STEM positions offer an opportunity to "make a more meaningful contribution to society," 28% say that STEM jobs are "more focused on helping others" than jobs in other industries. And, 18% say that STEM jobs offer more flexibility than non-STEM jobs to balance work and family needs. Some 52% of U.S. adults consider jobs in STEM to have roughly the same amount of flexibility as other jobs and 28% say STEM jobs have less flexibility to balance work and family needs than those in other industries.

Perceptions of STEM jobs are generally similar among U.S. adults working in STEM positions and those in other kinds of jobs. And, men and women working in STEM jobs tend to hold similar perceptions of how such positions compare with other industries. Among the differences, men are more inclined than women to see jobs in STEM as having comparatively more flexibility to balance work and family needs (28% vs. 17%). See Appendix for details.

Most Americans believe STEM employment offers better pay than other industries

% of U.S. adults who say that, compared with jobs in other industries, jobs in science, technology, engineering and math …

Among those who work in a …
■ STEM job   ■ Non-STEM job

	STEM job	Non-STEM job	U.S. adults
Offer higher pay	74%	73%	71%
Attract more of the brightest and most qualified young people	67	60	58
Are more well-respected	61	54	53
Offer more advancement opportunities	52	50	50
Are more difficult to get into	49	51	49
Make a more meaningful contribution to society	48	44	45
Are more focused on helping others	26	28	28
Have more flexibility for work/family balance	22	17	18
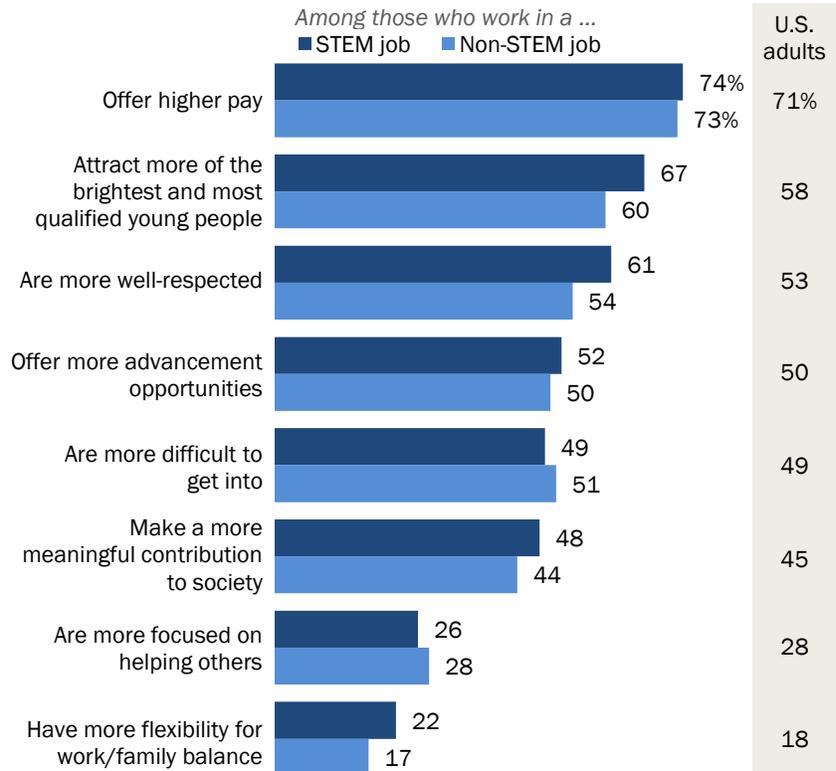
Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Most men and women in STEM jobs say flexibility to balance work and family is important to them in choosing a job

About seven-in-ten (68%) employed U.S. adults say that having the flexibility to balance their work and family obligations is an important factor in choosing a job. Indeed, some 38% ranked it as the most important, more than any other characteristic considered in the survey.

In all, 53% of employed adults say "having opportunities for promotion or advancement" is important to them, followed by "having a high-paying job" and "being in a workplace that is welcoming for people like me" (46% each).

Men (71%) and women (76%) in STEM careers largely agree that being able to balance work and family is important to them in choosing a job. However, their views are somewhat different on other priorities. For instance, 57% of male STEM workers say

Men and women in STEM tend to look for similar job qualities, but more women value jobs that help others

% of those in science, technology, engineering and math jobs who say each of the following is important to them personally when choosing a job

	Men in STEM jobs	Women in STEM jobs	All employed
Having flexibility to balance work/family	71%	76%	68%
Having opportunities for promotion/advancement	57	46	53
Having a high-paying job	59	48	46
Being in a workplace welcoming for people like them	48	53	46
Having a job that others respect and value	43	50	39
Making a meaningful contribution to society	51	60	38
Having a job focused on helping others	31	59	35
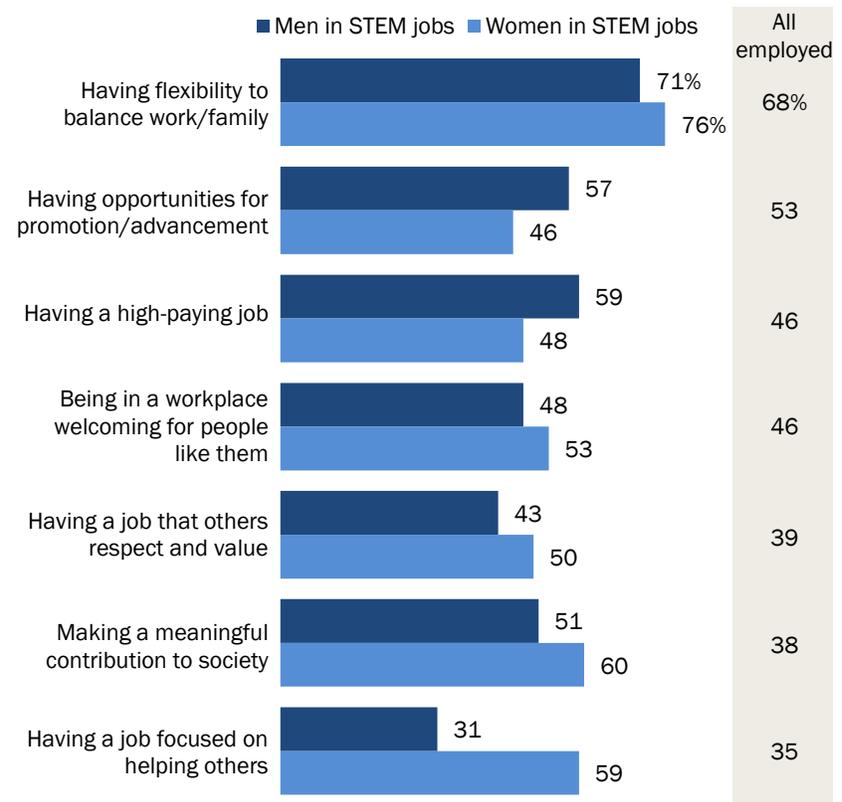
Note: Respondents who did not consider each important or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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that having opportunities for promotion is important compared with 46% of female STEM workers. And, while around six-in-ten men (59%) say that having a high-paying job is important, about half (48%) of women say the same.

The largest gap between men and women in STEM jobs emerges when they are asked about choosing a career that focuses on helping others: some 59% of female STEM workers say this is important to them, compared with 31 % of men.[34]

Women in STEM jobs share a priority on job flexibility to meet work and family needs with women employed in other sectors. See Appendix for details.

Women and men in STEM have somewhat different assessments of whether hard work and assertiveness at work help them get ahead

Most people working in STEM jobs say working harder than others (67%), having a workplace mentor (66%) and being assertive (61%) help them get ahead at work.

Men who work in STEM jobs are modestly more likely than women in such jobs to see working harder than others (71% vs. 63%), being assertive at work (66% vs. 57%) or being vocal about their accomplishments as something that helps them get ahead (43% vs. 37%).

Most STEM workers say participating in social activities outside of work or talking about their personal lives with coworkers makes little difference to their chances of getting ahead. But, men in such jobs are somewhat more inclined than women to think socializing with coworkers helps their

Women and men in STEM jobs see the behaviors that help them get ahead somewhat differently

% of those in science, technology, engineering and math jobs who say each of the following helps, hurts or makes little difference to their chances of getting ahead in their job

Legend: ■ Helps □ Makes little difference ■ Hurts

Men in STEM jobs / **Women in STEM jobs**

	Men: Helps	Men: Little diff	Men: Hurts	Women: Helps	Women: Little diff	Women: Hurts
Working harder than others	71%	27	2	63%	33	3
Having a workplace mentor	67	31	2	65	32	2
Being assertive	66	27	7	57	31	12
Being vocal about their work/accomplishments	43	41	15	37	51	11
Speaking out about workplace problems	38	39	23	33	40	26
Participating in informal activities with coworkers	33	63	4	25	71	4
Talking about their personal life at work	11	64	25	4	64	32
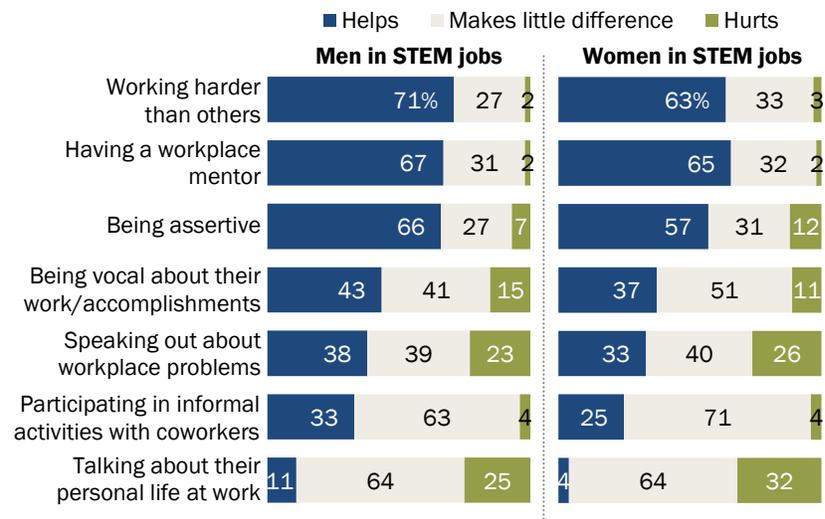
Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[34] About two-thirds (68%) of women in health-related jobs say that having a job that is focused on helping others is important to them. However, even excluding workers in health-related jobs, a higher share of women than men working in STEM say that this characteristic is important to them in choosing a job.

prospects (33% vs. 25%). And, about a third (32%) of women in STEM jobs say talking about their personal life at work hurts their efforts to get ahead, compared with one-in-four (25%) men in STEM jobs who say the same.

Among those in non-STEM jobs, women and men tend to be in agreement about which behaviors are most likely to improve their chances of advancing in their positions – including the belief that they need to work harder than others (64% vs. 65%) and be assertive (both 59%). For details, see Appendix.

There are also differences by race and ethnicity on some of these measures. Notably, 47% of blacks employed in STEM say that talking about their personal life at work hurts their chances for advancement; smaller shares of white (27%) and Asian (24%) STEM workers say the same.

Asians in STEM jobs are particularly likely to see being vocal about their work and accomplishments as an advantage (57%), compared with white (35%) and Hispanic (42%) STEM workers.

About half of blacks in STEM say talking about their personal lives hurts their chances for getting ahead

% of those in science, technology, engineering and math jobs who say each of the following helps, hurts or makes little difference to their chances of getting ahead in their job

	Being vocal about their work and accomplishments			Talking about their personal life at work		
	Helps	Makes little difference	Hurts	Helps	Makes little difference	Hurts
All employed	35%	52	13	8%	63	28
Among those in STEM jobs						
White	35	52	13	6	66	27
Black	45	39	16	6	47	47
Hispanic	42	41	16	5	62	33
Asian	57	29	14	14	61	24

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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A sizable share of all of these racial and ethnic groups of STEM workers agree that working harder than others and having a workplace mentor generally helps their chances of getting ahead.
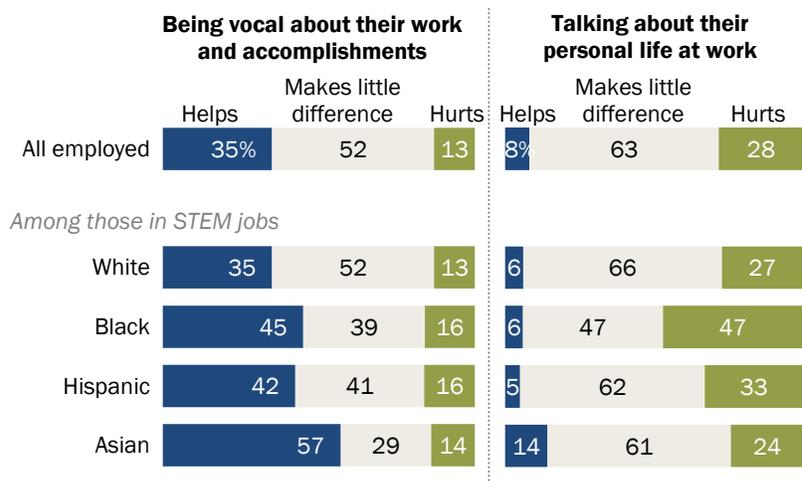
Men and women in STEM jobs are about equally likely to report feeling valued by their supervisor and coworkers

Some qualitative reports of women and racial/ethnic minorities working in STEM positions have suggested that implicit bias in the workplace can leave such workers feeling less appreciated at work.[35] The Pew Research Center survey finds, however, few differences by gender or race/ethnicity in how much workers report feeling valued by their supervisor or their coworkers.

Overall, most workers – both STEM and non-STEM – say their contributions are valued by their co-workers and by their supervisor at least some. Men and women in STEM jobs are about equally likely to say this.

When asked, "How often, if ever, do you feel the need to prove yourself at work in order to be respected by your coworkers?," 17% of employed U.S. adults say "all the time," another one-third (33%) say some of the time and four-in-ten (40%) say either never or not too often.

How much do workers feel their contributions are valued at work ...

% of employed adults who say their contributions at work are valued _____ by each of the following

■ A lot ■ Some ■ Not too much/not at all

	A lot	Some	Not too much/not at all
Their supervisor	38%	37%	16%
Their coworkers	33	41	16
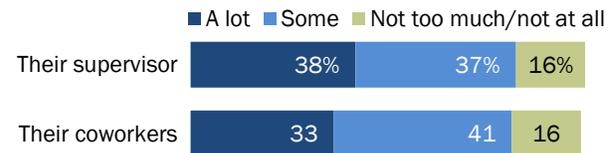
... or feel the need to prove themselves in order to be respected at work?

% of employed adults who say they feel the need to prove themselves at work _____ in order to be respected by their coworkers
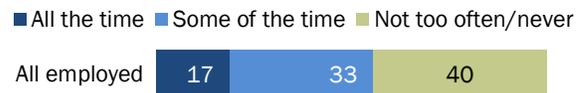
■ All the time ■ Some of the time ■ Not too often/never

	All the time	Some of the time	Not too often/never
All employed	17	33	40

Note: Respondents who did not give an answer are not shown. Self-employed respondents were not asked these questions; their share is not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Women and men in STEM jobs are about equally likely to feel the need to prove themselves "all the time" (15% and 16%, respectively) in order to be respected by their coworkers. But, as will be discussed later in this chapter, the sense of having to prove oneself varies among women working in STEM jobs depending on the gender mix where they work.

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[35] See Williams, Joan C., Katherine W. Phillips and Erika V. Hall, 2014. "Double jeopardy? Gender bias against women of color in science." University of California, Hastings College of the Law.

STEM women in majority-male workplaces see more value in being vocal about their accomplishments to get ahead in their job

Beliefs about the kinds of behaviors that help employees succeed at work tend to vary among female STEM workers, depending on the gender context where they work. There are some modest differences in beliefs about these issues among women in STEM jobs depending on their level of education as well.

The roughly one-in-five women (19%) in STEM jobs who work in majority-male workplaces stand out in how they assess the behaviors needed to get ahead. These women are particularly likely to say that being assertive (70%) helps their chances of getting ahead. Smaller shares of women working with mostly women or in evenly mixed gender settings think this helps their chances of advancement.

Similarly, 54% of women in STEM jobs with majority-male workplaces say that being vocal about their work and accomplishments helps their chances of advancing, compared with 31% of women working in majority-female settings.

Women in STEM jobs in majority-male workplaces see the behaviors needed to get ahead differently

% of those in science, technology, engineering and math jobs in each type of workplace who say each of the following helps their chances of getting ahead in their job
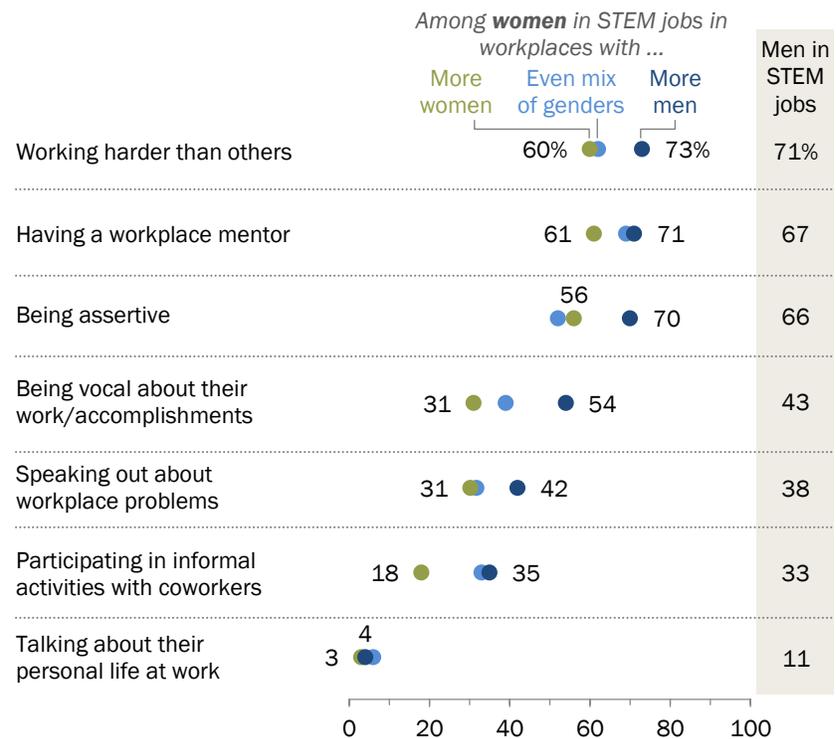
Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Women in majority-male workplaces are especially likely to feel the need to prove themselves in order to earn coworkers' respect

Although, overall, women in STEM jobs are just as likely as men in such jobs to say they feel highly valued by supervisors and coworkers, women working in majority-male environments also say they have to work harder to earn that appreciation compared with women in either majority-female or evenly-mixed gender settings.

When asked, "How often, if ever, do you feel the need to prove yourself at work in order to be respected by your coworkers?," 79% of female STEM workers in majority-male workplaces say "all the time" or "some of the time," compared with 51% of women working in STEM jobs in mostly female workplaces and 54% among those in evenly mixed gender workplaces. There are only modest differences among men in STEM jobs by the gender makeup where they work; overall 56% of male STEM workers say they feel the need to prove themselves at least some of the time to earn the respect of their coworkers. For details, see Appendix.

Women in STEM in majority-male workplaces feel the need to prove themselves more often to earn respect

% of those in science, technology, engineering and math jobs in each type of workplace who say the following

	Among women in STEM jobs in workplaces with ...			Men in STEM jobs
	More men	Even mix of genders	More women	
Their contributions at work are valued a lot by ...				
Their supervisor	50%	37%	40%	45%
Their coworkers	37	43	39	40
They feel the need to prove themselves all/some of the time to be respected by coworkers	79	54	51	56

Note: Respondents who gave other responses or who did not give an answer are not shown. Self-employed respondents were not asked these questions; their share is not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Women in STEM jobs see the behaviors that help them advance somewhat differently depending on their level of education. Those with advanced degrees are more likely than women in STEM with some college or less education to say that having a workplace mentor to advise them helps. And some 44% of women in STEM with a postgraduate degree say that being vocal about their accomplishments at work helps them get ahead; in contrast 28% of women in STEM jobs with some college or less education say the same.

While this survey finds that men and women in computer jobs have had different experiences with gender discrimination (as shown in Chapter 3), there are no statistically significant differences between men and women working in computer occupations in their perceptions of behaviors that help or hurt their chances of success or in their sense that they need to prove themselves in order to be respected by their coworkers.

Women in STEM with advanced degrees are especially likely to say that having a mentor, being vocal about one's accomplishments fosters success at work

% of those in STEM jobs in each group who say each of the following helps their chances of getting ahead in their job
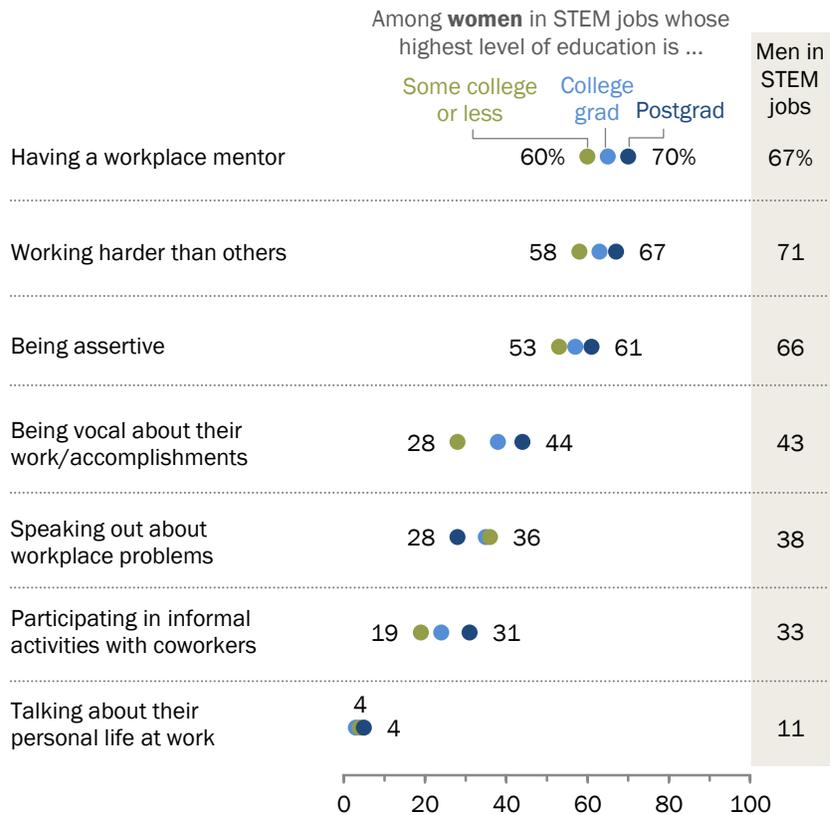
Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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3. Women in STEM see more gender disparities at work, especially those in computer jobs, majority-male workplaces

There are wide gaps between men and women working in science, technology, engineering and math jobs when it comes to perceptions of fair treatment for women at work and experiences of workplace discrimination.

