

The SciGirls Seven: Strategies for Engaging Girls in STEM

The *SciGirls* approach - for the TV show, website and educational materials - is rooted in research about how to engage girls in STEM. A quarter of a century of studies have converged to become a set of proven strategies forming the *SciGirls*' foundation. We call these strategies *The SciGirls Seven*.

- The SciGirls Seven**
Strategies for Engaging Girls in STEM
Girls prefer STEM projects and experiences that:
1. Embrace collaboration.
 2. Are personally relevant.
 3. Offer hands-on, open-ended participation.
 4. Accommodate preferred learning styles.
 5. Provide specific, positive feedback.
 6. Allow for critical thinking.
 7. Involve role models & mentors.



SciGirls Episodes

Each half-hour episode highlights the investigative process of science and engineering. Girls see how choosing, questioning, planning, predicting, observing, interpreting and communicating occur in the field. They learn how rewarding and fun it is to work with their peers and with the show's female mentors, who offer girls a glimpse of exciting STEM career possibilities.

Season One

Turtle Mania
Puppet Power
Dolphin Dive
Digging Archaeology
Horsing Around
Blowin' in the Wind
High Tech Fashion
Science Cooks!
Underwater Eco Adventure
Robots to the Rescue!
Going Green
Star Power

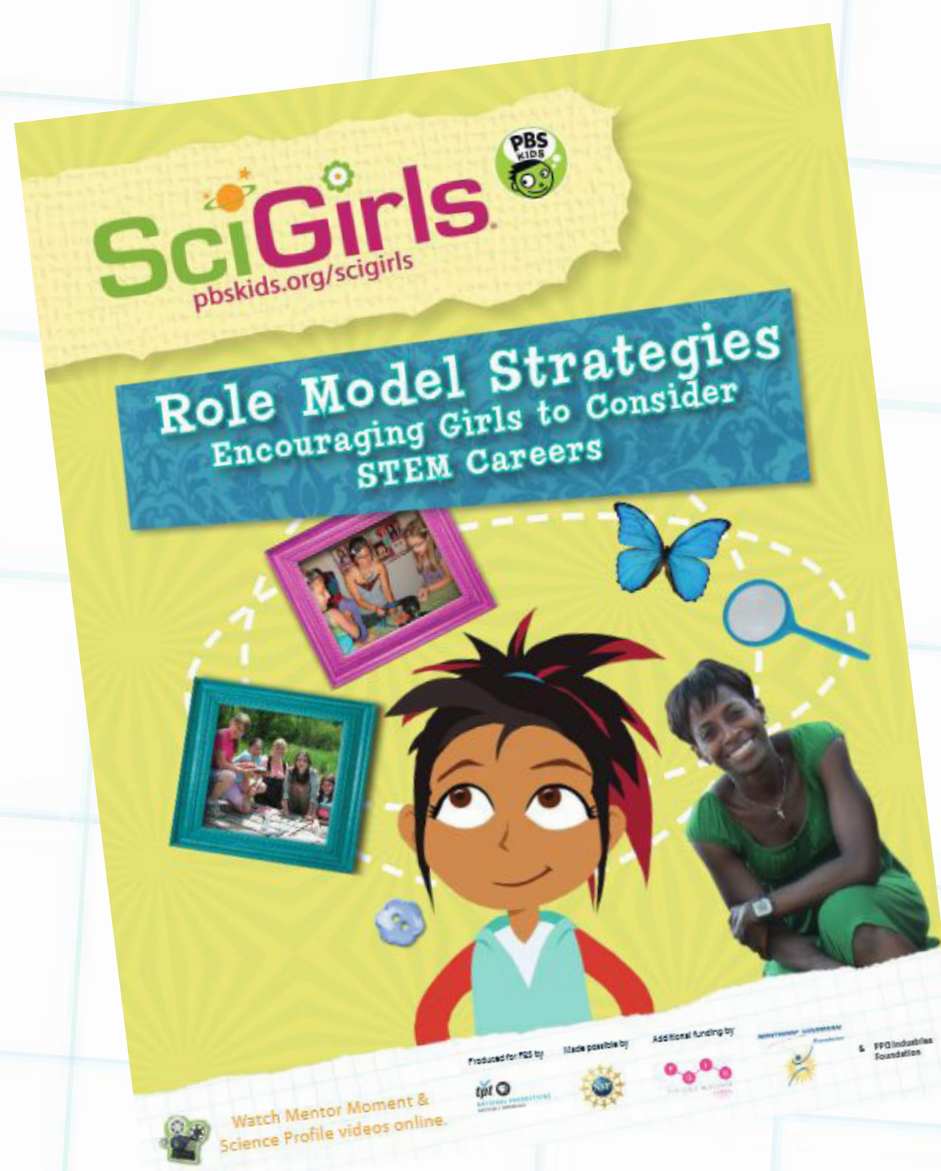
Season Two

Aquabots
Mother Nature's Shoes
Habitat Havoc
The Awesome App Race
Multitasking Mania
Insulation Station
Workin' It Out
Bee Haven
Pedal Power
Super Sleuths

