

PROMISING PRACTICES

For Engaging Girls in STEM in OST

Program Self-Assessment Tool

Purpose:

- 1. **Assess Program Quality:** Rate program performance based on the Promising Practices. Engage perspectives of staff, youth, families, school, and community partners.
- 2. **Plan:** Generate and implement an action plan for program enhancement and direct resources towards implementation of the Promising Practices. Guide professional development for staff. Identify and celebrate strengths.
- 3. **Enhance Program Quality:** Implement the action plan, taking time to reflect on progress along the way. Once key goals are met, re-assess and update the action plan accordingly.

1) Celebrate Diversity 3,13,21,23,25 Design programs to be girl-centric and culturally responsive. Don't assume that all girls are alike. How girls encounter the world is influenced not only by gender, but their unique demographic, geographic, and psychological make up. Incorporate girls' unique interests, identities, cultures, and abilities into the STEM learning experiences. Ensure that all girls have the opportunity to participate, regardless of zip code, income, or background.	Doing It!
	Trying it
	Not Yet
Notes:	
2) Create Safe Spaces and Sense of Belonging 3,11,12,21,25,28 Create safe places where girls feel they belong and fit in. Safe spaces for girls include physical safety as well as emotional and social safety. Design your program space with culturally-diverse and girl-friendly images and materials that counter stereotypes of who does STEM. Give girls opportunities to share their opinions, collaborate on projects, and build trusting relationships.	Doing It!
	Trying it
	Not Yet
Notes:	
3) Start Early and Keep it Going 3,6,7,13,14,19,20,21,28,30 Spark girls' interest in STEM early. Girls are born as young scientists with a natural curiosity about the world. Yet many girls start to lose confidence and interest in STEM as early as third grade. By high school, gaps in interest are significant, with many girls no longer considering STEM pathways. Continue to inspire and engage girls in STEM at all ages as they make decisions about who they are and whether they are good at and like STEM.	Doing It!
	Trying it
	Not Yet
Notes:	
4) Invite Girls to Change the World through STEM Girls have a strong desire to change the world. They are more attracted to STEM when they can use it to help others and their communities. Design hands-on STEM learning that is relevant to girls' everyday culture and experiences. Empower girls to use STEM to solve real problems in their communities.	Doing It!
	Trying it
	Not Yet
Notes:	



5) Elevate the Voices of Girls Invite girls to design, plan, and implement STEM education activities. Empower girls to share their opinions and make choices about their STEM learning. Provide opportunities for girls to step up as leaders and mentors. Design events, such as family STEM nights, that put girls in charge and in the spotlight. Create a learning environment where girls and boys are invited and encouraged equally to express their ideas. Equip girls with strategies to communicate effectively and confidently, especially in traditionally male-dominated educational and work environments.	Doing It!
	Trying It
	Not Yet
Notes:	
6) Create Opportunities for Mastery 4,21,26,28,30 Encourage girls to get out of their comfort zone, try ideas, and explore how things work. Introduce girls to new tools, technology, and ideas. Teach girls to embrace failure as a natural part of learning. Empower girls to master new skills, develop grit, and build confidence.	Doing It!
	Trying it
	Not Yet
Notes:	
7) Involve Families Create welcoming spaces for families to explore STEM with their daughters. Invite families to share their input in program design. Recognize the diverse perspectives of families in outreach and communication. Educate parents about STEM opportunities and career pathways that boost their daughters' talent and potential. Acknowledge the discomfort and uncertainty parents may feel about STEM. Let parents know that they don't need to be the experts or have the answers; it's their encouragement that matters most.	Doing It!
	Trying it
	Not Yet
Notes:	
8) Engage Female Role Models and Mentors "You can't be what you can't see." Create opportunities for girls to interact with female STEM role models with whom they can identify. Ask role models to share personal stories and how their careers make the world a better place. Invite role models to help girls see beyond stereotypes, create a positive STEM identity, and imagine themselves as future scientists and experts in STEM careers.	Doing It!
	Trying it
	Not Yet
Notes:	