Women in STEM jobs are much more likely than men in such jobs to say they have experienced discrimination at work because of their gender and to consider discrimination a major reason that more women are not working in STEM. While the majority of STEM workers say their gender has made no particular difference in their success, women in STEM jobs are more inclined than men to say their gender has made it harder for them to succeed at work. Those that feel this way raise a number of concerns including pay gaps and unequal treatment from their coworkers stemming from gender stereotypes.

Experiences with workplace discrimination and concerns about gender inequities are more pronounced among women working in computer positions; among those working in workplaces where men outnumber women; and among women with advanced degrees, more of whom presumably work in higher level, professional positions compared with other women in STEM jobs.

Although a higher share of women in STEM jobs say they have experienced at least one form of discrimination at work because of their gender, similar shares of women in STEM jobs and non-STEM jobs say they have personally experienced sexual harassment. Women in STEM jobs also tend to share similar perspectives with working women in non-STEM jobs when it comes to the value of gender diversity and the amount of attention paid to gender diversity at work.

Most Americans value gender diversity at work; more than four-in-ten say diversity contributes to organizational success

Americans are largely supportive of gender diversity in the workplace, with about half of U.S. adults (52%) characterizing it is as "extremely" or "very" important and 26% saying it is "somewhat" important.

When asked to cite reasons for increasing gender diversity in the workplace, 46% of Americans say an important consideration is that gender diversity provides other perspectives that contribute to the overall success of companies and organizations. A similar share, 43%, cite giving people an equal opportunity to succeed as an important reason, while one-third (33%) say gender diversity makes good business sense because it increases the supply of potential workers.

Most Americans say gender diversity at work is important

% of U.S. adults who say it is _____ important to have gender diversity in workplaces today

■ Extremely/very ■ Somewhat ■ Not too/not at all

NET IMPORTANT: 78%

| 52% | 26% | 21% |

% of U.S. adults who say each of the following is an important reason to increase gender diversity in the workplace

Provides other perspectives that contribute to organizational success — 46%

Gives people an equal opportunity to succeed — 43

Makes good business sense because it increases supply of potential workers — 33
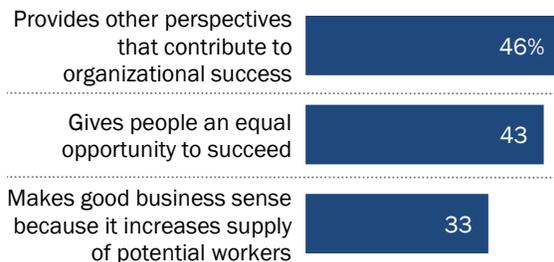
Note: Respondents who did not give an answer are not shown. In bottom chart, respondents who gave other responses and those who did not give an answer are now shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Americans' level of support for gender diversity depends, in part, on their own gender. Whereas more than half of women in STEM jobs and non-STEM jobs alike believe that such diversity is highly important (61% and 56%, respectively), fewer men in STEM and non-STEM jobs say the same (49% and 43%, respectively).

Support for gender diversity also depends, in part, on levels of education. Those who hold advanced degrees, whether they work in STEM or non-STEM jobs, express more support for the importance of gender diversity, on average.

Around seven-in-ten (68%) employed adults believe their workplaces are giving sufficient attention to increasing gender diversity. Similar shares of women and men, in both STEM and non-STEM jobs, share that assessment.

But two-in-ten women in STEM jobs (20%) and 15% of men in such jobs say there is too little attention to diversity where they work.

Men in STEM jobs are about twice as likely to think there is too much attention given to gender diversity (13% vs. 5% of women in STEM jobs) in their workplace.

On this issue, workers in non-STEM positions look similar to those in STEM, with men more likely than women to say there is too much attention to gender diversity but majorities of both genders say attention is sufficient.

Women are more likely than men to see workplace gender diversity as important

% of U.S. adults who say it is _____ important to have gender diversity in workplaces today

■ Extremely/very　■ Somewhat　■ Not too/not at all

	Extremely/very	Somewhat	Not too/not at all
U.S. adults	52%	26%	21%

Among those in STEM jobs

	Extremely/very	Somewhat	Not too/not at all
Men	49	28	22
Women	61	28	11

Among those in non-STEM jobs

	Extremely/very	Somewhat	Not too/not at all
Men	43	32	23
Women	56	27	16
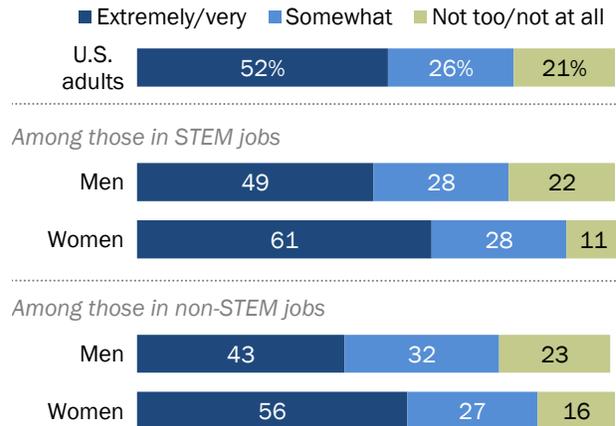
Note: Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Most workers are content with amount of attention to gender diversity

% of employed adults who say their workplace pays _____ attention to increasing gender diversity

	Too little	About the right amount	Too much
All employed	21%	68%	9%
Among those in STEM jobs			
Men	15	69	13
Women	20	72	5
Among those in non-STEM jobs			
Men	19	68	11
Women	23	68	6

Note: Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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About half of women in STEM consider discrimination a major factor behind women's limited representation in STEM occupations

When asked to explain why there are not more women working in STEM jobs, a major reason, cited by around four-in-ten (44%) people in STEM jobs, is lack of encouragement for girls in these subjects from an early age. On this, men and women in STEM jobs tend to agree (43% of men and 45% of women in STEM jobs say this).

However, women in STEM jobs are far more likely than their male counterparts to cite discrimination in hiring and promotions as a major reason why there are not more women working in STEM (48% vs. 29%).

In addition, somewhat higher shares of female than male STEM workers cite the difficulty of balancing work and family in STEM jobs

Women more likely to see discrimination in recruitment, hiring and promotions as a major reason behind lack of gender diversity in STEM

*% those in science, technology, engineering and math jobs who say each of the following is a **major reason** why there are not more women working in STEM jobs*

	Men in STEM jobs	Women in STEM jobs	Women-men diff.
Women face discrimination in recruitment, hiring and promotions	29%	48%	+19
Girls are not encouraged to pursue STEM subjects from an early age	43	45	+2
More difficult to balance work/family in STEM jobs	28	40	+12
Women are less likely than men to believe they can succeed in STEM	23	32	+9
There are so few female role models in STEM	22	30	+8
More women are being trained, but it takes time and the process is slow	22	28	+6
Women are just less interested than men in STEM	15	24	-9

0   20   40   60   80   100

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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(40% vs. 28%), lack of belief among women that they can succeed (32% vs. 23%), the shortage of female role models in STEM (30% vs. 22%) and the slowness of the training "pipeline" (28% vs. 22%) as major reasons why there are not more women working in STEM fields.

The one reason listed by larger shares of men than women is interest: about a quarter of men in STEM jobs (24%) say that a major reason there are not more women working in these positions is

that women are less interested than men in STEM. Just 15% of women with STEM jobs say the same.

Half of women working in STEM say they have experienced gender discrimination at work; about a fifth have personally encountered sexual harassment

Half (50%) of women in STEM jobs say that they have experienced at least one of eight forms of gender-related discrimination in the workplace, more than women in non-STEM jobs (41%) and far more than men in STEM positions (19%).

The most common forms of gender discrimination reported by women in STEM jobs are earning less than a man doing the same job (29%), having someone treat them as if they are not competent because of their gender (29%), experiencing repeated, small slights in their workplace (20%), and receiving less support from senior leaders than a man who was doing the same job (18%).

Women working in STEM are more likely to have experienced gender-related discrimination at work

% of those in science, technology, engineering and math jobs who say each of the following has ever happened to them at work because of their gender

	Men in STEM jobs	Women in STEM jobs
Experienced any of these types of gender-related discrimination	19%	50%
Earned less than a woman/man doing same job	6	29
Were treated as if they were not competent	4	29
Experienced repeated, small slights at work	4	20
Received less support from senior leaders	9	18
Felt isolated in the workplace	5	11
Been passed over for most important assignments	4	9
Been turned down for a job	4	7
Been denied a promotion	4	6
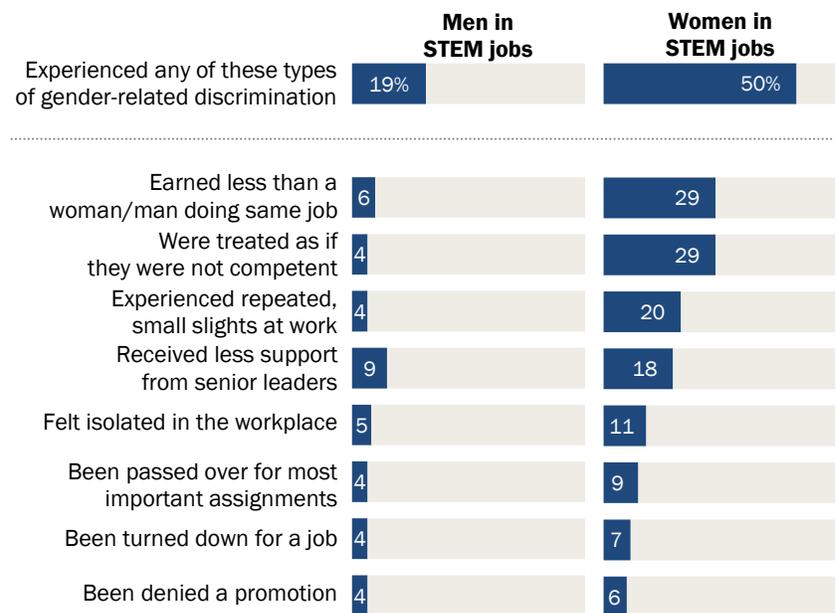
Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Previous Pew Research Center surveys have found more women than men report experiencing gender discrimination. The share reporting these experiences tends to vary depending on whether or not the questions are focused on the workplace, per se, and whether they rely on a summary judgment of experienced discrimination or ask separately about specific types of discriminatory behaviors.

When it comes to the issue of sexual harassment in the workplace, workers are more likely to judge harassment as a problem in their industry than in their own workplace.

Among all those working in a STEM job, 53% consider sexual harassment at least a small problem in their industry sector, compared with 32% who say the same about their own workplace.

Women in STEM jobs are more likely than their male counterparts to say sexual harassment is at least a small

More women than men in STEM jobs see sexual harassment as a problem in their workplace

% of those in science, technology, engineering and math jobs who say sexual harassment is a big problem or a small problem …

In their workplace

	Big problem	Small problem	NET
Men in STEM jobs	6%	22%	**28%**
Women in STEM jobs	8	28	**36**

In their industry

	Big problem	Small problem	NET
Men in STEM jobs	10	40	**50**
Women in STEM jobs	13	43	**55**
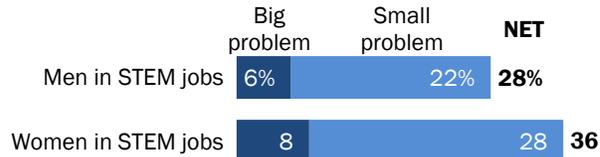
Note: Respondents who said not a problem or who did not give an answer are not shown. NET figures may not add to subtotals due to rounding.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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problem in their workplace (36% vs. 28%) though similar shares say it is at least a small problem in their industry (55% vs. 50%). But, there are no gender differences among non-STEM workers about the degree to which sexual harassment is a problem. Some 36% each of men and women in non-STEM jobs consider sexual harassment to be at least a small problem where they work.

Overall, 53% of STEM workers say sexual harassment is at least a small problem in their industry sector, compared with 46% of non-STEM workers. About a third of STEM workers (32%) and 36% of non-STEM workers say sexual harassment is at least a small problem where they work.

Women in STEM jobs are also about three times as likely as men in these jobs (22% vs. 7%) to say that they have experienced sexual harassment in the workplace. Similarly, working women in non-STEM occupations are more likely than their male counterparts to say they have experienced sexual harassment at work (22% and 7%, respectively).

Workers who have experienced sexual harassment at work – whether men or women – are more likely to say that sexual harassment is a big problem in their workplace (22% do vs. 8% of those who have not been sexually harassed at work) and in the industry where they work (28% vs. 9%).

These findings were gathered before the string of prominent sexual harassment allegations in Hollywood and beyond that sparked a public discussion of these issues, including the social-media-driven #MeToo movement.

About a fifth of working women have experienced sexual harassment at work
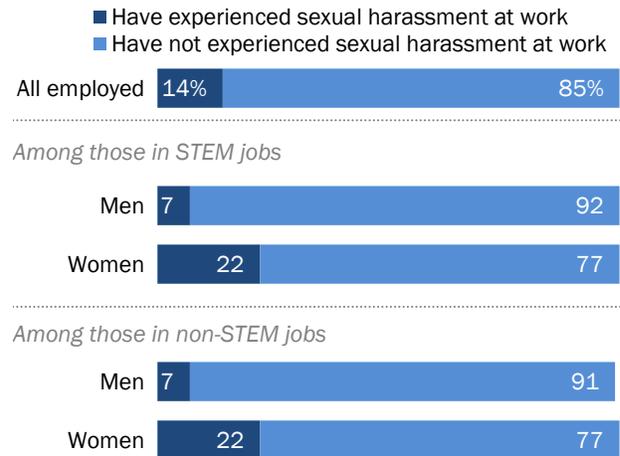
% of employed adults who say they ...

■ Have experienced sexual harassment at work
■ Have not experienced sexual harassment at work

	Have experienced	Have not experienced
All employed	14%	85%

Among those in STEM jobs

Men	7	92
Women	22	77

Among those in non-STEM jobs

Men	7	91
Women	22	77

Note: Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Perception of fair treatment for women in promotion opportunities differs by gender, and the gaps tend to be wider among those in STEM than non-STEM positions

Overall, most workers in the U.S. believe that women are "usually treated fairly" where they work when it comes to recruitment and hiring (72%) as well as in opportunities for promotions and advancement (64%). Smaller shares say women are sometimes treated fairly and sometimes treated unfairly when it comes to hiring (21%) or opportunities for advancement (27%), while fewer than one-in-ten say that women are usually treated unfairly where they work during either process.

Women in STEM positions are somewhat less likely than their male counterparts to consider women's treatment when it comes to opportunities for advancement as usually fair. Some 63% of women in STEM jobs say women are usually treated fairly where they work when it comes to promotion and advancement opportunities, compared with 78% of men in STEM jobs. There is a similar, though less pronounced, gender gap in perceptions of fair treatment in opportunities for promotion and advancement among non-STEM workers.

Gender differences over perceived treatment of women in promotion opportunities at work

% of employed adults who say women are usually treated fairly in their workplace in each of the following situations
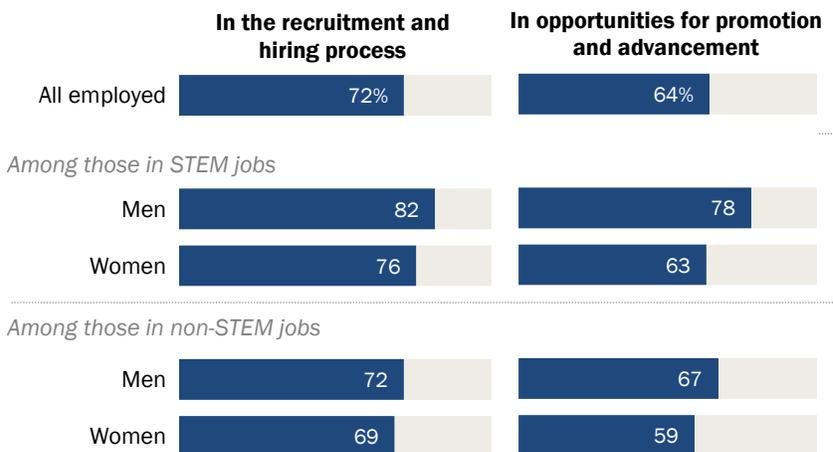
	In the recruitment and hiring process	In opportunities for promotion and advancement
All employed	72%	64%
Among those in STEM jobs		
Men	82	78
Women	76	63
Among those in non-STEM jobs		
Men	72	67
Women	69	59

Note: Respondents who gave other responses or who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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One-in-five female STEM workers see their gender as a barrier to workplace success; this group raises a variety of concerns from inequalities in pay to evaluations of performance

The majority of American workers say their gender has either made little difference (68%) or has made it easier to succeed in their job (17%), while 13% of workers say their gender has made it harder to succeed at work.

More women (20%) than men (7%) in STEM positions believe their gender has made it hard for them to succeed at work. Majorities of both groups say gender has made no particular difference in their workplace success. On the flip side, a quarter (25%) of men and 8% of women in these jobs believe their gender has made it easier to succeed.

In this regard, women in STEM share common ground with those in other occupations. Some 19% of women in non-STEM jobs say their gender has made it harder to succeed in their job, compared with 7% of men in non-STEM occupations.

Most workers believe their gender has made little difference in success on the job

% of employed adults who say their gender has made it harder to succeed at work, made it easier to succeed, or not made much difference
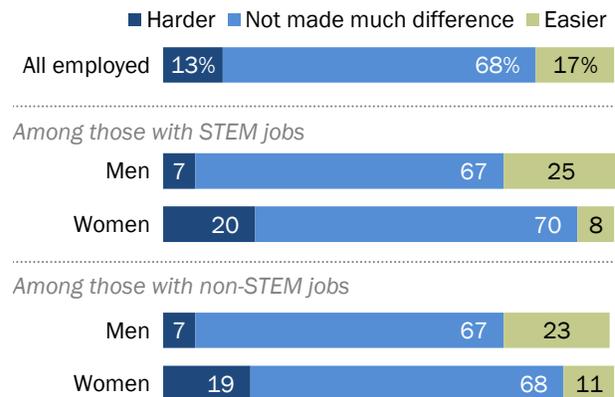
Legend: ■ Harder ■ Not made much difference ■ Easier

	Harder	Not made much difference	Easier
All employed	13%	68%	17%
Among those with STEM jobs			
Men	7	67	25
Women	20	70	8
Among those with non-STEM jobs			
Men	7	67	23
Women	19	68	11

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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STEM workers who said that their gender has made it harder to succeed in their job were asked to explain why they said this. The most commonly cited hardship due to gender involved barriers to hiring and promotions and lower pay, including being turned down for leadership positions and being passed over for the best opportunities in the workplace (22% of this group).

Some examples of these concerns in their own words include:

> *"I make 75% of the salary of my male counterparts"* - Multiracial woman, professor in allied health profession, 58

> *"There is a perception that men are better with technology and have the edge when it comes to promotions."* - White woman, systems analyst, 55

Some 19% of people who said their gender made it harder to succeed on the job gave examples of unfair treatment from coworkers. Examples of these concerns include:

> *"People automatically assume I am the secretary, or in a less technical role because I am female. This makes it difficult for me to build a technical network to get my work done. People will call on my male co-workers, but not call on me."* - White woman, technical consultant, 36

> *"I am more likely to be dismissed when I contribute. It took a lot longer for my efforts to be recognized than my male counterparts. More credence is given to male coworkers' ideas who have not proven themselves yet."* - Black woman, software engineer, 36

Another 14% of those working in STEM who say their gender has made it harder to succeed at work describe needing to work harder than others to achieve the same success. Some examples:

> *"A woman has to be significantly better at her job to be judged just as good. The reality has not changed in 36 years even though there are more women in engineering now."* - White woman, engineer, 58

Concerns about how gender influences success in STEM jobs include pay gaps, standards for evaluation

Among the 14% of those in STEM jobs who say their gender has made it harder for them to succeed in their job, % who say each of the following are reasons why

MOST COMMON TYPES OF RESPONSES	%
Hiring, promotion and salary barriers	22
Treatment by coworkers	19
Need to work harder than others; held to different standards	14
Affected by reverse discrimination	13
Unwelcoming workplace environment	13
General bias against women	12
Problems with balancing work and family	11
All other responses	8
Don't know/No answer	7

Note: Based on STEM workers who say their gender has made it harder to succeed in their job (n=298). Open-ended responses are coded into categories. Figures add to more than 100% because multiple responses were allowed.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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"I have to work harder to advance [to] the same place as a man. I am also held to higher standards and feel like it is riskier when I make a mistake." - White woman, GIS consultant, 28

Another reason for difficulty with job success due to gender – cited by 13% of those who responded – referenced the general workplace environment, especially when women are underrepresented. For example:

"The upper [management] can be a 'boys club' and it is hard to get into it. Additionally, there are occasions when male employees are given more lenience in their work than females, they are considered 'big thinkers' and not doers, females are the 'doers.'" - White woman, programmer analyst, 46

"My workplace is run as a 'boys club.' It is harder for me to get my opinion heard over the males. The men can do no wrong." - White woman, science teacher, 25

Among STEM workers who say that their gender has made it harder for them to succeed in their job, 13% say that they have been affected by reverse discrimination. Survey respondents in this group were exclusively men. Most in this group say that in they have been discriminated against in their workplaces in favor of hiring and promoting women:

"Today the white male is the enemy. I've seen too many qualified white males passed over for promotions or advancement in favor of a woman and/or minority. Qualifications don't matter these days, rather your gender and race matter." - White man, engineer, 47

"In the tech industry, with so many males in engineering roles, males are treated unfairly when applying to other roles. Women are treated unfairly because they are promoted and selected … with less experience and less qualifications so that management (and the company) can be seen as 'diverse' at the expense of someone who has objectively more experience and qualifications who happens to be male for middle management and higher." - Asian man, software requirements engineering and management, 38

"Women have less competition for advancement and are given preference over equally qualified men in an attempt to get a politically correct gender diversity." - Multiracial man, computer worker, 57

Wide gender gaps among computer workers and those working in majority-male workplaces over fair treatment at work

On average, women working in STEM jobs are more likely to report experiences with and concerns about gender inequities in the workplace compared with men in these jobs. Among women in STEM, those working in computer positions, those in workplaces where men outnumber women, and those with advanced degrees are particularly likely to have concerns about gender equity and to have experienced gender discrimination.

Roughly three-quarters (74%) of women in computer occupations say they have experienced gender discrimination at work, compared with 16% of men working in computer jobs. (Computer jobs include positions such as software development or data science, and include some who work in the technology industry and some who work in other sectors.)

Women in computer jobs are more likely than women in STEM, overall, to say they have experienced discrimination (74% vs. 50%) and these women are particularly likely to report pay inequities (46% vs. 29% of all women in STEM) and 40% say have been treated as if they were not competent at work because of their gender (29% of all women in STEM jobs say this).

Women in computer jobs are much more likely than men to report experiences with discrimination at work

% of those in computer jobs who say the following

	Men in computer jobs	Women in computer jobs	Women-men diff.
They have ever experienced gender-related discrimination at work	16%	74%	+58
They have ever experienced sexual harassment at work	7	30	+23
Their gender has made it harder to succeed in their job	6	31	+25
Their workplace pays too little attention to increasing gender diversity	13	31	+18
Sexual harassment is a problem in their workplace	30	42	+12
Women are usually treated fairly in their workplace in … The recruitment and hiring process	67	83	-16
Opportunities for promotion and advancement	43	77	-34

Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Female computer workers are also more likely than male computer workers to say that their gender has made it harder to succeed in their job (31% vs. 6%), that they have personally experienced sexual harassment at work (30% vs. 7%), and that their workplace pays too little attention to increasing gender diversity (31% vs. 13%).

