

MILLION GIRLS MOONSHOT



FLIGHT CREW

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The Million Girls Moonshot:
ELEVATING YOUTH VOICE THROUGH THE FLIGHT CREW



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Please note: The proximity of Flight Crew member images to quotations throughout this brief do not reflect the origin of each quote. Youth contributed their perspective of the Flight Crew experience, and their quotations are shared anonymously throughout the following pages.





About the Flight Crew Experience

Lifting youth voice and inspiring STEM leaders of today and tomorrow.

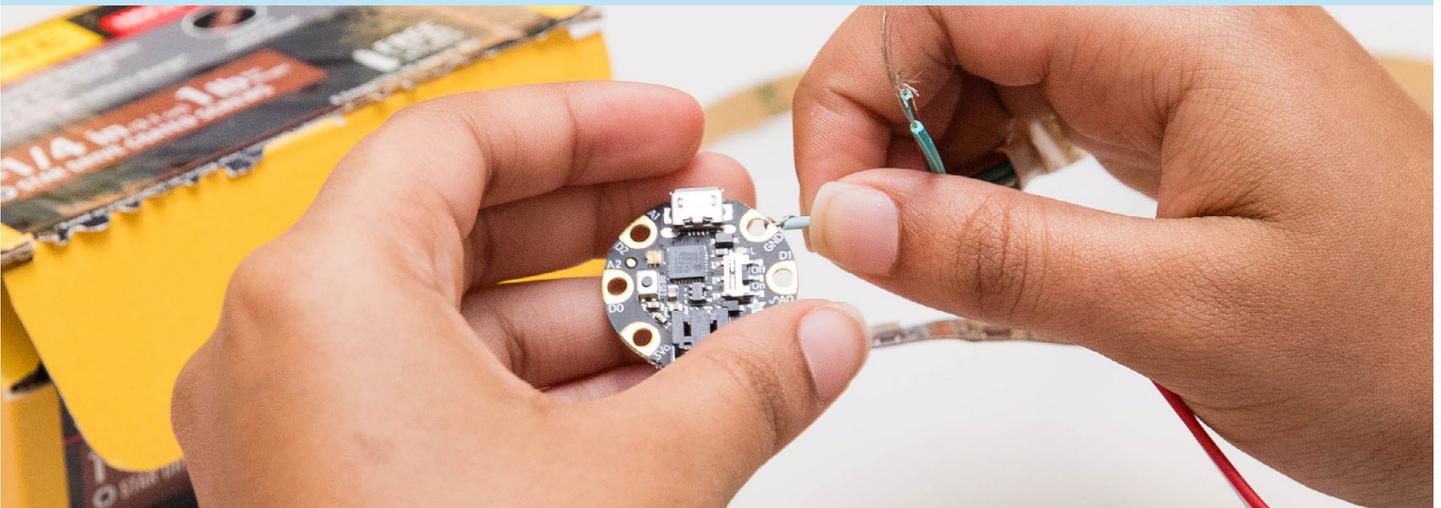
The Flight Crew is a cohort of youth advocates, ages 13-18 who identify as female or gender-expansive. They are committed to creating equity for girls in science, technology, engineering, and mathematics (STEM) by elevating youth voices and inspiring their peers and fellow future STEM leaders across the nation. This talented cadre of youth embodies the Million Girls Moonshot mission: they are committed to using afterschool and STEM learning to build a better future in which youth everywhere can envision a place for themselves in STEM.

To center youth voice in the Million Girls Moonshot initiative, STEM Next Opportunity Fund established the first cohort of the Flight Crew in 2022 with 16 members. Based on the positive feedback from this initial group of young leaders, the Flight Crew expanded to 44 members in 2023. Returning Flight Crew members from Cohort 1 served as mentors for newer members, hosting periodic team building and skill-sharing sessions with their peers, as well as providing support and guidance in person at Girls Build Solutions 2023. In 2024, the third cohort expanded to 51 youth representing all 50 states. (See page 16 for more details about this annual event.)