9) Connect with Community Partners 7,14,19,20,21,22,25,28 Foster opportunities for girls to learn from community partners and to experience STEM in different settings. Invite diverse community partners to OST programs to interact with girls. Bring together partners in education, business, cultural institutions, youth development, government, and others to collaborate, coordinate, and grow STEM learning and career pathway opportunities for girls.	Doing It!
	Trying it
	Not Yet
Notes:	
10) Explore Career Pathways Introduce girls to a wide variety of STEM career and education pathways. Open doors for girls to identify their interests and explore how they connect with STEM careers. Engage New Mexico STEM industry partners to help girls see how STEM solves real-world challenges.	Doing It!
	Trying it
	Not Yet
Notes:	
11) Provide Training and Resources for Afterschool Professionals Equip OST staff with training, curricula, and materials that boost their ability and confidence to inspire girls with STEM. Introduce staff to quality, real-world, girl-friendly STEM curricula. Educate staff about the inquiry process and strategies for creating a learning culture that empowers both girls and boys. Encourage staff to use indoor and outdoor spaces creatively to foster girls' curiosity and exploration. Engage outside STEM experts as trainers for staff and to facilitate hands-on learning with girls.	Doing It!
	Trying it
	Not Yet
Notes:	
12) Assess Results and Measure Impact Ask questions and collect feedback from girls, families, staff, community partners, and others. Measure changes in STEM skills, knowledge, and attitudes among girls and families. Measure impact on staff development and community partnerships. Use results to inform program design and ongoing quality improvement. Share and publish results.	Doing It!
	Trying it
	Not Yet
Notes:	



REFERENCES:

- 1. Afterschool Alliance: "Defining Youth Outcomes for STEM Learning in Afterschool": https://www.afterschoolalliance.org/STEM Outcomes 2013.pdf
- 2. Afterschool Matters: "Effective STEM Programs for Adolescent Girls" by Harriet S. Mosatche, Susan Matloff-Nieves, Linda Kekelis, and Elizabeth K. Lawner:
 - http://niost.org/images/pdf/afterschoolmatters/asm_2013_17_spring/ASM_2013_spring_6.pdf
- 3. American Association of University Women: "The STEM Gap: Women and Girls in Science, Technology, Engineering and Math": https://www.aauw.org/resources/research/the-stem-gap/
- 4. Click 2 Science PD: "Self-directed Web Lessions: Teaching STEM": https://click2sciencepd.org/teaching-stem/
- 5. Discovery Education: "5 Ways STEM Inspires Students to Change the World", 2017
- 6. Education and Career News: "Engaging Girls in STEM Starts in Kindergarten": https://www.educationandcareernews.com/stem-education/engaging-girls-in-stem-starts-in-kindergarten/
- 7. Edutopia: "Making STEM Accessible to All": https://www.edutopia.org/article/making-stem-accessible-all
- 8. Expanding STEM Learning: STEM in Afterschool System-Building Tool Kit: http://expandingstemlearning.org/measure
- 9. Florida Advanced Education Technological Center: "Recruiting and Retaining Girls in STEM: A Best Practices Guide": http://flate.org/flip/BP/Girls%20BP%209 20A 14.pdf
- 10.Forbes: "Girls, If You Want to Change the World, Try STEM", Talia Milgrom-Elcott:
 - https://www.forbes.com/sites/taliamilgromelcott/2018/09/11/girls-if-you-want-to-change-the-world-try-stem
- 11.Frontiers in Psychology: "The Gender Gap in STEM Fields: The Impact of the Gender Stereotype of Math and Science on Secondary Students' Career Aspirations", Elena Makarova, Belinda Aeschlimann, Walter Herzog: https://www.frontiersin.org/articles/10.3389/feduc.2019.00060/full
- 12. Futurity: "Women Don't Feel Welcome in STEM Fields": https://www.futurity.org/women-stem-careers-1272552-2/
- 13.Getting Smart: "Empowering Girls to Become Future STEM Stars": Interview with Blair Blackwell, Manager of Education and Corporate Programs at Chevron, and Nikole Collins-Puri, CEO of Techbridge Girls:

 https://www.gettingsmart.com/2016/12/10/empowering-girls-to-become-future-stem-stars/
- 14.Girl Scouts: "Generation STEM: What Girls Say about Science, Technology, Engineering and Math": https://www.girlscouts.org/content/dam/girlscouts-gsusa/forms-and-documents/about-girlscouts/research/generation_stem_tips_for_girls.pdf
- 15.Indiana Afterschool Network: "Indiana Afterschool STEM Standards": https://www.indianaafterschool.org/indiana-afterschool-standards/
- 16.Informal Science: "Strengthening After-School STEM Staff Development":
 - https://www.informalscience.org/sites/default/files/Strengthening After-School STEM Staff Development.pdf
- 17.International Technology and Engineering Educators Association: "How to Recruit Women and Girls to the Science, Technology, Engineering, and Math (STEM) Classroom": https://www.iteea.org/File.aspx?id=137394&v=340d4cae
- 18.National PTA: STEM Plus Families: STEM and Families: Increasing Students' Access to Opportunities in STEM by Effectively Engaging Families: https://www.pta.org/From_S3/Images/STEM_Whitepaper_FINAL.pdf
- 19.National Science Foundation: "Babies are Born Scientists: https://www.nsf.gov/news/news_summ.jsp?cntn_id=125575
- 20.National Science Foundation: "Belonging can help keep talented female students in STEM classes": https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=189603
- 24 Cai Cirla (Cai Cirla Chuata dia a Harrita Francia Cirla in CTEM")
- 21.Sci Girls: "Sci Girls Strategies: How to Engage Girls in STEM": https://www.scigirlsconnect.org/wp-content/uploads/2019/06/SciGirls-Strategies-Guide.pdf
- 22.STEM Ecosystems: "Changing the Game in STEM with Family Engagement: A White Paper for Practitioners and Field Leaders to Empower Families in STEM": https://stemnext.org/changing-the-game-in-stem-with-family-engagement/
- 23.STEM Next: Measuring the Quality and Impact of Afterschool STEM Programs: https://stemnext.org/measuring-quality-impact-afterschool-stem-programs/
- 24.STEM Next: Equity and Inclusion Framework: https://stemnext.org/wp-content/uploads/2020/11/Equity-and-Inclusion-framework-11-24-20.pdf
- 25.Techbridge: "Changing the Game for Girls in STEM: A White Paper on Best Practices and Learnings from Leaders in the Field", Kara Sammet, Ph.D., Research & Evaluation Manager, Techbridge Linda Kekelis, Ph.D., Founder & Former CEO, Techbridge: https://www.chevron.com/-/media/chevron/stories/documents/changing-the-game-for-girls-in-stem-white-paper.pdf
- 26.The Girls Rise: "Girls, Equity and STEM in Informal Learning Settings: A Review of Literature", 2013
- 27. The Pear Institute: Partnerships in Education and Resilience: https://www.thepearinstitute.org
- 28. The Women's Foundation of Colorado: "This is What STEM Looks Like! How to Get and Keep Girls Engaged in Science, Technology, Engineering and Math": https://www.wfco.org/girlsinstem
- 29.U.S. White House National Science and Technology Council: "Charting a Course for Success: America's Strategy for STEM Education": https://www.energy.gov/sites/default/files/2019/05/f62/STEM-Education-Strategic-Plan-2018.pdf
- 30. Venture Labs: Engage Girls in STEM: Let Them Learn from Failure", Dr. Cristal Glangchai: https://venturelab.org/engage-girls-in-stem-let-them-learn-from-failure/
- 31. Marian Wright Edelman: activist and author