When it comes to judgments of workplace fairness for women, women working in computer occupations are less likely than men in computer jobs to say women are treated fairly in opportunities for promotion and advancement or in the recruitment and hiring process. While the majority of male computer workers (77%) say that women in their workplace are usually treated fairly in opportunities for promotion and advancement, fewer female computer workers (43%) say the same. Similarly, 83% of male computer workers say women in their workplace are usually treated fairly in recruitment and hiring, compared with 67% of female computer workers.

The same Pew Research Center survey asked about people's perceptions of gender discrimination in the technology industry. There, too, women who work in computer jobs are more likely than men in these jobs to consider gender discrimination a major problem in the tech industry (43% to 31%); about twice as many men (32%) as women (15%) who work in these jobs say gender discrimination is not a problem in the industry.

About half of women in STEM workplaces with a majority of men think their gender has made it harder to succeed in their job

The 19% of women in STEM jobs working in majority-male workplaces stand out in their views and experiences at work. These women are significantly more likely than women in majority-female workplaces or those in workplaces with an even mix of men and women to say they have experienced at least one of eight forms of gender-related discrimination at work (78% compared with 43% of those in majority-female workplaces) and to think their gender has made it harder to succeed in their job (48% vs. 12% of women in STEM jobs who work in majority-female workplaces).

A far greater share of STEM women in majority-male workplaces think there is too little attention to gender diversity at work (43% compared with 16% of women in majority-female

Women working in majority-male workplaces perceive more gender inequities

% of those in science, technology, engineering and math jobs in each type of workplace who say the following

*Among **women** with STEM jobs in workplaces with …*

	More women	Even mix of genders	More men	Men in STEM jobs
They have ever experienced gender-related discrimination at work	43		78	19%
They have ever experienced sexual harassment at work	20	27		7
Their gender has made it harder to succeed in their job	12		48	7
Their workplace pays too little attention to increasing gender diversity	16		43	15
Sexual harassment is a problem in their workplace	32		48	28
Women are usually treated fairly in their workplace in …				
The recruitment and hiring process	55		85	82
Opportunities for promotion and advancement	38		70	78

Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown. Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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workplaces). And, these women are more likely than those in majority-female organizations to consider sexual harassment a problem where they work (48% vs. 32%).

Further, women working in STEM jobs in mostly male workplaces are significantly less likely than women in majority-female workplaces or those with an even mix of men and women to say that woman are usually treated fairly in recruitment and hiring (55% say this, compared with 85% of
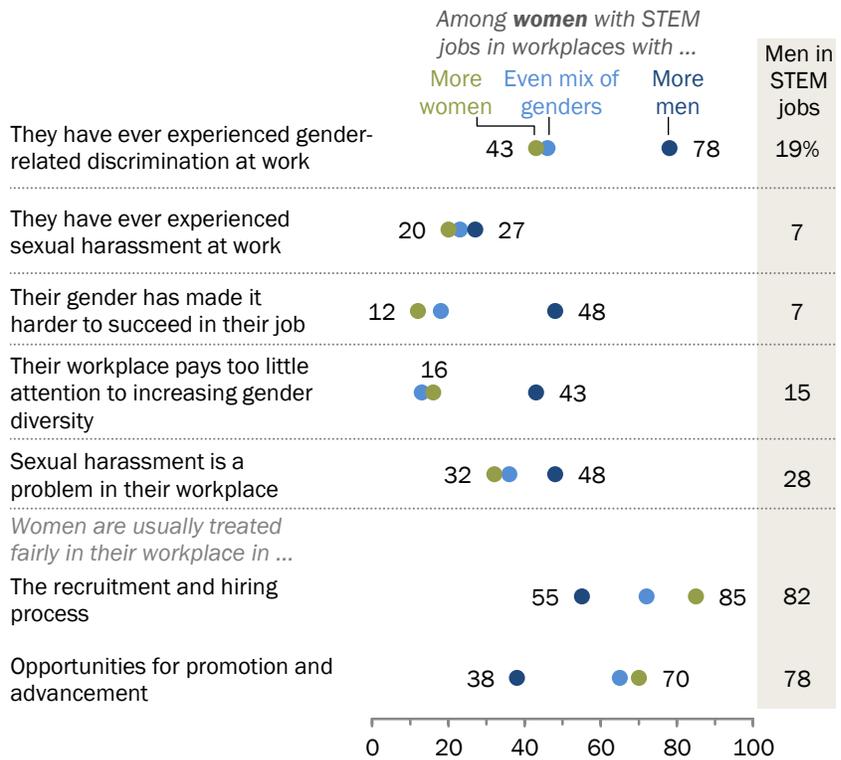
women in workplaces with mostly women) or opportunities for promotion and advancement (38% vs. 70%).

By contrast, among men in STEM jobs, gender context is largely unrelated to views on gender equity in the workplace. One exception is that men working in STEM jobs with mostly women are more likely to say they have experienced any of eight types of gender-related discrimination at work (32% say this) than men in mostly male workplaces (15%) or workplaces with an even gender distribution (16%).

Women with advanced degrees in the STEM workforce are more likely to see inequities at work

There are also differences among women in STEM jobs by their level of education. Women with advanced degrees working in STEM jobs are more likely than other women in STEM jobs to report that they have experienced discrimination in their workplace because of their gender and to say that their gender has made it harder to succeed at work. And, women in STEM jobs who hold a postgraduate degree are less inclined to think women are usually treated fairly when it comes to opportunities for advancement where they work.

Similarly, highly educated women working in non-

Women in STEM with a postgraduate degree are less likely to think women are treated fairly in promotions

% of those in science, technology, engineering and math jobs who say the following

Note: Experience of gender-related discrimination based on combined responses to eight items. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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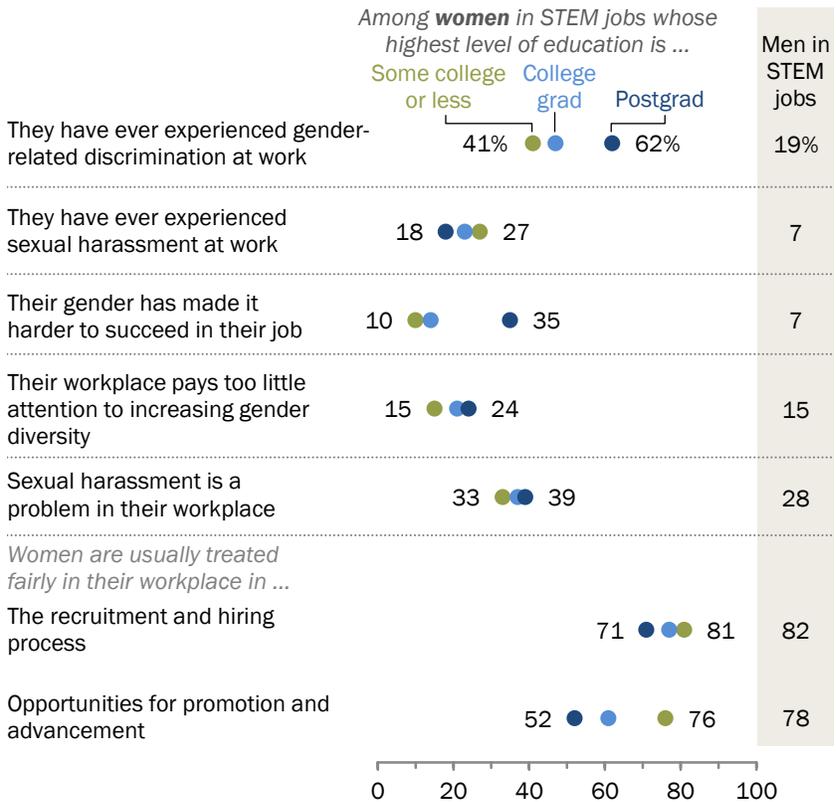
STEM jobs are more likely than women in such jobs with less education to report that they have experienced gender-related discrimination in the workplace either at a current or previous job.

By contrast, there are small or no differences among men in STEM jobs by education level across these measures. See Appendix for details.

4. Blacks in STEM jobs are especially concerned about diversity and discrimination in the workplace

Blacks and Hispanics are underrepresented in science, technology, engineering and math jobs, relative to their presence in the overall U.S. workforce, particularly among workers with a bachelor's degree or higher.

There is widespread support among Americans – including those in STEM and non-STEM jobs – for the ideals of racial and ethnic diversity in the workplace. Among STEM workers, blacks stand out for their concerns that there is too little attention paid to increasing racial and ethnic diversity at work, their high rates of experience with workplace discrimination and their beliefs that blacks are not usually met with fair treatment in hiring decisions or in opportunities for promotion and advancement where they work.

In this regard, blacks working in STEM jobs share common ground with Asians and, to a lesser degree, Hispanics who are all much less likely than whites in such jobs to believe that members of their own racial or ethnic group are usually treated fairly, particularly when it comes to opportunities for promotion and advancement.

Most blacks in STEM positions consider major underlying reasons for the underrepresentation of blacks and Hispanics in science, technology, engineering and math occupations to be limited access to quality education, discrimination in recruitment and promotions and a lack of encouragement to pursue these jobs from an early age.

A majority of Americans view racial and ethnic diversity in the workplace as important

The American public not only places some level of importance on gender diversity in the workplace, but these views extend to racial and ethnic diversity, as well. Eight-in-ten Americans say it is at least somewhat important to have racial and ethnic diversity in today's workplaces, including around half who categorize this as "extremely" (26%) or "very" important (27%).

By contrast, relatively few Americans view racial and ethnic diversity in today's workplaces as "not too" (9%) or "not at all" (9%) important.

When asked which, if any, are important reasons for increasing racial and ethnic diversity in the workplace, 45% of U.S. adults say it provides other perspectives that contribute to the overall success of companies and organizations, while the same share say it gives people an equal opportunity to succeed. A smaller share (34%) say an important reason for creating more racially and ethnically diverse work environments is that it makes good business sense because it increases the supply of potential workers.

Eight-in-ten Americans view racial and ethnic diversity in the workplace as at least somewhat important

% of U.S. adults who say it is ___ important to have racial and ethnic diversity in workplaces today

■ Extremely/very ■ Somewhat ■ Not too/not at all

NET IMPORTANT: 80%

| 53% | 27% | 18% |
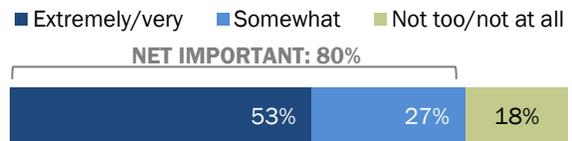
And many cite diverse perspectives and equal opportunity as important reasons to increase workplace diversity

% of U.S. adults who say the following are important reasons for increasing racial and ethnic diversity in the workplace

Provides other perspectives that contribute to organizational success	45%
Gives people an equal opportunity to succeed	45
Makes good business sense because it increases supply of potential workers	34

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Broad public support for racial and ethnic diversity in the workplace is in keeping with prior surveys on values related to diversity, more generally. For example, a 2017 Pew Research Center report found that a majority of Americans believe an increasing number of people from different races, ethnic groups and nationalities in the U.S. make the country a better place to live.

Blacks employed in STEM place a high level of importance on workplace diversity

Majorities of white, black, Hispanic and Asian STEM employees view racial and ethnic diversity in the workplace as at least somewhat important, but there are wide racial and ethnic differences in the degree to which they consider it important.

Blacks employed in STEM are far more likely than their white counterparts to say racial and ethnic diversity in the workplace is extremely or very important (84% vs. 49%, a difference of 35 percentage points). Sentiments on this issue among Hispanic and Asian STEM employees tend to fall in between these groups.

On this measure, STEM workers look similar to those in other kinds of jobs. Blacks and Hispanics in non-STEM jobs, similarly, are more likely than are whites in such jobs to believe that racial and ethnic diversity at work is at least very important.

Among STEM workers, blacks especially likely to view workplace diversity as important

% of U.S. adults who say it is ___ important to have racial and ethnic diversity in workplaces today

■Extremely/very ■Somewhat ■Not too/not at all

	Extremely/very	Somewhat	Not too/not at all
U.S. adults	53%	27%	18%

Among those in STEM jobs

	Extremely/very	Somewhat	Not too/not at all
White	49	32	18
Black	84	13	2
Hispanic	59	22	18
Asian	64	27	8

Among those in non-STEM jobs

	Extremely/very	Somewhat	Not too/not at all
White	44	34	21
Black	78	16	6
Hispanic	62	22	13

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs in the sample to be broken out into a separate analysis. Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Blacks in STEM are about four times as likely as whites in STEM to say their workplace doesn't pay enough attention to increasing racial and ethnic diversity

When asked if they think their workplace pays too little, too much or just about the right amount of attention to increasing racial and ethnic diversity, about two-thirds (65%) of employed adults say their workplace is paying the right amount of attention, 22% believe there is too little focus, while 11% say too much attention is given to this issue.

Black and white STEM employees rate their employers' commitment to this issue very differently. Roughly six-in-ten blacks (57%) working in a STEM job say their workplace pays too little attention to increasing racial and ethnic diversity. By comparison, just 15% of whites in this field say this.

Majorities of whites, Hispanics and Asians working in STEM think their workplace pays about the right amount of attention to increasing racial and ethnic diversity.

Whites working in STEM jobs hold similar views on this issue to whites in non-STEM jobs. But black STEM employees are more likely than blacks in non-STEM jobs to say their employer pays too little attention to increasing diversity (57% vs. 43%). The reverse is true for Hispanics: Those in STEM jobs are less likely than those who do not work in STEM to say their workplace is not paying enough attention to these issues (23% vs. 37%).

About six-in-ten black STEM employees say there is too little attention given to increasing racial and ethnic diversity

% of employed adults who say their workplace pays _____ attention to increasing racial and ethnic diversity

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs in the sample to be broken out into a separate analysis. Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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About half of STEM workers believe limited access to quality education is a major reason why blacks and Hispanics are underrepresented in STEM jobs

Blacks and Hispanics made up around a quarter (27%) of the overall U.S. workforce as of 2016, but together they accounted for only 16% of those employed in a STEM occupation. Past studies have raised a number of possible reasons for this underrepresentation, including the need for racially and ethnically diverse mentors to attract more blacks and Hispanics to these jobs, limited access to advanced science courses, or socioeconomic factors that may disproportionally affect these communities.[36]

Among STEM employees, poor education and less encouragement top list of major reasons why so few blacks and Hispanics work in the field

% of those in science, technology, engineering and math jobs who say each of the following is a major, a minor or not a reason why there are not more blacks and Hispanics working in STEM jobs in this country

	Major	Minor	Not a reason
Less likely to have access to quality education to prepare them for these fields	52%	25%	22%
Not encouraged to pursue these subjects from an early age	45	25	28
Less likely to think they would succeed in these fields	34	36	28
Face discrimination in recruitment, hiring and promotions	32	30	37
Lack of black and Hispanic role models in these fields	32	36	31
More are being trained in these fields, but the process is slow	25	42	32
Just less interested in STEM fields than others	19	25	54

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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When asked about the underlying reasons why blacks and Hispanics are underrepresented in this type of work, those working in STEM point to factors rooted in educational opportunities. Some 52% of those with a STEM job say a major reason for this underrepresentation is because blacks and Hispanics are less likely to have access to quality education that prepares them for these fields, while 45% attribute these disparities to these groups not being encouraged at an early age to pursue STEM-related subjects.

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[36] See MacPhee, David, Samantha Farro, Silvia Sara Canetto. 2013. "Academic self-efficacy and performance of underrepresented STEM majors: Gender, ethnic, and social class patterns." Analyses of Social Issues and Public Policy. 13(1), 347-369. Also see Hurtado, Sylvia, Christopher B. Newman, Minh C. Tran, and Mitchell J. Chang. 2010. "Improving the rate of success for underrepresented racial minorities in STEM fields: Insights from a national project." New Directions for Institutional Research. 2010(148), 5-15.

At the same time, around a third of people working in STEM attribute the underrepresentation of blacks and Hispanics to these groups not believing in their ability to succeed in these fields (34%), the lack of black and Hispanic role models in these fields (32%), and racial/ethnic discrimination in recruitment, hiring and promotions (32%).

A slight majority of STEM employees dismiss the idea that blacks and Hispanics are uninterested in these subjects: 54% say blacks and Hispanics being less interested in STEM is not at all a reason for the racial/ethnic employment gaps present in the field.

There is wide disagreement across racial and ethnic groups on how much discrimination contributes to these racial/ethnic disparities. Among those in STEM, 72% of blacks say a major reason why blacks and Hispanics are underrepresented in these jobs is because they face discrimination in recruiting, hiring and promotions; by contrast only around a quarter of whites (27%) and Asians (28%) say this. Hispanic STEM employees fall in between these groups, with 43% citing this as a major reason for these disparities.

Wide racial and ethnic gaps among STEM employees on why so few blacks and Hispanics work in the field

*% of those in science, technology, engineering and math jobs who say each of the following is a **major reason** why blacks and Hispanics are underrepresented in STEM jobs in this country*
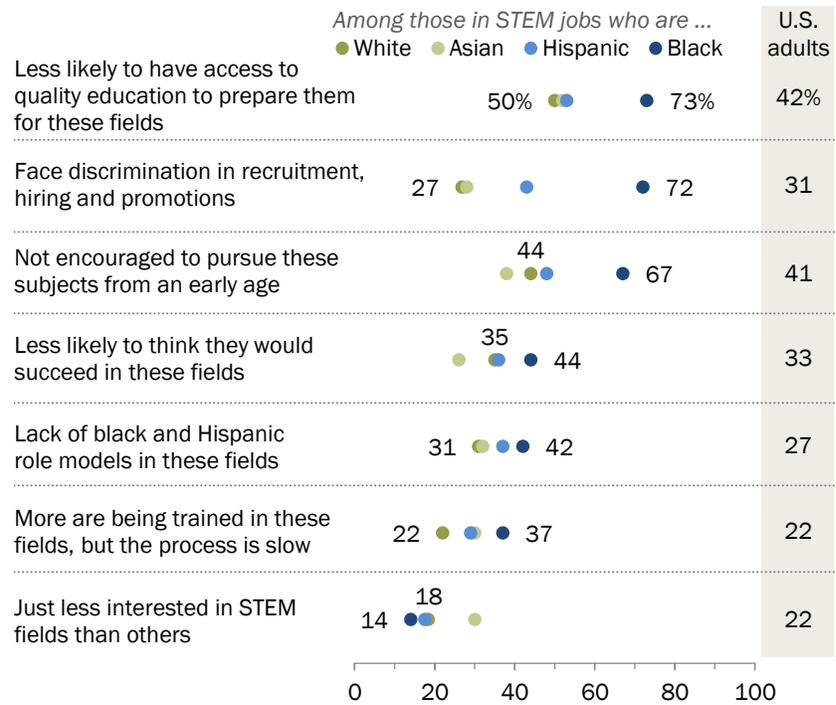
Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Blacks in STEM are far more likely than other racial or ethnic groups to attribute this underrepresentation to lack of access to a quality education or lack of encouragement at an early age to pursue these subjects. Racial gaps on other items are far more modest.

People who are employed in a STEM job are more likely than those working in non-STEM jobs to cite lack of access to quality education (52% vs. 42%), lack of encouragement to pursue subjects at an early age (45% vs. 40%), and lack of black and Hispanic role models working in the field (32% vs. 27%) as major reasons why these groups are underrepresented in STEM jobs.

By about 20 percentage points, blacks in STEM are more likely than blacks in non-STEM jobs to think the lack of quality schooling and lack of encouragement to study these subjects are major reasons that blacks and Hispanics are not widely represented in STEM jobs. Blacks in STEM jobs are also more likely than those in non-STEM occupations to think discrimination is a major reason behind the underrepresentation of blacks and Hispanics (72% vs. 58%). Views among Hispanics on this tend to be similar across those working in STEM and non-STEM jobs.

Blacks in STEM jobs are particularly likely to say they have experienced workplace discrimination because of their race

Overall, one-quarter of workers say that they have ever experienced any of eight forms of discrimination in the workplace due to their race or ethnicity.

Black STEM employees are especially likely to say they have experienced discrimination at work – in a current or previous job; 62% of blacks in STEM say this compared with 44% of Asians and 42% of Hispanics in STEM jobs.

Blacks in STEM jobs tend to report experiencing workplace discrimination due

Black STEM workers are most likely to say they have experienced discrimination at work due to their race

% of employed adults who say they have experienced any of eight forms of discrimination in their workplace due to their race or ethnicity
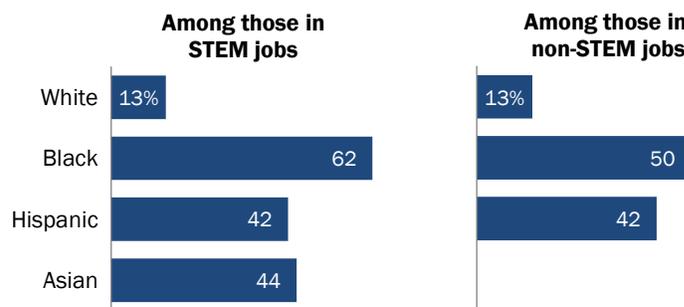
	Among those in STEM jobs	Among those in non-STEM jobs
White	13%	13%
Black	62	50
Hispanic	42	42
Asian	44	

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs in the sample to be broken out into a separate analysis. Respondents who gave other responses or who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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to race more than do blacks in non-STEM jobs (62% vs. 50%).[37] Hispanics in STEM and non-STEM jobs are equally likely to say they have experienced workplace discrimination because of their race or ethnicity (42% each).

Among those experiences, some 45% of black STEM workers say that they have had someone treat them as not competent because of their race (this compares with 28% of black workers in other occupations who say the same) and 29% have felt isolated in their workplace because of their race (compared with 16% of black non-STEM workers). See Appendix for more details.

A majority of blacks in STEM jobs have experienced race-based discrimination at work

% of those in science, technology, engineering and math jobs who say each of the following has ever happened to them at work because of their race or ethnicity

	Blacks in STEM jobs	Whites in STEM jobs
Experienced any type of racial/ethnic discrimination	62%	13%
Were treated as if they were not competent	45	3
Felt isolated in their workplace	29	4
Earned less than a coworker doing the same job	27	3
Received less support from senior leaders than a coworker	27	4
Experienced repeated, small slights at work	22	4
Been passed over for the most important assignments	21	2
Been turned down for a job	19	3
Been denied a promotion	14	2

Note: Whites and blacks are non-Hispanic only. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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[37] Differences in reported discrimination in the workplace due to race between blacks in STEM vs. non-STEM jobs should be interpreted with some caution due to the smaller number of black respondents in the survey (320 in total). Taking into account the design effect for these subgroups, the difference of 62% of blacks in STEM vs. 50% of blacks in non-STEM jobs saying they have experienced racial discrimination at work – whether in their current or previous jobs – for a two-tailed test is p=.075.