The Flight Crew youth-led experience is guided by STEM Next's partners at the Afterschool Alliance, whose work focuses on youth and out-of-school time (OST) advocacy. The Afterschool Alliance team facilitates all leadership development opportunities and supports the youth throughout the Flight Crew experience.

Flight Crew members participated in eight months (January – August 2023) of virtual programming during which they received leadership training, opportunities to interact with one another, public speaking and media development, and connections to role models and mentors. Throughout the experience, Flight Crew members:

- Acted as champions for out-of-school-time (OST) STEM by sharing their first-hand, impactful STEM experiences beyond the classroom.
- Worked with state leaders on relevant opportunities to advocate for policy and STEM in afterschool settings.
- Created social media content and connected with media placing a spotlight on the importance of OST STEM.
- Supported change narrative efforts to break down stereotypes and spark their peers' curiosity in STEM by connecting their STEM experiences to everyday life.
- Found affinity and friendship with other young women and gender expansive youth who shared their interests and passions.
- Attended the Flight Crew STEM Leadership experience at Girls Build Solutions.
- Gained confidence in public settings through speaking roles at the event and networking opportunities with STEM industry leaders.
- Received a \$1,000 stipend for their time and participation.



About the 2023 Flight Crew Members

Flight Crew members come from all over the United States¹

The 2023 Flight Crew members live in diverse cities and towns in 38 states and report having varying access to STEM opportunities. Thirty-eight percent of Flight Crew members live in big cities, while a moderate percentage live in mid-sized cities (28%) or small towns (28%). When asked to share about themselves and where they live, three Flight Crew members noted that since they live in an under-resourced area or attend a school with less funding than other schools, their access to STEM resources is limited. Other Flight Crew members acknowledged that they live in a place with many resources that provide them opportunities to participate in STEM offerings or activities.²

A larger proportion of Flight Crew members live in big cities.

38%
Big City

28%
Mid-Size City/
Suburb

28%
Small Town

5%
Unknown

Source: The Million Girls Moonshot Flight Crew Intake Survey Spring 2023, N = 39.

¹ Contact the Million Girls Moonshot for detailed information about the data cited in this brief.

² Source: The Million Girls Moonshot Flight Crew Intake Survey Spring 2023, N = 39.



"My high school has almost 2,000 students, and it's one of three high schools in (our county). I'm part of the Math, Engineering, and Science Academy (MESA), although unfortunately the county is currently discontinuing it. This year, I've put a ton of effort into revitalizing our robotics program to be as successful as possible. Because of these efforts we've been able to get a lot of support from our community, which has meant so much to me."

