

# MILLION GIRLS MOONSHOT



MILLION GIRLS MOONSHOT

EVALUATION REPORT 2021 - 2022



## FOREWORD

# ENGAGING MILLIONS OF GIRLS IN STEM

Since its launch in 2020, the Million Girls Moonshot has been on a soaring trajectory. As a signature initiative of STEM Next Opportunity Fund, the Moonshot directly supports our mission to ensure that millions of underserved young people have access to high-quality STEM learning experiences to help them thrive in STEM and beyond.

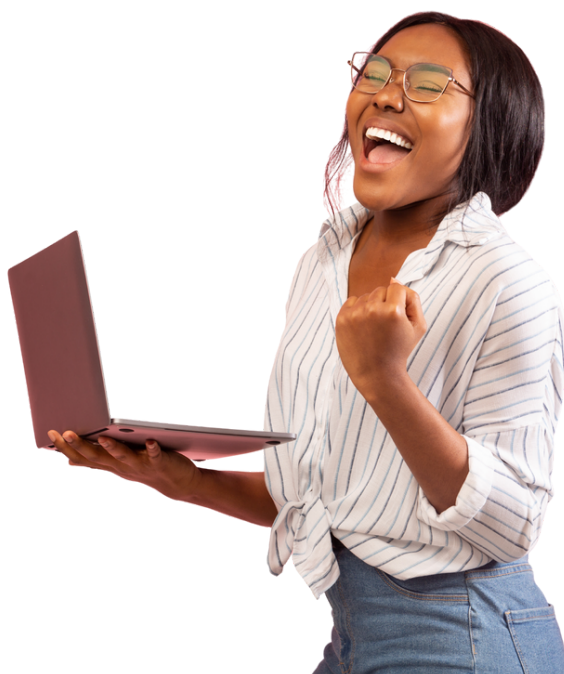
With the Moonshot, STEM Next and our partners are testing a new approach to addressing the big disparities in the STEM workforce. Today, while women make up half of workers with postsecondary degrees in the U.S., they compose just 35% of STEM workers. Black, Latina, and Indigenous women combined represent less than 10%. And of women in STEM professions, only 15% are in engineering – even less for women of color, with only 2% who identify as Latina and 3% who identify as Black. By 2029, the U.S. needs to fill 10.7 million STEM jobs, which on average pay more than double the median wage. The gap in gender equity in STEM means women miss out monetarily, and the U.S. economically, as diverse workers financially outperform those who are non-diverse. To address this critical issue, STEM Next recognizes that not enough is being done early and often enough for girls to build the interest, identity and skills required to persist to STEM careers, especially in underrepresented communities.

The Moonshot leans into afterschool and summer programs with their rich, creative environments, known to be effective at inspiring and preparing youth to pursue their STEM journeys. And outside the classroom is where youth spend 80% of their time. Out-of-school time (OST) also represents a prime opportunity to tackle learning equity challenges.

The Million Girls Moonshot has a single, laser-focused goal -

## to cultivate one million more girls with an engineering mindset by 2025.

To achieve this, we start by raising awareness in the OST field for the best practices in engaging more girls in STEM. Then, we provide training, tools and resources for providers to embed and execute those practices. In doing so, Moonshot eliminates large barriers that contribute to the STEM gender gap. For example, research shows that instructors ask boys more higher-order thinking questions—like how/why, while girls are asked simple yes/no questions. When a notetaker is needed in an activity, more often than not, a girl is assigned to this role rather than a boy. These small experiences matter and add up, creating structural barriers for girls in STEM. Through Moonshot's STEM Access framework, program leaders receive training and tools needed to create rich, culturally relevant STEM learning environments that intentionally lift up girls, their participation, skill development, and ideas.



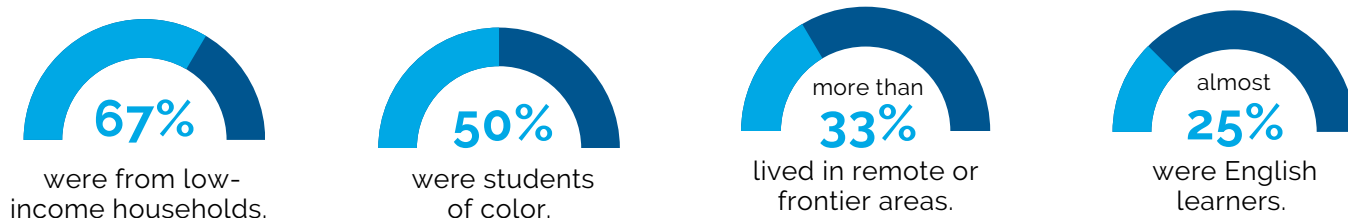
The Moonshot does not create new programs, because this is not where the need exists in the STEM learning landscape. Rather, Moonshot leverages the existing infrastructure of the 50 State Afterschool Network – with reach to 100,000+ local programs and 8 million youth – to help more programs use what we know works best to engage girls in STEM. OST programs across the country are providing millions of young people with enrichment opportunities. The Moonshot helps them do more STEM, better. And STEM Next makes this happen through collective action – coalescing over 15 national partnerships, leveraging resources across industry sectors and putting them into the hands of those who have been historically underrepresented in STEM.

So, how are we doing so far? We are on a soaring trajectory!

Moonshot's goal is to cultivate one million more girls with an engineering mindset by 2025. As we enter the last half of the Moonshot,

## 1.4 million girls and a total of 2.75 million youth have been reached.

Of youth served,



You might ask, how did we get here so fast, especially when the world was upside down in a global pandemic. We can learn from and attribute our success to two critical factors. First, the Moonshot leverages existing infrastructure that lets us expand exponentially, quickly and efficiently. Our message—more STEM to innovate in the face of challenges—was timely, relevant and compelling. And this message has staying power. As we look to the lasting impacts of pandemic learning interruptions in Math or the evolution of AI, it's more critical now than ever that we support young people in gaining the skills needed to succeed in our ever changing world.

Secondly, we have just the right mix of ingredients in our recipe. Meaning, the Moonshot doesn't just provide free curriculum, and relevant training and technical assistance to informal educators, it also aggregates and distributes resources in terms of funding, volunteer power and partnerships to support implementation. By investing in the people doing the work, we elevate their practice, show that we believe in their abilities, and that we value and prioritize the difference they are making for young people. This is especially important in historically marginalized communities. Our deepest appreciation goes out to our philanthropic and corporate partners who share in the Moonshot's vision and are making it a reality across the country, including: Amazon Fire TV; Aramco Americas; Arconic Foundation; Boeing; C. S. Mott Foundation; Frito Lay Variety Packs; Gordon & Betty Moore Foundation; Hopper-Dean Family Foundation; Illumina; Intel Foundation; Lockheed Martin; Lyda Hill Philanthropies; Micron Technologies; OTIS; Panasonic Foundation; Qualcomm, Inc.; Ralph C. Wilson, Jr Foundation; Rambus; Samueli Foundation; and Takeda Pharmaceutical.

While our reach numbers tell an amazing story of the Moonshot's rapid scale, **our work is far from finished!**

In a survey of 300 girls,

# 70%

said they felt more engaged with STEM because of their Moonshot experience. Half of them were more likely to think of themselves as “a person who does STEM.”

Beyond creating access and exposure to STEM learning, the Moonshot aims to cultivate an engineering mindset in young people. Why an engineering mindset? An engineering mindset refers to the values, attitudes, and thinking skills associated with engineering. Engineers solve problems using systematic, iterative processes. Engineers shape the world we live in using existing and new technologies. The clean water, electric toothbrushes, traffic patterns, smart phones, stain-resistant materials, and electric vehicles we use have all been developed by engineers.

Though the products of engineering are diverse, engineers approach their work using a common set of engineering practices. High-quality engineering experiences that engage youth in these practices help them develop and strengthen an engineering mindset. While many STEM programs focus on a specific component or discipline of STEM like coding for computer science or robotics, the Moonshot is preparing America's students with an engineering mindset—attitudes, knowledge and skills transferable across disciplines and supporting youth success not only in STEM, but in life.

We're just starting to see the impact of the Moonshot work on cultivating engineering mindsets. But simply reaching millions of youth is not enough. Deeper and sustained STEM experiences are required to shift practices, eliminate barriers, and support youth persistence in STEM. We know it is possible. To date, we've **supported over 2,500 programs, serving 80,000 girls, with intensive offerings like communities of practice and ongoing technical assistance that focus on developing engineering mindsets.** In year 2, we sampled youth participants using the PEAR Common Instrument Suite -validated student surveys that measure a variety of STEM-related attitudes and 21st Century Skills. More than half of youth who completed the survey reported positive change across key STEM learning indicators indicative of an engineering mindset including STEM engagement, identity, career knowledge, career interest, critical thinking, and perseverance. We also gathered input from about 300 youth in Moonshot-connected afterschool and summer programs, which showed that 7 in 10 agreed their afterschool program helped them to feel more engaged with STEM, and half said they were more likely to think of themselves as a "person who does STEM." These early indicators are linked to longer-term outcomes like majoring in a STEM field in college or pursuing a STEM-related career.

In the second half of the Moonshot, we are aiming to increase data collection efforts demonstrating deeper youth, educator, and program outcomes.

To date, the Moonshot has  
reached

**65,000 afterschool  
and summer  
programs, and  
170,000 educators.**



## Powerful Boosters: Changing the national narrative and activating families

The Moonshot brings to the forefront critical “Boosters” that accelerate and support lifelong persistence in STEM.

The Moonshot is working to change the narrative around who belongs in STEM by amplifying the voices of girls and women in STEM. In 2022 STEM Next recruited the inaugural Moonshot Flight Crew - a cadre of remarkable youth leaders who are amplifying youth voices in the national conversation around STEM equity as we work toward a future where every young girl can imagine themselves as a future engineer, builder or inventor. The Flight Crew has grown from 16 girls in 2022 to 44 girls from 38 states in 2023. From the White House to Jeopardy! and everywhere in between, the Flight Crew have served as powerful peer ambassadors in STEM, representing the next generation of diverse, prepared talent.

Activating those closest to young people, families and community, is a game-changing strategy. Families are vital players in raising awareness of the value of STEM and in brokering their participation in activities that build STEM competencies. In a national survey, 99% of parents said they want to be involved in their child's education; however, they don't understand the role they can play in their child's learning. Through communities of practice and quality tools, we are providing opportunities for OST programs and staff to create meaningful partnerships with families that help youth persist on a lifelong STEM journey.

## Conclusion

As we head into the second half of the Moonshot initiative, we've set our sights on not just one million girls, but MILLIONS of girls in STEM. We'll continue to expand access and opportunity by building the capacity of afterschool and summer programs to reach more girls in under-resourced communities. And following our theory of change, we'll see engagement deepen to support cultivating an engineering mindset in more girls.

Three big opportunities lay ahead. First, in response to the lasting impacts of the pandemic, we are leaning more heavily into supporting math in afterschool and summer programs. Applying math and science are key elements of the engineering mindset. This priority is in direct response to what we're hearing from families, youth and educators in the field. Supporting programs in scaling what works in math will not only support our Moonshot goal, but also help address educational inequities. Second, amplifying youth voice, scaling opportunities for near peer mentorship and access to role models and mentors is an expressed need and lesson-learned from our work with the Moonshot Flight Crew. We'll further test replication models in states and at the national level to continue to expand access. Lastly, while the Moonshot aims to build the capacity of local programs to do STEM well, we are also building their capacity to measure, evaluate and understand what's working and to what degree so we can continuously improve our efforts for young people. The remaining years of the Moonshot will demonstrate more robust program evaluation across greater sample pools and deeper learnings into the systems change impact the initiative is having on barriers to STEM especially for under-resourced communities.

The power of partnerships makes the transformational change of the Moonshot possible. Together, we're reimagining who can build, who can engineer, and who can create. We hope the information in this report will serve as a powerful validator of this approach and inspiration for the continued work ahead.

Sincerely,



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**Ron Ottinger**

Executive Director,  
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Girls Moonshot initiative

# ACKNOWLEDGEMENTS

The Public Profit team would like to extend our gratitude to the following individuals and organizations for their contribution to the evaluation of the Million Girls Moonshot.

## FUNDING PARTNERS

Amazon Fire TV  
Aramco Americas  
Arconic Foundation  
The Boeing Company  
C. S. Mott Foundation  
Frito Lay Variety Packs  
Gordon and Betty Moore Foundation  
Hopper-Dean Family Foundation  
Illumina  
Intel Foundation

Lockheed Martin Corporation  
IF/THEN an Initiative of Lyda Hill Philanthropies  
Micron Technologies  
OTIS  
Panasonic Foundation  
Qualcomm, Inc.  
Ralph C. Wilson, Jr Foundation  
Rambus  
Samueli Foundation  
Takeda Pharmaceutical

## PUBLIC PROFIT

Corey Newhouse  
Ava Elliott  
Anna Magat  
Anat Berday-Sacks

## STEM NEXT OPPORTUNITY FUND

Ron Ottinger  
Teresa Drew  
Cary Sneider  
Sabrina Gomez  
Andria Parrott

## MAINSRING CONSULTING

Victoria Wegener

## EVALUATION PARTNERS

Partnerships in Education and Resilience (PEAR)  
Connected Learning Lab at the University of California, Irvine  
Dr. Christine Cunningham, College of Education, Pennsylvania State University

## THE 50 STATE AFTERSCHOOL NETWORK

Organizations in all 50 states dedicated to expanding access to high-quality afterschool and summer opportunities for all youth.



## EXECUTIVE SUMMARY

### **The Million Girls Moonshot reaches hundreds of thousands of girls and marginalized youth.**

The Million Girls Moonshot is a nationwide out-of-school-time initiative aimed to inspire and prepare the next generation of innovators by engaging 1 million more girls in STEM learning opportunities and help them develop an engineering mindset, a set of ten skills and attitudes including using math and science, iteration, persistence, teamwork, and envisioning multiple solutions.<sup>1</sup>

The Million Girls Moonshot brings together partners with shared values, a spirit of collaboration, and an unwavering belief that by empowering girls to lead us into the future, lasting change happens. The Moonshot uses a collective impact model to engage girls in informal STEM learning opportunities by partnering with exceptional STEM learning providers, funding partners, and afterschool intermediaries in each of the 50 states.

The Moonshot seeks to build robust partnerships at the national, state, and local level to get more businesses, local community members, and schools engaged in transforming the afterschool STEM landscape. These partnerships are a vital part of the Million Girls Moonshot because they connect more afterschool and summer programs to high-quality STEM resources, which in turn reach more girls and non-binary youth.

In Year 2, Moonshot partners report that they established new connections with more than 1,200 organizations, ranging from schools and universities to STEM-based employers. This rapid growth in partnerships shows the cascading effect of the Moonshot, and the persistent efforts of Moonshot partners to transform STEM learning across the country.

### **In Year 2<sup>2</sup> the Moonshot reached 65,000 afterschool and summer programs, which engaged approximately 1.4 million girls, out of 2.75 million youth in total.**

Of the 65,000 afterschool and summer programs that connected to the Moonshot in Year Two, 67% serve youth from low-income households and over 50% serve BIPOC youth. About 33% of programs serve youth in rural or frontier communities and 25% serve English Learner youth.

1. See Appendix A for more information about Engineering Mindsets.

2. April 1, 2021 – August 31, 2022.

## Transformative Practices are setting a new standard for high-quality STEM learning.

The Million Girls Moonshot removes barriers for youth by raising awareness of the research-based Transformative Practices and supporting grantees and partners in enhancing program practice in afterschool and summer STEM programming with youth. The Practices serve as the backbone for the resources, training, and curricula offered by the Moonshot, and guide the development of new partnerships.

- **Engineering Mindset** – activities that engage girls in developing a set of ten skills and attitudes including using math and science, iteration, persistence, teamwork, and envisioning multiple solutions.
- **Inclusive and Equitable STEM** – practices that encourage girls and marginalized youth to engage in STEM, including selecting topics of interest to all genders, incorporating community issues into activities, and working in cooperative groups.
- **Role Models, Mentors, and Families** – engaging young people with STEM professionals from underrepresented backgrounds and encouraging families to participate in STEM activities together.
- **Continuous STEM Learning Pathways** – working across programs and organizations to assure that young people who are interested in additional STEM-related activities experience a “warm hand-off” between experiences.

