Boosting Girls’ Interest in Engineering with PBS’
WELCOME AND INTRODUCTIONS

• National Girls Collaborative Project-MAGiC
  – Elizabeth Vandenburg
  – Paige Smith
• WGBH Boston: Design Squad Nation
  – Anna Hohos
  – Chris Randall
• USPTO
  – Joyce Ward
Mid-Atlantic Girls Collaborative (MAGiC)
&
National Girls Collaborative Project (NGCP)
Why So Few? Women in Science, Technology, Engineering, and Mathematics

http://www.aauw.org/learn/research/whysofew.cfm
Performance on a Challenging Math Test, by Stereotype Threat Condition and Gender

(Why so few, p. 40)

Score (Corrected for Guessing)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereotype threat</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>No stereotype threat</td>
<td>17</td>
<td>19</td>
</tr>
</tbody>
</table>

Sample Question from the Purdue Spatial Visualization Test: Rotations

(Why so few, p. 54)

Note: The correct answer is D.
National Girls Collaborative Project

NGCP brings together organizations committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

www.ngcproject.org
Current Regional Collaboratives

http://www.ngcproject.org/find
NGCP 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.
MAGiC Project Goals

1. Increase communication
2. Share best and promising practices
3. Support efforts financially

Collaboration!
Impact

- 14,401,210 visits to the NGCP Web site in 5 years
- 2,535 programs are listed in the online NGCP Program Directory
- 23,583 participants served in 236 mini-grants completing activities
- 11,768 practitioners have been served through events and webinars
- 5,489,708 girls are served indirectly by NGCP by having their leaders trained in the philosophy, knowledge, and methods of NGCP
Resources

- MAGiC website
  http://www.ngcproject.org/collaborative/mid-atlantic-girls-collaborative-magic-project

- MAGIC E-Newsletter
  http://www.ngcproject.org/collaborative/mid-atlantic-girls-collaborative-magic-project/newsletters

- NGCP Website
  http://www.ngcproject.org/

- NGCP E-newsletter
  www.ngcproject.org/resources/newsletter.html

- Program Directory
  www.ngcproject.org/directory
NGCP Project Website

www.ngcproject.org
Adding Your Program

Programs

The Program Directory lists organizations and programs that focus on motivating girls to pursue careers in science, technology, engineering, and mathematics (STEM). The purpose of this Directory is to help organizations and individuals network, share resources, and collaborate on STEM-related projects for girls.

The Directory contains program descriptions, resources available within each organization, Program and/or organization needs, and contact information. Submitted entries undergo review and verification prior to publication.

Click the "Submit" button on the left to enter your Program in the Directory.

You can search for potential collaborators using the search feature below. An advanced search feature allows you to identify additional fields to narrow your results.

Programs below can be sorted by clicking on "Program Title," "City," "State," "Zip," or "Organization Name" to sort the Directory.

Click on the title of a Program to see the full information.
Create a User Account
Enter Program Information

Register

Please enter the following information to include your program/organization in the NGCP Program Directory. Only fields marked with * are required.

- Fields marked (non-published) will not appear in the public Program Directory. This information is collected for data/evaluation purposes only.
- Newly registered programs retain the status of "Pending" and will not appear in the Directory until Program information is verified. After verification, the Program will become Active and be visible to all users.
- If you are unsure what to include in any field, please check the NGCP Glossary for more information.
- A step-by-step "How To" with screenshots is available to assist you.

Program: *

Description: *

Path: p

Disable rich-text

☐ National

Program Contact Info *

Program Details *

Student Ethnicity

Organization Info *

Organization Contact Info *

Needed Resources *

Available Resources *
Speed Networking

2 minutes per person/4 minutes total

• Your name
• Your organization/program and role
• Something that makes you proud of your organization
• Resources: What do you have to offer?
• Needs?
DSN GOALS

• Introduce kids to engineering
• Update kids’ image of the profession
• Give kids an opportunity to think and build like engineers
• Show how engineering connects to what kids are interested in and to daily life
ONLINE RESOURCES

- 40+ Animations
- 46 Episodes
- 24 Profiles
- 94 Short Videos
- 56 Challenges
- Links to intriguing engineering stories/videos
- 1 Online Workshop
Every aspect of *Design Squad Nation* reinforces the **design process**.

