The Big Picture

In 2005, Twin Cities PBS (TPT) created SciGirls®, a multiplatform science, technology, engineering and math (STEM) education program that is changing how millions of girls (and boys!) think about, engage in and pursue STEM studies and career paths. This innovative program integrates Emmy Award-winning television episodes, online games and media, and hands-on activities to drive STEM curiosity and learning.

In 2011, the SciGirls CONNECT project was created as a broad national outreach effort to encourage educators to adopt research-based, gender equitable and culturally responsive teaching strategies to engage girls in STEM. The SciGirls CONNECT network is a supportive community of dedicated educators who provide the spark, the excitement and promise of a new generation of women in STEM careers.

Television

At the heart of SciGirls is a national PBS television series for girls between the ages of 8 and 13. Each half-hour episode follows a different group of real girls mentored by a dynamic female STEM professional. Over 59 million viewer impressions on TV to date!

Web

The SciGirls website is the first safe social network for children on PBS and includes 39 episodes and 30 role model videos, games and opportunities for youth to engage in 50 STEM activities. The PBS Kids’ video app has garnered over 71 million views of episodes! PBSLearningMedia.org also hosts all SciGirls episodes and activities reaching 1.8 million educators annually.

Outreach

The SciGirls CONNECT educational outreach network includes 216 partner organizations in 39 states and the territory of Puerto Rico. SciGirls has trained over 5,677 educators, working with over 104,000 diverse, young people in urban and rural areas nationwide.

How It Works

Since 2011, SciGirls CONNECT has built a network of empowered professionals dedicated to inspiring more girls to pursue STEM study and careers.

Partners

Girl-serving organizations nationwide are recruited to become a SciGirls partner organization.

A certified SciGirls Trainer provides a face-to-face training in media-enhanced STEM education and role modeling strategies at the partner site. Partner organizations receive a stipend to support staff and programming at their site. Partner organizations invite internal staff as well as other educators in their communities to participate in the training.

SciGirls Training

Trained staff and educators develop and implement SciGirls programs to inspire the next generation of STEM innovators.

SciGirls Programs

All partner organizations have full access to SciGirls resources, including videos, activity guides, webinars, and ongoing support.

STEM Innovators

SCIGIRLS STRATEGIES How to Engage Girls in STEM

With the support of the National Science Foundation (NSF), the SciGirls Strategies guide was updated and debuted in 2019 based on a literature review of 120+ research publications from the past five years on what practices have an enduring impact on girls’ STEM identity. Building a robust and positive STEM identity can help girls persevere in the STEM disciplines throughout middle and high school. The SciGirls Strategies forms the foundation of all SciGirls media and activities.

TRAIN-THE-TRAINER

All trained educators are eligible to apply to the SciGirls Train-the-Trainer program, where they become certified to empower other educators with gender equitable strategies.

Trainers lead SciGirls workshops for educators in their region. This model creates a robust and growing network of SciGirls practitioners. The impact is exponential!
The SciGirls CONNECT Network includes 216 partner organizations and 97 SciGirls Certified Trainers across 39 states and the territory of Puerto Rico. SciGirls CONNECT partners include community-based programs like the YMCA and Girls, Inc., Girl Scouts, museums, organizations that serve Spanish-speaking youth, universities, schools and more. The network is a robust community of practice which supports collaboration and sharing of best practices within diverse informal and formal STEM learning environments.

### By the Numbers

**Since 2011...**

- **97** SciGirls certified trainers have completed **291** trainings.
- The SciGirls CONNECT network has grown to include **216** partner organizations across **39** states.
- **5,677** educators have been trained in SciGirls’ gender equitable strategies.
- **1,624** SciGirls programs have been created reaching **104,773** youth participants.

**Partner Types**

- Community-Based Organizations: 37%
- Museums and Science Centers: 30%
- Schools and Universities: 26%
- Other: 7%
Impact
Since 2011, SciGirls has reached **104,773** youth participants!

In All Communities
SciGirls programming takes place in diverse geographic settings, serving youth in suburban, urban and rural communities across 39 states.

Gender
SciGirls content is primarily focused on eliminating the barriers that prevent girls from pursuing STEM study and careers. However, SciGirls content and activities are accessible to all youth independent of gender and have proven engaging for girls and boys. SciGirls does not discriminate based on gender identity, gender expression, or sex assigned at birth.

Grade Level
SciGirls content resonates best with middle school students, a critical stage for STEM identity development. With support from SciGirls staff, educators can customize their programs to serve girls (and boys) of all ages. The majority of SciGirls programs serve girls from grades 4-8, and about 25% of programs also serve boys.

Race and Ethnicity
Cultural responsiveness is a cornerstone of SciGirls vision. SciGirls program participants come from a variety of cultural, racial and ethnic backgrounds. A quarter of all SciGirls programs serve Hispanic students and all SciGirls media and activities are available in Spanish, with six episodes and 10 role model videos produced originally in Spanish.

Across the Nation
The SciGirls Strategies state that girls benefit from relationships with role models and mentors. SciGirls provides role modeling opportunities—in-person and virtually—to reach girls through as many avenues as possible.

