



**Imagine Science and the Power of Collaboration:**  
*A coalition of national youth-serving organizations  
bringing STEM to scale*



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# Imagine Science: the Power of Collaboration

Careers in mathematics, science, engineering, and technology are among the fastest growing and most rewarding professions in today's economy. But for many of the nation's underserved youth, these opportunities can seem far out of reach.

In 2014, four of the nation's largest youth-serving organizations—Boys & Girls Clubs of America, Girls Inc., the National 4-H Council, and the YMCA of the USA—joined forces to launch Imagine Science. Their mission is to build excitement and confidence in young people from low-income communities in pursuing STEM careers. To date, partners working in eleven communities nationwide have brought Imagine Science to over 25,000 youth.

The effort is getting results—67 percent of participating students showed an increase in their enthusiasm for STEM learning in the past year, according to surveys, and almost half said they were interested in pursuing a STEM career.

Getting kids excited about STEM takes high-quality programs, and the secret to delivering them, partners say, is a high and often unprecedented level of collaboration across organizations. **"It's more brains, more ideas, more innovation, more scale and impact,"** explained Dominique Jones, executive director of Boys & Girls Clubs of Harlem.

## Thinking Deeply About STEM

Sharing curricula is one of the most common ways that partners collaborate. When Boys & Girls Clubs of Garden Grove in Orange County, California, joined Imagine Science in 2014, "we were interested in STEM but not sure how to go about running a STEM program and what a quality program looked like," said Heather White, the program development director. "So we really benefited from the expertise of Girls Inc. which had been doing STEM for a long time and 4-H which had been doing STEM for decades."

Sharing curricula also makes it possible to collaborate on training for youth workers, as partners in some communities have done. Girls Inc. of Orange County recently trained youth workers at nearby Imagine Science sites on its robotics program. Boys & Girls Clubs of Garden Grove, meanwhile, trained nearby YMCA staff on the DIY (Do It Yourself) STEM curriculum developed by Boys & Girls Clubs of America.

### Ryan and Joshua, Eight Years Old

Joshua, a third-grader enrolled at the Boys & Girls Clubs of Huntington Valley, California, had trouble getting along with his peers. "Because of his hyperactivity, he would dominate conversations," said Ryan Brenes, unit director of the Huntington Beach Branch. "He would talk over people."

Last fall, Joshua began attending Imagine Science on Wednesday afternoons at his club.

At first, small group projects were a struggle. But over time, watching how other students worked together—contributing ideas, talking them over, compromising, coordinating their efforts—gave him a model for successful collaboration, Brenes believes.

"I think slowly he realized that 'I can't do this by myself. I have to listen to my groupmates.'" By the end of ten weeks of Imagine Science, he was able to listen respectfully and willing to compromise.

At the final showcase, he proudly displayed a popsicle-stick bridge his group had engineered to bear weight, said Brenes. "It was a great moment for him."



## Thinking Deeply About STEM *(continued)*

**Youth workers generally "don't have the wealth of knowledge about STEM," White said, "but through the professional development, the staff has been trained on how to create authentic STEM experiences."**

That means that instead of following a proscribed series of steps, she said, students are the ones doing the thinking. "Students have a say in how the experiment is carried out. They are designing and testing a product they build. Staff are asking open-ended questions, and youth are thinking more deeply about science concepts." Because of the shared curricula, partners were also able to purchase "some really great robotics kits and laptops to share across agencies," that each alone otherwise wouldn't have been able to afford, White said.

## Social-Emotional Growth through STEM

**Becoming familiar with the curricula that other organizations designed can give partners ideas on how to improve their own,** said Andres Garcia, senior manager of programs for Boys & Girls Clubs of Greater Houston. His organization was especially impressed by the Girls Inc. Operation Smart curriculum, he said, and the way that it integrated social-emotional learning with STEM. Through hands-on STEM projects, instructors developed girls' confidence by encouraging them to take risks and persevere as they solved challenging problems. In Colorado, Imagine Science partners found an unexpected benefit from collaborating

"The combination of SEL [social-emotional learning] and STEM was something we had never thought about... Seeing how they combined them was an eye opener for us for how we can incorporate SEL into more of our programs."

– Andres Garcia, Boys & Girls Clubs of Greater Houston

"Each partner has good things they bring to the table. Collaboration allowed me to go outside the box and add things I normally wouldn't have considered."

– Wade Ingle, Colorado 4-H STEM Specialist

on curriculum not only across organizations but across urban and rural locations. Girls Inc. serves students in Denver while Colorado State University Extension 4-H serves rural counties on its outskirts. Program leaders worked together on curriculum that examined water management, air quality, and food production from both urban and rural perspectives. One project, for example, had students grow edible plants in water—a food production technique called aquaponics, suitable for an urban basement or warehouse. As a result of the partnership, young people in each area arrived at a deeper understanding of the science concepts and their real-life applications, said Wade Ingle, Colorado's 4-H STEM specialist.