One-in-five STEM workers who say their race has hampered their success point to treatment from coworkers as the reason

The vast majority of white STEM workers say that their race or ethnicity has either made no difference to success (71%) or has made it easier to succeed in their job (22%), while 5% of white STEM workers say that their race or ethnicity has made success in their job harder.

Blacks and Asians in STEM jobs, followed by Hispanics, are more likely than white STEM workers to say that their race or ethnicity has made it harder to find success in their job.

In this, black and Hispanic STEM workers tend to hold similar views with blacks and Hispanics working in other kinds of occupations.

1-in-8 Americans say their race or ethnicity has made job success harder

% of employed adults who say their race or ethnicity has made it harder to succeed, made it easier to succeed, or not made much difference
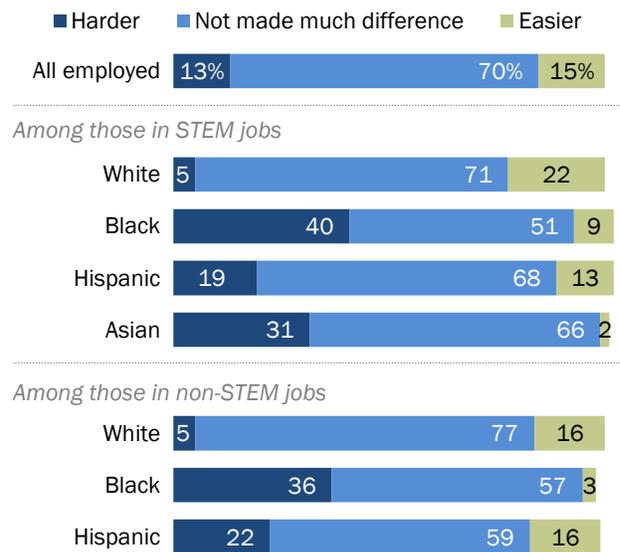
Legend: ■ Harder ■ Not made much difference ■ Easier

	Harder	Not made much difference	Easier
All employed	13%	70%	15%

Among those in STEM jobs

	Harder	Not made much difference	Easier
White	5	71	22
Black	40	51	9
Hispanic	19	68	13
Asian	31	66	2

Among those in non-STEM jobs

	Harder	Not made much difference	Easier
White	5	77	16
Black	36	57	3
Hispanic	22	59	16

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. Respondents who did not give an answer are not shown. There were not enough Asian respondents working in non-STEM jobs in the sample to be broken out into a separate analysis. Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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STEM workers who say that their race or ethnicity has made it harder to succeed in their job were asked to elaborate on this judgment. Roughly one-in-five in this group (19%) say their race has made job success harder because of the resulting treatment from coworkers. Respondents gave examples of how their race leads to coworkers making assumptions about their competency or automatically associating them with negative stereotypes.

> *"I'm automatically thought of as I'm not going to be a hard worker because of the color of my skin."* - Black woman, nurse, 32

> *"People have preconceived ideas of what I am capable of doing."* - Black man, physical scientist, 39

> *"Hispanics are looked down upon as stupid."* - Hispanic woman, physician, 48

> *"People look at the color of my skin and automatically start doubting my ability and my knowledge of my job."* - Asian woman, surgeon, 45

One-in-five STEM workers who say their race has hampered their success cite treatment from coworkers as a reason

Among the 13% of those in science, technology, engineering and math jobs who say their race or ethnicity has made it harder for them to succeed in their job, % who say each of the following are reasons

MOST COMMON TYPES OF RESPONSES	%
Treatment by coworkers	19
Affected by reverse discrimination	19
General bias against racial and ethnic minorities	14
Hiring, promotion and salary barriers	12
Unwelcoming workplace environment	9
Need to work harder than others; held to different standards	9
Bias because not from the United States	4
All other responses	10
No answer	8

Note: Based on STEM workers who say their race or ethnicity has made it harder for them to succeed in their job (n=216). Open-end responses are coded into categories. Figures add to more than 100% because multiple responses were allowed.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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Another 14% cite a general bias against racial and ethnic minorities in the workplace and the world:

> *"My skills are secondary to my race. My race is seen first."* - Black woman, database administrator, 60

> *"The workplace is still geared to the promotion of whites over minorities regardless of the laws in place to promote equality in the work force."* - Hispanic man, engineer, 65

About one-in-eight (12%) of this group say they have faced specific barriers in hiring, promotions and salary in the form of lower pay or fewer opportunities for promotion than their white coworkers.

> *"As a black woman I get looked over for promotions or advancement because of stereotypes. It is believed that black people as a whole are lazy and unqualified which is*

totally the opposite. Sometimes I feel that people are threatened by me because they know I am capable, qualified and competent to do the job." - Black woman, nurse, 34

"Opportunities are usually offered to my white counterparts before they are offered to me." - Hispanic man, physical scientist, 60

Roughly one-in-ten (9%) of this group describe the feeling of being unwelcome in their workplace.

"There are not many people of my race in [my] industry. It requires me to go the extra mile to fit in or be accepted because many of the employees don't share my background or life experiences. I can do the job just fine, however, there are other factors of one's life that are considered whenever they are in a critical and highly competitive environment." - Black man, systems administrator, 30

"This 'other-ness' exists intentionally or unintentionally between those of a minority and those of a majority from lacking of common cultural background. Relationships at work appear polite on surface but reluctant tendency in willing to share limited opportunities the same way, which I felt in a previous job where whites and males were overwhelmingly a majority." - Asian woman, engineer, 56

A similar share of this group (9%) say they are held to different standards than their coworkers, leading them to need to work harder than others to achieve the same results.

"As an African American woman, I found that I have always had to work harder than others in the workplace. I am one of the few women that has been in the computer field for 30 years, which has always been mostly men." - Black woman, computer worker, 60

"Feel like I have to constantly prove myself and jump through loopholes." - Asian woman, nurse, 38

About two-in-ten STEM workers (19%) who responded to this open-ended question said that their race has made success in their job harder because they feel that they face reverse discrimination.

"As a white male nothing is a given now, you have to fight harder to overcome institutional and government reverse discrimination." - White man, industrial and medical engineer, 55

"White males are an undesirable classification currently in environments seeking the managed utopia of balance and 'diversity.'" - White man, computer worker, 52

"Reverse discrimination is still present in the workforce today. People with the same skills and experience, but different ethnicities, have different opportunities. A person formally

classed as a minority will get preference over a white Caucasian." - White man, engineer, 58

"It is OK to tell me 'you are a blue eyed white heterosexual Christian male, you don't stand a chance and there is nothing you can do about it.' I have heard this or [a] variation over and over with two different government employers. They are always looking over me to hire or promote minorities." - White man, civil engineering inspector, 49

Most STEM workers see fair treatment in hiring and promotion processes across race and ethnic groups, but there are wide disparities between whites in STEM jobs and others

Overall, the majority of the public believes that different racial and ethnic groups are usually treated fairly in their own workplace in the recruitment and hiring process and in opportunities for promotion and advancement. On average, a larger share of STEM workers believe this is the case than do non-STEM workers.

Among STEM workers, more say that whites are usually treated fairly in both the hiring and promotion processes in their own workplace than say the same for Asian Americans, Hispanics and blacks in each of these situations.

There are sizable differences in perspective about this issue across racial and ethnic groups, however. About four-in-ten blacks in STEM jobs

The majority of STEM workers view hiring and promotion practices as usually fair to people from different racial and ethnic groups

% of those in science, technology, engineering and math jobs who say whites/Asian Americans/Hispanics/blacks are _____ in each of the following situations in their workplace

	Usually treated fairly	Sometimes treated fairly, sometimes unfairly	Usually treated unfairly
WHITES are …			
In the recruitment and hiring process	86%	11%	2%
In opportunities for promotion and advancement	83	13	2
ASIAN AMERICANS are …			
In the recruitment and hiring process	78	18	2
In opportunities for promotion and advancement	73	21	3
HISPANICS are …			
In the recruitment and hiring process	72	21	5
In opportunities for promotion and advancement	67	25	5
BLACKS are …			
In the recruitment and hiring process	71	22	5
In opportunities for promotion and advancement	67	25	5

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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believe that blacks are generally treated fairly in recruitment (43%) or in advancement opportunities (37%). By contrast most white STEM workers believe that blacks are usually treated fairly in these processes (78% say this about hiring, 75% about advancement opportunities).

Similarly, there are wide differences in perceptions of fair treatment between Asians and whites working in STEM jobs, particularly in terms of advancement opportunities. About half of Asians in STEM jobs (53%) say that Asian Americans are usually treated fairly in opportunities for promotion and advancement. In contrast, 79% of white STEM workers believe this usually occurs.

Some 59% of Hispanics working in STEM jobs say that Hispanics are usually treated fairly when it comes to promotion and advancement opportunities; in contrast, most whites in STEM jobs (74%) believe Hispanics are usually treated fairly when it comes to promotions. On hiring processes, Hispanics and whites working in STEM jobs tend to agree that Hispanics are usually treated fairly (72% of Hispanics and 78% of whites in STEM jobs say this). For details, see Appendix.

In their own words: Advice from women and minority groups about how to attract more people like themselves to jobs in STEM

"It needs to be emphasized as early as in elementary school so that the opportunities are considered as much of a viable career path as other vocations such as social work, teaching and nursing. Black women need to be invited into the classroom to speak to students so that the students know that there are others out there that are blazing the trails for them and that can encourage them in their academic and career pursuits." Black woman, engineer, 57

"You must introduce those fields early in the elementary school years. Then continue to build on that by establishing STEM clubs and activities. Provide information to parents about local/community STEM events for continued interests. Most of all, make sure that any STEM student has the rigorous preparation that will be needed to get them accepted into college and able to handle the nature of the college level classes." Black woman, nurse, 49

"Providing opportunities such as putting upgraded computers and/or science labs in inner-city schools, libraries and community centers. Black men currently in the STEM industries must be visible to the younger generation in order to show the value of those skills and the career implications." Black man, systems engineer, 30

"By encouraging these fields in early education and making available mentors, tutoring and opportunities to experience various fields early on in education. Also when people, especially children, see themselves reflected in the world around them they tend to pursue various opportunities in education and employment as they become adults. Having a government that believes in science and technology and budgets monies (sic) to encourage growth and development in these fields." Hispanic woman, nurse, 68

"This can be done by highlighting successful examples in these fields. Schools can introduce students with Asian background to former successful students from the same ethnicity. In this way, they have the role models and will be encouraged to believe in themselves." Asian woman, biological researcher, 24

"Need to better promote jobs – more emphasis on diverse opportunities, higher pay and flexible work-life balance." Asian woman, physical scientist, 26

"Have hands on learning that is educational, fun and teaches students to learn through doing/building the work so they can see an end result instead. Not just numbers and theory on paper and lecture." Hispanic man, respiratory therapist, 58

"K-8 teaching needs to be designed to make these subjects more interesting and accessible to girls. Teachers need to be explicit about the need for more women in STEM jobs, and help girls feel that they have a reason to pursue these fields in spite of the somewhat intimidating gender breakdown of higher level classes." White woman, K-12 math teacher, 42

"Introduce them to role models and mentors. Teach them about women like [Grace] Hopper and [Marie] Pasteur and other women who have made contributions to STEM. Not just white women, but women of all backgrounds. Have companies demonstrate that they support work/life balance for young women who want to start families, on-site day-care, paid leave. Support continuing education." White woman, software testing consultant, 55

5. Most Americans evaluate STEM education as middling compared with other developed nations

While most Americans give positive ratings for how well the K-12 public schools teach reading, writing and mathematics, public assessments of STEM education for U.S. students in grades K-12 are middling. A large majority of Americans say such education is no better than average compared with other developed nations. Views of higher education in science, technology, engineering and math are a bit more positive, but there, too, only a minority of the public considers U.S. STEM education to be at least above average compared with other industrialized nations.

A majority of Americans say problems for K-12 STEM education can be attributed to limited parental involvement as well as failings in student work ethic and diminished interest in learning. But, at the same time, many adults believe such problems are the result of teaching methods and curriculum emphasis on meeting state standards.

Parents of students in public schools generally see local schools in a positive light

People with children in public schools generally give positive ratings of K-12 public education in their local community, as do Americans overall. Some seven-in-ten parents say local K-12 public schools do an excellent or

Most Americans say K-12 public schools do a good job teaching basics, preparing students for college

% of U.S. adults who rate K-12 public schools in their local community as excellent, good, fair or poor in ...

Teaching reading, writing and mathematics

	Excellent/good	Only fair/poor
U.S. adults	61%	36%
Public school parents	73	27

Providing the knowledge and skills needed for a four-year college degree

U.S. adults	59	39
Public school parents	70	30

Providing the knowledge and skills needed to pursue a vocational or technical career

U.S. adults	52	45
Public school parents	63	37

Teaching critical-thinking and problem-solving skills

U.S. adults	49	49
Public school parents	58	42

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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good job teaching reading, writing and math (73%) and preparing students for college (70%). Smaller majorities of parents say local schools do an excellent or good job preparing students for technical careers (63%) and teaching critical-thinking and problem-solving skills (58%).

Fewer than half of the public consider STEM education in the U.S. to be at least above average when compared with other developed nations

Americans are generally lackluster about the overall education provided by K-12 public schools in the U.S. compared with other developed nations – and they are similarly critical of education in STEM. One-quarter of Americans (25%) say K-12 STEM education in the U.S. is the best in the world or above average compared with other developed countries, 43% say it is average and three-in-ten (30%) consider it below average relative to other nations. Parents of students in public schools give similar ratings; some 26% say STEM education in the K-12 schools is at least above average compared with other countries.

Most Americans give average or lower marks to K-12 education generally, K-12 STEM education specifically

% of adults who rate each type of education in the United States compared with other developed nations as …
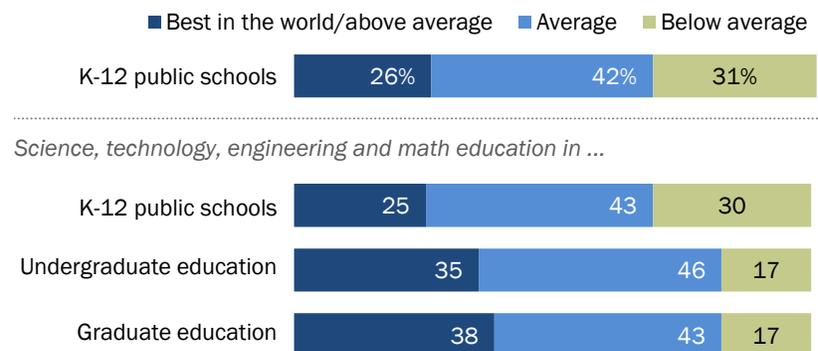
■ Best in the world/above average ■ Average ■ Below average

| K-12 public schools | 26% | 42% | 31% |

Science, technology, engineering and math education in …

K-12 public schools	25	43	30
Undergraduate education	35	46	17
Graduate education	38	43	17

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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These relatively low ratings of STEM education for primary and secondary students are broadly in keeping with a 2015 Pew Research Center survey, which used slightly different wording.

Americans give somewhat better reviews to U.S. STEM education at the undergraduate and graduate levels, though, here too, fewer than half say that undergraduate STEM education (35%) or graduate education (38%) outrank that available in other developed nations.

People holding a postgraduate degree, whether in a STEM or non-STEM field, are among the most likely to give high marks to the quality of postsecondary education in the U.S. About six-in-ten (62%) of those with a postgraduate degree in a STEM field say graduate education in STEM is at least above average, compared with one-third (33%) of those with some college or less education. Similarly, about half of those with a postgraduate degree in a STEM field (52%) see college-level STEM education as above average or better, compared with other nations.

Postgraduates are most likely to see STEM graduate-level training as at least above average

% of U.S. adults in each group who rate each level of science, technology, engineering and math education in the U.S. as the best in the world or above average
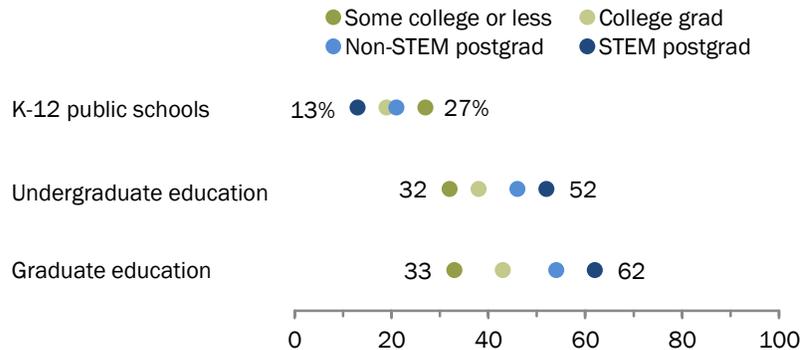
Note: College grad refers to those whose highest degree is a bachelor's degree. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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In contrast, just 13% of those with a STEM postgraduate degree rate K-12 STEM education as above average and about half (51%) say the U.S. is below average in this regard. By comparison, 27% of adults with some college or less education give K-12 STEM education in the U.S. the same rating.

The public sees a wide range of problems facing K-12 STEM education

Americans spread the blame widely when it comes to problems with STEM education in K-12 public schools, with many seeing problems that originate from parents and students as well as teachers and school curricula.

Most U.S. adults (61%) say it is a big problem for STEM education that parents are not involved in supporting schools. Similar shares say students' lack of work ethic (59%) and lack of interest in learning (57%) is a big problem for K-12 STEM education. Similar shares of parents with children in public schools see each of these as big problems for STEM education.

In all, 55% of Americans see emphasis on prepping students for standardized state tests as a big

Americans see range of problems in K-12 STEM education

% of U.S. adults who say each of the following is a big problem for science, technology, engineering and math education in the nation's K-12 public schools these days

	U.S. adults	Public school parents
Concern about parents		
Parents are not involved in supporting schools	61%	56%
Concerns about students		
Students are not willing to work hard to excel	59	61
Students lack interest in learning	57	60
Concerns about teaching style and curriculum		
Too much emphasis is given to meeting state standards in these subjects	55	62
Teachers do not emphasize the practical uses of these subjects for everyday life	53	54
Teachers rarely use methods that help students think critically and problem solve	49	49
Too little time is spent on these subjects in elementary school	48	48
Teachers do not have up-to-date curriculum materials	48	46

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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problem, while some 53% fault teachers for not emphasizing the practical uses of these subjects.

Roughly half of the public says a big problem for STEM education comes from teachers rarely using methods that help students think critically and problem solve (49%), spending too little time on these subjects in elementary school (48%) or not having up-to-date curriculum materials (48%).[38]

Those who have a postgraduate degree in a STEM field tend to hold similar views about the problems facing K-12 STEM education. But, this group is especially likely to attribute flaws in such education to an underuse of teaching methods that promote critical thinking and problem solving (68% of those with a postgraduate-level STEM degree say this).

When asked in an open-ended format which subject schools should emphasize more today, 28% of adults named a STEM subject. Specifically, 18% mentioned math or statistics, 9% mentioned science or engineering, and 3% mentioned computers or computer science.

Other subjects mentioned include English (19%) and

About three-in-ten Americans say STEM subjects should be emphasized more in school

% of U.S. adults who say K-12 public schools should emphasize _____ more than they do now

	U.S. adults	Public school parents
Any STEM subject	28%	35%
English/writing/reading	19	20
Math/statistics	18	22
History/social studies	12	8
Science/engineering	9	10
Economics/finance	7	6
Life skills/home economics	6	6
Manners/social skills	4	3
Computers/computer science	3	5
Art/music	3	5
All other responses	7	8
Don't know/No answer	12	8
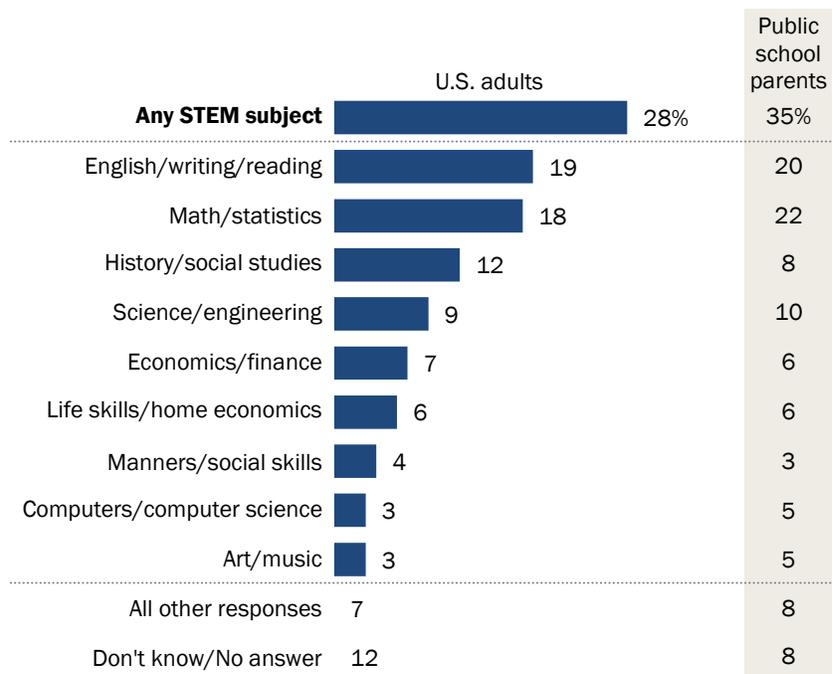
Note: STEM subjects include math and statistics, science and engineering and computers and computer science. Open-end; up to three. Figures add to more than 100% because multiple responses were allowed. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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[38] According to the 2012 National Survey of Science and Mathematics Education, a national survey of teachers conducted by Horizon Research, K-3 public school students spend an average of 19 minutes on science and 54 minutes on math per day; grades 4-6 spend 24 minutes on science, 61 minutes on math per day.

history or social studies (12%).

Parents with children in public schools are modestly more likely than all U.S. adults to name a STEM subject as needing more emphasis (35% vs. 28%, respectively).

People with a postgraduate degree in a STEM field are particularly likely to volunteer that K-12 public schools should emphasize a STEM subject more than they do now – 42% say this, compared with 25% of those with some college or less education.

6. Many Americans say they liked math and science in school, thought about a STEM career

One of the first ways Americans encounter science, technology, engineering and math is through their early education. And many look back fondly at their science and math classes during this time in their lives. Three-quarters of Americans say they liked science classes in grades K-12, citing labs and activities as a key reason why. And, a smaller majority recalls liking math classes in grades K-12. STEM workers are more likely than those working in other fields to say they liked science or math classes in school, but still more than four-in-ten non-STEM workers say they liked both subjects in grades K-12.

Many of those who work in occupations outside of STEM also say they were once interested in pursuing a job or career in STEM. Most of these non-STEM workers considered working in STEM while in school or in their 20s rather than later in life. The most common reasons these workers give for not pursuing a STEM job or career were cost and time barriers, such as the amount of money and the number of years required for specialized training.

Looking back, three-quarters of Americans say they liked K-12 science classes

Three-quarters of Americans say they liked science classes in grades K-12, while only one-quarter say they disliked science classes.

When forced to choose whether the subject matter or teaching was the main reason they liked science classes, most point to the subject matter. About two-thirds (68%) say the subject matter was the main reason they liked science classes in grades K-12, while roughly three-in-ten (31%) say the main reason they liked science classes was the way they were taught.