SciGirls en Español

Every *SciGirls* episode and activity guide is also available in Spanish. The resources serve our 20 Hispanic partner organizations and Spanish-speaking communities across the country and are available free online.

SciGirls' guide for Hispanic-serving partners, **Engaging Latino Families: Key Ingredients for Successful STEM Programs** provides research-based strategies for developing culturally sensitive programming for families.



SciGirls Role Model Strategies: Encouraging Girls to Consider STEM Careers

STEM professionals have the ability to make a real difference in girls' lives by becoming role models. This guide offers basic guidelines for role models, introducing them to best practices for their volunteer efforts.

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SciGirls

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SciGirls TV Series, Website, and Outreach

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Project Summary

SciGirls is an Emmy Award-winning transmedia TV and web series designed to advance informal STEM learning. *SciGirls*' half-hour episodes follow a group of real middle school girls as they investigate their own STEM questions with a female professional mentor. Based on available Nielsen audience measurements, we estimate *SciGirls* has garnered nearly 15 million gross viewer impressions. With our strategic partners, we have provided *SciGirls* tools and trainings to over 1,000 educators, reaching tens of thousands of girls in *SciGirls* outreach programs nationwide.

SciGirls Goals

1. To employ the broad reach of television and new media technologies to foster a greater interest in STEM among girls ages 8 to 13 and their parents, with girls from diverse communities as our highest priority;
2. To connect girls to existing, quality STEM education opportunities in their communities;
3. To enhance existing research-based programs by providing educators with videos, professional training, online tools and print resources, so that any leader can guide a group of girls through authentic and rewarding STEM experiences;
4. To inspire an increase in the quality of girls' science encouragement programs nationwide; and
5. To contribute to the growing body of research to deepen our understanding of the most effective ways to engage girls in STEM activities and encourage them to pursue STEM careers.

Project Evaluation

Multimedia Research's Dr. Barbara Flagg's summative evaluation of *SciGirls* indicates that the videos increase interest in and understanding of scientific inquiry and engineering design. Viewers found the shows fun and educational and felt that seeing successful female characters on-screen amplified confidence in their own abilities.

Knight-Williams, Inc.'s summative evaluation of *SciGirls* outreach showed that informal educators believe *SciGirls* resources are reliable tools that build confidence, deepen STEM skills and spark a passion for science.

SciGirls Games and Interactives

SciGirls online games include:

Pick'm Stick'm

SciGirls' unique online game starts during the show! Using on-screen clues, girls go to the *SciGirls* website to solve an "iSpy"-style puzzle (Pick'm!), unlocking pictures they can use to create their own collage about the show (Stick'm!).

Aquabot

In this game, girls engineer an underwater remote operated vehicle (ROV) that doesn't sink to the bottom or float to the top.

Busy as a Bee

Part Farmville, part Tamagotchi, this game has kids nationwide collaborating online to grow gardens and maintain hives, engaging in the science of bees.



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"This was a once in a lifetime experience..."