Use it with kids to:

- expand their thinking
- become more innovative
- learn from their mistakes
1 host □  8 contestants
Two teams □  One challenge
One winner □  $10,000 scholarship
Making dreams come true through engineering

- Hosts: Judy and Adam
- One kid client
- Illustrating that engineering can be found everywhere!
DESIGN SQUAD NATION
YEAR 5: DSN GOES BROADBAND!

- Short Videos
- Activities
- Kids’ Website
- Contests & Events
- Research Project
ONLINE RESOURCES

- 40+ Animations
- 46 Episodes
- 24 Profiles
- 94 Short Videos
- 56 Challenges
- Links to intriguing engineering stories/videos
- 1 Online Workshop

pbs.org/designsquad
What's new?
Check out our new website! We've got new video, stickers, projects and more!

Watch
Fun new videos

Build
Robo Wheel

Win
Our latest contest

CONTEST Penny Bridge

What stuff do you like?
Outdoors  Fashion  Sports  Art  Music  Robots  Animals
Games  Vehicles  Food  Flying  Funny  Friendly  Random
Engage Kids in Hands-on Engineering

Use DESIGN SQUAD NATION activities, animations, video profiles, and episodes in classrooms and afterschool programs, in libraries and museums, at events and at home.

Find resources by topic:

- Electricity
- Force/Energy
- Green
- Health
- Simple Machines
- Sound/Music
- Space/Transportation
- Sports/Games
- Structures
- Technology/Materials
**RESOURCES: Electricity**

**Activities**
Activities are hands-on challenges that focus on the engineering design process. They use simple materials, allow for multiple solutions, and are ideal for ages 9-12.

**Dance Pad Mania**
Build a dance pad that sounds buzzers and flashes lights.
*Read more*
Download PDFs: Student Handout (English | Spanish), Leader Notes (English)

**Electric Gamebox**
Invent a game with a buzzing target for a Kick Stick and Ping-Pong ball.
Download PDFs: Student Handout (English | Spanish), Leader Notes (English)
Download episode clips: (Switches | Design Process: Teamwork)

**Electric Highway**
Build a circuit that connects a battery and buzzer at least three feet apart using four types of materials.
*Read more*
Download PDF: Student Handout (English)

**Hidden Alarm**
Build a circuit to power an alarm so small that you can hide it.
*Read more | Watch a demo*
Download PDFs: Student Handout (English | Spanish), Leader Notes (English), Sign
POP FLY

YOUR CHALLENGE
It's football with a twist! Invent a way to send a Ping Pong ball flying high enough to catch it. Take some patriotic items (a wooden spoon, old tape, etc) and add your own twist. Ready, set, launch!

MATERIALS
- Duct tape
- 2-4 paint stick
- 1 Ping Pong ball
- 1 wooden block or spoon
- 4-5 paper cups (for your design)

BRAINSTORM AND DESIGN
Using the materials (and your feet!), make something that launches a ball high enough so you can catch it. When we made ours, we came up with lots of ways to send our ball flying. Most of our designs (but not all) used levers. Levers are handy because they can convert a small motion (the bulk of your foot) into a large motion (the end of the lever flinging your Ping Pong ball into the air). Now, let your imagination (and Ping Pong ball!) fly high!

BUILD
Think of different ways to put it all together and get that ball flying!

TEST
How high did it go? Did it fly high and straight enough for you to catch? Could your tallest friend catch it?

REDESIGN
Even the best inventions can be improved. Now that your ball can fly through the air with the greatest of ease, challenge yourself to:
- send the ball twice as high
- use a tennis ball
- use two balls at once
- launch a ball for a partner to catch

pbs.org/designsquadsquad
HARMLESS HOLDER

These plastic rings are great for carrying cans, but they’re real trouble when they become trash that animals can get tangled in.