**Working together helps good ideas to spread, Imagine Science partners find.**

In Orange County, Boys & Girls Clubs of Garden Grove held an Imagine Science parent night for students to showcase their STEM projects at the end of a week-long summer camp. It was an unexpected hit, said White. As a result, the Imagine Science Orange County partners pursued and won a grant to fund more family events including showcases, field-trips, and family nights with hands-on STEM activities. "The goal is to help parents or caregivers understand the value of STEM for their children and increase the likelihood that they will access STEM learning in school and out-of-school in the future," White explained, adding that family turnout has been high. "We're super-impressed with parents making time to attend these events."

## Teens as STEM Leaders

In Nebraska and New York, working together spurred an innovation in program delivery. Partners found an exciting way to merge Imagine Science with an existing 4-H program that trains high school students to lead summer programs for younger kids, with support from adult instructors. **In Lincoln, Nebraska, and the Bronx, some of these teens led Imagine Science workshops for partnering organizations.**

Students at Girls Inc. were thrilled to learn from teens in their community, said Kathleen Lodl, 4-H program administrator at the University of Nebraska-Lincoln. And for the teens, “It gives them a true leadership experience that is very unique, and they get paid, which is critical in socioeconomically challenged areas of our city,” she said. **At the end of the summer, some teen leaders announced a new career aspiration—to become science teachers,** said Emily Mwaja, director of programs at Girls Inc. of Omaha.

## Helping Each other Improve

To continually improve its programs, Imagine Science adopted a program evaluation system from The PEAR Institute (Partnerships in Education and Resilience) at Harvard University that includes student surveys and program quality observations. Annual program evaluation includes student surveys (Common Instrument Survey) and a protocol for observing programs in action (Dimensions of Success).

**Imagine Science teams from each community analyze data, identify strengths and weaknesses, and plan improvements.** The Dimensions of Success program quality allow community partners to assess each other’s programs. Having a partner evaluate you makes the results more objective, White noted. It’s also another chance for partners to learn from each other, she observed.





## Helping Each other Improve *(continued)*

Tori Cash, teen STEM coordinator for Girls Inc. of Orange County, said that when she visited Boys & Girls Clubs of Garden Grove to conduct evaluations, she was impressed by how youth workers helped kids get into the right mindset for STEM learning.

Before building structures for an earthquake simulation, instructors posed questions like, “What do you know about earthquakes? Have you been in an earthquake before?” Asking students to share their knowledge focuses their thinking, builds their confidence, and gets them excited for what they’re going to do next,” said Cash, who shared the strategy at Girls Inc.

## Bonds that Benefit Youth in Challenging Times

**Some partners have found ways to collaborate beyond Imagine Science**, based on relationships they built through the initiative. In Dallas, one YMCA with a safety and water team offered to provide swimming and lifeguarding lessons at a Boys & Girls Clubs location with a pool. When a YMCA needed more space for basketball practice, another Boys & Girls Clubs site offered its gym.

And in Nebraska, University of Nebraska-Lincoln Extension 4-H is providing curricula, supplies and instructors to two Girls Inc. programs outside of Imagine Science—a food science program in Omaha and a STEM program for 8th to 12th grade girls in Lincoln. “Being able to have that partnership with 4-H has greatly benefited our students,” said Mwaja of Girls Inc. of Omaha. “At Girls Inc., we can’t afford all the expertise we want our girls to access, especially when it comes to STEM. 4-H is really strong in STEM curriculum and in training their facilitators.” She credits the connections forged through Imagine Science for sparking the additional collaboration.

During the coronavirus pandemic, Imagine Science programs are facing disruption. But working together, some partners are finding ways to keep the learning going. Partners in New York City, which include three Boys & Girls Clubs and the 4-H Youth Development Program at Cornell University Cooperative Extension, organized online STEM training for their youth workers. While in-person programs are cancelled, partners posted Imagine

*“Through Imagine Science, we build these cohesive relationships. By understanding how 4-H works, we were able to see how we align and how we might benefit each other. Imagine Science helped us see what we can do together.”*

*– Emily Mwaja, Girls Inc. of Omaha*

*Collaboration “creates more ideas and energy...It makes us all better at our work.”*

*– Kristin Kelley, VP of Development  
YMCA of Metropolitan Dallas*

Science activities online that parents can use at home with their kids. The next step, said Jones of Boys & Girls Clubs of Harlem, is to videotape lessons and create interactive science games in Google classroom. The first three Imagine science communities are now self-sustaining. Imagine Science funds a planning phase for each local collaborative and then three years of implementation, after which they need to rely on their own fundraising.