### Moonshot Voices: Growth in Year Two

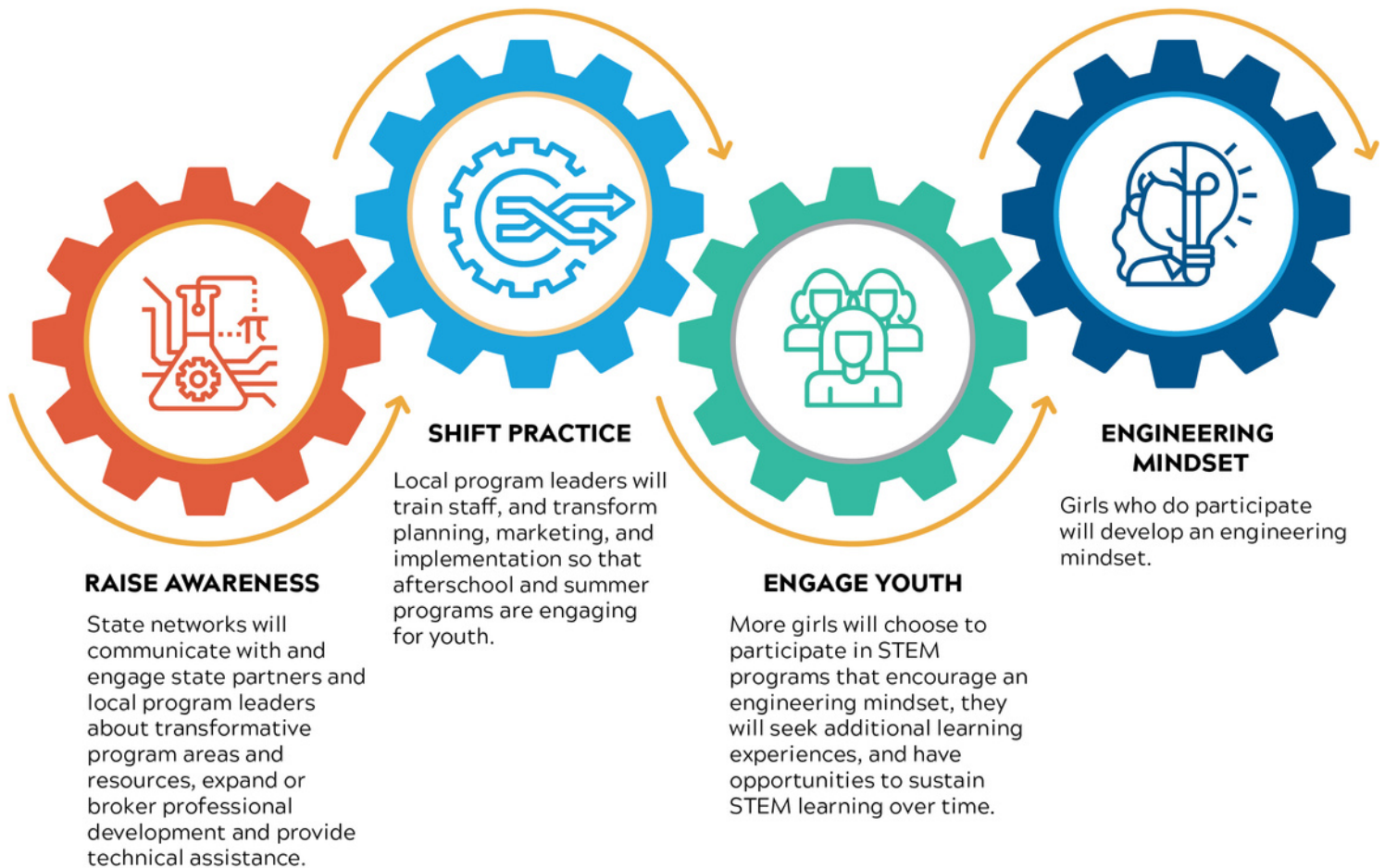
"Our (first year in the Moonshot) was an opportunity to explore what's happening in the state around informal STEM, talk to folks about the new initiative, and start building partnerships. We got a lot of systems in place so that we're sharing Moonshot resources on a regular basis in Year 2 and bringing new partners together around equitable and inclusive STEM. Now, we are more intentional in terms of what we participate in and focus on and have a clearer idea of how to keep things moving forward in a goal-oriented direction."

-Christine Jones Monaccio, Virginia POST

## Afterschool and summer programs are shifting their practice in ways that benefit girls and marginalized youth.

The Million Girls Moonshot is driven by a Theory of Action; youth-serving organizations move through a series of interconnected steps to engage more youth in quality STEM.

### THEORY OF ACTION



In Year 2, the Moonshot progressed along the Theory of Action by focusing on shifting practice among afterschool and summer programs, while sustaining existing efforts to raise awareness of the Moonshot and the tools, training and resources aligned with the Transformative Practices. As the Moonshot and its partners curate and disseminate quality tools, trainings and resources, available evidence suggests afterschool and summer programs connected with the Moonshot are shifting their practice to offer more quality STEM learning experiences to more youth across the U.S.

## **Moonshot momentum is growing – more girls and marginalized youth are developing an engineering mindset.**

Working together, the Moonshot's partners are rapidly expanding the reach of the initiative. In Year 2, the Moonshot reached 65,000 afterschool and summer programs, which engaged approximately 1.4 million girls, out of 2.75 million youth in total.

In Year 2, the Moonshot reached

**65,000 afterschool and summer programs, which engaged approximately 1.4 million girls, out of 2.75 million youth in total.**



This includes approximately 2,500 programs, serving 80,000 girls, that were part of **intensive offerings** like communities of practice and ongoing technical assistance.

These in-depth activities are best suited to engage youth in learning that leads to an engineering mindset.

Input from about 300 youth in Moonshot-connected afterschool and summer programs shows 7 in 10 agreed their afterschool program helped them to feel more engaged with STEM, and half said they were more likely to think of themselves as “a person who does STEM.” These early indicators are linked to longer-term outcomes like majoring in a STEM field in college or pursuing a STEM-related career.

The Flight Crew launched in Year 2 is a youth-centered leadership development opportunity for girls and nonbinary youth in STEM. Sixteen young people were part of the inaugural Flight Crew cohort; they participated in regular leadership development sessions, led STEM-focused awareness building activities in their communities, and spoke at national convenings to amplify the voice of girls in STEM.

By using new learning tools to advocate for themselves and others, participating youth reported the Moonshot's Flight Crew helped them to feel their voice was heard and they built new tools to advocate for themselves and others. Participants reported the best thing about being a Flight Crew member was meeting new role models that look like them, feeling heard, and making connections with their peers. Building on the success of the first cohort, the Flight Crew will be doubling in size in 2023.

### **Looking ahead: deeper engagement with even more STEM programs and the girls they serve.**

While the Million Girls Moonshot has already reached a million girls and nonbinary youth, there's more to do to assure these young people have the opportunity to develop an engineering mindset. Sustained engagement in equitable, inclusive STEM opportunities is a critical feature of the Moonshot; the partners' collective efforts in Years 3 and beyond are aimed at assuring that happens.



Awareness-building and supports for professionals to shift their practice to offer quality STEM to more youth are maturing amongst the Moonshot's partners, all centered on the Transformative Practices. More youth development professionals and programs are engaging in in-depth Moonshot offerings, which sets the stage for more girls and nonbinary youth to engage in inclusive, equitable STEM activities and build an engineering mindset.

Looking to Year 3, Moonshot partners will build on the foundations they have established to keep raising awareness of the Transformative Practices while expanding their efforts to reach more girls as they build an engineering mindset. The statewide Afterschool Networks are all signaling continuous progress toward their ability to engage youth development professionals, policymakers, and fellow STEM advocates in promoting more equitable and inclusive STEM. Robust, consistent investments make this progress possible: resources and curricula, operating funding, and ongoing technical assistance for networks and program staff amplify this collective effort.

One of the strengths of the Moonshot is its adaptability to local conditions and opportunities. The Moonshot's partners are leveraging the distinct assets of their respective communities to promote the Transformative Practices and to engage more girls and nonbinary youth in high quality STEM experiences. The ongoing impacts of COVID-19 still affect afterschool and summer programs' ability to engage in Moonshot-related activities.

In light of these continued challenges, the Moonshot will continue to call upon its partnerships to provide in-depth learning opportunities to networks and programs that are aligned with the Transformative Practices in Year 3:

- In response to poor national statistics in math performance, FHI 360 will offer a yearlong workshop series to introduce afterschool educators to evidence-based strategies will support youth in building their math identity.
- For afterschool and summer program educators are unable to join in-person offerings, Click2Engineering offers virtual workshops and communities of practice focused on the 10 practices for an engineering mindset. These virtual offerings allow more afterschool and summer program educators to join regardless of location.

Together, these efforts will continue to engage more girls in opportunities to build engineering mindsets, key skills, and knowledge they will need to thrive in the world of tomorrow.

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## ABOUT THE MILLION GIRLS MOONSHOT

In 2020, STEM Next Opportunity Fund, in collaboration with partners at the Intel Foundation, the Gordon and Betty Moore Foundation, the Charles Stewart Mott Foundation, Qualcomm Inc., Lockheed Martin Corporation, and IF/THEN an Initiative of Lyda Hill Philanthropies, launched the Million Girls Moonshot ("the Moonshot").

The Million Girls Moonshot shares professional development and technical assistance resources with informal STEM programs through partnerships with STEM experts, statewide Afterschool Networks, and funding partners. Centered on the Transformative Practices, described on the next page, these resources support the creation and expansion of inclusive, equitable STEM activities in informal learning settings like afterschool programs and summer camps.

The Million Girls Moonshot is a nationwide out-of-school-time effort aimed to inspire and prepare the next generation of innovators by engaging 1 million more girls in STEM learning opportunities that help them develop an engineering mindset. The Moonshot supports the 50 State Afterschool Network to guide youth-serving organizations within their states by providing professional development and technical assistance to implement the Transformative Practices that engage girls in STEM.

While the Moonshot's goal is focused on increasing the number of girls with an engineering mindset and a STEM identity, the Moonshot will benefit all students by improving the overall quality of all afterschool STEM opportunities and lifting up both boys and girls as they become future innovators. The Million Girls Moonshot will not only allow girls to envision themselves as future innovators, but it will increase the quality of out-of-school-time STEM learning opportunities for young people, particularly underserved and underrepresented youth.



## Transformative Practices

The Million Girls Moonshot removes barriers for youth by raising awareness of the research-based Transformative Practices and supporting grantees and partners in enhancing program practice. The Practices serve as the backbone for the resources, training, and curricula offered by the Moonshot, and guide the development of new partnerships.

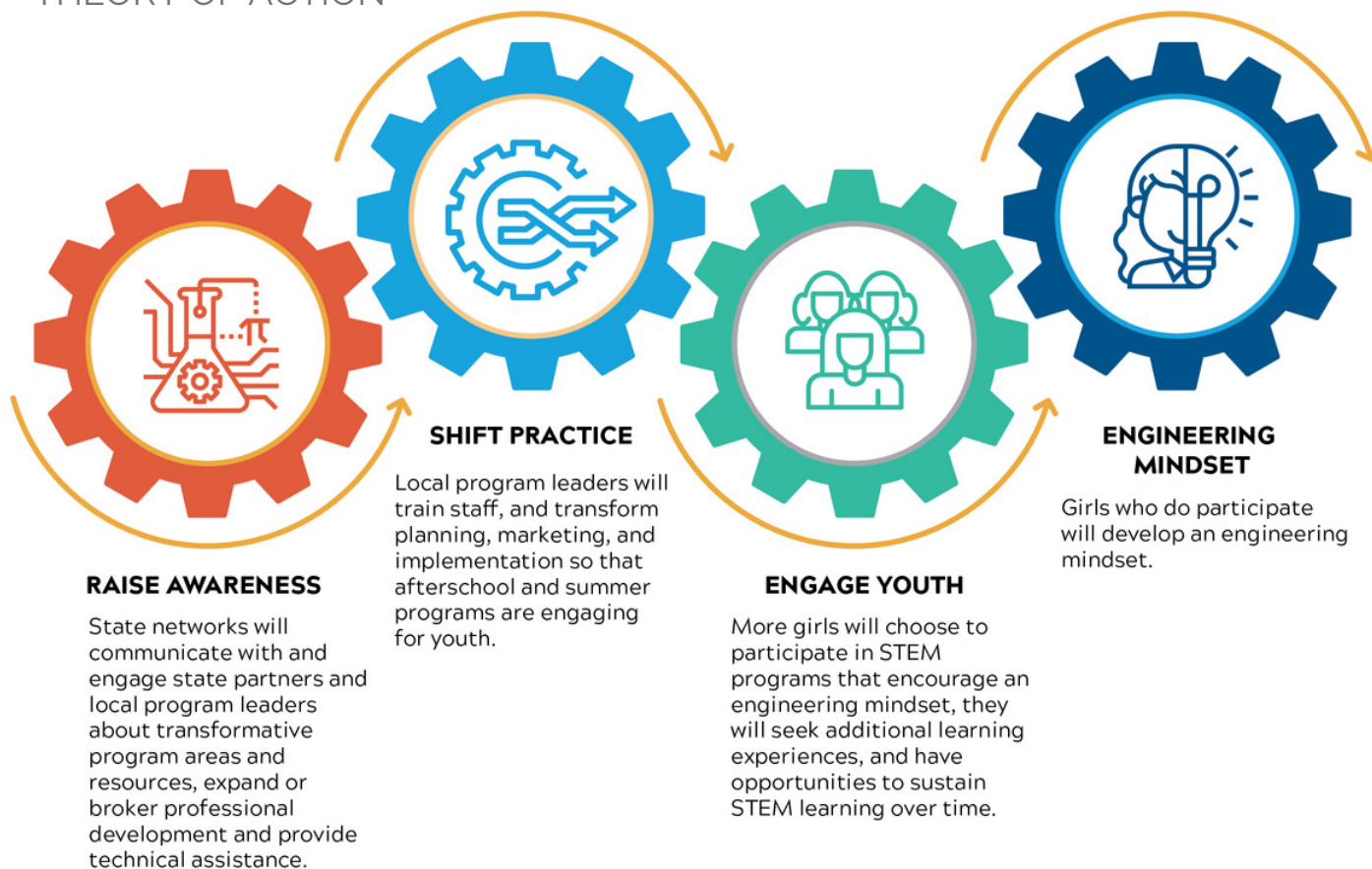
- **Engineering Mindset** – activities that engage girls in developing a set of ten skills and attitudes including using math and science, iteration, persistence, teamwork, and envisioning multiple solutions.
- **Inclusive and Equitable STEM** – practices that encourage girls and marginalized youth to engage in STEM, including selecting topics of interest to all genders, incorporating community issues into activities, and working in cooperative groups.
- **Role Models, Mentors, and Families** – engaging young people with STEM professionals from underrepresented backgrounds and encouraging families to participate in STEM activities together.
- **Continuous STEM Learning Pathways** – working across programs and organizations to assure that young people who are interested in additional STEM-related activities experience a “warm hand-off” between experiences.

## Theory of Action

The Moonshot Theory of Action, depicted in Figure 1, describes a sequence of interconnected steps that can result in the achievement of the Moonshot's major goals:

**Figure 1: The Million Girls Moonshot Theory of Action**

### THEORY OF ACTION



## The Power of the Moonshot's Partnerships

Partners committed to expanding access to high quality STEM are integral to the success of the Million Girls Moonshot. Some partners, including the 50 State Afterschool Networks, directly support afterschool educators and youth at the state level. Others, such as the Implementation partners, serve youth by supporting informal STEM practitioners directly.

### 50 State Afterschool Networks

The 50 State Afterschool Network is the aggregate of 50 independent coalitions, sharing the collective impact and innovation in supporting and expanding afterschool and summer programs nationwide. Seeking equitable outcomes for underserved youth to succeed in school and future jobs, each statewide afterschool network brings together cross-sector leaders with a common vision and coordinated strategy to advance afterschool and summer learning programs.<sup>3</sup>

The Afterschool Networks are closely connected to afterschool and summer programs in their states, ranging from national organizations like the YMCA and Boys and Girls Clubs, to community-led programs, to afterschool programs supported by state and federal grants. As a result, they offer ready-made access to large numbers of informal education programs and staff are interested in enhancing their STEM-related practices.

With core funding from the Charles Stewart Mott Foundation, the statewide Afterschool Networks foster partnerships and policies to develop, support, and expand quality programming in out-of-school-time. The STEM Next Opportunity Fund offers additional financial and technical assistance resources to further amplify the strength of this longstanding set of statewide organizations.

In Year 2, the STEM Next

Opportunity Fund **granted \$1,640,000** to statewide Afterschool Networks through the Moonshot initiative. Each network used the funding to advance Moonshot-related activities in their state, such as STEM-focused communities of practice, hands-on trainings for staff at statewide afterschool conventions, and disseminating STEM curricula support the Transformative Practices. Moonshot grants align with each network's stage of development in its STEM work: Innovator states are those with the deepest capacity in STEM, Capacity Builder states are expanding their STEM-related reach, and Ready for Liftoff states are in the earliest stages of their STEM journey.

There is a range of staffing capacity across networks with some states having smaller professional development capacity to support training opportunities for afterschool and summer programs across the state. In the first year of the Moonshot, many Networks reported that they needed additional staff support in order to effectively engage more afterschool and summer programs in the Moonshot's many offerings. In response, in Year 2, the STEM Next Opportunity fund provided staff enhancement grants to 15 states, so they could dedicate more person-power to Moonshot-related activities.



3. Charles Stewart Mott Foundation, About the 50 State Afterschool Networks. (2021)

## Implementation Partners

The Moonshot's **implementation partners** provide in-depth professional learning experiences for afterschool educators and statewide networks through a variety of supports, including ongoing technical assistance and advising, hosting multi-session Booster Packs (see page 22), leading capacity building workshops at Girls Build Solutions (see page 23), and support the evaluation of the Million Girls Moonshot. STEM Next Opportunity Fund granted \$847,000 to implementation partners in Year 2. They included:

1. Implementation partners that joined in Year 1
  - Techbridge Girls – professional learning provider
  - Technovation – professional learning provider
  - Jobs for the Future (JFF) – professional learning provider
  - National Girls Collaborative Project – professional learning provider
  - Partnerships in Education and Resilience (PEAR) – evaluation partner
  - Afterschool Alliance – Flight Crew lead
  - Afterschool Coaching for Reflective Educators in STEM (ACRES) – professional learning provider
  - Public Profit – evaluation partner
2. Implementation partners that joined in Year 2
  - Click2Science – professional learning provider
  - Makers + Mentors Network – professional learning provider
  - Museum of Science and Industry, Chicago – Girls Build Solutions Showcase Host



## Coalition Partners

**Coalition partners** are STEM-related organizations that share the Moonshot's commitment to engaging more youth in out-of-school-time learning experiences. They raise awareness of the Moonshot and share learning resources with afterschool and summer programs and their staff. They include:

1. Coalition partners that joined in Year 1
  - National Aeronautics and Space Administration (NASA)
  - Society of Women Engineers (SWE)
  - CSforALL
  - Overdeck Family Foundation
  - Society of Hispanic Professional Engineers (SHPE)
  - STEM Connector
  - Association of Science and Technology Centers (ASTC)
  - National Society of Black Engineers (SBE)
  - National Math + Science Initiative
  - Eva Longoria Foundation
  - Moment Latino
  - Girls inc.
  - Girlstart
  - GoldieBlox
2. Coalition partners that joined in Year 2
  - American Indian Science and Engineering Society
  - Challenger Center
  - Step Up
  - Education Empowers Inc.
  - Girl Scouts
  - Discover Engineering
  - Science Club for Girls
  - AstraFemina
  - Teen Science Café Network
  - Amy Poehler's Smart Girls



## Funding Partners

The Moonshot's **funding partners** provide financial support for the initiative that enable the robust array of professional development offerings available to afterschool and summer educators nationwide. They play a key role in creating stronger connections among young people and community members by encouraging employees to volunteer with afterschool and summer programs as science fair judges and career day speakers. This in-kind contribution is just one way the Moonshot embodies the Transformative **Practice of Role Models, Mentors, and Families**.

