

littleBits<sup>™</sup> education

# STEM AT WORK: INTRODUCING MENTORSHIP TO PROMOTE GENDER INCLUSIVENESS

# TABLE OF CONTENTS

- 3 Introduction
- 4 STEM Jobs Are Growing, And They Are Lucrative
- 5 The Positive Impact of STEM Mentorship
- 6 STEM Mentorship: Best Practices
  - TEACH CONFIDENCE**
  - START SIMPLE**
  - SPEAK THE SAME LANGUAGE**
  - EXPLAIN CONFLICT MANAGEMENT**
  - EMBRACE FAILURE**
  - FIND AND EMBRACE KIDS' PASSIONS**
  - YOU DON'T NEED A STEM BACKGROUND TO BE A STEM MENTOR**
- 7 Conclusion

# INTRODUCTION

Women remain **underrepresented** in engineering (14 percent), computer (25 percent), and physical science (39 percent) occupations. Perhaps one reason for this is that societal obstacles start present themselves early.

We must work together to break down these societal barriers to create a more inclusive learning environment – capturing girls’ imaginations early with respect to STEM (Science, Technology, Engineering, and Math) topics.

Studies show that women score **almost identically** to their male classmates on standardized tests in Science and Math through high school. But, they are not sticking with STEM for the long-haul. In fact, men then go on to hold a **disproportionately high share** of STEM undergraduate degrees, particularly in engineering. And today, **84 percent** of working professionals in science or engineering jobs in the U.S are white or Asian males.

Lack of female representation in STEM is not because girls “aren’t good at” STEM or girls “don’t like” STEM. The reasons tend to be systemic and complex.

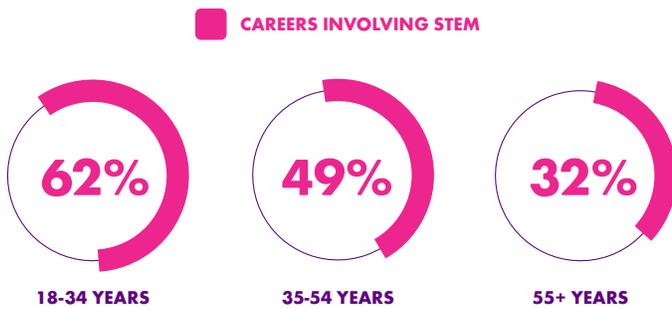
According to a study commissioned by **littleBits**, conducted in partnership with **YouGov**, a third-party research organization, gender, age, and positive female role models to instill confidence early on may have some impact on whether a person has a career in STEM or not. The best way to attract more people – and especially women – to STEM is to **capture their interest early**.

At littleBits, we do this by removing gender from STEM; our circuit boards are white, our Bits are candy-colored, our invention ideas are designed to capture kids’ interests. And finally, we’re proud to say that our users are truly inclusive in every sense of the word. This is apparent in the projects found in our various inventor portals, through inventions shared on social media, and via our educational website.

The change that society needs cannot happen in a vacuum. It requires the help of female leaders to stand up, lean in, and be a mentor. Mentorship is one of the most impactful ways to attract more people, and especially women, into STEM careers so they can take a leading role in the future of work.

# STEM JOBS ARE GROWING, AND THEY ARE LUCRATIVE

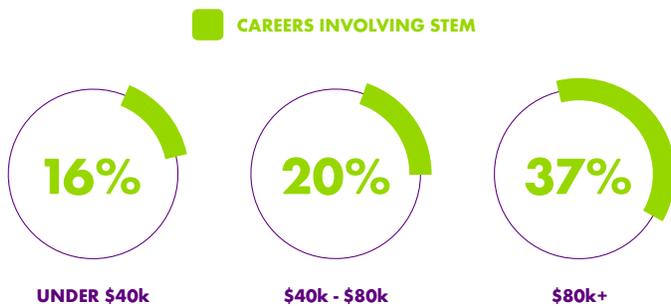
## STEM Careers by Age Group



According to the U.S. Bureau of Labor Statistics, jobs in STEM currently make up 6.2 percent of all U.S. employment. Not only that, but STEM workers tend to earn about 26 percent more than non-STEM workers. It is clear that STEM careers will continue to be lucrative – and to grow as our technology needs shift.

Yet, according to our data, men are ten percent more likely than women to have a career in STEM. On one hand, this could mean that parents and educators are doing a better job capturing students’ imaginations in STEM when they are young – and that interest is carrying forward into the workforce.

## Income and STEM Careers

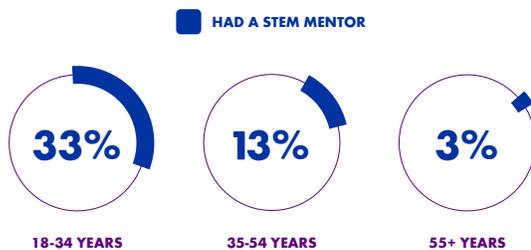


This is important because there is a strong correlation between STEM knowledge and management roles. In fact, of the workers that participated in our study, those whose jobs do not involve STEM are 14 percent less likely to be managers than those whose jobs do involve STEM. In addition, STEM jobs garner higher salaries. Thirty-seven percent of adults who make \$80K or more per year have a job that heavily or entirely involves STEM.