In Dallas, one of the original Imagine Science communities, local partners are accomplishing their fundraising goals through a joint development team. The approach was so successful, that their Imagine Science operating budget was fully funded for the year by January, leaving time to raise money for program enrichment and begin looking ahead to next year. Major grants included \$100,000 from Verizon. Working together made their fundraising more effective, said Kristen Kelley, associate vice president of development for the YMCA of Metropolitan Dallas. Collaboration “creates more ideas and energy,” she said. “It makes us all better at our work.”



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**STEM & Beyond:**  
The four collaborators behind Imagine Science and  
their vast networks of distinct expertise poised for  
collective impact



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# BOYS & GIRLS CLUBS OF AMERICA



**BOYS & GIRLS CLUBS  
OF AMERICA**

- **COVID-19 Emergency Response:** BGCA and 4,700 local Clubs nationwide have pivoted to providing meals, health information, childcare for essential workers and others, as well as offering guidance for and delivery of distance and virtual learning. Currently, BGCA has reopened 90 percent of sites, with 1,903 sites providing onsite and virtual programming, 1,264 sites exclusively onsite, 1,106 sites exclusively virtual, and 101 providing alternative services.
- **Equity Advancement:** Given recent tragic events, including the murder of George Floyd and other incidents of police brutality against black men and women, Boys & Girls Clubs has taken a renewed focus on its founding commitment to provide all young people with an equal opportunity for success. In response, the organization has launched an initiative focused on ending systemic racism and inequality throughout its national organization and Clubs.
- **School & Community Partnerships:** Over a third of BGCA's 4,700 Club sites are located in school buildings. In many cases, Boys & Girls Clubs provide after-school services where those services have been cut. This is BGCA's fastest growing segment of Club growth.
- **Social Emotional Development:** All of the core programs supported by BGCA are mapped to social and emotional development skills. The organization has always prioritized safety at all levels (physical, social, emotional) and is adopting a trauma-informed care model across the organization.
- **College and Career Readiness:** Good Character and Leadership (formerly citizenship) has been a core of Boys & Girls Clubs for over 160 years. This is one of the organization's three pillars. In recent years, Workforce Readiness has become an even larger part of programming as Clubs are uniquely qualified to meet the need of today's employers as was shared by the National Conference of Mayor and the National Governor's Association. BGCA is the only nonprofit to have a seat on the Department of Labor's Workforce Policy Advisory Board, along with top corporate CEOs. It is the organization's commitment to ensure that 100% of their youth graduate with a plan for the future, which may include college or work.

## **The mission of the Boys and Girls Clubs of America is**

To enable all young people, especially those in most need, to reach their full potential as productive, caring, responsible citizens.

Their vision is to provide a world-class Club Experience that assures success is within reach of every young person who enters their doors, with all members on track to graduate from high school with a plan for the future, demonstrating good character and citizenship, and living a healthy lifestyle.



**INSPIRING THE NEXT GENERATION OF STEM LEADERS**  
Boys & Girls Clubs of America • Girls Inc. • National 4-H Council • Y-USA





### Today, the Y

Engages more than 10,000 neighborhoods across the U.S. As the nation's leading nonprofit committed to helping people and communities to learn, grow and thrive, the organization's contributions are both far-reaching and intimate—from influencing the nation's culture during times of profound social change to the individual support a local Y provides an adult learning to read.

By empowering young people to reach their full potential, improving individual and community well-being and giving back and inspiring action in communities, the Y ensures that everyone has the opportunity to become healthier, more confident, connected, and secure.

## YMCA

- **COVID-19 Emergency Response:** Despite massive facility closures and staff furloughs, over 1,000 Ys mobilized nationwide to provide emergency childcare for children of frontline professionals and essential workers following the initial outbreak. Between March and August, YMCAs across the country provided meals for 37 million food-insecure children and families. Local Ys have also filled community gaps by offering a variety of other unique and urgent services, including housing, senior outreach programs, blood drives, COVID-19 testing, and virtual wellness programming for kids and adults.
- **Equity Advancement:** With nearly 20 years of experience operationalizing equity-based strategies, the Y is now working to establish itself as an Anti-Racist organization with a sweeping equity agenda focused on developing and scaling targeted individual, organizational, and societal responses that reduce disparities and create equitable communities.
- **School & Community Partnerships:** Spanning generations, the Y has deep-rooted connections in more than 10,000 communities, making it one of the U.S.'s leading community-strengthening organizations. The Y has formal partnerships with thousands of schools, community organizations, and local governments nationwide to provide high-quality, evidence-based afterschool programming focused on finding solutions for pressing community needs.
- **Social Emotional Development:** For over a century, the Y has elevated character development in its programming and services. More than a quarter of its national network is currently participating in the Y's new SEL and trauma-informed care initiative, the — "Character Development Learning Institute" — with 19,000 staff and volunteers and 215,000 youth positively impacted to date.
- **College and Career Readiness:** With 2,600 branches across the country, the Y's teen leadership and academic achievement and enrichment programs are a leading way for young people to prepare for success post high school in both college and career. Further, Ys are often one of the largest nonprofit employers of youth in their individual communities, giving hundreds of thousands of young people job experience, training, certifications, and mentorship each year.

