

**NGCP** 

20 YEARS TRANSFORMING STEM

# Integrating STEM role models into afterschool programs





# NGCP Vision

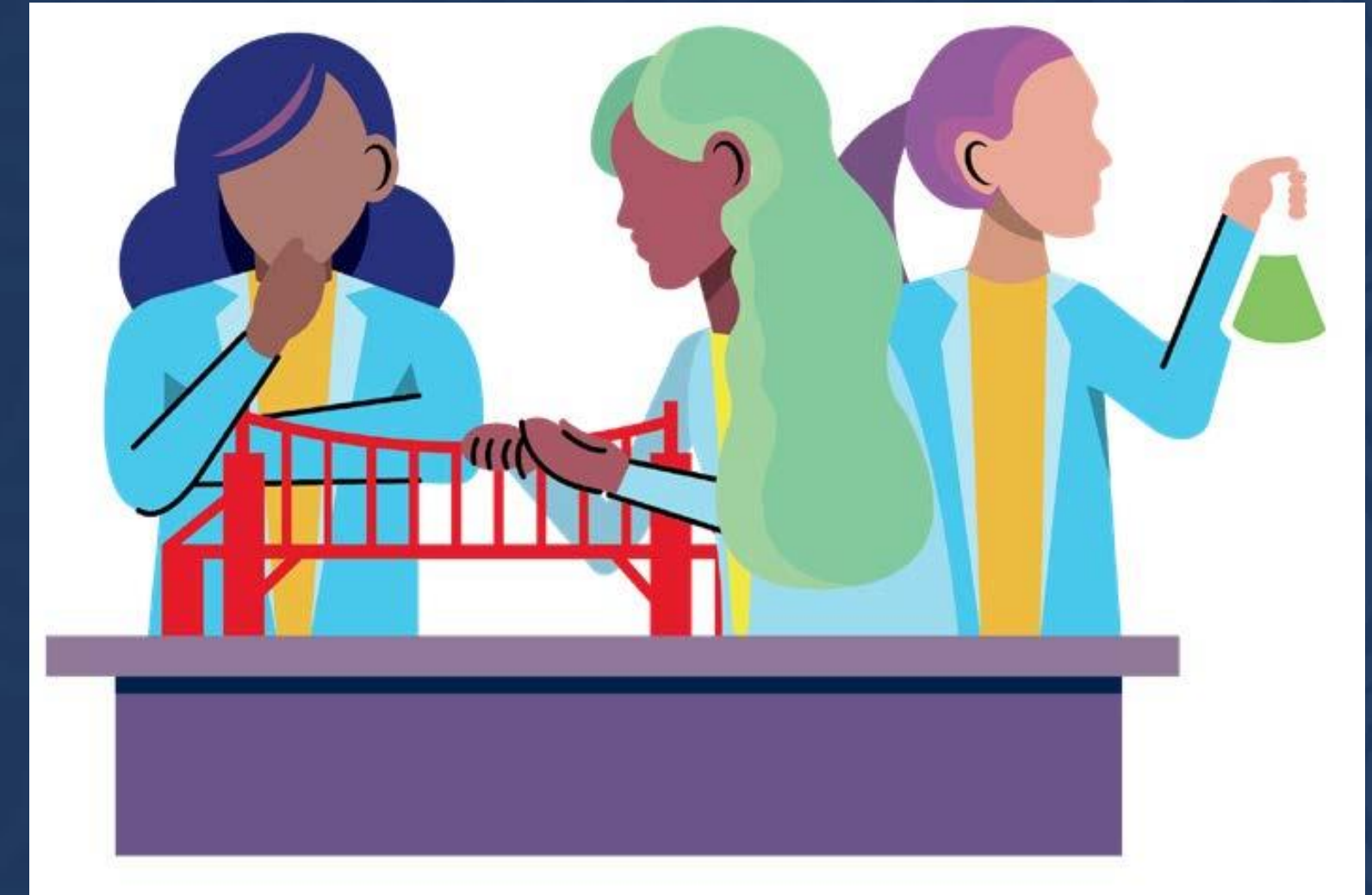
The vision of the National Girls Collaborative Project is to **support and create STEM experiences** that are as **diverse as the world we live in.**