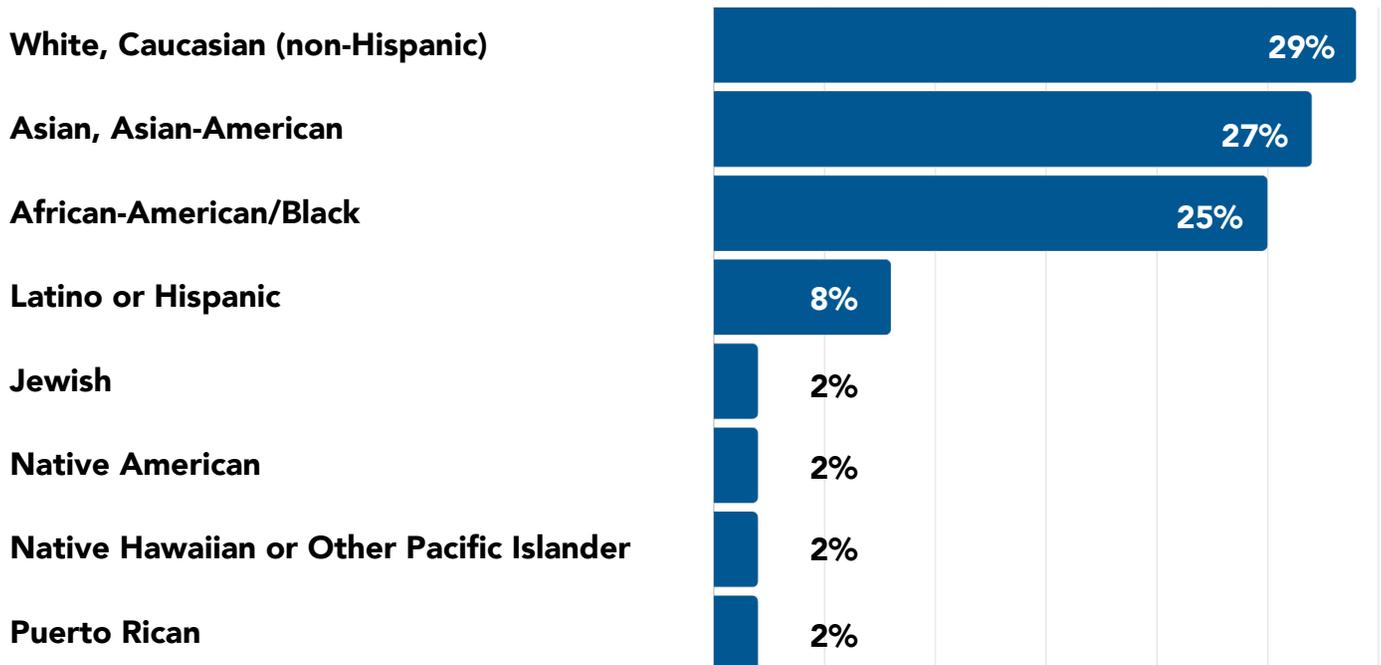
- Flight Crew Member

"Our school tends to get less attention and funding than schools in (the state), especially when it comes to STEM, but that just means that we work extra hard to make our programs better bit by bit. However, a national recognition like this is a pretty rare thing for my school, I honestly can't believe it's real or that it happened to me - I thought getting on the local news was a huge deal!"

- Flight Crew Member

The Flight Crew members are racially and ethnically diverse: over half of Flight Crew members identify as Black, Indigenous, or as a person of color (BIPOC). About one-third identify as White, Caucasian (non-Hispanic). ³

Over half of Flight Crew members identified as Black, Indigenous, and people of color (BIPOC).



³ The Million Girls Moonshot Flight Crew Intake Survey Spring 2023, N = 39.

Peer Mentorship

Eleven 2022 Flight Crew alumni returned to serve as peer mentors to the 2023 cohort. This was designed as an opportunity for young people with experience in the Flight Crew to deepen their leadership skills, gain experience in mentorship and facilitation, act as a resource to peers, and continue to build their confidence.

Working with small groups of Flight Crew members, peer mentors coordinated monthly virtual conversations on STEM-related topics and provided informal one-on-one guidance to Flight Crew members. They also coordinated ongoing messaging with members through Discord (a communication platform) and text messaging. In addition to supporting newer Flight Crew members, peer mentors shared their insights about the wants and needs of the current cohort with the adult coordinators.

Peer mentors received training from the Afterschool Alliance on the basics of facilitation and leadership and had two check-in meetings with adult staff. They additionally received a stipend for their time and attended the Girls Build Solutions event, STEM Next Opportunity Fund’s annual convening that showcases how hands-on learning and the power of women and girls can unlock the creativity and innovation our world needs most. ⁴



⁴ Learn more about Girls Build Solutions here: <https://www.girlsbuilsolutions.org>



The expanded Flight Crew evaluation

Public Profit, the Million Girls Moonshot's evaluation team, expanded the evaluation of Cohort 2's Flight Crew experience by fielding an intake survey in winter 2023, collecting responses from 39 youth. This survey focused on youth's backgrounds and their goals for their time with the Flight Crew. At the end of the program (summer 2023), the evaluation team conducted a reflection and feedback survey, collecting information from Cohorts 1 and 2, to understand what they learned and how STEM Next and the Afterschool Alliance can improve the experience.