If she can see it, she can be it.
- Geena Davis Institute on Gender in Media

Role Model Videos
Combining the power of media and the impact of role models, SciGirls has produced four series of role model videos. These short-form videos feature female professionals from diverse cultural and STEM professional backgrounds sharing their STEM stories. Role models delve into both the challenges and triumphs of "a day in the life" in the STEM workforce. They highlight female STEM professionals and have been filmed in Spanish and English across the U.S.

National Girls Collaborative and FabFems
SciGirls is excited to continue our partnership with the National Girls Collaborative (NGC). A cornerstone of NGC's girl-centric model is role modeling. As such, NGC developed FabFems, a national role model database that connects female STEM professional role models with girl-serving organizations. This open-access database allows programs to easily find role models in their geographic and content area.

FabFems has been a critical resource for SciGirl's partner organizations as we encourage all role models to register and continue inspiring young women to pursue STEM study and careers.

In partnership with NGC, SciGirls has created a guide and an online tutorial in best practices for role models.

Stay Tuned

The SciGirls' network continues to grow! In 2022 and 2023 SciGirls' projects will help children explore STEM and space science, investigate the citizen science happening across 16 National Parks. Together, with our nationwide partners and women STEM role models, SciGirls continues to inspire children, families and educators in STEM learning.

SCIGIRLS IN SPACE
Season Six
Funded by NASA, this season will focus on space science and feature episodes filmed at the Johnson Space Center, Langley Research Center, Jet Propulsion Laboratory and through partnerships with The Bell Museum & Planetarium and the Native Skywatchers Indigenous sky knowledge programs. It also includes NASA role model videos. Space-themed outreach for girls and families will occur at 16 diverse SciGirls partners across the U.S. Episodes will launch in 2022.

SCIGIRLS IN THE NATIONAL PARKS
Season Seven
Funded by the NSF; this season will focus on citizen science in the National Parks. The project includes outreach and training for educators and National Park Service women role models for girls. New episodes will be filmed at five diverse National Parks. The project also includes role model videos of women who work at the parks, providing inspiration for girls. SciGirls outreach programs for girls (ages 10-14) will take place at 16 National Parks across the U.S. PBS episodes will launch in 2023.

BLACK SCIGIRLS
Funded by the NSF, Black SciGirls is a two-year project aimed at examining systemic issues within STEM learning spaces and providing educators with anti-racist approaches that validate and uplift Black learners. TPT will produce new media of Black women in STEM and 12 SciGirls partners will provide STEM programs reaching 180 Black girls and 360 parents. A formal research study will examine how STEM role models motivate Black girls to STEM.

SCIGIRLS CONNECT WEBSITE
SciGirls CONNECT website is undergoing an update in the coming year to ensure it is user friendly and culturally responsive. New Teaching Tips videos will be shared to help educators who wish to learn more about SciGirls activities focused on a mental health and a healthy brain.
Black Lives Matter Commitment

Black lives matter. Yesterday, today and tomorrow, they matter.

Since SciGirls’ genesis, we have worked with educators, parents, policymakers and other stakeholders to empower all youth—across all genders, races, ethnicities, socioeconomic statuses and any intersection of these factors—to explore and engage in STEM. In the wake of George Floyd’s death, this effort continues, with a specific focus on deconstructing the systemic racism that has long tamped down the spirit, innovation and contributions of Black learners. In this spirit, we will:

• Highlight Black voices via STEM Storytelling: Sharing narratives of Black girls’ and role models’ creativity and abundance around STEM is a long-held practice, but welcoming more Black talent “behind the camera” will be a key focus. We commit to equitable and intentional practices around hiring and retention of Black media makers and educators.

• Help Educators Create Culturally Responsive Learning Environments: While our work in this space has reached 5,300 educators, we commit to developing and providing professional development focused specifically on anti-racist practices. We acknowledge this is just the beginning. We have not done enough to address racism, nor have we done everything well. However, we are committed to change within our organization and ourselves.”

The SciGirls team has been successful at raising funds from the NSF to research intersectional barriers for Black girls in STEM. In addition, a majority of role models and girls will be Black, Latina or come from Indigenous tribes for the next two SciGirls seasons. We have also been successful at hiring Black women directors and Black crews underscoring our commitment to increasing Black representation behind the camera.

PUBLISHED IN 2019!

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 on a set of common strategies that work, the SciGirls Strategies: How to Engage Girls in STEM. The aligned SciGirls Literature Review was published in 2020.

PUBLISHED IN 2020!


Check out SciGirls publications in NSTA’s Connected Science Learning magazine!

• SciGirls Strategies: Using Gender-Equitable Teaching Strategies and STEM Video Narratives to Engage Girls in Nontraditional STEM Fields
• The SciGirls Strategies: How to Engage Girls in STEM
SciGirls' five PBS seasons include 39 episodes on diverse STEM topics and feature early career women mentors and small groups of girls who investigate STEM in their communities. Girls' families and friends are highlighted in episodes contributing to SciGirls focus on cultural diversity. Upcoming seasons include a season about space science and a season about citizen science in the National Parks.