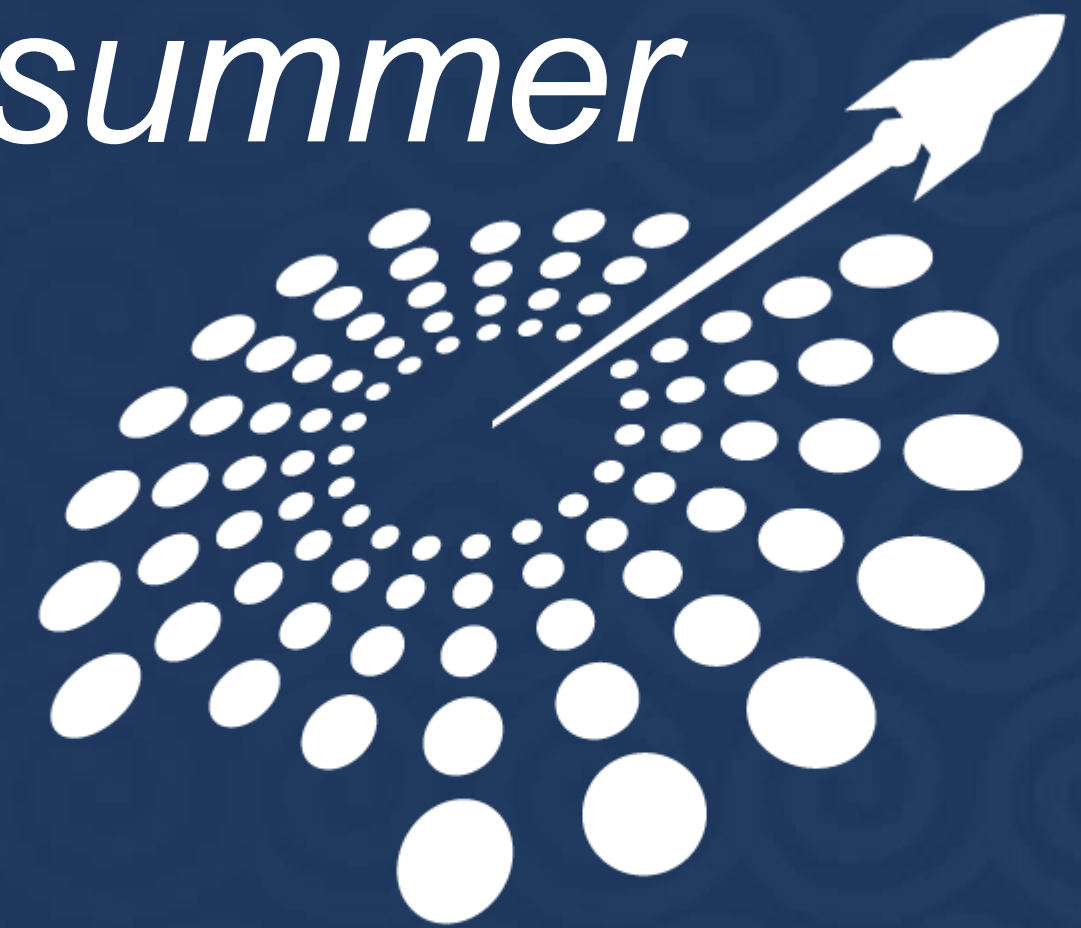
# NGCP Resources

- **National Webinars**
  - Monthly on relevant topics, speakers include educators, researchers, authors, and diverse STEM professionals
- **Monthly Newsletter**
  - National events, STEM resources for girls and youth, professional development opportunities for educators, and research and reports
- **NGCP Website**
  - Exemplary Practices pages on Engaging Girls in STEM and Access and Equity, blog posts, and statistics and research related to girls and women in STEM



# Million Girls Moonshot

*Inspire and prepare the next generation of innovators by engaging one million more girls in STEM learning opportunities through afterschool and summer programs over the next five years.*



MILLION GIRLS MOONSHOT



National Girls  
Collaborative Project



# 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.

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>



## YOUTH-CENTRIC

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

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>



## SKILL DEVELOPMENT

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

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



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# Equity in STEM

All youth are capable in STEM; youth experience STEM differently due to:

- Access (or lack of access) to high-quality STEM opportunities
- Stereotypes
- Curriculum that is/is not personally and culturally relevant
- Access (or lack of access) to relatable role models

These experiences impact youth interest, confidence, and sense of belonging in STEM and their likelihood of pursuing STEM opportunities and careers.





# Why STEM Role Models?

- Increase interest and participation in STEM
- Break down and dispel stereotypes about who belongs in STEM
- Make STEM personally and culturally relevant
- Broaden the notion of STEM fields and journeys
- Show how STEM is collaborative and social
- Help youth develop positive STEM identities





# Role Model Experiences

- In-person
- Virtual
- Via media: images, videos
- Through activities





# Recruit Role Models

Consider diversity in:

- Race
- Ethnicity
- Age
- Ability
- Background
- Career pathway
- Discipline
- STEM Story