The evaluation team also surveyed parents and caregivers of the 2023 Flight Crew to gain insights into the members' backgrounds and perspectives on the Flight Crew experience. Parent and caregiver feedback is highlighted on page 9. Note that the survey responses have varying sample sizes and therefore may not embody the experiences of all members and their parents/caregivers.

2023 Flight Crew Survey Impact and Findings

Participants reported positive outcomes from joining the Flight Crew

Flight Crew members participated in public speaking and social media trainings, mentorship calls with a panel of women in STEM, and meetings with role models. They also learned about career opportunities, advocacy, and social media for good.

Feedback from members is extremely positive. Because of their participation in the Flight Crew experience, 100% of respondents in the series-end survey agreed that they feel like they belong in STEM, are interested in pursuing a career in STEM, and feel their voice is heard. Nearly all respondents reported that they now have the tools to advocate for themselves as a female/non-binary youth in STEM (98%), feel they can advocate for others (96%), and that they improved their leadership skills (95%).⁵

The majority of series-end survey respondents commented that the best thing about being in the Flight Crew was meeting other girls (61%). One-fifth of respondents noted that they were able to expand their network (20%) and meet role models or mentors (20%). A smaller proportion of respondents shared that gaining skills and increasing knowledge was the best thing about being in the Flight Crew (10%).⁶

⁵ Source: The Million Girls Moonshot Flight Crew Reflection and Feedback Survey Spring 2023, N = 45.

⁶ Source: The Million Girls Moonshot Flight Crew Reflection and Feedback Survey Spring 2023, N = 41.





"The best thing about being in the Flight Crew is having the opportunity to meet STEM professionals through networking opportunities and conferences. I thoroughly enjoyed meeting these amazing people and learning from their STEM experiences. They are such an inspiration to me and many other young women in STEM."

- Flight Crew Member



"I got to meet two other girls interested in astrophysics and I got to meet NASA astrophysicist Alex Lockwood. Going to DC for National Youth Leadership Institute (NYLI) and speaking on Capitol Hill was also a highlight."

- Flight Crew Member



"I got to create a wide network of people/peers, meet role models, gain leadership skills, and gain more confidence to pursue my interests in STEM while helping others!"