There’s got to be a better way to hold six cans together. That’s where you come in.

Here’s the deal. I want you to design a new kind of holder.

Let’s review the specs. Heave six cans. Easy to carry, safe for animals. Convenient to use.

MATERIALS

Here are the materials for your design. What can you use to invent a better holder? OK, time for action.

PBS.org/designsquad
KICK STICK

BRAINSTORM

DESIGN AND BUILD

THE CIRCUIT
ONLINE WORKSHOP

• Self-paced
• Free
• Always available

Learn how to integrate the design process into the projects you do with kids.

pbs.org/designsqaud
GUIDES

Find a collection of activities within each guide, or search for activities by topic in Resources.

Teacher's Guide
Especially for middle school STEM classrooms
Read more
Download PDF: Full guide (English)
Order a copy

Invent It, Build It
Activities focus on invention
Read more
Download PDFs: Full guide (English | Spanish)

On the Moon
Written in collaboration with NASA; for grades 3-12
Read more
Download PDFs: Full guide (English | 508-compliant)
On the Moon
6 Activities

Invent It, Build It
6 Activities

Teacher’s Guide
3 Units, 7 Activities

Educator’s Guide
4 Units, 10 Activities

Event Guide
5 Activities

Activity Guide
5 Activities
GUIDE: ON THE MOON

6 activities that bring NASA’s moon missions to life.

Guides have:

- Leader notes
- Kid handouts
- Open-ended challenges
- Curriculum connections
- NASA connections
- Science/engineering standards
VIDEO: DIY TOUCHDOWN

http://youtu.be/vq79fMvtIcM
ACTIVITY: TOUCHDOWN

Challenge: Design a capsule that will cushion two "astronauts" when they land.

Rules: No strapping the astronauts in!

Materials: Cup, cardboard, index cards, tape, straws, marshmallows (large only), rubber bands (optional)
 TOUCHDOWN WRAP-UP

Tip: Keep the conversation moving!

• Who came up with a design with shock absorbers to cushion the landing?

• Hold up your design if you were inspired by a parachute. (Comment on these designs.) How else did people slow the fall of their capsule?

• Many designs tend to tip over on impact. Anyone come up with a solution to resolve this?

• How did testing helped you to improve your design?
SHOCK ABSORBERS

The honey comb shaped crash pad to the left is used inside cars. Most cars are built with this type of material in a crumple zone meant to crush a bit during an accident in order to lessen the impact on the passengers, safely protected inside.

This spacecraft landing device has rotatable feet that are designed to pivot, directing some of the vertical landing force into horizontal movement.

U.S. Patent #s 6318755, 3208707, and 4093068 Trademark Registration #1247076
ANIMATION: Gravity & Drag

http://www.youtube.com/watch?v=knlD22K4oO
U&feature=share&list=PL1FCA18AB7F4F0F96
Share

TEAM CHALLENGE

0 More Players needed to complete the challenge

Earn this SUPER-SPECIAL sticker

Days Left

5

Join Now!

DeysiDS says...
Design an outdoor water park.

342 designs

Your Ideas

Random
Outdoors
Fashion
Sports
Games
Vehicles
Friendly
Food

What ideas do you have? Add Your Idea

Show Me:
Newest
Popular
Featured

More epic stuff:

Watch
Fun new videos

Build
Robo Wheel

Win
CONTEST Penny Bridge
Our latest contest

Ask
Send us your questions
SHARE SECTION

- Online Community
- Make a wish
- Make a sketch
- Upload a photo
TALKING TO KIDS ABOUT ENGINEERING

• High schoolers have no idea what engineers do

• Think they work alone in a cube all day doing math problems
What do high school girls think?

- Engineering is for people who **LOVE** both math and science
- Don’t know what it is
- Aren’t interested in the field nor do they think it is “for them”

“Someone who is motivated, dedicated, and who doesn’t mind sitting in a cubicle all day.”
What engineers tell young people

- Engineering is stressful and challenging
- They stress the importance of **SUPERIOR** math and science abilities

“It’s not easy—but if you’re the type who when faced with a problem some would call impossible is even more driven to move mountains to find a solution, then you **might** have it in you to be an engineer.”