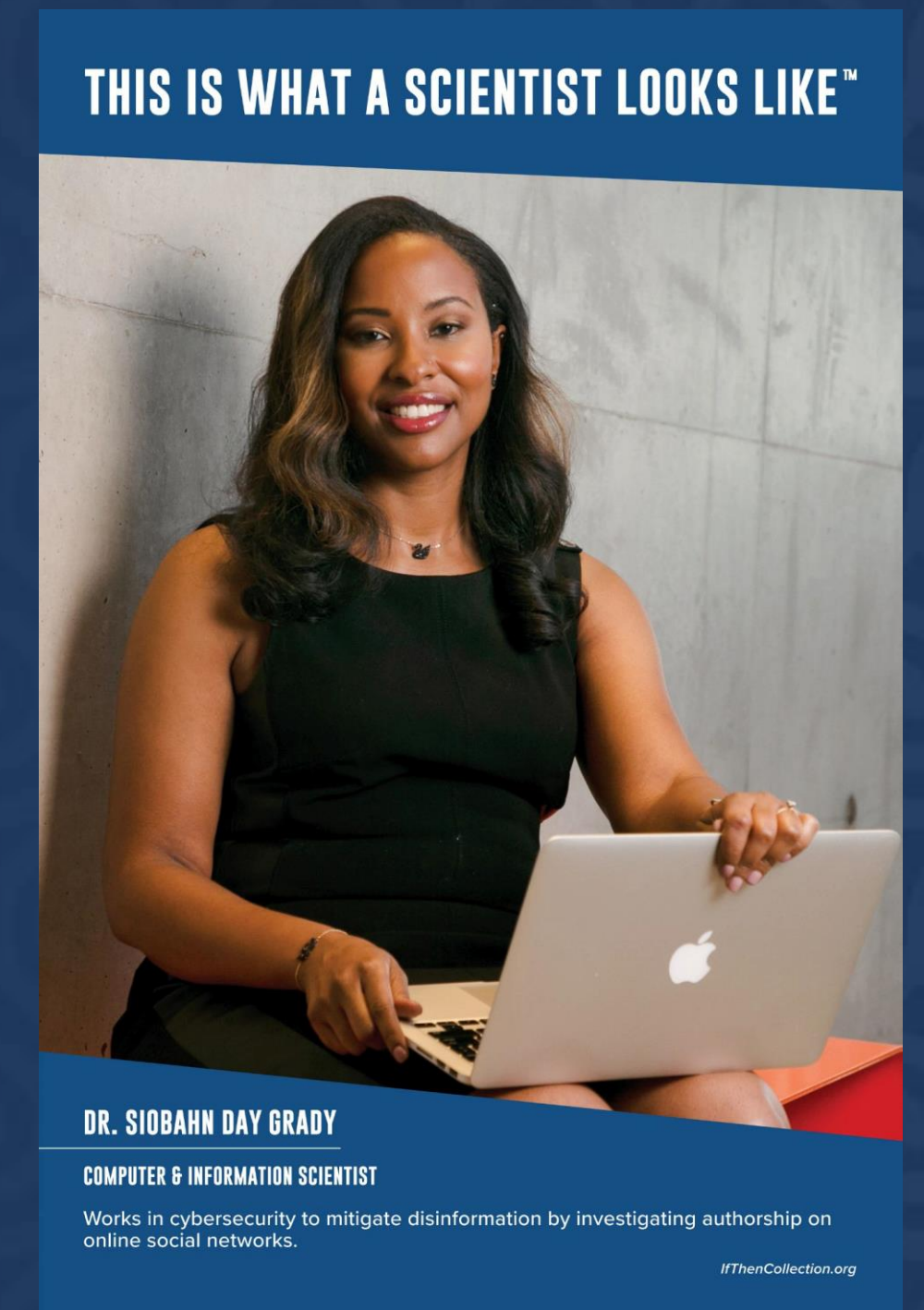
Images from IF/THEN® Collection; [www.ifthencollection.org](http://www.ifthencollection.org)





# Role Model Characteristics

- Engaging and supportive
- Relatable (meaningfully similar)
- Competent and successful, yet success is seen as attainable
- Shares STEM Journey
- Discusses life outside of their STEM career





# Reflection Questions

Think about your program and the young people in your program:

- Who would an ideal STEM role model be?
- What are their characteristics?