For example, the Intel Foundation engaged Intel employees and retirees in volunteering projects to support both the Afterschool Networks and the implementation partners. In Year 2, 276 volunteers contributed over 2,470 hours of service to support the Million Girls Moonshot. 26 volunteer opportunities across the nation included sharing Intel employees' STEM journeys, speakerships, participating in the Intel Future Skills Educator Academy, virtual competitions, and events.

Funding partners' financial support has enabled the Moonshot to expand its offerings to further enhance the scale and depth of the initiative. As noted above, 15 states received enhancement grants that enabled them to dedicate additional staff member time to promoting equitable and inclusive STEM in their states. In addition, contributions from the funding partners supported the launch of the Flight Crew, a youth-led leadership cohort, and Girls Build Solutions, the Moonshot's first-ever in-person STEM showcase. (The Flight Crew and Girls Build Solutions is described in more detail later in the report.)



2022 Flight Crew

## About the Evaluation

### Evaluation Partners

The STEM Next Opportunity Fund, the coordinating funder and backbone organization for the Million Girls Moonshot, has engaged four organizations to evaluate the Moonshot. They are Public Profit (report author), Partnerships in Education and Resilience (PEAR) (training and assessment tools), University of California, Irvine (post-initiative handoff strategies), and Dr. Christine Cunningham, Pennsylvania State University (intellectual framework that underpins the Moonshot goals). (See Appendix D: Evaluation and Research Organizations.)

This findings report includes data from semiannual Afterschool Network progress reports, implementation partner reports, surveys of training participants, surveys of afterschool and summer professionals connected to the Moonshot, and in-depth interviews with particularly innovative Moonshot partners. (See Appendix C: Data Sources.)

### Guiding questions for the initiative evaluation

This report addresses five guiding questions, which are aligned with the Million Girls Moonshot Theory of Action:

1. To what extent does the Million Girls Moonshot enhance the capacity of statewide Afterschool Networks to promote high-quality STEM practice in afterschool and summer spaces that align with the Transformative Practices?

**Raise Awareness and Build Capacity in the Theory of Action**

2. To what extent do more out-of-school-time professionals have access to training, curricula, and other supports through the Moonshot that enhance their ability to provide high-quality STEM experiences that align with the Transformative Practices?

**Shift Practice in the Theory of Action**

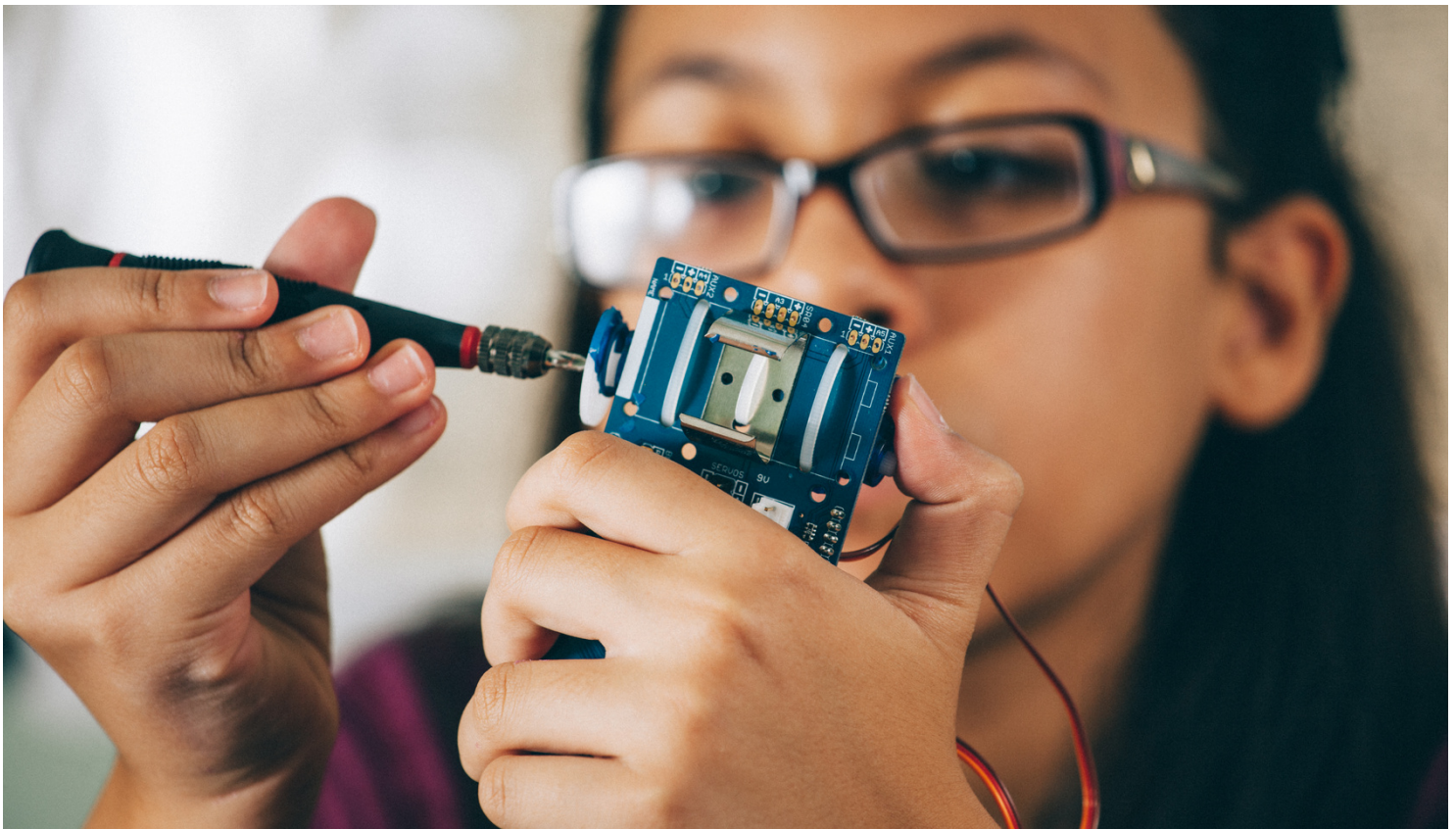
3. To what extent are afterschool and summer programs affiliated with the statewide Afterschool Networks offering STEM activities that align with the Transformative Practices?

**Shift Practice in the Theory of Action**

4. Are more girls developing an engineering mindset through their involvement in Moonshot-affiliated programs?

**Engage Youth and Engineering Mindset in the Theory of Action**

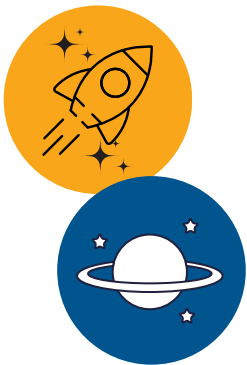
- 5.. Does available evidence support the Million Girls Moonshot Theory of Action? What changes, if any, might improve the initiative's ability to reach its goal of cultivating one million girls with an engineering mindset?



## STRUCTURE OF THIS REPORT

This evaluation report is organized around the Moonshot's Theory of Action and contains six sections:

- An introduction, which features a summary of the Moonshot's activities in Year 2;
- A summary of progress toward the Theory of Action;
- Three body sections, which align to the Theory of Action, including Raising Awareness and Building Capacity, Supporting Shifts in Practice, and Engaging More Youth as they Build an Engineering Mindset;
- And a conclusion, which discusses lessons learned to date.



This report uses formatting to draw readers' attention to specific elements:

1. Images of the Theory of Action are used to demonstrate the connection between the section's content and the associated step of the Theory of Action.
2. A rocket icon and yellow background signify a Spotlight that highlights stories from Moonshot grantees and exemplar programs.
3. A blue sidebar indicates an in-depth exploration of a particular Moonshot component, such as particularly innovative adaptations of Moonshot materials or emerging learnings from the initiative.

## The Million Girls Moonshot's Impact in Year 2

In Year 2 (April 1, 2021 – August 31, 2022), the Million Girls Moonshot brought together six corporations, eight foundations, 50 Afterschool Networks, and more than 1,200 new partners in the education, workforce, and nonprofit communities to further the initiative's mission to re-imagine who can engineer, who can build, and who can make. Together, the Moonshot's members are working to raise awareness, shift practice, engage more youth in STEM and cultivate an engineering mindset in one million more girls across the country. The Moonshot allocated funds from committed funding partners to support Afterschool Networks and implementation partners to directly support youth-serving afterschool and summer programs as they shift STEM activities to be more equitable and inclusive.

**In Year 2, the Moonshot reached 65,000 afterschool and summer programs, which engaged approximately 1.4 million girls, out of 2.75 million youth.**

Moonshot-related activities offer a range of engagement levels, from light-touch to more intensive involvement. (See the next page for more about how this is defined.) Afterschool networks estimate that about 80,000 girls were “strongly engaged” with the Million Girls Moonshot in Year 2; they attended an afterschool or summer program that either participated in a Booster Pack<sup>4</sup> or worked closely with an afterschool network to improve STEM practices. Youth in these programs were most likely to participate in sustained STEM activities that help them develop an engineering mindset.

About 6,500 afterschool and summer programs were “moderately engaged” with the Moonshot in Year 2, through sending staff members to a statewide afterschool conference that featured a STEM learning strand or participating in an extended professional development offering from a Moonshot grantee. In turn, the young people in these programs are more likely to have access to STEM activities aligned with the Transformative Practices. These programs are staffed by as many as 25,500 staff, who in turn work with up to 200,000 girls and non-binary youth.

As many as 56,000 programs were “lightly engaged” with the Moonshot in Year 2, such as by subscribing to STEM specific newsletters or visiting online curriculum resources promoting the Transformative Practices. Youth in these programs may have participated in a few additional STEM activities as a result of educators' engagement with Moonshot resources. These programs include 135,000 staff who educate as many as 1,120,000 girls and non-binary youth.

4. Booster Packs are in-depth professional learning series offered by leaders in STEM education. See page 22 for more.



**Table 1: Engagement in the Moonshot in Year 2, By Level of Intensity**

	Programs	Staff	Youth	Girls
<b>Strongly Engaged</b> e.g., Programs that received a mini-grant or participated in professional learning community. Youth participated in multiple high quality STEM activities.	2,500	9,500	140,000	80,000
<b>Moderately Engaged</b> e.g., Programs with staff who attended a conference or webinar. Youth had sustained access to STEM offerings aligned with the Transformative Practices.	6,500	25,500	360,000	200,000
<b>Lightly Engaged</b> e.g., Programs that received information about the Transformative Practices. Youth participated in more STEM activities than before.	56,000	135,000	2,250,000	1,120,000
<b>Total</b>	<b>65,000</b>	<b>170,000</b>	<b>1,400,000</b>	<b>2,750,000</b>

Source: Network Grantee Reports, Spring 2022, Fall 2022. See Appendix F: Methodology Notes for our estimation methods.

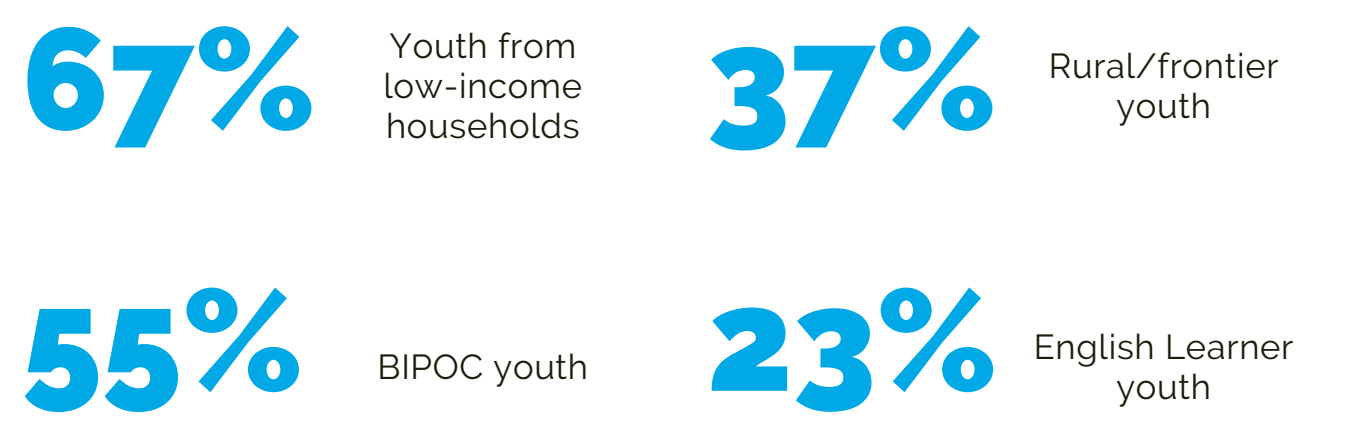
Afterschool networks report that most of the afterschool and summer programs they work with serve elementary school aged youth (65%), followed by middle school aged youth (26%) and high school aged youth (10%). The relatively small number of middle school and high school aged youth in Moonshot-related programs represents an opportunity for the initiative. Two of the Transformative Practices – Role Models, Mentors, and Families, and Continuous STEM Learning Pathways – are research-backed ways to keep girls engaged in STEM over time.

Available information shows the Moonshot is reaching young people who are most likely to be excluded from engaging in STEM learning opportunities. When asked to estimate the proportion of afterschool and summer programs that serve underserved communities, Afterschool Networks reported about two-thirds serve youth from low-income households, and more than half serve BIPOC (Black, Indigenous, and People of Color) youth. About one-third of programs serve youth in rural or frontier communities, and a quarter serve English Learner youth.

Some Afterschool Networks targeted their efforts at reaching those most likely to be excluded from engaging STEM learning opportunities. For example, South Dakota traveled to cultural events and brought STEM materials to Native American youth and families.

“Our STEM specialist has traveled with the Think Make Create trailers to pow wows across the state to introduce communities to STEM opportunities.”  
– Billy Mawhiney, South Dakota Afterschool Network

**Figure 2: Identities of Youth Connected to the Million Girls Moonshot**



Source: Network Grantee Reports, Fall 2022. See Appendix F for our estimation methods.

While the Million Girls Moonshot has already reached a million girls and nonbinary youth, there's more to do to assure these young people can develop an engineering mindset. Sustained engagement in equitable, inclusive STEM opportunities is a critical feature of the Moonshot; the partners' collective efforts in Years 3 and beyond are aimed at assuring that happens.

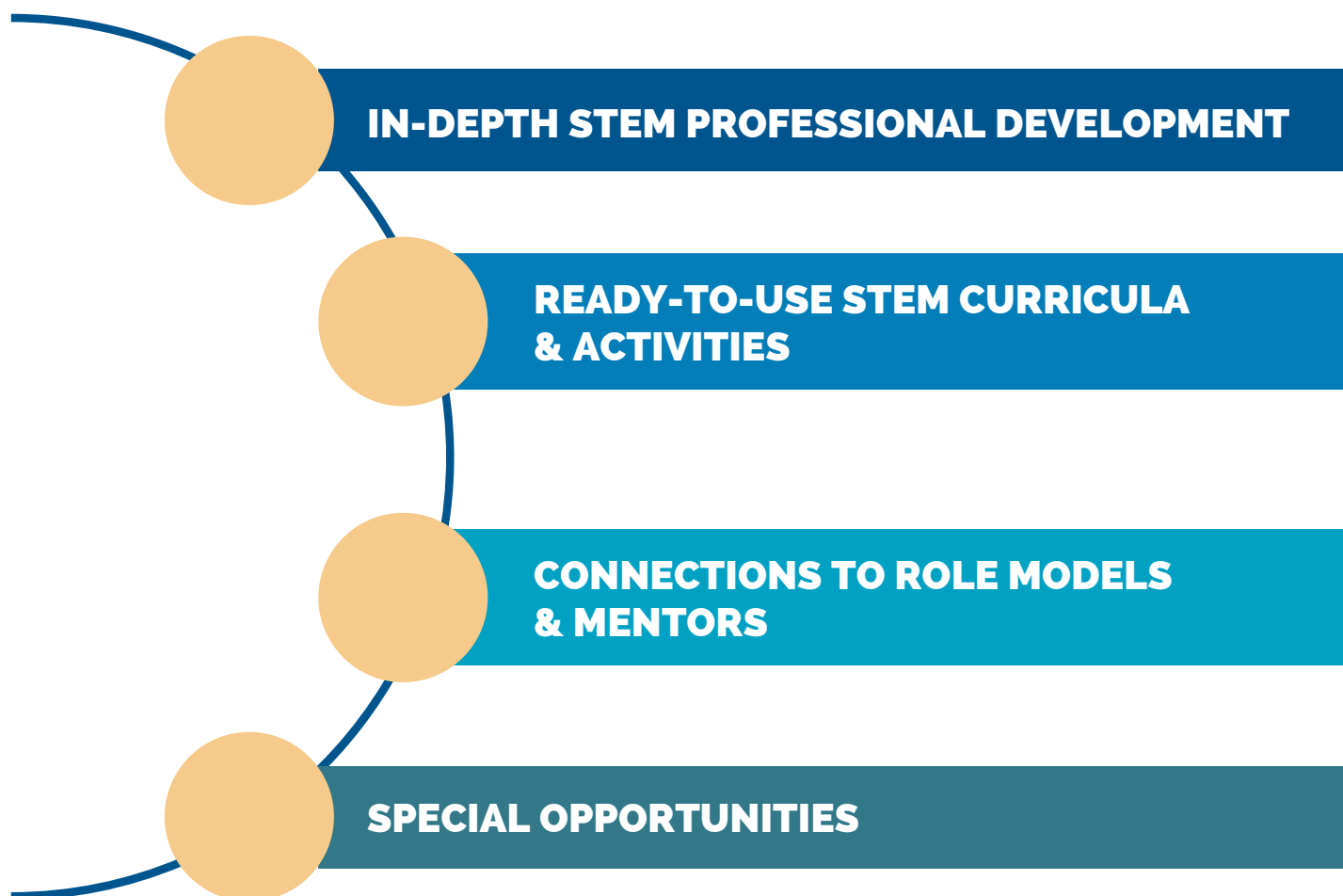
## Moonshot Resources, Trainings & Curricula

### RESOURCES

The Million Girls Moonshot shares a set of curated STEM-related resources each month in Asset Packages, sharing them with Afterschool Networks so they can relay the information to afterschool and summer learning programs in their states. In addition, the Million Girls Moonshot makes resources available to anyone visiting the Moonshot website, receiving newsletters, or connected on social media. In Year 2, networks shared the Asset Packs with approximately 184,000 afterschool and summer staff through emailed newsletters and social media.