- Flight Crew Member



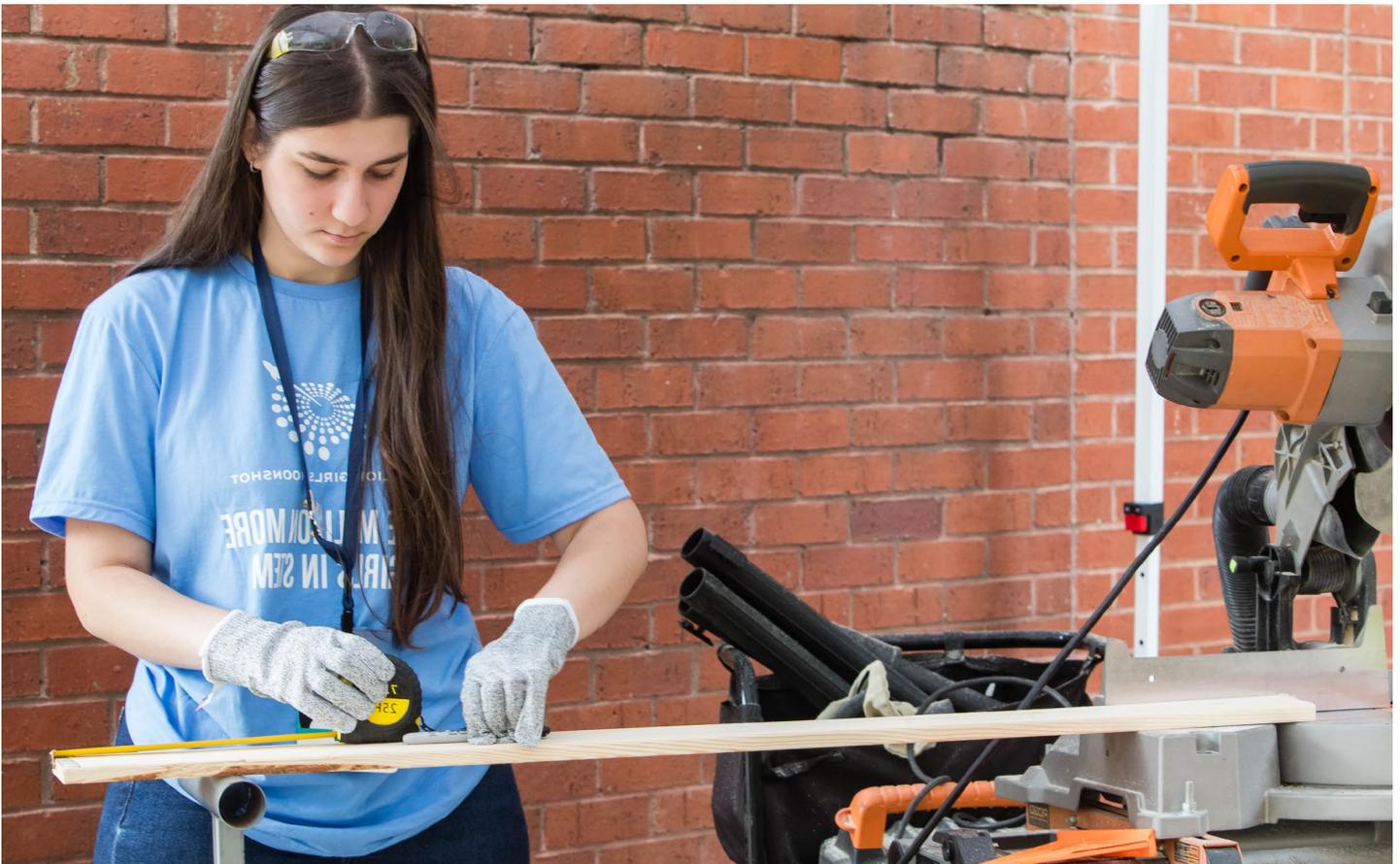
Why youth gravitated to the Flight Crew

Flight Crew members applied to the experience for a host of reasons. More than two-thirds reported wanting to be a mentor and advocate for girls and/or youth in STEM (38%) and/or to meet other girls and/or youth in STEM (38%). One-third of Flight Crew members applied to grow skills (33%); gain new opportunities and meet mentors (33%); and because they enjoy STEM activities (33%). Additionally, one-third of Flight Crew members were introduced to the opportunity by a family member, teacher, or other adult in their life (33%).⁷



"[I applied to the Flight Crew] to keep being a leader in STEM and showing others how cool math and science are. To have my voice become heard by other young girls so that they can become interested in STEM too. To form my opinion and learn more about STEM myself, that way I can launch myself as I move forward, I want it to bring opportunities so that way I can grow in my knowledge to share with others. I would [like] to be able to visit NASA since I am wanting to work there some day. I would like the opportunity to meet with other astrophysicists and see how they study the universe."

- Flight Crew Member



⁷ Source: The Million Girls Moonshot Flight Crew Intake Survey Spring 2023, N = 39.

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“When I got sent the [application] link twice, I knew it was definitely worth checking out! I’ve loved the STEM advocacy work I’ve been able to do, but from a smaller school with less established STEM funding, it feels like the work I can do is sometimes limited compared to the amazing work I see coming from massive elite schools in the Bay Area or Texas. While I am surrounded by incredibly supportive people and I am very proud of what I’ve accomplished so far, I’ve felt like I want to and can do more!”

