Girls and STEM

Maryann Stimmer, Senior Manager, FHI 360

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Why STEM?

Underserved groups (women, people of color, and people with disabilities) comprise a disproportionately low percentage of the STEM workforce—*but across ANY demographic women are the most underrepresented*.

It’s an economic issue: approximately 75% of all 21st Century jobs require mastery in STEM skills and the highest paying jobs require STEM skills.
Why STEM?

Girls’ negative self-perception in STEM as it relates to them forms. Girls’ interest and achievement in science and math begins to decline as they progress through upper elementary and middle school (Clewell and Campbell, 2002; Rodriguez, 2004, Calebrese-Barton 2012).

Women accounted for only 22% of graduate students in engineering in 2004 (NSF, 2007). Women hold fewer than 24% of all STEM jobs. (NSF 2012).
Playtime in Science

- Research-based strategies
- Physical science
- Family involvement
- Culturally familiar materials
- Strategies to level the playing field for girls
- Recognized by the US Department of Education for excellence

“Playtime is Science really says science is for all of us—science is for girls, it’s for boys, it’s for children of all different backgrounds, whether or not they have a disability—and we can all be really good at it.”

— School Administrator
After-School Science Plus

- Hands-on science inquiry
- Minds-on equity approach
- Familiar, inexpensive, easy to get materials
- Role models and mentors
- Career connections
- Literacy connections in every activity
- Addresses the issue of identity
Science, Gender, & After-School

- Convening
- Research
- Website
- Resources
- Technical assistance
Great Science for Girls

• GSG is a five-year project funded by the National Science Foundation to intentionally support girls’ interest and persistence in science, technology, engineering and mathematics (STEM).

• GSG encompasses the strategies that we know work with underrepresented youth. Learning environments that include:
  o opportunities for leadership;
  o active, intelligent engagement with concerned adults and other students;
  o inquiry-based, hands-on experimentation; risk-taking;
  o challenges and problem-solving; cooperative learning and fun.

(Campbell and Steinbrueck, 1996; Hansen, Walker and Flom, 1995; Fancsali, 2002; National Science Foundation, 2003).
Science – It’s a Girl Thing!

- Social media (Facebook)
- Family-based
- Fun, hands-on STEM
- Culturally familiar
- Stream-lined science
- Literacy connections
- Reaching girls where they are
- Changing adult perceptions
After-School Math Plus

• Uses research-based strategies to engage all students and to level the playing field for girls.

• For use in informal settings:
  • Increases STEM identity
  • Increases STEM engagement
  • Increases STEM skills and content knowledge
Capacity Building Project to Advance Research on Girls’ Math Identity: Improving STEM Learning and Broadening Participation

- NSF-funded convening and commissioned papers
- Research convening
- Practitioners
- Focus on identity