If you haven't been exposed to STEM from an early age, all is not lost. Finding a STEM mentor garners positive career benefits by providing valuable expertise, networking opportunities, and interpersonal skills.

This is especially true for young people. According to the [National Mentoring Partnership](#), one in three young people will grow up without a mentor. However, it has been shown that mentors have a demonstrably positive impact on kids. Case in point? **Kids with mentors are 55 percent more likely to enroll in college and 130 percent more likely to hold leadership positions.**

## Age Groups and STEM Mentors



Because STEM careers are in high demand, it just makes sense that STEM mentorship may be a key component to kids' success in the future of work. But we need to find ways to ensure that both girls and boys, men and women, are getting an equal chance to learn from the experts. According to our survey, a majority of adults (86 percent) have not had a mentor from a STEM field.

Among adults who did report having a mentor from a STEM field, we saw that females are more likely to have female mentors and males are more likely to have male mentors. This suggests that we have some work to do in encouraging more people who are qualified in STEM to share their expertise with the next generation – and we need to find ways to encourage mentors to increasingly share their expertise with women.

Male mentors are more common across all of the age groups we surveyed. Among workers with 1-2 years of experience in the workforce who did have a mentor, 44 percent said they had a male mentor versus those who said they had a female mentor (14 percent).

That becomes a problem when put into context: nearly two-thirds of men in senior positions refrain from one-on-one contact with junior female employees because of **fear** of being suspected of having an affair – a fear that is shared by half of junior women, according to the Center for Talent Innovation. We need to normalize mentorship across the board, inviting both men and women to be mentors to people of all ages.

If you've been thinking of becoming a mentor – or starting a mentorship program in your school – find some tips below to help you jump right in.

## **TEACH CONFIDENCE.**

Confidence is a key success factor for anyone in STEM, but especially for women. By the age of six, girls begin to consider themselves less “brilliant” than boys their age. Further studies have shown that girls' confidence levels drop by 30 percent between the ages of eight and 14-years-old. Showing women that they are just as capable as men will give them the assurance they need to pursue their STEM goals early and often – without a persistent voice of self-doubt getting in the way.

## **START SIMPLE.**

If you don't know the dialect, it can be difficult to communicate with someone who speaks a different language than you. When mentoring kids in STEM, be sure to introduce them to key STEM vocabulary words to help them become fluent in STEM.

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## **EXPLAIN CONFLICT MANAGEMENT.**

Unresolved conflict can damage a group's capacity for teamwork and even destroy the self-esteem of individual contributors. Addressing best practices for conflict management with students helps them to become better listeners, clearer communicators, and add value to future collaborative efforts.

## **FIND AND EMBRACE KIDS' PASSIONS.**

By the time they graduate high school, only 36 percent of boys and 11 percent of girls express interest in pursuing STEM careers. These numbers are extremely low, but especially so for girls. One way to get – and keep – kids' attention on STEM is to make it accessible to them by relating it to topics of interest. For example, STEM is just as much coding a robot as it is designing an interactive dress. Find out what your mentees enjoy and lean into it to keep them engaged and excited.

## **EMBRACE FAILURE.**

Kids are anxious because they don't have many opportunities to fail in their everyday lives. That's why many kids delving into STEM for the first time believe they are doing it “wrong.” Our job is to create the conditions for invention – and to build in the opportunity for kids to fail. We must prepare them to sit comfortably with trying new things, failing, iterating, and trying again.

## **YOU DON'T NEED A STEM BACKGROUND TO BE A STEM MENTOR.**

Kids don't need to do massive science fair projects at home every night, or be an expert in computer coding to be effective STEM learners. The most impactful way that parents and teachers can work together help them to become interested in STEM from a young age is to connect STEM topics to kids' real world experiences – in and out of school.

# CONCLUSION

STEM careers are extremely lucrative, but they are still not shared equally between men and women – though strides are being made in the right direction. One way to get more women into STEM is to introduce them to STEM topics as girls. But even if they were not introduced to STEM at a young age, there are still powerful opportunities available to them.

Mentorship, for example, is an impactful way to reinvigorate kids' and adults' love of STEM. But, we need to make sure we are doing all we can to connect STEM mentors to the men and women looking for them.

If you're looking for more information on mentorship in STEM, a great resource is the National Mentoring Resource Center. Find more information at <https://nationalmentoringresourcecenter.org>.

## **METHODOLOGY**

All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 1 183 adults. Fieldwork was undertaken between 8th - 9th August 2018. The survey was carried out online. The figures have been weighted and are representative of all U.S. adults (aged 18+).



THANK YOU.