Similarly, among those who *disliked* science classes in grades K-12, more say the reason they disliked science classes was the subject matter than the way the classes were taught (61% vs. 36%).

About four-in-ten STEM workers say they had an older family member in STEM

Role models, often parents or other close family members, are considered by many to be important for career development. Overall, roughly four-in-ten STEM workers (41%) say at least one of their older, close family members works or worked in STEM. By comparison, 26% of those working in other occupations say they have or had an older family member working in a STEM job or career. Some 44% of women in STEM jobs and 37% of men say they have or had a close older family member working in STEM.

The survey also asked respondents to select from a list of possible reasons for liking or disliking science classes. Among those who liked science classes, most enjoyed the labs and hands-on learning experiences (70%). Fewer say it was easy to see how science would be useful for the future (40%) or they found science classes easy (31%).

Among those who disliked science classes, the most commonly selected reason is that they found science classes to be too hard (46%). Many say they disliked science classes because they did not see how science would be useful for the future (36%).

Three-quarters of Americans say they liked K-12 science classes and that group especially favored the hands-on learning experiences

% of U.S. adults who say they generally _____ in grades K-12

Disliked science classes 25%

Liked science classes 75%

Reasons for disliking science classes

Found them hard	46%
Not easy to see how they would be useful in future	36
Felt they didn't belong in these classes	24
Disliked labs and hands-on learning experiences	18
Didn't have enough outside support	17

Reasons for liking science classes

Liked labs and hands-on learning experiences	70%
Easy to see how they would be useful in future	40
Found them easy	31
Felt they belonged in these classes	25
Had a lot of outside support to help them	15

Note: Reasons for disliking/liking science classes based on those who say they generally disliked/liked science classes in grades K-12. Respondents who gave other responses or who did not give an answer about their reasons are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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As Americans reflect on K-12 experiences, more say they liked than disliked math classes

Americans are somewhat less enthusiastic about the math classes they took in school, by comparison. About six-in-ten (58%) say they liked K-12 math classes, while roughly four-in-ten (42%) say they disliked K-12 math classes.

Most Americans point to the subject matter as the main reason they liked or disliked math classes, rather than the way math classes were taught. About six-in-ten (61%) say they liked K-12 math classes because of the subject matter. A similar share (59%) says they disliked math classes because of the subject matter.

A majority of Americans say they liked K-12 math classes

% of U.S. adults who say they generally ____ in grades K-12

Disliked math classes 42%

Liked math classes 58%
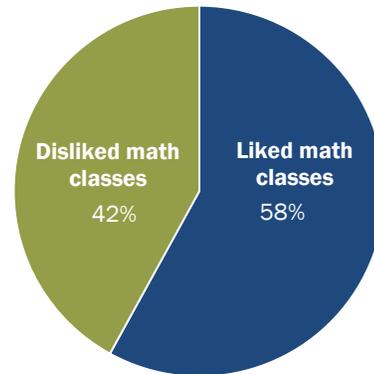
Main reason for liking math classes

Liked the way they were taught	Liked the subject matter
38%	61%

Main reason for disliking math classes

Disliked the way they were taught	Disliked the subject matter
40	59

Note: Main reason for liking/disliking math classes is based on those who say they liked/disliked math classes in grades K-12. Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017. "Women and Men in STEM Often at Odds Over Workplace Equity"

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Higher shares of men than women say they liked both science and math classes in K-12

Almost half (46%) of Americans say they liked both science and math classes in grades K-12. About one-in-ten (11%) say they liked math but not science, while a larger share (29%) disliked math but liked science. Some 14% say they disliked both math and science classes.

Men are more likely than women to say they liked both math and science classes (54% vs. 39%). Women are slightly more inclined than men to say they liked only science classes (31% vs. 26%) or they disliked both (16% vs. 11%).

Whites, blacks and Hispanics are about equally likely to say they liked both math and science classes in grades K-12. Similarly, there are no significant differences by age.

Men are more likely than women to say they liked both math and science in grades K-12

% of adults who say they generally _____ classes in grades K-12
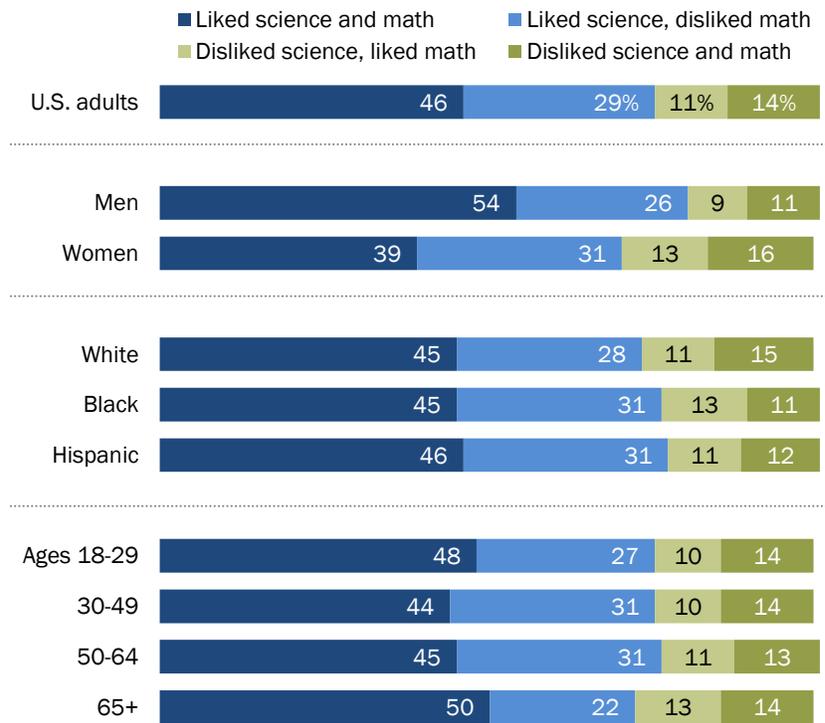
■ Liked science and math　　■ Liked science, disliked math
■ Disliked science, liked math　　■ Disliked science and math

	Liked science and math	Liked science, disliked math	Disliked science, liked math	Disliked science and math
U.S. adults	46	29%	11%	14%
Men	54	26	9	11
Women	39	31	13	16
White	45	28	11	15
Black	45	31	13	11
Hispanic	46	31	11	12
Ages 18-29	48	27	10	14
30-49	44	31	10	14
50-64	45	31	11	13
65+	50	22	13	14

Note: Based on combined responses of like/dislike science and math classes in grades K-12. Whites and blacks are non-Hispanic only; Hispanics are of any race. Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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As one might expect, working in STEM or earning a postgraduate degree in a STEM field is closely related to liking science and math classes in grades K-12, but many of those who work in other occupations or have a degree in a different field liked one or both of these subjects too.

Two-thirds of STEM workers (66%) say they liked both math and science in grades K-12. Among non-STEM workers, 45% say they liked both, a much larger share than say they disliked both (16%).

Two-thirds of STEM workers say they liked math, science in grades K-12

% of U.S. adults who say they generally _____ classes in grades K-12
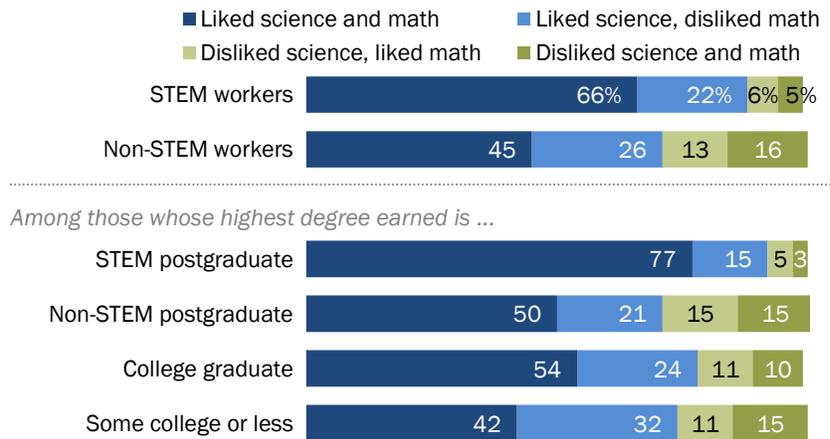
- ■ Liked science and math
- ■ Liked science, disliked math
- ■ Disliked science, liked math
- ■ Disliked science and math

	Liked science and math	Liked science, disliked math	Disliked science, liked math	Disliked science and math
STEM workers	66%	22%	6%	5%
Non-STEM workers	45	26	13	16

Among those whose highest degree earned is ...

	Liked science and math	Liked science, disliked math	Disliked science, liked math	Disliked science and math
STEM postgraduate	77	15	5	3
Non-STEM postgraduate	50	21	15	15
College graduate	54	24	11	10
Some college or less	42	32	11	15

Note: Based on combined responses of like/dislike science and math classes in grades K-12. Respondents who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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There are wide differences among those working in STEM, however. Engineers are among the most likely to say they liked both math and science classes in grades K-12 (86%). Health-related workers (53%) are only slightly more likely than non-STEM workers to say they liked both. About three-in-ten health-related workers (31%) say they liked science but disliked math.

Similarly, about three-quarters of adults with a postgraduate degree in a STEM field (77%) say they liked both science and math classes in grades K-12. Among those holding a postgraduate degree in other fields, half say they liked both science and math classes.

Among those in other types of jobs, four-in-ten were once at least somewhat interested in a STEM job or career

Four-in-ten Americans who currently work in non-STEM occupations say that they were "very" (16%) or "somewhat" (24%) interested in pursuing a career in science, technology, engineering and math at some point. About half (48%) say they were not too interested (21%) or not interested at all (27%) in pursuing a job or career in STEM.

Another roughly one-in-ten of this group (9%) say that their current job or career involves STEM. Many jobs

Men working in non-STEM occupations are more likely to say they were ever interested in a STEM career

% of those in non-STEM occupations who say they had ever been very/somewhat interested in pursuing a job or career that involves science, technology, engineering or math

	Was very interested	Was somewhat interested	NET
Those in non-STEM jobs	16%	24%	**40%**

Among those in a non-STEM job

Men	17	26	**43**
Women	14	22	**35**
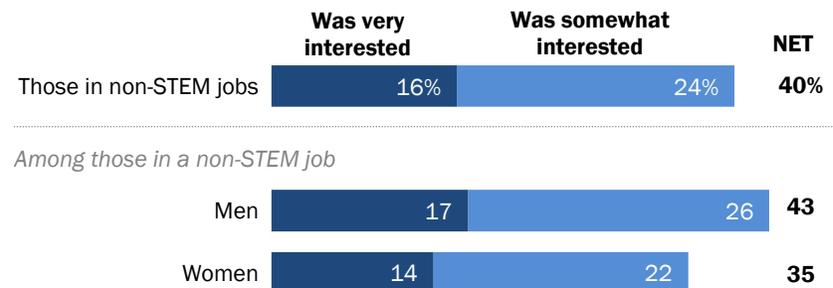
Note: Based on those employed in non-STEM jobs. Figures may not add to totals indicated due to rounding. Respondents who gave other responses, who were not asked or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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and careers outside of STEM involve science, technology, engineering and math skills and knowledge.[39] Of those who say their current job involves STEM, about two-in-ten (18%) work in management, while about one-in-ten (12%) work in business and finance operations.

Men working in a non-STEM occupation are a bit more likely to say that they were ever interested in pursuing a career in STEM (43% vs. 35% of women in non-STEM jobs). There are no more than modest differences among whites (37%), blacks (41%) and Hispanics (45%) on this measure.

Those who have or had an older family member working in STEM are modestly more likely than those who didn't have an older family member in STEM to say they were once interested in a STEM job or career (48% vs. 36%).[40]

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[39] For more see National Science Board. 2014. "Revisiting the STEM Workforce: A Companion to Science and Engineering Indicators"
[40] There is considerable scholarship on the factors related to pursuing a STEM career. See Charles, Maria and Sarah Thébaud, eds. 2017. "Gender and STEM: Understanding Segregation in Science, Technology, Engineering and Mathematics". Social Sciences, 6(3). Also see Andersen, Lori and Thomas J. Ward. 2014. "Expectancy-value models for the STEM persistence plans of ninth-grade, high-ability Students: A comparison between black, Hispanic, and white students." Science Education, 98(2), 216-242.

When asked when in their life they were interested in pursuing a STEM job or career, most pointed to when they were in high school, college or during their 20s. About four-in-ten (41%) say that they had this interest in college or during their 20s and another 28% say they were interested in high school or their teenage years. Fewer say they were interested in pursuing a STEM career early in life, in elementary school or their childhood (10%) or later in life over the age of 30 (5%).

Four-in-ten who were interested in but did not pursue a STEM career were interested during their 20s

Among those who were ever at least somewhat interested, % who say the age or time period of their life in which they were interested in pursuing a career in science, technology, engineering and math

MOST COMMON RESPONSES

Childhood/elementary school	10%
Teenage years/high school	28
20s/college	41
Age 30 and older	5
Always interested	1
Currently or previously in a STEM career	1
Can't classify/Other	7
Don't know/No answer	8

Note: Based on those in non-STEM jobs who were very/somewhat interested in pursuing a STEM job or career in the past. Open-end responses coded into categories. Figures add to more than 100% because multiple responses were allowed.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017
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When asked why they did not end up pursuing a career or job in STEM, the most commonly cited reason was cost and time barriers (27%), such as the large amount of time and money required for education or a general lack of access to resources and opportunities.

But others pointed to different reasons for not pursuing a STEM career. One-in-five (20%) say that they chose to pursue a different career instead of STEM, because they developed a different interest.

Some 14% say that they did not end up in a STEM career because they struggled to do well in STEM classes or just lost interest in STEM. A similar share (11%) cites personal or family circumstances.

There are modest gender differences in reasons cited for not pursuing a career in STEM. Women are more likely than men to cite cost and time barriers (31% vs. 24%) and struggling in STEM classes or losing interest (19% vs. 11%); while men are somewhat more likely to say that they found another interest (23% vs. 17%).

Those interested in STEM who did not pursue it cite cost and time barriers, different interests as reasons

Among those who were ever at least somewhat interested, % who cite the following as reasons they didn't pursue a career in science, technology, engineering and math

MOST COMMON TYPES OF RESPONSES	Total	Men	Women
Cost and time barriers	27%	24%	31%
Found another interest; went a different path	20	23	17
Had difficulty with STEM classes, lost interest in STEM	14	11	19
Personal/family circumstances	11	10	12
Perceived issues with STEM careers e.g., lack of jobs, low pay	7	7	7
Perceived obstacles because of gender e.g., women aren't encouraged; no female mentors	1	-	1
Did pursue a STEM job, changed jobs	9	10	7
Currently pursuing/might pursue a STEM career in the future	4	4	3
Other	4	5	2
Don't know/No answer	13	16	8

Note: Based on those in non-STEM jobs who were very/somewhat interested in pursuing a STEM job or career in the past. Open-end responses coded into categories. Figures add to more than 100% because multiple responses were allowed.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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"Middle-skills" STEM workers are particularly likely to have had additional training

"Middle-skills" jobs, which require additional training beyond a high school education but not a four-year college degree, make-up an important part of the STEM workforce. Middle-skills jobs are particularly common in computer technology and health care.

About three-in-ten STEM workers (28%) have some college experience (including an associate degree) but no bachelor's degree. This is a similar share to those employed in non-STEM occupations (31%). Among those with some college experience, STEM workers earn 35% more than their non-STEM counterparts ($54,745 vs. $40,505). See Chapter 1.

STEM middle-skills workers are distinct from middle-skills workers in other occupations because they are more likely to have additional educational training that is directly related to their job. STEM workers are more likely than non-STEM workers to have completed any vocational or technical training, a certificate, or apprenticeship. Among those with some college experience or an associate degree, about seven-in-ten STEM workers (69%) say they have completed this kind of training, compared with about half of non-STEM workers (49%).

In addition, among workers with an associate degree, STEM workers are more likely than workers in other occupations to say their job is closely related to their education. Some 77% of STEM workers with an associate degree say their job is very closely related to their degree. In contrast, about three-in-ten (28%) of those working in other occupations say their associate degree is closely related to their current job, while a larger share (42%) say their degree is not related or not very closely related to their job.

Similarly, STEM workers with an associate degree are about three times more likely than their non-STEM counterparts to say they use the skills and knowledge from their degree in their current job all the time (73% vs 24%).

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We are grateful for advice from a number of outside experts. We received valuable guidance from Maria Charles, professor of sociology and director of the Broom Center for Demography at the University of California, Santa Barbara; Matthew Kloser, director of the Notre Dame Center for STEM education at the University of Notre Dame; Cheryl Leggon, associate professor in the school of public policy at the Georgia Institute of Technology; and Carol O'Donnell, director of the Smithsonian Science Education Center.

We also benefited from conversations about the project design and survey questionnaire with a group of staff at the American Association for the Advancement of Science (AAAS) including Shirley Malcom, director of education and human resources; Iris Wagstaff, STEM program director; Quincy Brown, program director STEM education research; Celeste Rohlfing, chief operating officer; and Tiffany Lohwater, director of the office of public programs.

While the design and analysis of the project was guided by our consultations with these advisers, Pew Research Center is solely responsible for the design, interpretation and reporting of the data.

Methodology

The analysis in this report comes from two sources: 1) Pew Research Center analysis of the Census Bureau's American Community Survey (IPUMS) and the 1990 and 2000 decennial censuses and 2) a nationally representative survey conducted from July 11 to Aug. 10, 2017, among a sample of 4,914 adults 18 years of age or older. The margin of error for the full sample is plus or minus 2.7 percentage points.

The survey was conducted by the GfK Group in English and Spanish using KnowledgePanel, its nationally representative online research panel. KnowledgePanel members are recruited through probability sampling methods and include those with internet access and those who did not have internet access at the time of their recruitment (KnowledgePanel provides internet access for those who do not have it and a device to access the internet when they join the panel, if needed). A combination of random-digit dialing (RDD) and address-based sampling (ABS) methodologies have been used to recruit panel members (in 2009 KnowledgePanel switched its sampling methodology for recruiting members from RDD to ABS).

KnowledgePanel continually recruits new panel members throughout the year to offset panel attrition as people leave the panel. All active members of the GfK panel were eligible for inclusion in this study.

Margins of error

	Sample size	Margin of error in percentage points
U.S. adults	4,914	+/-2.7
Has a STEM job	2344	+/-2.8
Does not have a STEM job	2358	+/-2.3
Not working	212	+/-7.1
Among those in STEM jobs		
Men	1119	+/-4.1
Women	1225	+/-3.9
White	1845	+/-3.1
Black	114	+/-11.4
Hispanic	167	+/-10.4
Asian	138	+/-10.0
Men in computer jobs	445	+/-6.4
Women in computer jobs	150	+/-10.6
Women with a postgraduate degree	368	+/-7.2
Women with a college degree	479	+/-6.3
Women with some college or less	378	+/-6.7
Women who work with mostly men	208	+/-9.4
Women who work with mostly women	719	+/-5.1
Women who work with an even mix of men and women	290	+/-8.0
Among those in non-STEM jobs		
Men	1239	+/-3.2
Women	1119	+/-3.4
White	1642	+/-2.7
Black	206	+/-7.5
Hispanic	329	+/-6.0

Note: Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017. "Women and Men in STEM Often at Odds Over Workplace Equity"

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Sample Design

The sample design for the survey was comprised of three groups: a group of about 2,500 panelists who said they were employed in a STEM occupation in a prior survey, a second group of about

1,900 panelists who were employed in a non-STEM occupation according to prior records, and a third group of about 500 eligible panelists to include other members of the general public including those who are not employed. Thus, the survey design oversamples employed adults and those employed in a science, technology, engineering or math occupation. In all, 8,995 panelists were invited to take part in the survey. The completion rate for this survey, that is the share of panelists invited to participate who completed the survey, was 62.9%. The cumulative response rate, calculated following Callegaro and DiSogra (2008), was 5%.[41]

All respondents were asked to verify their current employment status. Updated occupation information was collected for all employed adults who indicated that their main

Margins of error continued

	Sample size	Margin of error in percentage points
U.S. adults	4,914	+/-2.7
Parent of child in public school	909	+/-5.8
Does not have child in public school	3999	+/-3.1
STEM postgrad	599	+/-9.3
Non-STEM postgrad	448	+/-8.3
College grad	1514	+/-5.4
Some college or less	2269	+/-3.5

Note: The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
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job had changed since the time of completing their profile survey.[42] Most respondents who said they worked in a STEM occupation were also asked an open-end question to describe their occupation in more detail. These responses were used for final classification as employed in a STEM or non-STEM job where they were available.[43]

STEM occupations included the following job categories: computer and mathematical; architecture and engineering; life and physical sciences; medical doctors; other health care practitioners; health care technologists and technicians; and teachers (both K-12 and

[41] See Callegaro, Mario and Charles DiSogra. 2008. "Computing Response Metrics for Online Panels." Public Opinion Quarterly, 72 (5): 1008-1032.

[42] Most respondents were first asked if their main job had changed since the time of completing a profile survey. If their job had changed, they were asked their occupation again. However, 388 panelists (8% of the total) were simply -asked the occupation question again with those more recent responses used to determine if they currently worked in a STEM or non-STEM job.

[43] Panelists who were selected to participate as working in a STEM occupation who said their main job had changed and their new occupation was not in STEM were treated as ineligible for the survey. Panelists who were reclassified by researchers to a non-STEM occupation or not working based on their open-end response were treated as eligible for the survey though. Panelists who were selected to participate as working in a non-STEM occupation and those selected to participate from the general sample of panelists who were confirmed as currently working in a STEM job were treated as eligible for the survey and classified as working in a STEM job.

postsecondary) who specialize in a STEM subject.[44] Healthcare support occupations and all other occupational categories were classified as non-STEM jobs.

Note that since the survey was conducted in only English and Spanish, the sample of Asians working in STEM jobs are those with proficiency in English. There are not enough Asians working in non-STEM jobs for separate analysis in this survey.

Weighting

The data were weighted in a multistep process that begins with a base weight that accounts for differences in probability of selection into the study. Respondents were divided into four mutually exclusive subgroups 1) STEM workers, excluding STEM teachers 2) non-STEM workers, excluding non-STEM teachers 3) Teachers, both STEM and non-STEM 4) Non-workers. Each of these groups was separately weighted using an iterative technique to match population benchmarks. Next, the weighting combined all workers and aligned the combined group to population benchmarks for all workers.[45] In a final step, workers (both STEM and non-STEM) were combined with non-workers, and the weights were further adjusted so that each group's relative proportions and demographic profile matched estimates for all U.S. adults. At each stage, the resulting weights were trimmed and scaled to the number of completed surveys.

Population benchmarks included: gender by age, race/ethnicity, education, household income, region by metropolitan status, and primary language. Primary language parameters come from the Census Bureau's 2015 American Community Survey; all other parameters come from the March 2016 Current Population Survey (CPS).

Variance estimation

Sampling errors and tests of statistical significance take into account the effect of weighting at each of these stages.

The tables show the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% confidence level.

Sample sizes and sampling errors for other subgroups are available upon request.