In addition, through platforms Facebook, Twitter, Instagram, and LinkedIn, the Million Girls Moonshot initiative had approximately 8,400 followers, reached 490,000 people, and engaged 21,300 people in Year 2.

Monthly Asset Packages included a variety of high quality, no-cost STEM related resources and opportunities for informal STEM educators and youth created by the Moonshot's partners. All the resources in the Asset Packages are aligned with one or more of the Transformative Practices and fall broadly into four categories.



In Year 2, resources shared in Moonshot Asset Packages included:

- In-depth STEM Professional Development opportunities including Incorporating STEM Role Models in Afterschool from NGCP, Exploration and Awareness of Careers that use an Engineering Mindset training series from JFF, and the Parent Workshop: Growth Mindset in STEM from Technovation.
- Ready-to-use curricula and activities included NASA's Engineering is Elementary, Mizzen by Mott's Playlists, and Million Women Mentor's See IT to Be IT: Pathways to Computer Science Careers.
- Connections to role models and mentors included assets from the IF/THEN Collection and an intake form for educators to request STEM role models to engage with youth and/or speaking requests.
- Special opportunities included time sensitive partner calls for free resources, opportunities to participate in pilot projects, unique events that afterschool and summer programs can access at no cost, or STEM resources specific to monthly events like Native American Heritage Month and Women's History Month.

The Montana Afterschool Alliance shares how they've incorporated Moonshot resources into their statewide newsletters:

"A STEAM<sup>5</sup> section has been added to the MTAA's monthly e-newsletter which highlights both nationwide and statewide STEAM opportunities. Assets from MGM have supported this effort and increased our capabilities of inclusive marketing and program support resources offered. Additionally, MTAA has assisted in amplifying state-specific OST programs available for girls that focus on STEAM in Montana. The September newsletter highlighted upcoming program opportunities and provider opportunities for the Montana-based Code Girls United program."

– Rachel Wanderscheid, Montana Afterschool Alliance

## **Moonshot Voices: Forging Connections by Sharing STEM Resources**

"(We have used) the Moonshot resources to reach more out-of-school-time programs and build network. Our communications manager uses materials from the monthly Asset Pack to create newsletters, emails, and social media posts. That helped us to build our brand, to build relationships with more programs. Now when an opportunity comes our way, like Booster Packs, we're able to connect programs with those more easily."

–Megan Nyce, Colorado Afterschool Partnership

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5. STEAM is a variation on STEM, referring to Science Technology Engineering Arts and Math.

## Trainings & Curricula

The Moonshot commissions and shares a variety of trainings and curricula to promote greater awareness of the Transformative Practices and encourage youth development professionals to shift their practice. These offerings include web-based workshops on specific STEM-related topics and ongoing communities of practice, known as Booster Packs, and capacity-building workshops for the Afterschool Networks.<sup>6</sup>

Workshops offer a concise introduction to a Transformative Practice. For example, in fall 2022, the National Girls Collaborative Project (NGCP) presented a virtual workshop titled, **Creating engaging and supportive STEM learning environments for all youth**. NGCP presented strategies for afterschool programs to counter STEM stereotypes, make STEM relevant, and increase representation of diverse STEM role models.

Booster Packs are multi-session learning opportunities, often paired with coaching or technical assistance supports. In Year 2, the Moonshot offered 10 Booster Packs, which provide in-depth learning opportunities for afterschool educators on topics ranging from at-home engineering activities to effective family engagement, to career exploration opportunities for youth. Approximately 155 afterschool and summer professionals from 108 program sites participated in a Booster Pack in Year 2. Since its launch in spring 2020, the Moonshot has supported 11 Booster Packs, which have reached 175 professionals across 128 program sites. (See Appendix G: 2021-22 Booster Pack Descriptions & Reach.)

For example, in Fall 2022, Techbridge Girls held a Curriculum and Training: Techbridge Girls Booster Pack for teachers and afterschool educators who planned to facilitate the Techbridge Girls program with youth. Participants attended both a one-hour orientation and five-hour training session on STEM topics and social-emotional activities. Techbridge Girls provided three different training opportunities to program staff, each focusing on different grade levels between grades 3-8. Educators also received kits of materials or a materials list for the activities.

Booster Pack participants report strong levels of satisfaction and learning across all Booster Pack topic areas. Nearly every participant that completed a survey reported that they learned something useful (97%) and would share what they learned with a colleague (98%). These are two promising early indicators that participants will change their STEM practice.



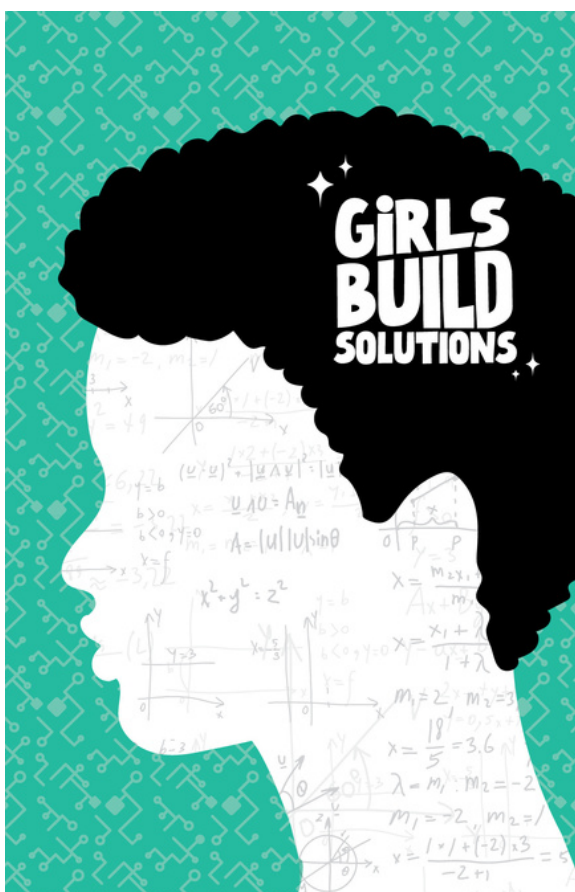
Olivia, 2022 Flight Crew

6. Many of the capacity-building sessions were offered at Girls Build Solutions, described in the next section.

## Girls Build Solutions

The inaugural **Girls Build Solutions** conference was held in June 2022. Roughly 250 participants from amongst the Moonshots partners joined the celebration and capacity building institute, including Statewide Afterschool Networks, implementation partners, and funding partners. During the four-day event, adults and young people shared personal stories about how STEM experiences created an initial spark to learn more, especially in afterschool spaces, as well as the importance of family support and mentorship.

Members of the Flight Crew, the Moonshot's youth leadership initiative, shared their STEM-related projects with an audience of funders, policymakers, and out-of-school time professionals, further elevating youth voice as a key feature of the Million Girls Moonshot. (See the next page for more.)



Moonshot partners participated in a two-day capacity building series that offered sessions aligned with the Transformative Practices, led by national experts in informal STEM. Plenary-style talks offered briefings on current STEM policies and opportunities, while small-group breakout sessions provided topic specific deep-dives. Sessions included:

- Think Like an Engineer! Using Computational Thinking and Mathematics to Solve Problems
- Broadening Participation in STEM – Where are We and Where are We Going?
- STEM Role Model Strategies – Dispatches from the Field
- STEM Transitions and Handoffs: Making Connections Across Settings for Middle School Girls<sup>7</sup>

7. The sessions aligned with the following Transformative Practices, in order of listing: Engineering Mindset, Equitable and Inclusive STEM, Role Models, Mentors and Families, STEM Transitions and Handoffs.

## Moonshot Flight Crew: Elevating Youth Voice in STEM

The Flight Crew is a cohort of youth advocates, ages 13-18, who are committed to creating equity for girls in science, technology, engineering, and mathematics (STEM) by elevating youth voices and inspiring their peers and fellow future STEM leaders across the nation. This talented cadre of youth embodies the Moonshot mission: they are committed to using afterschool and STEM learning to build a better future where young girls everywhere can envision a place for themselves in STEM. In 2021, the Moonshot selected 16 girls/non-binary youth to participate in the first Flight Crew cohort and guided them through a leadership development experience to become advocates for afterschool STEM and STEM equity. Feedback from the Flight Crew was overwhelmingly positive and showed it was an impactful experience for girls and non-binary youth in STEM.

As part of participation in the Flight Crew, each student attended monthly trainings with Afterschool Alliance and STEM Next Opportunity Fund staff. These trainings were designed to build confidence in public speaking and give students the opportunity to practice telling their stories. Other monthly sessions included a training on social media, and training on advocacy at the local, state, and federal levels. The culmination of this training was the Girls Build Solutions convening, where each Flight Crew member had a speaking role.

Flight Crew members had a variety of opportunities outside the Moonshot, as well, such as moderating a panel at NASA HQ for Lights on Afterschool, attending and speaking at a Girls Lead STEM event in Los Angeles, participating in youth listening sessions as part of the creation of a youth voice toolkit, and filming questions that were answered by NASA astronauts.

When asked what drew them to apply to the Flight Crew, youth cited the desire to share in a STEM experience with others like them, an opportunity to have their voices heard by a larger audience, and a place to learn and grow their STEM passion:

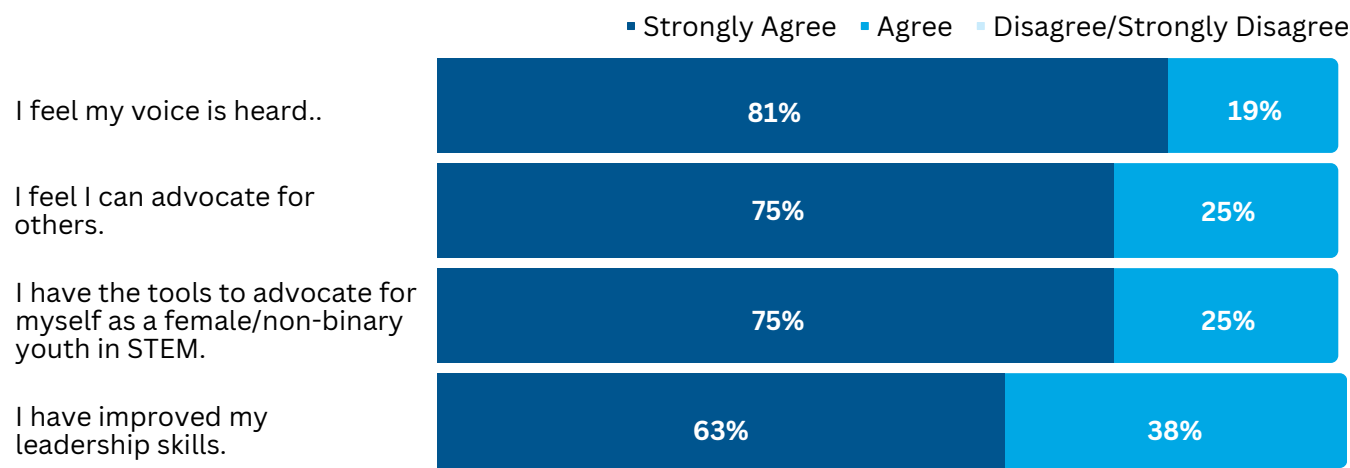
*“I knew that this would be a great opportunity for me to learn more about STEM. I would also be able to surround myself with a great group of girls who were interested in STEM just like me.”*

*“I wanted to be a part of a community and movement dedicated to uplifting an underrepresented group and this seemed like a great way to do it.”*

*“I decided to apply for the Flight Crew once I had learned about the STEM-related things we would be learning about and how it was all girls.”*

Flight Crew members reported that the best thing about being a Flight Crew member was meeting new role models that look like them, feeling heard, and making connections with their peers. Building on the success of the first cohort, the Flight Crew will double in size in 2023.

**Figure 3: Flight Crew Members Reported Multiple Positive Outcomes**




*“[The best thing about Flight Crew is] knowing that there were adults like me in the field.”*

*“I got to spread the message of my STEM journey and meet a lot of inspiring and amazing role models in STEM fields.”*

*“Being able to create these new experiences with people who are striving for the same thing I am is really special.”*

Flight Crew participants continue to engage in work with young people in STEM, such as by mentoring other youth in STEM programs in their community, leading seminars, and discussions on STEM topics, and creating their own programs to engage youth and girls in STEM.



Emerald, 2022 Flight Crew

## PROGRESS TOWARD THE THEORY OF ACTION

### Increased Focus on Shifting Practice in Year Two

The Million Girls Moonshot Theory of Action describes a sequence of interconnected steps that can result in the achievement of the Moonshot Initiative's major goals. The Theory of Action starts with building capacity and raising awareness, then shifting adult practice in afterschool and summer programs, then ultimately reaching more girls who then build an engineering mindset.

In Year 2, the Moonshot collectively focused on shifting practice among afterschool and summer programs, the second of the four steps in the Theory of Action, while sustaining existing efforts to raise awareness of the Moonshot and the Transformative Practices. Available evidence from the Afterschool Networks and training experiences suggests this shift is taking place.

As noted earlier, Afterschool Networks report that in Year 2, they worked intensively with approximately 2,500 programs, including 9,500 staff who educate 80,000 girls. These intensive engagements include communities of practice for youth development professionals, and STEM programs co-designed by Moonshot grantees and local programs. They are the types of experiences most likely to meaningfully shift practice among afterschool and summer professionals; the reach of these offerings in Year 2 is promising.



Table 2 summarizes Networks' reports of key activities by the stage of the Theory of Action and the associated Transformative Practices. Most of the Networks' reported efforts are in the Build Capacity and Raise Awareness category, followed by the Shift Practice category.<sup>8</sup>

For example, several Networks incorporated STEM workshop strands into their statewide conferences for afterschool and summer programs, which helped to raise awareness amongst educators of all the Transformative Practices. Others incorporated the Transformative Practices into the coaching and technical assistance they provide to informal learning programs statewide, an innovative way to scale shifts in practice. Additional examples of these efforts are featured in the Spotlights throughout this report.

There are fewer examples in Networks' written reports related to Engaging More Girls in Building an Engineering Mindset for this period. This stands to reason, given the stage of development of the Moonshot initiative: to engage more girls in building an engineering mindset, adults in informal education settings need to shift their own practice, which can take time and additional resources at the program level. These changes are influenced – but not determined by – the Moonshot. In Year 3, Moonshot partners will lean into this part of the Theory of Change by engaging more programs and youth in intensive offerings, like communities of practice and Booster Packs.

**Table 2: Networks Raised Awareness of the Moonshot and Supported Practice Shifts in Afterschool and Summer Programs**

Theory of Action Category	Transformative Practice			
	Inclusive and Equitable STEM	Engineering Mindset	Role Models, Mentors, and Families	STEM Pathways and Handoffs
Build Capacity and Raise Awareness	39	36	32	33
Shift Practice	12	10	15	6
Engage More Girls in Building an Engineering Mindset	0	0	2	1

Source: Network Grantee Reports. Spring 2022, N = 2; Fall 2022, N = 47.

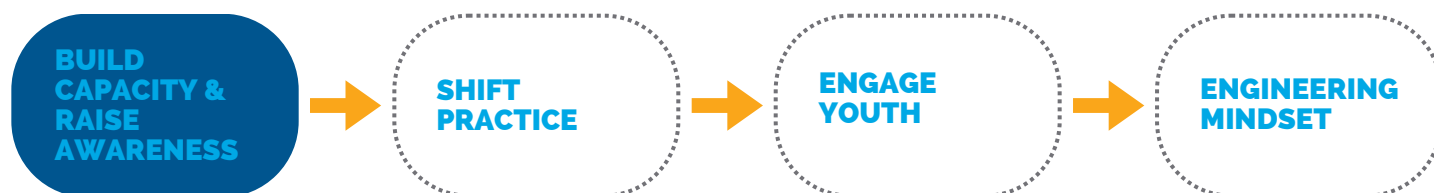
8. In their fall 2022 reports to the Moonshot, Networks shared examples of the ways in which they are supporting each of the Transformative Practices. Analysts from Public Profit then coded these examples to the Moonshot Theory of Action to explore the interplay between the two.