*Findings from Extraordinary Women Engineers Report*
What high school girls want

**Enjoyable**
“How happy I will be—what’s the point of doing anything you don’t like?”

**Good working environment**
“If I can’t interact with people…I will probably drop the job.”

**To make a difference**
“That I would make a difference in some way, you know, make my mark on the world.”

**Income**
“As shallow as it sounds, money is the one thing I have to consider when I’m choosing a job. I’m not going to do something that I know can’t help me pay bills.”

**Flexibility**
“My career can’t consume all of my time…I need free time to do a lot of other things…before I die.”

Findings from Extraordinary Women Engineers Report
Findings from Extraordinary Women Engineers Report

**Disconnect**

- **HS Girls**
  - Enjoying what I do
  - Good working environment
  - Making a difference
  - Good income
  - Flexibility

- **Engineering Community**
  - It’s a challenge
  - Go for it! It’s difficult but rewarding
  - Use math & science to solve problems
So the basic problem is that kids don’t know what engineering is .... How can we show them what it’s all about?
So instead of telling kids...

Engineers solve problems using math and science....
Engineers dream up creative, practical solutions and work with other smart, inspiring people to invent, design, and build things that matter. They are changing the world all the time.

Engineeryourlife.org
http://www.youtube.com/watch?v=POVCe_Plcso&feature=share
&list=PLD1BCF5848ABE3671
Design Squad Helps Kids Understand Engineering

Students exposed to Design Squad demonstrated a better understanding ...

• what engineering is
• that engineering involves having a great imagination
• of the types of projects that engineers work on

Seven out of the eight teachers reported that the Design Squad challenges strengthened their students’ ability to cite examples of what an engineer does and helped them expand their definition of what engineers do (beyond just driving a train, for example).
Design Squad Encourages Positive Attitudes Toward Engineering

Students exposed to Design Squad…

• demonstrated more positive attitudes towards engineering,
• were less likely to believe the stereotype that “engineering is boring”

Seven out of the eight teachers agreed that Design Squad made their students more excited about engineering as a career choice and provided an opportunity for students to educate one another about the design process.
TIPS FOR WORKING WITH KIDS

Parents, Educators & Engineers

TRAINING

Build your skills and confidence in guiding kids through engineering activities, or in training other adults how to do the same.

Self-Guided Online Workshop
Gain insight in leading kids in hands-on engineering activities with this self-paced training developed in collaboration with NASA.
Read more

Training Others
Get resources to teach your colleagues how to lead hands-on engineering activities with kids.
Read more
TIPS FOR WORKING WITH KIDS

LEADING A CHALLENGE
Never let an engineering challenge fizzle! Don’t worry! From getting started, to keeping kids engaged, to wrapping up the activity, the Leader Notes give you all you need to facilitate a challenge with kids. The Leader Notes are divided into the following sections:

Prepare Ahead of Time: Lists things to do to get ready for the activity.

Introduce the Challenge: Includes a script you can use to introduce the activity’s key ideas and show how the challenge relates to PBS’s goal of having people live the American Dream through innovation and design.

Brainstorm and Design: Helps kids think about different ways to meet a challenge. Since challenges offer kids many ways of succeeding, this section helps them think about various approaches and possibilities.

Build, Test, Evaluate, and Redesign: Lists issues that might surface during a challenge and suggests strategies to use with kids who have those issues.

Discuss What Happened: Provides questions and answers for reviewing the activity’s key concepts, helping kids reflect on how they used the design process (see page 2 for an overview of this process), and highlighting how the challenge relates to PBS’s goals and inspiration efforts.

Extend the Challenge: Presents short activities that kids can do to reinforce and expand the ideas they’ve learned.

Curriculum Connections: Lists the topics in a challenge that relate to concepts commonly covered in science, math, and technology curricula.