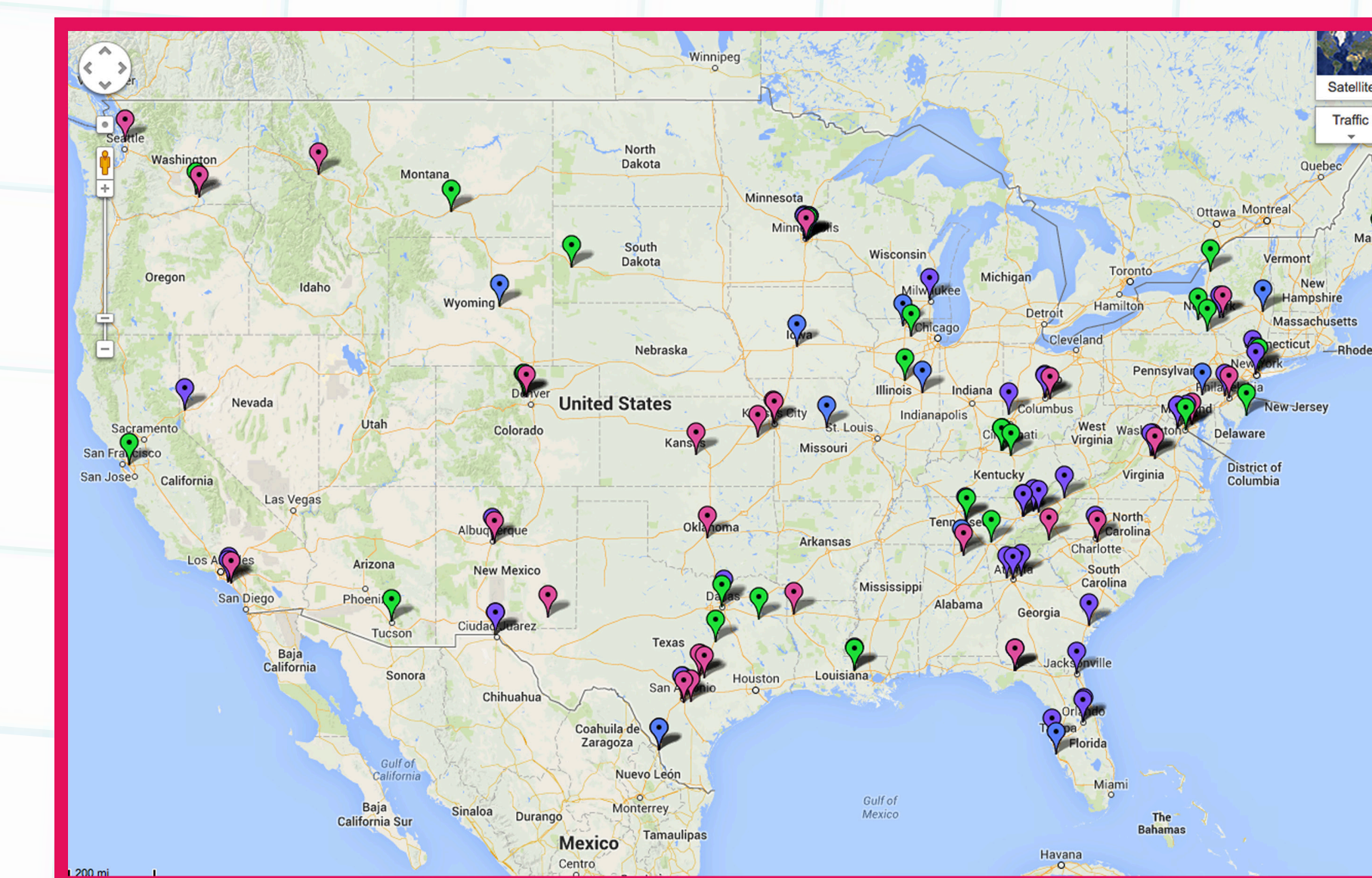
"Working on a team with expert scientists kind of makes you feel on top of the world..."

- Comments from SciGirls



SciGirls Professional Development and Outreach Workshops for Girls in STEM

One hundred *SciGirls* Partner Organizations located in schools, museums, community organizations and universities host *SciGirls* clubs, camps and afterschool programs for girls across 30 states, reaching over 10,000 girls a year. *SciGirls* CONNECT provides mini-grants, leader training and educational resources to *SciGirls* Partner Organizations. Through our partner, the National Girls Collaborative Project (ngcp.org), we have networked organizations hosting *SciGirls* programs with dozens of female role models using the *FabFems* database (fabfems.org).



Key:
Pink - Trainers
Blue - Year 1 Partners
Green - Year 2 Partners
Purple - Year 3 Partners

SciGirls Educational Activity Guides

SciGirls Educational Activity Guides are hands-on extensions of the projects featured in the TV shows, aligned with our *SciGirls Seven* framework, and current science standards. In an evaluation of the guides, users reported that the activities present a good balance of open-ended and guided investigations, and the embedded links to the *SciGirls Seven* are especially valuable. Educators liked the introduction to scientific inquiry included in each volume and the extension activities in science topics and the humanities.



SciGirls Online

In addition to the unique transmedia ties to the TV show, the *SciGirls* website is the first safe social network for children (pbskids.org/scigirls). The site averages 300,000 unique visits each month. *SciGirls* episodes and educational resources are online at our companion educator site (scigirlsconnect.org) and at PBS LearningMedia (pbslearningmedia.org/collection/scigirls). *SciGirls* episodes are also available on iTunes, YouTube, and Twin Cities Public Television (tpt.org).