Hajirah, 2022 Flight Crew

## BUILDING NETWORK CAPACITY AND RAISING AWARENESS

Evidence for progress toward the first component of the Theory of Action



To achieve the ambitious goals of the Moonshot, the initiative's partners must continually build their capacity to reach afterschool and summer educators, nonprofit and funding partners, and policymakers who focus on engaging afterschool youth in quality STEM. The Moonshot's web of complementary supports - like ongoing coaching and technical assistance, access to high quality STEM professional development, funding, access to volunteers and mentors - all contribute to this enhanced capacity.

Approximately 135,000 afterschool professionals from 56,000 afterschool and summer programs were "lightly" engaged with Moonshot-related resources and activities in Year 2, according to data reported by the Statewide Afterschool Networks. Their engagement included receiving STEM-related newsletters containing Moonshot resources, visiting Networks' websites, and attending a one-time professional development session connected to the Moonshot.

Asset Packs offer a rich array of awareness building materials Moonshot partners can share with their networks. Networks are incorporating Asset Pack materials into their communications in a variety of ways. In Year 2, 100% shared the link in their newsletters or social media pages, 63% invited attendees or applicants to Moonshot-related events, 78% shared materials on their website, and 43% shared recordings of Moonshot-related webinars. In Year 2, networks shared the Asset Packs with approximately 184,000 afterschool and summer staff through emailed newsletters and social media.

In addition, through platforms Facebook, Twitter, Instagram, and LinkedIn, the Million Girls Moonshot initiative had approximately 8,400 followers, reached 490,000 people, and engaged 21,300 people in Year 2.

See the Spotlight on the next page for innovative examples of awareness building from across the Moonshot.

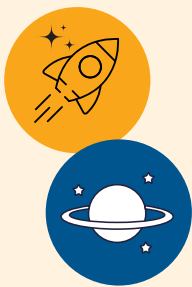
## Raising Awareness and Engaging Policymakers

Forty Afterschool Networks described their efforts engaging policy leaders in Year 2. Many reported building relationships and working with local legislators regarding STEM policy. Some are doing this as part of existing advocacy work, while others have sought out new engagements.

For example, the Idaho Out-of-School Network hosted a Policy Maker Panel at the Power Up Summit, the only statewide conference dedicated to out-of-school time, where a Mayor, Tribal Education Leader, Superintendent of Schools, and House of Representative member were in attendance. Attendees engaged in critical conversations about accessibility to afterschool and summer programs, and benefits for youth and families. The Idaho Out-of-School Network secured \$6.1 million dollars in ESSER III funds from the State Board of Education, which will be distributed between its own programming, the Idaho STEM Action Center, and the Idaho Commission for Libraries.

The Maryland Out of School Time Network offered mini-grants to local afterschool programs to enable young people to meet with elected officials across the state, bringing young people's perspective directly to their elected officials. Youth shared their experiences in informal STEM programs and the challenges they face in accessing these kinds of opportunities.





## Spotlight – Building Capacity and Raising Awareness<sup>9</sup>

Statewide Afterschool Networks are adopting and adapting materials from the Moonshot to raise awareness of the Transformative Practices, expanding the outreach capacity of these smaller, locally-rooted, nonprofits.

### Highlighting Local STEM Professionals

The Wisconsin Afterschool Network, a Ready for Liftoff grantee, is raising awareness about Equitable and Inclusive STEM practices among educators and youth. The Wisconsin Scientists and STEM Professionals website features 14 Wisconsin professionals from diverse backgrounds who work in STEM, including brief summaries of their work and sample lessons for educators on topics related to each professional's field.

Modeled on the IF/THEN initiative, the site illustrates the breadth of science careers, highlights the work of scientists of color, and suggests resources for teaching about topics related to their research.

### Family Engineering Night Toolkit

The Pennsylvania Statewide Afterschool/Youth Development Network (PSAYDN), an Innovator grantee, is supporting afterschool and summer programs as they engage families and community members. PSAYDN created a Family Engineering Night toolkit for afterschool and summer programs, which is being distributed among programs across the state through the network's ongoing relationships with professionals.

In addition, PSAYDN used resources available to Moonshot grantees to enroll in VolunteerMatch, which helps community organizations connect with local volunteers and mentors, one of the Moonshot's Transformative Practices.

### Statewide Afterschool Needs Assessment

The Alaska Afterschool Network, an Innovator state, led a statewide needs assessment with afterschool and summer programs to better understand their STEM professional development needs. The Network found professionals were most interested in learning how to engage girls, how to access high-quality curricula and professional development in STEM, and how to recruit and retain staff who are prepared to lead STEM activities. These findings influenced the design of the Network's AmeriCorps volunteer initiatives, which will place 47 STEM-focused instructors in afterschool programs statewide.

## Network-led Partnerships

In Year 2, the Afterschool Networks collectively formed 1,268 new partnerships with organizations across multiple sectors, including employers and workforce-focused entities, K-12 education systems, post-secondary educational institutions, museums and libraries, and gender-specific groups. This is an exponential increase from the 1,634 existing significant partnerships that grantees cited in prior reports and shows Moonshot momentum continues to grow.

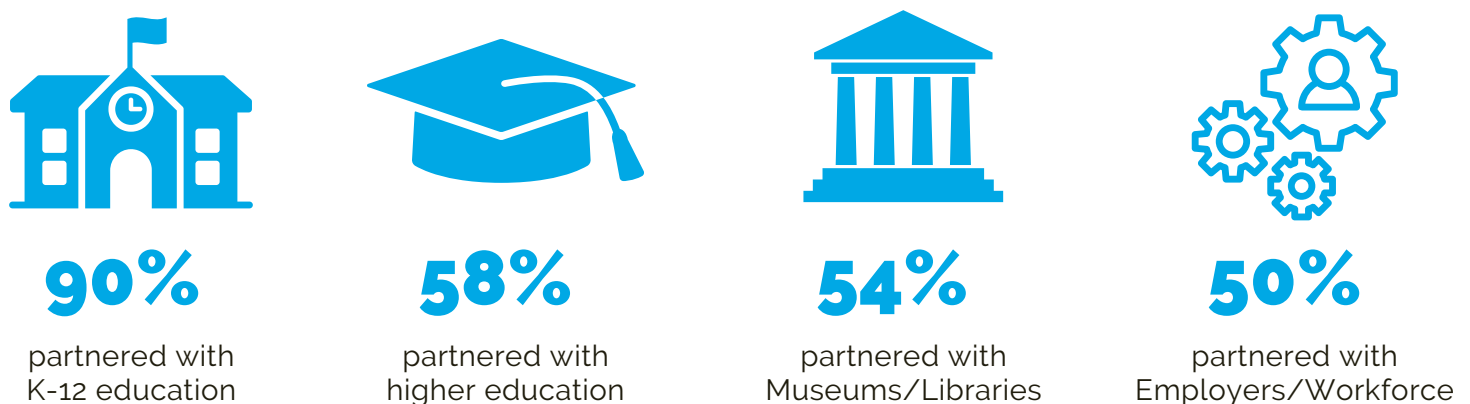
The STEM Next Opportunity Fund connected Afterschool Networks to 330 prospective partners in Year 2, and supported networks with one-on-one coaching and technical assistance to help them effectively engage with cross-sector collaborators. The expanded number of partnerships raises awareness amongst business leaders, higher education, and cultural institutions, so more youth can learn about STEM and the opportunities available to them and helps to align existing systems to better meet young people's needs.

Figure 4: The Million Girls Moonshot Nearly Doubled Its Partnership



Source: Network Grantee Reports, Fall 2021, Spring 2022, Fall 2022. See Estimating the Number of Current and New Partnerships for our estimation methods.

Figure 5: Partnerships with K-12 and post-secondary education systems were most common.



Source: Network Grantee Reports. Spring 2022, N = 2; Fall 2022, N = 47.

Most network grantees (90%) report partnering with K-12 education, while 58% report partnering with post-secondary education institutions. About half report partnering with Museums and Libraries (54%) and Employers/Workforce (50%). Other partnerships include local and state governments, community-based organizations, and gender-specific groups.

Overall, these partnerships are a vital part of the Million Girls Moonshot because they connect more afterschool and summer programs to high-quality STEM resources, which in turn reach more girls and non-binary youth. Critically, these partnerships help to knit together related, but disconnected, efforts to get more kids engaged in STEM.

## **Moonshot Voices: Elevating Youth Perspectives in STEM Policy**

"We utilized the STEM Equity summits and the mini-grants to spark and continue conversations about STEM policy by engaging young people directly with elected officials to make and share recommendations. As we head into the November elections and legislative session, we will follow up with these leaders. We are also continuing to track several STEM policy efforts,...including the Tech Extension program which is being implemented by the University of Maryland Extension, grants for community-based robotics program, and a new grant program to create new maker spaces."

-Ellie Mitchell, Maryland Out of School Time Network

## Raising Awareness in Depth: Creating Coalitions for STEM Pathways and Handoffs

Creating Continuous STEM learning pathways helps to keep girls engaged in STEM, yet can be challenging to achieve, since informal STEM programs are often disconnected from one another. Statewide Afterschool Networks are making the most of their existing relationships to rally partners to the cause.

North Carolina Center for Afterschool Programs (NC CAP) launched a STEM Coalition to convene professionals from multiple sectors to develop strategies to strengthen STEM pathways.

*“We’re all doing great things individually. If we want to make the impact on current youth and future workforce, we must collaborate. The skills these kids will need in 2030...I don’t even know what those are. It made sense to choose pathways, because what we do now affects the future.” – Sheronda Flemming, NC CAP*

The Coalition identified five barriers to high-quality STEM: Access, Awareness, Collaboration, Equity, and Funding. Coalition members developed short-term and long-term strategies to address these barriers. Each member of the Coalition chose two strategies to work on and gave input on the others. Together, they generated a report to spotlight at a Lights on Afterschool event, and to share and engage with elected officials.

The STEM Coalition is a great example for how NC CAP positions itself as a connector:

*“I view the network as the waterhole in The Lion King. You have elephants, lions, birds, hyenas, they all came to the waterhole to get nourishment, like resources, support, and a safe space to learn.” – Sheronda Flemming, NC CAP*

In Virginia, (Virginia Partnership for Out-of-School Time) VA POST launched a coalition to bring leaders together around STEM. The coalition is designed to foster cross-organizational connections that would not exist otherwise. After considering their shared interests and the needs of the out-of-school-time field, coalition members decided to focus on equity-centered family engagement.

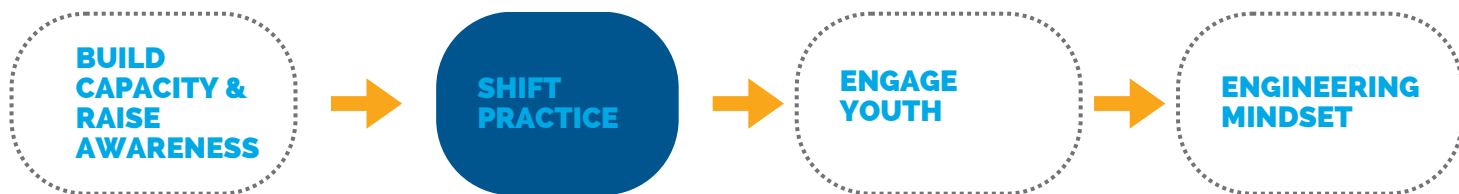
*“We know parents who are better resourced pull from their own networks; it can make a big difference in a child’s life. My father, a mechanic, didn’t think he could help me with science. But my dad did have a STEM job. It can be transformative to show parents those connections, and that helps kids with their trajectory. [Parents can] help them persist through those pathways.” – Christine Jones Monaccio, VA POST*



Henrietta, 2022 Flight Crew

## SHIFTING PRACTICE IN AFTERSCHOOL AND SUMMER PROGRAMS

Evidence for progress toward the second component of the Theory of Action



As more afterschool professionals become aware of the Moonshot's Transformative Practices and access the Moonshot's resources that support inclusive, high-quality STEM learning, their practice should begin to shift in ways that are more likely to benefit girls and nonbinary youth. Professional development is core to the Moonshot Theory of Action: enhancing the knowledge, skills, and confidence of STEM program staff can lead to changes in their practice, which in turn increases young people's access to opportunities to build an engineering mindset.

Available evidence suggests the Moonshot is catalyzing shifts in practice among thousands of afterschool and summer programs. **About 6,500 afterschool and summer programs staffed by 25,500 staff members were "moderately engaged" with the Moonshot in Year 2.** This level of engagement is likely to positively affect adult staff members' practice and includes activities like sending staff members to a statewide afterschool conference featured a STEM learning strand or participating in an extended professional development offering from a Moonshot partner. These 25,500 educators work with up to 200,000 girls and non-binary youth.

## Moonshot Booster Packs

Booster Packs are offered by Moonshot implementation partners and provide in-depth learning opportunities for state-level afterschool leaders and on-site program staff on a variety of STEM-related practices and curricula. The Moonshot calls upon its partners who are experts in their field to facilitate these valuable experiences. In Year 2, 10 Booster Packs served 155 professionals across 108 program sites nationally, which in turn reach more than a thousand youth, including about 500 girls and non-binary young people.

Feedback from Booster Pack attendees indicate they built expanded professional networks and will use what they learned with youth. Almost all will share their new knowledge with a colleague, which helps to broaden the reach of the Moonshot over time.

**Table 3: Nearly All Booster Pack Participants Expanded their Networks and Learned Something Useful**

	Participants that Agree or Strongly Agree
This session has given me opportunities to build my network.	100%
I will share something I learned in today's session with a colleague.	98%
The information and activities presented in today's session were useful.	97%
I was able to enhance the quality of STEM offerings I provide to young people and their families.	97%

Source: Participant Feedback Surveys from Booster Pack Participants. N = 50.

The Statewide Afterschool Networks use the Booster Packs as a jumping-off point for STEM efforts of their own, further extending the reach of Moonshot resources. For example, the Oregon Afterschool & Summer for Kids Network is using the Future Pathways Toolkit from Jobs for the Future (JFF) to guide its professional development offerings for out-of-school time professionals. They trained programs on subjects such as "Growing Myself" and "Communication and Collaboration." The Toolkit supports afterschool professionals to incorporate career and college awareness activities into their activities, a key feature of the STEM Learning Pathways Transformative Practice.

Beyond School Bells in Nebraska has an innovative strategy for distributing the JFF Booster Pack curriculum to their program partners. Recognizing many out-of-school time staff are overstretched, BSB created kits with ready-made health sciences curriculum experiences that programs can institute on the spot, making it easier for staff members to incorporate career awareness activities. In Year 3, BSB will create kits for information technology and engineering careers.

See the Spotlight on page 41 to learn more about the Family Engagement Community of Practice, a popular Moonshot Booster Pack.



## Shifting Practice in Depth: Elevating Family Engagement in West Virginia

The West Virginia Statewide Afterschool Network (WVSAN) wanted to make the most of the Moonshot's Booster Packs, so professionals in this rural state could benefit from increased access to high quality professional development. They asked local afterschool leaders for advice about which topic would most benefit them, and the answer was clear: family engagement. While afterschool and summer staff members wanted to engage families more effectively, they weren't sure where to start. WVSAN encouraged ten local program directors to sign up for the first Family Engagement Community of Practice in Year 2.

"We got a few sessions in [to the Family Engagement Booster Pack], and I knew that we wanted to replicate this in our state," said Susan Gamble, Executive Director of WVSAN. She reached out to colleagues in the state's 21st Century Community Learning Center (CCLC) and childcare division offices to explore options to bring the Booster Pack to West Virginia. Excited by the opportunity, both state offices contributed funding for program stipends, and The EdVenture Group was engaged to help facilitate the project.

The West Virginia Family Engagement Community of Practice (CoP) brought together program leaders from 14 sites across the state. The series included readings and videos about family engagement in STEM, with an emphasis on the CARE framework, an asset-based approach to working with families. Synchronous meetings provided opportunities for members to reflect on what they were learning and how they might shift their practice. Each CoP member created a family engagement plan for their organization and hosted a family STEM event.

The CoP helped to shift members' mindsets and practice around family engagement in STEM. Members reported feeling more confident in using STEM in family engagement activities, and plan to share what they learned with other colleagues. One CoP member wrote, "I always thought that implementing STEM, especially with families, would be huge and difficult. I know now that it can be simple and fun!"

WVSAN has benefitted, as well. Susan Gamble says, "This has deepened our partnerships, both with state-level out-of-school-time partners and with local providers. It has really deepened our work around family engagement."

This work will last beyond those who participated: many of the mindsets and approaches from the Family Engagement Booster Pack will be incorporated into West Virginia's revised quality standards. The state's school-age care division has contributed funding for this work, a further extension of the power of partnerships in West Virginia.

## Network-Led Supports for Afterschool and Summer Programs

One of the strengths of the Moonshot's design is the locally tailored opportunities offered by the 50 Afterschool Networks. In Year 2, Networks reported offering professional development opportunities ranging from webinars and workshops, coaching and technical assistance, and communities of practice.

Table 4: The Majority of Afterschool Networks offered Stand-Alone Trainings, Coaching or Technical Assistance

Professional Development Opportunities	Networks that Offered
Stand-alone trainings (webinars or workshops)	69%
Coaching or technical assistance	69%
Multi-session trainings/series or learning community/community of practice	52%
Conference presentation/conference strand on STEM	46%
Mini-grant or funding opportunity	29%
Other	19%

Source: Network Grantee Reports. Spring 2022, N = 2; Fall 2022, N = 47.