PBS SciGirls series of role model videos: Real Women, Real Jobs and Latinas at Work feature 24 women who are the innovators, problem-solvers and dreamers that live next door. They're passionate about their work, hobbies, families and helping to make the world a better place. They share their strategies for overcoming challenges and finding success and joy in jobs where women are underrepresented.

SciGirls in Space was funded by the International Space Station National Lab and features real-life SciGirls who participated in The National Design Challenge, a program that invited students to design experiments that become part of the International Space Station's research efforts. Their experiments were flown to the space station aboard unmanned cargo missions.

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Discovery Education: SciGirls episodes and role model videos will reach educators and learners in 90 countries.

VMe: Vme cable television aired SciGirls' fourth season reaching many new Spanish speaking viewers on air and online.

Akili Kids: SciGirls is now being broadcast in Kenya, Africa.

Across the last decade, SciGirls team members have presented our work to educators in Egypt, Russia, Chile, Kazakhstan, Kyrgyzstan, Turkmenistan, Turkey, South Africa, Australia, Canada, Brazil, Scotland, United Kingdom, Germany, Jordan, Costa Rica, China and Mexico!
In SciGirls newest game, Code Quest, play with Izzie and Jake, as they become helpers at their local Aquarium to research and create a new ocean reef exhibit. Code “Subby, the submarine” to collect information about the animals and habitats living in the reef.

Other games include:
- Aquabot – Build your own naturally bouyant robot
- Dream Team – Play cards with friends, featuring the TV SciGirls
- Creature Features – Help Izzie collect citizen science data in the wild
- Rule the Roost – Complete monthly citizen science challenges and questions about citizen science to help win points for your team!

Coming Soon:
New role model videos for SciGirls in Space
Meet Aarthi, Janelle, and Rachel!

As a high school senior, Aarthi designed a NASA Genes in Space experiment that was conducted on the space station. She is interested in the links between human biology, genetics and space travel. She hopes to pursue medicine in the future and become a doctor. A passion and hobby for Aarthi is Indian classical dance that helps her connect with her Indian heritage and culture.

Janelle is an Instrument Operations Engineer and former SciGirls episode mentor at the NASA Jet Propulsion Laboratory in California. Janelle is also passionate about mentoring youth and helping young scientists with their career goals. She enjoys working with kids’ robotics teams and at youth STEM camps.

Rachel is a Goddard Space Flight Center Instrument Design Lab Team Lead and has worked on lunar missions! Her lab creates the design concepts for instrument payloads that support the science on satellites. When she’s not in the lab, Rachel enjoys scrapbooking and crafting with her two kids.

Research and Evaluation Findings 2010-2021

SciGirls Media:
- Viewers of SciGirls media report an increase their interest in and understanding of STEM processes and feel that seeing successful females amplifies confidence in their own abilities and motivation to do STEM.
- Exposure to SciGirls media has been shown to increase girls’ understanding of citizen science, and their interest and self-efficacy in citizen science, with a special influence on girls of color.

SciGirls Outreach:
- Educators consistently trust SciGirls’ resources as reliable tools that build girls’ confidence, deepen STEM skills, and spark passion in STEM.
- SciGirls educators rated gender equity PD and the SciGirls Strategies as “extremely valuable”.
- SciGirls educators report firmly believing that girls are “significantly impacted” by participating in programs that use SciGirls resources. Educators cite increased confidence and interest in STEM, and increased awareness of STEM careers.
- Educators also report that using the SciGirls Strategies is “very effective” in engaging girls from diverse racial, ethnic, and socioeconomic backgrounds in STEM.
- Girls reported higher rates of emotional connection to STEM, an important component of STEM-related identity development.
- Programs that used equitable strategies, involved families and personally relevant activities, built girls’ positive STEM identities.
- Girls’ increases in STEM identity have been shown to be driven by recognition from educators and peers.
- Girls, ages 9-11, report a higher rates of emotional connection to STEM than older girls (ages 12-14) supporting the need for early intervention.

For more research and evaluation reports, visit: SciGirlsCONNECT.org/Evaluations
“Our participants love the science activities and meeting STEM role models!”
– spectrUM Discovery Area

“SciGirls showed them that girls can do anything they set their mind to and that the possibilities are endless.”
– South Knoxville Elementary

“SciGirls is an exciting educational series that strives to change how girls view traditionally male fields like engineering and technology by introducing viewers to real tween girls who are using their science prowess to explore — and sometimes change — the world.”
– Common Sense Media

“Sciences Works! Youths gain the opportunity to engage in hands-on science activities that make learning fun and interactive.”
– Center for Reservoir and Aquatic Systems Research, Baylor University

“The program, website and education materials provide encouragement to young women that they can make a difference in the growing STEM environment.”
– KCTS South Dakota Public Broadcasting

Research Publications


For more research and evaluation reports, visit: SciGirlsCONNECT.org/Evaluations

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SciGirlsCONNECT.org

A Twin Cities PBS website for educators that includes:
- STEM Media
- Activities
- Gender equitable teaching strategies
- Training for STEM role models
- Resources for SciGirls trainers

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