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[44] Teachers who do not work at the college and university level were classified as a STEM worker if they specialize in teaching mathematics or statistics, science, computing and information science, or engineering. Teachers at the university level were classified as a STEM worker if their specialty is mathematics or statistics, life sciences, physical or earth sciences, computing and information science, engineering, architecture, agriculture, or an allied health profession (such as dentistry, medicine, nursing, pharmacy, public health or veterinary medicine).
[45] This step matched a target estimated from the proportion of STEM and non-STEM teachers based on all respondents who completed the initial screening, regardless of whether or not they qualified.

In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

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Appendix: Detailed tables and charts

Women in STEM jobs working in majority-male workplaces tend to be college-educated and work across a variety of job types

% of employed women

Share	Among women in STEM jobs in workplaces with …			Among women in non-STEM jobs in workplaces with …		
	More men	More women	Even mix of genders	More men	More women	Even mix of genders
	19%	55%	25%	18%	46%	34%
Ages 18-39	54	41	58	42	46	49
40+	46	59	42	58	54	51
Some college or less	19	36	32	64	63	72
College graduate	37	33	28	20	22	18
Postgraduate	44	30	41	16	15	10
Type of STEM job						
Health-related	20	87	63			
Computer	30	2	15			
Engineering	16	<1	2			
Life/physical sciences	9	1	7			
University/school teaching	13	9	9			

Note: Figures in first row are overall share; all other figures are column percentages..
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017. STEM stands for science, technology, engineering and math.
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Characteristics of social scientists and postsecondary teachers

	Social scientists	Postsecondary teachers
Female	63%	49%
Race/ethnicity		
White	80	73
Black	5	7
Asian	5	12
Hispanic	8	6
Other	2	2
Education		
High school or less	1	2
Some college	2	5
Bachelor's degree	15	16
Master's degree	42	33
Professional/doctoral degree	40	44
Class of workers		
Government	36	50
Private, for profit	21	23
Private, not for profit	15	26
Self-employed and other	28	1
College major of those college educated		
Computer and math	2	7
Biological sciences	3	11
Physical, earth science	2	8
Engineering	4	9
Health professions	3	6
Social sciences	57	14
Business	5	6
Education, non-STEM	5	10
Education, STEM	<1	1
Arts, humanities and other	19	29

Notes: Based on employed adults age 25 and older. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Women's representation in STEM occupations

% of employed who are women and total number of workers in each occupation

	Women	Total workers
All employed, ages 25 and older	47%	131,319,197
Computer workers	**25**	**4,397,402**
Database administrators	38	109,355
Computer scientists and systems analysts/web developers	29	1,401,399
Computer and information systems managers	28	572,733
Computer support specialists	25	570,987
Computer programmers	22	412,540
Software developers, applications and systems software	20	1,126,671
Network and computer systems administrators	19	203,717
Mathematical workers	**46**	**210,853**
Operations research analysts	48	132,739
Misc. mathematical science, incl. mathematicians, statisticians	47	51,336
Actuaries	34	26,778
Engineers and architects	**14**	**2,735,355**
Environmental engineers	29	27,995
Architects, except naval	26	176,339
Industrial engineers, including health and safety	21	183,773
Drafters	20	143,614
Surveyors, cartographers and photogrammetrists	19	33,810
Engineering technicians, except drafters	18	352,316
Computer hardware engineers	17	51,419
Chemical engineers	17	58,260
Petroleum, mining, mining safety and geological engineers	13	39,928
Engineers, all other	13	520,397
Civil engineers	13	303,991
Aerospace engineers	12	114,565
Materials engineers	11	33,752
Marine engineers and naval architects	10	11,951
Architectural and engineering managers	9	150,536
Electrical and electronics engineers	9	199,655
Surveying and mapping technicians	8	59,850
Mechanical engineers	8	238,046
Sales engineers	7	35,159
Life scientists	**47**	**321,251**
Medical scientists, life scientists, all other	52	140,383
Natural science managers	51	18,649
Biological technicians	50	18,784
Biological scientists	48	69,540
Agricultural and food science technicians	39	31,931
Agricultural and food scientists	35	22,853
Conservation scientists and foresters	22	19,111

Note: Based on employed adults ages 25 and older. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Women's representation in STEM occupations, continued

% of employed who are women and total number of workers in each occupation

	Women	Total workers
Physical scientists	**39%**	**616,150**
Miscellaneous life, physical and social science technicians	47	155,529
Physical scientists, all other	41	209,875
Chemists and materials scientists	37	80,676
Chemical technicians	31	62,542
Environmental scientists and geoscientists	30	69,044
Geological and petroleum technicians, nuclear technicians	20	18,213
Astronomers and physicists	15	10,319
Atmospheric and space scientists	15	9,952
Healthcare practitioners and technicians	**75**	**9,011,520**
Speech language pathologists	96	143,510
Dental hygienists	95	165,401
Medical records and health information technicians	91	163,658
Registered nurses	89	3,136,728
Occupational therapists	89	106,152
Dieticians and nutritionists	89	92,482
Licensed practical and licensed vocational nurses	88	774,865
Audiologists	83	15,061
Therapists, all other	79	154,218
Health diagnosing and treating practitioner support technicians	79	515,527
Recreational therapists	78	10,797
Clinical laboratory technologists and technicians	74	287,883
Radiation therapists	74	14,477
Opticians, dispensing	72	55,530
Health diagnosing and treating practitioners, all other	72	29,013
Diagnostic related technologists and technicians	71	325,563
Medical and health services managers	71	645,675
Physical therapists	70	232,161
Physician assistants	68	97,973
Health technologists and technicians, all other	65	117,618
Respiratory therapists	64	107,406
Veterinarians	61	79,474
Pharmacists	57	283,197
Healthcare practitioners and technical occupations, all other	46	112,279
Optometrists	43	38,280
Physicians and surgeons	36	900,566
Emergency medical technicians and paramedics	31	172,759
Dentists	30	168,404
Chiropractors	28	56,746
Podiatrists	27	8,117

Note: Based on employed adults ages 25 and older. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Women's representation in STEM jobs varies by education

% of employed in each occupational group who are women

	High school or less	Some college	Bachelor's degree	Master's degree	Professional/ Doctoral degree
		Among those whose highest level of education is …			
All employed	41%	50%	49%	54%	42%
STEM jobs	55	59	47	47	41
Among STEM workers in ___ jobs					
Computer	30	24	24	27	21
Math	57	58	43	46	37
Engineering/architecture	15	11	14	18	14
Life science	45	43	48	55	41
Physical science	33	33	43	44	32
Health-related	81	83	80	80	45

Note: Based on employed adults ages 25 and older. "Some college" includes those with an associate degree and those who attended college but did not obtain a degree. Professional degrees include M.D., D.D.S., D.V.M., LL.B and J.D. Doctoral degrees include Ph.D and Ed.D. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Racial and ethnic group representation in STEM occupations

% of employed who are _____ and total number of workers in each occupation

	Black or Hispanic 27%	Black 11%	Hispanic 16%	Asian 6%	White 65%	Total workers 131,319,197
All employed, ages 25 and older						
Computer workers	**14**	**7**	**7**	**19**	**65**	**4,397,402**
Computer support specialists	21	11	9	10	67	570,987
Network and computer systems administrators	17	8	9	9	71	203,717
Computer scientists and systems analysts/web developers	17	9	8	15	66	1,401,399
Database administrators	14	8	7	18	65	109,355
Computer and information systems managers	12	6	6	14	72	572,733
Computer programmers	10	4	5	20	68	412,540
Software developers, applications and systems software	9	4	4	32	57	1,126,671
Mathematical workers	**16**	**9**	**6**	**14**	**68**	**210,853**
Operations research analysts	19	12	7	10	68	132,739
Misc. mathematical science, incl. mathematicians, statisticians	12	7	6	23	62	51,336
Actuaries	5	2	3	17	76	26,778
Engineers and architects	**13**	**5**	**8**	**12**	**73**	**2,735,355**
Engineering technicians, except drafters	21	9	12	8	68	352,316
Petroleum, mining, mining safety and geological engineers	16	5	11	11	70	39,928
Computer hardware engineers	14	8	6	30	54	51,419
Drafters	14	4	10	6	78	143,614
Surveying and mapping technicians	13	4	9	2	82	59,850
Industrial engineers, including health and safety	13	5	7	10	75	183,773
Environmental engineers	12	6	6	11	76	27,995
Marine engineers and naval architects	12	6	6	8	79	11,951
Chemical engineers	12	5	7	14	73	58,260
Electrical and electronics engineers	12	5	7	19	68	199,655
Aerospace engineers	11	3	8	12	74	114,565
Engineers, all other	11	5	6	17	70	520,397
Materials engineers	11	5	6	14	74	33,752
Civil engineers	11	4	7	11	76	303,991
Surveyors, cartographers and photogrammetrists	10	2	8	3	85	33,810
Architects, except naval	10	3	8	9	78	176,339
Mechanical engineers	10	3	7	12	76	238,046
Architectural and engineering managers	9	3	6	12	77	150,536
Sales engineers	9	2	6	8	81	35,159
Life scientists	**11**	**4**	**7**	**19**	**67**	**321,251**
Agricultural and food science technicians	23	8	15	5	69	31,931
Biological technicians	19	7	12	13	65	18,784
Natural science managers	13	4	8	14	71	18,649
Medical scientists, and life scientists, all other	10	5	6	31	56	140,383
Agricultural and food scientists	10	2	7	9	81	22,853
Biological scientists	8	3	5	13	76	69,540
Conservation scientists and foresters	5	2	4	0	93	19,111

Note: Based on employed adults ages 25 and older. Percent black or Hispanic calculated before rounding. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
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Racial and ethnic group representation in STEM occupations, continued

% of employed who are _____ and total number of workers in each occupation

	Black or Hispanic	Black	Hispanic	Asian	White	Total workers
Physical scientists	**14%**	**6%**	**7%**	**16%**	**68%**	**616,150**
Chemical technicians	22	11	10	7	69	62,542
Geological and petroleum technicians, nuclear technicians	20	6	14	6	72	18,213
Miscellaneous life, physical and social science technicians	19	9	10	10	67	155,529
Chemists and materials scientists	14	8	6	19	66	80,676
Atmospheric and space scientists	10	4	5	3	83	9,952
Physical scientists, all other	9	3	6	27	62	209,875
Environmental scientists and geoscientists	7	3	4	6	85	69,044
Astronomers and physicists	6	3	3	13	78	10,319
Healthcare practitioners and technicians	**19**	**11**	**8**	**9**	**70**	**9,011,520**
Licensed practical and licensed vocational nurses	37	26	11	4	56	774,865
Health technologists and technicians, all other	32	20	12	8	56	117,618
Health diagnosing and treating practitioner support technicians	27	15	13	7	63	515,527
Medical records and health information technicians	25	15	10	5	67	163,658
Clinical laboratory technologists and technicians	25	15	10	12	60	287,883
Dieticians and nutritionists	25	16	9	6	67	92,482
Medical and health services managers	21	12	9	5	71	645,675
Respiratory therapists	21	13	8	8	69	107,406
Healthcare practitioners and technical occupations, all other	21	11	10	4	73	112,279
Therapists, all other	20	10	10	5	73	154,218
Emergency medical technicians and paramedics	18	8	11	2	77	172,759
Opticians, dispensing	18	8	11	5	75	55,530
Recreational therapists	18	11	7	5	74	10,797
Registered nurses	17	11	6	9	72	3,136,728
Diagnostic related technologists and technicians	17	7	10	6	75	325,563
Physician assistants	14	6	8	7	77	97,973
Speech language pathologists	11	5	7	3	84	143,510
Dental hygienists	11	4	8	5	82	165,401
Radiation therapists	11	7	5	6	82	14,477
Physicians and surgeons	11	5	6	21	66	900,566
Pharmacists	10	7	4	18	70	283,197
Physical therapists	9	5	5	12	77	232,161
Occupational therapists	9	5	4	7	82	106,152
Health diagnosing and treating practitioners, all other	9	3	6	24	64	29,013
Dentists	9	3	6	16	73	168,404
Audiologists	6	2	4	2	90	15,061
Chiropractors	5	2	4	4	88	56,746
Veterinarians	5	1	4	3	90	79,474
Optometrists	5	2	3	17	76	38,280
Podiatrists	3	1	1	6	91	8,117

Note: Based on employed adults ages 25 and older. Percent black or Hispanic calculated before rounding. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

Asians and whites are overrepresented in STEM jobs, while Hispanics and blacks are underrepresented

% of employed in each group, by highest level of education
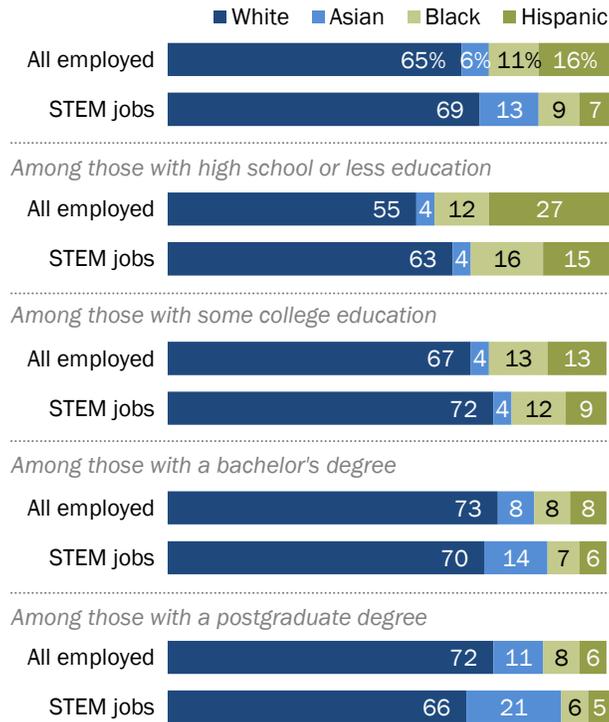
■ White   ■ Asian   ■ Black   ■ Hispanic

All employed
65% 6% 11% 16%

STEM jobs
69 13 9 7

Among those with high school or less education

All employed
55 4 12 27

STEM jobs
63 4 16 15

Among those with some college education

All employed
67 4 13 13

STEM jobs
72 4 12 9

Among those with a bachelor's degree

All employed
73 8 8 8

STEM jobs
70 14 7 6

Among those with a postgraduate degree

All employed
72 11 8 6

STEM jobs
66 21 6 5

Note: Based on employed adults ages 25 and older. Whites, blacks and Asians include only non-Hispanics. Hispanics are of any race. "Some college" includes those with an associate degree and those who attended college but did not obtain a degree. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

There are racial earnings gaps in the STEM workforce for both men and women

Median annual earnings of full-time, year-round workers ages 25 and older employed in a science, technology, engineering or math occupation, in 2016 dollars

	All	% of White	Men	% of White	Women	% of White
White	$71,897		$85,000		$60,828	
Asian	$90,000	125%	$96,311	113%	$81,011	133%
Black	$58,000	81	$66,834	79	$52,718	87
Hispanic	$60,758	85	$70,000	82	$52,000	85

Note: Based on workers with positive earnings.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Women who majored in computers are less likely than men to work in computers; of those in non-STEM jobs, management occupations are common

Among those who earned a bachelor's degree in each of the following areas, % employed in each field

	STEM job consistent with major	Other STEM jobs	OCCUPATIONS		
			Management, business, finance	Community legal, education, media	Other non-STEM jobs
Among those who majored in engineering					
Men	30%	17%	24%	8%	21%
Women	24	19	23	14	20
Among those who majored in computers/computer science					
Men	53	7	16	6	18
Women	38	7	21	11	23
Among those who majored in math					
Men	5	30	23	22	20
Women	5	20	25	32	19
Among those who majored in a health professions field					
Men	61	5	10	7	18
Women	69	2	7	9	14
Among those who majored in biological or agricultural sciences					
Men	5	40	20	12	24
Women	5	42	15	18	21
Among those who majored in a physical science					
Men	10	32	21	15	22
Women	8	29	18	22	22

Note: Based on employed adults ages 25 and older completing at least a bachelor's degree. College major refers to the major field of study of bachelor's degree. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Perceptions of STEM careers

% of U.S. adults who say that, compared with jobs in other industries, jobs in science, technology, engineering and math …

	Offer higher pay	Attract more of the brightest	Are more well-respected	Offer more opportunities for advancement	Are more difficult to get into	Make a more meaningful contribution to society	Are more focused on helping others	Have more flexibility to balance work and family needs
U.S. adults	71%	58%	53%	50%	49%	45%	28%	18%
Among employed								
STEM job	74	67	61	52	49	48	26	22
Non-STEM job	73	60	54	50	51	44	28	17
Among those in STEM jobs								
Men	70	64	59	50	48	53	25	28
Women	77	69	64	54	51	43	28	17
White	72	66	60	49	47	44	24	20
Black	81	71	70	62	55	43	36	27
Hispanic	69	62	53	56	48	50	26	20
Asian	81	69	68	61	61	66	30	31
Type of STEM job								
Health-related	74	69	62	55	49	43	29	17
Computer	79	67	61	51	54	47	22	33
Engineering	74	58	55	51	42	50	24	20
Life/physical sciences	60	67	68	39	49	67	34	33
University/school teaching	68	69	64	49	48	54	26	14
Among those in non-STEM jobs								
Men	68	57	51	48	50	46	31	19
Women	78	62	58	52	52	42	24	14

Note: Respondents who gave other responses or those who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

Characteristics that are important for workers in choosing a job

% of employed adults who say the following things are important to them personally when choosing a job

	Having flexibility to balance work/family needs	Having opportunities for promotion/ advancement	Being in a workplace welcoming for people like them	Having a high-paying job	Having a job that others respect and value	Making a meaningful contribution to society	Having a job that focuses on helping others
All employed	68%	53%	46%	46%	39%	38%	35%
Among employed							
STEM job	74	51	50	53	47	56	46
Non-STEM job	67	53	46	45	38	36	34
Among those in STEM jobs							
Men	71	57	48	59	43	51	31
Women	76	46	53	48	50	60	59
White	75	48	51	49	47	56	46
Black	65	55	43	54	29	49	45
Hispanic	64	56	48	61	37	49	38
Asian	76	65	53	70	60	64	50
Type of STEM job							
Health-related	72	42	49	48	50	61	65
Computer	81	61	54	68	44	43	26
Engineering	72	63	52	60	44	56	25
Life/physical sciences	77	68	61	57	57	66	35
University/ school teaching	67	38	48	27	45	71	49
Among those in non-STEM jobs							
Men	61	53	42	49	37	31	27
Women	73	52	50	40	40	41	41

Note: Respondents who gave other responses and those who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

What workers say helps their chances of getting ahead in their jobs

% of employed adults who say each of the following helps their chances of getting ahead in their job

	Working harder than others	Being assertive	Having a workplace mentor to advise them	Being vocal about work and accomplishments	Speaking out about problems they see in the workplace	Participating in informal social activities with coworkers	Talking about their personal life at work
All employed	65%	60%	59%	35%	34%	29%	8%
Among employed							
STEM job	67	61	66	40	35	29	7
Non-STEM job	65	59	58	34	34	29	8
Among those in STEM jobs							
Men	71	66	67	43	38	33	11
Women	63	57	65	37	33	25	4
White	66	60	64	35	33	26	6
Black	58	54	67	45	36	27	6
Hispanic	71	71	63	42	46	30	5
Asian	71	65	75	57	43	42	14
Type of STEM job							
Health-related	61	55	62	33	35	22	4
Computer	69	64	68	47	39	33	11
Engineering	73	78	72	47	44	37	11
Life/physical sciences	78	67	78	46	34	41	10
University/school teaching	66	56	65	36	19	27	3
Among those in non-STEM jobs							
Men	65	59	54	32	34	27	9
Women	64	59	62	36	33	30	7

Note: Respondents who gave other responses or who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

How often workers say they have to prove themselves to be respected by coworkers

% of employed adults who say they feel the need to prove themselves ___ in order to be respected by coworkers

	All the time	Some of the time	Not too often/never
All employed	17%	33%	40%
Among employed			
STEM job	16	41	38
Non-STEM job	17	32	41
Among those in STEM jobs			
Men	16	40	37
Women	15	42	39
White	13	41	39
Black	19	36	42
Hispanic	20	42	34
Asian	22	42	32
Among women in STEM jobs in workplaces with ...			
More men	27	54	19
More women	12	41	46
Even gender mix	16	39	44
Among men in STEM jobs in workplaces with ...			
More men	18	42	40
More women	18	41	41
Even gender mix	16	44	40
Among those in non-STEM jobs			
Men	17	32	42
Women	17	32	40

Note: Self-employed respondents were not asked this question; their share is not shown. Respondents who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

Women with a postgraduate degree working in STEM jobs are most likely to say they have experienced discrimination at work

% of employed adults in each group who say the following

	Women in STEM jobs			Men in STEM jobs			Women in non-STEM jobs			Men in non-STEM jobs		
	Postgrad	College grad	Some college	Postgrad	College grad	Some college	Postgrad	College grad	Some college	Postgrad	College grad	Some college
They have ever experienced gender-related discrimination at work	62%	47%	41%	19%	16%	22%	55%	39%	38%	24%	26%	21%
They have ever experienced sexual harassment at work	18	23	27	5	6	11	23	20	22	10	9	7
Their gender has made it harder to succeed in their job	35	14	10	9	4	6	26	19	17	11	9	6
Women are usually treated fairly in their workplace in ...												
Recruitment and hiring process	71	77	81	84	80	80	64	74	68	74	79	70
Opportunities for promotion and advancement	52	61	76	79	76	78	53	68	58	73	75	64
Sexual harassment is a problem in ...												
Their workplace	39	37	33	24	29	33	48	31	35	42	29	36
Their industry	60	58	47	47	55	49	60	43	46	63	47	42

Note: Experience of gender-related discrimination based on combined responses to eight items. College grad refers to those whose highest degree is a bachelor's degree. Respondents who gave other responses or who did not give an answer are not shown. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Among STEM workers, blacks are especially likely to say they have experienced race-based discrimination in the workplace

% of employed adults who say each of the following has ever happened to them at work because of their race or ethnicity

	Among those in STEM jobs				Among those in non-STEM jobs		
	White	Black	Hispanic	Asian	White	Black	Hispanic
Ever experienced any of these kinds of discrimination at work due to their race/ethnicity	13%	62%	42%	44%	13%	50%	42%
Were treated as if they were not competent	3	45	23	20	3	28	19
Experienced repeated, small slights at work	4	22	15	18	4	22	15
Earned less than a coworker doing the same job	3	27	15	13	3	20	18
Felt isolated in their workplace	4	29	15	16	4	16	12
Received less support from senior leaders than a coworker doing the same job	4	27	20	15	4	16	13
Been turned down for a job	3	19	12	6	3	17	10
Been passed over for the most important assignments	2	21	16	8	3	19	12
Been denied a promotion	2	14	11	4	2	16	9

Note: Respondents who gave other responses or who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs to be broken out into a separate analysis in this survey. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

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Most STEM workers say whites are usually treated fairly in hiring, promotion opportunities where they work