An innovative example of coaching and technical assistance is taking root in Missouri. The Missouri AfterSchool Network is incorporating inclusive and equitable STEM practices into the quality coaching they offer for all afterschool and summer programs. This approach will help to assure inclusive STEM is more than an “add-on” idea, but rather STEM is a fully integrated part of what high quality programming means in the state.

*“I appreciate the opportunity to advance up a level to Innovator this year. I was able to work with the STEM Lead, Associate Director of Quality, and Associate Director of Policy and Partnerships to develop a plan that will embed STEM coaching around the Transformative Practices into our ongoing training and technical assistance offerings.*

*There is so much more buy-in from the MASN team and I hope by the end of the year 3 grant that they are no longer thinking of STEM as a content area that is handled by the STEM Lead, but as a part of our overall approach to supporting programs.”*  
– Terri Foulkes, Missouri AfterSchool Network

One-third of networks offered mini-grants that help to bridge key funding needs for afterschool and summer programs, such as covering the costs for new equipment, increasing staff access to professional development activities, or launching new STEM learning opportunities for young people.

For example, the New Mexico Out of School Time Network offers a unique scholarship and opportunity for young girls in the state known as the Advancing Young Women in STEM scholarships, which has been awarded to 56 young women to date. The annual awards event engages powerful STEM female role models, including a process engineering manager from Intel, and State Senator Siah Correa Hemphill.

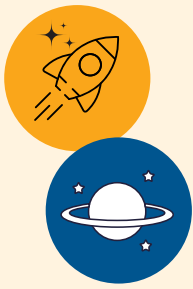
To further encourage young women to stay involved in STEM-related majors, NMOST designed and printed postcards, posters, and flyers showcasing scholarship recipients and their unique challenges, motivations, and career paths. See Appendix I for 2019-2020 scholarship recipients' postcards.

Previous scholarship recipients below share the impact that participating in STEM out-of-school time programs has had in their career trajectories.

*“Participating in OST programs helped me become a global citizen in aspects of socioeconomics, history, and sustainability. OST exposed me to varying environmental solutions which formed my educational pathway toward environmental engineering. I am now a math major!”*  
– Jolene Fernandez  
2020 NMOST Advancing Young Women in STEM Scholarship Recipient



*“Participating in the Math, Engineering, and Science (MESA) club gave me a space for exploration in the science field. MESA allowed me to uncover my passion for engineering through my interest in flight mechanics. Aside from all the exploration events in MESA, I believe the teamwork aspect of the club was what really led me to believe I could have a job in STEM.”*  
– Daisy Belmares-Ortega  
2019 NMOST Advancing Young Women in STEM Scholarship Recipient



## Spotlight – Building Capacity and Raising Awareness

Statewide Afterschool Networks are tailoring Moonshot resources to support afterschool and summer professionals as they shift their practice. Booster Pack participants are taking what they learn to more out-of-school time programs, expanding the Moonshot's reach.

### Flowing Transformative Practice Areas into Professional Development

The New Mexico Out-of-School Time Network (NMOST), an Innovator grantee, incorporates the Moonshot's Transformative Practices into its professional development for afterschool and summer program professionals, including those in 21st Community Learning Center programs and informal education programs that received funding through federal ESSER funds, two of the largest groupings of afterschool and summer programs in the state.

The Leadership Institute, a nine-session learning series for 29 youth development professionals, featured Moonshot-aligned topics like "Invite Girls to Change the World through STEM," "Involve Families," and "Engage Female Role Models." NMOST's annual statewide afterschool conference included workshops on fostering an engineering mindset, innovation and making from the National Inventors Hall of Fame and developing an entrepreneurial mindset in youth. Mackenzie Hill, a member of the inaugural Flight Crew, provided a pre-keynote presentation, elevating young people to center stage.

### Incorporating STEM into Public Funding Streams

ACT Now IL, an Innovator state network, educated leaders in the Illinois Department of Human Services on the importance of STEM as a critical component of out-of-school time programming. As a result, the agency now requires STEM learning as part of Teen REACH programs. Teen REACH (Responsibility, Education, Achievement, Caring, and Hope) is a comprehensive youth development initiative that provides afterschool program services to underserved youth between the ages of 6 and 17.

This creates a terrific opportunity for ACT Now IL to incorporate Million Girls Moonshot resources into its ongoing quality supports for afterschool programs statewide, setting a new standard for youth development practice in publicly funded programs. ACT Now IL incorporates Moonshot materials into professional development offerings for Teen REACH staff and encourages out-of-school time programs to measure their progress using the Common Instrument Suite and Dimensions of Success tools from PEAR.

## Cascading Influence of the Family Engagement Community of Practice

Moonshot implementation partners Linda Kekelis and Bunmi Esho led a community of practice focused on family engagement in STEM from Fall 2021 through Spring 2022. Closely aligned with the Role Models, Mentors and Families Transformative Practice, this Booster Pack was organized around the CARE (Connect, Act, Reflect, Empower) Framework, and shared practical strategies to engage families and caregivers in STEM activities. Twelve afterschool and summer leaders from 8 states participated in the 2021-22 Booster Pack, and incorporated the frameworks and strategies they learned to promote greater family engagement in informal STEM:

- The Virginia Partnership for Out-of-School Time (VPOST) launched its own Family Engagement Community of Practice for informal STEM educators in their state, reaching teams from 10 communities across the Commonwealth. The Virginia-specific CoP is using the Toolkit, Guide, and Workbook they received from the Booster Pack. VPOST's colleagues in the STEM Education and Innovation Center, who also participated in the Booster Pack, are sharing the Family Engagement toolkit with STEM practitioners across the Commonwealth and offered family engagement activities as part of Virginia's National STEM Day Celebrations.
- Thanks to their participation in the Booster Pack, the Orlando Science Center in Florida uses the Family Engagement Planning Tool to incorporate the CARE framework more fully into its public events. The Center has expanded its offsite outreach offerings, to more effectively engage families across the region.

At the conclusion of the Family Engagement Community of Practice, participants were asked to rate changes in their understanding of the family engagement approaches shared in the Booster Pack. Nine participants "strongly agreed" that they knew strategies to promote equitable family engagement after participating, up from just one person at the start of the Booster Pack. Notably, every member agreed that they knew equitable family engagement strategies by the end of the Booster Pack.

The long-term reach of this Booster Pack is promising, demonstrating the planned cascading effect of all in-depth professional development offerings from the Moonshot. The eight Family Engagement Booster Pack participants estimate that they will share what they learned with more than 750 afterschool staff, who in turn work with 2,000 families and 5,700 girls and nonbinary youth.

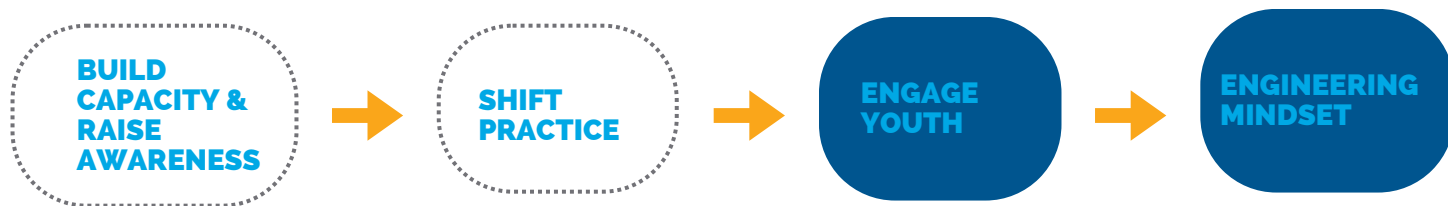




Aika, 2023 Flight Crew

## ENGAGING MORE YOUTH AS THEY BUILD AN ENGINEERING MINDSET

Evidence for progress toward the third and fourth components of the Theory of Action



As adults shift their practice, and afterschool and summer programs offer more equitable, inclusive, and engaging STEM learning opportunities, more girls and non-binary youth should engage, and ultimately develop the ten skills and mindsets associated with an engineering mindset. (See Appendix A for more.)

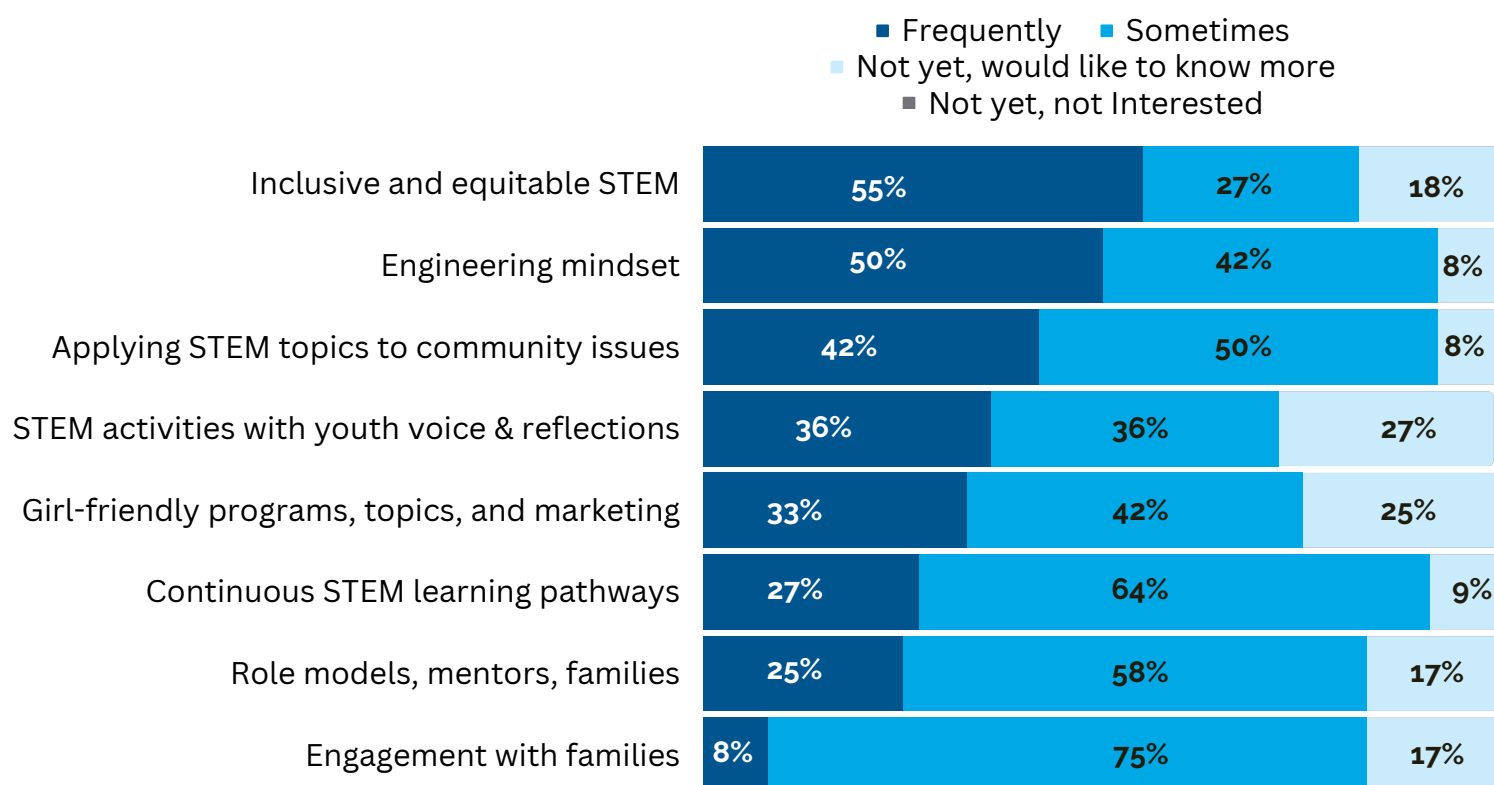
In Year 2, about 3,500 afterschool professionals serving 80,000 girls participated in intensive offerings from the Moonshot, such as Booster Packs, statewide communities of practice, and mini-grants. These high-touch experiences for adults and youth are most likely to catalyze the kinds of learning experiences for girls that support an engineering mindset.

Available feedback from professionals in afterschool and summer programs is promising. About 80% of afterschool and summer programs that provided input said that they regularly offered activities that support the Transformative Practices. (See Figure 6.) Input from about 300 youth in Moonshot-connected afterschool and summer programs shows that seven in ten agreed their afterschool program helped them to feel more engaged with STEM, and half said they were more likely to think of themselves as “a person who does STEM.”

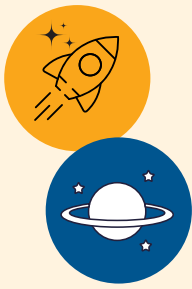
The Million Girls Moonshot surveyed afterschool and summer programs across the country to ask about their connection to the Moonshot, and current STEM-related practices. Respondents indicated regular use of the Transformative Practices, especially Engineering Mindsets, Role Models, Mentors and Families, and Inclusive and Equitable STEM. Survey respondents were less likely to report implementing activities aligned with Continuous STEM Learning Pathways. This is to be expected, given Moonshot partners' broad focus on the other Transformative Practices in Year 2, and the cross-partner focus Learning Pathways requires. (See the Research Highlight on page 49 for more.)

Survey respondents expressed strong interest in the Transformative Practices that they were not yet using, a positive signal to the Moonshot about the resonance of the model. Based on the input from these professionals, future awareness-building and professional development activities should include STEM activities with youth voice and reflection and girl-friendly programs, topics, and marketing.

Figure 6: Afterschool and Summer Professionals are Applying the Transformative Practices, and are Curious to Learn More



Source: Million Girls Moonshot 2022 Program Survey, June 2022, N = 238. Percentages may not add up to 100% due to rounding.



## Spotlight – Engaging Youth and Developing Engineering Mindsets

Networks leverage the additional staff capacity and Transformative Practices to expand and refine their on-the-ground collaborations with afterschool and summer programs. This translates into more opportunities for meaningful STEM engagement among girls and other marginalized youth.

### STEM Pathways and Near-Peer Mentors

The Rhode Island Afterschool Network, a Capacity Builder grantee, shared examples of new STEM pathways activities and near-peer mentorship supports.

In summer 2022, the network enhanced its STEM pathways initiative to include high school aged students through a partnership with the Cranston, RI YMCA. The YMCA offered a STEM enrichment program for high school students, engaging 35 youth in daylong STEM learning activities, paired with field trips to local STEM-related workplaces. Participants visited other summer programs for younger students, as well, acting as near peer mentors.

Rhode Island's STEM Coordinator led a Peer Mentor Leadership Academy in spring 2022, which engaged 50 peer mentors to explore the mentorship role, practice leadership skills and learn how to support STEM learning when working with younger students. Working across 16 programs, the participating peers mentored 450 youth.

### Career Connections for Youth; Mentoring Opportunities for Adults

Vermont Afterschool Inc, an Innovator grantee, runs a program called STEM Pathways, where high school students work in an elementary afterschool program to lead younger kids through engineering activities using an Engineering is Elementary (EiE) kit, a set of hands-on learning activities developed by the Museum of Science in Boston.

Teen staff members are mentored by an adult, who offers support and guidance on teens' future college and career path and the skills they need to develop to effectively lead EiE activities. These adult staff mentors use lessons from the Jobs for the Future: Possible Futures curriculum, a Moonshot Booster Pack.

This nested approach to mentoring enables aspiring afterschool professionals to get real world experience as an educator and to explore potential career paths while adult mentors hone their own skills in supervising and mentoring others.

## Engaging Youth in Depth: How Rural States Meet Community Needs

In addition to exploring the extent to which the Moonshot is reaching the goals in the Theory of Change, the evaluation team looks out for evidence of emerging issues for the informal STEM field, and for particularly unique examples of how the Moonshot's partners are promoting the Transformative Practices.

We found that Moonshot grantees in rural states use creative approaches to reach girls and non-binary youth, including partnering with universities, bringing STEM activities to where kids are, and understanding diversity within rural communities.

Colleges and universities are some of the largest institutions in many rural states and represent a terrific potential partner for the Moonshot. In Wyoming, near peer role models and mentors take flight through Computational Outreach for Wyoming Girls in Science, Technology, Engineering, and Mathematics (COWGIRLS in STEM). Founder and University of Wyoming graduate student Ashleigh Pilkerton and the Wyoming Afterschool Alliance work with afterschool and summer programs that give young people the time and space to fully engage in building connections between the natural world and computer science.

*“Together, we are creating a bolder vision for STEM learning in Wyoming by forming authentic and powerful partnerships while engaging young people as partners.”  
– Emily Vercoe, WY Afterschool Alliance*

The West Virginia Statewide Afterschool Network, based at West Virginia University, collaborates with STEM Ambassadors, which trains college students to travel to 4-H events in the summer where they offer hands-on STEM programming to young people.

*“Kids love them. The Ambassadors were STEM majors, a nursing student, in computer science, the other had studied psychology... They receive really high-quality training as Ambassadors.” – Susan Gamble, WV Statewide Afterschool Network*



Photo courtesy of the West Virginia Statewide Afterschool Network

Think Make Create Labs (TMC Labs) are mobile makerspaces that hold a variety of hands-on STEM learning activities. Through support from the Moonshot and other state funders, several states are now able to bring STEM resources, professional development and culturally relevant content to communities that are isolated and have limited access. The Idaho Out-of-School Network and South Dakota Afterschool Network each partnered with local tribal organizations to bring the TMC Lab to the community.

*“The Moonshot has changed the landscape of how we provide support to youth programs across the state, especially with Indigenous youth. We have Think Make Create mobile STEM labs with built-in curriculum to get rural youth engaged in STEM. We’re incorporating Indigenous programming, like Lakota Stargazing, into all of our TMC Labs.”*  
– Billy Mawhiney, South Dakota Afterschool Network

Moonshot grantees navigate sometimes challenging political and ideological environments, especially when promoting equitable and inclusive practices. Networks in rural states report that they are thinking expansively when it comes to defining diversity, encompassing religion, political affiliation, and sexual orientation.