# GIRLS INC.



- **COVID-19 Emergency Response:** Across the Girls Inc. network, affiliates have mobilized to provide the services most needed in their communities by girls and their families, including providing food and essential supplies, access to healthcare resources, transportation, and equipment and internet access for continued schooling. Girls Inc. affiliates also implemented a system of wellness checks to establish and continue regular communication with participants and their families. These checks allow Girls Inc. staff and volunteers to assess the safety and well-being of the girls they serve.
- **Equity Advancement:** Through direct service and advocacy, Girls Inc. addresses the systemic barriers that hold girls back. Informed by the voices of girls themselves, the organization advocates for breaking through the systemic barriers girls face and for reforming systems that impede their success.
- **School & Community Partnerships:** Girls Inc. has deep and ongoing partnerships with schools (both in- and out-of-school time) and within communities that are a key connection with girls and a primary service-delivery strategy for the Girls Inc. network.
- **Social Emotional Development:** In recent years, girls surveyed by Girls Inc. have consistently named mental health as one of the most important issues they face, and Girls Inc. has worked to develop resources to help prepare facilitators to speak from a trauma-informed, youth development perspective about mental health, and to make effective referrals where needed. Girls Inc. has heightened its focus on mental health and social/emotional development in response to the COVID-19 crisis to ensure that girls receive appropriate support for trauma inflicted by the pandemic, and the effects of toxic stress.
- **College and Career Readiness:** Fundamental to the work Girls Inc. does is the creation of opportunities for girls to prepare for post-secondary success. Girls Inc.'s College/Career Readiness programming is designed to build upon girls' strengths and equip them to face the systemic barriers that hold them back. It is grounded in the belief that girls have the right to prepare for interesting work and grow up to lead independent lives. Girls Inc. College/Career Readiness builds girls' aspirations and supports them in identifying, entering, and thriving in opportunities beyond high school.

## In partnership with schools and at Girls Inc. centers

Girls Inc. focuses on the development of the whole girl. She learns to value herself, take risks, and discover and develop her inherent strengths. The combination of long-lasting mentoring relationships, a pro-girl environment, and evidence-based programming equips girls to navigate gender, economic, and social barriers, and grow up healthy, educated, and independent. Informed by girls and their families, Girls Inc. also advocates for legislation and policies to increase opportunities and rights for all girls.





### What is 4-H

4-H is delivered by Cooperative Extension—a community of more than 100 public universities across the nation that provides experiences where young people learn by doing. For more than 100 years, 4-H has welcomed young people of all beliefs and backgrounds, giving kids a voice to express who they are and how they make their lives and communities better.

Through life-changing 4-H programs, nearly six million kids and teens have taken on critical societal issues, such as addressing community health inequities, engaging in civil discourse and advocating for equity and inclusion for all.

## 4-H

- **COVID-19 Emergency Response:** 4-H developed and launched a hybrid learning platform called "4-H at Home" to deliver curriculum, trainings, and programs to youth and their families in a non-contact PYD approach. The platform aggregates more than 500 university-backed learning resources for youth, parents, and educators. Additionally, it links to "SHOP 4-H" which can deliver educational kits directly to youth's doorsteps. In local communities, Cooperative Extension continues to provide free Wi-Fi access through more than 1,000 local offices and partner with schools to deliver OST materials on rural bus routes.
- **Equity Advancement:** 4-H is the youth development program of the nation's 110 land-grant university's Cooperative Extension program. This public-private partnership also includes 18 of the nation's HBCUs. Each delivers the 4-H program locally with an emphasis on diversity, equity, and inclusion.
- **School & Community Partnerships:** Located in every U.S. county, the 4-H program develops high-quality, positive-youth-development partnerships with local school systems. Based on local needs this ranges from in-school enrichment to after-school programs led by youth development professionals.
- **Social Emotional Development:** 4-H is scaling its research-based "Thriving Model," which focuses on principles of positive youth development and whole-child concepts. In addition to longitudinal research, the initiative involves scaling professional development training for 3,500 professionals and 600,000 volunteers.
- **College and Career Readiness:** 4-H has a strong college-and-career-readiness focus through local programs that "spark" an interest in youth, meaningful mentoring relationships, and access to the nation's land grant universities. From on-campus experiences to exposure to college professors, 4-H creates access to post-high-school planning for all teens.