



Girls in STEM: Unlocking Potential

BY
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Girls face numerous well-documented obstacles to choosing a career in STEM.

I am fortunate enough to be the mother of four children, three of whom happen to be female. Because of the nature of my work, I am well versed in the importance of creating a STEM-savvy workforce and how girls are often marginalized in the process that creates that workforce. Of course, I never miss an opportunity to share with my girls the opportunities (and potential higher earnings) associated with a future occupation in technology and engineering fields. My youngest daughters, both 10, simply give me “the look.” When I talk about how really interesting and important an integrated STEM education can be, they listen politely and then move along.

And yet...recently my ten-year old, Claire, came home positively bubbling with excitement over something that happened in her classroom. She and her classmates were given a few sheets of paper and challenged to see which team could create a way for the paper to support the most weight. Claire enthusiastically shared their failures, their successes, and was completely caught up in how much weight the winning team’s creation could support. And this is a child who routinely reports that “nothing” happened at school.

Of course I immediately pointed out that what she had done (and thoroughly enjoyed) was precisely what I had been talking to her about. Rather than a lecture, her teacher created an experience for my daughter’s class that left a deep impression. (Thank you, Mrs. Smith!) I know that, going forward, Claire now has at least one concrete

example of how really interesting, fun, and gratifying technology and engineering can be. Maybe, if she’s lucky, this experience (and hopefully many more) will replay in her mind when she’s choosing her future high school and college courses.

In addition to a lack of good examples, girls face numerous other well-documented obstacles to ultimately choosing a career in the STEM fields. According to *Generation STEM: What Girls Say about Science, Technology, Engineering, and Math* (Girl Scouts of the USA, 2012), “Women’s representation is low at all levels of the STEM career ‘pipeline,’ from interest and intent to majoring in a STEM field in college to having a career in a STEM field in adulthood.”

Despite the less-than-optimum status of women in STEM careers, there is some compelling research as well as a number of resources currently available to help change the paradigm. Additionally, the *What Girls Say about STEM* study makes a list of recommendations for educators, parents, and supportive adults who work with and have relationships with girls. I’ve included those that stood out the most to me.

- Encourage young girls to ask questions about the world, to problem solve, and to use natural creativity through play, creativity, and experimentation.
- Foster girls’ internal assets such as confidence, self-esteem, initiative, and a work ethic.

- Show girls that what they want out of their careers can be achieved through STEM.
- Recognize that many girls prefer working in groups and collaborating with others to solve problems.
- Steer clear of obvious or subtle stereotypes about girls' and women's abilities in these areas.

Hopefully, in the not-too-distant future, we'll incorporate all of these recommendations with our daughters and our students. Perhaps, in the meantime, we can all resolve to try to "unlock the potential" in order to generate more interest for girls in STEM education. On ITEEA's part, in addition to this "Girls in STEM" issue of *TET*, we're making plans to provide a two-hour special interest session at ITEEA's Columbus conference on recruiting girls into STEM, as well as frequently listing resources and news on this important topic via social networking avenues. Additionally, in the meantime, here are some excellent resources that may be used to move towards a future in which girls are commonplace in the world of STEM education and careers.

RESOURCES:

- **American Association of University Women (AAUW)** – a nationwide network of members, donors, branches, and college/university partners with the mission to advance equity for women and girls through advocacy, education, philanthropy, and research. (www.aauw.org)
- **Engineer Girl** – a service of the National Academy of Engineering (NAE). It grew out of the work of the Committee on the Diversity of the Engineering Workforce. The EngineerGirl website is part of an NAE project to bring national attention to the opportunity that engineering represents to all people at any age, but particularly to women and girls. (www.engineergirl.org)
- **Girl Scouts of the USA** – introduces girls of every age to science, technology, engineering, and math (STEM) experiences relevant to everyday life. Whether they're discovering how a car's engine runs, how to manage finances, or exploring careers in STEM fields, girls are fast-forwarding into the future. (www.girlscouts.org/program/basics/science/)
- **Great Science for Girls** – provides inquiry-based, informal science learning programs that will stimulate girls' curiosity, interest, and persistence in STEM and break down the barriers of gender stereotyping. (www.greatscienceforgirls.org)
- **icouldbe.org** – connecting the energy and expertise of mentors from hundreds of professions with the most vulnerable students in our educational system—those who are most at-risk or most in need. The close relationships between mentors and mentees encourage students to stay in school and commit to working towards their career and educational goals. (www.icouldbe.org)
- **National Institute for Women in Trades, Technology, and Science (IWITTS)** – helps educators nationwide close the gender gap for women and girls in male-dominated careers—such as technology, the trades, and law enforcement. It also works with employers to assist them in integrating women successfully into their male-dominated workplace. (www.iwitts.org)
- **Society of Women Engineers (SWE)** – SWE "Aspire" outreach events bring girls in middle and high school together with practicing engineers. Girls who attend these events will participate in events that will challenge them to be creative, teach them to work with others as a team, and introduce them to the world of engineering. (<http://societyofwomenengineers.swe.org>)
- **Techbridge Girls** – inspires girls to discover a passion for technology, science, and engineering, empowering our future innovators and leaders. Through hands-on activities, role models and worksite visits, family outreach, and teacher professional development, Techbridge builds a strong network of support for girls to expand their career options, instill confidence, and diversify our future workforce. (www.techbridgegirls.org)
- **Women of Innovation** – offers the opportunity to meet and learn from others who work and live the experience of being a woman of innovation. (<http://womenofinnovation.ning.com/>)

I hope you find these resources and this issue of *TET* helpful and thought-provoking. Have an excellent and productive year!



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