TIPS FOR FACILITATING OPEN-ENDED CHALLENGES
• There are multiple ways to successfully tackle a challenge, so successful solutions are as good as another. Help kids see that the challenges are not competitions. Instead, they’re opportunities to unleash an individual’s ingenuity and creativity.
• When kids feel stuck, have them describe what they’re doing by engineering—why they think they got the results they did. Then ask questions to get kids back on track rather than telling them what to do. For example, ask: “Why do you think this is happening?” or “What would happen if...?” or “What is another thing you could try?”
• When something’s not going as planned, encourage kids to try again. Problems are opportunities for learning and creative thinking.

• Keep kids’ ideas fresh by adding new elements to the challenge.

TALKING TO KIDS ABOUT ENGINEERING

WHAT’S ENGINEERING?

How do we define the word “engineer”? It’s not just about making things; it’s about thinking creatively and solving problems in a way that makes people’s lives better. Engineers explain the world and make a difference. While there are many other pursues, engineers develop systems that save lives, prevent disease, reduce poverty, and protect our planet.

WHAT DO ENGINEERS DO AT WORK?

Think creatively. Engineering is an ideal outlet for imagination and creative problem solving—the perfect field for independent thinkers.

Work with great people. Engineering takes teamwork. An engineer, you’ll be surrounded by smart, creative, thinking people.

Solve problems and design things that matter. Engineers improve people’s lives by building problems, learning, creating designs, and coming up with solutions no one else has thought of.

Change the world and make a difference. Among many other pursuits, engineers develop systems that save lives, prevent disease, reduce poverty, and protect our planet.

HOW DO ENGINEERS MAKE THE WORLD A BETTER PLACE?

Here are some things engineers do to help improve people’s lives:

• Create more fuel-efficient cars
• Design a lighter bike frame
• Invent a more powerful rechargeable battery
• Create satellites that detect drought around the world
• Develop states of the art cell phones
• Invent artificial vision for the blind
• Develop a functioning prosthetic
• Design clothing that repels mosquitoes

FIND OUT MORE

For more great reasons to become an engineer, fun projects, and profiles of engineers doing interesting work, visit the following links:

• Engineer Your Life at engineeryourlife.org
• Discover Engineering at discoverengineering.org/home
TIPS FOR WORKING WITH KIDS

• Goal: Show kids that engineering is fun!
• Try every challenge first
• Ask open-ended questions to focus attention, stimulate thinking, overcome roadblocks
• Let kids explore and figure things out for themselves
• Introduce and engage – hook them with a demo or video
• Emphasize that engineering is a creative, collaborative, and important profession.
WORKING WITH KIDS IN OUT-OF-SCHOOL TIME

- End of a full academic day
- Ready to have fun
- Tired and hungry
- More noisy and active than school day
Robo Wheel

Instructions

1. Here's what you need to make your Robo Wheel:
   - 2 paper bowls
   - 2 rubber bands
   - 3 feet of string
   - Pushpin or thumbtack
   - Tape (duct or masking)
   - Sharp pencil

More epic stuff:

Watch
- Fun new videos

Build
- Robo Wheel
ACTIVITY #2: ROBO WHEEL

WATCH THIS VIDEO!

http://youtu.be/cUgmrphQU9k
ACTIVITY #2: ROBO WHEEL

Wrap-up Questions:

• What challenges did you face and how did you overcome them?

• What techniques did you devise to start your wheel?

• Any new games or tricks? New designs?

• How is this similar to a yo-yo?

• Can you explain how it works?
The flywheel on this bike is mounted on the strongest part of the bike and stores energy from going down hill to help propel the biker uphill.

The “Whirlygig”, applies the flywheel concept, using gravity to pull the spinning body downwards and angular momentum to cause it to return upwards.

This satellite contains a flywheel that permits spin stabilization. The fly wheel stores up energy then uses that energy in the form of angular momentum to either speed up or slow down the spinning satellite.

U.S. Patent #s 4037854, 59745, and 3767139
USING DESIGN SQUAD NATION IN YOUR OUTREACH
CLASSES, CLUBS, AFTERSCHOOL, & CAMP
EVENTS

Spark kids’ interest and confidence in engineering with a lively, fun-filled event!

