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

California
Connecticut
Florida
Great Lakes
Kentucky
Maine
North Carolina
Northeast
Northwest
Texas
Tennessee
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.
a national outreach initiative of SciGirls

dragonflytv

tpt

PBS KIDS Go!

NSF
Encourage girls’ interest in STEM by:

- Providing funding and support for organizations nationwide to develop unique girls science programs
- Incorporating strategies to engage girls in science
- Drawing on the unique strengths of DragonflyTV
SciGirls

Since 2004, we have:

- impacted 25 communities nationwide
- trained over 100 educators and community leaders
- reached over 5,000 girls in grades 3 – 8
SciGirls outreach provides:

- DVDs

Scientist Profiles

Inquiry Investigations
SciGirls outreach provides:

- DVDs
- educational materials
Investigation

Music and Sound

Music and Sound

Music and Sound

SciGirls Synthesize

Data and Analysis

1. Lay the tubes out on the table or floor in order, from low pitch to high pitch.
2. Line up the bottoms of the tubes, so they are resting on the same imaginary line.
3. As a first step, put the same amount of space between the tubes, say 2 inches.
4. Notice the pattern made by the tops of the tubes. The tops do not line up exactly, but rather follow a gentle curve.
5. Here is a listing of the notes in a C major scale, with their approximate frequencies in Hertz (Hz). Use this listing to make a graph out of the cut tubes, as illustrated below.

<table>
<thead>
<tr>
<th>Note</th>
<th>Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>~260 Hz</td>
</tr>
<tr>
<td>D</td>
<td>~296 Hz</td>
</tr>
<tr>
<td>E</td>
<td>~330 Hz</td>
</tr>
<tr>
<td>F</td>
<td>~349 Hz</td>
</tr>
<tr>
<td>G</td>
<td>~392 Hz</td>
</tr>
<tr>
<td>A</td>
<td>~440 Hz</td>
</tr>
<tr>
<td>B</td>
<td>~494 Hz</td>
</tr>
<tr>
<td>C</td>
<td>~521 Hz</td>
</tr>
</tbody>
</table>

Keep Exploring!

Have your kids collect a bunch of empty food cans, peel off the wraps, stack them, and start placing out the types they need to make a musical scale. They can tape the cans with a metal spoon, and then arrange them in order of the sound they make. They should not use the cans that are “out of tune.” Encourage them to make a kind of homemade xylophone and start practicing!
SciGirls outreach provides:

- DVDs
- educational materials
- best practices training

Geared toward girls ages 8-12.
What people are saying:

Educators:

“It was one of the most important experiences of my career”

“My teaching spirit is back and I am having a blast in the classroom”

Kids:

“I learned how to start asking questions”

“girl-taculous fun!”

“I love science but now I adore it”
SciGirls en Español and SciGirls TV will build on the SciGirls national outreach program and expand the audience served nationwide.
9 mini-grants
Bilingual Activity Guides
Bilingual DVDs
Best practices training
SciGirls TV will:

● showcase the *process* of science.
● demonstrate the *power* of science.
● empower girls to change the world!

The series will premiere in early 2010.
Would you like to see your girls science program featured on SciGirls TV?

Do you work with great scientists who could be featured as role models on SciGirls TV?

Do you serve Hispanic communities who could benefit from SciGirls en Español?

Contact:
Margaret Duden, Research & Outreach Specialist
tel: 651-229-1303  mduden@tpt.org
SciGirls™ Pilot Episode

Valencia  Sophia  Sarah
SciGirls™

Pilot Episode

Cypress Swamp  Salt Marsh  Pocosin Forest
Why aren't more girls choosing engineering?

Here are some of the “theories:”

• girls aren’t interested
• they can’t do math and science as well as boys
• they are opting out of careers that utilize ‘hard science’

What if I told you it’s because ….. they don’t know what engineering is?
It’s time to make a change.

When engineering universities, corporations, and associations adjust their communication messages to focus on how creative, collaborative, lucrative, and flexible an engineering career can be, we will begin to attract more girls to our field.
Since 2004, 80+ engineering groups have come together to:

- Conduct original qualitative consumer research
- Develop messages and resources we can use to transform the image of engineering

Together we can show girls (and boys) what engineering is and reposition the field as an exciting and rewarding career choice.
What Do High School Girls Think?

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

“Someone who excels in math and science.... Someone who is motivated, dedicated, and who doesn’t mind sitting in a cubicle all day.”
What Do High School Girls Think?

What are the **first two words** that come to mind when you hear “engineer”?

- math and science
- really smart
- problem-solving
- design
- nerdy
- science
- hard

- building
- hard
- complex
- trains
- too difficult
- machines
- boys

- men
- cars
- engines
- bridges
- boring
- Dilbert
- don’t know
Thoughts?

• Is this what you think of when you think about engineering?
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.”
Once the coalition identified what girls wanted, we enlisted market research firms to **develop and test** various messages that would **motivate girls** to consider engineering.
## Tested Messages

<table>
<thead>
<tr>
<th>Project Messages</th>
<th>Appeal to Girls</th>
<th>Appeal to Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live your life, love what you do</td>
<td>82%</td>
<td>81%</td>
</tr>
<tr>
<td>Creativity has its rewards</td>
<td>74%</td>
<td>81%</td>
</tr>
<tr>
<td>Make a world of difference</td>
<td>72%</td>
<td>79%</td>
</tr>
<tr>
<td>Create possibilities</td>
<td>71%</td>
<td>77%</td>
</tr>
<tr>
<td><strong>Engineer Your Life:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dream Big, Love What You Do</td>
<td>74%</td>
<td>67%</td>
</tr>
</tbody>
</table>
What's An Engineer?