- Flight Crew Member

“I decided to apply to Flight Crew because it feels good to be in a group of other females who appreciate the sciences like me. My school is full of geeks - male geeks. And I can’t help but wonder, where are all the female geeks? But in the rare opportunity where I do meet a teenage girl who loves the sciences as much as I do, we always click really fast. We encourage one another to work hard in our studies and go after science opportunities like internships.”

- Flight Crew Member

”

Flight Crew members catalyze change in their communities

Flight Crew members are very involved in their communities and schools. About two-thirds of Flight Crew members (60%) are mentoring, coaching, counseling, or leading workshops for junior youth. Thirty percent of members have also founded, co-founded, or led non-profits or other programs/initiatives/teams in STEM. Other members reported starting new clubs at school or working on STEM-related activities at work. Some Flight Crew members are reaching people by preparing TED Talks or writing books.⁸



"I'm currently trying to create a school book club that debates worldly topics such as the environment. I also make social media posts on my bug drawings so I can get other people interested in insects."

- Flight Crew Member



"I also advocated for more STEM funding and opportunities for youth when I was talking to my state's Congress representatives and senators in Washington DC. I asked about their current efforts and shared my story along with what I believe can be improved."

- Flight Crew Member



"I am currently involved with the All Girls STEM Society, in which we host workshops for kids in middle/elementary school. Through these workshops, we introduce different aspects of STEM."

- Flight Crew Member



"I am preparing a TED Talk for chemistry to demonstrate exo- and endo-thermic chemical reactions using Elephant Toothpaste."

- Flight Crew Member



"Mentoring at First Lego League robots. Setting up a nonprofit with apps, web activities, information, and games, as well as a phone app, to give young people the tools they need to stay in STEM. This is particularly focused on people who are in more rural situations, and do not have access to afterschool programs."

- Flight Crew Member



"Right now, I am working on my nonprofit SKATE for Girls. We teach math through figure skating for free of charge! I am a member of my high school's math team and a tutor for Mathnasium. I am also a volunteer tutor and coach at some Chicago-based organizations."

- Flight Crew Member

⁸ Source: The Million Girls Moonshot Flight Crew Intake Survey Spring 2023, N = 39.



"I invented SixFeetApart, a wearable social-distancing device using ultrasonic technology, to save lives amid the COVID-19 pandemic. My journey with inventing was featured in the New York Times, Harper's Bazaar, ABC, the Nasdaq billboard in Times Square, and with recognition from President Biden and the Royal Family. ... To amplify my outreach, I released my Amazon-bestselling book, "Innovation for Everyone: Solving Real-World Problems with STEM" to provide low-income students, especially girls, with the pathway to begin their journey with technology and community impact."

- Flight Crew Member

"The work that I am doing to spread STEM throughout my community is through Science National Honors Society. We are going to be going to schools around my community and sharing our love of STEM to other kids to get them excited. Also, with GSOSW Astronomy Club I am a student leader that supports and helps other girls by getting them excited about space and the stars. This is important because we get new members in our club that always want to learn something new about science and math."

- Flight Crew Member



Flight Crew members advocate for STEM

Flight Crew members participated in more than 28 speaking engagements throughout 2023 as panelists, speakers, and/or attendees. ⁹ One Flight Crew member was a panelist at the Society of Women Engineers (SWE) Capitol Hill Day.

Another Flight Crew member served as a keynote speaker at the STEMInist Fun Night with FIRST Ladies event hosted by Greendale Robotics Inc. at the MSOE STEM Center in Milwaukee, Wisconsin. This Flight Crew member co-lead the STEM activity night with a group of younger girls where they did activities such as making binary code bracelets, buttons of famous women scientists, spaghetti tours, and bristlebots. She is also very active at her school and started a club focusing on the environment.



"I was part of the Maryland SWE Delegation that met with the congressional staff of Maryland senators and representatives at the US Capitol. We discussed issues that impact women in STEM, and requested their support for bills such as, STEM Restart Act, Paycheck Fairness Act, Support for Increased Funding for NSF, HBCUs and K-12 Programs."