Feature these elements:

- Challenge stations
- Testing zone
- Engineer profiles
  - 24 downloadable videos
- Signs
MENTORING OVER MULTIPLE MEETINGS

• Bring enthusiasm / positive attitude
• Have a sense of humor
• Show respect
• Get to know the kids by listening
• Be real
• Show up
• Be patient
• Avoid being judgmental - hold all kids to the same high expectations
NEXT STEPS

• Use the activities!
• Share your stories, and upload photos to “Design Squad Educators” Facebook page
• Sign up for our e-newsletter
• Visit the website—watch videos and explore hands-on activities
• Like “Design Squad Educators” on Facebook and follow us on Twitter
KEEP IN TOUCH!

Anna Hohos
Anna_Hohos@wgbh.org

Chris Randall
Chris_Randall@wgbh.org
Major funding is provided by the National Science Foundation. Project funding is provided by the Northrop Grumman Foundation, and S.D. Bechtel, Jr. Foundation. Additional funding is provided by United Engineering Foundation (ASCE, ASME, AIChE, IEEE, AIME).

DESIGN SQUAD NATION is produced by WGBH Boston.

© 2012 WGBH Education Foundation. DESIGN SQUAD and DESIGN SQUAD NATION are trademarks or registered trademarks of WGBH Educational Foundation. All rights reserved. All third party trademarks are the property of their respective owners.
LUNCH BREAK
12:10-12:50

Switch Tables!

Discuss Potential Ways to Collaborate
Collaboration 101
Defining Collaboration

“The process of achieving a goal that could not be attained efficiently by an individual or organization acting alone”

Why Collaborate?
Why Collaborate?

Uncoordinated Services
- Collaboration allows for the creation of a higher quality, more integrated experience.
- Collaboration reduces isolation among STEM professionals.

Scarce Resources
- Collaborative relationships increase access to scarce resources.
Why Collaborate?

Increased Capacity

- Collaboration strengthens relationships among organizations, increasing the potential for learning by sharing promising practices.
- Organizations have increased ability to achieve important outcomes and increase impact.
Ways to Share Resources

- Networking
- Cooperation
- Coordination
- Coalition
- Collaboration
Collaboration Rubric

Networking (1)
- Aware of organization
- Loosely defined roles
- Little communication
- All decisions are made independently

Cooperation (2)
- Provide information to each other
- Somewhat defined roles
- Formal communication
- All decisions are made independently

Coordination (3)
- Share information
- Share resources
- Defined roles
- Frequent communication
- Some shared decision making

Coalition (4)
- Share ideas
- Share resources
- Frequent and prioritized communication
- All members have a vote in decision making

Collaboration (5)
- Members belong to one system
- Frequent communication characterized by mutual trust
- Consensus is reached on all decisions

Think Break

Take five minutes and discuss with the person next to you the following:

– What are some challenges you have faced when collaborating?
– How did you overcome them?
Challenges to Collaboration

• Collaboration may actually take more time, at least in the beginning

• Belief that individual effort is more beneficial, easier than cooperation

• Lack of trust between partners
Challenges to Collaboration

• Lack of strong, effective leadership

• Different types of organizations often work differently

• Organizational systems do not encourage or support collaboration
Best Practices in Successful Collaborations

1) Prepare
2) Look
3) Plan
4) Build
Prepare to Collaborate

- **Reflect** on past collaborations and the characteristics of successful or ineffective collaborations.

- Create a **quick summary** of your program services you can easily share when you first meet potential collaborators.
Prepare to Collaborate

• Identify your program/institutional strengths and challenges
• Identify the program/institutional resources you have to offer
• Identify your program/institutional needs
Look for Collaborators

• Find the “home” of your audience who can benefit from your research findings/program products and services.