*“Equity and inclusion are at the heart of BSB’s practice. The majority of our work supports 21st CCLC programs in Nebraska, which serve our highest need communities. Other examples of our work that demonstrate BSB’s equitable approach and focus on inclusivity include our work with Native communities, where we provide additional opportunities and redesign programming to meet cultural needs; engagement of developmentally delayed students at Rabble Mill with our Freight Farm experiences; supporting near-peer mentorship / transitions for African American girls at the Malone Center; providing take home STEM activity backpack kits for underserved, high Latinx-populated rural communities; and elevating youth voice with videography camps and clubs.”*  
– Alison O’Toole, Beyond School Bells (Nebraska)

*“Some of the most valuable work that we did is asking our out-of-school program sites what equity meant in their context and trying to really understand what things would be helpful to them specifically.... For example, LGBTQ support is critical in Idaho, it’s linked to our high suicide rate among youth. When we talk about how we define equity and inclusion in our community... that has come up. We have communities that are almost all white, so the [meaning of] diversity looks different [in our state].”*  
– Anna Almerico, Idaho Out-of-School Network

Adeline,  
2023 Flight Crew



## Relaunching Efforts to Measure Impact on Youth

The Million Girls Moonshot surveyed afterschool and summer programs across the country to ask about their connection to the Moonshot, and current STEM-related practices. Respondents indicated regular use of the Transformative Practices, especially Engineering Mindsets, Role Models, Mentors and Families, and Inclusive and Equitable STEM. Survey respondents were less likely to report implementing activities aligned with Continuous STEM Learning Pathways. This is to be expected, given Moonshot partners' broad focus on the other Transformative Practices in Year 2, and the cross-partner focus Learning Pathways requires. (See the Research Highlight on page 49 for more.)

As a Million Girls Moonshot implementation partner, Partnerships for Education and Resilience (PEAR) offers free trainings and assessment tools to the Afterschool Networks, who in turn help afterschool and summer programs assess their practice and youth outcomes. Statewide Afterschool Networks played a key role in connecting afterschool and summer programs with opportunities to self-assess their practices, using surveys for staff and youth and structured observations.

Local afterschool and summer programs rebuilt capacity for in-person offerings in Year 2, establishing a jumping off point for enhanced data collection efforts in Year 3. PEAR's service rollout in Year 2 was guided by Networks' capacity during the continuing pandemic and in alignment with the Moonshot as a whole. In Year 2, PEAR collected 321 student Common Instrument Suite surveys, 22 educator surveys (CIS-E), as well as Dimensions of Success STEM observations from select states.<sup>10</sup>

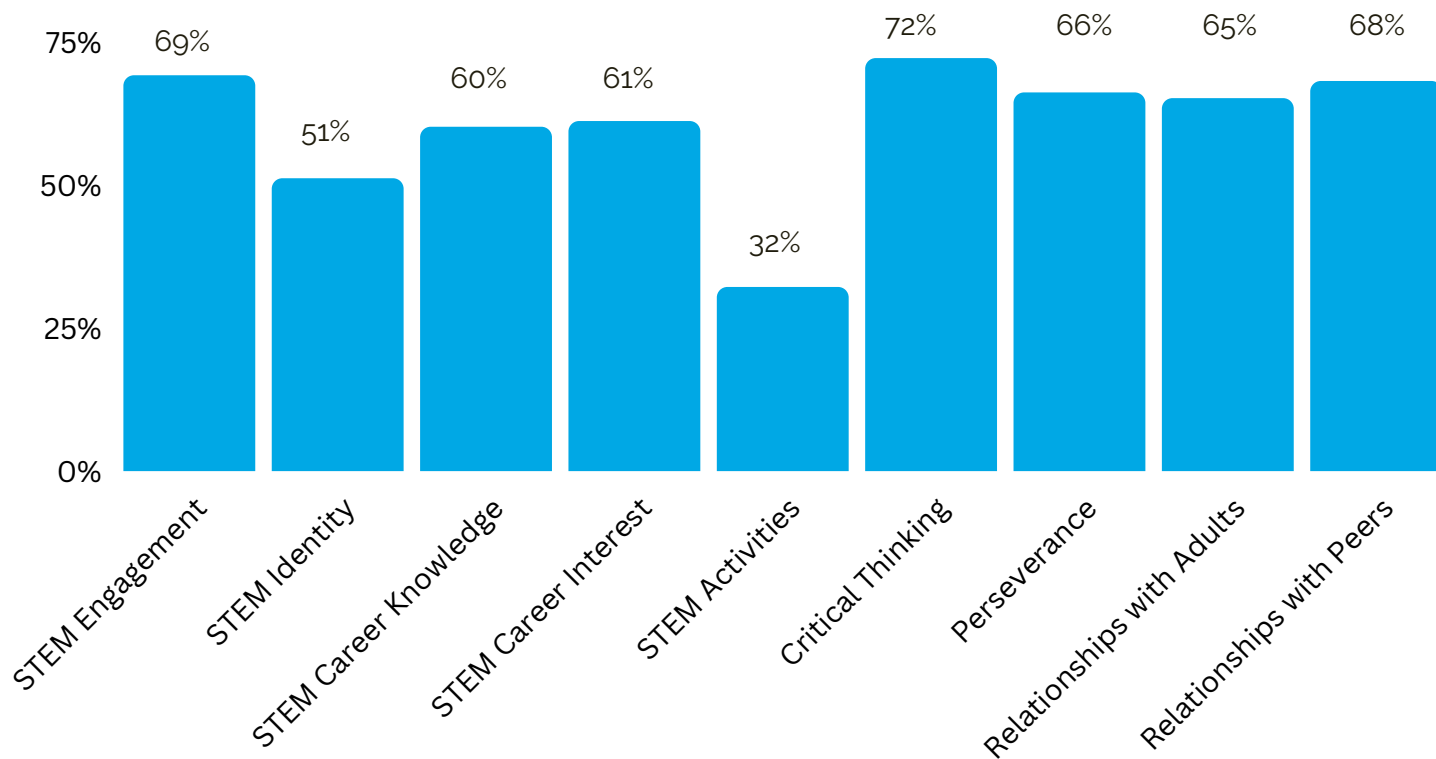
The PEAR team is proactively working with STEM Next to optimize site-level data collection amongst the networks. In Year 3, the team will host trainings on high quality STEM practices, pilot surveys for near peers and mentors, promote the engineering-focused version of the DoS observation tool, and offer an Advanced Data Gathering Cohort for networks.

In Year 2, more than half of youth who completed the survey reported positive change across all but one STEM area; relatively few youth reported that they engage in STEM activities in their free time. Given the continuing pandemic, lower findings in activity participation in everyday life are not surprising, and this scale receives lower ratings from youth nationally, as well. On the other hand, young people in Moonshot-connected programs reported the greatest improvements in their engagement in STEM and in developing 21st century skills.

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<sup>10</sup> PEAR provides a STEM-worded version of the CIS-S to MGM and an engineering version to lift up elements of the engineering design process. Data counts reports across the measures include the Year 2 collection period set by STEM Next of April 1, 2021 to August 31, 2022.

Figure 7: Youth are More Engaged in STEM and Built 21st Century Skills



Source: Common Instrument Suite Youth survey responses, N = 321.

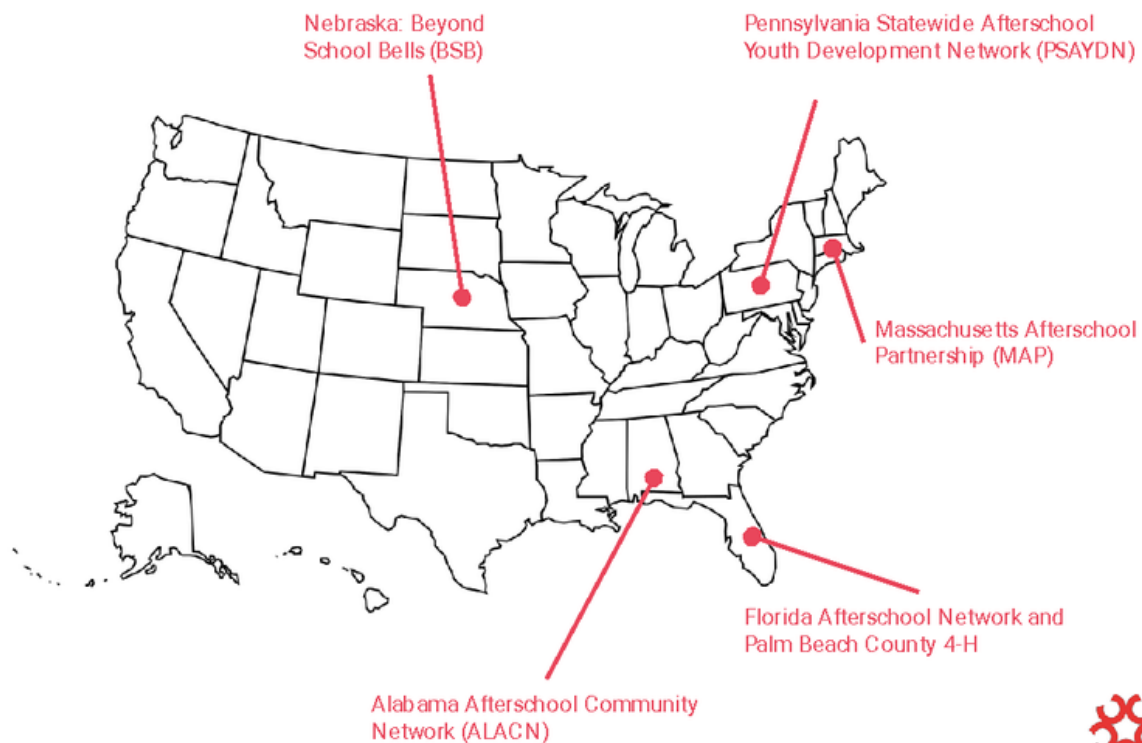
## Research Highlight: Making Connections to Support STEM Transitions for Middle School Girls

Supporting the creation of Continuous STEM Learning Pathways is one of the key foci of the Moonshot, and one of the most ambitious of the Transformative Practices. Creating these pathways requires cross-organizational collaboration that is novel in many communities, and therefore requires more sustained effort to launch and maintain.

The STEM Next Opportunity Fund commissioned the Connected Learning Lab at University of California-Irvine to better understand how state networks can support girls' persistence in, and transitions between, STEM programs. While existing efforts have sought to spark initial interest and provide high-quality STEM experiences, this project is concerned with what happens next: How can we support girls to continue to engage in future STEM learning opportunities?

Through specific design principles and strategies, the project iteratively designs and develops strategies for educators and program leaders to support youth more effectively by connecting their early interest in STEM into lifelong and life wide learning. The principles include (a) coordinating learning between settings, (b) brokering new learning opportunities, (c) using openly networked infrastructures, and (d) making learning visible.

In phase one, the research team studied how five state networks, Nebraska, Alabama, Pennsylvania, Florida, and Massachusetts, build upon and improve girls' transitions between STEM experiences.



In the process, eight initial examples for promoting STEM connections surfaced among the networks, falling across the four design principles of the making connections area of the Connected Learning Lab's learning framework:

1. a wraparound model to bring together cross-sector organizations;
2. coordinating between out-of-school-time (OST) and school day programs;
3. coordinating between community and OST programs to support community-based STEM projects;
4. supporting brokering work of near-peer mentors;
5. helping adults broker connections to STEM-based entrepreneurship opportunities;
6. helping adults get family and youth buy-in into STEM programs;
7. developing an openly networked infrastructure to help youth find STEM programs; and
8. supporting youth in using an open portfolio for STEM work.

Key findings from the first phase of the research include:

**1. Through implementation and refinement of their efforts to create connected learning pathways, the state networks reported gains in connections to future STEM learning.**

Networks reported a 37% increase in the number of new connections made to future STEM learning during phase one of the project; this corresponds to over 864 connections to future STEM learning opportunities.

**2. The participating state networks saw a marked increase in reach.** While deploying these new and refined approaches, networks reported a 39% (n =1,235) increase in youth participants, drawing in over 51% (n =647) more girls.

**3. The Million Girls Moonshot networks and programs are employing a wide range of nascent practices for making connections that can be leveraged for higher impact.**

Practices are interconnected and mutually reinforcing, and network administrators reported an intense motivation to adopt and/or refine one or more ways for making connections highlighted in this project.

The research team is currently investigating how infrastructural support in building continuous learning pathways can increase capacity across the network, including which strategies are most effective, for whom, and under which circumstances.



MacKenzie G., 2022 Flight Crew and  
Olive, 2023 Flight Crew

## Looking Ahead: Reflections on Year Two of the Moonshot

The Million Girls Moonshot continues to build momentum toward its goal to engage one million more girls and non-binary youth in building an engineering mindset.

Since its launch in spring 2020, the Million Girls Moonshot has reached more than 75,000 afterschool and summer programs, staffed by 200,000 professionals, who educate 3 million youth, including 1.5 million girls. Of these, about 80,000 girls are in programs that are intensively engaged with the Moonshot in some way, and therefore are most likely to have directly benefitted from opportunities to develop an engineering mindset.

Reports from Afterschool Networks and implementation partners indicate steady progress along the Moonshot Theory of Action, both in terms of collective emphasis on the four Transformative Practices, and on supporting afterschool and summer programs to shift their practice to be more inclusive, equitable, and community connected. Robust, consistent investments +\$5968make this possible: operating funding, trainings, resources, curricula, and ongoing technical assistance for networks each amplify this collective effort.

This collective momentum is due in large part to the sustained and consistent efforts of the Moonshots' many partners. Ongoing access to high quality resources and professional development opportunities, funding for additional STEM-focused staff, and ongoing coaching and technical assistance for Afterschool Networks all work in favor of the Moonshot's ambitious vision.

The ongoing impacts of COVID-19 still affect afterschool and summer programs' ability to engage in Moonshot-related activities, however. Staffing shortages persist across the field, which in turn limit staff members' ability to commit to the types of in-depth professional learning that can transform practice and youth experiences. This, in turn, slows the progress of the Moonshot in reaching large numbers of out-of-school time programs with the level of support most likely to lead to notably different experiences for girls and nonbinary youth.

Looking to Year 3, Moonshot partners will build on the foundations they've established to keep raising awareness of the Transformative Practices while expanding their collective efforts to reach more girls as they build an engineering mindset. These expanded efforts include recruiting more out-of-school time programs to participate in Booster Packs, forming state-specific communities of practice focused on inclusive and equitable STEM, and incorporating the Transformative Practices into quality supports for all afterschool and summer programs. Moreover, in Year 3, several Networks are working with a set of afterschool and summer programs in their state to measure young people's experiences in Moonshot-connected STEM programming, further deepening our shared understanding of how girls are benefitting from more inclusive STEM experiences.



Ariel, 2023 Flight Crew and  
Prisha, 2023 Flight Crew

## Appendix A: Engineering Mindset

The Million Girls Moonshot is grounded in the novel construct of engineering mindset, which comprises ten essential skills, attitudes, and practices, including working in teams to address real-world engineering problems, applying math and science principles, envisioning solutions, and using a systematic engineering design process. The values, knowledge, and thinking skills associated with an engineering mindset can unlock pathways to socioeconomic mobility, gender equality and sustained, national economic growth. Further information on the engineering mindset can be found in the [Year 1 Evaluation Report](#).

### 10 Practices for an Engineering Mindset

**Use a systematic engineering design process**

**Work in teams**

**Consider real-world problems**

**Identify as engineers**

**Envision multiple solutions**

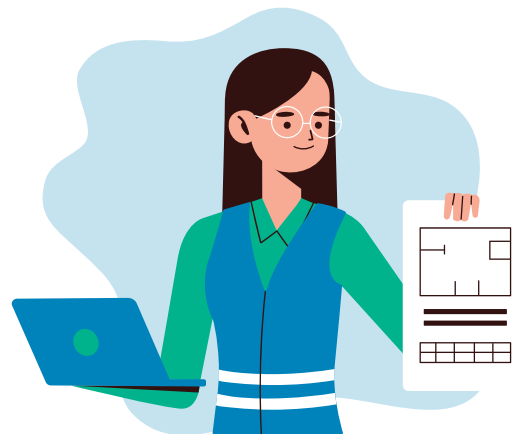
**Evaluate and iterate**

**Persist and learn from failure**

**Apply math and science**

**Explore materials**

**Balance criteria and constraints**



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## Appendix B: Equitable and Inclusive STEM Framework



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OPPORTUNITY FUND

# ACCESS TO STEM: A FRAMEWORK

**CREATING SPACE FOR ALL LEARNERS**

*Strategies* are the broad categories within each large concept: **Increasing Access, Youth-Centric, and Skill Development.**  
*Tactics* are the specific actions and tools for each strategy.



### INCREASING ACCESS

Strategies that address barriers to participation and build on the experiences within the community.



### YOUTH-CENTRIC

Strategies that build on the specific strengths, needs, and challenges of youth.



### SKILL DEVELOPMENT

Strategies that are personally relevant to youth and enable them to develop STEM and 21st century skills.