- Flight Crew Member



"Again, not really an event, however with inspiration with MGM and the Afterschool Alliance, I wanted to start a club at my school focusing on the environment. This year in school, I took AP Environmental Science, and I was very interested in making the world a better place, and I knew others were too. I worked with my teacher and started a club that met every Thursday and focused on an environmental problem each week. For example, we picked up garbage around our school, took down invasive species, started back up our school garden, and encouraged composting at lunch"

- Flight Crew Member

⁹ Source: Internal speaking engagement tracking document.

The Flight Crew offers a distinct experience for girls

What makes the Flight Crew unique? More than one-third of Flight Crew members (37%) reported that the Flight Crew stands out for the way it increases girls' exposure to opportunities, pathways, and role models. A similar proportion of youth (32%) noted that meeting other girls from different areas with a shared interest in STEM made the Flight Crew different from other opportunities they knew of. Members reported that the Flight Crew helped lift their voice (20%) and support youth (17%).¹⁰

“I think the fact that the Flight Crew is such a global thing that includes such a diverse range of individuals is what makes it so special. I was able to meet people, network, and learn more about my personal STEM journey in a matter of days. It allowed so many new opportunities and inspired kids my age who needed to see someone like me doing what they want to do. That’s not like any other STEM experience I’ve had.”

- Flight Crew Member

¹⁰ Source: The Million Girls Moonshot Flight Crew Reflection and Feedback Survey Spring 2023, N = 41

Parents and caregivers report a positive impact on their youth

Parents and caregivers echoed their kids' positive assessment of the Flight Crew. All responding parents/caregivers reported that because of their participation in Flight Crew, their child has improved leadership skills and is interested in pursuing a STEM career.¹¹

Flight Crew parents/caregivers are seeing their youth's growth in action. Eight of 11 responding parents/caregivers strongly agree (60%) or agree (20%) that their child advocates for others because of participating in the Flight Crew.¹² One Flight Crew parent/caregiver shares how this opportunity has supported their child.

"This experience has encouraged my child to take on new leadership roles in the community to support other kids in STEM. She has become our county youth 4-H STEM Ambassador and she started a science club for elementary and middle schoolers. She is making plans to get more local kids involved in the state 4-H Engineering Day. I feel like her experiences on the Flight Crew played a big role in developing her skill and confidence to attempt these things."

- Flight Crew Parent/Caregiver



"She is now more confident about her abilities and feels that the work she is doing is meaningful and making a difference. She wants to continue doing her part in promoting STEM among younger girls."

- Flight Crew Parent/Caregiver

"My child feels more confident in public speaking and advocating for others... Having an opportunity to work on professional projects was a huge boost to her confidence and experience."

- Flight Crew Parent/Caregiver



"Knowing that there are others who think like her and that their work is making a difference to the society was very heartening to her. Meeting some of the role models in STEM fields and listening to their experiences was an invaluable experience."

- Flight Crew Parent/Caregiver

¹¹ Source: Flight Crew Parent/Caregiver Survey Fall 2023, N = 11.

¹² Source: Flight Crew Parent/Caregiver Survey Fall 2023, N = 11. Remaining three respondents selected "neutral."

Elevating Youth Voice at Girls Build Solutions

In June 2023, STEM Next hosted the Flight Crew members at the second annual Girls Build Solutions (GBS) event. Flight Crew members co-designed and co-facilitated the experience, which gathered youth ambassadors, industry leaders, and nonprofit professionals from all 50 states to demonstrate the power of young women and girls in STEM. The event both celebrated the Flight Crew members' accomplishments and provided them an opportunity to share their stories and meet STEM leaders.

"GBS introduces girls to a live version of STEM where they can see professionals in real time working the jobs they want to acquire in the future. This allows them to see that their dreams are not so far out of reach, nor are they unrealistic. This encourages youth to continue following the STEM path and see all the amazing things they can do in the future. After all, if you can see it, you can be it."