% of employed adults who say _____ in their workplace

| | *Whites are usually treated fairly in …* | | *Asian Americans are usually treated fairly in …* | |
	Recruitment and hiring process	Opportunities for promotion and advancement	Recruitment and hiring process	Opportunities for promotion and advancement
All employed	81%	78%	71%	68%
Among employed				
STEM job	86	83	78	73
Non-STEM job	80	78	70	68
Among those in STEM jobs				
White	86	81	83	79
Black	89	88	70	67
Hispanic	91	89	79	69
Asian	87	89	62	53
Among those in non-STEM jobs				
White	79	77	77	76
Black	79	79	56	53
Hispanic	84	79	58	52

Note: Based on employed. Respondents who gave other responses or who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs to be broken out into a separate analysis in this survey. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

Black STEM and non-STEM workers are much less likely to say blacks are treated fairly in their workplace in hiring, opportunities for promotion and advancement

% of employed adults who say _____ in their workplace

	Blacks are usually treated fairly in …		**Hispanics are usually treated fairly in …**	
	Recruitment and hiring process	Opportunities for promotion and advancement	Recruitment and hiring process	Opportunities for promotion and advancement
All employed	65%	63%	65%	63%
Among employed				
STEM job	71	67	72	67
Non-STEM job	64	62	64	62
Among those in STEM jobs				
White	78	75	78	74
Black	43	37	51	42
Hispanic	67	61	72	59
Asian	56	52	59	55
Among those in non-STEM jobs				
White	74	73	74	73
Black	41	36	44	39
Hispanic	48	48	48	45

Note: Based on employed. Respondents who gave other responses or who did not give an answer are not shown. Whites, blacks and Asians are non-Hispanic only; Hispanics are of any race. There were not enough Asian respondents working in non-STEM jobs in to be broken out into a separate analysis in this survey. STEM stands for science, technology, engineering and math.
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.
"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER

Survey questionnaire and topline

2017 STEM SURVEY QUESTIONNAIRE
JULY 11-AUG. 10, 2017
N=4,914

ASK ALL:
SCH1   Thinking about what's being taught in the K to 12 public schools these days, what ONE subject should schools emphasize more than they do now? **[OPEN-END]**

Jul 11 – Aug 10 2017	
	Responses coded into the following categories:
19	English/Grammar/Writing/Reading
18	Math/Statistics
12	History/Social Studies/Civics/Politics/Current events/Engineering
9	Science/Engineering
7	Economics/Finances
6	Life skills/Home economics
4	Manner/Respect/Anti-bullying/Social skills
3	Computers/Computer science
3	Art/Arts/Music
3	Physical education/Health/Sex education/Abstinence
2	Critical thinking/Logic
1	Foreign Languages
1	Religion/Christianity/Bible/Prayer/Creationism
1	Nothing
<1	Everything
12	Don't know/Not answer
28	**(NET) STEM subjects**

TREND FOR COMPARISON:
Pew Research Center/Smithsonian Magazine survey conducted by telephone: *Thinking about what's being taught in kindergarten-through-12th-grade schools these days, what ONE subject should schools emphasize more than they do now?* **[OPEN END. ACCEPT ONLY ONE RESPONSE. USE PRECODED LIST IF RESPONSE CLEARLY FITS. OTHERWISE RECORD OPEN-END RESPONSE. PROBE FOR CLARITY – DO NOT PROBE FOR ADDITIONAL MENTIONS.]**

	March 7-10 2013
Math/Mathematics/Arithmetic	30
English/Grammar/Writing/Reading	19
Science	11
History/Social studies/Civics/Politics/Current events/Government	10
Art/Arts/Music	6
Computers/Computer science	4
Physical education/Health/Sex education/Abstinence	2
Religion/Christianity/Bible/Prayer/Creationism	2
Economics/Finances	2
Foreign Languages	1
Manner/Respect/Anti-bullying	1
Other	3
Don't know/No answer	7
(NET) STEM subjects	**45**

ASK ALL:
SCH2 Overall, how much would you say you know about the K to 12 public schools…

    a. In your local community

23	A lot
56	A little
20	Nothing at all
<1	No answer

    b. In the U.S. as a whole

11	A lot
68	A little
20	Nothing at all
1	No answer

ASK ALL:
SCH3 How would you rate the K to 12 public schools in your local community in the following areas?
    [RANDOMIZE ITEMS]

    a. In providing the knowledge and skills needed for pursuing a four-year college degree

12	Excellent
47	Good
31	Only fair
7	Poor
3	No answer

    b. In teaching reading, writing and mathematics

11	Excellent
51	Good
31	Only fair
6	Poor
2	No answer

    c. In providing the knowledge and skills needed for pursuing a vocational or technical career

8	Excellent
44	Good
36	Only fair
9	Poor
3	No answer

SCH3 continued…

a. In teaching critical-thinking and problem-solving skills

7	Excellent
41	Good
38	Only fair
11	Poor
2	No answer

ASK ALL:
SCH4   Compared with other developed nations, how would you rate the United States in the following area... education in K to 12 public schools?

3	The U.S. is the best in the world
23	The U.S. is above average
42	The U.S. is average
31	The U.S. is below average
1	No answer

RANDOMLY ASSIGN HALF OF RESPONDENTS ITEMS IN ORDER a-c AND OTHER HALF ITEMS IN ORDER c-a
ASK ALL:
SCH5   a. Compared with other developed nations, how would you rate the United States in the following area…education in science, technology, engineering and math in K to 12 public schools?

3	The U.S. is the best in the world
22	The U.S. is above average
43	The U.S. is average
30	The U.S. is below average
2	No answer

TREND FOR COMPARISON:
Pew Research Center survey conducted by telephone: We'd like you to compare the United States to other industrialized countries in a few different areas … Do you think the U.S. is the BEST IN THE WORLD, above average, average or below average in science, technology, engineering and math education for grades K to 12 compared to other industrialized countries?

	Aug 15-25 2014
Best in the world	7
Above average	22
Average	39
Below average	29
Don't know/Refused **(VOL.)**	3

b. Compared with other developed nations, how would you rate the United States in the following area…undergraduate education in science, technology, engineering and math in colleges and universities?

6	The U.S. is the best in the world
29	The U.S. is above average
46	The U.S. is average
17	The U.S. is below average
2	No answer

c. Compared with other developed nations, how would you rate the United States in the following area…graduate education in science, technology, engineering and math in universities?

9	The U.S. is the best in the world
29	The U.S. is above average
43	The U.S. is average
17	The U.S. is below average
2	No answer

ASK ALL:
SCH6 Thinking about science, technology, engineering and math education in the nation's K to 12 public schools these days, do you think each of the following is a big problem, a small problem or not a problem? **[RANDOMIZE ITEMS]**

		A big problem	A small problem	Not a problem	No answer
a.	Too little time is spent on these subjects in elementary school	48	39	11	2
b.	Teachers do not have curriculum materials that are up-to-date with the newest developments in these subjects	48	37	13	2
c.	Students lack interest in learning about these subjects	57	33	8	2
d.	Too much emphasis is given to meeting state standards in these subjects	55	32	11	2
e.	Teachers do not emphasize the practical uses of these subjects for everyday life	53	38	7	2
f.	Parents are not involved in supporting school education in these subjects	61	31	6	2
g.	Students are not willing to work hard to excel in these subjects	59	32	7	2
h.	Teachers rarely use methods that help students think critically and problem-solve in these subjects	49	40	9	2

ASK ALL:
SCH7 What's the main reason many young people don't pursue college degrees in science, technology, engineering and mathematics? Is it mostly because… **[RANDOMIZE; "some other reason" always last]**

July 11- Aug 10 <u>2017</u>	
52	They think these subjects are too hard
12	They think these subjects are too boring
23	They think these subjects are not useful for their careers
12	Some other reason (please specify) **[OPEN END]**
2	No answer

TREND FOR COMPARISON:
Pew Research Center/Smithsonian Magazine survey conducted by telephone: *What's the main reason many young people don't pursue degrees in math and science? Is it mostly because they think these subjects….* **[READ AND RANDOMIZE]**

	March 7-10 <u>2013</u>
Are too hard	46
Are too boring	20
Are not useful for their careers	22
Other **(VOLUNTEERED)**	7
Don't know/Refused **(VOLUNTEERED)**	4

ASK ALL:
SCH8 Thinking back to your own experiences in grades K to 12, did you generally like or dislike…
[RANDOMIZE ITEMS]

a. Science classes

75	Liked
25	Disliked
1	No answer

b. Math classes

58	Liked
42	Disliked
<1	No answer

ASK IF SCH8A=1:
SCH9A Thinking back to your experiences in grades K to 12, which of these was the main reason you generally liked SCIENCE CLASSES?

Based on those who liked science classes [N=3,932]

31	I liked the way science classes were taught
68	I liked the subject matter of the science classes
1	No answer

ASK IF SCH8A=2:

SCH9A Thinking back to your experiences in grades K to 12, which of these was the main reason you generally disliked SCIENCE CLASSES?

Based on those who disliked science classes [N=963]

36	I disliked the way science classes were taught
61	I disliked the subject matter of the science classes
3	No answer

ASK IF SCH8B=1:

SCH9B Thinking back to your experiences in grades K to 12, which of these was the main reason you generally liked MATH CLASSES?

Based on those who liked math classes [N=3,117]

38	I liked the way math classes were taught
61	I liked the subject matter of the math classes
1	No answer

ASK IF SCH8B=2:

SCH9B Thinking back to your experiences in grades K to 12, which of these was the main reason you generally disliked MATH CLASSES?

Based on those who disliked math classes [N=1,788]

40	I disliked the way math classes were taught
59	I disliked the subject matter of the math classes
1	No answer

ASK IF LIKED SCIENCE CLASSES (SCH8A=1):

SCH10A Thinking back to your own experiences in grades K to 12 which of these, if any, describe reasons you generally liked SCIENCE CLASSES?

Select all answers that apply **[RANDOMIZE ITEMS; none of these always last]**

Based on those who liked science classes [N= 3,932]

	Selected	Not selected/ No answer
a. I found science classes easy	31	69
b. It was easy to see how science would be useful for the future	40	60
c. I felt that I belonged in science classes	25	75
d. I liked the labs and hands-on learning experiences	70	30
e. I had a lot of support at home or after school to help me do well in these classes	15	85
f. None of these	6	94

ASK IF DISLIKED SCIENCE CLASSES (SCH8A=2):

SCH10B   Thinking back to your own experiences in grades K to 12, which of these, if any, describe reasons you generally disliked SCIENCE CLASSES?

Select all answers that apply **[RANDOMIZE ITEMS; none of these always last]**

Based on those who disliked science classes [N=963]

	Selected	Not selected/ No answer
a. I found science classes hard	46	54
b. It was not easy to see how science would be useful for the future	36	64
c. I felt that I didn't belong in science classes	24	76
d. I didn't like the labs and hands-on learning experiences	18	82
e. I didn't have enough support at home or after school to do well in these classes	17	83
f. None of these	15	85

ASK IF EMPLOYED (DOV_EMPLOYED=1)

JOBVALU1   Thinking about your own work experiences…
                Which of these things, if any, is important to you personally when choosing a job?

Select all answers that apply **[RANDOMIZE ITEMS; none of the above always last]**

Based on employed [N=4,702]

	Selected	Not selected/ No answer
a. Having a high-paying job	46	54
b. Having flexibility to balance work and family needs	68	32
c. Having opportunities for promotion or advancement	53	47
d. Making a meaningful contribution to society	38	62
e. Having a job that others respect and value	39	61
f. Having a job that focuses on helping others	35	65
g. Being in a workplace that is welcoming for people like me	46	54
h. None of the above	5	95

COMBINED RESPONSES JOBVALU1 AND JOBVALU2
JOBVALU1   Thinking about your own work experiences…
                    Which of these things, if any, is important to you personally when choosing a job?
                    Select all answers that apply **[RANDOMIZE ITEMS; none of the above always last]**
ASK IF MORE THAN ONE ITEM SELECTED ON JOBVALU1:
JOBVALU2   And, which of these things is MOST important to you personally when choosing a job?

Based on employed [N=4,702]

	NET Important (JOBVALU1)	Most important (JOBVALU2) /Selected alone (JOBVALU1)	Important (JOBVALU1)/Not most important (JOBVALU2)	Not selected/ No answer
a. Having a high-paying job	46	16	30	54
b. Having flexibility to balance work and family needs	68	38	30	32
c. Having opportunities for promotion or advancement	53	14	39	47
d. Making a meaningful contribution to society	38	9	30	62
e. Having a job that others respect and value	39	5	35	61
f. Having a job that focuses on helping others	35	8	27	65
g. Being in a workplace that is welcoming for people like me	46	6	40	54
h. None of the above	5			95

ASK IF EMPLOYED (DOV_EMPLOYED=1):
AHEAD Thinking about the kind of work you do, would you say each of the following helps, hurts, or makes little difference for your chances of getting ahead in your job? **[RANDOMIZE ITEMS]**

Based on employed [N=4,702]

	Helps my chances of getting ahead in my job	Hurts my chances of getting ahead in my job	Makes little difference	No answer
a. Being assertive	60	10	29	1
b. Participating in informal social activities with my coworkers	29	5	65	1
c. Speaking out about problems I see in the workplace	34	22	43	1
d. Having a workplace mentor to advise me	59	3	37	1
e. Talking about my personal life at work	8	28	63	1
f. Working harder than others	65	3	31	1
g. Being vocal about my work and accomplishments	35	13	52	1

ASK IF EMPLOYED (DOV_EMPLOYED=1):
TALENT For the kind of work that you do, how important, if at all, would you say having a natural ability is or has been for you, personally, to get ahead in your job?

Based on employed [N=4,702]

38	Very important
45	Somewhat important
12	Not too important
5	Not at all important
1	No answer

ASK IF WORKING BUT NOT SELF-EMPLOYED (WORK_1=1 OR WORK_2=1):

PROVE   How often, if ever, do you feel the need to prove yourself at work in order to be respected by your coworkers?

Among those asked N=4,246		Among all employed N=4,702
18	All the time	17
37	Some of the time	33
31	Not too often	28
14	Never	13
1	No answer	1
	Not asked	9

RANDOMIZE AND RECORD ORDER OF RESPECTA AND RESPECTB
ASK IF WORKING BUT NOT SELF-EMPLOYED (WORK_1=1 OR WORK_2=1):

RESPECTA   How much would you say that your contributions at work are valued by your SUPERVISOR?

Among those asked N=4,246		Among all employed N=4,702
42	A lot	38
40	Some	37
12	Not too much	11
5	Not at all	5
<1	No answer	<1
	Not asked	9

ASK IF WORKING BUT NOT SELF-EMPLOYED (WORK_1=1 OR WORK_2=1):

RESPECTB   How much would you say that your contributions at work are valued by your COWORKERS?

Among those asked N=4,246		Among all employed N=4,702
37	A lot	33
45	Some	41
13	Not too much	12
4	Not at all	4
1	No answer	1
	Not asked	9

ASK ALL:
FAMSTEM1   Do you have any close family members who work or have worked in a job or career that involves science, technology, engineering or math?

45	Yes
55	No
<1	No answer

ASK ALL:
FAMSTEM1   Do you have any close family members who work or have worked in a job or career that involves science, technology, engineering or math?
FAMSTEM2   These close family members who work or have worked in a job or career that involves science, technology, engineering or math are…

45	Yes
24	Older family member working in STEM
21	No older family member working in STEM
1	No answer
55	No family members working in STEM
<1	No answer

ASK IF NON-STEM WORKER (WORKTYPE_FINAL=2):
INTEREST1   Were you, personally, ever interested in pursuing a job or career that involves science, technology, engineering or math?

Based on non-STEM workers [N=2,354]

16	Yes, I was very interested
24	Yes, I was somewhat interested
21	No, I was not too interested
27	No, I was not at all interested
9	My job or career currently involves science, technology, engineering or math
<1	No answer

ASK IF SOMEWHAT OR VERY INTERESTED (INTEREST1=1,2):
INTEREST2   When were you **[IF INTEREST1=1:**very**; IF INTEREST1=2:**somewhat**]** interested in pursuing a job or career that involves science, technology, engineering or math? [Enter your age at the time. If you don't recall a specific age, describe the time period in your life.] **[OPEN-END]**

Based on those who were very or somewhat interested in pursuing a STEM job [N=849]

Jul 11 – Aug 10
<u>2017</u>

10	Childhood/elementary school
28	Teenage years/high school
41	20s/College
5	Age 30 and older
1	Always interested
1	Currently or previously in STEM career
1	Never interested in STEM career
6	Can't classify
8	Don't know/Don't remember/No answer

ASK IF SOMEWHAT OR VERY INTERESTED (INTEREST1=1,2):
INTEREST3   What's the main reason you did not pursue a job or career that involves science, technology, engineering or math? **[OPEN-END]**

Based on those who were very or somewhat interested in pursuing a STEM job [N=849]

Jul 11 – Aug 10 2017	
27	Cost and time barriers NET
15	*Too expensive*
6	*Not enough education*
4	*Lack of access to resources and opportunities*
3	*Too large of a time commitment*
2	*Too much work/Too many classes to take*
20	Ended up on a different path NET
7	*Found another interest/passion*
6	*Got or already had a job in another field*
5	*Chose to pursue a different career*
2	*Not encouraged to pursue these subjects/careers*
14	Specific problems with subject NET
4	*Didn't do well in STEM classes*
4	*Classes seemed too difficult*
3	*Lost interest in the subject*
3	*Specific class turned them off*
1	*Didn't study; was too lazy*
<1	*Didn't know how to get into a career in STEM*
<1	*Thought these subjects were too specific/too narrow*
<1	*Didn't have a STEM degree*
<1	*Didn't see how STEM subjects would be applicable*
11	Personal circumstances/family NET
6	*Starting or was already taking care of family*
3	*Other personal circumstances*
2	*Disability/Illness*
7	Problems with STEM jobs and careers themselves NET
4	*Lack of jobs/Too much competition*
2	*These jobs don't pay well enough*
1	*Didn't like perceived work environment*
1	Issues because of gender
9	Did pursue STEM job/changed jobs
4	Currently pursuing STEM job/might pursue STEM job in future
4	Other
13	Don't know/No answer

ASK ALL:
STEMJOB Compared with jobs in other industries, would you say… **[RANDOMIZE ITEMS]**

a. Jobs in science, technology, engineering and math…

71	Offer higher pay than jobs in other industries
7	Offer lower pay than jobs in other industries
20	Offer similar pay to jobs in other industries
2	No answer

b. Jobs in science, technology, engineering and math…

50	Offer more opportunities for advancement than jobs in other industries
12	Offer fewer opportunities for advancement than jobs in other industries
36	Offer about the same number of opportunities for advancement as jobs in other industries
2	No answer

c. Jobs in science, technology, engineering and math…

18	Have more flexibility to balance work and family needs than jobs in other industries
28	Have less flexibility to balance work and family needs than jobs in other industries
52	Have about the same amount of flexibility to balance work and family needs as jobs in other industries
2	No answer

d. Jobs in science, technology, engineering and math…

45	Make a more meaningful contribution to society than jobs in other industries
5	Make a less meaningful contribution to society than jobs in other industries
48	Make a about the same contribution to society as jobs in other industries
2	No answer

e. Jobs in science, technology, engineering and math…

53	Are more well-respected than jobs in other industries
9	Are less well-respected than jobs in other industries
36	Are respected about the same as jobs in other industries
2	No answer

STEMJOB continued…

f. Jobs in science, technology, engineering and math…

28   Are more focused on helping others than jobs in other industries
16   Are less focused on helping others than jobs in other industries
54   Are focused about the same amount on helping others as jobs in other industries
 2   No answer

g. Jobs in science, technology, engineering and math…

58   Attract more of the brightest and most qualified young people than jobs in other industries
13   Attract fewer of the brightest and most qualified young people than jobs in other industries
27   Attract about the same number of the brightest and most qualified young people as jobs in other industries
 2   No answer

h. Jobs in science, technology, engineering and math…

49   Are more difficult to get into than jobs in other industries
14   Are less difficult to get into than jobs in other industries
35   Are similarly difficult to get into as jobs in other industries
 2   No answer

CREATE DOV_FORM [S]
Randomly assign half of respondents into FORM=1 and the other half into FORM=2
IF FORM=1, show REASON1 first then REASON2. IF FORM=2, show REASON2 first then REASON1.

ASK ALL:
REASON1   As you may know, women are underrepresented in some science, technology, engineering and math jobs in this country.

For each of the following, please indicate whether you think it is a major reason, a minor reason or not a reason why there are not more women working in science, technology, engineering and math jobs. **[RANDOMIZE ITEMS]**

a. From an early age, girls are not encouraged to pursue these subjects in school

39   A major reason
31   A minor reason
28   Not a reason
 2   No answer

REASON1 continued…

a. Women are less likely than men to believe that they can succeed in these fields

23	A major reason
34	A minor reason
41	Not a reason
2	No answer

b. Women do not pursue these jobs because there are so few female role models in these fields

24	A major reason
36	A minor reason
37	Not a reason
2	No answer

c. Women face discrimination in the recruitment process, hiring and promotions

39	A major reason
29	A minor reason
29	Not a reason
2	No answer

d. More women are being trained in science, technology, engineering and math than before, but it takes time and the process is slow

27	A major reason
38	A minor reason
33	Not a reason
2	No answer

e. Women are just less interested in science, technology, engineering and math than men

18	A major reason
32	A minor reason
47	Not a reason
3	No answer

f. It is more difficult to build a career while balancing work and family responsibilities in science, technology, engineering and math jobs than jobs in other industries

33	A major reason
36	A minor reason
28	Not a reason
2	No answer

ASK ALL:
REASON2   As you may know, blacks and Hispanics are underrepresented in science, technology, engineering and math jobs in this country.

For each of the following, please indicate whether you think it is a major reason, a minor reason or not a reason why there are not more blacks and Hispanics working in science, technology, engineering and math jobs. **[SHOW IN SAME ORDER AS REASON1]**

a. From an early age, blacks and Hispanics are not encouraged to pursue these subjects in school

41	A major reason
25	A minor reason
32	Not a reason
2	No answer

b. Blacks and Hispanics are less likely than others to believe that they can succeed in these fields

33	A major reason
31	A minor reason
34	Not a reason
2	No answer

c. Blacks and Hispanics do not pursue these jobs because there are so few black and Hispanic role models in these fields

27	A major reason
33	A minor reason
37	Not a reason
3	No answer

d. Blacks and Hispanics face discrimination in the recruitment process, hiring and promotions

31	A major reason
29	A minor reason
38	Not a reason
3	No answer

e. More blacks and Hispanics are being trained in science, technology, engineering and math than before, but it takes time and the process is slow

22	A major reason
38	A minor reason
36	Not a reason
3	No answer

REASON2 continued...

   a. Blacks and Hispanics are just less interested in science, technology, engineering and math than others

22	A major reason
26	A minor reason
49	Not a reason
3	No answer

   b. Blacks and Hispanics are less likely to have access to quality education to prepare them for these fields than others

42	A major reason
26	A minor reason
30	Not a reason
3	No answer

QUESTIONS TECH1-TECH6 PREVIOUSLY RELEASED, see "Women are concerned about gender discrimination in tech industry," question wording and topline is available here.

