Welcome to the NGCP April Webcast!
We will begin in at 12:00 PM Pacific / 3 PM Eastern.
National Girls Collaborative Project

The National Girls Collaborative Project (NGCP) brings together organizations that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

www.ngcproject.org
Current Regional Collaboratives

[http://ngcproject.org/map_regions.html](http://ngcproject.org/map_regions.html)

<table>
<thead>
<tr>
<th>Region</th>
<th>Collaborative Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>Midwest</td>
</tr>
<tr>
<td>Connecticut</td>
<td>North Carolina</td>
</tr>
<tr>
<td>Florida</td>
<td>Northeast</td>
</tr>
<tr>
<td>Great Lakes</td>
<td>Pacific Northwest</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>Maine</td>
<td>Texas</td>
</tr>
<tr>
<td>Mid-Atlantic</td>
<td>Tennessee</td>
</tr>
</tbody>
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Project Goals

1. Maximize access to shared resources within projects and with public and private sector organizations and institutions interested in expanding girls’ participation in STEM.

2. Strengthen capacity of existing and evolving projects by sharing promising practice research and program models, outcomes and products.

3. Use the leverage of a network or collaboration of individual girl-serving STEM programs to create the tipping point for gender equity in STEM.
Maryann Stimmer, Coordinator
Science and Math Programs
Educational Equity Center at AED
Why is it important to focus on girls and science?
What percent of scientific demonstrations are carried out by boys when the teacher needs assistance in the classroom?

A study of science classes found that when teachers needed assistance in carrying out a demonstration, 79% of the demonstrations were carried out by boys.

What percent of women make up the faculty in STEM fields at U.S. colleges and universities?

Women make up 24% of faculty in STEM fields at US colleges and universities.

What percent of middle and HS students said they plan to drop math and science as soon as they can?

More than 50%!
And, girls are twice as likely as boys to drop science as boys.

And, 50% of those who said they want to drop math, also said they were interested in STEM careers.

What percent of women constitute the workforce and what percent hold science and engineering jobs?

Women constitute 45% of the workforce in the US, but hold just 12% of science and engineering jobs in business and industry.

What percent of science in engineering professors in the top 50 universities are women?

The science and engineering departments at the top 50 departments have between 3% to 15% women staff.

Nelson, DJ. 2005. A National Analysis of Diversity in Science and Engineering Faculties as Research Universities,
Forty-nine percent of 5th-8th graders say the reason they decide not to take science and math classes is because they don’t think they need science and math classes to succeed outside of school.

In the past 11 years, the percent of women in the National Academy of Engineering has quadrupled…

From 1% to 4%!

Professional specialty occupations, which include most scientists, engineers, and medical workers have increased 32% between 1998 & 2008 and are predicted to increase another 27% by 2015.

What does the data tell us?

*Beyond Bias and Barriers* (2007)

The consequences of not addressing the under representation of women in science will be detrimental to the nation’s competitiveness. Impediments to participation in STEM deprive the country of talented and accomplished people.

National Academy of Sciences. 2001. *Beyond Bias and Barriers: Fulfilling the potential of women in academic science and engineering*. Washington, DC
Women who are interested in science and engineering careers are lost at every educational transition.

Women of color are virtually absent from the leading science and engineering departments.

Women are likely to face discrimination in every field of science and engineering.
Why afterschool?

The freedom and flexibility of the afterschool setting allows for learning experiences not possible during the day. Afterschool settings provide the opportunity for experiential learning that supports academic achievement.

Afterschool educators (who may not have a science background) experience “co-inquiry” with their students.

(NASA and Afterschool Programs: Connecting to the Future, 2005)
Strategies for Encouraging Girls in Science

- Mentors, role models and support from adults
- Pictures and posters that convey the message that "science is for me"
- Books about women doing science
Strategies for Encouraging Girls in Science

Learning environments that include:

- opportunities for leadership;
- active, intelligent engagement with concerned adults and other students;
- inquiry-based, hands-on experimentation; risk-taking;
- challenges and problem-solving; cooperative learning and fun.

(Campbell and Steinbrueck, 1996; Hansen, Walker and Flom, 1995; Fancsali, 2002; National Science Foundation, 2003).
What is 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 Components

- Professional Development Institutes
- Technical Assistance
- Web-based Resources
- Evidence-Based STEM Curricula
- Best Practices Handbook
- On-going research
Great Science for Girls

Evidence-Based Programs

Evidence-based programs have been selected to be part of the beginning of Great Science for Girls Extension Services: After-School Science PLUS, Girls at the Center, Girls Inc. Operation SMART, and Wonderwise 4-H. These programs have been professionally evaluated and have shown positive outcomes in relation to girls and STEM. New programs that meet the following criteria will be added throughout the project.

Selection Criteria

- Shows positive outcomes in relation to girls and STEM
- Uses inquiry-based, hands-on methodology
- Incorporates knowledge about girls’ learning styles (cooperative learning groups, active learning, etc.)
- Involves students in decision-making, planning, problem-solving, risk-taking and reflection (higher-order thinking skills)
- Increases students’ sense of self as learners
- Addresses the STEM standards through informal activities
- Has been piloted and field-tested
- Has a written curriculum or guide book that is user-friendly and accessible
- Uses affordable and easy to obtain materials
- Is adaptable for urban, suburban and/or rural settings
- Meets criteria for quality youth development as well as science content
- Adheres to NSTA safety guidelines
- Includes some level of parent involvement
- Shows awareness of other underrepresented groups.

Great Science for Girls is a project of the Educational Equity Center at the Academy for Educational Development, 150 Fifth Avenue, 8th Floor, New York, NY 10011, 212-367-4572.
Great Science for Girls partners?