Engineers are changing the world all of the time. They dream up creative, practical solutions and work with other smart, inspiring people to invent, design, and build things that matter.
Ten Reasons To Love Engineering

1. Love your work, AND live your life too!
2. Be creative.
3. Work with great people.
4. Design things that matter.
5. Never be bored.
6. Make a big salary.
7. Enjoy job flexibility.
8. Travel.
9. Make a difference.
10. Change the world.
Thoughts?

- Are you surprised that using science and math to solve problems is not on the list?

- Yes
- No
Meet An Engineer
Thoughts?

• Is she what you think of when you think about engineers?

• Do you know girls who might want that job?
So what about the math and science?

Once girls have an understanding of engineering and what life is like as an engineer, then we can fill them in about the requirements. But we need to put it in to context.

“[Math] is the basis of engineering, but you don’t have to love it. You just have to be able to do it.”

-Judy Lee, Mechanical Engineer
EngineerYourLife.org

Engineer Your Life
Dream big. Love what you do.

A guide to engineering for high school girls

Why Engineering?
Meet Inspiring Women
Find Your Dream Job
Making It Happen

For Counselors & Parents
For Engineers
For Middle School Girls
(see engineerirl.org)

creativity has its rewards ›
make a world of difference ›
explore possibilities ›
Why Engineering?

Ten great reasons why you’ll love it

1. Love your work, AND live your life too!
2. Be creative.
3. Work with great people.
4. Solve problems, design things that matter.
5. Never be bored.
6. Make a big salary.
7. Enjoy job flexibility.
8. Travel.
9. Make a difference.
10. Change the world.

ASK an Engineer!
Engineer Your Life
Dream big. Love what you do.

Find Your Dream Job
Aerospace
Bioengineering/Biomedical
Chemical
Civil
Computer Science
Electrical and Electronic
Environmental
Industrial and Manufacturing
Materials
Mechanical
Special Fields and Interdisciplinary

Why Engineering?
Meet Inspiring Women
Find Your Dream Job
Making It Happen

Explore the amazing world of engineering

For Counselors & Parents
For Engineers
For Middle School Girls
(see engineergirl.org)
It’s easy to start exploring engineering!

1. Keep up with the courses you’re already taking to prepare for college (including four years each of math and science) and aim to do well on your college admission tests (SAT, ACT).

2. See what it’s like to be an engineering student and find some fun ways to take engineering for a test drive.

3. Look for colleges that have engineering programs and find a few that sound right for you. Learn about financial aid, including scholarships, grants, loans, or school-based employment opportunities (like campus work-study, paid internships, and co-ops).
Many people who love being engineers have said that they didn't consider engineering or even knew what it was until a school counselor or parent suggested it as a career option. Sometimes just one adult can make all the difference in helping young people discover their dream jobs. But advising kids about engineering can be tough if you're not sure what it is yourself.

This site will help you:

- Understand the various fields of engineering
- Learn what an engineer does
- Find out why engineering is a great career
- Advise your kids or students about engineering
Next Steps

Review your ongoing outreach and diversity efforts:

1. What messages are you sending?

2. How do they align with the interests of your target audience?

3. How can you incorporate these new messages into your efforts?
Next Steps

Start using these messages in your organization:

1. Introduce your colleagues to these new messages.
   • Adapt this PowerPoint or download the training PowerPoint from engineeryourlife.org and host a training session.

2. Start a dialogue about these new messages through your organization’s communication and media outlets.

3. Link to EngineerYourLife.org
Next Steps

Share these new messages with your K-12 partners

1. Host Engineer Your Life workshops at local, state, and regional conferences
   - $750 stipends available
   - powerpoint and talking points
   - posters and brochures

2. Distribute EYL brochures, posters, postcards
What Engineers Like about their Careers

• “I enjoy the travel and interacting with an amazing array of people.” - Daniele Lantagne

• “I feel pretty lucky to have such a creative and interesting job. I’m surrounded by brilliant people. It doesn’t seem like work. It’s just plain fun!” - Judy Lee

• “It’s never boring. I feel that I can make a difference in society by working on new technologies to improve people’s lives.” - Mona Masghati

• “Engineering is such a versatile field. It is practical, applicable, and always in demand.” - Molly Lebowitz
Is Engineering a Good Career Choice?

- Engineering was named one of Best Careers 2008 by U.S. News & World Reports
- Career starts with a four year bachelor’s degree
- Average starting salary $47,960-$60,718
Questions?

Contact Thea Sahr at
Thea_Sahr@wgbh.org
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
More NGCP Information

Program Directory
www.ngcp.project.org/directory

Mini-Grant Application
www.ngcp.project.org/mini-grant

Join the NGCP listserv
www.ngcp.project.org/resources/newsletter.html

Upcoming Webcast
Wednesday, February 11, 2009, 11:00-12:00 (Pacific time)
Topic: Collaboration
www.ngcp.project.org/events/webcasts.cfm