IF FORM=1, show GEND1-6 first. IF FORM=2, show ETHN1-6 first

ASK IF EMPLOYED (DOV_EMPLOYED=1):
Thinking about your own workplace…

GEND1   What is the balance of men and women in your workplace? **[RANDOMIZE ORDER OF 1 AND 2]**

   Based on employed [N=4,702]

32	There are more men
33	There are more women
34	There is an even mix of men and women
1	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
GEND2   How would you say your workplace treats women when it comes to the recruitment and hiring process?

Based on employed [N=4,702]

72	Usually treated fairly in the recruitment and hiring process
21	Sometimes treated fairly and sometimes treated unfairly
5	Usually treated unfairly in the recruitment and hiring process
2	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
GEND3   How would you say your workplace treats women when it comes to opportunities for promotion and advancement?

Based on employed [N=4,702]

64	Usually treated fairly in opportunities for promotion and advancement
27	Sometimes treated fairly and sometimes treated unfairly
7	Usually treated unfairly in opportunities for promotion and advancement
2	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
GEND4   Would you say your workplace pays too much, too little or about the right amount of attention to increasing gender diversity?

Based on employed [N=4,702]

9	Too much attention
21	Too little attention
68	About the right amount of attention
2	No answer

ASK ALL:
GEND5   How important would you say it is to have gender diversity in workplaces today?

25	Extremely important
27	Very important
26	Somewhat important
10	Not too important
11	Not at all important
1	No answer

ASK IF DIVERSITY IS EXTREMELY/VERY/SOMEWHAT IMPORTANT (GEND5=1-3):

GEND6   Which of these, if any, do you consider important reasons to increase gender diversity in the workplace?

Select all answers that apply **[RANDOMIZE ITEMS; item d always last]**

Based on those saying gender diversity is "extremely, very or somewhat important" [N=3,920]

	Selected	Not selected/ No answer
a. Gender diversity in the workplace gives people an equal opportunity to succeed	55	45
b. Gender diversity provides other perspectives that contribute to the overall success of companies and organizations	59	41
c. Gender diversity makes good business sense because it increases the supply of potential workers	42	58
d. None of these	10	90

ASK IF EMPLOYED (DOV_EMPLOYED=1):

ETHN1   Which of these best describes your workplace? **[SHOW IN SAME ORDER AS GEND1]**

Based on employed [N=4,702]

33	Most people are the same race and ethnicity as I am
14	Most people are a different race or ethnicity than I am
52	There is a mix of people from different racial and ethnic backgrounds
1	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):

ETHN2   How would you say your workplace treats people in each of the following groups when it comes to the recruitment and hiring process? **[RANDOMIZE ITEMS]**

a. Whites

Based on employed [N=4,702]

81	Usually treated fairly in the recruitment and hiring process
14	Sometimes treated fairly and sometimes treated unfairly
3	Usually treated unfairly in the recruitment and hiring process
3	No answer

b. Blacks

Based on employed [N=4,702]

65	Usually treated fairly in the recruitment and hiring process
25	Sometimes treated fairly and sometimes treated unfairly
8	Usually treated unfairly in the recruitment and hiring process
3	No answer

ETHN2 continued…

c. Hispanics

Based on employed [N=4,702]
65	Usually treated fairly in the recruitment and hiring process
25	Sometimes treated fairly and sometimes treated unfairly
7	Usually treated unfairly in the recruitment and hiring process
3	No answer

d. Asian Americans

Based on employed [N=4,702]
71	Usually treated fairly in the recruitment and hiring process
22	Sometimes treated fairly and sometimes treated unfairly
4	Usually treated unfairly in the recruitment and hiring process
3	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
ETHN3   How would you say your workplace treats people in each of the following groups when it comes to opportunities for promotion and advancement? **[RANDOMIZE ITEMS]**

a. Whites

Based on employed [N=4,702]
78	Usually treated fairly in opportunities for promotion and advancement
16	Sometimes treated fairly and sometimes treated unfairly
3	Usually treated unfairly in opportunities for promotion and advancement
3	No answer

b. Blacks

Based on employed [N=4,702]
63	Usually treated fairly in opportunities for promotion and advancement
26	Sometimes treated fairly and sometimes treated unfairly
8	Usually treated unfairly in opportunities for promotion and advancement
3	No answer

c. Hispanics

Based on employed [N=4,702]
63	Usually treated fairly in opportunities for promotion and advancement
27	Sometimes treated fairly and sometimes treated unfairly
7	Usually treated unfairly in opportunities for promotion and advancement
3	No answer

ETHN3 continued...

d. Asian Americans

Based on employed [N=4,702]

68	Usually treated fairly in opportunities for promotion and advancement
24	Sometimes treated fairly and sometimes treated unfairly
4	Usually treated unfairly in opportunities for promotion and advancement
3	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
ETHN4   Would you say your workplace pays too much, too little or about the right amount of attention to increasing racial and ethnic diversity?

Based on employed [N=4,702]

11	Too much attention
22	Too little attention
65	About the right amount of attention
2	No answer

ASK ALL:
ETHN5   How important would you say it is to have racial and ethnic diversity in workplaces today?

26	Extremely important
27	Very important
27	Somewhat important
9	Not too important
9	Not at all important
2	No answer

ASK IF DIVERSITY IS EXTREMELY/VERY/SOMEWHAT IMPORTANT (GEND5=1-3):
ETHN6   Which of these, if any, do you consider important reasons to increase racial and ethnic diversity in the workplace?

Select all answers that apply **[SHOW IN SAME ORDER AS GEND6]**

Based on those saying racial and ethnic diversity is "extremely, very or somewhat important" [N=4,014]

	Selected	Not selected/ No answer
a. Racial and ethnic diversity in the workplace gives people an equal opportunity to succeed	56	44
b. Racial and ethnic diversity provides other perspectives that contribute to the overall success of companies and organizations	56	44
c. Racial and ethnic diversity makes good business sense because it increases the supply of potential workers	42	58

IF DOV_FORM=1, show GENDJOB1-GENDJOB2 first; IF DOV_FORM=2 show ETHNJOB1 ENTHNJOB2 first

ASK IF EMPLOYED (DOV_EMPLOYED=1):

GENDJOB1   Overall, which of these best describes your experience? **[RANDOMIZE ORDER OF ITEMS 1 AND 2]**

   Based on employed [N=4,702]

13	My gender has made it harder for me to succeed in my job
17	My gender has made it easier for me to succeed in my job
68	My gender has not made much difference in my job
2	No answer

IF STEM WORKER AND GENDER MADE IT HARDER TO SUCCEED (WORKTYPE_FINAL=1 AND GENDJOB1=1)

GENDJOB2   Why do you think that your gender has made it harder to succeed in your job? **[OPEN-END]**

   Based on STEM workers who say their gender has made it harder to succeed in their job [N=298]:

Jul 11 – Aug 10 2017	
22	Hiring, promotion and salary barriers NET
10	*Promoted less often than men*
7	*Most leadership positions are held by men*
3	*More likely to get turned down for a job*
1	*Passed over for opportunities*
1	*Paid less*
<1	*Guided into certain professions*
19	Treatment by coworkers NET
13	*Automatically assumed to be less competent*
3	*Criticized for not meeting gender behavior expectations*
2	*Assumed to do less important tasks*
2	*Experience general slights*
<1	*Others associate them with negative stereotypes*
14	Need to work harder than others NET
7	*Feel need to constantly prove themselves*
5	*Have to work harder than others/Held to different standards*
3	*Ideas are ignored until someone else states them*
13	Affected by reverse discrimination NET
7	*Both reverse gender and racial discrimination*
6	*Reverse gender discrimination*
13	Unwelcoming workplace environment NET
7	*Feeling of being the only female in the workplace*
6	*"Boys club" among male coworkers*
2	*Harassment*
12	General bias against women
11	Problems with balancing work and family NET
10	*Others expect they cannot have family responsibilities and work*
1	*Hard to balance expected family responsibilities*
<1	*Inadequate leave/childcare policies*
8	Other
7	Don't know/No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
ETHNJOB1   Overall, which of these best describes your experience? **[SHOW IN SAME ORDER AS GENDJOB1]**

    Based on employed [N=4,702]
13	My race or ethnicity has made it harder for me to succeed in my job
15	My race or ethnicity has made it easier for me to succeed in my job
70	My race or ethnicity has not made much difference in my job
2	No answer

IF STEM WORKER AND RACE OR ETHNICITY MADE IT HARDER TO SUCCEED (WORKTYPE_FINAL=1 AND ETHNJOB1=1)
ETHNJOB2   Why do you think that your race or ethnicity has made it harder to succeed in your job? **[OPEN-END]**

    Based on STEM workers who say their race or ethnicity has made it harder to succeed in their job [N=216]:

Jul 11 – Aug 10 2017	
19	Treatment by coworkers NET
9	*Automatically assumed to be less competent*
8	*Others associate them with negative stereotypes*
2	*Criticized for not meeting racial behavior expectations*
1	*Assumed to do less important tasks*
1	*Experience general slights*
19	Affected by reverse discrimination NET
10	*Both reverse gender and racial discrimination*
8	*Reverse racial discrimination*
1	*Reverse gender discrimination*
14	General bias against minorities
12	Hiring, promotion and salary barriers NET
5	*Promoted less often than whites*
4	*Passed over for opportunities*
2	*Most leadership positions are held by whites*
1	*More likely to get turned down for a job*
<1	*Paid less*
9	Unwelcoming workplace environment NET
7	*Feeling of being the only minority in the workplace*
2	*Excluded from the "club"*
<1	*Uncomfortable workplace/don't fit in*
9	Need to work harder than others NET
6	*Have to work harder than others/Held to different standards*
4	*Feel need to constantly prove themselves*
1	*Ideas are ignored until someone else says them*
4	Bias because not from the U.S.
10	Other
8	Don't know/No answer

ASK IF EMPLOYED (WORKTYPE_FINAL=1) AND BLACK MAN (PPGENDER=1 AND PPETHM=2) OR EMPLOYED (WORKTYPE_FINAL=1) AND BLACK WOMAN (PPGENDER=2 AND PPETHM=2) OR EMPLOYED (WORKTYPE_FINAL=1) AND HISPANIC MAN (PPGENDER=1 AND PPETHM=4) OR EMPLOYED (WORKTYPE_FINAL=1) AND HISPANIC MAN (PPGENDER=2 AND PPETHM=4) OR EMPLOYED (WORKTYPE_FINAL=1) AND ASIAN AMERICAN WOMAN (PPGENDER=2 AND (PPETHM=3 AND XRACEM=4))

CHANGE   In your view, what would be the most effect way to attract more **[IF PPGENDER=1 AND PPETHM2:** black men**; IF PPGENDER=1 AND PPETHM=4:** Hispanic men**; IF PPGENDER=2 AND PPETHM=2:** black women**; IF PPGENDER=2 AND PPETHM=4:** Hispanic women**; IF PPGENDER=4 AND XRACEM=4 AND PPETHM=3:** Asian American women**]** to jobs in science, technology, engineering and math? **[OPEN END]**

Based on STEM workers who are black men, Hispanic men, black women, Hispanic women or Asian American women [N=1,323]

Jul 11 – Aug 10 2017	
37	Change aspects of schooling and education NET
16	*Start teaching these subjects to children early*
7	*Increase scholarship/recruitment efforts*
6	*Improve education quality*
6	*Educate students on opportunities and career paths in these fields*
3	*Provide fun, interactive, hands-on experiences*
2	*Provide more internships and career opportunities throughout education*
2	*Make science accessible/applicable*
<1	*Teach in all-girls setting*
23	Change the job or work environment NET
9	*Increase pay*
8	*Increase work-life balance*
6	*Promote and provide more opportunities for women and minorities*
2	*Increase overall fair and equal treatment*
2	*Reduce workplace discrimination/harassment*
23	Provide encouragement and role models NET
12	*Provide visible role models/mentors*
5	*Provide confidence/Make sure girls and minorities know they can do anything*
4	*Encourage them to enjoy science*
2	*Increase encouragement from home and parents*
1	*Have science camps, after school programs, STEM clubs*
1	*Increase representation in field*
4	Change the culture of science and science careers NET
2	*Better marketing for science and science careers*
1	*Changing images of STEM workers on TV and in media*
2	This isn't about gender or race
3	Other
9	Don't know/No answer

IF DOV_FORM=1 ask GENDDISC first; IF DOV_FORM=2 ask ETHNDISC first
ASK IF EMPLOYED (DOV_EMPLOYED=1):

GENDDISC   Here are a few things that some people have experienced in their workplace because of their gender.

Which, if any, of the following has ever happened to you?

Select all answers that apply **[RANDOMIZE ITEMS; item i always last]**

Based on employed [N=4,702]

	Selected	Not selected/ No answer
a. Been denied a promotion because of your gender	6	94
b. Earned less than a **[IF PPGENDER=1**:woman; **IF PPGENDER=2:** man]** who was doing the same job	15	85
c. Been turned down for a job because of your gender	5	95
d. Felt isolated in your workplace because of your gender	7	93
e. Received less support from senior leaders than a **[IF PPGENDER=1**:woman; **IF PPGENDER=2**: man]** who was doing the same job	11	89
f. Had someone treat you as if you were not competent because of your gender	14	86
g. Been passed over for the most important assignments because of your gender	7	93
h. Experienced repeated, small slights at work because of your gender	11	89
i. None of these	67	33

Trends for comparisons on items a, b and c reported in December 2013: "On Pay Gap, Millennial Women Near Parity – For Now

ASK IF EMPLOYED (DOV_EMPLOYED=1):

ETHNDISC   Here are a few things that some people have experienced in their workplace because of their race or ethnicity.

Which, if any, of the following has ever happened to you?

Select all answers that apply **[SHOW IN SAME ORDER AS GENDDISC]**

Based on employed [N=4,702]

	Selected	Not selected/ No answer
a. Been denied a promotion because of your race or ethnicity	5	95
b. Earned less than a coworker who was doing the same job because of your race or ethnicity	8	92
c. Been turned down for a job because of your race or ethnicity	7	93
d. Felt isolated in your workplace because of your race or ethnicity	8	92
e. Received less support from senior leaders than another worker who was doing the same job because of your race or ethnicity	7	93
f. Had someone treat you as if you were not competent because of your race or ethnicity	10	90
g. Been passed over for the most important assignments because of your race or ethnicity	7	93
h. Experienced repeated, small slights at work because of your race or ethnicity	9	91
i. None of these	73	27

ASK IF EMPLOYED (DOV_EMPLOYED=1):

HARASS1   As far as you know, would you say sexual harassment is a big problem, a small problem or not a problem in your workplace?

Based on employed [N=4,702]

10	Big problem
25	Small problem
64	Not a problem
1	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):

HARASS2   Overall, would you say sexual harassment is a big problem, a small problem or not a problem in jobs in the industry where you work?

Based on employed [N=4,702]

12	Big problem
35	Small problem
51	Not a problem
2	No answer

ASK IF EMPLOYED (DOV_EMPLOYED=1):
HARASS3   Have you ever personally experienced sexual harassment at work, or have you not experienced this?

   Based on employed [N=4,702]
   14   Yes, I have experienced sexual harassment at work
   85   No, I have not experienced sexual harassment at work
    1   No answer

ASK ALL:
VOTECH   Just a few more questions about your background and experiences…

   Have you completed any vocational or technical training, certificate or apprenticeship?

	All U.S. adults	College degree or more	Some college or less
Yes	33	28	35
No	66	70	63
No answer	2	2	1

   TREND FOR COMPARISON:
   Pew Research Center survey conducted by telephone: Have you completed any vocational or technical training, certificate or apprenticeship?
   Based on/Asked of those with some college or less education [N=2,240]

	May 25-Jun 29 2016
Yes	38
No	61
Don't know/Refused **(VOL.)**	<1

ASK IF ASSOCIATE DEGREE OR MORE (PPEDUC=11-14]:
DEGREE1   What was your major field of study in college? (Please fill in as many as apply) **[OPEN END FOR UP TO TWO MAJOR FIELDS]**

Based on those with an Associate Degree or more [N=3,269]

Jul 11-Aug 10
<u>2017</u>

29	Business NET
14	*General and other business*
7	*Accounting*
6	*Business management and administration*
4	*Marketing and marketing research*
2	*Finance*
1	*Human Resources*
20	Arts and Humanities NET
5	*English/Literature/Writing*
4	*History*
3	*Art (e.g., visual arts, theater, dance, art history)*
2	*Communications*
2	*Liberal arts/Humanities/General Studies*
1	*Foreign language/Linguistics*
1	*Other arts and humanities*
1	*Journalism*
1	*Philosophy/Religion/Theology*
1	*Music*
15	Social Sciences NET
8	*Psychology/Behavioral Science*
3	*Political science*
2	*Economics*
1	*Sociology*
1	*General/Other social sciences*
1	*Anthropology/Archaeology*
11	Health-related
10	Computers/Mathematics/Statistics NET
8	*Computer and information sciences*
3	*Mathematics and statistics (including actuarial science)*
8	Engineering and Architecture NET
7	*Engineering*
1	*Architecture*
7	Biological, Agricultural Sciences NET
7	*Life sciences (e.g., biology, biochemical sciences, zoology, plant science, ecology)*
<1	*Agriculture*
6	Education, not specified
5	Physical and Earth Sciences NET
4	*Physical science (e.g., chemistry, physics)*
2	*Earth science (e.g., geology, environmental sciences)*
4	Non-STEM education
<1	STEM education (e.g., math teacher education, science teacher education)
12	Other fields NET
2	*Law and legal studies*
2	*Criminal justice/Criminology*
1	*Social work and counseling*
1	*Human development and family studies (e.g. gerontology)*

<1	*Public policy and administration*
<1	*Library science*
6	*General other*
2	Not enough information
2	Don't know/No answer

ASK IF GRADUATE DEGREE (PPEDUC=13,14]:
DEGREE2   Thinking about your most recent graduate degree, what was your degree field? **[OPEN-END TEXT BOX; SINGLE LINE]**

Based on those with a graduate degree [N=1,131]

Jul 11-Aug 20
<u>2017</u>

25	Business NET
14	*Business management and administration*
3	*Accounting*
2	*Marketing and marketing research*
1	*Finance*
1	*Human resources*
3	*General/Other Business*
11	Health-related
7	Education, not specified
7	Engineering and Architecture NET
6	*Engineering*
1	*Architecture*
7	Non-STEM education
6	Arts and Humanities NET
2	*Philosophy/Religion/Theology*
1	*English/Literature/Writing*
1	*History*
1	*Liberal arts/Humanities/General Studies*
<1	*Art (e.g., visual arts, theater, dance, art history)*
<1	*Journalism*
<1	*Music*
<1	*Foreign language/Linguistics*
<1	*Communications*
<1	*Other arts and humanities*
4	Social Sciences NET
2	*Psychology/Behavioral Science*
1	*Economics*
<1	*Sociology*
<1	*General/other social sciences*
4	Physical and Earth Sciences NET
2	*Physical science (e.g., chemistry, physics)*
1	*Earth science (e.g., geology, environmental sciences)*
3	Computers/Mathematics/Statistics NET
2	*Computer and information sciences*
1	*Mathematics and statistics (including actuarial science)*
2	Biological, Agricultural Sciences NET
2	*Life sciences (e.g., biology, biochemical sciences, zoology, plant science, ecology)*
<1	*Agriculture*
1	STEM education (e.g., math teacher education, science teacher education)
<1	Science, not specified
12	Other fields NET
5	*Law and legal studies*
2	*Public policy and administration*
2	*Social work and counseling*
2	*Library science*

<1	*Criminal justice/Criminology*
<1	*Human development and family studies (e.g. gerontology)*
1	*General other*
6	Not enough information
2	Don't know/No answer

ASK IF EMPLOYED AND ASSOCIATE DEGREE OR MORE (DOV_EMPLOYED=1 AND PPEDUC=11,12,13,14]:
RELATE1   How closely related is your current job to **[IF PPEDUC=11, 12:**your college major(s)**/ IF PPEDUC=13, 14:**the field you received your graduate degree in**]**?

Based on employed with an Associate Degree or more [N=3,193]
46	Very closely related
24	Somewhat closely related
14	Not very closely related
16	Not at all related
1	No answer

TREND FOR COMPARISON:
Pew Research Center survey conducted by telephone: How closely related is your current job to the field or major you received your (IF EDUC=5,6,7: college; If EDUC=8: graduate) degree in?
Based on college education or more education and currently employed [N=742]

	Oct 7-27 2013
Very closely	46
Somewhat closely	19
Not very closely	10
Not at all related	25
Don't know/Refused **(VOL.)**	1

ASK IF EMPLOYED AND ASSOCIATE DEGREE OR MORE (DOV_EMPLOYED=1 AND PPEDUC=11,12,13,14]:
RELATE2   How often do you use skills and knowledge from your **[IF PPEDUC=11,12:** college major(s)**; IF PPEDUC=13,14:**graduate degree**]** in your current job?

Based on employed with an Associate Degree or more [N=3,193]
43	All the time
33	Some of the time
15	Not too often
8	Never
1	No answer

ASK IF SOME COLLEGE OR MORE (PPEDUC=10-14):
SCICOUR1   Have you ever taken any college-level science courses?

Based on those with some college or more education [N=4,015]

July 11-
Aug 10
<u>2017</u>

70	Yes
24	No
5	Don't remember
1	No answer

TREND FOR COMPARISON:
General Social Survey: Have you ever taken any college-level science courses?

Based on those with some college or more education [N=802]

Apr 5-Nov 19,
<u>2016</u>

68	Yes
31	No
<1	Don't know
<1	No answer

ASK IF TAKEN COLLEGE-LEVEL SCIENCE COURSES (SCICOUR1=1):
SCICOUR2   How many college-level science courses have you taken?

Based on those who have taken college-level science courses [N=3,168]

July 11-
Aug 10
<u>2017</u>

27	0-2 courses
20	3-5 courses
5	6-8 courses
13	9 or more courses
34	Don't remember
1	No answer

TREND FOR COMPARISON:
General Social Survey: How many college-level science courses have you taken?

Based on those who have taken college-level science courses [N=578]

Apr 5-Nov 19,
<u>2016</u>

39	1-2 courses
31	3-5 courses
7	6-8 courses
17	9 or more courses
5	Don't know
1	No answer

ASK IF SOME COLLEGE OR MORE (PPEDUC=10-14):
MATHCOUR1   Have you ever taken any college-level math courses?

Based on those with some college or more education [N=4,015]

77	Yes
19	No
4	Don't remember
1	No answer

ASK IF TAKEN COLLEGE-LEVEL MATH COURSES (MATHCOUR1=1):
MATHCOUR2   How many college-level math courses have you taken?

Based on those who have taken college-level math courses [N=3,302]

37	0-2 courses
24	3-5 courses
7	6-8 courses
4	9 or more courses
27	Don't remember
<1	No answer

ASK IF SOME COLLEGE OR MORE (PPEDUC=10-14):
FIRSTCOLL   Are you the first person in your immediate family to have attended college, or not?
[Immediate family includes parents and siblings.]

Based on those with some college or more education [N=4,015]

31	Yes
68	No
1	No answer

ASK IF PARENT OF CHILD UNDER 18 (XPARENT=1):
PUBLIC   Do you have any children in kindergarten through 12th grade attending a public school, or not?

Based on parent of a child under 18 [N=1,288]

72	Yes
28	No
1	No answer