- Flight Crew Parent/Caregiver

Flight Crew members participated as panelists, presenters, interviewers, and in table discussions. Highlights included talks from keynote speakers such as Dr. Alex Lockwood, NASA's Science Mission Directorate, and The Honorable Cindy Marten, U.S. Deputy Secretary of Education.

Flight Crew parents and caregivers were invited to complete a survey at the end of the event to share how Girls Build Solutions supports young people.



"GBS supports increasing youth STEM outcomes by providing youth a community of like-minded individuals to learn from, contribute to and aspire to be. GBS is a platform for out-of-the-box thinking, innovation, and creative pursuits in STEM... classrooms, community centers, clubs, and homes. GBS supports increasing youth STEM outcomes through the concept of each-one-teach-one. Empowered youth empower other youth to introduce, engage, and actively support one another. GBS supported increasing youth STEM outcomes by providing a hands-on experience and direct/up front conversations with the individuals and corporations that we're sincerely interested in promoting, improving, and increasing representation and success in STEM fields."

- Flight Crew Parent/Caregiver

Youth Identify Opportunities for Improvement

Flight Crew members had constructive feedback for the adults who designed and coordinated the Flight Crew experience for Cohort 2. Although the majority of Flight Crew members reported positively about their growth, a small proportion of youth disagreed with the statements that they improved their leadership skills (4%), have the tools to advocate for themselves as a female/non-binary youth in STEM (2%), and that they feel they can advocate for others because of the Flight Crew (4%). This feedback offers opportunities for the Flight Crew experience to grow so all youth are equally included to maximize their involvement. Strategies are underway with Cohort 3 to work with near-peer mentors to grow leadership and advocacy skills within smaller, more intimate groups alongside the whole group, as well as professional learning experiences that are also facilitated by adult STEM leaders. There is additionally an ongoing effort to make programming more responsive to the expressed needs of Flight Crew members and support more youth-led training modules.

One-third of end-of-series Cohort 2 respondents (33%) reported that going more in depth and having more group work would make the Flight Crew experience more positive. About half (49%) noted logistical items that would make the Flight Crew experience better, such as having clearer program goals, stronger communication, and meeting in-person. A handful of respondents commented that they were unable to make meetings due to their own schedules. STEM Next and the Flight Crew's adult leadership team reviewed the Flight Crew members' feedback and continue to incorporate these reflections into Cohort 3 plans. The Appendices have more detailed survey responses from youth and parents/caregivers, and a similar evaluation strategy is underway with Cohort 3 to continue to track perspectives and impact as this youth advocacy experience continues to grow and engage more young people to become STEM leaders.



Youth Leadership in STEM: The Flight Crew's Next Steps



Through its support for the Flight Crew, STEM Next Opportunity Fund continues to center and uplift youth voice in cultivating STEM experiences that are most important and valuable to the youth they support. They prioritize and see great value investing directly in growing tomorrow's STEM leaders and meaningfully involving young people in the process.

The Afterschool Alliance team has used the lessons learned from the first few Flight Crew cohorts to further enhance the experience for young people. Near-peer mentors from the previous two Flight Crew cohorts are holding leadership and mentorship roles, and programming continues to be inclusive of all youth to engage in meaningful ways. Flight Crew participants continue to take action in their communities, 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.

The Flight Crew model is inspiring other Million Girls Moonshot partners to more meaningfully engage young people in STEM leadership. State-level partners in at least three states have created their own state-level Flight Crew, providing even more opportunities for youth and girls to further and deepen their work and love of STEM in their own states..

The Flight Crew continues its third cohort in 2024 with the support of funders and staff who make the opportunity possible for young people. The third cohort includes 51 youth representing each of the 50 states where, like preceding Flight Crew members, they will learn new tools to advocate for themselves, engage in meaningful experiences, and continue to inspire other youth and girls in STEM.