• Identify assistance or guides that can help you

• Network with purpose
Plan for a Successful Collaboration

• Be flexible and patient
• Be explicit about project benefits for each partner
• Create a collaboration agreement
Build a Successful Collaborative Project

• **Communicate** frequently to move the work forward
• **Adapt** as project personnel, plans, and needs change
• **Celebrate** successes
• **Debrief** the collaboration
How Do You Choose?

• What do we want to accomplish?
• What resources do we need? What resources do we have to share?
• Do we have sufficient trust/commitment to support the relationship? If the relationship is new, do we have the time/commitment to foster the relationship?
• Search the NGCP Program Directory
Potential Collaborators

- K-12 teachers
- K-12 counselors
- Higher education faculty
- Higher education staff
- Higher education STEM program
- K-12 after school STEM program
- K-12 school day STEM program
- American Associate of University Women Branch
- Corporate or business partners
- Non-profit organizations (Boys and Girls Clubs, 4-H)
- Girl Scout Councils
- STEM professionals
- Professional organizations
- Applied researchers
Voices from the Field: Collaboration in Action

• MAGiC
• United State Patent & Trademark Office
Collaboration in Action: MAGiC

Champions Board
- AOL
- Fairfax County Public Schools
- Google
- Johns Hopkins University
- Lockheed Martin
- Microsoft
- National Alliance for Partnerships in Equity
- National Science Teachers Association

Leadership Team
- American Association of University Women
- A. James Clark School of Engineering, University of Maryland
- AOL
- Clark Construction
- Girl Scout Council of the Nation’s Capital
- Montgomery County Public Schools
- The SI Organization
Collaboration in Action: USPTO

Joyce Ward
Education Coordinator
United States Patent & Trademark Office
MAGiC Mini-Grants

funded by

National Girls Collaborative Project
Description

• Mini-grants are awarded to girl-serving STEM-focused programs to support collaboration, address gaps and overlaps in service, and share exemplary practices.

• Mini-grants are a small amount of seed funding and are not intended to fully fund entire projects. The maximum mini-grant award is $1,000.
What type of grants are funded?

- Search for grants previously awarded in Delaware/Maryland/Virginia/Washington, DC: http://www.ngcproject.org/grants

- Search for grants previously awarded by criteria: http://www.ngcproject.org/grants/advanced-search
Requirements

• At least two programs from different organizations must collaborate on the mini-grant project.
• All programs/organizations collaborating on the mini-grant must be registered in the Program Directory.
Requirements

• One of the applying programs/organizations must be the lead
  – Receiving and managing the funding
  – Responsible for evaluation and reporting activities

• One of the collaborating programs must be located in an active collaborative state or region.

• NEW… Mini-grant projects must last longer than one day, unless part of a larger event.
Resources

• Exemplary Practices - Strategies, curricula, and resources that have research and/or evaluation data to support their effectiveness

An after school program proposed to collaborate with a local engineering company – girls developed their own engineering projects with the help of the female engineers

The grant app would mention the use of hands-on activities & female role models; both are research based practices in informal learning
Resources

• Developing Measurable Objectives
• Mini-Grants FAQ
• NGCP Glossary
• Rubric – evaluators’ perspective (a work in progress)
• Evaluation Requirements for Funded Mini-Grants
• Mini-Grant Reporting Form
Program Design

Assume that girls can and will excel!

• Reinforce this message continually

• Design programs that are compensatory & intentional about battling negative stereotypes

• Allow girls to make big and interesting mistakes

• Provide a safe, supportive, and judgment-free environment in which they can fail and succeed

Sample Application

• Goals
• Objectives
• Design Plan (800 character limit)
• Activities & Methods (demonstrates integration of research-based strategies – Informal Learning and/or Evaluation and Assessment)
• Assessment Activities
• Budget
  – MAGiC does not allow expenses related to time
Important Dates

**Open**: October 15\(^{th}\)
**Close**: November 15\(^{th}\)
**Decision**: December 21\(^{st}\)

**Implementation**: Spring or Summer 2013
First thing to do when you get home
Register in the Program Directory!

You can’t access the application until your program is registered in the Program Directory

Programs must be approved by NGCP, which can take a couple of days
Questions?