Image from <https://www.fabfems.org/>

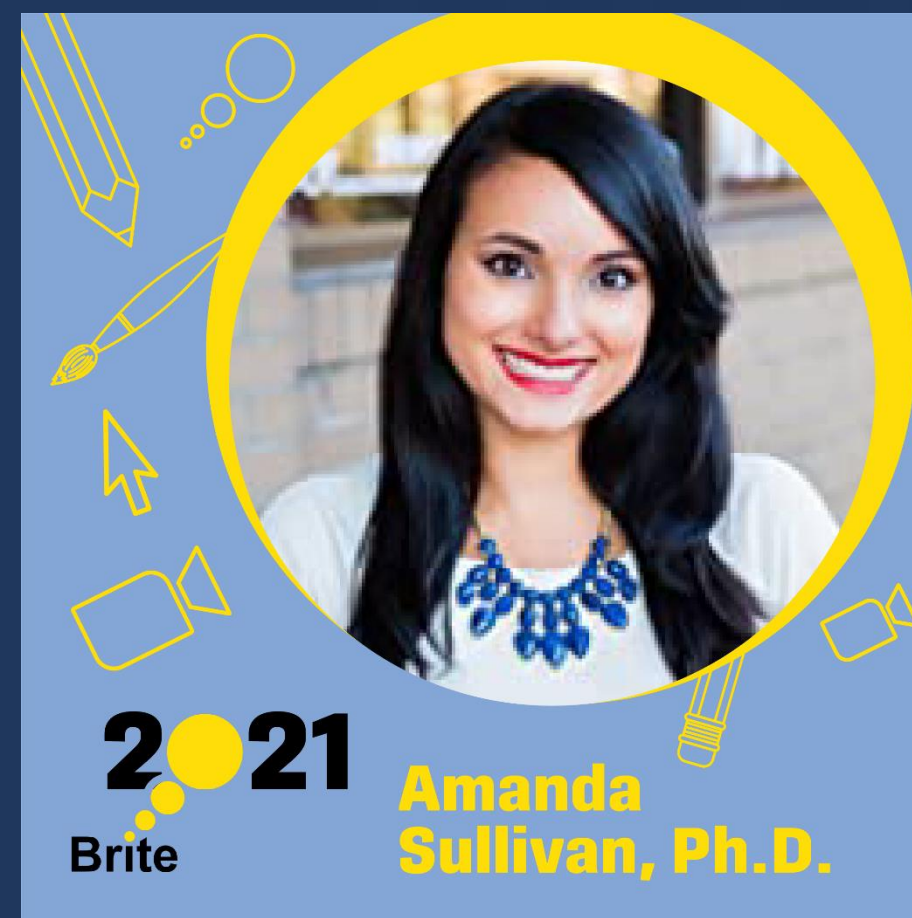




# Prepare the Role Models

## Techbridge Role Models Matter Training

- 1-hour training for STEM professionals, educators, and program staff
- Resource for role models to connect, engage, and learn
- Includes videos and reflection questions



## SciGirls

### Role Model Strategies

#### Encouraging Girls to Consider STEM Careers

Make the most of your role model experience by:

1. **Making personal connections to dispel stereotypes.**
2. **Using positive messaging.**
3. **Sharing your passion.**
4. **Making it hands-on & interactive.**
5. **Fostering a growth mindset & promoting perseverance.**
6. **Showing the way: Offering resources & guidance.**
7. **Following-up & inviting feedback.**



# Prepare Youth

## Build Community:

- Encourage conversation around STEM topics
- Share some information about the role model in advance
- Support youth in preparing questions to ask the role models





# Resources

## FabFems

**Role Model Directory:** FabFems is a national, online, searchable directory of women STEM professionals interested in outreach to girls

### Audience:

- Role Models
- Programs
- Parents/Caregivers and Girls



The screenshot shows the FabFems website homepage. At the top, there is a navigation bar with links for "About Us", "Resources", "Contact Us", "Log In", and "FAQ". The FabFems logo is prominently displayed on the left. On the right, there is a "Connect with us" button with a Facebook icon. The main content area features a large image of a smiling woman holding a folder. Overlaid on this image is the text "Share your past. Spark a future." Below this text are two buttons: "Find a Role Model" and "Become a Role Model". At the bottom left, there is a smaller image of two women in a lab setting. To the right of this image is the "About FabFems" section, which includes a brief description of the organization and a link to "Learn More About the FabFems Project".





- IF/THEN® Collection is the largest free digital library; photos and videos of women in STEM fields
- AAAS IF/THEN® Ambassadors, 125 diverse women from various STEM fields
- Activities featuring diverse role models and STEM fields





# IF/THEN® Collection





# SciGirls Role Model videos

VIDEO



## Cancer Researcher / Illustrator: Jaye Gardiner

ROLE MODEL PROFILES

Jaye is a cancer researcher and co-founded a comic about science and scientists.

VIDEO



## Welder / Instructor: Seven Bailey

ROLE MODEL PROFILES

Meet Seven Bailey, a welder/instructor at Dunwoody College of Technology.

VIDEO



## Bióloga | Biologist: Amelia Merced

ROLE MODEL PROFILES

Dr. Amelia is a microscopist in Puerto Rico researching plant development and diversity.







**20 YEARS** OF TRANSFORMING STEM

Learn more at [ngcproject.org](https://ngcproject.org)