Strategies	Tactics
<b>Community Engagement</b>	<ul style="list-style-type: none"> <li>Create plans for internal and external communication and outreach</li> <li>Build cross-sector partnerships to cultivate a STEM learning ecosystem</li> <li>Offer community and family engagement opportunities</li> </ul>
<b>Data Informed Decision Making</b>	<ul style="list-style-type: none"> <li>Identify ways to collect youth and program level data to improve program quality</li> <li>Collect feedback from youth and families</li> <li>Conduct evaluation to assess broader community needs</li> </ul>
<b>Program Design (quality and intentionality)</b>	<ul style="list-style-type: none"> <li>Involve stakeholders who represent the community and offer diverse perspectives in program design</li> <li>Form an advisory board with key stakeholders to provide ongoing guidance and feedback</li> <li>Be intentional in program design to engage and effectively serve all youth</li> </ul>
<b>Program Operations</b>	<ul style="list-style-type: none"> <li>Ensure all youth have access to programming (location, schedule, transportation, technology)</li> <li>Ensure all youth feel welcome (broad outreach to diverse populations, marketing designed to engage all youth, welcoming environment)</li> <li>Recruit and retain staff who are representative of the community</li> </ul>

Strategies	Tactics
<b>Peer Support</b>	<ul style="list-style-type: none"> <li>Provide a supportive environment for all youth</li> <li>Encourage positive peer connections</li> <li>Help all youth feel they are part of a STEM community</li> </ul>
<b>Positive Youth Development</b>	<ul style="list-style-type: none"> <li>Support all youth to make personal connections to and a greater sense of belonging in STEM</li> <li>Help all youth develop self-efficacy and confidence in STEM</li> <li>Elevate all youth voice and choice</li> </ul>
<b>Relevance</b>	<ul style="list-style-type: none"> <li>Connect programming to school, home, and other settings</li> <li>Leverage all youth interests, knowledge, and lived experiences</li> <li>Show how STEM can make a difference in youth's lives and in their communities</li> </ul>
<b>Supportive Relationships</b>	<ul style="list-style-type: none"> <li>Make community and family connections</li> <li>Provide opportunities to interact with and learn from diverse STEM role models</li> <li>Recruit and retain staff skilled in developing and supporting positive relationships</li> </ul>

Strategies	Tactics
<b>Connected Pathways</b>	<ul style="list-style-type: none"> <li>Provide opportunities to learn about and explore a variety of STEM careers</li> <li>Curate partnerships with other STEM programs to encourage further participation</li> <li>Provide exposure to relatable STEM role models who have experienced diverse career pathways</li> </ul>
<b>Curriculum</b>	<ul style="list-style-type: none"> <li>Foster engineering mindset practices (applying math and computer science)</li> <li>Create a learning environment that offers voice and choice to engage all youth in STEM</li> <li>Provide opportunities for all youth to do authentic practices that STEM professionals do</li> </ul>
<b>Professional Development (for the field)</b>	<ul style="list-style-type: none"> <li>Provide opportunities for educators to reflect on their own lived experience</li> <li>Provide training for educators to make STEM personally relevant to all youth</li> <li>Engage educators in MGM professional development offerings (role models, engineering mindset, growth mindset, etc.)</li> </ul>
<b>21st Century Skills</b>	<ul style="list-style-type: none"> <li>Provide opportunities to collaborate and develop collaboration skills</li> <li>Ask open-ended questions to help youth critically think and deepen their understanding</li> <li>Facilitate development of a growth mindset</li> </ul>

Created for STEM Next Opportunity Fund by the National Girls Collaborative Project



VERSION 06/15/2022

## Appendix C: Data Sources

**Semi-annual Network reports** – Submitted by Afterschool Networks twice per year (April 30 and September 30), these reports provide updates on Moonshot-related activities, quantitative estimates of grantees' progress toward engaging out-of-school-time programs, and feedback to the learning community facilitators.

**Semi-annual implementation partner reports** – Submitted by Moonshot implementation partners once per year, on/around September 30, these reports provide updates on Moonshot-related activities, quantitative estimates of grantees' progress toward engaging out-of-school-time program professionals, and feedback to the learning community facilitators.

**Annual program-level practice surveys** – Distributed to afterschool and summer programs affiliated with the Moonshot by the statewide Afterschool Networks and Moonshot coalition partners. These surveys collect information about programs' engagement with the Moonshot and current practices in informal STEM, including use of Transformative Practices and efforts to sustain engagement among girls.

**Training participant surveys** – Completed by professionals who attended select Moonshot-related professional development offerings, including Booster Packs and network-led professional learning communities. Survey questions were shared with Networks for incorporation into their planned feedback process. Networks will share results with Public Profit for aggregation in the annual evaluation report.

**In-depth interviews** – Public Profit conducted interviews with Moonshot grantees to complement the other data sources. These interviews and focus groups explored the ways in which the Moonshot is building grantees' capacity to promote high-quality informal STEM practices and how the Transformative Practices are being implemented in afterschool and summer programs.

**Programmatic documents** – Public Profit reviewed key programmatic documents to complement the other data sources, such as learning community agendas and notes, monthly Asset Packs, Booster Pack enrollment and attendance data, and reports from Moonshot implementation partners.

**Dimensions of Success and Common Instrument Suite** – The annual evaluation report includes data collected by networks as part of their quality improvement supports for afterschool and summer programs.

## Appendix D: Evaluation and Research Organizations

STEM Next, the coordinating funder and backbone organization for the Million Girls Moonshot, has engaged teams from four organizations to evaluate the Moonshot.

1. **Public Profit** – An independent evaluation consultancy with expertise in afterschool programs, is leading the evaluation of the Million Girls Moonshot that explores network wide progress toward the Theory of Action and highlights particularly innovative practices at the grantee and STEM program level. They are the authors of this report.
2. **Partnerships in Education and Resilience (PEAR)** – Creates and fosters evidence-based innovations in social-emotional development and Science, Technology, Engineering and Math in educational settings. PEAR provides trainings and assessment tools that inform educators about program quality, youth social-emotional development, and academic engagement. PEAR's work bridges research and practice so that all young people can learn, dream, and thrive. PEAR developed two of the tools used in the case studies – the Dimensions of Success (DoS) observation tool and the Common Instrument Suite (CIS). The PEAR team conducted a case study of a Million Girls Moonshot-affiliated program in spring 2021.
3. **University of California, Irvine (UCI)** – With funding from the Gordon and Betty Moore Foundation, a research team at UCI will pilot and test transition/handoff strategies with five networks. The goal is to understand the strategies that work best and what is needed to support them. At the end of the project, the Moonshot will support scaling the best strategies throughout the networks and beyond. The five state networks were selected June 1, 2021 and the study will begin September 1 through August 31, 2022.
4. **Dr. Christine Cunningham, Pennsylvania State University (Penn State)** – Professor of Practice in Education and Engineering at Pennsylvania State University, has provided the intellectual framework that underpins the essential goal of the Million Girls Moonshot—to develop the values, attitudes, and thinking skills collectively referred to as an engineering mindset. Formerly Vice President of Research at the Museum of Science in Boston, Dr. Cunningham's research and development efforts have aimed to make engineering and science more relevant and accessible, especially for populations underrepresented and underserved in engineering and science. Working closely with Dr. Cunningham is independent researcher Dr. Cathy Lachapelle, co-developer of the Performance Assessment of Design Skills (PADS), which is being used in the Million Girls Moonshot as one indicator of engineering mindset.

## Appendix E: Evaluation Questions & Data Sources

Evaluation Question	Grantee & Partner Semi-Annual Report	Annual Program Practices Survey	Training Participant Survey	Interviews	Programmatic Documents	DoS, CIS
What is the estimated reach of the Million Girls Moonshot in 2021-22?	X	x			xx	
To what extent does the Million Girls Moonshot enhance the capacity of statewide Afterschool Networks to promote high-quality STEM practice in informal learning spaces that align with the Transformative Practices?	X	X	X	x		
To what extent do the collective efforts of the Million Girls Moonshot contribute to broad adoption of the Transformative Practices?	X	X	X	X	x	x
Does available evidence support the Million Girls' Theory of Action? What changes, if any, might improve the initiative's ability to reach its long-term goal of cultivating one million girls with an engineering mindset?	X	X	X	X	X	x

X primary data source  
x supportive data source

## Appendix F: Methodology Notes

Throughout this report, we rely on estimates reported from afterschool networks. The networks provide the best information available, which may vary by state based on their data collection and management capacity. As a result, the information available to the evaluation team includes some level duplication and estimation, rather than highly specific counts. The notes below detail how the evaluation team addressed these issues.

### Estimating the Reach of the Million Girls Moonshot

Afterschool network grantees submit a report twice a year in which they estimate the number of programs, staff, youth, and girls they have reached through the Moonshot during their grant period. Since the data is reported in the aggregate roughly every six months, it is possible that programs, staff, and youth who participate over time are counted more than once. To account for duplication across multiple time periods, Public Profit reduced the Year 1 reach estimates by one third based on the assumption that many of the programs, staff, youth, and girls engaged in Year 1 continued to be engaged with the Moonshot in Year 2. The summative estimates provided in this report are conservative, but realistic, based on what the Network grantees reported.

Total Programs	Total Staff	Total Youth	Total Girls
75,000	200,000	3,000,000	1,500,000

### Estimating the Number of Current and New Partnerships

Afterschool network grantees submit a report twice a year in which they estimate the number of new partnerships during that period and the number of significant existing partnerships. To calculate the number of new partnerships made during the 2021-22 Moonshot cycle, we summed estimates from each report. For existing partnerships, Public Profit used the estimates from each network's most recent report.

### Aggregating input from Booster Pack Participants

Attendees completed feedback surveys after each session of their respective Booster Pack, totaling 58 responses in Year 2. Survey responses in this report are from the Family Engagement Community of Practice with Bunmi Esho and Linda Kekelis (Fall 2021), Click2Engineering Community of Practice (Fall 2021), STEM Transitions and Handoffs with Jobs for the Future (Winter/Spring 2022), Maker-Centered Learning Community of Practice with the Makers + Mentors Network (Fall 2021).

## Appendix G: 2021-22 Booster Pack Descriptions & Reach

2021-22 Booster Pack	Participating Sites by State
<p><b>Engineering Mindsets with Televisa Foundation and TCLift (Year 1, Spring 2021)</b></p> <p>The Engineering Mindset Booster Pack with TC Lift trained site educators on the TC Lift curriculum for youth in grades 6th-8th on topics that included computer science, coding, and empowerment in STEM. Participants attended 2 two-hour trainings and received additional support through "office hours" with TC Lift trainers.</p>	<p>Minnesota (1) Nevada (3) Rhode Island (3)</p>
<p><b>Equity and Inclusion Community of Practice with National Girls Collaborative Project and Special Guests (Year 2, Summer 2021)</b></p> <p>Participants attended five, 75-minute sessions over the course of four months (June – September) to dive deeper into the Equity and Inclusion Framework, review research and promising practices for equity, and develop an action plan for their Network.</p>	<p>Alaska (2) Iowa (3) Michigan (1) New Mexico (4) Pennsylvania (3) South Dakota (2) Virginia (3)</p>
<p><b>Engineering Mindsets with Techbridge Girls @Home (Year 2, Summer 2021)</b></p> <p>Afterschool and summer site educators attended a two-hour virtual training on the Techbridge Girls@Home Curriculum and received additional one-on-one implementation support through monthly "office hours" with Techbridge Girls trainers. The Techbridge Girls @Home curriculum included eight one-hour lessons for youth in 4th-8th grade on topics such as designing a device to slow the fall of an object.</p>	<p>Colorado (8) Massachusetts (1) Montana (2) Nevada (1) New Mexico (2) Utah (6)</p>
<p><b>Techbridge Girls: Curriculum and Training (Year 2, Fall 2021)</b></p> <p>The Techbridge Girls: Curriculum and Trainings models provided educators with hands-on experiences, broad STEM content and career exposure, and social/emotional development activities. This is an ongoing Booster Pack that offers three different curriculum training opportunities: Ignite Program, Inspire Program, and ChangeMakers Program.</p>	<p>Alabama (2) Colorado (1) Missouri (3) Nevada (2) New Mexico (3) South Carolina (2) Virginia (2) Wisconsin (5)</p>
<p><b>Family Engagement Community of Practice with Bunmi Esho and Linda Kekelis (Year 2, Fall 2021)</b></p> <p>The Family Engagement CoP presented participants with research and promising practices for family engagement and developed an action plan to implement in their context. Participants attended six 75-minute sessions.</p>	<p>Florida (2) Massachusetts (1) Nebraska (4) New York (1) North Carolina (1) North Dakota (3) Tennessee (2) Virginia (3)</p>

2021-22 Booster Pack	Participating Sites by State
<p><b>Click2Engineering Community of Practice (Year 2, Fall 2021)</b></p> <p>The Click2Engineering CoP introduced participants to the basics of engineering and leading engineering activities with youth. Sessions were organized around the 10 Practices for an Engineering Mindset and included engineering activities, developing engineering activities for youth, and learning specific skills to facilitate engineering activities with youth.</p>	<p>Alabama (4) Alaska (3) Texas (1) Missouri (6) New Mexico (2) Nebraska (1) Pennsylvania (3) South Carolina (4) Texas (1) Virginia (1) Wyoming (1)</p>
<p><b>STEM Transitions and Handoffs with Jobs for the Future (Year 2, Winter/Spring 2021)</b></p> <p>The STEM Transitions and Handoffs Booster Pack, from Jobs of the Future, introduced teams to the conceptual and technical aspects of the Possible Futures program and critical implementation strategies using a train-the-trainer model. Participants received five, 1.5-2-hour training sessions with the "Launch Institute."</p>	<p>Maryland (3) North Carolina (3) Oregon (3) Pennsylvania (3) Vermont (3)</p>
<p><b>Maker-Centered Learning Community of Practice with the Makers + Mentors Network (Year 2, Fall 2021)</b></p> <p>The Maker-Centered Learning CoP participants attended five, 90-minute sessions where they learned about research, approaches, programs, and models that are empowering girls and young women to pursue their interests in STEM and stay engaged in these fields through maker-centered learning.</p>	<p>California (1) Hawaii (3) Idaho (4) Pennsylvania (5) Texas (1) Wyoming (6) Wisconsin (2)</p>

2021-22 Booster Pack	Participating Sites by State
<p><b>Teen Science Café (Year 2, Fall 2021)</b></p> <p>Moonshot Leaders designed and ran a series of 7 Teen Science Cafés during the school year (November – May). During the teen science cafe sessions, teens socialized over teen-friendly food and drink, had a lively conversation with a local scientist and/or engineer, and participated in a hands-on activity related to the scientist and/engineers' field.</p>	<p>Alabama (4) Indiana (1) Kentucky (2) Louisiana (1) Missouri (1) Wyoming (1)</p>
<p><b>Techbridge Girls: Curriculum and Training (Year 2, Spring 2022)</b></p> <p>The Techbridge Girls: Curriculum and Trainings models provided educators with hands-on experiences, broad STEM content and career exposure, and social/emotional development activities. This is an ongoing Booster Pack that offers three different curriculum training opportunities: Ignite Program, Inspire Program, and ChangeMakers Program.</p>	<p>New Mexico (1) Rhode Island (1) Tennessee (4) Wisconsin (1)</p>
<p><b>JFF Possible Futures (Year 2, Winter/Spring 2022)</b></p> <p>The Possible Futures Booster Pack, from Jobs for the Future (JFF) oriented Afterschool Networks to the Possible Futures curriculum which helps prepare young people to make meaningful decisions about careers. JFF facilitators assisted networks in developing an implementation plan tailer to their unique context.</p>	<p>Iowa (4) Nebraska (4) Rhode Island (4)</p>

Source: STEM Next Participant Enrollment Data as of December 14, 2022. Booster Packs that occurred primarily after April 1, 2021 are counted towards Year 2. Number of participants from each state are noted in parentheses.

Offered in	Booster Pack Reach	Network Awareness of Booster Pack
<b>Spring 2021</b>	Engineering Mindsets with Televisa Foundation and TCLift	83%
<b>Summer 2021</b>	Equity and Inclusion Community of Practice with National Girls Collaborative Project and Special Guests	83%
<b>Summer 2021</b>	Engineering Mindsets with Techbridge Girls @Home	80%
<b>Fall 2021</b>	Techbridge Girls: Curriculum and Training	83%
<b>Fall 2021</b>	Family Engagement Community of Practice with Bunmi Esho and Linda Kekelis	78%
<b>Fall 2021</b>	Click2Engineering Community of Practice	74%
<b>Winter/Spring 2021</b>	STEM Transitions and Handoffs with Jobs for the Future	70%
<b>Fall 2021</b>	Maker-Centered Learning Community of Practice with the Makers + Mentors Network	63%
<b>Fall 2021</b>	Teen Science Café	63%
<b>Winter/Spring 2022</b>	Techbridge Girls: Curriculum and Training	93%
<b>Winter/Spring 2022</b>	JFF Possible Futures	70%

Source: Network Grantee Reports. Fall 2021, N = 40; Spring 2022, N = 46; Fall 2022, N = 44.

## Appendix H: NMOST Scholarship Postcards



“


Participating in OST programs helped me become a global citizen in aspects of socioeconomics, history, and sustainability. OST exposed me to varying environmental solutions which formed my educational pathway toward environmental engineering. I am now a math major!”

**JOLENE FERNANDEZ**  
2020 NMOST Advancing Young Women  
in STEM Scholarship Recipient

**After school **WORKS**  
in New Mexico!**



SCAN ME





“

Participating in the Math, Engineering, and Science (MESA) club gave me a space for exploration in the science field. MESA allowed me to uncover my passion for engineering through my interest in flight mechanics. Aside from all the exploration events in MESA, I believe the teamwork aspect of the club was what really led me to believe I could have a job in STEM.”

**DAISY BELMARES-ORTEGA**  
2019 NMOST Advancing Young Women  
in STEM Scholarship Recipient

**After school **WORKS**  
in New Mexico!**



SCAN ME



MILLION GIRLS MOONSHOT  
A STEM NEXT INITIATIVE



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Million Girls Moonshot

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