- **Students and afterschool staff in 8 cities/states —and adding more!**
  (New York, NY; Washington, DC; Hampton, VA; Indianapolis, IN; Chicago, IL; San Francisco, CA; Baltimore, MD, and regions of Connecticut)

- **Local Departments of Education**

- **Curriculum Developers** (After-School Science Plus, Operation Smart, SciGirls, Wonderwise, Girls at the Center, Techbridge)

- **Research Partners** (AED’s Center for School and Community Services, PCA Associates)
Web-Based Support

www.edequity.org/gsg

Great Science for Girls

Great Science for Girls helps children see that science is for everyone. After school settings provide a wonderful space to experiment and have fun with science in new and exciting ways.

— Jason Freeman, Director
Coalition for Science After School

The Educational Equity Center at the Academy for Educational Development (EEC/AED) through a grant from the National Science Foundation has developed Great Science for Girls: Extension Services for Gender Equity in Science through After School Programs (GSG), to provide inquiry-based, informal science learning programs that will stimulate girls’ curiosity, interest and persistence in STEM and break down the barriers of gender stereotyping.

KEEP INFORMED!
Sign up for program, training and news updates

Subscribe
Who do I contact with additional questions?

Maryann Stimmer
mstimmer@aed.org

Linda Colón
lcolon@aed.org
Illustrative Poll - Who are you?
(pick only one)
Thinking About Diversity and Identity

- Gender is socially constructed and is only one component of diversity.
- Gender impacts career success and pursuits in ways that are inconsistent with women’s level of achievement.
- Strategies effective for girls benefit others as well.

(See Diversity and Equity Chapter in National Research Council Report, 2009)
POLL: Are you aware of this report?
Six Strands for Science Learning:
Two Unique Affordances of Informal Contexts
(National Academies Press, 2009)

Strand #1: Experience Excitement
interest and motivation

Strand #6: Think about selves as science learners
National Initiatives

National Science Partnership for Girl Scouts and Science Museums

A national collaboration to encourage family involvement in girls’ science learning.

The Franklin Institute…working together with parents, teachers and children at our partner schools to light-up science for children

RESEARCH INITIATIVE Impacts of Informal Science Experiences for Girls
“I discovered that, ‘Hey, I can do this’ and I wanted other people to discover that too. I thought it was really important to empower people my age with the idea that they can go out there and show [that] the world is changed to their kids.” (GS leader)
Creating New Conceptual Spaces

1. New understandings about what science is and who does it.
2. Expanding ideas of each other (P/Ch)
3. Awareness of expectations related to age, gender, race or ethnicity
“I felt like a scientist when we tried to build a bridge for the Paper Planet. I tried to figure out how to make strong beams and legs out of paper, which I did not think would be strong enough to make anything. We tried lots of different ways and ideas to put the pieces together until we found something that would work.” (Ten-year old girl)
“A timid young girl, clearly unsure about participating in the program and about science in general, made a discovery that none of the other girls had caught on to - this boosted her confidence in what she was doing and she left the workshop seriously contemplating a career as an aquatic biologist.”  (facilitator about 12-year-old girl)
POLL

Think back on a particularly salient and influential moment in your science-learning history. What comes to mind:
Impacts of Informal Science Experiences for Girls

What role do informal science experiences play in girls’ interest, engagement, and participation in science communities, hobbies, and careers?

Co-PIs:
Dale McCreedy, Ph.D. - The Franklin Institute
Lynn D. Dierking, Ph.D. - Oregon State University
GIRL SCOUTS & SCIENCE

- Lightning & Plasma
- Rockets & young kids
- We other wonders
- Getting kids together
- Magnets, attracting no difficulties
- Significant trees
- Encouraging parents, different specialties, snowboarding & survival
- Random things around the house
- Rapid decision making
- Learning how to act formally
- Going to workshops @ colleges & leadership kid mentors
- Pink, zoo, & cookie sale (Booth sales)
- Chemistry Olympiad & Aspern & mentor
- Conflict resolution & organization
- 4-H apps

- Paperwork
- Accounting
- Trust independence
- Learning to learn & Gold revealed
- Financial issues
- Career advice
- Range of activities
- Things get to go on
- Tower

- Leadership
- Personal connections
- Troop meetings, arts & crafts & sisters & troop
- Decorating for parades & school & multicultural
- Change, troop leaders & troop
- Trips
  - Six Flags
  - Hershey's
- Franklin Institute deep sea
- Scheiding Aquarium visits
  - Service unit meetings
  - Meetings in general
  - Work with adults
    - Wearing a uniform
    - Raise a flag
    - Working @ dump
    - Grade girls
    - Conflict resolution & organization
- Non-fact science
  - Cell splitting
  - Cross research
  - Cell science
  - Biology
  - Ecology

- Paper (hand-drawn)

- Lantern & Organic farming base
- MLK Jr.
- Frogs

- Seedling & multicultural
- Change, troop leaders & troop
- Arts & crafts & sisters & troop
- Decorating for parades & school & multicultural
- Change, troop leaders & troop
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Ultimate goals will be to:

- Determine ways informal contexts contribute to girls’ science learning and achievement;
- Document long-term impacts and perceptions of ways experiences influence future choices;
- Develop a model for understanding the impact of informal science learning initiatives for girls.
Pennsylvania STEM Girls Collaborative Project
Kick-off Conference
The Franklin Institute
May 5, 2009, 8:00 - 3:00
http://sites.google.com/a/teampa.com/pa-stem-girls-collaborative-kickoff-registration/Home
Time for Questions

Please use the Chat section of your screen and type any questions you have for the presenters. We will answer as many as time allows.

In case we can’t get to all of your questions, presenter contact information will be available in the archived webcast materials available at:

www.ngcproject.org/events/webcastarchive.cfm
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